



Release Notes for Cisco ASR 900 Series Routers, Cisco IOS XE Gibraltar 16.12.x

First Published: 2019-07-31

Last Modified: 2021-11-30

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

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on standards documentation, or language that is used by a referenced third-party product.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/c/en/us/about/legal/trademarks.html>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

© 2019–2021 Cisco Systems, Inc. All rights reserved.



CONTENTS

CHAPTER 1

Introduction 1

Overview of Cisco ASR 900 Series Routers	2
Cisco ASR 900 Series Router	2
Cisco ASR 902 Router	2
Cisco ASR 903 Router	2
Cisco ASR 907 Router	3
Cisco ASR 914 Router	3
Feature Navigator	3
Hardware Support	4
Cisco ASR 902 Supported Interface Modules	4
A900-RSP2-Supported Interface Modules (ASR 902 Router)	4
A900-RSP3C-200-S Supported Interface Modules (ASR 902 Router)	6
Cisco ASR 903 Supported Interface Modules	6
A900-RSP2 Supported Interface Modules	6
A900-RSP3C-400-S Supported Interface Modules	8
A900-RSP3C-200-S Supported Interface Modules	10
Cisco ASR 907 Supported Interface Modules	12
Supported Interface Modules	12
Cisco ASR 914 Supported Interface Modules	14
Swapping of Interface Modules	14
Feature Matrix	17
Software Licensing Overview	17
Determining the Software Version	18
Upgrading to a New Software Release	18
Supported FPGA Versions for Cisco IOS XE 16.12.1 Release	19
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.2 Release	19

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.3 Release	20
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.4 Release	22
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.5 Release	23
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.6 Release	24
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.7 Release	26
Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.8 Release	27
MIB Support	29
MIB Documentation	31

CHAPTER 2

New Features 33

New Software Features in Cisco IOS XE Gibraltar 16.12.8	33
New Hardware Features in Cisco IOS XE Gibraltar 16.12.8	33
New Software Features in Cisco IOS XE Gibraltar 16.12.7	34
New Hardware Features in Cisco IOS XE Gibraltar 16.12.7	34
New Software Features in Cisco IOS XE Gibraltar 16.12.6	34
New Hardware Features in Cisco IOS XE Gibraltar 16.12.6	34
New Software Features in Cisco IOS XE Gibraltar 16.12.5	34
New Hardware Features in Cisco IOS XE Gibraltar 16.12.5	34
New Software Features in Cisco IOS XE Gibraltar 16.12.4	34
New Hardware Features in Cisco IOS XE Gibraltar 16.12.4	35
New Software Features in Cisco IOS XE Gibraltar 16.12.3	35
New Hardware Features in Cisco IOS XE Gibraltar 16.12.3	35
New Software Features in Cisco IOS XE Gibraltar 16.12.2	35
New Hardware Features in Cisco IOS XE Gibraltar 16.12.2	35
New Software Features in Cisco IOS XE Gibraltar 16.12.1a	35
New Hardware Features in Cisco IOS XE Gibraltar 16.12.1a	37

CHAPTER 3

Caveats 39

Cisco Bug Search Tool	40
Open Caveats - Cisco IOS XE Gibraltar 16.12.8	40
Resolved Caveats - Cisco IOS XE Gibraltar 16.12.8	40
Open Caveats - Cisco IOS XE Gibraltar 16.12.7	40
Resolved Caveats - Cisco IOS XE Gibraltar 16.12.7	40
Open Caveats - Cisco IOS XE Gibraltar 16.12.6	41

Open Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent	42
Resolved Caveats - Cisco IOS XE Gibraltar 16.12.6	42
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent	43
Open Caveats – Cisco IOS XE Gibraltar 16.12.5	43
Open Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent	44
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5	44
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent	46
Open Caveats – Cisco IOS XE Gibraltar 16.12.4	46
Open Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent	47
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4	47
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent	47
Open Caveats – Cisco IOS XE Gibraltar 16.12.3	47
Open Caveats – Platform Independent	48
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.3	48
Resolved Caveats – Platform Independent	49
Open Caveats – Cisco IOS XE Gibraltar 16.12.2a	49
Open Caveats – Platform Independent	49
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.2a	51
Resolved Caveats – Platform Independent	51
Open Caveats – Cisco IOS XE Gibraltar 16.12.1	53
Resolved Caveats – Cisco IOS XE Gibraltar 16.12.1	54

CHAPTER 4
Restrictions and Limitations 57



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.



Note Explore the [Content Hub](#), the all new portal that offers an enhanced product documentation experience.

- Use faceted search to locate content that is most relevant to you.
- Create customized PDFs for ready reference.
- Benefit from context-based recommendations.

Get started with the Content Hub at content.cisco.com to craft a personalized documentation experience.

Do provide feedback about your experience with the Content Hub.

- [Overview of Cisco ASR 900 Series Routers](#) , on page 2
- [Feature Navigator](#), on page 3
- [Hardware Support](#) , on page 4
- [Feature Matrix](#), on page 17
- [Software Licensing Overview](#), on page 17
- [Determining the Software Version](#) , on page 18
- [Upgrading to a New Software Release](#), on page 18
- [Supported FPGA Versions for Cisco IOS XE 16.12.1 Release](#), on page 19
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.2 Release](#), on page 19
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.3 Release](#), on page 20
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.4 Release](#), on page 22
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.5 Release](#), on page 23
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.6 Release](#), on page 24
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.7 Release](#), on page 26
- [Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.8 Release](#), on page 27
- [MIB Support](#), on page 29

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.

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 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 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) +	A900-IMA8S1Z	
	1-port 10-Gigabit Ethernet (1x10GE)		
	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	
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 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 (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

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	
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-port T1/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: Feature History

Feature Name	Release Information	Description
8-Port 10G SFP+ Single-Rate Interface Module (N560-IMA-8Q/4L) Support	Cisco IOS XE Cupertino 17.8.1	This release introduces the support of 8-Port 10G SFP+ Single-Rate Interface Module (N560-IMA-8Q/4L), on all slots with a default speed combination of 8X10G.

Table 6: 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
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 34
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	All

Supported Interface Modules	Part Numbers	Slot
ASR 900 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module	A900-IMA1Z8S-CXMS	2, 3, 4, 5 ⁵ Note To enable this IM on slot 0 or slot 1, do the following and reload the router: <pre>Router# configure t Router(config)# license feature service-offload enable</pre>

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.

Table 7: 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	
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-IMA3GIMSG	2-5 ⁷

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.

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 8: Feature History

Feature Name	Release Information	Description
8-Port 10G SFP+ Single-Rate Interface Module (N560-IMA-8Q/4L) Support	Cisco IOS XE Cupertino 17.8.1	This release introduces the support of 8-Port 10G SFP+ Single-Rate Interface Module (N560-IMA-8Q/4L), on slots 3, 4, 7, 8, 11, and 12 slots with a default speed combination of 8X10G.

