

Release Notes for Cisco ASR 1000 Series, Cisco IOS XE Denali 16.2

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About Cisco ASR 1000 Series Aggregation Services Routers



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Cisco ASR 1000 Series Aggregation Services Routers are Cisco routers deployed as managed service provider routers, enterprise edge routers, and service provider edge routers. These routers use an innovative and powerful hardware processor technology known as the Cisco QuantumFlow Processor.

Cisco ASR 1000 Series Aggregation Services Routers run the Cisco IOS XE software and introduce a distributed software architecture that moves many operating system responsibilities out of the IOS process. In this architecture, Cisco IOS, which was previously responsible for almost all of the internal software processes, now runs as one of many Cisco IOS XE processes while allowing other Cisco IOS XE processes to share responsibility for running the router.

Migrating to Cisco IOS XE Denali 16.2

The [Cisco IOS XE Denali 16.2 Migration Guide for Access and Edge Routers](#) contains important information for migrating successfully from Cisco IOS XE 3S to Cisco IOS XE 16.2. Read this information before you begin migrating to ensure that you have completed all the prerequisites and understand the migration process.

For a list of caveats in this release, see the [Open Caveats—Cisco IOS XE Denali 16.2](#) section.

Cisco ASR 1000 Series Aggregation Services Routers

This section provides information about the changes that are introduced in Cisco IOS XE Denali 16.2.

For details about upgrading the Cisco IOS XE software, see the [Cisco ASR 1000 Series Aggregation Services Routers Software Configuration Guide](#).

Supported and Unsupported Cisco ASR 1000 Hardware

	Supported	Unsupported
Platforms	ASR1001-X ASR1002-X ASR1001-HX ASR1002-HX ASR1004 ASR1006 ASR1006-X ASR1009-X ASR1013	ASR1001 ASR1002
Route Processors (RP)	ASR1000-RP2 ASR1000-RP3	ASR1000-RP1
Forwarding Processors (ESP)	ASR1000-ESP20 ASR1000-ESP40 ASR1000-ESP100 ASR1000-ESP200	ASR1000-ESP5 ASR1000-ESP10
Line cards	ASR1000-SIP40 ASR1000-2T+20X1GE ASR1000-6TGE ASR1000-MIP100	ASR1000-SIP10
Ethernet Port Adapters (EPA)	EPA-1X100GE (Not supported on ASR1002-HX) EPA-10X10GE (Not supported on ASR1002-HX) EPA-18X1GE (Supported on ASR1002-HX)	—

Supported Shared Port Adapters

Shared SPA and ATM SPA	Serial and Channelized SPA	Ethernet SPA	Packet Over Sonet SPA (POS)	Circuit Emulation Over Packet SPA (CEOP)
SPA-DSP	SPA-8XCHT1/E1-V2	SPA-4X1FE-TX-V2	SPA-2XOC3-POS	SPA-1CHOC3-CE-ATM
SPA-1XOC3-ATM-V2	SPA-4XCT3/DS0-V2	SPA-8X1FE-TX-V2	SPA-4XOC3-POS	SPA-24CHT1-CE-ATM
SPA-3XOC3-ATM-V2	SPA-2XCT3/DS0-V2	SPA-2X1GE-V2	SPA-2XOC3-POS-V2	SPA-2CHT3-CE-ATM
SPA-1XOC12-ATM-V2	SPA-1CHSTM1/OC3V2	SPA-5X1GE-V2	SPA-4XOC3-POS-V2	
	SPA-2XT3/E3-V2	SPA-8X1GE-V2	SPA-8XOC3-POS	
	SPA-4XT3/E3-V2	SPA-10X1GE-V2	SPA-1XOC12-POS	
	SPA-8XT3/E3	SPA-1X10GE-L-V2	SPA-2XOC12-POS	
	SPA-4XT-Serial	SPA-1X10GE-WL-V2	SPA-4XOC12-POS	
	SPA-1XCHOC12/DS0		SPA-8XOC12-POS	
			SPA-1XOC48-POS/RPR	
			SPA-2XOC48-POS/RPR	
			SPA-4XOC48-POS/RPR	
			SPA-OC192-POS-XFP	

For a list of Cisco ASR 1000 hardware that will End-of-Sale and End-of-Life, see <http://www.cisco.com/c/en/us/products/collateral/routers/asr-1000-series-aggregation-services-routers/eos-eol-notice-c51-734572.html>.

ROMmon Release Requirements

The following table provides information about the field-replaceable units (FRUs) of the Cisco ASR 1000 Series Aggregation Services Routers supported by each ROMmon release.

