What's New for Cisco IOS XE Amsterdam 17.3.x

This chapter describes the new hardware and software features supported on the Cisco ASR 900 Series routers in Cisco IOS XE Amsterdam 17.3.x.

For information on features supported for each release, see Feature Compatibility Matrix.

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.

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

There are no new features in this release.

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

There are no new Software features introduced for this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.7

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.7

There are no new features in this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.6

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.6

There are no new features in this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.5

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.5

There are no new features in this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.4

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.4

There are no new features in this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.3

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.3

There are no new features in this release.

What's New in Hardware for Cisco IOS XE Amsterdam 17.3.2a

There are no new features in this release.

What's New in Software for Cisco IOS XE Amsterdam 17.3.2a

There are no new features in this release.

What's New in Hardware for 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 ASR 900 Optics Matrix.

What's New in Software for Cisco IOS XE Amsterdam 17.3.1

Feature	Description
Segment Routing	
EVPN Single-Homing Over Segment Routing	This 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. In Cisco IOS XE Amsterdam 17.3.1 release, EVPN single-homing feature is supported over segment routing.
SR-TE Per-Flow (Class) ODN and Automated Steering (PCE Delegated)	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.
Segment Routing Flexible Algorithm	This feature allows you to customize IGP shortest path computation according to your needs. You can assign custom SR prefix-SIDs 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.
Segment Routing Performance Measurement Delay Measurement Using RFC 5357 (TWAMP Light)	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.
Segment Routing Performance Measurement End-to-End Delay Measurement	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.
Static Route Traffic Steering Using SR-TE Policy	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. 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. The following new keyword for the **ip route** command is introduced: segment-routing policy [*policy name*]

Feature	Description
Telemetry (Model-Based Telemetry and Event-Based Telemetry) Support for Performance Measurement	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. This feature is supported on Cisco ASR 900 RSP3 module. The **sr_5_label_push_enable** SDM template is mandatory for this feature to function.
Quality of Service	
CoS Conditional Marking	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.
Alarm Configuring and Monitoring Guide	
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.
Layer 2	
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.
MPLS Traffic Engineering Path Link and Node Protection	
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. This feature is supported on the Cisco RSP2 module.
Timing and Synchronization	
Telemetry for GNSS Module	This feature provides externalization of operational data using Network Configuration Protocol (NETCONF) or Yet Another Next Generation (YANG) data modeling language. 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). 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.
1-Port OC-192 or 8-Port Low Rate CEM Interface Module	

Feature	Description
Interworking Multiservice Gateway Access Circuit Redundancy (iMSG ACR) support for ASR 900 Combo 8-Port SFP GE and 1-Port 10 GE 20G Interface Module (A900-IMA1Z8S-CXMS)	The iMSG ACR feature is supported on serial interfaces for SONET and SDH ACR on the Cisco ASR RSP3 module. 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.
IP Routing: BFD	
BFD Dampening	Bidirectional Forwarding Detection (BFD) is a detection protocol that is designed to provide fast forwarding path failure detection for encapsulations, topologies, and routing protocols. BFD provides a consistent failure detection method. BFD detects forwarding path failures at a uniform rate, rather than the variable rates for different routing protocol. This feature is supported on the RSP2 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	
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 ASR RSP3 module. The restrictions for MLPPP interworking are applicable to iMSG ACR.
IP Multicast: Multicast	

Feature	Description
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.
High Availability	
Fast Booting the RSP3 .bin Image	A new command **platform fastboot** is introduced on the RSP3 module. When enabled on the RSP3 module that is pre-booted with .bin image, on the next reboot, the ROMMON boots up with the corresponding packages.conf image. Boot up from the packages.conf image is much faster and thus, the boot time is reduced approximately by six to eight minutes.
MPLS Layer 2 VPNs	
EVPN Single-Homing Over MPLS for the Cisco RSP2 Module	The EVPN Single-Homing feature utilizes the BGP MPLS-based Ethernet VPN functionality as defined in RFC 7432. That is, to achieve single-homing between a Provider Edge (PE) and a Customer Edge (CE) device. There are three fundamental building blocks for EVPN technology, EVPN Instance (EVI), Ethernet Segment (ES), EVPN BGP routes and extended communities. For EVPN Single-Homing feature, a CE device is attached to a single PE device and has an Ethernet Segment. This feature is supported on the Cisco ASR 900 RSP2 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
- 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 ASR 900 Series).
- Configurable Y.1564 Service Activation Frame Sizes and EMIX Support—Enterprise traffic (EMIX) packet size (default abceg pattern) is supported on both, Cisco ASR 900 RSP2 and RSP3 modules. For EMIX traffic, ITU-T Rec. Y.1564 packet sizes of 64, 128, 256, 1024, and 1518 bytes are supported. On the Cisco RSP3 module, it is supported in FPGA-based SADT. For more information, see the IP SLAs Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).
- IMA1C and IMA2F interface modules based FAN OIR—FAN Online Insertion and Removal (OIR) is applicable every time the IM (interface module)-based fan speed profile is switched between 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 ASR 903 and ASR 903U Aggregation Services Router Hardware Installation Guide.

- 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.
- 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).
- ROMMON Upgrade on Cisco RSP3 Module—Routers running a ROMMON version lower than version 15.6(33r)S is auto upgraded to version 15.6(33r)S during a router restart. However, if a ROMMON image is bundled with a version lower than the running ROMMON version, ROMMON is not auto downgraded. For more information, see the Upgrading the Software on the Cisco ASR 900 Series Routers and High Availability 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 ASR 900 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).