

# Release Notes for Cisco ASR 900 Series Routers, Cisco IOS XE Amsterdam 17.3.x

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**Americas Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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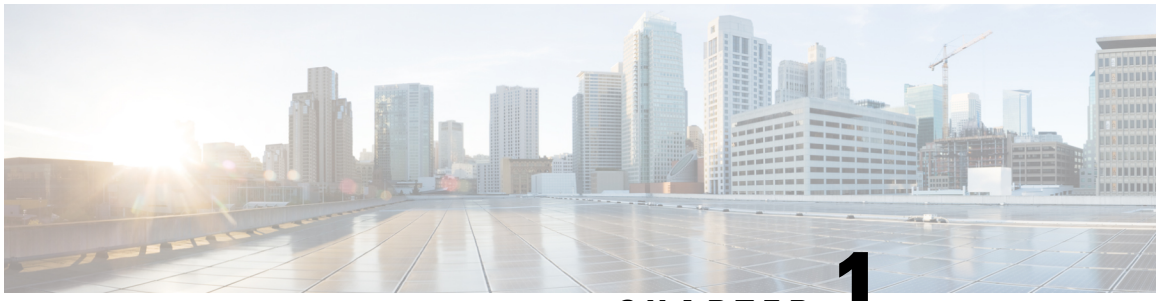
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CHAPTER 1

# Introduction

The Cisco ASR 900 Series Routers are full-featured, modular aggregation platforms designed for the cost-effective delivery of converged mobile, residential, and business services. This document provides information about the IOS XE software release for the Cisco ASR 900 Series Routers.


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# Overview of Cisco ASR 900 Series Routers

The Cisco ASR 900 Series Router is a fully-featured routing platform designed for the cost-effective delivery of converged mobile and business services. With full redundancy, shallow depth, low power consumption and high service scale, this 3-rack-unit (3RU) router is optimized for small aggregation and remote point-of-presence (POP) applications. The Cisco ASR 900 Series Router provides a rich and scalable feature set of Legacy, Timing, Carrier Ethernet, Layer 2 VPN (L2VPN) and Layer 3 VPN (L3VPN) services in a compact package.

The Cisco ASR 900 Series Router is a fully modular platform with support for upto 6-Interface Modules (IMs), two Route Switch Processor (RSP) slots, two power supplies and redundant fans, based on the router model. Cisco offers a wide choice of LAN and WAN interfaces available in speeds ranging from nxDS0 to 10 Gigabit Ethernet. The design of the Cisco ASR 900 Series Router delivers in-box hardware redundancy for all hardware components and supports software redundancy with In Service Software Upgrade (ISSU) and Non-Stop Forwarding (NSF) support.

# Cisco ASR 900 Series Router

The Cisco ASR 900 Series Router is a fully-featured routing platform designed for the cost-effective delivery of converged mobile and business services. With full redundancy, shallow depth, low power consumption and high service scale, this 3-rack-unit (3RU) router is optimized for small aggregation and remote point-of-presence (POP) applications. The Cisco ASR 900 Series Router provides a rich and scalable feature set of Legacy, Timing, Carrier Ethernet, Layer 2 VPN (L2VPN) and Layer 3 VPN (L3VPN) services in a compact package.

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# Cisco ASR 902 Router

The Cisco ASR 902 Router is a full-featured aggregation platform designed for cost-effective delivery of converged mobile and business services. With shallow depth, low power consumption, and an extended temperature range, this compact 2-rack unit (2RU) router provides high service scale and flexible hardware configuration.

# Cisco ASR 903 Router

The Cisco ASR 903 Series Aggregation Services Router is a Cisco aggregation router product. This router uses an innovative and powerful forwarding technology known as the Cisco Carrier Ethernet ASIC.

The Cisco ASR 903 Series Router is a 6-Interface Module (IM), 3-RU, hardware-redundant chassis with two Route Switch Processor (RSP) slots, and six IM slots. It supports fully redundant RSPs that allow for full RSP hardware redundancy, NSF, ISSU, and future RSP service upgrades.

# Cisco ASR 907 Router

The Cisco ASR 907 Router seven-rack (7RU) unit router that belongs to the Cisco ASR90x family of routers. This router complements Cisco’s offerings for IP RAN solutions for the GSM, UMTS, LTE and CDMA. Given its form-factor, interface types and Gigabit Ethernet density the Cisco ASR 907 Router can also be positioned as a Carrier Ethernet aggregation platform.

The Cisco ASR 907 Router is a cost optimized, fully redundant, centralized forwarding, extended temperature, and flexible pre-aggregation router.

# Cisco ASR 914 Router

The Cisco ASR 914 Router is a 14-rack unit router that belongs to the Cisco ASR 900 family of routers. This router complements Cisco’s offerings for IP RAN solutions for the GSM, UMTS, LTE, and CDMA. Given its form-factor, interface types and GigabitEthernet density the Cisco ASR 914 Router can also be positioned as a Carrier Ethernet aggregation platform.

The Cisco ASR 914 Router is a cost optimized, fully redundant, centralized forwarding, extended temperature, and flexible pre-aggregation router.

# Feature Navigator

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

# Hardware Support

## Cisco ASR 902 Supported Interface Modules

### A900-RSP2-Supported Interface Modules (ASR 902 Router)

*Table 1: A900-RSP2-Supported Interface Modules and Part Numbers*

| RSP | Interface Modules | Part Numbers | Slots |
|---|---|---|---|
| A900-RSP2A-128<br>A900U-RSP2A-128 | 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | All |
| | 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |
| | 1-port 10-Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | |
| | 16-port T1/E1 Interface Module | A900-IMA16D | |
| | 4-port OC3/STM-1 (OC-3) or 1-port OC12/STM-4 (OC-12) Interface Module | A900-IMA4OS | |
| | SFP Combo IM—8-port Gigabit Ethernet (8x1GE) +<br>1-port 10-Gigabit Ethernet (1x10GE) | A900-IMA8S1Z | |
| | Copper Combo IM—8-port Gigabit Ethernet (8x1GE)<br>+ 1-port 10-Gigabit Ethernet Interface Module (1x10GE) | A900-IMA8T1Z | |
| | 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| | 14-port Serial Interface Module | A900-IMASER14A/S | |

| RSP | Interface Modules | Part Numbers | Slots |
|---|---|---|---|
| | 4-port C37.94 Interface Module | A900-IMA4C3794 | |
| A900-RSP2A-64<br>A900U-RSP2A-64 | 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | 0-2 |
| | 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| | 4-port OC3/STM-1 (OC-3) or 1-port OC12/STM-4<br>(OC-12) Interface Module | A900-IMA4OS | |
| | 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | 0, 2 and 3 |
| | 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |
| | 16-port T1/E1 Interface Module | A900-IMA16D | |
| | 32-port T1/E1 Interface Module | A900-IMA32D | |
| | 8-port T1/E1 Interface Module | A900-IMA8D | |
| | 6-port E & M Interface Module | A900-IMA6EM | |
| | 14-port Serial Interface Module | A900-IMASER14A/S | |
| | 4-port C37.94 Interface Module | A900-IMA4C3794 | |

## A900-RSP3C-200-S Supported Interface Modules (ASR 902 Router)

*Table 2: A900-RSP3C-200 Supported Interface Modules and Part Numbers*

| RSP Module | Supported Interface Modules | Part Numbers | Slot |
|---|---|---|---|
| A900-RSP3C-200-S | 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | All[1] |
| | 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |
| | 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | 0 and 1 |
| | SFP Combo IM—8-port Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet (1x10GE) | A900-IMA8S1Z | All |
| | Copper Combo IM—8-port Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet Interface Module (1x10GE) | A900-IMA8T1Z | |
| | 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| | 8-port 10 Gigabit Ethernet Interface Module (8x10GE) | A900-IMA8Z | 0 |
| | 2-port 40 Gigabit Ethernet QSFP Interface Module (2x40GE) | A900-IMA2F | |

[1] There are restrictions using the interface modules in different slots with RSP3 module. Contact Cisco Sales/Support for the valid combinations..

# Cisco ASR 903 Supported Interface Modules

## A900-RSP2 Supported Interface Modules

A900-IMA2Z IM supports SFP+ and XFP on ports 0 and 1. Either SFP+ or XFP can be connected on each port. If both are connected on the same port, the port will go down.

The combination IMs (A900-IMA8S1Z, A900-IMA8T1Z) are not supported on the A900-RSP2-64 RSP module on the Cisco ASR 903 Router.

The table below is applicable for A900-RSP2A-128 and A900U-RSP2A-128 RSP modules.

*Table 3: A900-RSP2A-128 Supported Interface Modules and Part Numbers*

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 1-port OC48/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module | A900-IMA3G-IMSG | 2,3,4,5 |
| 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | All |
| 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |
| 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | |
| 16-port T1/E1 Interface Module | A900-IMA16D | |
| 32-port T1/E1 Interface Module | A900-IMA32D | |
| 8-portT1/E1 Interface Module | A900-IMA8D | |
| 4-port OC3/STM-1 (OC-3) or 1-port OC12/STM-4 (OC-12) Interface Module | A900-IMA4OS | |
| SFP Combo IM—8-port SFP Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet (1x10GE) | A900-IMA8S1Z | |
| Copper Combo IM—8-port 10/100/1000 Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet Interface Module (1x10GE) | A900-IMA8T1Z | |
| 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| 6-port E & M Interface Module | A900-IMA6EM | |
| 14-port Serial Interface Module | A900-IMASER14A/S | |
| 4-port C37.94 Interface Module | A900-IMA4C3794 | |

The table below is applicable for A900-RSP2A-64 and A900U-RSP2A-64 RSP modules.

