Release Notes for Cisco CSR 1000v Series, Cisco IOS XE Everest 16.5

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Cisco CSR 1000v Series Cloud Services Routers Overview

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Virtual Router

The Cisco Cloud Services Router 1000V (CSR 1000V) is a cloud-based virtual router that is intended for deployment in cloud and virtual data centers. This router is optimized to serve as a single-tenant or a multitenant WAN gateway.

When you deploy a CSR 1000V instance on a VM, the Cisco IOS XE software functions as if it were deployed on a traditional Cisco hardware platform. You can configure different features depending on the Cisco IOS XE software image.

Secure Connectivity

CSR 1000V provides secure connectivity from an enterprise network such as a branch office or a data center, to a public or a private cloud.

Technologies Supported by a Platform

A platform's product landing page lists technology configuration guides for Cisco IOS XE technologies that the platform supports.

In each technology configuration guide, a Feature Information table indicates when a feature was introduced to the technology. For some features, the table also indicates when additional platforms have added support for the feature.

To determine whether a particular platform supports a technology, view the list of technology configuration guides posted on the platform's product landing page. For example, see Cisco Cloud Services Router 1000v Series.

System Requirements

Hardware Requirements

For hardware requirements and installation instructions, see the Cisco CSR 1000v Series Cloud Services Router Software Configuration Guide .

Software Images and Licenses

The following sections describe the licensing and software images for CSR 1000V.

Cisco Smart Licensing

The Cisco CSR 1000V router supports Cisco Smart Licensing. To use Cisco Smart Licensing, you must first configure the Call Home feature and obtain the Cisco Smart Call Home Services. For more information, see Installing CSR 1000V Licenses and Smart Licensing Guide for Access and Edge Routers.

For a more detailed overview on Cisco Licensing, go to https://cisco.com/go/licensingguide.

Cisco CSR 1000v Evaluation Licenses

Evaluation license availability depends on the software version:

- Evaluation licenses valid for 60 days are available at the Cisco Software Licensing (CSL) portal: http:/www.cisco.com/go/license

The following evaluation licenses are available:

- IPBASE technology package license with 10 Gbps maximum throughput
- SEC technology package license with 5 Gbps maximum throughput
- APPX technology package license with 5 Gbps maximum throughput
- AX technology package license with 2.5 Gbps maximum throughput

If you need an evaluation license for the Security technology package, or for an AX technology package with higher throughput, contact your Cisco service representative.

For instructions on obtaining and installing evaluation licenses, see the "Installing CSL Evaluation Licenses for Cisco IOS XE 3.13S and Later" section of the Cisco CSR 1000v Software Configuration Guide .

Cisco CSR 1000v Software Licenses

Cisco CSR 1000v software licenses are divided into feature set licenses. The supported feature licenses depend on the release.

Current License Types

The following are the license types that are supported (Cisco IOS XE Everest 16.4.1 or later):

- IPBase: Basic Networking Routing (Routing, HSRP, NAT, ACL, VRF, GRE, QoS)

- Security: IPBase package + Security features (IP Security VPN, Firewall, MPLS, Multicast)
- AX: IPBase package + Security features + Advanced Networking features (AppNav, AVC, OTV and LISP)
- APPX Package: IPBase package + Advanced Networking features - Security features (IP security features not supported)

Legacy License Types

The three legacy technology packages - Standard, Advanced, and Premium - were replaced in the Cisco IOS XE Release 3.13 with the **IPBase**, **Security**, and **AX** technology packages.

Features Supported by License Packages

For more information about the Cisco IOS XE technologies supported in the feature set packages, see the overview chapter of the Cisco CSR 1000v Series Cloud Services Router Software Configuration Guide.

Throughput

The Cisco CSR 1000v router provides both perpetual licenses and term subscription licenses that support the feature set packages for the following maximum throughput levels:

- 10 Mbps
- 50 Mbps
- 100 Mbps
- 250 Mbps
- 500 Mbps
- 1 Gbps
- 2.5 Gbps
- 5 Gbps
- 10 Gbps

The throughput levels are supported for different feature set packages in each version. For more information about how the maximum throughput levels are regulated on the router, see the Cisco CSR 1000v Cloud Services Router Software Configuration Guide.

Memory Upgrade

A memory upgrade license is available to add memory to the Cisco CSR 1000v router (Cisco IOS XE 3.11S or later). This license is available only for selected technology packages.

Additional Information about Licenses and Activation

For more information about each software license, including part numbers, see the Cisco CSR 1000v Router Datasheet. For more information about the standard Cisco IOS XE software activation procedure, see the Software Activation Configuration Guide, Cisco IOS XE Release 3S.

Software Image Nomenclature for OVA, ISO, and QCOW2 Installation Files

The Cisco CSR 1000v installation file nomenclature indicates properties supported by the router in a given release.

For example, these are filename examples for the Cisco IOS XE Everest 16.4.1 release:

- csr1000v-universalk9.16.04.01.ova
- csr1000v-universalk9.16.04.01.iso
- csr1000v-universalk9.16.04.01.qcow2

Table 1: OVA Installation Filename Attributes , on page 4 lists the attributes and the release properties indicated.

Table 1: OVA Installation Filename Attributes

Filename Attribute	Properties
Example:universalk9	Installed image package.
03.09.00a.S.153-2.S0a	Indicates that the software image is for the Cisco IOS XE 3.9.0aS release image (mapped to the Cisco IOS 15.3(2) release).
std or ext	Standard release or extended maintenance support release.

