Release Notes for Cisco Catalyst IE9300 Rugged Series Switches, and Cisco Catalyst ESS9300 Embedded Series Switch, Cisco IOS XE Cupertino 17.9.x

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Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch

This document provides release information for the following Catalyst IE switches:

- Cisco Catalyst IE9310 GE Fiber switch
- Cisco Catalyst IE9320 GE Fiber switch
- Cisco Catalyst IE9320 Fiber switch with 10 Gigabit uplinks
- Cisco Catalyst ESS9300 Embedded Series Switch

Cisco Catalyst IE9300 Rugged Series Switches provide rugged and secure switching infrastructure for harsh environments. It is suitable for industrial Ethernet applications, including manufacturing, utility substations, intelligent transportation systems (ITSs), rail transportation, and other similar deployments.

The switch fulfills the need for a high-density SFP, rack-, or wall-mount switch that can function as a software-defined (SD)-Access fabric edge. It provides end-to-end architectural uniformity in the Cisco Digital Network Architecture (DNA) for Internet of Things (IoT) connected communities and extended enterprises.

In industrial environments, the switch can be connected to any Ethernet-enabled industrial communication devices. These devices include programmable logic controllers (PLCs), human-machine interfaces (HMIs), drives, sensors, and input and output (I/O) devices.

The Cisco Catalyst ESS9300 Embedded Series Switch is a Small Form Factor (SFF) Ruggedized 10 GigE Embedded platform for tactical, outdoor, and mobile environments. The compact design simplifies integration and offers the system integrator the ability to use the ESS9300 in a wide variety of applications. The Cisco ESS 9300 consists of one switch card. There are no cooling plates sold with it. It is up to the system integrator to design a thermal solution. The ESS-9300-10X-E board supports up to 10 ports of 10 GE fiber. Thermal power is 35 Watts.

New Features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch Release 17.9.x

There are no new features in the Cisco IOS XE 17.9.8 release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.7 release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.6a release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.5 release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.4 release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.3 release. It is a maintenance only release.

There are no new features in the Cisco IOS XE 17.9.2 release. It is a maintenance only release.

The following features apply to all versions of the IE9310 GE Fiber, IE9320 GE Fiber switches, and the Cisco Catalyst ESS9300 Embedded Series Switch unless otherwise noted. The features are new in 17.9.1 for the switches.

Feature Name	License Level	Description	Supported Switches
Precision Timing Protocol (PTP) as refclock for Network Time Protocol (NTP)	Network Essentials	You can configure PTP time as the reference clock for NTP by enabling the feature on the switch. For information about the feature, see the *Precision Time Protocol Configuration Guide, Cisco Catalyst IE9300 Rugged Series Switches* on Cisco.com.	• IE-9310-26S2C-A • IE-9310-26S2C-E • IE-9320-26S2C-A • IE-9320-26S2C-E
PTP over Parallel Redundancy Protocol (PRP)	Network Essentials	PTP can operate over PRP on the switch. PRP provides high availability through redundancy for PTP. For information about the feature, see the *Redundancy Protocol Configuration Guide, Cisco Catalyst IE9300 Rugged Series Switches* on Cisco.com.	• IE-9320-26S2C-A • IE-9320-26S2C-E

Feature Name	License Level	Description	Supported Switches
Resilient Ethernet Protocol (REP) Fast	Network Essentials	REP Fast allows faster link failure detection and convergence on the copper Gigabit Ethernet (GE) ports of the switch. For information about the feature, see the *Redundancy Protocol Configuration Guide, Cisco Catalyst IE9300 Rugged Series Switches* on Cisco.com.	• IE-9310-26S2C-A • IE-9310-26S2C-E • IE-9320-26S2C-A • IE-9320-26S2C-E
Swap Drive	Network Essentials	If a switch fails, you can use an SD card or a USB drive to restore the configuration to a new switch, enabling you to recover quickly from the malfunction. For information about the feature, see the *System Management Configuration Guide, Cisco Catalyst IE9300 Rugged Series Switches* on Cisco.com.	• IE-9310-26S2C-A • IE-9310-26S2C-E • IE-9320-26S2C-A • IE-9320-26S2C-E
TLS 1.3 Support	Network Essentials	HTTPS supports secure TLS version TLSv1.3 in Cisco IOS XE 17.9.1 and later.	• IE-9310-26S2C-A • IE-9310-26S2C-E • IE-9320-26S2C-A • IE-9320-26S2C-E • Cisco Catalyst ESS9300 Embedded Series Switch

