



## New Features

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

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## What's New in Hardware for Cisco IOS XE Amsterdam 17.3.8a

There are no new hardware features in this release.

## What's New in Software for Cisco IOS XE Amsterdam 17.3.8a

There are no new features in this release. This release provides a fix for CSCwh87343: Cisco IOS XE Software Web UI Privilege Escalation Vulnerability. For more information, see [cisco-sa-iosxe-webui-privesc-j22SaA4z](#).

## **New Hardware Features in Cisco IOS XE Amsterdam 17.3.8**

There are no new features in this release.

## **New Software Features in Cisco IOS XE Amsterdam 17.3.8**

There are no new features in this release.

## **New Hardware Features in Cisco IOS XE Amsterdam 17.3.7**

There are no new features in this release.

## **New Software Features in Cisco IOS XE Amsterdam 17.3.7**

There are no new features in this release.

## **New Hardware Features in Cisco IOS XE Amsterdam 17.3.6**

There are no new features in this release.

## **New Software Features in Cisco IOS XE Amsterdam 17.3.6**

There are no new features in this release.

## **New Hardware Features in Cisco IOS XE Amsterdam 17.3.5**

There are no new features in this release.

## **New Software Features in Cisco IOS XE Amsterdam 17.3.5**

There are no new features in this release.

## **New Hardware Features in Cisco IOS XE Amsterdam 17.3.4**

There are no new features in this release.

## New Software Features in Cisco IOS XE Amsterdam 17.3.4

There are no new features in this release.

## New Hardware Features in Cisco IOS XE Amsterdam 17.3.3

There are no new features in this release.

## New Software Features in Cisco IOS XE Amsterdam 17.3.3

There are no new features in this release.

## New Hardware Features in Cisco IOS XE Amsterdam 17.3.2a

There are no new features in this release.

## New Software Features in Cisco IOS XE Amsterdam 17.3.2a

There are no new features in this release.

## New Hardware Features in Cisco IOS XE Amsterdam 17.3.1

### Supported Optics

The following optics are supported for the Cisco IOS XE Amsterdam 17.3.1 release:

- ONS-SI-GE-SX=
- ONS-SC+-10G-LR=
- ONS-SC+-10G-SR=
- ONS-SI-GE-ZX=
- ONS-SE-ZE-EL=
- ONS-SC+-10G-ER=
- ONS-SC+-10G-ZR=
- GLC-GE-DR-LX=
- ONS-SE-Z1=

For more information, see the [NCS 4206-16 Optics Matrix](#).

## New Software Features in Cisco IOS XE Amsterdam 17.3.1

Feature	Description
<b>Segment Routing</b>	
<a href="#">EVPN Single-Homing Over Segment Routing</a>	<p>The EVPN Single-Homing feature utilizes the BGP MPLS-based Ethernet VPN functionality as defined in RFC 7432. For EVPN Single-Homing, a CE device is attached to a single PE device and has an Ethernet Segment.</p> <p>In Cisco IOS XE Amsterdam 17.3.1 release, EVPN single-homing feature is supported over segment routing.</p>
<a href="#">SR-TE Per-Flow (Class) ODN and Automated Steering (PCE Delegated)</a>	<p>This feature lets you steer traffic with SR-TE PFP based on the QoS markings on the packets. The traffic is then switched onto the appropriate path based on the forward classes of the packet. This feature is supported on the Cisco RSP2 and RSP3 modules.</p>
<a href="#">Segment Routing Flexible Algorithm</a>	<p>Segment Routing Flexible Algorithm allows operators to customize IGP shortest path computation according to their own needs. Custom SR prefix-SIDs are assigned to forward the packets beyond link-cost-based SPF. As a result, a traffic engineered path is automatically computed by the IGP to any destination reachable by the IGP.</p>
<a href="#">Segment Routing Performance Measurement Delay Measurement Using RFC 5357 (TWAMP Light)</a>	<p>This feature enables hardware timestamping. The Performance Measurement (PM) for link delay uses the light version of Two-Way Active Measurement Protocol (TWAMP) over IP and UDP defined in Appendix I of RFC 5357. TWAMP provides an alternative for interoperability when RFC 6374 is not used.</p>
<a href="#">Segment Routing Performance Measurement End-to-End Delay Measurement</a>	<p>This feature allows to monitor the end-to-end delay experienced by the traffic sent over a Segment Routing policy. This feature ensures the delay does not exceed the specified threshold value and violate the SLAs. Use this feature to apply extended TE link delay metric (minimum delay value) to compute paths for Segment Routing policies as an optimization metric or as an accumulated delay bound.</p>
<a href="#">Static Route Traffic Steering Using SR-TE Policy</a>	<p>This feature allows the non colored (BGP Extended Community) prefix to steer traffic over static policy. Prior to this release, only colored (BGP Extended Community) prefix could automatically steer traffic based on the defined policy using a tunnel interface. Unlike non colored prefix, this was possible only for the colored prefix as it could match the SR policy.</p> <p>IPv4 static routes are now enhanced to leverage the SR policies to aid Segment Routing Traffic Engineering (SR-TE). This facilitates traffic steering for non colored prefix as you can now configure IP Static Route with SR static policy.</p> <p>The following new keyword for the <b>ip route</b> command is introduced: segment-routing policy [<i>policy name</i>]</p>

