Release Notes for Cisco Catalyst IE9300 Rugged Series Switches, and Cisco Catalyst ESS9300 Embedded Series Switch, Cisco IOS XE Dublin 17.12.x

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Information about Cisco Catalyst IE9300 Rugged 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 IE9300 Rugged Series Switches provide rugged and secure switching infrastructure for harsh environments. They are 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-mounted switch that can function as a software-defined access (SD-Access) fabric edge. It provides end-to-end architectural uniformity in the Cisco Catalyst Center 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.

New Features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch Release 17.12.x

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.8. It is a maintenance release.

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.7a. It is a maintenance release.

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.5. It is a maintenance release.

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.4. It is a maintenance release.

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.3. It is a maintenance release.

There are no new features for Cisco Catalyst IE9300 Rugged Series Switches and Cisco Catalyst ESS9300 Embedded Series Switch in release 17.12.2. It is a maintenance release.

The following features apply to Cisco IOS XE Release 17.12.1

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

Feature Name	License Level	Description	Supported Switches
New Cisco Catalyst IE9300 Rugged Series Switch models	• Network Essentials • Network Advantage	Four new Cisco Catalyst IE9300 Rugged Series Switch models became available in this release. Three models support Power over Ethernet (PoE).	• IE-9320-24T4X-E • IE-9320-24T4X-A • IE-9320-24P4X-E • IE-9320-24P4X-A • IE-9320-16P8U4X-E • IE-9320-16P8U4X-A • IE-9320-24P4S-E • IE-9320-24P4S-A
PoE	• Network Essentials • Network Advantage	PoE is supported on three Cisco Catalyst IE9300 Rugged Series Switch models beginning in this release. PoE is a technique for delivering DC power to devices over copper Ethernet cabling, eliminating the need for separate power supplies and outlets.	• IE-9320-24P4X-E • IE-9320-24P4X-A • IE-9320-16P8U4X-E • IE-9320-16P8U4X-A • IE-9320-24P4S-E • IE-9320-24P4S-A

Feature Name	License Level	Description	Supported Switches
GNSS support	• Network Essentials • Network Advantage	Beginning with this release, Cisco IE9320 GE Fiber switches have a built-in Global Navigation Satellite System (GNSS) receiver. The receiver enables the switch to determine its own location and get an accurate time from a satellite constellation.	• IE-9320-22S2C4X-E • IE-9320-22S2C4X-A
IRIG-B	• Network Advantage	Beginning with this release, Cisco IE9320 GE Fiber switches have integrated IRIG-B interfaces to provide an external timing source. These interfaces help make the switches a robust industrial platform with strong precision timing capabilities.	

Feature Name	License Level	Description	Supported Switches
MODBUS TCP	• Network Essentials • Network Advantage	Beginning in this release, you can use MODBUS TCP on Cisco Catalyst IE9300 Rugged Series Switches. The feature enables you to connect the switch over an Ethernet network to a variety of devices. **Note** This feature is supported only on standalone systems.	• IE-9310-26S2C-E • IE-9310-26S2C-A • IE-9320-26S2C-E • IE-9320-26S2C-A • IE-9320-22S2C4X-E • IE-9320-22S2C4X-A • IE-9320-24T4X-E • IE-9320-24T4X-A • IE-9320-24P4X-E • IE-9320-24P4X-A • IE-9320-16P8U4X-E • IE-9320-16P8U4X-A • IE-9320-24P4S-E • IE-9320-24P4S-A
SNMP MIB support for PTP	• Network Essentials • Network Advantage	Beginning with this release, SNMP management information bases (MIBs) are supported on Cisco Catalyst IE9300 Rugged Series Switches for Precision Time Protocol (PTP). The feature enables you to get PTP-related information from a switch remotely. PTP is not supported on 2.5 G ports on IE-9320-16P8U4X-E/A switches.	

Table 2: New Features for the Cisco Catalyst ESS9300 Embedded Series Switch

Feature Name	License Level	Description	Supported Switches
Full Network Advantage features support	Network Advantage	Advantage License support on the Cisco Catalyst ESS9300 Embedded Series Switch	ESS-9300-10X-E with ESS9300-NW-A=

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		
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		

Model Number	Default License Level	Stacking Support	Description
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		
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		

Model Number	Default License Level	Stacking Support	Description
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 interfaces include the following:

- SD cards slot
- 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

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.

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.

SSH Algorithms for Common Criteria Certification Limitation

Starting with 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 Dublin 17.12.x

The following table provides the filenames for the IOS XE 17.12.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 17.12.8	Universal	ie9k_iosxe.17.12.08.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.7a	Universal	ie9k_iosxe.17.12.07a.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.6	Universal	ie9k_iosxe.17.12.06.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.5	Universal	ie9k_iosxe.17.12.05.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.4	Universal	ie9k_iosxe.17.12.04.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.3	Universal	ie9k_iosxe.17.12.03.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.2	Universal	ie9k_iosxe.17.12.02.SPA.bin	• IE9300 • ESS9300
Cisco IOS XE 17.12.1	Universal	ie9k_iosxe.17.12.01.SPA.bin	• IE9300 • ESS9300

Software Installation Options

The following table lists the options for the **install** command for Cisco Catalyst IE9300 Rugged Series Switches.

