Release Notes for Cisco Catalyst IE9300 Rugged Series Switches, and Cisco Catalyst ESS9300 Embedded Series Switch, Cisco IOS XE 17.14.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 GE uplinks
- Cisco Catalyst IE9320 10 GE Copper Data switch
- Cisco Catalyst IE9320 10 GE PoE switch
- Cisco Catalyst IE9320 10 G mGig 4PPoE switch
- Cisco Catalyst IE9320 GE PoE switch
- 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, RJ-45, and Power over Ethernet (PoE) 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.

Note 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 hard coded 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.

New Features for Cisco Catalyst IE9300 Rugged Series Switches and the Cisco Catalyst ESS9300 Embedded Series Switch

The features in the following table are new in this release for the supported switches.

Table 1: New Features for Cisco Catalyst IE9300 Rugged Series Switches

Feature Name	License Level	Description	Supported Switches	Related Document
Resilient Ethernet Protocol (REP) Zero Touch Provisioning (ZTP)	Network Essentials	REP ZTP supports configuration of REP rings using zero-touch technologies. With this feature, a new switch can join a REP ring with no manual intervention.	All Cisco Catalyst IE9300 Rugged Series Switches	Redundancy Protocol Configuration Guide, Cisco Catalyst IE9300 Rugged Series Switches
gRPC mTLS Stream Telemetry support for IE Switches	Network Essentials	gRPC is a remote procedure call developed by Google for low-latency, scalable distributions with mobile clients communicating to a cloud server. The gRPC plugin is enabled on Model Driven Telemetry (MDT). MDT is already enabled for IE switches.	IE9300	

Important Notes

Cisco Catalyst ESS9300 Embedded Series Switch: Upgrade to Latest Boot Software

If you have a Cisco Catalyst ESS9300 Embedded Series Switch, you must upgrade it to the latest version of ROM monitor software (ROMMON).

The upgrade is to accommodate the larger size of Cisco Catalyst IOS XE 17.13.1 caused by enhancements. If you do not upgrade, the switch may fail to boot.

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 100M/1000M SFP, 2x 100M/1000M dual-media • *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	• *Total ports*: 28 • *SFP uplinks*: 4x 1 Gb SFP *SFP downlinks*: 22x 100M/1000M SFP, 2x 100M/1000M dual-media • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies
IE-9320-26S2C-E	Network Essentials		

Model Number	Default License Level	Stacking Support	Description
IE-9320-22S2C4X-A	Network Advantage	Yes	• *Total ports*: 28 • *SFP uplinks*: 4x 10 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-9320-22S2C4X-E	Network Essentials		
IE-9320-24T4X-A	Network Advantage	Yes	• *Total ports*: 28 • *SFP uplinks*: 4x 10 Gb SFP+ • *Copper downlinks*: 24x 1 Gb RJ45 • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies.
IE-9320-24T4X-E	Network Essentials		
IE-9320-24P4X-A	Network Advantage	Yes	• *Total ports*: 28 • *SFP uplinks*: 4x 10 Gb SFP+ • *Copper downlinks*: 24x 1 Gb RJ45 PoE+ • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies
IE-9320-24P4X-E	Network Essentials		

Model Number	Default License Level	Stacking Support	Description
IE-9320-16P8U4X-A	Network Advantage	Yes	• *Total ports*: 28 • *SFP uplinks*: 4x 10 Gb SFP • *Copper downlinks*: 16 ports 1 Gb RJ45 PoE+, 8 ports 2.5 Gb RJ45 4PPoE (90W/port) • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies
IE-9320-16P8U4X-E	Network Essentials		
IE-9320-24P4S-A	Network Advantage	Yes	• *Total ports*: 28 • *SFP uplinks*: 4x 1Gb SFP • *Copper downlinks*: 24 ports 1 Gb RJ45 PoE+ • *Power supplies*: Support for field-replaceable, redundant AC or DC power supplies
IE-9320-24P4S-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 Documentation sometimes uses the following terms:

- IE9310 GE Fiber switch when referring to both IE-9310-26S2C-A and IE-9310-26S2C-E switches
- IE9320 GE Fiber switch when referring to both IE-9320-26S2C-A and IE-9320-26S2C-E switches
- IE9320 Fiber switch with 10 GE uplinks when referring to both IE-9320-22S2C4X-A and IE-9320-22S2C4X-E switches
- IE9320 10 GE Copper Data switch when referring to both IE-9320-24T4X-A and IE-9320-24T4X-E switches
- IE9320 10 GE PoE switch when referring to both IE-9320-24P4X-A and IE-9320-24P4X-E
- IE9320 10 G mGig 4PPoE switch when referring to both IE-9320-16P8U4X-A and IE-9320-16P8U4X-E
- IE9320 GE PoE switch when referring to both IE-9320-24P4S-A and IE-9320-24P4S-E

Cisco Catalyst ESS9300 Embedded Series Switch

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)

Starting with release 17.10.1, both the Network Essentials license and the Network Advantage license are available. The features available in the two licenses follow the IE9300 series, with the exception of MACsec-256.

Table 2: Ordering Information

Product ID	Product Description
ESS-9300-10X-E	ESS9300 board, no cooling plate, Network Essentials software.
ESS9300-NW-A=	Cisco Network Advantage license for ESS9300 Series Spare.

Network Advantage License	Description
Security	MACsec-256
Routing	Layer 3 routing support

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.

Finding the Software Version

The package files for the Cisco IOS XE software can be found on the system board flash device flash (flash:) or external SDFlash (sdflash:).

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 17.14.x

The following table provides the filename for the IOS XE 17.14.1 software image for Cisco Catalyst IE9300 Rugged Series Switches.

Release	Image Type	Filename	Switch Models
Cisco IOS XE.17.14.1	Universal	ie9k_iosxe.17.14.01.SPA.bin	Cisco Catalyst IE9300 Rugged Series Switches

The following table provides the filename for the IOS XE 17.14.1 software image for the Cisco Catalyst ESS9300 Embedded Series Switch.

Release	Image Type	Filename	Switch Models
Cisco IOS XE.17.14.1	Universal	ie9k_iosxe.17.14.01.SPA.bin	Cisco Catalyst ESS9300 Embedded Series Switch

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.
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 and the Cisco Catalyst ESS9300 Embedded Series Switch.

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 for the Cisco Catalyst ESS9300 Embedded Series Switchfall under these base license levels.

Base Licenses

- Network Essentials
- Network Advantage: Includes features available with the Network 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.

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.

Open Caveats

There are no open caveats for this release.

Resolved Caveats

Identifier	Description
CSCwi36189	IE9300 - Parent change PTP alarm is being observed in transparent clock mode
CSCwi45987	IE9300 - Wrong data in origintimestamp field of the sync packet when Power TC is enabled with GM is 1-step

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

Information about the Cisco Catalyst ESS9300 Embedded Series Switch is at this URL:https://www.cisco.com/c/en/us/support/switches/catalyst-ess-9300-10x-embedded-switch/model.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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