



Introduction



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This document provides information about the IOS XE software release for the Cisco NCS 4206 and Cisco NCS 4216 beginning with Cisco IOS XE Release 3.18SP.

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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 its 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 F2B

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 F2B can also be positioned as a Carrier Ethernet aggregation platform.

The Cisco NCS 4216 F2B is a cost optimized, fully redundant, centralized forwarding, extended temperature, and flexible pre-aggregation router.

For more information about the Cisco NCS 4216 F2B Chassis, see the [Cisco NCS 4216 F2B Hardware Installation Guide](#).

NCS 4216 14RU

The Cisco NCS 4216 14RU 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 14RU chassis, see the [Cisco NCS 4216 14RU 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 Supported Interface Modules

Supported Interface Modules



Note If the **license feature service-offload enable** command is configured, then the NCS4200-1T8LR-PS IM is not supported in the router for RSP3.



Note There are certain restrictions in using the interface modules on different slots in the chassis. Contact Cisco Sales/Support for the valid combinations.



Note FAN OIR is applicable every time the IM based fan speed profile is switched to NCS4200-1H-PK= and NCS4200-2Q-P interface modules. Even though the IMs remain in the Out-of-Service state, they are still considered as present in the chassis.

Table 1: NCS420X-RSP Supported Interface Modules and Part Numbers

RSP Module	Supported Interface Modules	Part Numbers	Slot
NCS420X-RSP	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
	8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module	NCS4200-1T16G-PS	0,3,4, and 5
	1-port OC-192 Interface module or 8-port Low Rate Interface Module	NCS4200-1T8S-10CS	2,3,4, and 5
	NCS 4200 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module	NCS4200-1T8S-20CS	2,3,4, and 5 ¹
	48-port T1/E1 CEM Interface Module	NCS4200-48T1E1-CE	All
	48-port T3/E3 CEM Interface Module	NCS4200-48T3E3-CE	All
	2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE) ²	NCS4200-2H-PQ	4,5
	1-port OC48 ³ / STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-port T1/E1 + 4-Port T3/E3 CEM Interface Module	NCS4200-3GMS	2,3,4, and 5

¹ These slots are supported on 10G or 20G mode.

² IM supports only one port of 100G with RSP3 as QSFP28 on Port 0 in both slots 4 and 5.

³ If OC48 is enabled, then the remaining 3 ports are disabled.

Table 2: NCS420X-RSP-128 Supported Interface Modules and Part Numbers

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 T1/E1 CEM Interface Module	NCS4200-8E1T1-CE	All
	1-port OC48 ⁴ / STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-port T1/E1 + 4-Port T3/E3 CEM Interface Module	NCS4200-3GMS	2,3,4, and 5

⁴ If OC48 is enabled, then the remaining 3 ports are disabled.

Cisco NCS 4216 Supported Interface Modules

For information on supported interface modules, see [Supported Interface Modules](#).

Swapping of Interface Modules

The following Ethernet interface modules support swapping on the Cisco NCS4216-RSP module:

Use the **hw-module subslot default** command before performing a swap of the modules to default the interfaces on the interface module.

- SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE)
- 2-port 40 Gigabit Ethernet Interface Module (2X40GE)
- 8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module
- 8-port 10 Gigabit Ethernet Interface Module (8X10GE)
- 1-port 100 Gigabit Ethernet Interface Module (1X100GE)
- 2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE)

Use of **hw-module subslot default** command is not supported on the following interface modules.

- OC-192 Interface Module with 8-port Low Rate CEM Interface Module (10G HO / 10G LO)
- 48 T1/E1 TDM Interface Module (48XT1/E1)
- 48 T3/E3 TDM Interface Module (48XT3/E3)
- 1-port OC48 STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module
- NCS 4200 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module



Note If the **license feature service-offload enable** command is configured, then the NCS4200-1T8LR-PS IM is not supported in the router for RSP3.



Note There are certain restrictions in using the interface modules on different slots in the chassis. Contact Cisco Sales/Support for the valid combinations.