Feature	Description
Telemetry (Model-Based Telemetry and Event-Based Telemetry) Support for Performance Measurement	<p>This feature enables Model-Based Telemetry (MDT) and Event-Based Telemetry (EDT) that allow the data to be directed to a configured receiver. This data can be used for analysis and troubleshooting purposes to maintain the health of the network.</p> <p>This feature is supported on Cisco ASR 900 RSP3 module. The <b>sr_5_label_push_enable</b> SDM template is mandatory for this feature to function.</p>
<b>Alarm Configuring and Monitoring Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series)</b>	
Support for new alarm profile based on the Telcordia profile for chassis	The alarm profile based on Telcordia includes "Service Affecting" information for chassis entities. This information enables you to check the service affecting state for each alarm under a chassis.
<b>Layer 2</b>	
RSPAN over VPLS Pseudowire Network	This feature allows the traffic mirroring destination port to be configured as a pseudowire rather than a physical port. This feature lets the designated traffic on the source port to be mirrored over the pseudowire to a remote location. This feature is supported on the Cisco RSP3 module.
<b>MPLS Traffic Engineering Path Link and Node Protection</b>	
MPLS Point-to-Multipoint Traffic Engineering Support for Static Pseudowires	The Static Pseudowires over Point-to-Multipoint Traffic Engineering (P2MP TE) feature emulates the essential attributes of a unidirectional P2MP service. It can be used to transport layer 2 multicast services from a single source to one or more destinations.
<b>Timing and Synchronization</b>	
Telemetry for GNSS Module	<p>This feature provides externalization of operational data using Network Configuration Protocol (NETCONF) or Yet Another Next Generation (YANG) data modeling language.</p> <p>Prior to this release, the traditional show commands were available to only view the GNSS statistic data. But, you could not use these show command outputs to manage network devices as demanded by centralized orchestration application such as Cisco Digital Network Architecture Center (DNAC).</p> <p>The introduction of this feature helps to bring more visibility in the timing services operations. This feature is supported on Cisco ASR 900 RSP3 module.</p>
<b>1-Port OC-192 or 8-Port Low Rate CEM Interface Module</b>	

Feature	Description
Interworking Multiservice Gateway Access Circuit Redundancy (iMSG ACR) support for NCS 4200 Combo 8-Port SFP GE and 1-Port 10 GE 20G Interface Module (NCS4200-1T8S-20CS)	The iMSG ACR feature is supported on serial interfaces for SONET and SDH ACR. DCC and MS features are also supported.
Pseudowire Scale Support	A maximum of 26,880 CEM Pseudowires are supported on the 1-Port OC-192 or 8-Port Low Rate CEM interface module. This feature is supported on the Cisco RSP3 module.
ACR and DCR Scale Support	Adaptive Clock Recovery (ACR) and Differential Clock Recovery (DCR) are techniques used for Circuit Emulation (CEM) to recover clocks on the Cisco RSP3 module.
DCC Support	The Data Communication Channel (DCC) feature uses the SONET or SDH Operation Administration and Maintenance (OAM) channel to manage devices that support SONET or SDH interfaces on the Cisco RSP3 module.
<b>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</b>	
IP Interworking with VLAN Handoff	VLAN handoff enables the support for IP interworking Pseudowire. IP interworking Pseudowire enables the service provider to terminate the TDM circuit early in the network and transport the IP payload on HDLC, PPP, or MLPPP links, over the MPLS core to the Ethernet network.
Interworking Support for nxDS0	Interworking function (IWF) for PPP/HDLC is supported on Ethernet for E1/STM1 ports. This support is extended at nxDS0 level to speed up the GSR TDM migration.
MLPPP ACR support for IPv4 or IPv6 Interworking Multiservice Gateway (iMSG)	MLPPP ACR is supported for IPv4 or IPv6 iMSG on the Cisco RSP3 module. The restrictions for MLPPP interworking are applicable to iMSG ACR.
<b>IP Multicast: Multicast</b>	
Aggregated Interface Statistics on Bundle	Aggregate multicast packet count is implemented for all the (S,G) entries for which the given BDI serves as the OIF.
Native Multicast SLA Measurement with MLDP	Outgoing interface (OIF) statistics in a native multicast setup implements an extra output to include the packet count sent over the (S,G) entry and the traffic rate.
<b>Quality of Service</b>	

Feature	Description
<a href="#">CoS Conditional Marking</a>	This feature lets you implement the CoS marking on the basis of the Traffic class and the Drop precedence. This feature is supported on the Cisco RSP3 module.