Table 9: 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

RSP Module	Interface Modules	Part Number	Slot
	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 ⁸
	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 ⁹
	2x40G Interface module	A900-IMA2F	3,4,7,8,11,12
	8x10G Interface module	A900-IMA8Z ¹⁰	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
	1-port OC-192 or 8-Port Low Rate CEM Interface Module	A900-IMA8S1Z-CX	3,4,7,8,11,12 (10 G Mode) 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

RSP Module	Interface Modules	Part Number	Slot
	ASR 900 1-Port OC-192 or 8-Port Low Rate CEM 20G Bandwidth Interface Module	A900-IMA1Z8S-CXMS	3, 7, 11 ¹¹ 4, 8, 12 ¹² 5, 9, 13, 15 ¹³ Note To enable this IM on slot 0 or slot 1, do the following and reload the router: Router# configure t 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
	8-Port 10G SFP+ Single-Rate Interface Module	N560-IMA-8Q/4L	3, 4, 7, 8, 11, 12 1415

⁸ 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.

⁹ 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.

¹⁰ Six IM slots are supported with various combinations but only five IM slots are functional at a time.

¹¹ These slots are supported on 10G or 20G mode.

¹² These slots are supported on 10G or 20G mode, only if the adjacent odd slots are empty.

¹³ These slots are supported on 10G mode.

¹⁴ Starting with Cisco IOS XE Cupertino Release 17.8.1, N560-IMA-8Q/4L is supported on slots 3, 4, 7, 8, 11, and 12 slots with a default speed combination of 8X10G.

¹⁵ The restrictions for Cisco N560-IMA-8Q/4L interface module is same as that of Cisco A900-IMA8Z interface module.

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:

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

- 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
- NCS 4200 Combo 8-Port SFP GE and 1-Port 10 GE 20G Interface 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 in the chassis. Contact Cisco Sales/Support for the valid combinations.

Table 10: 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 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 ¹⁶ 3, 4, 7, 8, 11, 12 ¹⁷ Note To enable this IM on slot 0 or slot 1, do the following and reload the router: Router# configure t Router(config)# license feature service-offload enable

¹⁶ These slots are supported on 10G mode.¹⁷ These slots are supported on 20G mode.

Feature Matrix

The feature matrix lists the features that are supported for each platform. For more information, see the cumulative [Feature Compatibility Release Matrix](#) on the Content Hub.

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 11: 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)

Metro Services	Metro IP Services	Metro Aggregation Services
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
- 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 [Cisco ASR 900 Series Router Configuration Guide](#).

ROMMON Version

We recommend you to upgrade the ROMMON version to 15.6(49r)S.

For more information on the ROMMON package, see [Cisco Software Download](#).



Note ROMMON upgrade is mandatory to boot RSP3 images.

Supported FPGA Versions for Cisco IOS XE 16.12.1 Release

Use the **show hw-module all fpd** command to display the 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.

Table 12: IM FPGA Versions for Ethernet Phase 3 IM

Cisco IOS XE Release	10 FGPA	8 x10 FGPA	2x40 FGPA	1x100 FGPA
16.12.x	0x34	0.22	0.22	0.20

Table 13: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907

Category	48-port T1/E1 CEM Interface Module FPGA	48-port T3/E3 CEM Interface Module FPGA	1-port OC-192 Interface Module + 8-port Low Rate Interface Module FPGA	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
CEM FPGA	0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	0x10820063
IM FPGA	1.22	1.22	1.15	2.00

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.2 Release

Use the **show hw-module all fpd** command to display the 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.

Table 14: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.2 Release

Category	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-IMA1Z8S-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	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	0x10050071	10G mode: 0x10260046 20G mode: 0x10260046
IM FPGA	1.22	1.22	1.15	2.00	0.80

Table 15: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.2 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(30r)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(33r)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(33r)S
	A900-IMA2Z	69.22	69.22			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.3 Release

Use the `show hw-module all fpd` command to display the 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.

Table 16: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.3 Release

Category	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-IMA1Z8S-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	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	5G mode: 0x10180062 10G mode: 0x10510078	0x10050071	10G mode: 0x10260046 20G mode: 0x10260046
IM FPGA	1.22	1.22	1.15	2.00	0.86

Table 17: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.3 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(30r)S
	A900-IMA8S	0.49	0.47			
	A900-IMA8TIZ	69.24	69.24			
RSP3-400S	A900-IMA1C	0.2	0.2	40031	40031	15.6(33r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA8SIZ	69.24	69.24			
RSP3-400W	A900-IMA1C	0.2	0.2	20040030	20040030	15.6(33r)S
	A900-IMA2Z	69.22	69.22			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.4 Release

Use the **show hw-module all fpd** command to display the 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.

Table 18: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.4 Release

Category	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-IMA1Z8S-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-MSG	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	0x10510078	0x10050071	0x10260046
IM FPGA	1.22	1.22	1.15	2.0	0.86

Table 19: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.4 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-IMA1X	0.49	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	0.2	0.2	40031	40031	15.6(33r)S
	A900-IMA2F	0.22	0.22			
	A900-IMA8Z	0.22	0.21			
	A900-IMA8SIZ	69.24	69.24			
RSP3-400W	A900-IMA1C	0.2	0.2	20040030	20040030	15.6(33r)S
	A900-IMA2Z	69.22	69.22			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.5 Release

Use the **show hw-module all fpd** command to display the 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.

Table 20: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.5 Release

Category	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-IMA1Z8S-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	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	0x10510078	0x10050071	0x10260046
IM FPGA	1.22	1.22	1.15	2.0	0.86

Table 21: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.5 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	0X00030011	0X00030011	15.6(43r)S
	A900-IMA8S	0.75	0.75			
	A900-IMA1X	0.75	0.47			
	A900-IMA8T1Z	69.32	69.24			
RSP3-200S	A900-IMA8T	0.49	0.47	40031	40031	15.6(33r)S
	A900-IMA8Z	0.21	0.17			
	A900-IMA2F	0.22	0.22			
	A900-IMA8S	0.49	0.47			
RSP3-400S	A900-IMA1C	0.2	0.2	40031	40031	15.6(33r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2Z	69.22	69.22			
	A900-IMA8S	0.75	0.47			
	A900-IMA8T	0.75	0.47			
	A900-IMA8S1ZM	1.129	1.129			
RSP3-400W	A900-IMA1C	0.2	0.2	20040030	20040030	15.6(33r)S
	A900-IMA2Z	69.22	69.22			
	A900-IMA8T	0.75	0.75			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.6 Release

Use the **show hw-module all fpd** command to display the 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.