Table 3: NCS4216-RSP Supported Interface Modules and Part Numbers

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
	1-port 100 Gigabit Ethernet Interface Module (1X100GE)	NCS4200-1H-PK	7,8
	2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE) ⁵	NCS4200-2H-PQ	7,8
	2-port 40 Gigabit Ethernet QSFP Interface Module (2X40GE)	NCS4200-2Q-P	3,4,7,8,11,12
	8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module	NCS4200-1T16G-PS	All slots
	1-port OC48 ⁶ / STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-port T1/E1 + 4-Port T3/E3 CEM Interface Module	NCS4200-3GMS	All slots
	8-port 10 Gigabit Ethernet Interface Module (8X10GE)	NCS4200-8T-PS	3,4,7,8,11,12
	1-port OC-192 Interface Module with 8-port Low Rate CEM Interface Module (5G/ 10G HO / 10G LO)	NCS4200-1T8S-10CS	3,4,7,8,11,12 (10G mode) 0,1,2,5,6,9,10,13,14,15 (5G mode) Note To enable this IM on slot 0 or slot 1, do the following and reload the router: <pre>Router# configure t Router(config)# license feature service-offload enable</pre>
	NCS 4200 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module	NCS4200-1T8S-20CS	3,4,7,8,11,12 (20G mode) 0,1,2,5,6,9,10,13,14,15 (10G mode) Note To enable this IM on slot 0 or slot 1, do the following and reload the router: <pre>Router# configure t Router(config)# license feature service-offload enable</pre>
	48-port T1/E1 Interface module	NCS4200-48T1E1-CE	2,3,4,5,6,7,8,9,10,13,14,15

RSP Module	Interface Modules	Part Number	Slot
	48-port T3/E3 Interface module	NCS4200-48T3E3-CE	2,3,4,5,6,7,8,9,10,13,14,15

⁵ IM supports only one port of 100G with RSP3 as QSFP28 on Port 0 in both slots 7 and 8.

⁶ If OC48 is enabled, then the remaining 3 ports are disabled.

Cisco NCS 4216 F2B Supported Interface Modules

For information on supported interface modules, see [Supported Interface Modules](#).

Swapping of Interface Modules

The following interface modules support swapping on the Cisco NCS4216-RSP module:

- SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE)
- 2-port 40 Gigabit Ethernet Interface Module (2X40GE)
- 8-port 10 Gigabit Ethernet Interface Module (8X10GE)
- 1-port 100 Gigabit Ethernet Interface Module (1X100GE)
- 2-port 100 Gigabit Ethernet Interface Module (2X100GE)
- 8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module
- 1-port OC-192 Interface Module with 8-port Low Rate CEM Interface Module (10G HO / 10G LO)
- 48-port T1/E1 TDM Interface Module (48XT1/E1)
- 48-port T3/E3 TDM Interface Module (48XT3/E3)
- 1-port OC 482/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-port T1/E1 + 4-Port T3/E3 CEM Interface Module (NCS4200-3GMS)
- 1-Port 10 Gigabit MR and 8-Port LR 20 Gigabit CEM and iMSG Interface Module (NCS 4200-1T8S-20CS)

Use the **hw-module subslot default** command before performing a swap of the modules to default the interfaces on the interface module.

See the *Cisco NCS 4216 Router Hardware Installation Guide* for information on Supported Interface Modules on the RSP.



Note If the **license feature service-offload enable** command is configured, then the NCS4200-1T8LR-PS IM is not supported in the router for RSP3.



Note There are certain restrictions in using the interface modules on different slots in the chassis. Contact Cisco Sales/Support for the valid combinations.

Table 4: Cisco NCS4216-RSP Supported Interface Modules and Part Numbers

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
	1-port 100 Gigabit Ethernet Interface Module (1X100GE)	NCS4200-1H-PK	7,8
	2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE) ⁷	NCS4200-2H-PQ	7,8
	2-port 40 Gigabit Ethernet QSFP Interface Module (2X40GE)	NCS4200-2Q-P	3,4,7,8,11,12
	8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module	NCS4200-1T16G-PS	All slots
	8-port 10 Gigabit Ethernet Interface Module (8X10GE)	NCS4200-8T-PS	3,4,7,8,11,12
	1-port OC-192 Interface Module with 8-port Low Rate CEM Interface Module (5G/ 10G HO / 10G LO)	NCS4200-1T8S-10CS	3,4,7,8,11,12 (10G mode) 0,1,2,5,6,9,10,13,14,15 (5G mode)
	NCS 4200 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module	NCS4200-1T8S-20CS	3,4,7,8,11,12 (20G mode) 0,1,2,5,6,9,10,13,14,15 (10G mode)
	48XT1/E1 Interface module	NCS4200-48T1E1-CE	2,3,4,5,6,7,8,9,10,13,14,15
	48XT3/E3 Interface module	NCS4200-48T3E3-CE	2,3,4,5,6,7,8,9,10,13,14,15
	1-port OC48 ⁸ / STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-port T1/E1 + 4-Port T3/E3 CEM Interface Module	NCS4200-3GMS	All slots

⁷ IM supports only one port of 100G with RSP3 as QSFP28 on Port 0 in both slots 7 and 8.

⁸ If OC48 is enabled, then the remaining 3 ports are disabled.

Restrictions and Limitations for Cisco NCS 4206 and Cisco NCS 4216



Note The error message "PLATFORM-1-NOSPACE: SD bootflash : no space alarm assert" may occur in the following scenarios:

- Any sector of SD Card gets corrupted
- Improper shut down of router
- power outage.