### Other Supported Features in this Release

- SyncE YANG module Telemetry integration
- On-change notifications for TLDP
- On-change notifications for Interface (including tunnels) state
- KGV E2E Solution
- SRTE-PM-OPER-on-change notification
- On-Change Notifications for LAG and LACP—The TLDP On-Change Notifications feature notifies the users when TLDP sessions come up or go down and when TLDP is configured or disabled. TLDP must be enabled for the notifications to work. For more information, see the [Programmability Guide for Cisco IOS XE Amsterdam 17.3.1](#).
- Configurable Y.1564 Service Activation Frame Sizes and EMIX Support—Enterprise traffic (EMIX) packet size (default abceg pattern) is supported. For EMIX traffic, ITU-T Rec. Y.1564 packet sizes of 64, 128, 256, 1024, and 1518 bytes are supported. For more information, see the [IP SLAs Configuration Guide, Cisco IOS XE 17 \(Cisco ASR 4200 Series\)](#).
- NCS4200-1H-PK and NCS4200-2Q-P interface modules based FAN OIR—FAN Online Insertion and Removal (OIR) is applicable every time the IM based fan speed profile is switched to the 1-port 100 Gigabit Ethernet Interface Module (1X100GE) and 2-port 40 Gigabit Ethernet QSFP Interface Module (2x40GE) interface modules. For more information, see the [Cisco NCS 4206 Hardware Installation Guide](#).
- Install Workflow based ISSU support—Starting with Cisco IOS XE Amsterdam 17.3.1, Install Workflow based ISSU method is supported on the Cisco RSP3 module. For more information, see the [High Availability Configuration Guide, Cisco IOS XE 17 \(Cisco NCS 4200 Series\)](#).
- Lawful Intercept Enhancement—Prior to Cisco IOS XE Amsterdam 17.3.1 release, only single TAP per interface was supported. Starting with Cisco IOS XE Amsterdam 17.3.1 release, multiple TAPs per interface are supported. For more information on multiple taps, see the [System Security Configuration Guide, Cisco IOS XE 17 \(Cisco ASR 900 Series\)](#).
- HA RF Notification—In networking devices running Single-Switch-On (SSO), both Route Processors (RP) must be running the same configuration so that the standby RP is always ready to assume control if the active RP fails. To achieve the benefits of SSO, synchronize the configuration information from the active RP to the standby RP at start-up and whenever changes to the active RP configuration occur. For more information see the [High Availability Configuration Guide, Cisco IOS XE 17 \(Cisco NCS 4200 Series\)](#).
- ROMMON Upgrade on Cisco RSP3 Module—Routers running a ROMMON version that is lower than version 15.6(33r)S is auto upgraded to version 15.6(33r)S during a router restart. However, if a Cisco IOS XE release with ROMMON image is bundled with a version lower than the running ROMMON version, then the ROMMON is not auto downgraded. For more information, see the [High Availability Configuration Guide, Cisco IOS XE 17 \(Cisco NCS 4200 Series\)](#).

- ROMMON Auto Upgrade—For Cisco IOS XE Gibraltar Release 16.9.5, Cisco IOS XE Gibraltar Release 16.12.3, and Cisco IOS XE Amsterdam 17.1.x, a minimum disk space of 2 MB is required in the boot flash memory file system for a successful ROMMON auto upgrade process. For a disk space lesser than 2 MB, ROMMON auto upgrade fails and the router reboots. This is applicable to Cisco NCS 4206 and Cisco NCS 4216 routers. For more information, see the [High Availability Configuration Guide, Cisco IOS XE 17 \(Cisco NCS 4200 Series\)](#).
- Prior to release Cisco IOS XE Amsterdam 17.3.1 on Cisco RSP3 module, for sparse mode (SM) in VRF, rendezvous point (RP) must be in ENCAP PE. This restriction is no more applicable on Cisco RSP3 module. For more information, see the [IP Multicast: Multicast Configuration Guide, Cisco IOS XE 17 \(Cisco ASR 900 Series\)](#).
- Prior to release Cisco IOS XE Amsterdam 17.3.1, in case of Protocol Independent Multicast (PIM) Source Specific Multicast (SSM) with Bridge Domain Interface (BDI) as Incoming Interface (IIF), IGMP snooping was not supported on the corresponding Bridge Domain (BD). And, in case of PIM Sparse Mode (PIM-SM) with Bridge Domain Interface (BDI) as Incoming Interface (IIF), IGMP snooping was not supported on the corresponding BD in non-Designated Router (DR) node. To overcome these restrictions, enable the command **platform multicast bridge-tcam-handling disable** and reload the router. For more information, see the [IP Multicast: Multicast Configuration Guide, Cisco IOS XE 17 \(Cisco ASR 900 Series\)](#).