Table 22: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.6 Release

Category	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-IMA1Z8S-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	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	0x10510078	0x10050071	0x10260046
IM FPGA	1.22	1.22	1.15	2.0	0.93

Table 23: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.6 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	0X00030011	0X00030011	15.6(48r)S
	A900-IMA8S	0.75	0.47			
	A900-IMA1X	0.75	0.47			
	A900-IMA8TIZ	69.32	69.24			
RSP3-200S	A900-IMA8T	0.75	0.47	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2F	NA	NA			
	A900-IMA8S	0.75	0.47			
RSP3-400S	A900-IMA1C	0.20	0.20	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2Z	69.22	69.22			
	A900-IMA8S	0.75	0.47			
	A900-IMA8T	0.75	0.47			
	A900-IMA8CSIZM	1.129	1.129			

Platform	Interface Module	FPGA Current Version	FPGA Minimum Required Version	RSP HoFPGA Active	RSP HoFPGA Standby	ROMMON
RSP3-400W	A900-IMA1C	0.20	0.20	20040030	20040030	15.6(49r)S
	A900-IMA2Z	69.22	69.22			
	A900-IMA8T	0.75	0.47			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.7 Release

Use the **show hw-module all fpd** command to display the 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.

Table 24: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.7 Release

Category	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-IMA1Z8S-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-MSG	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	0x10510078	0x10050071	0x10260046
IM FPGA	1.22	1.22	1.15	2.0	0.93

Table 25: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.7 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	0X00030011	0X00030011	15.6(48r)S
	A900-IMA8S	0.75	0.47			
	A900-IMA1X	0.75	0.47			
	A900-IMA8TIZ	69.32	69.24			
RSP3-200S	A900-IMA8T	0.75	0.47	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2F	NA	NA			
	A900-IMA8S	0.75	0.47			
RSP3-400S	A900-IMA1C	0.20	0.20	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2Z	69.22	69.22			
	A900-IMA8S	0.75	0.47			
	A900-IMA8T	0.75	0.47			
	A900-IMA8SIZM	1.129	1.129			
RSP3-400W	A900-IMA1C	0.20	0.20	20040030	20040030	15.6(49r)S
	A900-IMA2Z	69.22	69.22			
	A900-IMA8T	0.75	0.47			

Supported FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.8 Release

Use the **show hw-module all fpd** command to display the 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.

Table 26: CEM and IM FPGA Versions for ASR 903 RSP3 and ASR 907 for Cisco IOS XE 16.12.8 Release

Category	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-IMA1Z8S-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-MSG	A900-IMA1Z8S-CXMS
CEM FPGA	0x00000051	0x00000051	0x10510078	0x10050071	0x10260046
IM FPGA	1.22	1.22	1.15	2.0	0.93

Table 27: FPGA, HoFPGA, and ROMMON Versions for Cisco IOS XE 16.12.8 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	0X00030011	0X00030011	15.6(48r)S
	A900-IMA8S	0.75	0.47			
	A900-IMA1X	0.75	0.47			
	A900-IMA8T1Z	69.32	69.24			
RSP3-200S	A900-IMA8T	0.75	0.47	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2F	NA	NA			
	A900-IMA8S	0.75	0.47			
RSP3-400S	A900-IMA1C	0.20	0.20	40031	40031	15.6(49r)S
	A900-IMA8Z	0.22	0.21			
	A900-IMA2Z	69.22	69.22			
	A900-IMA8S	0.75	0.47			
	A900-IMA8T	0.75	0.47			
	A900-IMA8S1ZM	1.129	1.129			

Platform	Interface Module	FPGA Current Version	FPGA Minimum Required Version	RSP HoFPGA Active	RSP HoFPGA Standby	ROMMON
RSP3-400W	A900-IMA1C	0.20	0.20	20040030	20040030	15.6(49r)S
	A900-IMA2Z	69.22	69.22			
	A900-IMA8T	0.75	0.47			

MIB Support

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

Table 28: 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 29: 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:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>



CHAPTER 2

New Features

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

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

- [New Software Features in Cisco IOS XE Gibraltar 16.12.8, on page 33](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.8, on page 33](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.7, on page 34](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.7, on page 34](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.6, on page 34](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.6, on page 34](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.5, on page 34](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.5, on page 34](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.4, on page 34](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.4, on page 35](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.3, on page 35](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.3, on page 35](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.2, on page 35](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.2, on page 35](#)
- [New Software Features in Cisco IOS XE Gibraltar 16.12.1a, on page 35](#)
- [New Hardware Features in Cisco IOS XE Gibraltar 16.12.1a, on page 37](#)

New Software Features in Cisco IOS XE Gibraltar 16.12.8

There are no new software features introduced for Cisco IOS XE Release 16.12.8.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.8

There are no new hardware features introduced for Cisco IOS XE Release 16.12.8.

New Software Features in Cisco IOS XE Gibraltar 16.12.7

There are no new software features introduced for Cisco IOS XE Release 16.12.7.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.7

There are no new hardware features introduced for Cisco IOS XE Release 16.12.7.

New Software Features in Cisco IOS XE Gibraltar 16.12.6

There are no new software features introduced for Cisco IOS XE Release 16.12.6.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.6

There are no new hardware features introduced for Cisco IOS XE Release 16.12.6.

New Software Features in Cisco IOS XE Gibraltar 16.12.5

There are no new software features introduced for Cisco IOS XE Release 16.12.5.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.5

There are no new hardware features introduced for Cisco IOS XE Release 16.12.5.

New Software Features in Cisco IOS XE Gibraltar 16.12.4

- **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 \(Cisco ASR 900 Series\)](#).

- **OPTICS: ONS-SI-GE-EX and ONS-SI-GE-LX Support**

The optics, ONS-SI-GE-EX and ONS-SI-GE-LX are supported on the Cisco A900-IMA8CS1Z-M interface module.

For more information, see the [Optics Matrix for ASR 900](#).

New Hardware Features in Cisco IOS XE Gibraltar 16.12.4

There are no new hardware features introduced for Cisco IOS XE Release 16.12.4.

New Software Features in Cisco IOS XE Gibraltar 16.12.3

There are no new software features introduced for Cisco IOS XE Release 16.12.3.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.3

There are no new hardware features introduced for Cisco IOS XE Release 16.12.3.

New Software Features in Cisco IOS XE Gibraltar 16.12.2

There are no new software features introduced for Cisco IOS XE Release 16.12.2.

New Hardware Features in Cisco IOS XE Gibraltar 16.12.2

There are no new hardware features introduced for Cisco IOS XE Release 16.12.2.

New Software Features in Cisco IOS XE Gibraltar 16.12.1a

• 8-Port SFP GE and 1-Port 10 GE 20G Interface Module Support

The ASR 900 Combo 8-Port SFP GE and 1-Port 10 GE 20G Interface Module (A900-IMA1Z8S-CXMS) is supported on the Cisco RSP3 module and has the capability for SONET or SDH termination, SAToP, CESoP, and CEP.

For more information on configuring the A900-IMA1Z8S-CXMS interface module, see the [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).