*Table 4: A900-RSP2A-64 Supported Interface Modules and Part Numbers*

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | 0-2 |
| 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| 4-port OC3/STM-1 (OC-3) or 1-port OC12/STM-4 (OC-12) Interface Module | A900-IMA4OS | |

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | 3-5 |
| 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |
| 16-port T1/E1 Interface Module | A900-IMA16D | |
| 32-port T1/E1 Interface Module | A900-IMA32D | |
| 8-port T1/E1 Interface Module | A900-IMA8D | |
| 6-port E & M Interface Module | A900-IMA6EM | |
| 14-port Serial Interface Module | A900-IMASER14A/S | |
| 4-port C37.94 Interface Module | A900-IMA4C3794 | |

## A900-RSP3C-400-S Supported Interface Modules

The table below is applicable for A900-RSP3C-400-S RSP module.

**Note** If the **license feature service-offload enable** command is configured, then the following IMs are not supported in the router for RSP3:

- A900-IMA8S
- A900-IMA8T
- A900-IMA8S1Z
- A900-IMA8T1Z

**Note** There are certain restrictions in using the interface modules on different slots with RSP3 module. Contact Cisco Sales/Support for the valid combinations.

***Table 5: A900-RSP3C-400 Supported Interface Modules and Part Numbers***

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | All |
| 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | All |
| 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | All |

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| SFP Combo IM—8-port SFP Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet (1x10GE) | A900-IMA8S1Z | All |
| Copper Combo IM—8-port 10/100/1000 Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet Interface Module (1x10GE) | A900-IMA8T1Z | All |
| 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | All |
| 8-port 10 Gigabit Ethernet Interface Module (8x10GE) | A900-IMA8Z | All |
| 1-port 100 Gigabit Ethernet Interface Module (1x100GE) | A900-IMA1C | 4 or 5 |
| 2-port 100 Gigabit Ethernet (QSFP) Interface Module (2x100GE) | N560-IMA2C/A900-IMA2C | 4 and 5[2] |
| 2-port 40 Gigabit Ethernet QSFP Interface Module (2x40GE) | A900-IMA2F | 4 or 5 |
| 8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module | A900-IMA8CS1Z-M | 0,3,4 or 5 |
| 8-Port 10G SFP+ Single-Rate Interface Module (N560-IMA-8Q/4L) Support | N560-IMA-8Q/4L | All<br>[3][4] |
| 48-port T1/E1 Interface module | A900-IMA48D-C | All |
| 48-port T3/E3 Interface module | A900-IMA48T-C | All |
| 1-port OC-192 or 8-Port Low Rate CEM Interface Module | A900-IMA8S1Z-CX | 2,3,4,5 |
| 4-port OC-48/OC-12/OC-3 + 12-Port A900-IMA3G-IMSG T1/E1 + 4-Port T3/E3 CEM Interface Module | A900-IMA3G-IMSG | 2,3,4,5 |
| ASR 900 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module | A900-IMA1Z8S-CXMS | 2, 3, 4, 5[5]<br>**Note** To enable this IM on slot 0 or slot 1, do the following and reload the router:<br>`Router# configure t`<br>`Router(config)# license feature service-offload enable` |

[2] IM supports only one port of 100G with RSP3 as QSFP28 on Port 0 in both slots 4 and 5.
[3] Starting with Cisco IOS XE Cupertino Release 17.8.1, N560-IMA-8Q/4L is supported on all slots with a default speed combination of 8X10G.
[4] The restrictions for Cisco N560-IMA-8Q/4L interface module is same as that of Cisco A900-IMA8Z interface module.
[5] These slots are supported on 10G or 20G mode.

## A900-RSP3C-200-S Supported Interface Modules

The table below is applicable for A900-RSP3C-200-S RSP module.

**Note** If the **license feature service-offload enable** command is configured, then the following IMs are not supported in the router for RSP3:

- A900-IMA8S
- A900-IMA8T
- A900-IMA8S1Z
- A900-IMA8T1Z

**Note** There are certain restrictions in using the interface modules on different slots with RSP3 module. Contact Cisco Sales/Support for the valid combinations.

**Note** FAN OIR is applicable every time the IM based fan speed profile is switched to the IMA1C and IMA2F interface modules. Even though the IMs remain in the Out-of-Service state, they are still considered as present in the chassis.

**Note** If there is any silicon oil leakage from the thermal pad of the RSP card, use a lint-free cloth moistened with IsoPropyl Alcohol (IPA) to thoroughly clean the affected area. Silicon oil leakage is an expected behaviour due to the material's properties. It is non-conductive, non-electrical, and poses no hazard to human health. The presence of silicon oil on the card is harmless and will not impact the card's functionality or system performance.

*Table 6: A900-RSP3C-200 Supported Interface Modules and Part Numbers*

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 8-port Gigabit Ethernet SFP Interface Module (8x1GE) | A900-IMA8S | All |
| 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8x1GE) | A900-IMA8T | |

| Supported Interface Modules | Part Numbers | Slot |
|---|---|---|
| 1-port 10 Gigabit Ethernet XFP Interface Module (1x10GE) | A900-IMA1X | 0, 2 or 4 |
| SFP Combo IM—8-port SFP Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet (1x10GE) | A900-IMA8S1Z | 1-5[6] |
| Copper Combo IM—8-port 10/100/1000 Gigabit Ethernet (8x1GE) + 1-port 10 Gigabit Ethernet Interface Module (1x10GE) | A900-IMA8T1Z | 0-4 |
| 2-port 10 Gigabit Ethernet Interface Module (2x10GE) | A900-IMA2Z | |
| 8-port 10 Gigabit Ethernet Interface Module (8x10GE) | A900-IMA8Z | 4 |
| 2-port 40 Gigabit Ethernet QSFP Interface Module (2x40GE) | A900-IMA2F | 4 |
| 4-port OC-48/OC-12/OC-3 + 12-Port A900-IMA3G-IMSG T1/E1 + 4-Port T3/E3 CEM Interface Module | A900-IMA3G-IMSG | 2-5[7] |
| 8-Port 10 Gigabit Ethernet (8x10GE) SFP+ Interface Module with Conformal Coating | [8]ASR900-IMA8Z-CC | 0 |

[6] If you have a 1-port 10G IM in slot 0, then SFP combo may not be supported in slot 5.
[7] If slot 0 has 8X10G IM and you want to insert IMA-3G-IMSG to slot 5, then insert 8X10G IM on slot 6, by using the **hw-module subslot 0/0 A900-IMA8Z mode 6-Port** command.
[8] Supported only from release XE-17.13.1 onwards.

# Cisco ASR 907 Supported Interface Modules

## Supported Interface Modules

**Note** If the **license feature service-offload enable** command is configured, then the following IMs are not supported in the router for RSP3:

- A900-IMA8S
- A900-IMA8T
- A900-IMA8S1Z
- A900-IMA8T1Z

**Note** There are certain restrictions in using the interface modules on different slots in the chassis. Contact Cisco Sales and Support for the valid combinations.

***Table 7: A900-RSP3 Supported Interface Modules and Part Numbers***

| RSP Module | Interface Modules | Part Number | Slot |
|---|---|---|---|
| A900-RSP3C-400-W | 8-port Gigabit Ethernet SFP Interface Module (8X1GE) | A900-IMA8S | 0,1,2,5,6,9,10,13,14,15 |
| | 8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8X1GE) | A900-IMA8T | 0,1,2,5,6,9,10,13,14,15 |
| | 1-port 10 Gigabit Ethernet XFP Interface Module (1X10GE) | A900-IMA1X | Not Supported |
| | SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE) | ASR900-IMA8S1Z | 2,5,6,9,10,13,14,15 |
| | Copper Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet Interface Module (1X10GE) | ASR900-IMA8T1Z | 2,5,6,9,10,13,14,15 |
| | 2-port 10 Gigabit Ethernet Interface Module (2X10GE) | ASR900-IMA2Z | 3,4,7,8,11,12 |
| | 16-port T1/E1 Interface Module | A900-IMA16D | Not Supported |
| | 14-port Serial Interface Module | A900-IMASER14A/S | 3,4,7,8,11,12[9] |
| | 8-port T1/E1 Interface Module | A900-IMA8D | Not Supported |
| | 32-port T1/E1 Interface Module | A900-IMA32D | Not Supported |
| | 1x100G Interface module | A900-IMA1C | 7 and 8 |
| | 2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE) | A900-IMA2C | 7 and 8[10] |
| | 2x40G Interface module | A900-IMA2F | 3,4,7,8,11,12 |
| | 8x10G Interface module | A900-IMA8Z[11] | 3,4,7,8,11,12 |
| | 8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module | A900-IMA8CS1Z-M | 0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15 |

| RSP Module | Interface Modules | Part Number | Slot |
|---|---|---|---|
| | 1-port OC-192 or 8-Port Low Rate CEM Interface Module | A900-IMA8S1Z-CX | 3,4,7,8,11,12 (10 G Mode)<br>0,1,2,5,6,9,10,13,14,15 (5 G Mode) |
| | 48-port T1/E1 Interface module | A900-IMA48D-C | 2,3,4,5,6,7,8,9,10,11,12,13,14,15 |
| | 48-port T3/E3 Interface module | A900-IMA48T-C | 2,3,4,5,6,7,8,9,10,11,12,13,14,15 |
| | 1-port OC48/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module | A900-IMA3G-IMSG | 3,5,7,9,11,13,15 |
| | ASR 900 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module | A900-IMA1Z8S-CXMS | 3, 7, 11[12]<br>4, 8, 12[13]<br>5, 9, 13, 15[14]<br>**Note** To enable this IM on slot 0 or slot 1, do the following and reload the router:<br>`Router# configure t`<br>`Router(config)# license feature service-offload enable` |
| | 6-port E&M Module | A900-IMA6EM | All slots |
| | 4-port C37.94 Interface Module | A900-IMA4C3794 | All slots |