This issue is observed on platforms which use EXT2 file systems.

We recommend performing a reload of the router. As a result, above alarm will not be seen during the next reload due to FSCK(file systems check) execution.

However, If the error persists after a router reload, we recommend to format the bootflash or FSCK manually from IOS.

-
- In the Cisco IOS XE 16.12.1 release, IPSec is not supported on the Cisco RSP3 module.
 - VT PMON is not supported.
 - 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 1-port OC-192 or 8-port low rate CEM interface module.
 - Port restriction on 1-port OC-192 or 8-port low rate CEM interface module. If you have OC-48 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.
 - 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.
- DCC is supported only on PPP encapsulation. It is not supported on CLNS encapsulation.
- If oversubscription is enabled on 8-port 10 Gigabit Ethernet interface module, PTP is 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 bi-directionally at the line rate.

- In the Cisco IOS XE 17.1.1 release, the EVPN EVI type is VLAN-based by default, and while configuring for the EVPN EVI type, it is recommended to configure the EVPN EVI type as VLAN-based, VLAN bundle and VLAN aware model.
- 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.

ROMMON Version

For software upgrade later than the Cisco IOS XE 16.9.x release, it is mandatory that you upgrade the ROMMON version to 15.6(49r)S.

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 5: 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	NCS 4206-RSP3	NCS 4216-RSP3	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	—	—	—	—	—

	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	NCS 4206/178S/20CS	NCS 4203/3GMS	8x10G FPGA	2x40G FPGA	1x100G FPGA
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	—	—	—
IM FPGA	16.8.1	1.22	1.22	1.15	—	2.0	0.22	0.22	0.20
CEM FPGA		0x46470046	0x46470046	5G mode: 0x10780059 10G mode: 0x10670075	—	0x10380039	—	—	—

	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	NCS 4206-1T8S-2DCS	NCS 4203GMS	8x10G FPGA	2x40G FPGA	1x100G FPGA
IM FPGA	16.9.1	1.22	1.22	1.15	—	2.0	0.22	0.22	0.20
CEM FPGA		0x50090050	0x50060050	5G mode: 0x10070062 10G mode: 0x10480078	—	0x10520063	—	—	—
IM FPGA	16.10.1	1.22	1.22	1.15	—	2.0	0.22	0.22	0.20
CEM FPGA		0x50090050	0x50060050	5G mode: 0x10070062 10G mode: 0x10480078	—	0x10520063	—	—	—
IM FPGA	16.11.1	1.22	1.22	1.15	—	2.0	0.22	0.22	0.20
CEM FPGA		0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	—	0x10820063	—	—	—
IM FPGA	16.12.1	1.22	1.22	1.15	0.80	2.0	0.22	0.22	0.20
CEM FPGA		0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	10G mode: 0x10260046 20G mode: 0x10710047	0x10050071	—	—	—

	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	NCS 400-178S-20CS	NCS 400-303GMS	8x10G FPGA	2x40G FPGA	1x100G FPGA
IM FPGA	16.12.2	1.22	1.22	1.15	0.80	2.0	0.22	0.22	0.20
CEM FPGA		0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	10G mode: 0x10260046 20G mode: 0x10710047	0x10050071	—	—	—
IM FPGA	17.1.1	1.22	1.22	1.15	0.80	2.0	0.22	0.22	0.20
CEM FPGA		0x52050052	0x52310052	5G mode: 0x10180062 10G mode: 0x10510078	10G mode: 0x10770047 20G mode: 0x10710047	0x10060071	—	—	—

Documentation Updates

Rearrangement in the Configuration Guides

- The following are the modifications in the CEM guides.
 - Introduction of the Alarm Configuring and Monitoring Guide:

This guide provides the following information:

 - Alarms supported for SONET and SDH, and their maintenance
 - Alarm profiling feature
 - Auto In-Service States for cards, ports, and transceivers
 - Rearrangement of Chapter and Topics in the Alarm Configuring and Monitoring Guide:
 - The Auto In-Service States Guide is now a chapter inside the Alarms Configuring and Monitoring Guide.
 - Alarms at SONET Layers topic in the following CEM guides, is added to the Alarms Configuring and Monitoring Guide:

- 1-Port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module Configuration Guide
- The Alarm History and Alarm Profiling chapters are removed from the below CEM Technology guides, and added into the Alarm Configuring and Monitoring Guide:
 - 1-Port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module Configuration Guide

Additional References

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

Supported MIBs		
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)
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	IPROUTE-STD-MIB (RFC 2932)	CISCO-FRAME-RELAY-MIB
CISCO-IGMP-FILTER-MIB	MPLS-LDP-GENERIC-STD-MIB (RFC 3815)	

MIB Documentation

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