Table 1: Available ROMmon Release

FRU	ROMmon Release		
	16.2(1r)	16.2(2r)	16.3(2r)
–			
ASR1000 RP2	Yes	–	Yes
ASR1000 RP3	–	–	Yes
ASR1000-ESP20	Yes	–	Yes
ASR1000-ESP40	Yes	–	Yes
ASR1000-ESP100	Yes	–	Yes
ASR1000-ESP200	Yes	–	Yes
ASR1001-X	Yes	Yes	Yes

FRU	ROMmon Release		
	16.2(1r)	16.2(2r)	16.3(2r)
ASR1002-X	Yes	–	Yes
ASR1001-HX	–	Yes	Yes
ASR1002-HX	–	Yes	Yes
ASR1000-2T+20x1GE	Yes	–	Yes
ASR1000-6TGE	Yes	–	Yes
ASR1000-MIP100	Yes	–	Yes
ASR1000-SIP40	Yes	–	Yes

The following table lists the minimum ROMmon release supported for RP and ESP FRUs, for each Cisco IOS XE Denali release.

Table 2: Minimum ROMmon Release Supported for RP and ESP FRUs

Cisco IOS XE Denali Release	FRU					
	ASR1000 RP2	ASR1000 RP3	ASR1000-ESP20	ASR1000-ESP40	ASR1000-ESP100	ASR1000-ESP200
–	ASR1000 RP2	ASR1000 RP3	ASR1000-ESP20	ASR1000-ESP40	ASR1000-ESP100	ASR1000-ESP200
16.2(1)	16.2(1r)	–	16.2(1r)	16.2(1r)	16.2(1r)	16.2(1r)
16.3(1)	15.2(1r)S	16.3(2r)	XNC	15.0(1r)S	15.3(1r)S	15.3(1r)S

The following table lists the minimum ROMmon release supported for other FRUs, for each Cisco IOS XE Denali release.

Table 3: Minimum ROMmon Release Supported for Other FRUs

Cisco IOS XE Denali Release	FRU							
	ASR1001-X	ASR1002-X	ASR1001-HX	ASR1002-HX	ASR1000-2T+20x1GE	ASR1000-6TGE	ASR1000-MIP100	ASR1000-SIP40
–	ASR1001-X	ASR1002-X	ASR1001-HX	ASR1002-HX	ASR1000-2T+20x1GE	ASR1000-6TGE	ASR1000-MIP100	ASR1000-SIP40
16.2(1)	16.2(1r)	16.2(1r)	–	16.2(2r)	16.2(1r)	16.2(1r)	16.2(1r)	16.2(1r)
16.3(1)	15.4(2r)S	15.5(3r)S1	16.2(2r)	16.2(2r)	15.5(3r)S1	15.4(2r)S	15.5(3r)S1	15.0(1r)S

The following table lists the recommended ROMmon release supported for RP and ESP FRUs, for each Cisco IOS XE Denali release.

Table 4: Recommended ROMmon Release Supported for RP and ESP FRUs

Cisco IOS XE Denali Release	FRU					
	ASR1000 RP2	ASR1000 RP3	ASR1000-ESP20	ASR1000-ESP40	ASR1000-ESP100	ASR1000-ESP200
–	ASR1000 RP2	ASR1000 RP3	ASR1000-ESP20	ASR1000-ESP40	ASR1000-ESP100	ASR1000-ESP200
16.2(1)	16.3(2r)	–	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)
16.3(1)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)

The following table lists the recommended ROMmon release supported for other FRUs, for each Cisco IOS XE Denali release.

Table 5: Recommended ROMmon Release Supported for Other FRUs

Cisco IOS XE Denali Release	FRU							
	ASR1001-X	ASR1002-X	ASR1001-HX	ASR1002-HX	ASR1002-2MGE	ASR1000-6TGE	ASR1000-MIP100	ASR1000-SIP40
–	ASR1001-X	ASR1002-X	ASR1001-HX	ASR1002-HX	ASR1002-2MGE	ASR1000-6TGE	ASR1000-MIP100	ASR1000-SIP40
16.2(1)	16.3(2r)	16.3(2r)	–	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)
16.3(1)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)	16.3(2r)

Upgrading the ROMMON Version on the Cisco ASR 1000 Series Routers

The minimum ROMMON version needed to load the Cisco IOS Denali 16.2 image on a Cisco ASR 1000 is release 16.2(1r).

You can upgrade from any ROMMON version to release 16.2(1r). There is no minimum ROMMON version required in order to upgrade to release 16.2(1r).

For ROMMON upgrade instructions, see the *Cisco ASR 1000 Series Routers ROMmon Upgrade Guide* at: <http://www.cisco.com/c/en/us/td/docs/routers/asr1000/rommon/rommon.html>.

