

# Release Notes for Cisco Catalyst IE3x00 Rugged, IE3400 Heavy Duty, and ESS3300 Series Switches, Cisco IOS XE Cupertino 17.9.x

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## Introduction

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

- Cisco Catalyst Rugged Series Switches (IE3200 and IE3300)
- Cisco Catalyst IE3400 Rugged Series (IE3400)
- Cisco Catalyst IE3400 Heavy-Duty Series (IE3400H)
- Cisco Embedded Services 3300 Series (ESS3300)

Cisco Catalyst IE3x00 Rugged Series Switches feature advanced, full Gigabit Ethernet speed for rich real-time data - and a modular, optimized design. These Cisco rugged switches bring simplicity, flexibility and security to the network edge, and are optimized for size, power, and performance.

From their end-to-end security architecture to delivering centralized automation and scale with Cisco intent-based networking, the Cisco Catalyst IE3x00 family is the perfect solution to your switching needs in almost any use case.

Cisco Embedded Services 3300 Series Switches (ESS3300) revolutionize Cisco's embedded networking portfolio with 1G/10G capabilities. ESS3300 switches are optimized to meet specialized form-factor, ruggedization, port density, and power needs of many applications requiring customization. They complement Cisco's off-the-shelf Industrial Ethernet switching portfolio.

On ESS3300, the small form factor, board configuration options, and optimized power consumption provide Cisco partners and integrators the flexibility to design custom solutions for defense, oil and gas, transportation, mining, and other verticals. The ESS3300 runs the trusted and feature-rich Cisco IOS XE Software, allowing Cisco partners and integrators to offer their customers the familiar Cisco IOS CLI and management experience on their ESS3300 solutions.

## New Features for Cisco Catalyst IE and ESS Switches in Cisco IOS XE 17.9.x

The following features in 17.9.x apply to both the IE3x00 and ESS3300 switches unless mentioned.

Feature Name	License Level	Description	Supported Platforms
MRP: 30ms Profile Support	Network Essentials	<p>Support for the 30 ms MRP profile is added in this release.</p> <p>The default maximum recovery time on the Cisco IE switch is 200 ms for a ring composed of up to 50 nodes.</p> <p>You can configure the switch to use the 30 ms or the 500 ms recovery time profile. The 10 ms recovery time profile is not supported.</p>	<ul style="list-style-type: none"> <li>• IE3200/IE3300</li> <li>• IE3400/IE3400H</li> </ul>
10G Industrial SFP Support	Network Essentials	SFP-10G-T-X is supported for IE3300 and ESS3300.	<ul style="list-style-type: none"> <li>• IE3300 (10G only)</li> <li>• ESS3300</li> </ul>

Feature Name	License Level	Description	Supported Platforms
REP Segment-ID Auto-Discovery	Network Essentials	<p>REP configuration is enhanced to support an auto-discovery feature, which allows a REP node to learn the REP Segment-ID on the wire.</p> <p>The auto-discovery option is added to the <b>rep segment</b> command. This allows for continued static configuration as well as auto-configuration. The REP segment must be started with a static REP Segment-ID configuration from the edge, but the rest of the REP ring can then benefit from the auto-discovery, making deployment and automation easier.</p> <p>Port pairing is done for uplinks. For example, Gi1/1 and Gi1/2 are the port pairs. If you configure <b>rep segment auto</b> on one of the uplinks, the same configuration will be reflected on the other uplink.</p>	<ul style="list-style-type: none"> <li>• IE3200/IE3300</li> <li>• IE3400/IE3400H</li> <li>• ESS3300</li> </ul>

Feature Name	License Level	Description	Supported Platforms
Smart Licensing Using Policy—RUM Report Throttling	Network Essentials		<ul style="list-style-type: none"><li>• IE3200/IE3300</li><li>• IE3400/IE3400H</li><li>• ESS3300</li></ul>