Note The Multiservice Gateway features are not supported on this interface module for Cisco IOS XE Release 16.12.1.

• Five-Tuple Hash Load Balancing on the Cisco RSP3 Module

The router supports different load balancing hash algorithms with combinations of MAC (Layer 2) or IP (Layer 3) headers on the RSP3 platform to find the hash key. The five-Tuple hash algorithm on RSP3 includes protocol field and Layer 4 port numbers while calculating the hash key.

For more information, see the [Ethernet Channel Configuration Guide Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

• **Generic Routing Encapsulation (GRE) Feature Updates**

Generic Routing Encapsulation (GRE) tunneling protocol provides a simple generic approach to transport packets of one protocol over another protocol by means of encapsulation.

GRE supports the following features:

- IPv4 or IPv6 Global over GRE (IPv4 Core)
- VRF Lite over GRE

For more information on GRE, see the [IP Routing: GRE Configuration Guide, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

• **Maximum Transmission Unit Support on Bridge Domain Interface for the Cisco RSP3 Module**

On the Cisco RSP3 module, filtering of IP packets and MPLS-IP packets that egress out Bridge Domain Interface (BDI) is performed based on the Maximum Transmission Unit (MTU) value of the physical interface. The constraint where the BDI inherits the physical interface's MTU causes a limitation, for example, fragmentation or dropping of packets, during network deployments. To avoid such limitation, ensure that you configure BDI MTU.

For more information on BDI MTU support, see the [Carrier Ethernet Configuration Guide, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

• **MPLS Layer 3 VPN Conditional Marking for the Cisco RSP3 Module**

The MPLS Layer 3 conditional marking feature marks the traffic with appropriate QoS group and sets policer to mark the color (discard class) based on Committed Information Rate (CIR) and Peak Information Rate (PIR) values. You can use the QoS group to create ingress policy map.

For more information to configure MPLS Layer 3 VPN conditional marking, see the [Quality of Service Configuration Guidelines, Cisco IOS XE Gibraltar 16.12.x \(Cisco NCS 4200 Series\)](#).

• **Pseudowire Scale Support**

Effective from the Cisco IOS XE release 16.12.x, CEM scale of 21,504 pseudowires is supported on the 1-Port OC-192 or 8-Port Low Rate CEM interface module.

For more information on the pseudowire scale support, see the [1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

• **QoS Short-pipe Mode**

QoS short-pipe mode is supported on the RSP3 module. You can enable this feature using the SDM template.

You can identify the egress traffic on an interface or on EVC and classify based on DSCP, mark qos-group, and color using the **platform table-map** command.

For more information on how to enable short-pipe mode, see the [Quality of Service Configuration Guidelines, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

• **Segment Routing uLoop Avoidance**

The Segment Routing uLoop Avoidance feature prevents the occurrences of microloops during network convergence after a link-down event or link-up event.

For more information on segment routing uloop avoidance, see [Segment Routing Configuration Guide, Cisco IOS XE Gibraltar 16.12.x \(Cisco ASR 900 Series\)](#).

New Hardware Features in Cisco IOS XE Gibraltar 16.12.1a

- **4-port OC-48/OC-12/OC-3 + 12-Port A900-IMA3G-IMSG T1/E1 + 4-Port T3/E3 CEM Interface Module Support on A900-RSP3C-200-S RSP Module**

The 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) is supported on the A900-RSP3C-200-S RSP.

For more information on A900-IMA3G-IMSG support, see the [Cisco ASR 903 and ASR 903U Aggregation Services Router Hardware Installation Guide](#).

- **ASR 900 Combo 8-Port SFP GE and 1-Port 10GE With CEM/iMSG, 20G Interface Module (A900-IMA1Z8S-CXMS)**

The ASR 900 Combo 8-Port SFP GE and 1-Port 10GE with CEM or iMSG 20G Interface Module is a cost-effective interface module (IM) that supports CEM features on the OCn interfaces. This interface module is supported on the Cisco ASR 903 Routers, Cisco ASR 907 Routers, and Cisco ASR 914 Routers.

For more information about this IM for any of the supported routers, see the [Cisco ASR 900 Series Aggregation Services Routers Hardware Installation Guides](#).

For more information on Feature Optics Matrix, see the [Cisco ASR 900 Series Aggregation Services Routers Feature Optics Matrix](#).



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.

- [Cisco Bug Search Tool, on page 40](#)
- [Open Caveats - Cisco IOS XE Gibraltar 16.12.8, on page 40](#)
- [Resolved Caveats - Cisco IOS XE Gibraltar 16.12.8, on page 40](#)
- [Open Caveats - Cisco IOS XE Gibraltar 16.12.7, on page 40](#)
- [Resolved Caveats - Cisco IOS XE Gibraltar 16.12.7, on page 40](#)
- [Open Caveats - Cisco IOS XE Gibraltar 16.12.6, on page 41](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent, on page 42](#)
- [Resolved Caveats - Cisco IOS XE Gibraltar 16.12.6, on page 42](#)
- **[Resolved Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent, on page 43](#)**
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.5, on page 43](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent, on page 44](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5, on page 44](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent, on page 46](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.4, on page 46](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent, on page 47](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4, on page 47](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent, on page 47](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.3, on page 47](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.3, on page 48](#)
- [Open Caveats – Cisco IOS XE Gibraltar 16.12.2a, on page 49](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.2a, on page 51](#)

- [Open Caveats – Cisco IOS XE Gibraltar 16.12.1, on page 53](#)
- [Resolved Caveats – Cisco IOS XE Gibraltar 16.12.1, on page 54](#)

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 Gibraltar 16.12.8

There are no open caveats for Cisco IOS XE Release 16.12.8.

Resolved Caveats - Cisco IOS XE Gibraltar 16.12.8

Identifier	Headline
CSCwb26335	RSP3:Error reading data from the table dmi-general: Could not get boolean value for feature.side_effect_sync.
CSCwa79398	rs232 service on port-8 gives SLIP errors when databits is set on other ports.

Open Caveats - Cisco IOS XE Gibraltar 16.12.7

Identifier	Headline
CSCvx34215	APS 1+1 Uni - Traffic hit due to sonet controllers down after inactive IMOIR then SSO.