[9] The serial IM will not work on slots 11 and 12, if the IMs A900-IMA8T or A900-IMA8S is inserted on any slot in the router.
[10] The IMs A900-IMA6EM, A900-IMASER14A/S, and A900-IMA4C3794 can be installed in slots 3, 4, 7, 8, 11, 12. Slots 3, 4 and 11, 12 have dependency with 1 Gigabit Ethernet IMs. These IMs can be placed in slots 3 only if Gigabit Ethernet IM is not present in slot 5. These IMs can be placed in slots 4 only if Gigabit Ethernet IM is not present in slot 6. These IMs can be placed in slots 11 only if Gigabit Ethernet IM is not present in slots 1, 5, 9, 13, and 15. These IMs can be placed in slots 12 only if Gigabit Ethernet IM is not present in slots 0,2,6,10 and 14.
[11] Six IM slots are supported with various combinations but only five IM slots are functional at a time.
[12] These slots are supported on 10G or 20G mode.
[13] These slots are supported on 10G or 20G mode, only if the adjacent odd slots are empty.
[14] These slots are supported on 10G mode.

# Cisco ASR 914 Supported Interface Modules

For information in interface modules supported, see Cisco A900-RSP3C-400-W Supported Interface Modules.

## Swapping of Interface Modules

The following Ethernet interface modules support swapping on the Cisco A900-RSP3C-400-W module:

Use the **hw-module subslot default** command before performing a swap of the modules to default the interfaces on the interface module.

- SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE)
- 2-port 40 Gigabit Ethernet Interface Module (2X40GE)
- 8-port 10 Gigabit Ethernet Interface Module (8X10GE)
- 1-port 100 Gigabit Ethernet Interface Module (1X100GE)
- OC-192 Interface Module with 8-port Low Rate CEM Interface Module (10G HO / 10G LO)
- 48 T1/E1 TDM Interface Module (48XT1/E1)
- 48 T3/E3 TDM Interface Module (48XT3/E3)

Use of **hw-module subslot default** command is not supported on the following interface modules.

- 1-port OC-192 Interface Module with 8-port Low Rate CEM Interface Module (10G HO / 10G LO)
- 48 T1/E1 TDM Interface Module (48XT1/E1)
- 48 T3/E3 TDM Interface Module (48XT3/E3)
- 1-port OC48/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module (A900-IMA3G-IMSG)
- ASR 900 Combo 8-Port SFP GE and 1-Port 10 GE 20G Interface Module (A900-IMA1Z8S-CXMS)



**Note** If the **license feature service-offload enable** command is configured, then the following IMs are not supported in the router for RSP3:

- A900-IMA8S
- A900-IMA8T
- A900-IMA8S1Z
- A900-IMA8T1Z



**Note** There are certain restrictions in using the interface modules on different slots in the chassis. Contact Cisco Sales/Support for the valid combinations.

*Table 8: Cisco A900-RSP3C-400-W Supported Interface Modules and Part Numbers*

| RSP Module | Interface Modules | Part Number | Slot |
|---|---|---|---|
| A900-RSP3C-400-W | SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE) | A900-IMA8S1Z | 2,5,6,9,10,13,14,15 |
| | 1x100G Interface module | A900-IMA1C | 7,8 |
| | 2x40G Interface module | A900-IMA2F | 3,4,7,8,11,12 |
| | 8x10G Interface module | A900-IMA8Z | 3,4,7,8,11,12 |
| | 8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module | A900-IMA8CS1Z-M | 0,1,2,3,4,5,6,7,8,9,10,11,12,13,14, and 15 |
| | OC-192 Interface Module with 8-port Low Rate CEM Interface Module (10G HO / 10G LO) | A900-IMA1Z8S-CX | 3,4,7,8,11,12<br>**Note** Other slots are supported in the 5G mode. |
| | 48XT1/E1 Interface module | A900-IMA48D-C | 2,3,4,5,6,7,8,9,10,11,12,13,14, and 15 |
| | 48XT3/E3 Interface module | A900-IMA48T-C | 2,3,4,5,6,7,8,9,10,11,12,13,14, and 15 |
| | 1-port OC48/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module | A900-IMA3G-IMSG | 2,3,4,5,6,7,8,9,10,13,14, and 15 |
| | 2x100G Interface module | NCS560-IMA2C/A900-IMA2C | 7, 8 |
| | Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG 20G Interface Module | A900-IMA1Z8S-CXMS | 0, 1, 2, 5, 6, 9, 10, 13, 14, 15[15]<br>3, 4, 7, 8, 11, 12[16]<br>**Note** To enable this IM on slot 0 or slot 1, do the following and reload the router:<br>`Router# configure t`<br>`Router(config)# license feature service-offload enable` |

[15] These slots are supported on 10G mode.
[16] These slots are supported on 20G mode.

# Feature Matrix

The feature matrix lists the features that are supported for each platform.

# Software Licensing Overview

The router offers the following base licenses:

- Metro Services
- Metro IP Services
- Metro Aggregation Services

**Note** Starting with Cisco IOS XE Cupertino 17.7.1, licenses are not enabled by default. We recommend that you move to Smart Licensing.

### Smart Licensing

Starting with Cisco IOS XE Cupertino 17.7.1, PAK licenses are no longer available. When you purchase the Cisco IOS XE Cupertino 17.7.1 release or later, Smart Licensing is enabled by default. We recommend that you move to Smart Licensing before upgrading to Cisco IOS XE Cupertino 17.7.1 or a higher release, for a seamless experience.

If you are using Cisco IOS XE Bengaluru 17.6.1 or an earlier release version, Smart Licensing is not enabled by default. To enable Smart Licensing, see Software Activation Configuration Guide (Cisco IOS XE ASR 900 Series).

*Table 9: Cisco ASR 900 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 |

| Metro Services | Metro IP Services | Metro Aggregation Services |
|---|---|---|
| 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
- OCx-overview- Port License

**Note** These features require a software license to use.

# Determining the Software Version

You can use the following commands to verify your software version:

- Consolidated Package—**show version**
- Individual sub-packages—**show version installed** (lists all installed packages)

# Upgrading to a New Software Release

Only the latest consolidated packages can be downloaded from Cisco.com; users who want to run the router using individual subpackages must first download the image from Cisco.com and extract the individual subpackages from the consolidated package.

For information about upgrading to a new software release, see the Upgrading the Software on the Cisco ASR 900 Series Routers .

### Upgrading the FPD Firmware

FPD Firmware packages are bundled with the software package. FPD upgrade is automatically performed ont the router.

If you like to manually change the FPD Firmware software, use the **upgrade hw-module subslot 0/0 fpd bundle** to perform FPD frmware upgrade.

### ROMMON Version

We recommend you to upgrade the ROMMON version for RSP2 and RSP3 modules:

- 15.6(49r)S for RSP3-400S, RSP3-400W
- 15.6(48r)S for RSP2-128

For more information on the ROMMON package, see Cisco Software Download.

**Note** ROMMON upgrade is mandatory to boot RSP3 images.

# Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 17.3.x Release

Use the **show hw-module all fpd** command to display the IM FPGA version on the router.

The below table lists the FPGA version for the software releases.

**Note** If there is an FPGA upgrade during ISSU, it will cause traffic disruption. TDM interface modules get reset irrespective of FPGA upgrade during the ISSU.

**Note** Effective Cisco IOS XE 17.3.1, secure ROMMON version of **15.6(42r)S** is supported to boot RSP3 images.

Once you upgrade to the secure BIOS ROMMON version, you cannot downgrade to non-secure ROMMON versions (lower than15.6(33r)S). The Cisco IOS XE 17.3.1 release is bundled with 15.6(42r)S ROMMON and the auto upgrade feature will upgrade all RSPs running a lower version of ROMMON to Secure 15.6 (**42**r)S ROMMON.

