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Release Notes for Cisco ASR 920 Series Aggregation Services Router, Cisco IOS XE Everest 16.5.1

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C O N T E N T S

Introduction

This release notes contains information about the Cisco ASR 920 Series Aggregation Services Routers and provides new and changed information for these routers, hardware support, limitations and restrictions, and caveats for Cisco IOS XE Everest release 16.5.1. The Cisco IOS XE Everest 16.5.1 is the first supported release in the Release 16 Series.

This release notes provides information for these variants of the Cisco ASR 920 Series Routers:

- ASR-920-12CZ-A
- ASR-920-12CZ-D
- ASR-920-4SZ-A
- ASR-920-4SZ-D
- ASR-920-10SZ-PD
- ASR-920-24SZ-IM
- ASR-920-24SZ-M
- ASR-920-24TZ-M
- ASR-920-12SZ-IM

Cisco ASR 920 Series Routers Overview

The Cisco ASR 920 Series Aggregation Services Routers provide a comprehensive and scalable set of Layer 2 and Layer 3 VPN services in a compact package. They are temperature-hardened, small form factor, with high throughput and low power consumption ideal for mobile backhaul, business services and residential voice, video, and data ("triple-play") applications.

Feature Navigator

Use the Cisco Feature Navigator to find information about feature, platform, and software image support. To access the Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on cisco.com is not required.

Determining the Software Version

Use the following commands to verify your software version:

• Consolidated Package— **show version**

Supported HoFPGA Versions

The tables below list the HoFPGA version of the software releases.

Table 1: HoFPGA Versions for the Cisco ASR-920-12CZ-A, ASR-920-12CZ-D, ASR-920-4SZ-A, ASR-920-4SZ-D, and ASR-920-10SZ-PD

Release	HoFPGA Version
Cisco IOS XE Everest 16.5.1	0X00030005

Table 2: HoFPGA Versions for the Cisco ASR-920-24SZ-IM, ASR-920-24SZ-M, and ASR-920-24TZ-M

Release	HoFPGA Version	Gigabit Ethernet Interface Module (Phase 1) FPGA	Gigabit Ethernet Interface Module (Phase2) FPGA	8 T1/E1
Cisco IOS XE Everest 16.5.1	0X00030005	0.47	69.22	0.54 (0x36)

Table 3: HoFPGA Versions for the Cisco ASR–920-12SZ–IM

Release	HoFPGA Version	Gigabit Ethernet Interface Module (Phase 1) FPGA	Gigabit Ethernet Interface Module (Phase2) FPGA	8 T1/E1	32 T1/E1

Cisco IOS XE Everest 16.5.1	0X00030005	0.47	69.22	0.54 (0x36)	0.46

Software Licensing Overview

The router offers the following base licenses:

- Metro Services

- Metro IP Services

- Advanced Metro IP access

  - SDM Video Template

Table 4: Cisco ASR 920 Software Licenses Feature Set

Metro Services	Metro IP Services	Metro Aggregation Services
—	Includes all features in Metro Services	Includes all features in Metro IP Services
QoS, with deep buffers and hierarchical QoS (HQOS)	IP routing (RIP, OSPF, EIGRP, BGP, IS-IS)	MPLS (LDP and VPN)
Layer 2: 802.1d, 802.1q	PIM (SM, DM, SSM), SSM mapping	MPLS TE and FRR
Ethernet Virtual Circuit (EVC)	BFD	MPLS OAM
Ethernet OAM (802.1ag, 802.3ah)	Multi-VRF CE (VRF lite) with service awareness (ARP, ping, SNMP, syslog, trace-route, FTP, TFTP)	MPLS-TP
Multiple Spanning Tree (MST) and Resilient Ethernet Protocol (REP)	IEEE 1588-2008 Ordinary Slave Clock and Transparent Clock	Pseudowire emulation (EoMPLS, CESoPSN, and SAToP)
Synchronous Ethernet	—	VPLS and HVPLS
IPv4 and IPv6 host connectivity	—	Pseudowire redundancy
—	—	MR-APS and mLACP

The router offers the following additional feature licenses:

- ATM

- IEEE 1588-2008 Boundary Clock/Master Clock

- OC-x Port License

Limitations and Restrictions on the Cisco ASR 920 Series Routers

- The default interface command is used to default the parameters under that interface. However, when speed is configured on the interface, the following error is displayed:

```
Speed is configured. Remove speed configuration before enabling auto-negotiation
```

- Adding or deleting the Trunk Ethernet flow points (TEFPs) with scaled bridge-domain, without delay causes the Cisco ASR 920 Series router to crash.

