Release Notes for Cisco Catalyst 8000V Edge Software, Cisco IOS XE Cupertino 17.7.x

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Cisco Catalyst 8000V Edge Software Overview

About Cisco Catalyst 8000V

Cisco Catalyst 8000V Edge Software or Cisco Catalyst 8000V is a software-based, virtual router that combines the functionalities of Cisco Cloud Services Router (Cisco CSR1000V) and Cisco Integrated Services Virtual Router (Cisco ISRv) into a single image that is intended for deployment in cloud and virtual data centers.

Cisco Catalyst 8000V supports NIM modules, runs on any x86 platform, and is supported on ESXi, KVM, NFVIS hypervisors. Further, you can deploy this router on public cloud providers such as Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), and Alibaba Cloud.

When you deploy Cisco Catalyst 8000V 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.

Features

- **Hardware independence**: The Cisco Catalyst 8000V router uses the benefits of virtualization in the cloud to provide hardware independence. Since the Cisco Catalyst 8000V runs on a virtual machine, you can use this router on any x86 hardware that the virtualization platform supports.
- **Sharing of resources**: The resources used by Cisco Catalyst 8000V are managed by the hypervisor, and these resources can be shared among the VMs. You can regulate the amount of hardware resources that the VM server allocates to a specific VM. You can reallocate resources to another VM on the server.
- **Flexibility in deployment**: You can easily move a VM from one server to another. Thus, you can move a Cisco Catalyst 8000V instance from a server in one physical location to a server in another physical location without moving any hardware resources.
- **Enhanced software security - Secure Object Store**: In Cisco Catalyst 8000V, storage partitions for NVRAM, licensing, and other data are created as Object stores. The individual Object stores are encrypted to ensure data security, and this product is Cisco Secure Development life cycle (CSDL) compliant. Further, Cisco Catalyst 8000V supports a 16G disk cycle profile.

Hardware Requirements

For hardware requirements and installation instructions, see the Cisco Catalyst 8000V Edge Software Installation And Configuration Guide.

Software Images and Licenses

The following sections describe the licensing and software images for Cisco Catalyst 8000V.

Cisco Catalyst 8000V Software Licenses

The Cisco Catalyst 8000V is licensed based on throughput, feature-set, and the licensing term. This product supports Cisco Smart Licensing Usage Policy as well as Cisco DNA Licensing. Based on whether you want to go for purchased licenses that go with the Cisco Catalyst 8000V instance, or a subscription-based license, choose one of the following options:

Subscription-Based Licensing via Cisco DNA

You can purchase a subscription license for Cisco Catalyst 8000V through the following three licenses that are available via Cisco DNA:

- Cisco Catalyst 8000V - Network-Premier
- Cisco Catalyst 8000V - Network-Advantage
- Cisco Catalyst 8000V - Network-Essentials

For more information on Cisco Catalyst 8000V DNA licensing, see Cisco DNA Software Routing Subscription Guide.

Bring-Your-Own-Licensing

You also have an option to purchase and use licenses with Cisco Catalyst 8000V as a Bring-Your-Own-License (BYOL) instance or as a Pay-As-You-Go (PAYG) instance.

To use a Cisco Catalyst 8000V - BYOL license, see Licenses and Licensing Models to know to how install and configure your license.

If you have upgraded to Cisco Catalyst 8000V from a Cisco CSR 1000V or a Cisco ISRV, you must use Smart Licensing Using Policy (SLP). Traditional licenses do not work after the upgrade.

Pay-As-You-Go Licensing

Cisco Catalyst 8000V supports the PAYG Licensing model with Amazon Web Services (AWS) and Microsoft Azure Marketplace. Cisco Catalyst 8000V hourly-billed AMI or Pay As You Go licensing model allows you to consume an instance for a defined period of time. In this licensing model, you can directly launch the instance from the AWS or Azure Marketplace and start using the instances. The licenses are embedded in the image.

Note For demo or evaluation licenses, contact your Cisco Account Team if you have a direct purchase agreement with Cisco, or your Cisco Partner or Reseller.