*Table 10: IM FPGA Versions for Ethernet Phase 3 IM*

| Cisco IOS XE Release | IO FGPA | 8 x10 FPGA | 2x40 FPGA | 1x100 FPGA |
|---|---|---|---|---|
| 17.3.1 | 0x34 | 0.21 | 0.22 | 0.20 |
| 17.3.2a | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.3 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.4 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.5 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.6 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.7 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.8 | 0x34 | 0.23 | 0.22 | 0.20 |
| 17.3.8a | 0x34 | 0.23 | 0.22 | 0.20 |

*Table 11: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907*

| Category | Release | 48-port T1/E1 CEM Interface Module FPGA (A900-IMA48D-C) | 48-port T3/E3 CEM Interface Module FPGA A900-IMA48T-C | 1-port OC-192 Interface Module + 8-port Low Rate Interface Module FPGA A900-IMA8S1Z-CX | 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 (A900-IMA3G-IMSG) | Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG 20G Interface Module (A900-IMA1Z8S-CXMS) |
|---|---|---|---|---|---|---|
| CEM FPGA | Cisco IOS XE 17.3.1 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.86 |
| CEM FPGA | Cisco IOS XE 17.3.2a | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.3 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.4 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.5 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |

| Category | Release | 48-port T1/E1 CEM Interface Module FPGA (A900-IMA48D-C) | 48-port T3/E3 CEM Interface Module FPGA A900-IMA48T-C | 1-port OC-192 Interface Module + 8-port Low Rate Interface Module FPGA A900-IMA8S1Z-CX | 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 (A900-IMA3G-IMSG) | Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG 20G Interface Module (A900-IMA1Z8S-CXMS) |
|---|---|---|---|---|---|---|
| CEM FPGA | Cisco IOS XE 17.3.6 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.7 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.8 | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |
| CEM FPGA | Cisco IOS XE 17.3.8a | 0x52050052 | 0x52310052 | 5G mode: 0x10210063<br>10G mode: 0x10510078 | 0x10210074 | 10G mode: 0x10800047<br>20G mode: 0x10800047 |
| IM FPGA | | 1.22 | 1.22 | 1.15 | 2.00 | 0.93 |

*Table 12: HoFPGA and ROMMON Versions for ASR 903 RSP3 and ASR 907*

| Category | Release | 48-port T1/E1 CEM Interface Module FPGA (A900-IMA48D-C) | 48-port T3/E3 CEM Interface Module FPGA A900-IMA48T-C | 1-port OC-192 Interface Module + 8-port Low Rate Interface Module FPGA A900-IMA8S1Z-CX | 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 (A900-IMA3G-IMSG) | Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG 20G Interface Module (A900-IMA1Z8S-CXMS) |
|---|---|---|---|---|---|---|
| ROMMON | Cisco IOS XE 17.3.1 | 15.6(37r)S | 15.6(37r)S | 15.6(37r)S | 15.6(37r)S | 15.6(37r)S |
| HoFPGA (Active/ Standby) | | 0x00030004 | 0x00030004 | 0x00030004 | 0x00030004 | 0x00030004 |
| ROMMON | Cisco IOS XE 17.3.2a | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.3 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.4 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.5 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.6 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.7 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |

| Category | Release | 48-port T1/E1 CEM Interface Module FPGA (A900-IMA48D-C) | 48-port T3/E3 CEM Interface Module FPGA A900-IMA48T-C | 1-port OC-192 Interface Module + 8-port Low Rate Interface Module FPGA A900-IMA8S1Z-CX | 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 (A900-IMA3G-IMSG) | Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG 20G Interface Module (A900-IMA1Z8S-CXMS) |
|---|---|---|---|---|---|---|
| ROMMON | Cisco IOS XE 17.3.8 | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |
| ROMMON | Cisco IOS XE 17.3.8a | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S | 15.6(42r)S |
| HoFPGA (Active/ Standby) | | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 | 0x10800047 |

*Table 13: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 17.3.3, Cisco IOS XE 17.3.1 and Cisco IOS XE 17.3.2a Release*

| Platform | Interface Module | FPGA Current Version | FPGA Minimum Required Version | RSP HoFPGA Active | RSP HoFPGA Standby | ROMMON |
|---|---|---|---|---|---|---|
| RSP-128 | A900-IMA2Z | 69.22 | 69.22 | 0X0003000e | 0X0003000e | 15.6(43r)S |
| | A900-IMA8S | 0.49 | 0.47 | | | |
| | A900-IMA8T1Z | 69.24 | 69.24 | | | |
| RSP3-400S | A900-IMA1C | 0.2 | 0.2 | 40031 | 40031 | 15.6(42r)S |
| | A900-IMA8Z | 0.22 | 0.21 | | | |
| | A900-IMA8S1Z | 69.24 | 69.24 | | | |
| RSP3-400W | A900-IMA1C | 0.2 | 0.2 | 20040030 | 20040030 | 15.6(42r)S |
| | A900-IMA2Z | 69.22 | 69.22 | | | |

*Table 14: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 17.3.5 Release*

| Platform | Interface Module | FPGA Current Version | FPGA Minimum Required Version | RSP HoFPGA Active | RSP HoFPGA Standby | ROMMON |
|---|---|---|---|---|---|---|
| RSP-128 | A900-IMA2Z | 69.24 | 69.22 | 0X00030011 | 0X00030011 | 15.6(42r)S |
| | A900-IMA8S | 0.75 | 0.47 | | | |
| | A900-IMA8T1Z | 69.24 | 69.24 | | | |

| Platform | Interface Module | FPGA Current Version | FPGA Minimum Required Version | RSP HoFPGA Active | RSP HoFPGA Standby | ROMMON |
|---|---|---|---|---|---|---|
| RSP3-400S | A900-IMA1C | 0.20 | 0.20 | 40035 | 40035 | 15.6(42r)S |
| | A900-IMA8Z | 0.22 | 0.21 | | | |
| | A900-IMA8S1Z | 69.24 | 69.24 | | | |
| RSP3-400W | A900-IMA1C | 0.20 | 0.20 | 40035 | 40035 | 15.6(42r)S |
| | A900-IMA2Z | 69.22 | 69.22 | 20040034 | 20040034 | 15.6(42r)S |

# Documentation Updates

### Rearrangement in the Configuration Guides

- The following are the modifications in the CEM guides.
  - Introduction of the Alarm Configuring and Monitoring Guide:

    This guide provides the following information:

    - Alarms supported for SONET and SDH, and their maintenance
    - Alarm profiling feature
    - Auto In-Service States for cards, ports, and transceivers

    For more information, see the Alarm Configuring and Monitoring Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).
  - Rearrangement of Chapter and Topics in the Alarm Configuring and Monitoring Guide:
    - The Auto In-Service States Guide is now a chapter inside the Alarms Configuring and Monitoring Guide.
    - Alarms at SONET Layers topic in the following CEM guides, is added to the Alarms Configuring and Monitoring Guide:
      - 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
      - 1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide
    - The Alarm History and Alarm Profiling chapters are removed from the below CEM Technology guides, and added into the Alarm Configuring and Monitoring Guide:
      - 48-Port T1/E1 CEM Interface Module Configuration Guide
      - 48-Port T3/E3 CEM Interface Module Configuration Guide
      - 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

- 1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide

- Configuring IEEE 802.3ad Link Bundling is now available in Ethernet Channel Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).
- The following are the modifications in the High Availability Configuration Guide:
  - Installing and Upgrading Software chapter is now available in the High Availability Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series). This chapter is removed from Loading and Managing System Images Configuration Guide.
  - Performing Step-by-Step ISSU Upgrade section is now available in the High Availability Configuration Guide, Cisco IOS XE 17 (Cisco ASR 900 Series).

# MIB Support

The below table summarizes the supported MIBs on the Cisco ASR 900 Series Router.

***Table 15: Supported MIBs***

| **Supported MIBs** | | |
|---|---|---|
| BGP4-MIB (RFC 1657) | CISCO-IMAGE-LICENSE-MGMT-MIB | MPLS-LDP-STD-MIB (RFC 3815) |
| CISCO-BGP-POLICY-ACCOUNTING-MIB | CISCO-IMAGE-MIB | MPLS-LSR-STD-MIB (RFC 3813) |
| CISCO-BGP4-MIB | CISCO-IPMROUTE-MIB | MPLS-TP-MIB |
| CISCO-BULK-FILE-MIB | CISCO-LICENSE-MGMT-MIB | MSDP-MIB |
| CISCO-CBP-TARGET-MIB | CISCO-MVPN-MIB | NOTIFICATION-LOG-MIB (RFC 3014) |
| CISCO-CDP-MIB | CISCO-NETSYNC-MIB | OSPF-MIB (RFC 1850) |
| CISCO-CEF-MIB | CISCO-OSPF-MIB | OSPF-TRAP-MIB (RFC 1850) |
| CISCO-CLASS-BASED-QOS-MIB | CISCO-OSPF-TRAP-MIB | PIM-MIB (RFC 2934) |
| CISCO-CONFIG-COPY-MIB | CISCO-PIM-MIB | RFC1213-MIB |
| CISCO-CONFIG-MAN-MIB | CISCO-PROCESS-MIB | RFC2982-MIB |
| CISCO-DATA-COLLECTION-MIB | CISCO-PRODUCTS-MIB | RMON-MIB (RFC 1757) |
| CISCO-EMBEDDED-EVENT-MGRMIB | CISCO-PTP-MIB | RSVP-MIB |
| CISCO-ENHANCED-MEMPOOL-MIB | CISCO-RF-MIB | SNMP-COMMUNITY-MIB (RFC 2576) |
| CISCO-ENTITY-ALARM-MIB | CISCO-RTTMON-MIB | SNMP-FRAMEWORK-MIB (RFC 2571) |
| CISCO-ENTITY-EXT-MIB | CISCO-SONET-MIB | SNMP-MPD-MIB (RFC 2572) |