Resolved Caveats - Cisco IOS XE Gibraltar 16.12.7

Caveat ID Number	Description
CSCwa35351	Memory leak observed in tcp raw-socket when L1 is down

Open Caveats - Cisco IOS XE Gibraltar 16.12.6

Caveat ID Number	Description
CSCvo36974	Traffic drop is observed over IPSEC with dynamic modification in IPSEC tunnel and route
CSCvq68615	SRTE: Complete traffic drops for prefixes with 2 Transport + 2 service Labels.
CSCvq93254	After ipv6 nd cache expired, transit traffic fails when ECMP enabled
CSCvr25131	VZ-WRT -V171-dcc1 -After reload the SDC interface is down
CSCvs04458	RS485 - Show running-config output does not display the duplex mode config details
CSCvs21550	The smpwalk command is not retrieving vt description in mode vt-15.
CSCvs35755	CEM ACR: shut/no shut on physical sonet controller is causing path to go down
CSCvs82744	Shutting one BDI is affecting traffic on other tunnels
CSCvu31005	Enable L-bit propagation in framed SATOP for LOF alarm
CSCvu38228	High convergence time seen over port-channel switchover for CEM-TDM traffic
CSCvv58669	ROMMON region 0 and 1 verification CLI
CSCvv92835	APS full scale OC192 - Traffic outage after IMOIR as IM goes to out of service and CPUHOG
CSCvw85788	BFD flaps due to ARP packet loss when other non priority classes congested
CSCvx32380	RSP3: SFP GLC-FE-100LX-RGD show incorrect description
CSCvx84476	RSP3: FATAL crash happening with Mcast MVPN profile 0 scenario when hardware resources exhausted.
CSCvy75452	SYNCLOSS on client port of 100G-CK-C after interface flap
CSCvy82376	IMs on slots 13, 14 and 15 out of service on ASR-907 chassis
CSCvy91436	Egress QoS classification issues with Service instance 2 configuration on CE facing interfaces
CSCvz02262	TCAM corruption happening at bank boundary when one of the bank is full.
CSCvz07477	DWDM SFPs threshold Value set to 0.0 dbm for RX/TX and -0.0 C for temperature. Version 16.12.4
CSCvz18784	Ingress QoS policer not freed upon interface going down causing POLICERD leak
CSCvz19022	RSP3C 16.9.3 and 16.12.3 ping issue with MTU greater than 1508
CSCvy34396	MAC table inconsistency due to parity error

Open Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent

Caveat ID Number	Description
CSCvy78284	The router crashes when zeroised RSA key is regenerated

Resolved Caveats - Cisco IOS XE Gibraltar 16.12.6

Caveat ID Number	Description
CSCvv72192	IMA2Z IM, xfp and sfp+ are present then XFP is removed LED still shows as green
CSCvv99456	ACL entries with FRAGMENT keywords are not working on the ASR920 platform
CSCvw46012	Traffic not passing via BDI after physical interface flaps
CSCvx07262	[RSP3-DHCP-Relay]: dhcp relay unicast is dropped in transparent case with HSRP/VRRP/GLBP on EVC-BD
CSCvx08446	show recovered-clock output shows Type as T1/E1 in RSP2
CSCvx55831	Ingress Policy with set qos-group action is creating extra TCAM entry with match on Egress Policy
CSCvx63370	With channelized T3 mode after IM OIR alarm clear/assert not happening for first T1.
CSCvx69665	ASR903-RSP3: Continuous Ipv6 Neighbor addition retries exhausting the platform resources.
CSCvy23345	ASR90X-RSP3: MAC address is getting learned for L2CP control frames over the G.8032 Blocked port
CSCvy25392	Cannot delete recovered clock configuration from STS-3c
CSCvy26121	Object down failures observed on ASR903 devices post upgrade to 16.12.3
CSCvy29290	ASR90x-RSP3 : Pending objects for BDI Tx Channel on creation of Port channel with member link
CSCvy51848	Active RP HW gone bad during an IO FPGA Upgrade and Standby started booting in Loop
CSCvy50955	CEM traffic not resuming after IM shut/unshut with service inst on Gig created when TDM IM is shut
CSCvv40968	The cman_fp process crashed while booting up
CSCvx92879	IMA8T1Z is going for continuous reload with IM authentication error message

Caveat ID Number	Description
CSCvv73547	Router crashed fib_loadinfo_max_oce_idx
CSCvx64624	Default buffer length needs to be adjusted in latest releases

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.6 - Platform Independent

Caveat ID Number	Description
CSCvx19209	ISIS crash in isis_sr_tilfa_compute_protection
CSCvx37945	Crash happened when uea_mgr was trying to write an error log
CSCvy20783	The show run all command does not list default value for debugging

Open Caveats – Cisco IOS XE Gibraltar 16.12.5

Caveat ID Number	Description
CSCvm84355	LinkDown trap should not be sent when the port is in AINS mode
CSCvp12250	caam_jr and asfctrl error logs are observed with IPsec configuration on certain conditions
CSCvs21550	snmpwalk command does not retrieve VT description in mode vt-15
CSCvs44915	PATH TRACE BUFFER : UNSTABLE attriibute is shown under show controller
CSCvs47204	IPSEC - Kernel crash is observed on reload with traffic
CSCvs52712	REDUNDANCY-3-STANDBY_LOST: Standby processor fault (KEEPALIVE_FAILURE)
CSCvs74016	Kernel Crash XFRM State lookup
CSCvs74471	Crypto Session is down post SSO event
CSCvs82744	Shutting 1 BDI affects traffic on other tunnels
CSCvw86859	Router may not load-balance traffic on MPLS links even having ECMP in RIB/CEF
CSCvt42842	Flood of SKB is received from Kernel and cannot find SA kernel logs
CSCvu51238	Kernel log messages are seen on the console while doing config replace & interface flap

Caveat ID Number	Description
CSCvv72192	When IMA2Z IM, XFP and SFP+ are present and then XFP is removed, LED still shows as green

Open Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent

Caveat ID Number	Description
CSCvp98693	MLPPP IPV4 IW: Range for the MLPPP group numbers does not match in the configuring CLIs
CSCvr39157	Cisco RSP3 Module: Y1731 1DM receive is inactive after delete or add of SLA configuration
CSCvu77385	Full throughput is not working priority shaper percent is > ~40" 4206/4216 over 100g NNI
CSCvv74332	VPLSo BKPW: MAC not is flushed or withdrawn in remote peer on VC swichover from active to standby
CSCvw06702	IP SLA Egress classification is not working

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5

Caveat ID Number	Description
CSCvn47496	RSP3C Request for overriding restriction: 'MVPN-GRE VRF-SM: RP must be at Encap PE'
CSCvp16947	Router shows CRITICAL alarm when one of the power supplies is missing
CSCvs86113	MAC learning issue results in P2P ping fail or protocols are down
CSCvt35963	Uea_mgr and keealive crashes are observed in a sequence after attempting to enable service-offload
CSCvt42183	Traffic outage is observed due to l2-flood-list failure over multi-active PC QoS
CSCvt58155	Kernel crash is observed bcmINTR rcu_check_callback
CSCvt82525	Router crashes while IPV6 updates prefixes
CSCvt98075	Memory leak is seen on SNMP DG when IGP flaps
CSCvu18276	Standby Cisco RSP3 module crashes during IOS upgrade
CSCvu30972	All readings for Power supply unit reflect as zero though the unit is functional