Cisco IOS XE 3S Versions That Can be Used to Upgrade the ROMMON

The following Cisco IOS XE 3S versions can be used to upgrade the ROMMON to 16.2(1r):

- Cisco IOS XE 3.10 or previous Cisco IOS XE versions
- Cisco IOS XE 3.13.2 and later versions of Cisco IOS XE 3.13
- Cisco IOS XE 3.14.1 and later versions of Cisco IOS XE 3.14
- Cisco IOS XE 3.15 and later versions



Note Do not use the following Cisco IOS XE 3S versions to upgrade the ROMMON to 16.2(1r):

- Cisco IOS XE 3.11.x (all Cisco IOS XE 3.11 versions)
- Cisco IOS XE 3.12.x (all Cisco IOS XE 3.12 versions)
- Cisco IOS XE 3.13.0 and Cisco IOS XE 3.13.1
- Cisco IOS XE 3.14.0

Cisco ASR 1000 Modular Platforms Require Universal Images and Licenses

Universal Images for the Cisco ASR 1000 Modular Platforms

Similar to Cisco ASR 1000 consolidated platforms (ASR 1001-X and ASR 1002-X), the Cisco ASR 1000 modular platforms (ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013) support the following Universal images:

- Cisco ASR 1000-RP IOS XE UNIVERSAL—NO PAYLOAD ENCRYPTION
- Cisco ASR 1000-RP IOS XE UNIVERSAL
- Cisco ASR 1000-RP IOS XE UNIVERSAL W/O Lawful Intercept
- Cisco ASR 1000-RP IOS XE UNIVERSAL—NO PAYLOAD ENCRYPTION W/O Lawful Intercept

License Package Options for the Cisco ASR 1000 Modular Platforms

The Cisco ASR 1000 modular platforms (ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013) support the following license options:

- Cisco ASR 1000 IP Base License (default option)
- Cisco ASR 1000 Advanced IP Services License (AIS)
- Cisco ASR 1000 Advanced Enterprise Services License (AES)

Cisco ASR 1000 Modular Platforms Image Mapping from Cisco IOS XE 3.x to Cisco IOS XE Denali 16.2

The Cisco ASR 1000-RP2 is the route processor supported on the Cisco ASR 1000 modular platforms. The following table shows how the Cisco ASR 1000-RP2 image for modular platforms (ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013) maps from Cisco IOS XE 3.x to Cisco IOS XE Denali 16.2. To enable the required features on the Cisco ASR 1000 modular platforms, you must install the correct Universal image and the required licence package.

Description in Cisco IOS XE 3.x	Product ID in Cisco IOS XE 3.x	Maps to...	Product ID in Cisco IOS XE 16.2	Description in Cisco IOS XE 16.2	Licence in Cisco IOS XE 16.2
Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES	SASR1R2-AISK9-316S	—————>	SASR1KRPUK9-162	Cisco ASR 1000 Series RPX86 UNIVERSAL	AIS
Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES W/O LI	SASR1R2AIS9NLI316S	—————>	SASR1KRPUNLIK9-162	Cisco ASR 1000 Series RPX86 UNIVERSAL W/O LI	AIS
Cisco ASR 1000 Series RP2 ADV ENT SERVICES	SASR1R2-AESK9-316S	—————>	SASR1KRPUK9-162	Cisco ASR 1000 Series RPX86 UNIVERSAL	AES
Cisco ASR 1000 Series RP2 ADV ENT SERVICES W/O LI	SASR1R2AES9NLI316S	—————>	SASR1KRPUNLIK9-162	Cisco ASR 1000 Series RPX86 UNIVERSAL W/O LI	AES
Cisco ASR 1000 Series RP2 IP BASE	SASR1R2-IPBK9-316S	—————>	SASR1KRPUK9-162	Cisco ASR 1000 Series RPX86 UNIVERSAL	None

Upgrading the Cisco ASR 1000 Modular Platforms from Cisco IOS XE 3.x to Cisco IOS XE Denali 16.2

This section provides the basic steps to upgrade the Cisco ASR 1000 modular platforms (ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013) from Cisco IOS XE 3.x to Cisco IOS XE Denali 16.2. For a successful migration, we highly recommend that you view the following VODs:

- [IOS XE 3.x to 16.2 Migration on ASR 1000 Part 1 - Overview](#)
- [IOS XE 3.x to 16.2 Migration on ASR 1000 Part 2 - Upgrade Procedure on RP2](#)
- [IOS XE 3.x to 16.2 Migration on ASR 1000 Part 3 - Upgrade Procedure on ASR1001-X & ASR1002-X](#)



Note The full upgrade procedure requires you to reload the system up to four times. Use the **show version** command after each reload to verify the image version and license level.

Before you begin

- Download the ROMMON release 16.2(1r) from cisco.com to the router.
- Download the Cisco IOS XE Denali 16.2 Universal image from cisco.com to the router.