Important Notes

Switch Model Numbers

Cisco Catalyst IE9300 Rugged Series Switches

The following table lists the supported IE9300 series hardware models and the default license levels that they are delivered with.

Model Number	Default License Level	Stacking Support	Description
IE-9310-26S2C-A	Network Advantage	No	• *Total ports*: 28 • *SFP uplinks*: 4x 1-Gb SFP *SFP downlinks*: 22x 1-Gb SFP, 2x 1-Gb dual-media ports • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies.
IE-9310-26S2C-E	Network Essentials		
IE-9320-26S2C-A	Network Advantage	Yes	
IE-9320-26S2C-E	Network Essentials		

All Cisco Catalyst IE9300 Rugged Series Switches have 4 GB of DRAM, four alarm inputs, and one alarm output. Other I/O include the following:

- SD-cards socket
- Power input
- RJ-45 (RS-232) console
- Micro-USB console
- USB-A host port

Note This document uses the term IE9310 GE Fiber when referring to both IE-9310-26S2C-A and IE-9310-26S2C-E switches. This document uses the term IE9320 GE Fiber when referring to both IE-9320-26S2C-A and IE-9320-26S2C-E switches.

Cisco Catalyst ESS9300 Embedded Series Switch

The Cisco Catalyst ESS9300 Embedded Series Switch is a single model named ESS-9300-10X-E.

The Cisco Catalyst ESS9300 Embedded Series Switch uses only the Network Essentials license, which is the default and is permanent. A connection to the Smart Licensing server is not required if the switch will be

deployed with a Network Essentials license. The Network Advantage license is available as an add-on license. Entering the command license smart reservation after the initial configuration prevents an erroneous message "Smart Licensing Status: UNREGISTERED/EVAL MODE" from appearing on your device.

The ESS9300 is a ruggedized 10G embedded platform that is designed for embedded applications for tactical, outdoor, and mobile installations requiring low power, small size, and ruggedization. Its features include:

- Single board
- Small form-factor board size (110 x 85 mm; 4.3 x 3.3 in.)
- 10 ports of 10G: Enhanced Small Form-Factor Pluggable (SFP+)
- Ethernet management port (optional)
- RS-232 and USB console
- Common +3.3VDC and +5VDC power inputs
- Low power—35W (typical)
- 4 GB DDR4 DRAM
- 8 GB onboard eMMC flash storage (2.5 GB usable space)

Upgrading the Switch Software

This section covers the various aspects of upgrading or downgrading the device software.

Note See the Cisco IOS XE Migration Guide for IIoT Switches for the latest information about upgrading and downgrading switch software.

SSH Algorithms for Common Criteria Certification Limitation

Starting from Cisco IOS XE Release 17.10, the following Key Exchange and MAC algorithms are removed from the default list:

- Key Exchange algorithm:
  - diffie-hellman-group14-sha1
- MAC algorithms:
  - hmac-sha1
  - hmac-sha2-256
  - hmac-sha2-512

Note You can use the **ip ssh server algorithm kex** command to configure the Key Exchange algorithm and the **ip ssh server algorithm mac** command to configure the MAC algorithms.

Finding the Software Version

The package files for Cisco IOS XE software can be found on the system board's internal flash memory device (flash:) or an external USB, depending on the device configuration.

You can use the **show version** privileged EXEC command to see the software version that is running on your switch.