Feature Name	License Level	Description	Supported Platforms
		<p>For all topologies where the product instance initiates communication, the minimum reporting frequency is throttled to one day. This means the product instance does not send more than one RUM report a day.</p> <p>The affected topologies are: <i>Connected Directly to CSSM</i>, <i>Connected to CSSM Through CSLU</i> (product instance-initiated communication), <i>CSLU Disconnected from CSSM</i> (product instance-initiated communication), and <i>SSM On-Prem Deployment</i> (product instance-initiated communication).</p> <p>This resolves the problem of too many RUM reports being generated and sent for certain licenses. It also resolves the memory-related issues and system slow-down that was caused by an excessive generation of RUM reports.</p> <p>You can override the reporting frequency throttling, by entering the <b>license smart sync</b> command in privileged EXEC mode. This triggers an on-demand synchronization with CSSM or CSLU, or SSM On-Prem, to send and receive any pending data.</p> <p>RUM report throttling also applies to the Cisco IOS XE Amsterdam 17.3.6 and later releases of the 17.3.x train, and</p>	

Feature Name	License Level	Description	Supported Platforms
		Cisco IOS XE Bengaluru 17.6.4 and later releases of the 17.6.x train. From Cisco IOS XE Cupertino 17.9.1, RUM report throttling is applicable to <i>all</i> subsequent releases.	
TLS 1.3 Support	Network Essentials	HTTPS supports secure TLS version TLSv1.3 in Cisco IOS XE 17.9.1 and later.	<ul style="list-style-type: none"> <li>• IE3200/IE3300</li> <li>• IE3400/IE3400H</li> <li>• ESS3300</li> </ul>

## Important Notes

### SMU Installation: Boot in Install Mode

Software Maintenance Upgrade (SMU) installation has been supported in both bundle boot and install mode. However, beginning in Cisco IOS XE 17.9.1, the switch must be booted up in install mode to support SMU installation.

SMU installation stops if the device is booted up in bundle mode. If the device is booted up in install mode, SMU installation continues to work as before.

### IE3400: Hardware Changes may Require Action

Some hardware components on the Cisco Catalyst IE3400 Rugged Series and Cisco Catalyst IE3400 Heavy Duty Series switches have changed. The changes, which are automatically handled by the IOS-XE software, do not affect switch functionality or the ordering process. New units shipped after May 31, 2022 have the hardware change.

However, you may need to upgrade the software, depending on which base switch and expansions module you have, as shown in the following table.



**Note** For detailed information about affected hardware versions, supported software releases, and instructions for different scenarios, see *Field Notice Title* on [Cisco.com](https://www.cisco.com).

If you have...	Then...
Older versions (shipped before May 31, 2022) of the base switch and expansion module	No action is required.

If you have...	Then...
Newer versions (shipped after May 31, 2022) of the base switch and expansion module	Deploy one of the supported releases of IOS-XE. Refer to <i>Field Notice Title</i> on <a href="https://www.cisco.com">Cisco.com</a> for details that are appropriate to your deployment.
Newer version of the base switch with an older version of the expansion module	
Older version of the base switch with a newer version of the expansion module	

### FPGA Profile

FPGA Profile is supported in Cisco IOS XE release 17.8 and later. In a Cisco IOS XE upgrade from an earlier release that does not support FPGA Profile, for example, an upgrade from Cisco IOS XE 17.7.1 to 17.8.1, the default FPGA Profile is installed. Any features controlled by FPGA Profile that are configured in the switch running the earlier release and that are not included in the default profile will be rejected.

For example, CTS IPv6 is not supported in the default profile, so CTS IPv6 configurations are rejected during bootup after the upgrade. Similarly, after a Cisco IOS XE upgrade where the cts-ipv6 profile is loaded, existing PRP and DLR configurations are rejected upon bootup.

To keep the existing profile and feature configurations after an upgrade:

1. After booting the switch, selected the required FPGA Profile as described in "Changing the FPGA Profile", in [System Management Configuration Guide, Cisco Catalyst IE3x00 Rugged, IE3400 Heavy Duty, and ESS3300 Series Switches](#), chapter "Configuring FPGA Profile".

Do not copy running-config to startup-config or write memory.

2. Reload the switch.

The required feature configurations will not be discarded because they are supported by the selected profile.