Procedure

Step 1 Backup the running configuration.

```
Router# copy running-config bootflash:demo.cfg
Destination filename [demo.cfg]?
1834 bytes copied in 0.112 secs (16375 bytes/sec)
```

Step 2 Upgrade the ROMmon to 16.2(1r) and reload the route processors.

```
Router# upgrade rom-monitor filename bootflash:asr1000-rommon.162-1r.pkg all
```

```
Upgrade rom-monitor on Router-Processor 0
Target copying rom-monitor image file
. . .
ROMMON upgrade complete
To make the new ROMMON permanent, you must restart the linecard
```

```
Router# hw-module slot R1 reload <-- If you have a redundant route processor, reload the
redundant route processor first
```

```
Router# reload <-- Reload the active router processor and boot the IOS XE3 image
```

```
. . .
Router# show platform
. . .
```

Slot	CPLD Version	Firmware Version
0	00200800	16.2(1r)
1	00200800	16.2(1r)
R0	10021901	16.2(1r)
R1	10021901	16.2(1r)
F0	1003190E	16.2(1r)
F1	1003190E	16.2(1r)

Step 3 Install the IOS XE 16.2 Universal image, save the configuration, and reload the route processors.

```
Router# config terminal
Router(config)# no boot system bootflash:previous_image.bin <-- Removes the previous boot
statement
Router(config)# boot system bootflash:16.2-universal-image.bin <-- Adds the new boot statement
Router(config)# end
Router# write
Building configuration...
```


[OK]

```
Router# hw-module slot R1 reload <-- If you have a redundant route processor, reload the
redundant route processor first
Router# reload <-- Reload the active router processor and boot the IOS XE 16.2 Universal
image
```

Note If you were running the RP2 IP BASE image, this completes the upgrade . If you were running the RP2 Advanced IP Services image or RP2 Advanced Enterprise image, continue to the next step to set the license level.

Step 4 Configure the required license boot level, save the configuration, and reload the route processors.

```
Router> enable
Router# config terminal
Router(config)# licence bootlevel [adventerprise | advipservices]
% use 'write' command to make license boot config take effect on next boot
Router(config)# licence accept end user agreement
...
ACCEPT: (yes/[no]) yes
Router(config)# end
Router# write
Warning . . .

Overwrite the previous NVRAM configuration? [confirm?]
Building configuration...
[OK]
```

```
Router# hw-module slot R1 reload <-- If you have a redundant route processor, reload the
redundant route processor first
Router# reload
```

Step 5 Restore the backup configuration to the running configuration.

```
Router> enable
Router# copy bootflash:demo.cfg running-config
Destination filename [running-config]?

Router# config terminal
Router(config)# no boot system bootflash:previous_image.bin <-- Removes the previous boot
statement
```

Step 6 Configure the required license boot level again, save the configuration, and reload the route processors.

```
Router(config)# licence bootlevel [adventerprise | advipservices]
% use 'write' command to make license boot config take effect on next boot

Router(config)# end
Router# write
Warning...
Overwrite the previous NVRAM configuration? [confirm?]
Building configuration...
[OK]

Router# hw-module slot R1 reload <-- If you have a redundant route processor, reload the
redundant route processor first
```

```
Router# reload
```

Downgrading from Cisco IOS XE Denali 16.2 to Cisco IOS XE 3S—Cisco ASR 1000 Series

If you choose to downgrade from Cisco IOS XE Denali 16.2 to a Cisco IOS XE 3S release, you do not need to downgrade the ROMMON. The ROMMON is backward compatible. You can downgrade the IOS, but you can keep the same ROMMON.

Upgraded Cisco ASR 1000 Series Web User Interface in Cisco IOS XE Denali 16.2

This section provides information about the feature changes that are provided in the upgraded ASR 1000 Web User Interface (UI) for Cisco IOS XE Denali 16.2.

Feature Changes	Description
New Look and Feel	In Cisco IOS XE Denali 16.2, the ASR 1000 Web UI has a new look and feel.
Configuration and Monitoring	In Cisco IOS XE 3.17S, you could only use the Web UI to monitor the router. In Cisco IOS XE Denali 16.2, you can use the Web UI to configure and monitor the router.
Memory ESP and QFP Data Plane Layer Not Provided	In Cisco IOS XE Denali 16.2, the memory ESP and QFP statistics in the data plane layer are not provided.
Environment and Fan Status Not Provided	In Cisco IOS XE Denali 16.2, the Environment status and Fan status, which were located under the Chassis menu in Cisco IOS XE 3.17S, are not provided.
Sensors and UDS Not Provided	In Cisco IOS XE Denali 16.2, the Sensors and UDS parameters, which were located under Process Resource > Process List in Cisco IOS XE 3.17S, are not provided.

ISSU Incompatibility Between Cisco IOS XE Release 3.x and Cisco IOS XE Denali 16.2

The Cisco IOS XE Denali 16.2 is an ISSU-break release.