Note Although the **show version** output always shows the software image running on the switch, the model name shown at the end of this display is the factory configuration and does not change if you upgrade the software license.

You can also use the **dir** *filesystem:* privileged EXEC command to see the names and versions of other software images that you might have stored in flash memory.

Software Images for Cisco IOS XE Cupertino 17.9.x

The following table provides the filenames for the IOS XE 17.9.x software image for Cisco Catalyst IE9300 Rugged Series Switches and the Cisco Catalyst ESS9300 Embedded Series Switch.

Release	Image Type	Filename	Switch Model
Cisco IOS XE.17.9.8	Universal	ie9k_iosxe.17.09.08.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.08.SPA.bin	IE9300
Cisco IOS XE.17.9.7	Universal	ie9k_iosxe.17.09.07.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.07.SPA.bin	IE9300
Cisco IOS XE.17.9.6a	Universal	ie9k_iosxe.17.09.06a.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.06a.SPA.bin	IE9300
Cisco IOS XE.17.9.5	Universal	ie9k_iosxe.17.09.05.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.05.SPA.bin	IE9300

Release	Image Type	Filename	Switch Model
Cisco IOS XE.17.9.4a	Universal	ie9k_iosxe.17.09.04a.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.04a.SPA.bin	IE9300
Cisco IOS XE.17.9.4	Universal	ie9k_iosxe.17.09.04.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.04.SPA.bin	IE9300
Cisco IOS XE.17.9.3	Universal	ie9k_iosxe.17.09.03.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.03.SPA.bin	IE9300
Cisco IOS XE.17.9.2	Universal	ie9k_iosxe.17.09.02.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.02.SPA.bin	IE9300
Cisco IOS XE.17.9.1	Universal	ie9k_iosxe.17.09.01.SPA.bin	IE9300 ESS9300
	NPE	ie9k_iosxe_npe.17.09.01.SPA.bin	IE9300

Software Installation Options

The following table lists the options for the **`install`** command for Cisco Catalyst IE9300 Rugged Series Switches and the Cisco Catalyst ESS9300 Embedded Series Switch.

To install and activate the specified file, and to commit changes to be persistent across reloads, enter the following command: **`install add file`** *`filename`* [**`activate commit`**]

Option	Description
abort	Abort the current install operation.
activate	Activate an installed package.
add	Install a package file to the system.
auto-abort-timer	Install auto-abort-timer.
autoupgrade	Initiate software auto-upgrade on all incompatible switches.
commit	Commit the changes to the load path.
deactivate	Deactivate an install package.

Option	Description
label	Add a label name to any installation point.
remove	Remove installed packages.
rollback	Rollback to a previous installation point.

Licensing

This section provides information about the licensing packages for features available on Cisco Catalyst IE9300 Rugged Series Switches.

License Levels

The software features available on Cisco Catalyst IE9300 Rugged Series Switches fall under these base or add-on license levels.

Base Licenses

- Network Essentials
- Network Advantage: Includes features available with the Network Essentials license and more.

Add-on Licenses

Add-on licenses require a Network Essentials or Network Advantage as a prerequisite. The features available with add-on license levels provide Cisco innovations on the switch, and on the Cisco Digital Network Architecture Center (Cisco DNA Center).

- DNA Essentials
- DNA Advantage: Includes features available with the DNA Essentials license and more.

To find information about platform support and to know which license levels a feature is available with, use

Cisco Feature Navigator. To access Cisco Feature Navigator, go to https://cfnng.cisco.com. An account on Cisco.com is not required.

Cisco Catalyst ESS9300 Embedded Series Switch

The software features available on the Cisco Catalyst ESS9300 Embedded Series Switch are all under the Network Essentials License.

Smart Licensing Using Policy

Smart Licensing Using Policy, which is an enhanced version of Smart Licensing, is the default and the only supported method to manage licenses.

Smart Licensing using Policy provides a licensing solution that does not interrupt the operations of your network. Instead, it enables a compliance relationship to account for the hardware and software licenses you purchase and use.