| | | |
|---|---|---|
| CISCO-ENTITY-FRU-CONTROLMIB | CISCO-SYSLOG-MIB | SNMP-NOTIFICATION-MIB (RFC 2573) |
| CISCO-ENTITY-SENSOR-MIB | DS1-MIB (RFC 2495) | SNMP-PROXY-MIB (RFC 2573) |
| CISCO-ENTITY-VENDORTYPE-OID-MIB | ENTITY-MIB (RFC 4133) | SNMP-TARGET-MIB (RFC 2573) |
| CISCO-FLASH-MIB | ENTITY-SENSOR-MIB (RFC 3433) | SNMP-USM-MIB (RFC 2574) |
| CISCO-FTP-CLIENT-MIB | ENTITY-STATE-MIB | SNMPv2-MIB (RFC 1907) |
| CISCO-IETF-ISIS-MIB | EVENT-MIB (RFC 2981) | SNMPv2-SMI |
| CISCO-IETF-PW-ATM-MIB | ETHERLIKE-MIB (RFC 3635) | SNMP-VIEW-BASED-ACM-MIB (RFC 2575) |
| CISCO-IETF-PW-ENET-MIB | IF-MIB (RFC 2863) | SONET-MIB |
| CISCO-IETF-PW-MIB | IGMP-STD-MIB (RFC 2933) | TCP-MIB (RFC 4022) |
| CISCO-IETF-PW-MPLS-MIB | IP-FORWARD-MIB | TUNNEL-MIB (RFC 4087) |
| CISCO-IETF-PW-TDM-MIB | IP-MIB (RFC 4293) | UDP-MIB (RFC 4113) |
| CISCO-IF-EXTENSION-MIB | IPMROUTE-STD-MIB (RFC 2932) | CISCO-FRAME-RELAY-MIB |
| CISCO-IGMP-FILTER-MIB | MPLS-LDP-GENERIC-STD-MIB (RFC 3815) | IF-MIB |
| CISCO-AAA-SERVER-MIB | — | — |

***Table 16: Unverified MIBs***

| **Unverified MIBs** | | |
|---|---|---|
| ATM-MIB | CISCO-IETF-DHCP-SERVER-EXT-MIB | EXPRESSION-MIB |
| CISCO-ATM-EXT-MIB | — | HC-ALARM-MIB |
| CISCO-ATM-IF-MIB | CISCO-IETF-PPVPN-MPLS-VPN-MIB | HC-RMON-MIB |
| CISCO-ATM-PVC-MIB | CISCO-IP-STAT-MIB | IEEE8021-CFM-MIB |
| CISCO-ATM-PVCTRAP-EXTN-MIB | CISCO-IPSLA-ETHERNET-MIB | IEEE8021-CFM-V2-MIB |
| CISCO-BCP-MIB | CISCO-L2-CONTROL-MIB | IEEE8023-LAG-MIB |
| CISCO-CALLHOME-MIB | CISCO-LAG-MIB | INT-SERV-GUARANTEED-MIB |
| CISCO-CIRCUIT-INTERFACE-MIB | CISCO-MAC-NOTIFICATION-MIB | INTEGRATED-SERVICES-MIB |
| CISCO-CONTEXT-MAPPING-MIB | CISCO-MEMORY-POOL-MIB | MPLS-L3VPN-STD-MIB (RFC 4382) |
| CISCO-EIGRP-MIB | CISCO-NHRP-EXT-MIB | MPLS-LDP-ATM-STD-MIB (RFC 3815) |

| | | |
|---|---|---|
| CISCO-ERM-MIB | CISCO-NTP-MIB | MPLS-LDP-MIB |
| CISCO-ETHER-CFM-MIB | CISCO-PING-MIB | MPLS-TE-STD-MIB |
| CISCO-ETHERLIKE-EXT-MIB | CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB | MPLS-VPN-MIB |
| CISCO-EVC-MIB | CISCO-RTTMON-ICMP-MIB | NHRP-MIB |
| CISCO-HSRP-EXT-MIB | CISCO-RTTMON-IP-EXT-MIB | RFC2006-MIB (MIP) |
| CISCO-HSRP-MIB | CISCO-RTTMON-RTP-MIB | RMON2-MIB (RFC 2021) |
| CISCO-IETF-ATM2-PVCTRAP-MIB | CISCO-SNMP-TARGET-EXT-MIB | SMON-MIB |
| CISCO-IETF-ATM2-PVCTRAP-MIBEXTN | CISCO-TCP-MIB | VRRP-MIB |
| CISCO-IETF-BFD-MIB | CISCO-VRF-MIB | — |
| CISCO-IETF-DHCP-SERVER-MIB | ETHER-WIS (RFC 3637) | — |

## MIB Documentation

The following resources provide more detail about MIBs on the Cisco ASR 900 Series Router:

- Cisco ASR 900 Series Router MIB Guide—For information about the Cisco ASR 903 Series Router product implementation of the MIB protocol, see *Cisco ASR 903 Series Aggregation Services Router MIB Specifications Guide* at the following location:

  http://www.cisco.com/c/en/us/td/docs/wireless/asr_900/mib/guide/asr903mib.html

- MIB Locator—To locate and download MIBs for selected platforms, Cisco IOS and Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following location:

  https://snmp.cloudapps.cisco.com/Support/SNMP/do/BrowseOID.do?local=en

# Additional References

### Product Information

- Cisco ASR 900 Series Aggregation Services Routers Data Sheets

### Hardware Installation Guides

- Cisco ASR 900 Series Aggregation Services Routers Hardware Guides

### Software Configuration Guides

- Cisco ASR 900 Series Aggregation Services Routers Configuration Guides

### Regulatory Compliance and Safety Information

- Regulatory Compliance and Safety Information for the Cisco ASR 900 Series Aggregation Services Routers

### 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.

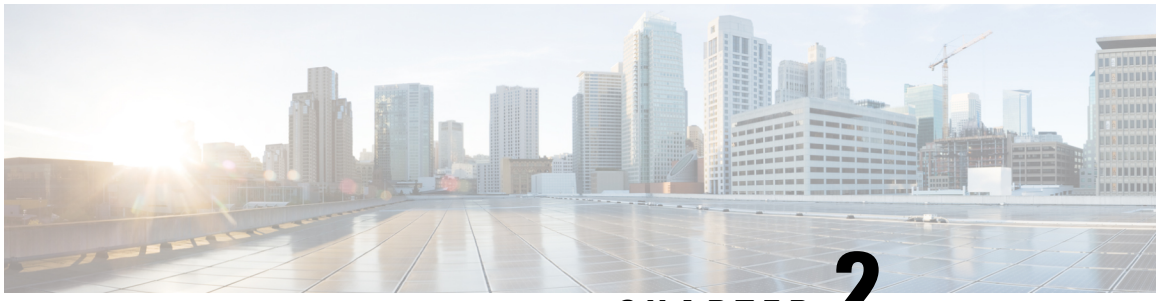
### Accessibility Features in the Cisco ASR 900 Series Routers

For a list of accessibility features in Cisco ASR 900 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 900 Series Routers, see https://www.cisco.com/c/en/us/products/routers/asr-903-series-aggregation-services-routers/eos-eol-notice-listing.html.



CHAPTER 2

# 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, on page 29
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.8a, on page 29
- What's New in Software for Cisco IOS XE Amsterdam 17.3.8, on page 30
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.7, on page 30
- What's New in Software for Cisco IOS XE Amsterdam 17.3.7, on page 30
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.6, on page 30
- What's New in Software for Cisco IOS XE Amsterdam 17.3.6, on page 30
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.5, on page 30
- What's New in Software for Cisco IOS XE Amsterdam 17.3.5, on page 30
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.4, on page 30
- What's New in Software for Cisco IOS XE Amsterdam 17.3.4, on page 30
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.3, on page 31
- What's New in Software for Cisco IOS XE Amsterdam 17.3.3, on page 31
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.2a, on page 31
- What's New in Software for Cisco IOS XE Amsterdam 17.3.2a, on page 31
- What's New in Hardware for Cisco IOS XE Amsterdam 17.3.1, on page 31
- What's New in Software for Cisco IOS XE Amsterdam 17.3.1, on page 32


# 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.<br><br>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.<br><br>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.<br>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.<br>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.<br>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).<br>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.<br>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** | |

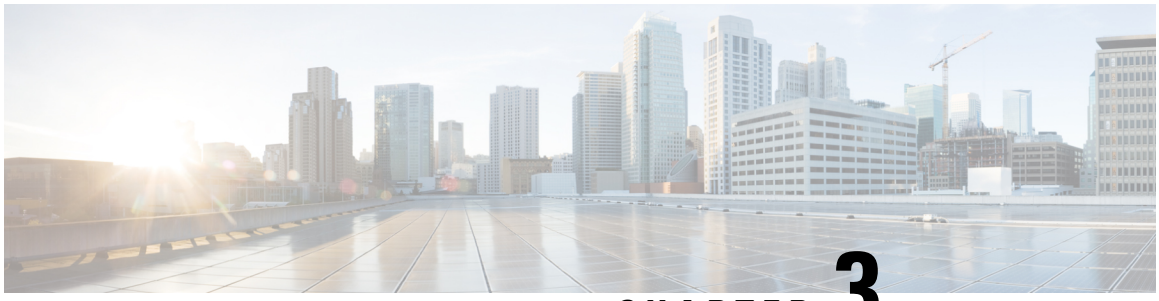
| Feature | Description |
|---|---|
| Aggregated Interface Statistics on Bundle | Aggregate multicast packet count is implemented for all the (S,G) entries for which the given BDI serves as the OIF. |
| Native Multicast SLA Measurement with MLDP | Outgoing interface (OIF) statistics in a native multicast 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.<br>There are three fundamental building blocks for EVPN technology, EVPN Instance (EVI), Ethernet Segment (ES), EVPN BGP routes and extended communities.<br>For EVPN Single-Homing feature, a CE device is attached to a single PE device and has an Ethernet Segment.<br>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).