- Virtual services should be deactivated and uninstalled before performing replace operations.

- The Cisco ASR920 Series Routers no longer support the controller and nid-controller commands for the Cisco ME1200 switch.

- The following interface modules (IMs) do not require the activation command for IM boot up, provided no other IM is activated in subslot 0/1 before.

  However, if an IM was activated in the system earlier, deactivate the previously-activated IM before inserting a new IM in system.

  - 16-Port T1/E1 Interface Module

  - 32-Port T1/E1 Interface Module

  - 8-Port T1/E1 Interface Module

  - 4-port OC3/STM-1 (OC-3) or 1-port OC12/STM-4 (OC-12) Interface Module

- The following restriction is applicable only to Cisco ASR-920-24SZ-IM, Cisco ASR-920-24SZ-M, Cisco ASR-920-24TZ-M, Cisco ASR-920-12SZ-A and Cisco ASR-920-12SZ-D.

  - 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 bidirectionally at the line rate.

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

To view supported MIB, go to http://tools.cisco.com/ITDIT/MIBS/MainServlet.

Accessibility Features in the Cisco ASR 920 Series Routers

For a list of accessibility features in Cisco ASR 920 Series Routers, see the Voluntary Product Accessibility Template (VPAT) on the Cisco website, or contact accessibility@cisco.com.

All product documents are accessible except for images, graphics, and some charts. If you would like to receive the product documentation in audio format, braille, or large print, contact accessibility@cisco.com.

End-of-Life and End-of-Sale Notices

For End-of-Life and End-of-Sale Notices for the Cisco ASR 920 Series Routers, see http://www.cisco.com/c/en/us/products/routers/asr-920-series-aggregation-services-router/eos-eol-notice-listing.html.

Additional References

Product Information

- Cisco ASR 920 Series Aggregation Services Router Data Sheets

Hardware Installation Guides

- Cisco ASR 920 Series Aggregation Services Router Hardware Guides

Software Configuration Guides

- Cisco ASR 920 Series Aggregation Services Router Configuration Guides

Regulatory Compliance and Safety Information

- Regulatory Compliance and Safety Information for the Cisco ASR 920 Series Aggregation Services Routers

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CHAPTER 2

New Features

This chapter describes the new hardware and software features supported on the Cisco ASR 920 Series Routers for this release.

New Hardware Features in Cisco IOS XE Everest Release 16.5.2

There are no new hardware features in this release.

New Software Features in Cisco IOS XE Everest Release 16.5.2

There are no new software features in this release.

New Hardware Features in Cisco IOS XE Everest Release 16.5.1

There are no new hardware features in this release.

New Software Features in Cisco IOS XE Everest Release 16.5.1

- **10G SAT**

  Service activation testing (SAT) is designed to measure the ability of a Device Under Test (DUT) or a network under test to properly forward traffic in different states. 10 Gigabit (10G) SAT session is now supported. Any SAT session with a rate-step greater than or equal to 1 Gbps is considered as 10G SAT session.

  For more information, see IP SLAs Configuration Guide Cisco IOS XE Everest 16.5.1 (Cisco ASR 920 Series).

- **Adaptive Clock Recovery (ACR) on 8-port T1/E1 Interface Module**

Adaptive Clock Recovery (ACR) is most commonly used for Circuit Emulation (CEM). ACR is an averaging process that negates the effect of random packet delay variation and captures the average rate of transmission of the original bit stream. ACR recovers the original clock for a synchronous data stream from the actual payload of the data stream. In other words, a synchronous clock is derived from an asynchronous packet stream. ACR is a technique where the clock from the TDM domain is mapped through the packet domain.