The ISSU super-package software upgrade and the sub-package software upgrade from Cisco IOS XE Release 3S to Cisco IOS XE Denali 16.2 is not supported.

In addition, the ISSU downgrade from Cisco IOS XE Denali 16.2 to Release XE 3S is not supported.

New Features and Important Notes

New and Changed Information

The following sections list the new hardware and software features that are supported on the Cisco ASR 1000 Series Aggregation Services Routers.

New Hardware in Cisco ASR 1000 Series Aggregation Services Routers for Cisco IOS XE Denali Release 16.2.1

The following hardware feature was introduced in Cisco ASR 1000 Series Aggregation Services Routers for Cisco IOS XE Denali Release 16.2.1.

Cisco ASR 1002-HX Router

Cisco ASR 1002-HX Router is a part of the Cisco ASR 1000 Series and offers a compact form factor that consumes less rack space and power while offering 100 Gbps forwarding throughput. Cisco ASR 1002-HX Router supports all general purpose routing and security features of Cisco ASR 1000 Series Aggregation Services Routers.

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/routers/asr1000/install/guide/asr1k-hx/b_ASR1002-HX_HIG.html

New Software Features in Cisco ASR 1000 Series Aggregation Services Routers for Cisco IOS XE Denali Release 16.2.1

With the exception of the following features, the remaining features supported until Cisco IOS XE Release 3.17S are supported in Cisco IOS XE Denali 16.2.

Unsupported Features	Links and Information
Port Authentication Using 802.1x for MACSec	http://www.cisco.com/en/US/docs/ios-xml/ios/sec_usr_8021x/configuration/15-2mt/config-ieee-802x-pba.html
Per-Port Storm Control	http://www.cisco.com/c/en/us/td/docs/routers/asr1000/configuration/guide/chassis/Storm_Control_ASR1K.html
Per-Port 802.1x; Multi-Host, Single Host and Port-Based	http://www.cisco.com/en/US/docs/ios-xml/ios/sec_usr_8021x/configuration/15-2mt/config-ieee-802x-pba.html
802.1u (Guest VLAN)	http://www.cisco.com/en/US/docs/ios-xml/ios/sec_usr_8021x/configuration/15-2mt/config-ieee-802x-pba.html
MAC Authentication Bypass (MAB)	http://www.cisco.com/en/US/docs/ios-xml/ios/sec_usr_aaa/configuration/15-2mt/sec-config-mab.html
Multi-Domain Authentication (802.1x)	http://www.cisco.com/en/US/docs/ios-xml/ios/sec_usr_8021x/configuration/15-2mt/sec-ieee-802x-fa.html
Secure Port Filtering (Dynamic Secure Port)	See the "What is Secure and Dynamic Secure Port?" FAQ at http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/qa_c67-612908.html
Auth-Proxy	—
CWS Active Identity (NTLM)	http://www.cisco.com/c/en/us/td/docs/routers/access/4400/feature/guide/isr_4000_ntlm-authen.html

Unsupported Features	Links and Information
CTS Name Table Download	—

The following are the new software features introduced in Cisco ASR 1000 Series Aggregation Services Routers for Cisco IOS XE Denali Release 16.2.1.

Configuration for DNS learning avoidance

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/qos_nbar/configuration/xs-16/qos-nbar-xe-16-book.html

DNS-AS Client GA

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/qos_nbar/configuration/xs-16/qos-nbar-xe-16-book.html

ERSPAN Type III header

For detailed information, see the following Cisco document:

<http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/lanswitch/configuration/xs-16/lanswitch-xe-16-book/lsw-conf-erspan.html>

IPv6 Multicast over LISP

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_lisp/configuration/xs-16/irl-xe-16-book/irl-lisp-multicast.html

LISP Generalized SMR

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_lisp/configuration/xs-16/irl-xe-16-book/irl-lisp-gen-smr.html

LISP Reliable Registration

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_lisp/configuration/xs-16/irl-xe-16-book/irl-lisp-rel-reg.html

MAP-T scale improvement on ASR1k (and CSR1k/ISR4k)

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_nat/configuration/xs-16/nat-xe-16-book/iadnat-mapt-t.html

NPTv6 support on ASR1k/CSR1k/ISR4k

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_nat/configuration/xs-16/nat-xe-16-book/iadnat-asr1k-nptv6.html

Overlapping Prefix

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_lisp/configuration/xr-16/irl-xe-16-book/irl-ovrlp-prefix.html

TTL Propagate Disable and Site-ID Qualification

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_lisp/configuration/xr-16/irl-xe-16-book/irl-ttl-prpgt-disable-site-id-qual.html

WebUI Support

Support for an embedded GUI-based device-management tool that provides the ability to provision the router, to simplify device deployment and manageability, and enhance user experience.

Important Notes

The following sections contain important notes about Cisco ASR 1000 Series Aggregation Services Routers.