Caveat ID Number	Description
CSCvu36636	ROMMON region 0 and 1 verification CLI
CSCvu57879	OIR of 48-port T3/E3 CEM Interface Module in bay 12 affects RX traffic of 1-port OC-192 Interface module or 8-port Low Rate Interface Module (ASR 900 Combo 8 port SFP GE and 1 port 10GE IM with CEM, 10G) in bay 0
CSCvu73172	Suppress alarm if one of the power feeds to 900W dual feed PSU is missing
CSCvu95940	Egress QoS policy config missing on PoCh member link flap
CSCvu97978	Cisco RSP2 node crashed with core generation in 16.12 throttle
CSCvv13495	Loopback local is not working on T3 card protection physically connected ports
CSCvv16454	Traffic failure is observed due to MPLS ECMP load-balancing in one of the labelled paths
CSCvv24059	Cylon mgr crash is noticed on RSP when EMPLSINTD is exhausted.
CSCvv51145	Crash is seen on show plat hard pp active feature multicast database ipv4 table label <eos >
CSCvv59312	OC-48 SONET controller status shows UP without receiving signal
CSCvv74342	MAC is not flushed or withdrawn in remote peer on VC swichover from active to standby
CSCvv76949	Op state and Ad state show NA for all slot with Bandwidth command
CSCvv83093	OBFL updation with valid time after NTP Sync in RTC failure case
CSCvv91704	Mac flap is observed when shut or no-shut is executed over ME3400
CSCvv95745	Crash of standby supervisor is observed because of QoS Overhead Accounting
CSCvw04366	Display GNSS Chassis SN instead of PCB SN in show CLIs
CSCvw34109	PTP failure due to LSMPI buffer exhaustion
CSCvw56612	show lic CLI does not show port details
CSCvw57114	IGMP queries are dropped entering a Poch
CSCvw64784	Not able to reuse same clock ID on another controller after deleted clock ID
CSCvw71735	Async Line raw-socket packet-length Configure to 0 on Switchover
CSCvw72143	CPUHOG and Dying GASP related traceback seen on router reload
CSCvw81102	Copy recent standby logs and corefiles to Active

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.5 - Platform Independent

Caveat ID Number	Description
CSCvu23567	RSP3: BGP crash seen on Stand by router when 100 BGP sessions are established.
CSCvu44467	VRRP packets are generated with CS0 marking instead of CS6
CSCvu06475	Segment routing CLI cleanup under OSPF not happening after deleting segment routing from Global
CSCvv07825	SR uloop should only be calculated for best path
CSCvv42663	no snmp trap link-status under serial interface disappear after router reload
CSCvv79677	ASR902-RSP2 crashes after BGP flaps

Open Caveats – Cisco IOS XE Gibraltar 16.12.4

Caveat ID Number	Description
CSCvn47496	RSP3C Request for overriding restriction "MVPN-GRE VRF-SM: RP must be at Encapsulation PE"
CSCvs08297	Hidden CLI service enable-optics-threshold-clear-notification should be made as normal CLI
CSCvs86109	AG1 - BFD is down over single BDI
CSCvt01049	Description cannot add on ACR STS1/AU4 entities in the SONET/SDH-ACR
CSCvt82525	Router crashes while IPV6 updating prefixes
CSCvu30972	All readings for Power supply unit reflect as zero though the unit is functional
CSCvu36636	ROMMON region 0 and 1 verification CLI
CSCvu66126	OC192 APS Group is stuck with Signal Fail condition
CSCvw34109	PTP failure due to LSMPI buffer exhaustion

Open Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent

Caveat ID Number	Description
CSCvu37848	Traceback: Processes show 0% usage in show processes CPU platform sorted location

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4

Caveat ID Number	Description
CSCvs34482	ISSU is not working on Cisco RSP2 nodes
CSCvs71834	Router stops forwarding over VC after dot1.q tag is removed and is added back to service instance
CSCvt61512	DS3 Admin Down Alarm persists in card protected setup
CSCvt64706	CPU HOG occurs due to constant soft-parity errors
CSCvu38550	For VCOP configured with type DS3, Applique type should be Subrate T3 instead of Channelized T3/T1

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.4 - Platform Independent

Caveat ID Number	Description
CSCvs30865	rLFA for LDP causes loss of MPLS traffic after RSP switchover
CSCvt14323	IGMP reports received on mLACP Port-Channel drop incorrectly
CSCvt25458	MPLS TE does not come up when bandwidth is configured on Juniper head end
CSCvs95815	C1111 telnet refused for link-local addresses when using ipv6 access class

Open Caveats – Cisco IOS XE Gibraltar 16.12.3

Caveat ID Number	Description
CSCvm84355	[SVSP-299]-linkDown trap should not be sent when the port is in AINS mode-[SVSPE-570]

Caveat ID Number	Description
CSCvs54101	OC192 APS: OCx T1 scale setup : alarm gets cleared after SSO
CSCvs71834	Stops forwarding over VC after dot1.q tag is removed and added back to service instance
CSCvs63874	Reworked: Invalid ifindex during notification causing lldp localport table mib walk failure
CSCvs21550	snmpwalk command is not retrieving vt description in mode vt-15
CSCvs43077	RSP3 : R0/0: kernel: pci 0001:0e:00.0: BAR 0: error updating (high 0x00000f != 0x000000)
CSCvw34109	PTP failure due to LSMPI buffer exhaustion

Open Caveats – Platform Independent

Caveat ID Number	Description
CSCvq76305	AutoRP listener functionality issue
CSCvs30865	rLFA for LDP causes loss of MPLS traffic after RSP switchover
CSCvs58498	High CPU on SNMP engine due to CISCO-CEF-MIB

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.3

Caveat ID Number	Description
CSCvm31596	ASR903 RSP3C-400-S going in hang state
CSCvm38889	New fan tray speed algorithm based upon type of IMs present in the chassis
CSCvq61092	IM keeps reloading or router reloads once silently, beyond 400 CEM circuits on Port 8-OC192
CSCvq64605	RLFA resource leak on FRR create/delete with link flaps
CSCvr28956	Show debug memory leak should not be the part of "show tech" as this is intrusive command
CSCvr50508	Router_RP_0_fman_rp crash on applying conditional crypto debug
CSCvs52494	CRASH: Equipment reboot after "No shut" command is applied on T3 interface having VCOP (smart SFP).
CSCvs74558	IPV6 Traffic causing Broadcast Storm on port with hwid 3

Caveat ID Number	Description
CSCvs39740	User defined dummy pattern implementation and handle AIS alarm during xconnect down.
CSCvr40788	BERT is allowed to run without timeslot option in CESOP mode
CSCvs03541	With framed satop configured, T1 goes into loop on receiving inband loopcode
CSCvs58434	DS1 card prot : Change the fix of CSCvq85371 from AIS to LOS

Resolved Caveats – Platform Independent

Caveat ID Number	Description
CSCvm79556	MSPW VC down after Switchover (Error Local access circuit is not ready for label advertise)