Effective Cisco IOS XE Everest 16.5.1, ACR is supported on 8-port T1/E1 interface module.

For more information, see Configuring Pseudowire.

- **BCP Support on MLPPP**

Bridge Control Protocol (BCP) is responsible for configuring, enabling and disabling the bridge protocol modules on both ends of the point-to-point link. The BCP feature enables forwarding of Ethernet frames over serial networks, and provides a high-speed extension of enterprise LAN backbone traffic through a metropolitan area. When BCP is supported on Multilink PPP (MLPPP), it enables transport of Ethernet Layer 2 frames through MLPPP.

For more information, see Cisco ASR 920 Series Aggregation Services Router Configuration Guide, Cisco IOS XE Everest 16.5.1.

- **BFD on IP Unnumbered Interfaces**

Cisco ASR 920 Series Routers now support BFD to run on IP unnumbered interfaces, which take the IP address from the loopback address. You can use the same loopback address on multiple interfaces.

For more information, see IP Routing: BFD Configuration Guide, Cisco IOS XE Everest 16.5.1 (Cisco ASR 920 Series).

- **Egress QoS Support on MLPPP Bundle**

The Cisco ASR 920 Routers now support egress QoS on MLPPP bundle.

For more information, see Quality of Service Configuration Guidelines, Cisco IOS XE Everest 16.5.1 (Cisco ASR 920 Series).

- **Egress Shaping on MLPPP Bundle**

The Cisco ASR 920 Routers now support egress shaping on the MLPPP bundle.

For more information, see Quality of Service Configuration Guidelines, Cisco IOS XE Everest 16.5.1 (Cisco ASR 920 Series).

- **Flex LSP**

Effective Cisco IOS XE Everest 16.5.1, the Cisco ASR 920 routers have enhanced the support for Flex LSP. Flex LSP also known as Associated Bidirectional Label Switched Paths (LSPs) are LSP instances where the forward and the reverse direction paths are set up, monitored, protected independently, and associated together during signaling. The RSVP Association aims to bind the forward and reverse LSPs together to form either a co-routed or a non co-routed associated bidirectional traffic engineering (TE) tunnel.

In this release, Flex LSP supports the following features:

- SRLG Protection

- Non-revertive

- Sticky

• Hop count and cost max-limit

• ECMP min-fill and max-fill

• Restore path option

For more information, see Flex LSP.

• **G.8275.2 Telecom Profile**

Cisco ASR 920 routers now support the ITU- T G.8275.2 telecom profile (PTP telecom profile for Phase and Time-of-day synchronization with partial timing support from the network).

The G.8275.2 is a PTP profile for use in telecom networks where phase or time-of-day synchronization is required. It differs from G.8275.1 in that it is not required that each device in the network participates in the PTP protocol. Also, G.8275.2 uses PTP over IPv4 and IPv6 in unicast mode.

For more information, see G.8275.2 Telecom Profile.

• **mVPN-GRE over BDI**

The Multicast VPN (MVPN) feature provides the ability to support multicast over a Layer 3 VPN. Cisco ASR routers provide an option for enabling mVPN-GRE over Bridge Domain Interfaces (BDI).

For more information, see Configuring Multicast VPN.

• **Pseudowire OAM Attributes**

This release supports the configuration of pseudowire OAM attributes using the following command:

ttl *value*

For more information, see MPLS Transport Profile.

• **Support for DS3 Smart SFP**

The DS3 Smart SFP supporting CEP (VCoP Smart SFP) is a special type of optical transceiver that encapsulates T3 frames on STS-1 channels into packet format.

For more information, see Configuring VCoP Smart SFP.

• **Table Map MDT Index Optimization**

If the same table-mapping is applied on multiple interfaces, the MDT index is now shared across these interfaces. Thus increased scaling of table-map is possible if table-mapping is reused. For more information, see Quality of Service Configuration Guidelines, Cisco IOS XE Everest 16.5.1 (Cisco ASR 920 Series).