### Accessing Hidden Commands

Hidden commands have always been present in Cisco IOS XE, but were not equipped with CLI help. This means that entering enter a question mark (?) at the system prompt did not display the list of available commands. Such hidden commands are only meant to assist Cisco TAC in advanced troubleshooting and are therefore not documented. For more information about CLI help, see the *Using the Command-Line Interface* → *Understanding the Help System* chapter of the Command Reference document.

This section provides information about hidden commands in Cisco IOS XE and the security measures in place, when they are accessed. Hidden commands are meant to assist Cisco TAC in advanced troubleshooting and are therefore not documented. For more information about CLI help, see the *Using the Command-Line Interface* → *Understanding the Help System* chapter of the Command Reference document.

Hidden commands are available under:

- Category 1—Hidden commands in privileged or User EXEC mode. Begin by entering the **service internal** command to access these commands.
- Category 2—Hidden commands in one of the configuration modes (global, interface and so on). These commands do not require the **service internal** command.

Further, the following applies to hidden commands under Category 1 and 2:

- The commands have CLI help. Entering a question mark (?) at the system prompt displays the list of available commands.




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**Note** For Category 1, enter the **service internal** command before you enter the question mark; you do not have to do this for Category 2.

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- The system generates a %PARSER-5-HIDDEN syslog message when the command is used. For example:

```
*Feb 14 10:44:37.917: %PARSER-5-HIDDEN: Warning!!! 'show processes memory old-header '
is a hidden command.
Use of this command is not recommended/supported and will be removed in future.
```

Apart from category 1 and 2, there remain internal commands displayed on the CLI, for which the system does NOT generate the %PARSER-5-HIDDEN syslog message.




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**Important** We recommend that you use any hidden command only under TAC supervision. If you find that you are using a hidden command, open a TAC case for help with finding another way of collecting the same information as the hidden command (for a hidden EXEC mode command), or to configure the same functionality (for a hidden configuration mode command) using non-hidden commands.

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### PoE Limitation on IE3x00

Even when using power supplies that can provide up to a supported maximum (for example, 170W, 240W, or 480W) for the PoE budget, the PoE budget for the IE3x00 defaults to 125W regardless of the power supplies used. You can configure the power budget to use the maximum.




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**Note** Before changing the power budget, the minimum power requirements for the switch need to be considered as well. Please refer to the datasheet for your switch for more details.

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To use the power supply's maximum supported wattage for the PoE budget, configure the power supply max wattage in global configuration mode as follows:

1. Verify the maximum amount that the power supplies support for the PoE budget.
2. Enter **power inline max** *max-wattage* to increase the PoE budget based on the power supplies used.  
*max-wattage* is the maximum available PoE power.

### IE3200 and IE 3300 with 10Mbps or 100Mbps speed in Half-Duplex Mode

CRC errors were observed on the IE 3200 and IE3300 platforms when the switch is configured with 10Mbps or 100Mbps speed in half-duplex mode.

As a workaround, configure **no ptp enable** on the half-duplex interface. This improves ingress and egress latencies considerably and ensures that there are no late collisions (and therefore, no CRC errors).



The issue and workaround apply to Cisco IOS XE releases 17.3.5 and later.

## Cisco Catalyst IE and ESS Switches: Model Numbers (17.9.x)

The following table lists the supported hardware models and the default license levels they are delivered with. For information about the available license levels, see section *License Levels*.

Model Number	Default License Level	Description
ESS-3300-NCP-E	Network Essentials	Main Board without a cooling plate. 2 ports of 10 GE fiber, 8 ports of GE copper. 4 of the 8 GE copper ports can also be combo ports. Terminal Power: 16W
ESS-3300-NCP-A	Network Advantage	Main Board without a cooling plate. 2 ports of 10 GE fiber, 8 ports of GE copper. 4 of the 8 GE copper ports can also be combo ports. Terminal Power: 16W
ESS-3300-CON-E	Network Essentials	Main Board conduction cooled 2 ports of 10 GE fiber, 8 ports of GE copper. 4 of the 8 GE copper ports can also be combo ports Terminal Power: 16W
ESS-3300-CON-A	Network Advantage	Main Board conduction cooled 2 ports of 10 GE fiber, 8 ports of GE copper. 4 of the 8 GE copper ports can also be combo ports Terminal Power: 16W
ESS-3300-24T-NCP-E	Network Essentials	Main Board with a 16p Expansion Board without a cooling plate 2 ports of 10 GE fiber, 24 ports of GE copper 4 of 8 GE ports can be combo ports on mainboard 4 of 16 GE ports can be combo ports on expansion board Terminal Power: 24W
ESS-3300-24T-NCP-A	Network Advantage	Main Board with a 16p Expansion Board without a cooling plate 2 ports of 10 GE fiber, 24 ports of GE copper 4 of 8 GE ports can be combo ports on mainboard 4 of 16 GE ports can be combo ports on expansion board Terminal Power: 24W