Open Caveats – Cisco IOS XE Gibraltar 16.12.2a

Caveat ID Number	Description
CSCvm31596	ASR903 RSP3C-400-S going in hang state
CSCvq08730	RSP3 :With license service offload enable rsp3-200 fails to boot with Crash in PE image
CSCvq11964	NCS4200-1T8S-20CS : SDH : Change mode from TUG-3 to VC4 causes PW provisioning failure
CSCvq64605	RSP3: RLFA resource leak on FRR create/delete with link flaps
CSCvr61371	BFD remains down when using PBR on BDI/interface
CSCvw34109	PTP failure due to LSMPI buffer exhaustion

Open Caveats – Platform Independent

Caveat ID Number	Description
CSCux43298	The show interface pseudowire displays invalid peer info
CSCvm79556	RSP3: MSPW VC down after Switchover (Error Local access circuit is not ready for label advertise)
CSCvn86673	Dialer watch not disconnecting the backup link even after the watched route exists in routing table.
CSCvp60827	Delay of 30 sec while creating a new config file for phone using tftp.

Caveat ID Number	Description
CSCvq50202	Class-attributes duplicated after EAP reauthen. in ISG radius proxy scenario
CSCvq65438	Copying config file containing SmartPort macros to run fails
CSCvq69866	HSRPv2 crash whilst retrieving group from received packet
CSCvq76305	ASR900 autoRP listener functionality issue
CSCvq78692	mGRE L3VPN broken after reload
CSCvq93089	Active switch crashed after standby reloaded
CSCvq95479	Parser returning invalid PRC to certain commands
CSCvq96794	VPLS label misprogramming after RSP switchover
CSCvr05504	Dialer interface counter does not correlate to the counter of interfaces bounded to
CSCvr08740	Router crash after receiving EVPN route-type 2 without any ext-community
CSCvr08961	Switch stop responding to CoA
CSCvr18919	9400 SVL - Upon redundancy failover, route being purged on downstream device
CSCvr21440	3850 loops get-response value of object cafSessionClientMacAddress
CSCvr23104	BGP looped update among 3 peers
CSCvr27393	Crash on "BGP Router" process
CSCvr34118	remove login and fix broken command
CSCvr34677	DHCP packets are not encrypted in redundant ip helper setup
CSCvr39868	Unexpected reload when issueing show ip mroute vrf <vrf> verbose
CSCvr40112	Removing pseudowire-class for 1 peer makes all the peers fail.
CSCvr45669	cEdge - Template is not push because of bad-command "no ip domain-name"
CSCvr49439	Multiple encapsulations of packet with L2TP headers crash ASR1K
CSCvr51079	PPPoE session stuck in LCP state due to the wrong invoke of AAA method list.
CSCvr54031	TBs seen with scaled IP SLA configs with "ip sla reset"
CSCvr57022	Routes not removed from routing table when Dialer interface is shut
CSCvr57138	Wrong pointer to next buffer - Catalyst 9300
CSCvr57340	MAB is getting removed from template and causing Authorization failure.
CSCvr61879	static ip addresses not configured for the list message
CSCvr70470	sessmgrd crash with "clear dot1x mac" command

Caveat ID Number	Description
CSCvr73095	After aes encryption is enabled, entering plain aaa dynamic-author keys corrupts key
CSCvr74333	smd memory leak sending radius packets
CSCvr74619	Cat 9000 switch crashes during Authentication Failure of Wired Client
CSCvr75640	LNS crash with Segmentation fault(11) in L2TP mgmt daemon
CSCvr76555	In two redundant RPs, VPDN tunnel did not come up
CSCvr79052	In the cEdge console, 0 does not honor the privilege set in the username.

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.2a

Caveat ID Number	Description
CSCvp78600	V1612:IPSEC_THS Traffic is not happening "hash algorithm ESP-MD5-HMAC" tunnels
CSCvp91087	PRBS/BERT line is not working on pdh de1 of 3GMS IM
CSCvq00404	RSP3: Bcast packets are punted to CPU on the disposition node
CSCvq67129	ASR 907 forwards directed broadcast out same interface if uRPF is enabled on BDI

Resolved Caveats – Platform Independent

Caveat ID Number	Description
CSCts28315	DHCP-pd reflect the Advertised prefix in Request message
CSCvi22263	Crash when IOS is adapting shaping with Adaptive QoS over DMVPN configured
CSCvj76866	Partial Power Failure in Stack Causes Interfaces to Become "shutdown"
CSCvm40566	IP prefix list replacement gets error from IOS side
CSCvo55194	After RSP switchover label imposition was not programmed in Software on APS standby router
CSCvo55783	Pending objects wrt to uRPF on reload or soak script run
CSCvp38407	The "Radius-server attribute 31" command broken on LNS when LAC sends Remote-Id string
CSCvp66281	default ip forward-protocol udp xx changed to no ip forward-protocol udp xx after rollback
CSCvp74674	QoS fails to apply to tunnel2 when underlying tunnel1 reachability change

Caveat ID Number	Description
CSCvp96887	Failed to attach template to Cisco XE SDWAN Rtr if qos-map name changed after policy-map is attached
CSCvq00263	Device crashed @ radius_io_stats_timer_handler due to dynamic-author
CSCvq04828	VRF aware reverse DNS lookup not working
CSCvq04989	Ping between 2 Interfaces is not working , dialer interface is interfering in the ARP Process
CSCvq09061	The .py file check is not done while registering the policy and the error is seen
CSCvq18328	SSH: host_key->name is not null after reload which prevents SSH from starting up
CSCvq29953	IP SLA react for packetloss and successivepacketloss do not set \$_ipsla_react_type in EEM
CSCvq33004	Account logon failing for both direct and indirect lite-session in 16.9.3
CSCvq34893	Template push to CEdge fails when we change the access VLAN on a switchport from VLAN 1
CSCvq35631	Crash due to HTTP Core
CSCvq49721	Telnet access fails when VRF-aware extended VTY ACL is configured
CSCvq54265	Ip bootp server should be disabled by default as a device hardening best practice
CSCvq56114	Crash in IGMP code due to invalid source count in DNS lookup
CSCvq56208	MDT: xpath union operator only outputs data from the left hand expression
CSCvq58265	BGP PIC Repair path broke after link flap
CSCvq58722	Python script register failure when using custom directory instead of Flash
CSCvq59908	Stack crashed after upgrade
CSCvq60252	PBR works although an interface is down.
CSCvq70148	BGP is improperly formatting the BGP ASSET attribute if ASSET attribute length is beyond 255
CSCvq72298	Router crashed on running show policy-map interface <> output command
CSCvq73364	mVPN - Multicast packets dropped and "%MFIB-SW2-3-MFIB_CTXT_DEPTH_EXCEEDED" printed continuously
CSCvq89252	IP SLA for Path-Jitter returning a value which isn't defined by the MIB
CSCvq94679	[SDA] Crash due to Segmentation fault(11), Process = ARP Input
CSCvq95645	WLC crashed due to Memory Corruption