With this licensing model, you do not have to complete any licensing-specific operations, such as registering or generating keys before you start using the software and the licenses that are tied to it. Only export-controlled and enforced licenses require Cisco authorization *before* use. License usage is recorded on your device with timestamps, and the required workflows can be completed later.

Multiple options are available for license usage reporting – this depends on the topology you implement. You can use the Cisco Smart Licensing Utility (CSLU) Windows application, or report usage information directly to Cisco Smart Software Manager (CSSM). A provision for offline reporting for air-gapped networks, where you download usage information and upload to CSSM, is also available.

Starting with this release, Smart Licensing Using Policy is automatically enabled on the device. This is also the case when you upgrade to this release.

By default, your Smart Account and Virtual Account in CSSM is enabled for Smart Licensing Using Policy.

Caveats

Caveats describe unexpected behavior in Cisco IOS XE releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

Open Caveats for Release 17.9.x

Identifier	
CSCwi34711	REP topology interfaces status is shown incorrectly by "sh rep topology" command.
CSCwk55545	IE9300 (TC) stops forwarding PTP messages during BMCA or when an SFP module is inserted.
CSCwk28919	IE9300: Observing traceback on %DATACORRUPTION-1-DATAINCONSISTENCY:

Resolved Caveats for Release 17.9.8

There are no resolved caveats in Cisco IOS XE Cupertino 17.9.8

Resolved Caveats for Release 17.9.7

Identifier	Description
CSCwk80517	IE9300: TC stops forwarding PTP sync/follow-up messages during BMCA.
CSCwm73744	Packet priority incorrect in TC mode.
CSCwm73805	Two GM switching is not working for announce packets with 2packets/sec and 4packets/seconds.

Resolved Caveats for Release 17.9.6a

Identifier	Description
CSCwd37937	Speed 100 and Duplex Full: Traffic stops after Switchover.
CSCwm57734	Dot1x auth fail vlan can't assign IP with dhcp

Resolved Caveats for Release 17.9.5

Identifier	Description
CSCwi45987	Incorrect data in the origintimestamp field of the sync packet when Power TC is enabled with GM in the 1-step mode

Resolved Caveats for Release 17.9.4a

Identifier	Description
CSCwh87343	Cisco IOS XE Software WebUI Privilege Escalation Vulnerability

Resolved Caveats for Release 17.9.4

Identifier	Description
CSCwe18850	802.1x and MAB authentication fails against the RADIUS server over IPv6 transport
CSCwe36005	[SNMP] Traceback observed with get-bulk of LRE MIB's

Resolved Caveats for Release 17.9.3

There are no resolved caveats for Release 17.9.3.

Resolved Caveats for Release 17.9.2

Identifier	Description
CSCwc06817	REP: Incremental memory leaks seen with traffic (link trigger scenarios) over rep ring.
CSCwc33322	IOX: Observing Disk space issue for CCV app installation through sensor extension.
CSCwd09742	Boot failed, due to mounting issues of perma locked device.

Resolved Caveats for Release 17.9.1

Identifier	Description
CSCwa48106	ie9300: High mean path delay observed for 100M SFP, RJ-45 intfs, and negative mpd on some intfs
CSCwb12681	IE9300 17.8—REP convergence high for node failure

Troubleshooting

For the most up-to-date, detailed troubleshooting information, see the Cisco TAC website at this URL:

https://www.cisco.com/en/US/support/index.html

Go to **Product Support** and select your product from the list or enter the name of your product. Look under Troubleshoot and Alerts, to find information for the problem that you are experiencing.

Related Documentation

Information about Cisco IOS XE at this URL: https://www.cisco.com/c/en/us/products/ios-nx-os-software/ios-xe/index.html.

Information about Cisco Catalyst IE9300 Rugged Series Switches is at this URL: https://www.cisco.com/c/en/us/products/ios-nx-os-software/ios-xe/index.html

Cisco Validated Designs documents at this URL: https://www.cisco.com/go/designzone

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

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