Model Number	Default License Level	Description
ESS-3300-24T-CON-E	Network Essentials	Main Board with a 16p Expansion Board conduction cooled 2 ports of 10 GE fiber, 24 ports of GE copper 4 of 8 GE ports can be combo ports on mainboard 4 of 16 GE ports can be combo ports on expansion board Terminal Power: 24W
ESS-3300-24T-CON-A	Network Advantage	Main Board with a 16p Expansion Board conduction cooled 2 ports of 10 GE fiber, 24 ports of GE copper 4 of 8 GE ports can be combo ports on mainboard 4 of 16 GE ports can be combo ports on expansion board Terminal Power: 24W
IE-3200-8T2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports, non-PoE
IE-3200-8P2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 PoE/PoE+ ports, 2 fiber 100/1000 SFP-based ports; PoE power budget of 240W
IE-3300-8T2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports, non-PoE
IE-3300-8P2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 PoE/PoE+ ports, 2 fiber 100/1000 SFP-based ports; PoE power budget of 360W (including expansion module)
IE-3300-8T2S-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports, non-PoE
IE-3300-8P2S-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 PoE/PoE+ ports, 2 fiber 100/1000 SFP-based ports; PoE power budget of 360W (including expansion module)
IE-3300-8T2X-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 1/10 Gigabit Ethernet SFP-based ports, non-PoE
IE-3300-8T2X-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 1/10 Gigabit Ethernet SFP-based ports, non-PoE
IE-3300-8U2X-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 4PPoE (802.3bt type 3) ports, 2 fiber 1/10 Gigabit Ethernet SFP-based ports; PoE power budget of 480W

Model Number	Default License Level	Description
IE-3300-8U2X-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 4PPoE (802.3bt type 3) ports, 2 fiber 1/10 Gigabit Ethernet SFP-based ports; PoE power budget of 480W
IE-3400-8T2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports, non-PoE
IE-3400-8T2S-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports, non-PoE
IE-3400-8P2S-E	Network Essentials	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports with PoE
IE-3400-8P2S-A	Network Advantage	8 Gigabit Ethernet 10/100/1000 RJ45 ports, 2 fiber 100/1000 SFP-based ports with PoE
IE-3400H-8T-E	Network Essentials	8x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-8T-A	Network Advantage	8x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-8FT-E	Network Essentials	8 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .
IE-3400H-8FT-A	Network Advantage	8 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .
IE-3400H-16T-E	Network Essentials	16x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-16T-A	Network Advantage	16x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-16FT-E	Network Essentials	16 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .
IE-3400H-16FT-A	Network Advantage	16 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .

Model Number	Default License Level	Description
IE-3400H-24T-E	Network Essentials	24x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-24T-A	Network Advantage	24x1-Gbps X-Coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, mini-change input for Single power source
IE-3400H-24FT-E	Network Essentials	24 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .
IE-3400H-24FT-A	Network Advantage	24 100-Mbps D-coded ports, 1 Alarm input and 1 Alarm output, 1 Console port, Mini-change input for Single Power Source .

## WebUI System Requirements

The WebUI is a web browser-based switch management tool that runs on the switch. The following subsections list the hardware and software required to access the WebUI.