Features and Notes: Cisco IOS XE Everest 16.5.1b

Features

The following features are new Cisco CSR 1000v features for Cisco IOS XE Everest 16.5.1b. (The 16.5.1b release is the first 16.5 release.)

Microsoft Azure High Availability

You can configure High Availability for Cisco CSR 1000v VMs running on Microsoft Azure. Two Cisco CSR 1000v VMs can be deployed in a redundant pair with failover between them. After an error occurs, such as a BFD peer down event, traffic can be redirected around the failure, using a modified virtual private cloud route table. For further information, see “Configuring High Availability” in the Cisco CSR 1000v Deployment Guide for Microsoft Azure.

Activating Permanent License Reservation

Activating a license using Permanent License Reservation (PLR) allows a device to use a license without having to be connected to Cisco Smart Software Manager (CSSM) or CSSM satellite. For further information, see "Activating Permanent License Reservation" in the Cisco CSR 1000v Series Cloud Services Router Software Configuration Guide.

Smart Licensing for CME

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/csa/configuration/xe-16/csa-xe-16-book/csa-smrt-license.html

Zero Touch Provisioning

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/datamodels/configuration/xe-16/data-models-xe-16-book.html

In Service Model Updates

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/datamodels/configuration/xe-16/data-models-xe-16-book.html

CUBE support for SRTP-SRTP and SRTP-RTP Interworking with NGE cipher suites

For detailed information, see the following Cisco document:

http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/voice/cube/configuration/cube-book/srtp-srtp-interworking.html

Notes

The following section includes important notes about Cisco CSR 1000v routers for Cisco IOS XE Everest 16.5.

Yang Data Models

Effective from Cisco IOS XE Everest 16.5.1, Cisco IOS XE YANG models are available in the form of individual feature modules with new module names, namespaces and prefixes. Revision statements embedded in the YANG files indicate if there has been a model revision.

Navigate to https://github.com/YangModels/yang > **vendor** > **cisco** > **xe** > **1651**, to see the new, main **Cisco-IOS-XE-native.yang** module and individual feature modules attached to this node.

The **Cisco-IOS-XE-acl.yang** schema contains XPATH changes for the access-list. The **README.md** file highlights these and other changes with examples.

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:

https://tools.cisco.com/security/center/publicationListing.x

Field Notices

- 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/c/en/us/support/web/tsd-products-field-notice-summary.html

Limitations and Restrictions in Cisco IOS XE Everest 16.5.1b

CUBE–SRTP Calls

Cisco IOS XE Everest Release 16.5.1b is not recommended for Cisco Unified Border Element deployment involving SRTP calls.

Caveats

Overview

Caveats, or “bugs,” describe unexpected behavior. Severity 1 caveats are the most serious. Severity 2 caveats are less serious. Severity 3 caveats are moderate caveats. This section includes severity 1, severity 2, and selected severity 3 caveats.

Terminology

The Dictionary of Internetworking Terms and Acronyms contains definitions of acronyms that are not defined in this document:

http://docwiki.cisco.com/wiki/Category:Internetworking_Terms_and_Acronyms_(ITA)

Bug Search Tool

If you have an account on Cisco.com, you can also use the Bug Search Tool (BST) to find select caveats of any severity. To reach the Bug Search Tool, log into Cisco.com and go to https://tools.cisco.com/bugsearch/search .

If a defect that you have requested cannot be displayed, it may be because the defect number does not exist or the defect does not have a description available.

You can use to the Bug Search Tool to view new and updated caveats: https://tools.cisco.com/bugsearch/search .

For Best Bug Search Tool Results

For best results when using the Bug Search Tool:

- In the **Product** field, enter Cloud Services Router.
- In the **Releases** field, enter one or more Cisco IOS XE releases of interest. The search results include caveats related to any of the releases entered in this field.

The tool provides autofill while you type in these fields to assist in entering valid values.

A search using release number **16.6** should find the caveats for Cisco IOS XE Everest 16.6.1.

Field Notices

We recommend that you view the field notices for the current release to determine whether your software or hardware platforms are affected. You can access the field notices from the following location:

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

Caveats: Cisco IOS XE Everest 16.5.1b

Open Caveats—Cisco IOS XE Everest 16.5.1b

Table 2: Open Caveats—Cisco IOS XE Everest 16.5.1b

Caveat	Description
CSCvd30843	Cisco CSR 1000v reboots randomly every 1–2 days with only minor passing of traffic
CSCvd42370	CUBE SRTP-RTP Call failures during bulk calls
CSCvd63910	Using the Cisco CSR 1000v on Microsoft Azure, a long delay is observed while changing the speed of the Gi1 interface

Resolved Caveats—Cisco IOS XE Everest 16.5.1b

Table 3: Resolved Caveats—Cisco IOS XE Everest 16.5.1b

Caveat	Description
CSCvd45286	Cisco CSR 1000v using passthrough drivers on KVM hypervisor has a long boot time
CSCvd58830	Cisco CSR 1000v on Amazon Web Services cannot be deployed in 10.0.3.0 network if using csr_mgmt container for High Availability
CSCvc61505	Cisco CSR 1000v drops SIP packets with PaWalkErr

Related Documentation

For information about the Cisco CSR 1000v Series and associated services, see: Documentation Roadmap for Cisco CSR 1000v Series, Cisco IOS XE 16.

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