• **TWAMP over VRF**

TWAMP over VRF is now supported. For more information, see IP SLA TWAMP Responder.

C H A P T E R 3

Caveats

This chapter describes open and resolved severity 1 and 2 caveats and select severity 3 caveats:

- The "Open Caveats" sections list open caveats that apply to the current release and may apply to previous releases. A caveat that is open for a prior release and is still unresolved applies to all future releases until it is resolved.

- The "Resolved Caveats" sections list caveats resolved in a specific release, but open in previous releases.

The bug IDs are sorted alphanumerically.

Note The Caveats section includes the bug ID and a short description of the bug. For details on the symptoms, conditions, and workaround for a specific caveat you must use the Bug Search Tool.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST), the online successor to Bug Toolkit, is designed to improve effectiveness in network risk management and device troubleshooting. You can search for bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. For more details on the tool, see the help page located at http://www.cisco.com/web/applicat/cbsshelp/help.html

Open Caveats – Cisco IOS XE Everest Release 16.5.2

Caveat ID Number	Description
CSCve90690	L3 convergence for REP is more than 50ms, which is incorrect

Caveat ID Number	Description
CSCvf99074	ASR-920-10SZ-PD Sees Ping Loss on Built-in Te 0/0/11 Port and CRC / MAC Errors at Peer End

Resolved Caveats – Cisco IOS XE Everest Release 16.5.2

Caveat ID Number	Description
CSCuv11211	Temp raise syslog msg prints on console when PSU remove and insertion
CSCve61214	G8275.1: Master disqualified even though packets are flowing fine
CSCve96485	IGMP snooping: Packet drops due to IGMP leave scenario in different BD
CSCvf09882	ASR920:IOMD ERR logs on auto-neg observed conitnuously which leads to bootflash space exhaustion
CSCvf49124	ASR920-12SZ-IM: Mgmt default gateway not reachable with 16.6.1 polaris image

Open Caveats – Cisco IOS XE Everest Release 16.5.1

Caveat ID Number	Description
CSCvd48351	Configure/unconfigure "l2protocol peer cdp" tracebacks are seen.
CSCvd22452	Cylon manager crashes while defaulting the running SLA's interface.
CSCvc27889	Observing media type showing unkown on few reloads.
CSCvb27432	Power over Ethernet support is removed in Cisco IOS XE Everest 16.5.1.
CSCvd12333	ISIS: FRR with unnumbered interface leads to traffic loss until TI-LFA repair path is removed.
CSCvc68648	Traffic drops are seen upon POA failover with PW-grouping.
CSCvd61748	EoMPLS: FRR backup path is not displayed for the PW's in the MPLS infrastructure CLI's.
CSCvd51482	Traffic loss seen in endpoint_sso_after_path_protection_trigger.

Resolved Caveats – Cisco IOS XE Everest Release 16.5.1

Caveat ID Number	Description
CSCvc52789	Cylon Manager Process crashes at bfd_oamengine_ui_get_tx_buffer_table_idx.

Caveat ID Number	Description
CSCvc67487	System crash with MVPN GRE with sdm default template.
CSCvd07855	1PPS under a virtual port remains down after SSO.
CSCvd89120	IPsec is not supported on ASR-920-12SZ-IM.
CSCvd03059	Chunk Memory leak at mcp_spa_tdl_alloc.
CSCuy90859	CEM LAddr: 0.0.0.0 status becms Estb instd of remaining in provisioned state.
CSCva15526	PW down after clear mpls ldp neighbor followed by RSP SSO.
CSCvb49730	VFI is down after provisioning a new VFI to the existing.
CSCvc21452	ISIS routes are set with Max Metric due to IGP LDP Sync.
CSCuz14316	IOSd Crash at in LDP Main process on Bringing Down Labeled-BGP inline-RR.
CSCvb00272	OSPFv3 IPSec socket session is not coming up after reboot.
CSCuz22162	Digital certificates does not sync to standby.
CSCuw50415	Crash seen at hwidb_iftype_unlist while doing unconifg of channel-group.