Caveat ID Number	Description
CSCvq97365	2 interfaces of client in different vrf connected to same vlan of server not able to get ip via dhcp
CSCvr00183	AAA accounting issue after router reload when mGRE and L3VPN configured
CSCvr00344	"ip access-list logging hash-generation" removes ACL statements upon reload
CSCvr02957	Re-add app-hosting move support - removed in v16.12.1
CSCvr05406	LISP Map-cache not updated correctly after wired Host-mobility
CSCvr09014	IGP metric not detected MPLS TE topology
CSCvr13213	Session unauthorized as Redirect ACL Failure. Failed attribute name POSTURE_REDIRECT.
CSCvr36887	WLC crashes by wncd process when modifying AAA configs from WebUI

Open Caveats – Cisco IOS XE Gibraltar 16.12.1

Caveat ID Number	Description
CSCvm31596	ASR903 RSP3C-400-S stops responding
CSCvp78600	V1612:IPSEC_THS Traffic is not happening "hash algorithm ESP-MD5-HMAC" tunnels
CSCvp91087	PRBS/BERT line is not working on pdh de1 of 3GMS IM
CSCvn27921	LPPS TE Absolute Avg Time is failing for N560-IMA2C
CSCvo18347	RSP2:Service impact seen while enabling the netconf-yang model
CSCvp35154	RSP3: arp not getting resolved resulting in back to back BDI ping fail post IM OIR trigger
CSCvp59580	Striker-O DR_10G_PORT_MAP is not correct during SFP OIR
CSCvq00342	Duplicated packets on MVPN deployment on ASR920
CSCvq00404	RSP3: Bcast packets are punted to CPU on the disposition node
CSCvq01602	After IPv6 and cache expired, transit traffic fails when ECMP
CSCvq08730	RSP3 :With license service offload enable rsp3-200 fails to boot with Crash in PE image
CSCvq11964	SDH : Change mode from TUG-3 to VC4 causes PW provisioning failure
CSCvq40026	SSFPD memory leak with ONS-SI-PDH-VCOP

Caveat ID Number	Description
CSCvp11822	RSP3 Crash during recursive routing for GRE Tunnel
CSCvp52636	RSP3-903: After doing IM-OIR of A900-IMA8S device, the device stops responding.
CSCvo13032	ROMMON: Invalid USB device handle error while doing dir USB0.
CSCvo36974	Data traffic drop is observed over VRF_AWARE_IPSEC with IPSEC profile removal and addition
CSCvp12219	IKEV1 tunnel goes down even after core port un-shut and comes up again
CSCvp28897	Kernel crash observed with 1500 frame size on core port shut or un-shut on peer
CSCvp61200	VRF AWARE IPSEC - One-way traffic hits tunnel during clear crypto process
CSCvp12250	The error logs such as caam_jr and asfctrl are observed
CSCvw34109	PTP failure due to LSMPI buffer exhaustion

Resolved Caveats – Cisco IOS XE Gibraltar 16.12.1

Caveat ID Number	Description
CSCvi93315	RSP2: Cylon_Mgr Crash in Multicast on RP SSO Soak
CSCvj75078	RSP3: IOMD crash @ iomd_bsess_open_callback_retry on new active after RP SSO
CSCvj87085	PTPD crashed after removing the ptp configs, default profile <169>
CSCvk13764	The uea_mgr fault on fp_0_0 issue leads to 907 crash on boot-up .
CSCvk32423	IMA8Z 6-port mode, hwidx not created leading to complete traffic drop
CSCvk54023	Convergence delay in active RSP removal
CSCvn19901	After upgrade (318SP2-1671) the router stayed down
CSCvn49741	ASR903/920 cylon_mgr crash.
CSCvn55871	T1 serial interface went down with encapsulation mode as PPP with remote loopback config as iboc.
CSCvn64973	A900-IMA4OS module reload with controller mode change
CSCvn82547	ASR903 : OSPF packets over VPLS are punted to CPU queue 15
CSCvn97073	Serdes release does not happen for OCx IM when moved from slot 14 to slot 12
CSCvo07619	ASR920-BDI IPv6 ping failure_FMFP_OBJ_Download_Failure

Caveat ID Number	Description
CSCvo10847	RSP3:POCH TE-FRR with Min Link less than No of Members Triggers FRR Via FLCDD
CSCvo19770	Router crashes at hashtable_get_nth_entry
CSCvo35275	ASR-920:MVPN: Unable to pass high MTU multicast packets-MDT-MTU
CSCvo40953	SDH : Serial interface stay in up/down status for SDH Modes
CSCvo44727	OC-3 port will not clear PUNEQ alarm
CSCvo44745	OCn IM shows as insertable-hw-module in slots where it is not supported in 10G_CEM mode
CSCvo65688	16.9.3-QIP-crete-TOD flaps in Crete (master) when setup is left overnight
CSCvp16487	High CPU utilisation observed for iomd process
CSCvp19127	Card-protection : Channelized T1 circuits fails to pass traffic , after RSP switchover
CSCvp25241	APS group OC48 does not send signal fail indication in K1 byte
CSCvp27918	ASR900 Router should throw out warning when wrong FAN TRAY installed (Module overheat and shut down)
CSCvq08464	ELBORON: Restrict max. supported CESoP PWs to 672 only in 16.12.1 release
CSCvq10257	About incorrect I/F notation when enable qos-overhead-accounting Tengig interface
CSCvo25659	ASR903-RSP3C-400:IMA8s Link set to down as serdes peer is not ready



CHAPTER 4

Restrictions and Limitations

- 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 cannot be used.
- RS422 pinout works only on ports from 0 to 7.
- The **ip cef accounting** command is *not* supported on the router.
- Crash may be observed on the router when:
 - EoMPLS, CEM, ATM and IMA Pseudowire Redundancy (PW-redundancy) configurations exist while switchover and fail-back of the pseudowires are being triggered, and the **show platform hardware pp active pw eompls** command is executed.
- 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 is not 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 are not 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 are not dropped, but the counters are not 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 are not supported.
- PTP is not supported when 8-port 10 Gigabit Ethernet interface module is in oversubscribed mode.
- ISSU is not supported between a Cisco IOS XE 3S release and the Cisco IOS XE Gibraltar 16.12.x release.
- Port channel 61-64 is not supported in the 16.11.1a release. The range of configurable port channel interfaces has been limited to 60.

- In the Cisco IOS XE Release 16.12.1, IPsec is not supported on the Cisco RSP3 module.
- Effective with Cisco IOS XE Everest 16.6.1, the Port-channel (PoCH) scale is reduced to 24 from 48 for Cisco ASR 900 RSP3 module.



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

- Remote loopback under STS1E controllers is not supported in Cisco IOS XE Release 16.12.5.