



## New Features

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

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- [New Hardware Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.8.1b, on page 5](#)

## New Software Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.8.1b

- **16K EFP Support on Port Channel**

16K EFPs on port channel are supported.

For more information, see the Quality of Service Configuration Guidelines, Cisco IOS XE Fuji 16.8.x (Cisco NCS 4200 Series).

- **Far-end Performance Monitoring Support**

The far-end counters for performance monitoring counters are supported for the following interface modules:

- 48-Port T1/E1 CEM Interface Module
- 48-Port T3/E3 CEM Interface Module
- 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
- 1-Port OC-192 or 8-Port Low Rate CEM Interface Module

The output for the following **show controllers** commands are updated for far-end counters:

- show controllers t1
- show controllers e1
- show controllers t3
- show controllers e3
- show controllers sonnet

For more information on performance monitoring, see the

- [48-Port T1/E1 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [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, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

For more information on the updated commands, see the [Cisco IOS Interface and Hardware Component Command Reference](#).

#### • **Loopback Remote on T1 and T3 Interfaces**

Loopback remote configuration is supported. The loopback remote configuration attempts to put the far-end T1 or T3 interfaces into a loopback. The loopback remote setting loops back the far-end at line or payload, using inband bit-orientated CDE (IBOC) or the ESF loopback codes to communicate the request to the far-end. This feature is supported on the following interface modules:

- 48-Port T1/E1 CEM Interface Module
- 48-Port T3/E3 CEM Interface Module
- 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
- 1-Port OC-192 or 8-Port Low Rate CEM Interface Module

The following new command is introduced for this feature:

- Loopback remote

For more information on the loopback remote feature, see the:

- [48-Port T1/E1 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [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, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

For more information on the new command, see the [Cisco IOS Interface and Hardware Component Command Reference](#).

#### • **Multi EFPs for Single BDI Support**

Multiple EFPs with a single BDI are supported.

For more information, see the [Carrier Ethernet Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

#### • Programmability

- Model-Based AAA— Implements the NETCONF Access Control Model (NACM). NACM is a form of role-based access control (RBAC) specified in RFC 6536.
- NETCONF Global Session Lock and Kill Session—Provides a global lock and the ability to kill non-responsive sessions in NETCONF. During a session conflict or client misuse of the global lock, NETCONF sessions can be monitored via the `show netconf-yang sessions` command, and non-responsive sessions can be cleared using the `clear configuration lock` command.
- NETCONF and RESTCONF Debug commands—Commands for debugging were added.
- NETCONF and RESTCONF IPv6 Support—Data model interfaces (DMIs) support the use of IPv6 protocol. DMI IPv6 support helps client applications to communicate with services that use IPv6 addresses. External facing interfaces will provide dual-stack support; both IPv4 and IPv6.
- 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/1681>

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 on the Programmability features, see the [Programmability Configuration Guide, Cisco IOS XE Fuji 16.8.x](#).

#### • Support for Alarm Profiling

The alarm profiling feature enables you to create a unique alarm profile for chassis, card or interface module, and port. Each alarm profile, for example, chassis alarm profile, is defined with an alarm name. Each alarm profile is classified based on controller types such as SONET, SDH, DS1, and DS3. For each controller type, there are a set of alarms defined with default severity. You can overwrite the default severity using the alarm profile and suppress the syslog facility based on your preference. By default, the syslog facility is enabled for the alarm profile.

The following new commands are introduced for this feature:

- alarm-profile
- alarm-profile attach
- attach profile-name
- show alarm-profile

For more information on the alarm profiling feature, see

- [48-Port T1/E1 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [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, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)

- [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

For more information on the new commands, see the [Cisco IOS Interface and Hardware Component Command Reference](#).

#### • Support of DS1 Framed Structure-Agnostic TDM over Packet (SAToP)

Framed Structure-Agnostic TDM over Packet (SAToP) detects an incoming AIS alarm in the DS1 SAToP mode. Framed SAToP helps in the detection of a packet drop and enhances performance by detecting the alarm earlier in the network. This feature is supported on the following interface modules:

- 48-Port T1/E1 CEM Interface Module
- 48-Port T3/E3 CEM Interface Module
- 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
- 1-Port OC-192 or 8-Port Low Rate CEM Interface Module




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**Note** BERT is not supported in system direction for framed SAToP.

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The **cem-group group-number** command is updated with the new keyword framed as follows:

- `cem-group group-number framed`

For more information, see the:

- [48-Port T1/E1 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [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, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

For more information on the new command, see the [Cisco IOS Interface and Hardware Component Command Reference](#).

#### • Support of DS3 Circuit Emulation over Packet (CEP)

DS3 Circuit Emulation over Packet (CEP) feature is introduced to achieve STS-1 or VC4 CEP configuration on the interface module. Here, T3 or E3 can be mapped to either STS-1 or VC4 to be emulated on a packet network.

This feature is supported on the following interface module:

- 48-Port T3/E3 CEM Interface Module
- 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

The **show controllers t3** command is updated with the new keyword path as follows:

- show controllers t3 *path*

For more information, see the

- [48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)
- [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, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#)

For more information on the new command, see the [Cisco IOS Interface and Hardware Component Command Reference](#).

- **VPLS over Backup Pseudowire**

Pseudowire redundancy allows you to detect any failure in the network and reroute the Layer 2 service to another endpoint that can continue to deliver service by providing additional backup pseudowire. This feature enables recovery from a failure of either the remote provider edge (PE) router or the link between the PE and customer edge (CE) routers.

For more information, see the [MPLS Layer 2 VPNs Configuration Guide, Cisco IOS XE Fuji 16.8.x \(Cisco NCS 4200 Series\)](#).

## New Hardware Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.8.1b

There are no new hardware features in this release.