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

Software Image Nomenclature for Installation Files

The Cisco Catalyst 8000V installation file nomenclature indicates properties supported by the router in a given release.

For example, these are filename examples for the Cisco IOS XE Cupertino 17.7.1a release:

- c8000v-universalk9.17.07.01a.ova
- c8000v-universalk9.17.07.01a.iso
- c8000v-universalk9.17.07.01a.qcow2

The following table lists the filename attributes along with its properties:

Table 1: Installation Filename Attributes

Filename Attribute	Properties
universalk9	Specifies the package that you are installing.
17.07.01a	Indicates that the software image is mapped to the Cisco IOS XE Cupertino 17.7.1a release.

Product Field Notice

Cisco publishes Field Notices to notify customers and partners about significant issues in Cisco products that typically require an upgrade, workaround or other user action. For more information, see https://www.cisco.com/c/en/us/support/web/field-notice-overview.html.

We recommend that you review the field notices to determine whether your software or hardware platforms are affected. You can access the field notices from https://www.cisco.com/c/en/us/support/web/tsd-products-field-notice-summary.html#%7Etab-product-categories.

New and Enhanced Features for Cisco IOS XE Cupertino 17.7.x

New and Enhanced Features for Cisco IOS XE Cupertino 17.7.1a

Note Cisco IOS XE Cupertino 17.7.1a is the first release for Cisco Catalyst 8000V in the Cisco IOS XE Cupertino 17.7.x release series.

Table 2: Software Features

Feature	Description
Factory-installed Trust Code	For new hardware and software orders, a trust code is now installed at the time of manufacturing. **Note** You cannot use a factory-installed trust code to communicate with CSSM.

Feature	Description
Installing Cisco Catalyst 8000V in an OpenStack Environment	Starting with the Cisco IOS XE Release 17.7.1a, you can now install Cisco Catalyst 8000V on OpenStack software (Train release) which acts as a hypervisor manager. The OpenStack Train release is the 20th version of the open-source cloud infrastructure software on which you can launch Cisco Catalyst 8000V virtual machines (VMs) or instances.
Flexible NetFlow Support on BD-VIF	This feature introduces Flexible NetFlow (FNF) support on Bridge Domain Virtual IP Interfaces (BD-VIF). Flexible Netflow provides improved optimization and performance, enhanced security, and increased flexibility and scalability to the network. You can configure FNF on a BD-VIF using the **ip flow monitor** command.
Marking Packets Sent Via ATM Interface With COS(BITP) Value	This feature introduces the ‘set cos 3’ command using which you can configure the router to mark the packets with a cos (bitp) value. The marked packets are indicators of priority for the user, and based on the priority level, the bandwidth is allocated.
Multicast - mcast group calculation	The **show ip multicast overlay-mapping** command displays an underlay group address from the overlay group address which is used to troubleshoot or configure the network. The output includes the underlay group address that is within the configured SSM (Source Specific Multicast) address range.
CUBE Features	
Secure Web Socket-based Media Forking on Cisco 4431, 4451-X, and 4461 Integrated Services Routers	From Cisco IOS XE Cupertino 17.7.1a, CUBE can use WebSockets to handle media forking with Cloud Speech Services on the Cisco 4431, 4451-X, and 4461 Integrated Services Routers platforms apart from the existing support on Cisco Catalyst 8000V Edge platform.
YANG Configuration Models for CUBE	From Cisco IOS XE Cupertino 17.7.1a, YANG models are now available to configure and manage CUBE.
Programmability Features	
Converting IOS Commands to XML	This feature helps to automatically translate IOS commands into relevant NETCONF-XML or RESTCONF/JSON request messages.
ZTP Configuration through YANG	ZTP is enabled through YANG models when NETCONF is enabled.
Smart Licensing Using Policy Features	

