

New Features

This chapter describes the new hardware and software features supported on the Cisco ASR 900 Series routers in the following releases:

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

- New Hardware Features in Cisco IOS XE Amsterdam 17.1.1a, on page 1
- New Software Features in Cisco IOS XE Amsterdam 17.1.1a, on page 1
- New Hardware Features in Cisco IOS XE Amsterdam 17.1.1, on page 5
- New Software Features in Cisco IOS XE Amsterdam 17.1.1, on page 5

New Hardware Features in Cisco IOS XE Amsterdam 17.1.1a

There are no hardware features for this release.

New Software Features in Cisco IOS XE Amsterdam 17.1.1a

- **Auto In-Service State for Transceiver**

  The transceiver module is a logical entity that represents a Transceiver equipment. The module can be created using a CLI command or created automatically when the Transceiver (pluggable) is inserted into a port. The transceiver connected to port supports the Auto In-Service State (AINS) functionality. For example, if an alarm is raised during the AINS state, then the alarm is not reported, and the syslog is not generated. You need to enable AINS under the alarms profile and the profile should be attached to the corresponding port.

  For more information, see Alarm Configuring and Monitoring Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **BGP Tracking**

  The selective address tracking for Border Gateway Protocol (BGP) next hop fallover with maximum-metric can be enabled using the **neighbor ip-address fall-over route-map** command.

  For more information on the command, see Cisco IOS IP Routing: BGP Command Reference.

- **Card Protection for STS-1 Electricals**

  The router supports electrical card protection feature with 1:1 protection, or during events such as when interface module stops responding, software stops responding, or issues in other hardware components.

For more information, see 48-Port T3/E3 CEM Interface Module Configuration Guide, Cisco IOS XE 16 (Cisco ASR 900 Series).

- **DSCP Preservation of MLDP Traffic**

  The Differentiated Services Code Point (DSCP) value does not change on both the uniform and pipe modes.

  For more information, see QoS: Classification Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **EVPN Single-Homing over MPLS on RSP3**

  The EVPN Single-Homing feature utilizes the functionality defined in RFC 7432 (BGP MPLS-based Ethernet VPN), to achieve single-homing between a Provider Edge (PE) and a Customer Edge (CE) device.

  For more information, see the MPLS Layer 2 VPNs Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **EVPN-VPWS Single Homing over Segment Routing**

  EVPN-VPWS single homing is a BGP control plane solution for point-to-point services. It has the ability to forward traffic from one network to another using Ethernet Segment without MAC lookup. EVPN-VPWS single homing works on both IP and SR core. IP core is used to support BGP while the SR core is used to switch packets between the endpoints.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **Facility Protocol Status Support**

  The routers report the protocol status using syslog or trap alarm notifications. Few syslogs and traps are not cleared when the router gets disconnected or reloaded. As a result, the alarms are not notified.

  To avoid this, a new command, show facility protocol status, is introduced that displays the output of the following routing protocols status at any interval of time: IS-IS, OSPF, BGP, LDP, PTP, HSRP, BFD, TE tunnels, Bundles, pseudowires, EVPN pseudowires, CFM, SYncE, and sensor threshold violations.

  For more information, see the Cisco ASR 900 Router Series Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **IPSLAs TWAMP Responder**

  The IETF Two-Way Active Measurement Protocol (TWAMP) defines a standard for measuring round-trip network performance between any two devices that support the TWAMP protocols. The TWAMP control protocol is used to set up performance measurement sessions. It is also used to send and receive performance measurement probes.

  For more information on TWAMP Responder, see the IP SLAs Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **IPv4 Interworking Support for MLPPP Interfaces**

  The Multilink Point-to-Point (MLPPP) interworking supports IPv4 Layer 2 VPN Interworking with T1 or E1 bundles on the Cisco RSP3 module. The MLPPP interworking enables service providers (offering relatively low-speed links) to use MLP and spread traffic across them in their MPLS networks. The MPLS Multilink PPP feature reduces the number of Interior Gateway Protocol (IGP) adjacencies and facilitates load sharing of traffic.

For more information, see 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 17 (Cisco ASR 900 Series).

- **IPv6 Interworking Support for MLPPP Interfaces**

  The Multilink Point-to-Point (MLPPP) interworking supports IPv4 or IPv6 Layer 2 VPN Interworking with T1 or E1 bundles on the Cisco RSP3 module. The MLPPP interworking enables service providers (offering relatively low-speed links) to use MLP and spread traffic across them in their MPLS networks. The MPLS Multilink PPP feature reduces the number of Interior Gateway Protocol (IGP) adjacencies and facilitates load sharing of traffic.

  For more information, see 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 17 (Cisco ASR 900 Series).

- **IPv6 Interworking Pseudowire Support on HDLC or PPP Serial Interfaces**

  The IPv6 interworking is supported for Layer 2 VPN interworking mode. The IPv6 interworking is supported only for HDLC or PPP to Ethernet. Layer 3 termination is supported with serial interfaces with HDLC or PPP encapsulation.