CHAPTER 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.


- Open Caveats – Cisco IOS XE Amsterdam 17.3.8a, on page 38
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.8a, on page 38
- Open Caveats – Cisco IOS XE Amsterdam 17.3.8, on page 38
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.8, on page 38
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.7, on page 38
- Open Caveats – Cisco IOS XE Amsterdam 17.3.7, on page 39
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.6, on page 39
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.6 - Platform Independent, on page 40
- Open Caveats – Cisco IOS XE Amsterdam 17.3.6, on page 40
- Open Caveats – Cisco IOS XE Amsterdam 17.3.6 - Platform Independent, on page 40
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.5, on page 41
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.5 - Platform Independent, on page 42
- Open Caveats – Cisco IOS XE Amsterdam 17.3.5, on page 43
- Open Caveats – Cisco IOS XE Amsterdam 17.3.5 - Platform Independent, on page 43
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.4, on page 43
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.4 - Platform Independent, on page 43
- Open Caveats – Cisco IOS XE Amsterdam 17.3.4, on page 43
- Open Caveats – Cisco IOS XE Amsterdam 17.3.4 - Platform Independent, on page 44
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.3, on page 44
- Resolved Caveats – Cisco IOS XE Amsterdam 17.3.3 - Platform Independent, on page 44
- Open Caveats – Cisco IOS XE Amsterdam 17.3.3, on page 45

• Open Caveats – Cisco IOS XE Amsterdam 17.3.3 - Platform Independent, on page 45
• Resolved Caveats – Cisco IOS XE Amsterdam 17.3.2a, on page 45
• Resolved Caveats – Cisco IOS XE Gibraltar 17.3.2a - Platform Independent, on page 46
• Open Caveats – Cisco IOS XE Amsterdam 17.3.2a, on page 46
• Resolved Caveats – Cisco IOS XE Amsterdam 17.3.1, on page 47
• Open Caveats – Cisco IOS XE Amsterdam 17.3.1, on page 48
• Cisco Bug Search Tool, on page 49

# Open Caveats – Cisco IOS XE Amsterdam 17.3.8a

There are no open caveats for this release.

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.8a

| Identifier | Headline |
|---|---|
| CSCwh87343 | Cisco IOS XE Software Web UI Privilege Escalation Vulnerability |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.8

There are no open caveats for this release.

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.8

There are no resolved caveats for this release.

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.7

| Identifier | Headline |
|---|---|
| CSCwa29664 | BGP neighbor cannot up with bfd strict-mode configured |
| CSCwa33365 | SNMP polling for traffic stats is displaying wrong values for all interface |
| CSCvz73321 | PEGM/RSP2: Rommon and fpga upgrade synchronization during autoupgrade |
| CSCvy09725 | Software solution to detect the BAD PSU |
| CSCwe13024 | ASR900-RSP2: All readings for Power supply unit reflect as zero though the unit is functional |
| CSCwd15539 | RSP2/RSP3 : IM's shouldn't reload during sipspa install stage 3 in single step install ISSU |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.7

| Identifier | Headline |
|---|---|
| CSCwb77396 | G.8032: Ring brief output doesnt display the Block port flag in Idle state |
| CSCwb75983 | BFD Session with authentication with 16 or more characters remains down |
| CSCvv06958 | CPE SIT: IP Sec tunnel is not reachable after RSP3 SSO |
| CSCvw47384 | Defaulting the g8032 ring ports and reapplying the same config, results the Ring in pending state. |
| CSCwb60655 | RSP2 : Interface remains down after SSO or ISSU upgrade |
| CSCwa30653 | MVPN Profile 14 : Data MDT traffic not flowing with 2 paths when OSPF cost configured on 1 path |
| CSCwb60002 | ASR900 may experience an unexpected reset when configuring or using interface BDI >= 4097 |
| CSCvz64063 | APS:ACR:Shut before reload and no shut after reload make Active and standby states inconsistent |
| CSCvv45107 | RSP3:%FPD_MGMT-3-PKG_VER_MISMATCH_NOTE is seen during auto-upgrade of celeborn IM |
| CSCvt99060 | RSP3: Warning message display when SR PFP scale tunnels are configured beyond 250 |
| CSCvu16223 | VPLS BD configured with MAC limit starts learning MAC address upon VPLS session flap |
| CSCvx92919 | High convergence seen during re-opt scenario with Flex-LSP Non-revertive Config |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.6

| Identifier | Headline |
|---|---|
| CSCwa94444 | F2B chassis: The **show environment** command does not display the fan speed. |
| CSCwa99837 | RSP3: Implement show command to display VOQ that failed during delete VOQ. |
| CSCwa54842 | RSP3: QOSMGR-4-QUEUE_ExCEEDING_HW: VOQs exceeded hardware limit. |
| CSCwb06353 | Router goes down with IP SLA configuration which is not supported. |
| CSCvy34396 | MAC table inconsistency due to parity error. |
| CSCwb77723 | Duplicated unicast ARP packets. |

| Identifier | Headline |
|---|---|
| CSCvx26935 | VOQ deletion failure due to the queue 'nonempty' state. |
| CSCwb01940 | The router drops L2 multicast traffic upon REP topology change. |
| CSCwb01224 | Multihop BFD transit packets getting dropped the router after upgrade to 17.3.3. |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.6 - Platform Independent

| Identifier | Headline |
|---|---|
| CSCwb66047 | RSP3/ASR920/RSP2:node crashed @ l2rib_obj_peer_tbl_cmd_print |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.6

| Identifier | Headline |
|---|---|
| CSCvw47384 | Setting the g8032 ring ports to the default value and reapplying the same configuration, results the Ring to a pending state. |
| CSCwb60002 | The router experiences an unexpected reset when configuring or using an interface with BDI value greater than or equal to 4097. |
| CSCwb60655 | RSP2: Interface remains down after SSO or ISSU upgrade. |
| CSCvz02262 | TCAM corruption happening at bank boundary when one of the bank is full. |
| CSCvz64063 | APS:ACR:Shut before reload and no shut after reload make Active and standby states inconsistent |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.6 - Platform Independent

| Identifier | Headline |
|---|---|
| CSCvu15652 | CEM26K : confiig / unconfig of CEME26K circuits causes 1-2 ckts in down state in standby RSP3. |
| CSCvv74332 | ASR920:VPLSoBKPW:MAC not flushed/withdrawn in remote peer on VC swichover from active to standby. |

| Identifier | Headline |
|---|---|
| CSCwa30653 | MVPN Profile 14 : Data MDT traffic not flowing with 2 paths when OSPF cost configured on 1 path |
| CSCvu06350 | 16.12.3 ES: Active RP crashed due to UNIX-EXT-SIGNAL: Segmentation fault(11), Process = BFD events |
| CSCvw19225 | [17.5 EIGRP] Deleting bgp config does not remove the redistribute vrf CLI under Eigrp process |
| CSCwc25454 | SSH to IPv6 LinkLocal address don't work without explict "ip ssh source-interface" configuration |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.5

| Identifier | Headline |
|---|---|
| CSCvz20710 | ASR903/ASR907 A900-IMA1Z8S-CXMS EIGRP flapping on framing SDH Serial interface. |
| CSCvz07477 | DWDM SFPs threshold Value set to 0.0 dbm for RX/TX and -0.0 C for temperature. |
| CSCvy43352 | A900-IMA1Z8S-CXMS IM is not reloading during ISSU even though CEM FPGA version have a mismatch. |
| CSCvy35769 | ACR DCR recovered-clock is FREERUN after SSO in eomer T3 port. |
| CSCvy26121 | Object down failures observed on ASR903 devices post upgrade to 16.12.3. |
| CSCvy25392 | Cannot delete recovered clock configuration from STS-3c. |
| CSCvy82376 | IMs on slots 13, 14 and 15 out of service on ASR-907 chassis. |
| CSCvy50955 | CEM traffic not resuming after IM shut/unshut with Service inst on Gig created when TDM IM is shut. |
| CSCvy66426 | RSP3: Code hardening: Delays between SPI Flash operation during IO FPGA upgrade. |
| CSCvy92074 | MTU programming for mpls l2 vc may fail after interface flaps. |
| CSCvz20857 | STS1E controller bay/port is wrong in controller UPDOWN syslog during T3 alarm. |
| CSCvz20865 | A900-IMA1Z8S-CXMS in HA setup and with APS, configure 5376 VT15 T1 cem circuit, Error observed for last path. |
| CSCvz57242 | ASR90x-RSP3 : IP MTU wrongly programmed in ASIC after removing/reconfiguring the ip address. |
| CSCvz37014 | ICMP Jitter : Incorrect timestamping : registry to use/update receive timestamp for rsp3 platform. |
| CSCvz19022 | ASR 903 RSP3C 16.9.3 and 16.12.3 Ping issue with MTU greater than 1508. |