Feature	Description
Ability to save authorization code request and return in a file and simpler upload in the CSSM Web UI	If your product instance is in an air-gapped network, you can now save a SLAC request in a file on the product instance. The SLAC request file must be uploaded to the CSSM Web UI. You can then download the file containing the SLAC code and install it on the product instance. You can also upload a return request file in a similar manner. With this new method you do not have to gather and enter the required details on the CSSM Web UI to generate a SLAC. You also do not have to locate the product instance in the CSSM Web UI to return an authorization code. In the CSSM Web UI, you must upload the SLAC request or return file in the same way as you upload a RUM report. In the required Smart Account, navigate to **Reports** → **Usage Data Files**. See: No Connectivity to CSSM and No CSLU, Workflow for Topology: No Connectivity to CSSM and No CSLU, Saving a SLAC Request on the Product Instance, Removing and Returning an Authorization Code, Uploading Data or Requests to CSSM and Downloading a File
Account information included in the ACK and show command outputs	A RUM acknowledgement (ACK) includes the Smart Account and Virtual Account that was reported to, in CSSM. You can then display account information using various **show** commands. The account information that is displayed is always as per the latest available ACK on the product instance. See: show license summary, show license status, show license tech.
CSLU support for Linux	CSLU can now be deployed on a machine (laptop or desktop) running Linux. See: CSLU, Workflow for Topology: Connected to CSSM Through CSLU, Workflow for Topology: CSLU Disconnected from CSSM
Factory-installed trust code	For new hardware and software orders, a trust code is now installed at the time of manufacturing. **Note** You cannot use a factory-installed trust code to communicate with CSSM. See: Overview, Trust Code

Feature	Description
RUM Report optimization and availability of statistics	RUM report generation and related processes have been optimized. This includes a reduction in the time it takes to process RUM reports, better memory and disk space utilization, and visibility into the RUM reports on the product instance (how many there are, the processing state each one is in, if there are errors in any of them, and so on). See: RUM Report and Report Acknowledgement, Upgrades, Downgrades, show license rum, show license all, show license tech.
Support for trust code in additional topologies	A trust code is automatically obtained in topologies where the product instance initiates the sending of data to Cisco Smart License Utility (CSLU) and in topologies where the product instance is in an air-gapped network. See: Trust Code Connected to CSSM Through CSLU, Tasks for Product Instance-Initiated Communication CSLU Disconnected from CSSM, Tasks for Product Instance-Initiated Communication No Connectivity to CSSM and No CSLU, Workflow for Topology: No Connectivity to CSSM and No CSLU
Support to collect software version in a RUM report	If version privacy is disabled (**no license smart privacy version global configuration**) command, the Cisco IOS-XE software version running on the product instance and the Smart Agent version information is included in the RUM report. See: license smart (global config)

Feature	Description
Tier- Based Licenses	You can now configure tier-based throughput values if the license PID is tier-based. For example, for PID DNA-C-T0-E-3Y, you can configure Tier 0 (T0) as the throughput value on the platform. Each tier represents a throughput level. Starting with the lowest throughput level, the available tiers on the Cisco Catalyst 8000V Edge Software are: T0, Tier 1 (T1), Tier 2 (T2), and Tier 3 (T3). If you purchase a tier-based license PID, the license is displayed with the tier value in the CSSM Web UI. You can also convert the numeric throughput configuration of any existing tier-based license PIDs to a tier-based throughput value. **Note** T2 and higher tiers require an HSECK9 license and Smart Licensing Authorization Code (SLAC). Different platforms support different maximum throughput levels, therefore each tier means a different value for different platforms. The configuration guide provides details about how numeric throughput values map with tiers and how you can change to tier-based configuration. See Available Licenses and Licensing Models.