Deferrals

Cisco IOS software images are subject to deferral. We recommend that you view the deferral notices at the following location to determine whether your software release is affected:

http://www.cisco.com/en/US/products/products_security_advisories_listing.html

Field Notices and Bulletins

- Field Notices—We recommend that you view the field notices to determine whether your software or hardware platforms are affected. You can find the field notices at the following location:

http://www.cisco.com/en/US/support/tsd_products_field_notice_summary.html

- Bulletins—You can find bulletins at the following location:

http://www.cisco.com/en/US/products/sw/iosswrel/ps5012/prod_literature.html

Caveats

Open and Resolved Bugs

The open and resolved bugs for a release are accessible through the [Cisco Bug Search Tool](#). This web-based tool provides you with access to the Cisco bug tracking system, which maintains information about bugs and vulnerabilities in this product and other Cisco hardware and software products. Within the [Cisco Bug Search Tool](#), each bug is given a unique identifier (ID) with a pattern of CSCxxNNNNN, where x is any letter (a-z) and N is any number (0-9). The bug IDs are frequently referenced in Cisco documentation, such as Security Advisories, Field Notices and other Cisco support documents. Technical Assistance Center (TAC) engineers or other Cisco staff can also provide you with the ID for a specific bug. The [Cisco Bug Search Tool](#) enables you to filter the bugs so that you only see those in which you are interested.

In addition to being able to search for a specific bug ID, or for all bugs in a product and release, you can filter the open and/or resolved bugs by one or more of the following criteria:

- Last modified date

- Status, such as fixed (resolved) or open
- Severity
- Support cases

You can save searches that you perform frequently. You can also bookmark the URL for a search and email the URL for those search results.

Using the Cisco Bug Search Tool

For more information about how to use the [Cisco Bug Search Tool](#), including how to set email alerts for bugs and to save bugs and searches, see [Bug Search Tool Help and FAQ](#).

Before You Begin

You must have a Cisco.com account to log in and access the [Cisco Bug Search Tool](#). If you do not have one, you can register for an account.

Procedure

-
- Step 1** In your browser, navigate to the [Cisco Bug Search Tool](#).
- Step 2** If you are redirected to a Log In page, enter your registered Cisco.com username and password and then, click Log In.
- Step 3** To search for a specific bug, enter the bug ID in the Search For field and press Enter.
- Step 4** To search for bugs related to a specific software release, do the following:
- In the Product field, choose Series/Model from the drop-down list and then enter the product name in the text field. If you begin to type the product name, the [Cisco Bug Search Tool](#) provides you with a drop-down list of the top ten matches. If you do not see this product listed, continue typing to narrow the search results.
 - In the Releases field, enter the release for which you want to see bugs.
The [Cisco Bug Search Tool](#) displays a preview of the results of your search below your search criteria.
- Step 5** To see more content about a specific bug, you can do the following:
- Mouse over a bug in the preview to display a pop-up with more information about that bug.
 - Click on the hyperlinked bug headline to open a page with the detailed bug information.
- Step 6** To restrict the results of a search, choose from one or more of the following filters:

Filter	Description
Modified Date	A predefined date range, such as last week or last six months.
Status	A specific type of bug, such as open or fixed.
Severity	The bug severity level as defined by Cisco. For definitions of the bug severity levels, see Bug Search Tool Help and FAQ .
Rating	The rating assigned to the bug by users of the Cisco Bug Search Tool .

Filter	Description
Support Cases	Whether a support case has been opened or not.

Your search results update when you choose a filter.

Caveats on Cisco ASR 1000 Series Aggregation Services Routers in Cisco IOS XE Denali Release 16.2.2

Open Caveats—Cisco IOS XE Denali Release 16.2.2

All open bugs for this release are available in the [Cisco Bug Search Tool](#) through the Open Bug Search.

Identifier	Description
CSCuz88340	AN: ULA is configured on ANI & same ANI used for multiple neighbors
CSCux55351	ASR1K router crashed due to running BGP with AIGP
CSCuz65251	All the UP interfaces displayed as DOWN after wr erase and reload
CSCuy73660	Crash seen after disconnecting call in HA_MTP scenario
CSCuz81381	Under load crash seen in CVP REFER_MIDCALL_SIGNALING_BLOCK scenario
CSCuy51013	ESP crash on upgrade from XE3.11 to XE3.16.1a
CSCuz90232	CUBE crash due to Process=VoIP FPI Process during regression test

Resolved Caveats—Cisco IOS XE Denali Release 16.2.2

All resolved bugs for this release are available in the [Cisco Bug Search Tool](#) through the Resolved Bug Search.