  For more information, see 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 17 (Cisco ASR 900 Series).

- **IPv6 Support for Interworking Multiservice Gateway Access Circuit Redundancy**

  The IPv6 interworking is supported with ACR for Layer 2 VPN.

  For more information, see 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 17 (Cisco ASR 900 Series).

- **L3VPN Support on mLACP**

  Layer 3 VPN on multichassis LACP (mLACP) is supported in the Cisco RSP3 Module using the **port-channel mc-lag** command.

  For more information on the mLACP support, see Ethernet Channel Configuration Guide Cisco IOS XE 17 (Cisco ASR 900 Series).

- **Lawful Intercept**

  The Lawful Intercept (LI) feature provides electronic surveillance as authorized by a judicial or administrative order for service provider routers. The Lawful Intercept is based on RFC3924 and Simple Network Management Protocol Version 3 (SNMPv3) provisioning architecture.

  For more information on Lawful Intercept, see the System Security Configuration Guide, Cisco IOS XE 17(Cisco ASR 900 Series).

- **PTP Multiprofile**

  The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a network. The PTP Multiprofile support is configured on a PTP boundary clock by translating one PTP profile at PTP slave port to other PTP profile at PTP master port. To translate PTP properties from one profile to other, a special type of **inter-op** clock-port is introduced. This special clock-port is configured with the required profile and domain information.

  For more information on the PTP Multiprofile, see the Timing and Synchronization Configuration Guide, Cisco IOS XE A17(Cisco ASR 900 Series).

- **Oversubscription Support for A900-IMA8CS1Z-M**

Egress packet classification is performed based on priority-based flow-control (PFC) to ensure that there are no drop in packets.

For more information on oversubscription, see Cisco ASR 900 Router Series Configuration Guide, Cisco IOS XE 17.

- **Segment Routing Low Latency Network Slice**

  This feature allows the advertisement and reception of the extended TE link delay metrics without any additional configuration required in IS-IS, OSPF or BGP-IS. When the link delay values are configured, they are flooded in the PCE topology and when the path computation is requested, these values are used for path calculation.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17(Cisco ASR 900 Series).

- **Segment Routing Performance Measurement Link Delay Metrics**

  Network performance metrics such as packet loss, delay, delay variation, and bandwidth utilization is a critical measure for traffic engineering (TE) in service provider networks. These metrics provide network operators with information about characteristics of their networks for performance evaluation and helps to ensure compliance with service level agreements. The service-level agreements (SLAs) of service providers depend on the ability to measure and monitor these network performance metrics.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **SR-TE Policy for MPLS TE**

  The Cisco ASR 900 Series routers with Cisco RSP2 module support the newer segment routed Traffic Engineering (SR-TE) policy and you can enbale the policy using the **segment-routing traffic-eng** command.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series Routers).

- **SR-TE ODN Color Extended Community for Layer 3 VPN**

  The Cisco ASR 900 Series routers with Cisco RSP2 module support the color extended community with the following feature support:

  - An egress router adds the color extended community to the BGP updates that require a Traffic-Engineered path.
  - An SR-TE policy is created on the ingress router for the color-endpoint pair.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series Routers).

- **Traps and Performance MIBs for GNSS**

  A new MIB, CISCO-GNSS-MIB, is introduced for GNSS.

  For more information, see the Timing and Synchronization Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

New Hardware Features in Cisco IOS XE Amsterdam 17.1.1

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New Software Features in Cisco IOS XE Amsterdam 17.1.1

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  The EVPN Single-Homing over MPLS feature utilizes the functionality defined in RFC 7432 (BGP MPLS-based Ethernet VPN), to achieve single-homing between a Provider Edge (PE) and a Customer Edge (CE) device.

  For more information, see the *MPLS Layer 2 VPNs Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series)*.

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  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

- **Programmability Features**

  The following Programmability features are supported from this release:

  - gRPC Network Management Interface (gNMI)—Model-driven configuration and retrieval of operational data using the gNMI capabilities, GET and SET RPCs.
  - Model Driven Telemetry - gNMI Dial-In—Support for telemetry subscriptions and updates over a gRPC Network Management Interface (gNMI).
  - TLS for gRPC Dial-Out—Support for TLS for gRPC dial-out.

  For more information, see the Programmability Guide, Cisco IOS XE Amsterdam 17.1.x.

- **SADT Overhead Accounting**

  FPGA measures parameters such as throughput, frame loss, jitter, and delay for SADT.

  FPGA has the capability to generate and measure only 1 Gbps traffic rate and hence maximum throughput cannot be achieved.

  To overcome this limitation, use the **platform y1564 shadow-session-enable** command to replicate the packets 10 times in FPGA.

  For more information, see IP SLAs Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

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