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 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 Catalyst Center.

- Catalyst Center DNA Essentials
- Catalyst Center DNA Advantage: Includes features available with the Catalyst Center 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.

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. The available options depend on the implemented topology. 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 are enabled for Smart Licensing Using Policy.

Caveats

Caveats describe unexpected behavior in Cisco IOS XE releases.

Open Caveats in Cisco IOS XE Dublin 17.12.x

Identifier	Description
CSCwm35870	IE3500: Power profile is not working for Tengig to 1Gig copper combination in tagged mode
CSCwu29126	IE9300 - ALT port failing to block traffic, causing network loops in REP ring

Resolved Caveats in Cisco IOS XE Dublin 17.12.8

No customer-impacting bugs were fixed in this release.

Resolved Caveats in Cisco IOS XE Dublin 17.12.7a

Identifier	Description
CSCwq85911	REP Interface broadcast unicast traffic to all the interface in the same vlan
CSCwr78633	100mb SFP not in sync with 1g SFP
CSCws05823	Port VlanID is missing from show ptp lan port on changing native vlan configuration
CSCws48556	Follow-up meessage stops transmitting from IE93xx

Identifier	Description
CSCwr60436	On IE9k switches, the Dying-Gasp SNMP trap is not sent over loopback interface after a reboot
CSCwr72487	SFP status behaviour change from SNMP_ADMIN_NOT_PRESENT to SNMP_ADMIN_DOWN when Profinet disabl
CSCws18675	IE-9310-26S2C: Express setup LED glows amber

Resolved Caveats in Cisco IOS XE Dublin 17.12.6

Identifier	Description
CSCwi77870	Crash observed with command "sh platform software fed switch active ptp domain" on ie9k
CSCwk37285	End to End data traffic allowed in Must secure mode even if there was no preshared key.
CSCwo25497	Two GM follow_up messages is not sending properly from IE9300.
CSCwo44673	Taggged traffic getting dropped in IE9k and IE3500 if more than 50 Extended Vlans enabled.
CSCwp24892	IE9320 PTP BC invalid currentOffset.
CSCwm63597	IE9320:Port LED color changed to AMBER with PRP channel shutdown/no shutdown.
CSCwp65194	Incomplete SNMPWALK of entSensorValue data retrieval for SFP modules on IE-9320-26S2C-A switches
CSCwq12484	IE9300 IE-9320-24T4X: Merging 2 patches for Express setup LED and 2 reserved LEds

Resolved Caveats in Cisco IOS XE Dublin 17.12.5

Identifier	Description
CSCwj07119	IE9300 DATACORRUPTION-DATAINCONSISTENCY Logs and Crashes with SNMPv3 Dying-gasp Configuration.
CSCwk80517	IE9300 TC stops forwarding PTP sync/followup messages during BMCA
CSCwk28919	IE9300: Observing traceback on %DATACORRUPTION-1-DATAINCONSISTENCY:
CSCwm50612	IE9300: SNMP ifOperStatus MIB incorrectly reporting port-channel interface down.
CSCwm64394	IE9300: Cisco-ie-global macro contains commands which are not compatible with the switch.

Identifier	Description
CSCwm73744	Packet priority incorrect in TC mode.
CSCwm73805	PTP: Two Grand Master switching is not working for announce packets with 2packets/second and 4packets/second.

Resolved Caveats in Cisco IOS XE Dublin 17.12.4

No customer-impacting bugs were fixed in this release.

Resolved Caveats in Cisco IOS XE Dublin 17.12.3

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

Resolved Caveats in Cisco IOS XE Dublin 17.12.2

Identifier	Description
CSCwh87343	Cisco IOS XE Software Web UI Privilege Escalation Vulnerability
CSCwf41579	" logging alarm informational" command causes the generation of irrelevant information from PTP logs

Resolved Caveats in Cisco IOS XE Dublin 17.12.1

Identifier	Description
CSCwj11546	IE9320:Port range G1/0/17-20 and 25-28 do not forward traffic after power-cycle
CSCwd78599	IE9300: Dying gasp messages are not received on power loss to switch

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

For more information about Cisco IOS XE, see the https://www.cisco.com/c/en/us/products/ios-nx-os-software/ios-xe/index.html.

For more information about Cisco Catalyst IE9300 Rugged Series Switches, see the https://www.cisco.com/c/en/us/support/switches/catalyst-ie9300-rugged-series/series.html

For more information on Cisco Validated Designs, see the 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: https://www.cisco.com/go/mibs.

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