Identifier	Description
CSCux46926	PnP-mgmt interf doesn't get IP w/ autoinstall; use "ip address dhcp"
CSCuz01573	ISSU 16.2: ATM stale PVP obj seen and deleted after sub-packages booting
CSCuv93086	PPPoA sessions are not coming UP after the reload/interface flap
CSCuy59471	erspan supports configure flexible mac for the wan interface
CSCuw53453	"%EZMAN_RM-3-SERDES_AUTOTUNE_FAIL" error message with 100G CPAK
CSCuz34766	ASR1000-2T+20X1GE GE ports cause CRC errors when connected to some LCs
CSCuz47707	EPA 1GE Ports may cause CRC errors
CSCuw97986	LLDP not working between ios-xe and ios-xr on subinterfaces

Identifier	Description
CSCuz09783	ZBFW asynchronous memory API change for USD platform
CSCuz77534	ESP100 : GETVPN : total packet loss after 2nd ESP switchover
CSCuz27907	IOS-XE: Issues with GETVPN and mGRE packet classification
CSCuz67672	Polaris 16.2 Packet drops@IpsecInput with svti configs
CSCux91300	Polaris 16.2: Traceback@be_ace_send_ikea with gre configs
CSCuy86812	Router crash when share tunnel protection with MGRE and GRE tunnels.
CSCuy67413	ASR1002-HX power supply returning incorrect vendortype-OID
CSCux84838	IOSXE_MLP-2-STATS_TIMED_OUT tracebacks
CSCuy76789	16.2 Throttle: UDP Packets are getting dropped with nat64+ZBFW configs
CSCux36675	VLAN Unlimited not working in certain case with port-channel
CSCuu17470	XE314:INGPacket drop Built-In interface configured with EVC and xconnect
CSCux70853	IOS-XE crashed with show policy-map interface output brief vrf timestamp
CSCuy87829	Memory leak at QoS WPM node
CSCuy88330	Config Sync failure with Call-home, reporting smart-licensing-data
CSCux98434	Loud click heard on SRST/CME Software Conference calls with PSTN callers
CSCux79855	TPS Server failure in crypto_engine_pk_decrypt breaking https post sso.
CSCuy01341	Crash on processing packet on cws-tunnel in
CSCuz65251	All the UP interfaces displayed as DOWN after wr erase and reload
CSCuy13061	CGE7 Polaris: DHCP Ack packet is not receiving for client request
CSCuy70938	16.2S Could not encrypted/decrypted in ISR43xx using authentication only
CSCuw48857	UP23n : USD platforms crashes for "sh plat hard crypto-device util" cli
CSCuz48325	XE318SP - Memory leaks are observed after running cosmark suite
CSCsv05154	Cisco IOS HTTP server vulnerable to CSRF attacks
CSCuy99086	Appnav with WAAS experiences an unexpected reload.
CSCuy92775	16.2.1 to 3.6.x/3.7.x downgrade fails when file is on a remote switch
CSCux24057	Install/upgrade on a specific non-active switch will fail
CSCuw49406	"no ip routing protocol purge interface" delete with reload
CSCuw74179	CSR: static route via VTI fails to restore after Interface shut/no shut

Identifier	Description
CSCuy86327	DNS resolution for Ping vrf command still uses Global table on Polaris
CSCuz25416	ROC update for CUBE session refresh dspware and IOS code commit
CSCuz25240	ISIS not installing back to RIB neighbors loopback when interface flaps
CSCuy90947	ASR1K : GTP PDP context stuck in deleting state
CSCuz19502	LISP MS: "show lisp site rloc members registrations" crashes router
CSCuz14579	Authentication via HTTP failing when using tacacs Authentication
CSCuz22008	No log message displayed when one of the VDSL lines go down on xDSL NIM
CSCuy51956	AAA server moves to DEAD state even though CTS server is ALIVE
CSCuz09535	Transient flapping of APs and Clients not getting IP address
CSCuz40711	Wireless configuration lost after 4th switchover
CSCuy24630	Not able to open webauth page in client with ipv6 address.
CSCuz96860	Client create on same IF_ID may lead to fman fp crash at wlclient_def
CSCuy47917	fman-fp failed to send NACK back upon client creation
CSCux60447	1K scale: few dot1x sessions missing on standby switch; use SSO
CSCuz02972	DBM process crash after SWO, upon deletion of WLAN/ AP group
CSCux14863	AN : CSR & ASR1K crashes after "undebg all" or "show debugging"
CSCuy77179	Calling-station-id missing in web logon access-request
CSCuy40721	Not updated parameters when session is renewed in unauth state
CSCuz13399	ISSU XE316 ->XE317: ATMoMPLS ip ping failed CEoP link for port mode conf
CSCuy21483	ISR4451-X Crash at cpp_dsp_get_stream_stats
CSCuz84906	ZBF: SYN cookie hardening
CSCuy76909	16.2 Throttle::Jumbo DNS interactive packets are not processed by NAT
CSCux47830	ASRNAT: Pool leak in PAP mode leading to %NAT-6-ADDR_ALLOC_FAILURE
CSCuw95297	ESP200 crash with 550K translations with cablevision config
CSCuz82533	Router crashed when the virtual access interface comes up
CSCuy89796	ASR1k cpp_cp_srv crash due to WRED mark prob set to 256
CSCux35719	ASR1K QFP crash with SSLVPN
CSCuy69440	ISG Critical Exception and crashing with SSS-Manager holding memory