| Identifier | Headline |
|---|---|
| CSCwa06605 | With port channel flaps kbp counts increasing and leading to leak. |
| CSCvy64788 | LLC frames are getting looped back due to autonomic networking. |
| CSCwa09302 | The iMSG serial interfaces bitrate/sec data is displayed incorrectly in show command output. |
| CSCwa04795 | Interfaces are showing up in SNMP polling while associated hardware does not exist on system. |
| CSCvx32380 | RSP3 : SFP GLC-FE-100LX-RGD show incorrect description. |
| CSCvy51848 | Active RP HW started booting in loop during an IO FPGA upgrade and standby. |
| CSCvy29290 | ASR90x-RSP3 : Pending objects for BDI Tx Channel on creation of Port channel with member link. |
| CSCvz79672 | HQoS on egress TenGig interface is not working properly. |
| CSCvz49468 | APS:ACR traffic fails after ISSU from 16.12 to 17.3. |
| CSCvy23345 | ASR90X-RSP3: MAC address is getting learned for L2CP control frames over the G.8032 blocked port. |
| CSCvz09447 | The IMA1Z8S-CX-MS protection switching on LOS condition disrupts service for greater than 200 msec. |
| CSCvy78284 | The router will crash when zeroised RSA key is regenerated. |
| CSCvz62438 | ASR90x-RSP3: BDI routing frames corrupted on deletion and recreation of EFP. |
| CSCwa41638 | The router MAC table and L2VPN EVPN table are out of sync. |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.5 - Platform Independent

| Identifier | Headline |
|---|---|
| CSCvy91369 | IOS-XE : IPSLA ICMP-Jitter over L3VPN results incorrect jitter value. |
| CSCvz25471 | ASR903/920: NSO config push failure seen due to getconf on BD gives additional value “mac learning” |
| CSCvy56660 | mlacp backbone interface defined in netconf as Container instead of list entry |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.5

| Identifier | Headline |
|---|---|
| CSCvy34396 | MAC table inconsistency due to parity error. |
| CSCwa64889 | Wrong L3-Programming for BDI |
| CSCvz02262 | TCAM corruption happening at bank boundary when one of the bank is full. |
| CSCvz64063 | APS:ACR:Shut before reload and no shut after reload make Active and standby states inconsistent |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.5 - Platform Independent

| Identifier | Headline |
|---|---|
| CSCwa36608 | RSP3 ICCP stuck on CONNECTING state after RSP SO on Active PoA |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.4

| Caveat ID Number | Description |
|---|---|
| CSCvv99456 | ACL entries with FRAGMENT keywords are not working |
| CSCvy82320 | DHCP packets are getting dropped in case snooping is enabled |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.4 - Platform Independent

| Caveat ID Number | Description |
|---|---|
| CSCvy04023 | Netconf datastore PTP data may unsync from running configuration |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.4

| Caveat ID Number | Description |
|---|---|
| CSCvy04090 | Intermittent blackholing of traffic due to CEF table corruption |

| Caveat ID Number | Description |
|---|---|
| CSCvy21560 | All IM cards in INSERTED state on performing ISSU 16.9.3 to 16.12.3 |
| CSCvy25392 | Cannot delete recovered clock configuration from STS-3c |
| CSCvy26121 | Object down failures observed on routers post upgrade to 16.12.3 |
| CSCvy29290 | Pending objects for BDI Tx Channel on creation of Port channel with member link |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.4 - Platform Independent

There are no new Platform Independent Open Caveats for this release.

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.3

| Caveat ID Number | Description |
|---|---|
| CSCvv83093 | OBFL updation with valid time after NTP Sync in RTC failure case |
| CSCvv95745 | Crash of standby supervisor because of QoS Overhead Accounting |
| CSCvw04366 | UEA: Display GNSS Chassis SN instead of PCB SN in show CLI |
| CSCvw34109 | PTP failure due to LSMPI buffer exhaustion |
| CSCvw48885 | IM OIR as part of ISSU resulted in IOSD Crash for T3E3 RSP3 IM |
| CSCvw58359 | 8275.1/2 Node is crashing when more than 8 Dynamic ports are created |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.3 - Platform Independent

| Caveat ID Number | Description |
|---|---|
| CSCvg75709 | Unnecessary RIB updates when metric-style transition is configured. |
| CSCvv40006 | Traceback: IP SLA triggers INJECT_HDR_LENGTH_ER and INJECT_FEATURE_ESCAPE log message |
| CSCvv79677 | ASR902-RSP2 crashed after BGP flaps |
| CSCvv91741 | Resequencing ACL with remarks only resequences permit or deny entries, remarks not changed. |

| Caveat ID Number | Description |
|---|---|
| CSCvw05035 | BGP fall-over not working when Null0 static route is configured |
| CSCvw19062 | Changing external route tag does not update origin code in BGP |
| CSCvw37109 | Pseudowire interface may be unexpectedly removed from VFI on unrelated configuration change |
| CSCvw86336 | Unsupported interfaces for logging event link-status needs to be removed in mapping |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.3

| Caveat ID Number | Description |
|---|---|
| CSCvx42526 | While doing SSO, A900-IMA2Z crashing |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.3 - Platform Independent

| Caveat ID Number | Description |
|---|---|
| CSCvu15652 | CEM26K: confiig / unconfig of CEME26K circuits causes 1-2 ckts in down state in standby RSP3. |
| CSCvu77385 | [SVSP-457]-Full throughput not working priority shaper percent is > ~40 over 100g nni |
| CSCvv71209 | RSP3: MTU changes on access interface causing low memory and stby RSP crash |
| CSCvv86988 | NCS4200-3GMS: standby rp iosd crashes continuously when serial acr nxds0 configs are applied |
| CSCvw54661 | ASR920: HS2 node is chasing with core generation and core pointing to EFP process. |
| CSCvw77485 | Router may not send PIM Register message if RP is reachabile over TE tunnel |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.2a

| Caveat ID Number | Description |
|---|---|
| CSCvt58155 | RSP3c: Kernel crash bcmINTR rcu_check_callback |
| CSCvt82525 | ASR 900 crash while IPV6 updating prefixes |

| Caveat ID Number | Description |
|---|---|
| CSCvu16135 | STS1E : Remote loopback not working under sts1e controller |
| CSCvu18276 | ASR903 Standby RSP3 crash during IOS upgrade |
| CSCvu36636 | ASR900 ROMMON region 0 and 1 verification CLI |
| CSCvu66126 | OC192 APS Group Stuck with Signal Fail condition |
| CSCvu83291 | Memory leak due to QoS policer |
| CSCvu95940 | RSP2:Egress QoS policy config missing on PoCh member link flap |
| CSCvv13495 | 17.1.1. Loopback local not working on T3 card protection physically connected ports |
| CSCvv14816 | MVPN_GRE mcast traffic loss on local receivers and across VRF after Access BDI flap |
| CSCvv16454 | Traffic failure due to MPLS ECMP load-balancing in one of the labelled path |
| CSCvv23067 | ISSU is failing with lookup failure in APS48 five group setup from 16_9_4 to 17_3_1 images |
| CSCvv24059 | Crash is noticed on RSP when EMPLSINTD is exhausted. |
| CSCvv34831 | L2 mcast vpls forwarding outage caused by rep ring changes |
| CSCvv42595 | REP flapping randomly and frequently due to port down |
| CSCvv85503 | MVPN GRE traffic drop for few prefixes |
| CSCvv51145 | Crash seen on \"show plat hard pp active feature multicast database ipv4 table label 756 eos 0\" |

# Resolved Caveats – Cisco IOS XE Gibraltar 17.3.2a - Platform Independent

| Caveat ID Number | Description |
|---|---|
| CSCvc33357 | Incorrect BC value under show policy-map when User defined percentage based CIR is defined |

# Open Caveats – Cisco IOS XE Amsterdam 17.3.2a

| Caveat ID Number | Description |
|---|---|
| CSCvv95745 | Crash of standby supervisor because of QoS Overhead Accounting |

| Caveat ID Number | Description |
|---|---|
| CSCvw34109 | PTP failure due to LSMPI buffer exhaustion |

# Resolved Caveats – Cisco IOS XE Amsterdam 17.3.1

| Caveat ID Number | Description |
|---|---|
| CSCvn47496 | ENH : RSP3C Request for overriding restriction "MVPN-GRE VRF-SM: RP must be at Encap PE" |
| CSCvq64605 | RSP3: RLFA resource leak on FRR create/delete with link flaps |
| CSCvr97004 | VTY lines higher than 5 cannot be configured NVGEN |
| CSCvs21698 | I2C stuck/bad IM/OIR causing rsp3c(both) to reload at "cmanrp_chasfs_spa_oir_remove" |
| CSCvs25451 | Telemetry config Vanish after SSO |
| CSCvs34376 | sh pl ha pp act interface output does not show priority queue (HPCT) packet counters |
| CSCvs34482 | ISSU not working on RSP2 nodes |
| CSCvs58497 | After ipv6 nd cache expired, transit traffic fails when ECMP enabled |
| CSCvs62447 | ASR903: netconf login via loopback int is failing though it is working with other inband int |
| CSCvs63874 | Reworked: Invalid ifindex during notification causing lldp localport table mib walk failure |
| CSCvs70140 | The interface's output of CEM traffic rate is incorrect |
| CSCvs71834 | ASR903 - stops forwarding over VC after dot1.q tag is removed and added back to service instance |
| CSCvs85331 | QSFP-100G-LR4-S optical sensors not shown in CISCO-ENTITY-SENSOR-MIB |
| CSCvs89777 | Change alarm threshold values for 8x10G IM |
| CSCvt32521 | Duplex half change to full after reload |
| CSCvt35963 | Uea_mgr and keepalive crashes observed in a sequence after attempting to enable service-offload |
| CSCvt53795 | CPG: OIR of primary and backup IM same time does not update LINK_PTR in MCDB and causes Traffic Drop |
| CSCvt58665 | Baseline : after shut and no shut LOS is not cleared from controller |
| CSCvt64706 | CPU HOG due to constant soft-parity errors |