Resolved and Open Bugs for Cisco IOS XE Cupertino 17.7.x

Resolved Bugs - Cisco IOS XE 17.7.2

Bug ID	Headline
CSCwa17720	Router rebooted due to watchdogs after issuing the show crypto mib ipsec command
CSCwa11150	E1 configurations (under Serial interface) lost after reload.
CSCwa76260	IKEv2 Deprecated Ciphers denied by Crypto Engine CDSL - PSB Security Compliance - DES, 3DES, DH1/2/5
CSCwa37006	VXE: IOSd watchdog crash while printing to syslogs to console
CSCwa15085	Router crash due to stuck thread with appnav-xe dual controller mode.
CSCvx28426	Router may crash due to Crypto IKMP process
CSCwa80474	IKEv2 Deprecated Ciphers denied by Crypto Engine CDSL - PSB Security Compliance - MD5, SHA1

Bug ID	Headline
CSCwa15132	DMVPN over DMVPN with IPSEC - return packets are dropped with BadIpChecksum
CSCwa01293	ZBFW: Optimized policy traffic failure due to OG edit error
CSCwa18177	Flapping bidirectional/unidirectional packet capture option with ipv4 filter for long time failed

Open Bugs - Cisco IOS XE 17.7.2

Bug ID	Headline
CSCvz65764	Peer MSS value showing incorrect
CSCwb25137	[XE NAT] Source address translation for multicast traffic fails with route-map
CSCwb78423	Excessive packet loss observed during DMVPN tunnel flapping
CSCwb66749	When configration ip nat inside/outside on VASI intereface, the ack/seq number is abnormal
CSCwb55683	Large number of IPSec tunnel flapping occurs when underlay is restored
CSCwb74821	Yang-management process confd is not running
CSCwa13553	C8000V QFP core due to NAT scaling issue
CSCwb11389	NAT translation stops suddenly; ip nat inside doesn't work
CSCwb51238	Router reloads two times unexpectedly with the netflow show command
CSCwb34625	Static ip from bootstrap config overwritten by dhcp on fresh install
CSCwb25913	After configuring match input-interface on class-map, router goes into a reboot loop
CSCwa08378	C8000V Day0 ZTP ignores crypto configuration before licensing
CSCvz89354	Router Running 17.x.x crashes due to CPUHOG when walking ciscoFlashMIB
CSCwb08186	E1 R2 - dnis-digits CLI not working
CSCvz91309	Crash due to IOSXE-WATCHDOG due to management port traffic storm
CSCwb39822	MLX5 Driver Error on a C8000V in Microsoft Azure causes excessive debug printing
CSCwb12647	Device crash for stuck threads in cpp on packet processing
CSCwa48512	CoR intercepted DNS reply packets dropped with drop code 52 (FirewallL4Insp) if UTD also enabled
CSCwb41907	CPP uCode crash due to ipc congestion from dp to cp
CSCvz99455	36% Degradation seen with FNF on C8000V 1v CPU KVM
CSCwa67398	NAT translations do not work for FTP traffic in the device
CSCwb76509	Assert failure while showing FTM (Forwarding Traffic Manager) data in NH TYPE switch case
CSCwa84919	"Revocation-check crl none" does not failover to NONE DNAC-CA
CSCwb78173	CSDL failure: IPSec QM Use of DES by encrypt proc is denied
CSCwb46649	NAT translation dont show (or use) correct timeout value for an established TCP session

Bug ID	Headline
CSCwb68897	"Total output drops" counter in "show interface" on Port-channel doesn't work properly
CSCwb02142	Traceback: fman_fp_image core after clearing packet-trace conditions
CSCwb29362	Evaluation of IOS-XE for OpenSSL CVE-2022-0778 and CVE-2021-4160
CSCvz34668	Static mapping for the hub lost on one of the spokes
CSCwa74499	ZBFW sees the SIP ALG incorrectly, dropping traffic and resetting connection
CSCwb76866	CSDL failure: Use of MD5 by IPSEC key engine is denied
CSCwa68540	FTP data traffic is broken when UTD IPS enabled in both service VPN
CSCwb79138	Device drops GRE tunnel packets after the upgrade starts