Identifier	Description
CSCuy59673	ISR-WAAS instance lost after upgrading router image to IOS-XE 16.2.1
CSCuz23329	Many inactive sccp sessions in show sccp connections
CSCuy85653	One way audio via ISR 4K after call is resumed from IP phone after SNR
CSCuz20065	needs to discard voip packet for lmr half duplex case in isr4k
CSCuz63410	VLAN DHCP failed state is not marked as yes
CSCuy73892	Not able to enable Rogue Rules through GUI

Caveats on Cisco ASR 1000 Series Aggregation Services Routers in Cisco IOS XE Denali Release 16.2.1

Open Caveats—Cisco IOS XE Denali Release 16.2.1

All open bugs for this release are available in the [Cisco Bug Search Tool](#) through the Open Bug Search.

Identifier	Description
CSCuy77012	SGT with DMVPN on Octeon (ASR1002x) is showing OCT_MISSING_CUSTOM_HDR
CSCuy59471	ERSPAN supports configure flexible mac for the wan interface
CSCuy49365	ASR1013 - ROMMON upgrade to 15.5(3r)S1 failed for LC in slot 0
CSCuy26834	PnP discovery not able to bypass config wizard on ASR1K platforms
CSCuy51289	Childless delete Pending-issue on both ESP's
CSCuw72655	RSP3: fman_fp crash on soak run with interface flaps
CSCuy76789	16.2 Throttle: UDP Packets are getting dropped with nat64+ZBFW configs
CSCux19847	XE3.16: RTP application-table cannot be exported and shown up properly
CSCuy38643	ESP PBR crash on interface delete
CSCux59115	ASR1002-X Crash with dpidb_tableid_params_initialize
CSCuy41182	Crash on RP forwarding manager due to cpp_ucose core on ISRG3
CSCuy14366	ASR1001-X interrupt MBE exception crash with cpp-mcplo-ucose
CSCuw74399	%SYS-2-BADSHARE: Bad refcount in pool_enqueue_cache
CSCuy05915	XE: PBR breaks when CWS is enabled on the same interface
CSCux36581	CSR1000v: part of MMA punt records lost and not accounted on LSMPI intf
CSCuy00876	IPSec sVTI/GRE and dmVPN may lose few routes with IOS XE Denali 16.2 at scale

Identifier	Description
CSCuy19110	Mismatch of counters in "show vlan dot1q" CLI
CSCuy63118	IOS XE Denali 16.2 does not scale to XE3.17 level for MPLS VPN routing
CSCuy67698	fman_rp CPUHOGs when testing scale on some features
CSCuy68136	ASR1001x BUILTIN 10G interfaces may fail to come up sometimes
CSCuy87569	GBT tracebacks when running MPLS VPN scale tests
CSCuy91126	IOS XE Denali 16.2 IPSec FlexVPN PSK does not scale on asr1013/RP2/ESP100
CSCuy91207	MPLS VPN routing performance decreased in IOS XE Denali 16.2
CSCux52244	CGE7: MPLS failures on derisk regression.
CSCux84852	ASR1001X BR ucode crashed@cent_timer_timeout_handler when hub MC crashed
CSCuv79910	PRBS support for 10G and 100g interfaces between NP5c and peer device
CSCuy22895	IOSD ipc task memory utilization
CSCuv29084	Argusx: Not able to Login into CGE7 BINOS Prompt
CSCux42360	IOSRP process crash on RP2 while performing BGP scale tests
CSCux45966	Across the board significant RP CPU spike on XE317 vs XE316
CSCuy67807	ASR1002-HX : Scooby SERIAL_BRIDGE_BLOCK_EVENT logs seen with IPSEC
CSCuy66767	Crash detected when show monitor capture v6epc buffer brief
CSCuv92969	ESP200 crashed when deactivate sbc dbc

Resolved Caveats—Cisco IOS XE Denali Release 16.2.1

All open bugs reported in Cisco IOS XE Release 3.17S have been resolved, unless listed in the Open Caveats section.

Related Documentation

Platform-Specific Documentation

For information about associated services and modules in Cisco ASR 1000 Series Aggregation Services Routers, see: [Documentation Roadmap for Cisco ASR 1000 Series, Cisco IOS XE 16.x Releases](#).

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Cisco Bug Search Tool

[Cisco Bug Search Tool](#) (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.