| Caveat ID Number | Description |
|---|---|
| CSCvt98075 | ASR903-memory leak seen on SNMP DG when IGP flaps |
| CSCvu30972 | ASR903: All readings for power supply unit reflect as zero though the unit is functional |
| CSCvu31393 | [RSP3-poch-Mcast]: igmp queries are not egressing out of poch in a sequence |
| CSCvu34503 | RSP2: Bundle 43r ROMMON changes to 17.3.1 |
| CSCvu51472 | Support for SAToP payload 64 byte and dejitter 2 ms in LOTR IMs |
| CSCvu78801 | PPPoE VSA tags gets overwritten at each PPPoE IA |
| CSCvt56447 | Since UPSR is unsupported for STS1e, need to block CLI structure for user to configure |
| CSCvt88660 | CT3 channelized T1s are not displayed under show command of STS1e virtual controller with card protection |
| CSCvt90530 | Let the Oper status for STS1E virtual controller to be displayed in upper case as "UP" for show cmd |
| CSCvu62934 | For card protection 1+1, naming convention not proper for LOP STS-1 1, VTG 1, VT 3 |
| CSCvv17231 | When mode VT1-15 is configured on card protected STS1E controller, can see discrepancy in LOP O/P |
| CSCvu61765 | BERT statistics not seen in “show controller STS1E" with mode unframed |

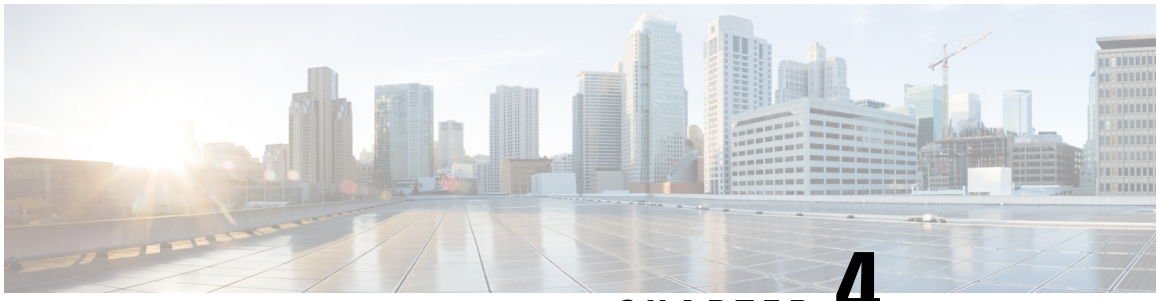
# Open Caveats – Cisco IOS XE Amsterdam 17.3.1

| Caveat ID Number | Description |
|---|---|
| CSCvs50029 | Interface flaps and input errors seen with optics GLC-FE-100BX-D |
| CSCvt58155 | rsp3c: Kernel crash bcmINTR rcu_check_callback |
| CSCvt82525 | ASR 900 crash while IPV6 updating prefixes |
| CSCvu03137 | Removing and reconfiguring rtp-present in bulk causing CEM ckt in standby goes DN |
| CSCvu18276 | ASR903 Standby RSP3 crash during IOS upgrade |
| CSCvu36636 | ASR900 ROMMON region 0 and 1 verification CLI |
| CSCvu55571 | CEM Scale: Removing and reconfiguring rtp-present in bulk causing ssm provisioning failure in standby |
| CSCvu74741 | MVPN GRE : Mcast traffic forwarding fails randomly for few prefixes due to PIM registration issues |

| Caveat ID Number | Description |
|---|---|
| CSCvv49690 | With mode VT1-15 on STS1E controller, LOP is in UP state even though controller and HOP is down |
| CSCvw34109 | PTP failure due to LSMPI buffer exhaustion |

# 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



CHAPTER 4

# Restrictions and Limitations

**Note** The error message "PLATFORM-1-NOSPACE: SD bootflash : no space alarm assert" may occur in the following scenarios:

- Any sector of SD Card gets corrupted
- Improper shut down of router
- power outage.

This issue is observed on platforms which use EXT2 file systems.

We recommend performing a reload of the router. As a result, above alarm will not be seen during the next reload due to FSCK(file systems check) execution.

However, If the error persists after a router reload, we recommend to format the bootflash or FSCK manually from IOS.

- From the Cisco IOS XE 16.5.1 and 16.6.1 releases, In-Service Software Upgrade (ISSU) isn't supported on the router to the latest releases. For more information on the compatible release versions, see ISSU Support Matrix.
- The port restriction on 1-port OC-192 or 8-port low rate CEM interface module is on port pair groups. If you have OC48 configured on a port, the possible port pair groups are 0-1, 2-3, 4-5, 6-7. If one of the port within this port group is configured with OC48 rate, the other port can't be used.
- RS422 pinout works only on ports from 0 to 7.
- The **ip cef accounting** command isn't supported on the router.
- Configuration sync does *not* happen on the Standby RSP when the active RSP has Cisco Software Licensing configured, and the standby RSP has Smart Licensing configured on the router. If the active RSP has Smart Licensing configured, the state of the standby RSP is undetermined. The state could be pending or authorized as the sync between the RSP modules isn't performed.
- Evaluation mode feature licenses may not be available to use after disabling, and enabling the smart licensing on the RSP2 module. A reload of the router is required.
- Ingress counters aren't incremented for packets of the below format on the RSP3 module for the 10 Gigabit Ethernet interfaces, 100 Gigabit Ethernet interfaces, and 40 Gigabit Ethernet interfaces:

**Packet Format**

MAC header---->Vlan header---->Length/Type

When these packets are received on the RSP3 module, the packets aren't dropped, but the counters aren't incremented.

- T1 SAToP, T3 SAToP, and CT3 are supported on an UPSR ring only with local connect mode. Cross-connect configuration of T1, T3, and CT3 circuits to UPSR aren't supported.
- PTP isn't supported when 8-port 10 Gigabit Ethernet interface module is in oversubscribed mode.
- ISSU isn't supported between a Cisco IOS XE 3S release and the Cisco IOS XE Amsterdam 17.3.x release.
- These following restrictions are applicable only to Cisco RSP2 module.
  - Traffic is dropped when packets of size 64–100 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 isn't dropped when the packet size is greater than 100 bytes, even if the packets are sent bi-directionally at the line rate.

**Note** The before mentioned restriction is documented very specific to Snake Topology and applicable for RSP2 platforms only. The drops may occur only when there is line rate traffic on all 1G or 10G interface on the node in a Snake manner.

- Port channel 61-64 isn't supported in the 16.11.1a release. The range of configurable port channel interfaces has been limited to 60.
- Effective with Cisco IOS XE Everest 16.6.1, the VPLS over Port-channel (PoCH) scale is reduced from 48 to 24 for Cisco ASR 900 RSP3 module.

**Note** The PoCH scale for Cisco ASR 907 routers is 48.

- One Ternary Content-Addressable Memory (TCAM) entry is utilized for Segment Routing Performance Measurement. This is required for the hardware timestamping to function.
- While performing an auto upgrade of ROMMON, only primary partition is upgraded. Use the **upgrade rom-mon filename** command to upgrade the secondary partition of the ROMMON during the auto

upgrade. However, the router can be reloaded during the next planned reload to complete the secondary rommon upgrade. This is applicable to ASR 903 and ASR 907 routers.

- One Ternary Content-Addressable Memory (TCAM) entry is utilized for Segment Routing Performance Measurement. This is required for the hardware timestamping to function.
- In the Cisco IOS XE 17.1.1 release, the EVPN EVI type is VLAN-based by default, and while configuring for the EVPN EVI type, it is recommended to configure the EVPN EVI type as VLAN-based, VLAN bundle and VLAN aware model.
- 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 diskspace of 2 MB is required in the boot flash memory file system for a successful ROMMON auto upgrade process. For a diskspace lesser than 2 MB, ROMMON auto upgrade fails and the router reboots. This is applicable to Cisco ASR 903 and Cisco ASR 907 routers.
- In the Cisco IOS XE 16.12.1, 17.1.1, and 17.2.1 releases, IPSec isn’t supported on the Cisco RSP3 module.
- CEM circuit provisioning issues may occur during downgrade from Cisco IOS XE Amsterdam 17.3.1 to any lower versions or during upgrade to Cisco IOS XE Amsterdam 17.3.1 from any lower versions, if the CEM scale values are greater than 10500 APS/UPSR in protected CEM circuits. So, ensure that the CEM scale values aren’t greater than 10500, during ISSU to or from 17.3.1.
- Some router models aren’t fully compliant with all IETF guidelines as exemplified by running the pyang tool with the **lint** flag. The errors and warnings exhibited by running the pyang tool with the **lint** flag are currently non-critical as they do not impact the semantic of the models or prevent the models from being used as part of the toolchains. A script has been provided, "check-models.sh", that runs pyang with **lint** validation enabled, but ignoring certain errors. This allows the developer to determine what issues may be present.

  As part of model validation for the Cisco IOS XE Amsterdam 17.3.1 release, "LEAFREF_IDENTIFIER_NOT_FOUND" and "STRICT_XPATH_FUNCTIONS" error types are ignored.