Resolved Bugs - Cisco IOS XE 17.7.1a

Bug ID	Headline
CSCvy34805	Consecutive Multicast Crashes in device
CSCvy38743	CISCO-CLASS-BASED-QOS-MIB doesn't work with LTE Cellular interface on the router after reload
CSCvy92696	Cosmetic: `Logging host` configuration inconsistent between sdwan and IOS configuration
CSCvz30670	Qos issue on IPv6 Virtual access (tunnel ipsec) interface
CSCvz14745	Memory leak seen when using DNS with IP SLA
CSCvy27721	IOS-XE Router may experience unexpected reboot with X25 RBP
CSCvz98446	Device crashes when changing Debug Level
CSCvy45095	IPv6 ebgp multihop session remains in "idle" state after removal and recreation of the config
CSCvy72210	CIsco IOS XE crashes after executing 'show flowspec ipv4' command
CSCvy53885	ip pim rp-candidate command removed after reload when group list is configured
CSCvz21812	QoS policy update with "random-detect dscp" configuration get rejected on device side
CSCvy54964	Large tx/rx rate on Dialer interface in show interface output.
CSCvy23400	MC-LAG feature cannot preserve administratively shut down sub-interfaces
CSCvy08748	OSPF summary-address isn't generated though candidate exists
CSCvy99942	Netconf: Logging to syslog stops working in certain scenarios
CSCvy93946	Removal of SHA-1 HMAC Impacting ability to SSH
CSCvy83154	MAG is not detecting the path UP after several reboots
CSCvw16093	Secure key agent trace levels set to Noise by default
CSCvy29106	Device crashed on a Eigrp enabled device when Netconf get operation was used
CSCvw13682	L3 connected lite session not coming up , stuck in data-plane(qfp)
CSCvt66541	Crypto PKI-CRL-IO process crash when PKI trustpoint is being deleted

Bug ID	Headline
CSCvx62167	Route-map corruption when configured using Netconf with ncclient manager
CSCvz88205	C8000V Buffer Leak - IPSEC reply msg getting dropped
CSCvz58895	IOS-XE unable to export elliptic curve key
CSCvy22343	Crash after reapplying BGP/ attempt to initialize an initialized wavl tree
CSCvy53210	Device running ISG w/ IOS v17.3.3 Crashed and caused a major outage of 40K EoGRE sessions
CSCvz84437	Unexpected reload due IPV6 UDP fragment header in VxLAN
CSCvy91121	SSS manager Crash seen on latest polaris_dev image
CSCwa26599	FN980 new signed Telit modem firmware FN980M_38.02.X92 upgrade failed
CSCvy24754	Netconf-yang: no special characters allowed in ACL
CSCvz89043	Prevent SIP services from being blocked even if license usage ACK was not received

Open Bugs - Cisco IOS XE 17.7.1a

Bug ID	Headline
CSCvz92954	C8000V UTD Container doesn't come up after a reboot
CSCwa07494	IPSec tunnel not passing traffic when IPSec tunnel is sourced from VASI interface
CSCwa46001	VRRP traffic sent while the device boots will congest the interface queue causing taildrops
CSCwa08378	C8000V Day0 ZTP ignores crypto configuration before licensing
CSCvz72871	Multicast traffic received over DMVPN tunnel are dropped on RP and not forwarded downstream.
CSCwa27659	virtual VRRP IP address unreachable from the BACKUP VRRP
CSCvz41067	IP Community-list config out of sync in sdwan and ios-xe
CSCwa22665	Memory leak in scaled EIGRP DMVPN implementation due to EIGRP: mgd_timer
CSCvz99455	36% Degradation seen with FNF on C8000V 1v CPU KVM
CSCvz55553	BGP routes refreshing in the routing table after adding "bgp advertise-best-external"

Related Documentation

Cisco Catalyst 8000V Edge Software Product Page

Cisco Catalyst 8000V Edge Software Data Sheet

Cisco Catalyst 8000V Edge Software Installation And Configuration Guide

Cisco Catalyst 8000V Edge Software High Availability Configuration Guide

Troubleshooting Guide for Cisco Catalyst 8000V Edge Software

Smart Licensing Using Policy for Cisco Enterprise Routing Platforms

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