### Minimum Hardware Requirements

Processor Speed	DRAM	Number of Colors	Resolution	Font Size
233 MHz minimum <sup>1</sup>	512 MB <sup>2</sup>	256	1280 x 800 or higher	Small

<sup>1</sup> We recommend 1 GHz

<sup>2</sup> We recommend 1 GB DRAM

### Software Requirements

#### Operating Systems

- Windows 10 or later
- Mac OS X 10.9.5 or later

#### Browsers

- Google Chrome: Version 59 or later (On Windows and Mac)
- Microsoft Edge
- Mozilla Firefox: Version 54 or later (On Windows and Mac)
- Safari: Version 10 or later (On Mac)

## 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 17.9.x

The following table provides the filenames for the IOS XE 17.9.x software image for Cisco Catalyst IE3x00 Rugged, IE3400 Heavy Duty, and ESS3300 Series Switches.

Release	Image Type	Filename
Cisco IOS XE.17.9.5	Universal	ie3x00-universalk9.17.09.05.SPA.bin
		ess3x00-universalk9.17.09.05.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.05.SPA.bin
Cisco IOS XE.17.9.4a	Universal	ie3x00-universalk9.17.09.04a.SPA.bin
		ess3x00-universalk9.17.09.04a.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.04a.SPA.bin
Cisco IOS XE.17.9.4	Universal	ie3x00-universalk9.17.09.04.SPA.bin
		ess3x00-universalk9.17.09.04.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.04.SPA.bin

Release	Image Type	Filename
Cisco IOS XE.17.9.3	Universal	ie3x00-universalk9.17.09.03.SPA.bin
		ess3x00-universalk9.17.09.03.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.03.SPA.bin
Cisco IOS XE.17.9.2	Universal	ie3x00-universalk9.17.09.02.SPA.bin
		ess3x00-universalk9.17.09.02.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.02.SPA.bin
Cisco IOS XE.17.9.1	Universal	ie3x00-universalk9.17.09.01.SPA.bin
		ess3x00-universalk9.17.09.01.SPA.bin
	NPE	ie3x00-universalk9_npe.17.09.01.SPA.bin

## Automatic Boot Loader Upgrade

When you upgrade from the existing release on your switch to a later or newer release for the first time, the boot loader may be automatically upgraded, based on the hardware version of the switch. If the boot loader is automatically upgraded, it will take effect on the next reload.

For subsequent Cisco IOS XE releases, if there is a new bootloader in that release, it may be automatically upgraded based on the hardware version of the switch when you boot up your switch with the new image for the first time.



**Caution** Do not power cycle your switch during the upgrade.

Scenario	Automatic Boot Loader Response
If you boot Cisco IOS XE the first time	<pre> Boot loader may be upgraded to version "8.1.2" for IE3x00 and ESS-3300.  Checking Bootloader upgrade... ... Bootloader upgrade successful </pre>

## Software Installation Commands



**Note** For the **install** command to be successful, it is recommended to have a minimum of free space that is twice the size of the image in flash. If there is not enough space available in flash, you are advised to free up space in flash either by issuing the **install remove inactive** command or to manually clean up the flash by removing unwanted core files or any other files that occupy a large amount of space in flash.

Summary of Software Installation Commands for Install Mode	
To install and activate the specified file, and to commit changes to be persistent across reloads— <b>install add file</b> <i>filename</i> [ <b>activate commit</b> ]	
<b>add file tftp:</b> <i>filename</i>	Copies the install file package from a remote location to the device and performs a compatibility check for the platform and image versions.
<b>activate</b> [ <b>auto-abort-timer</b> ]	Activates the file, and reloads the device. The <b>auto-abort-timer</b> keyword automatically rolls back image activation.
<b>commit</b>	Makes changes persistent over reloads.
<b>remove</b>	Deletes all unused and inactive software installation files.

## Licensing

This section provides information about the licensing packages for features available on Cisco Catalyst IE3x00 Rugged, IE3400 Heavy Duty, and ESS3300 Series Switches.

### License Types

The following license types are available:

- Permanent: for a license level, and without an expiration date.
- Term: a time-based license for a three, five, or seven year period.
- Evaluation: a license that is not registered.



**Note** Evaluation licenses are only used in Cisco IOS XE Release 17.3.1. Starting with Cisco IOS XE Release 17.3.2, Evaluation licenses are no longer used by Smart Licensing.

### License Levels - Usage Guidelines

- Base licenses (Network Advantage) are ordered and fulfilled only with a permanent license type.
- Network Essentials license is the default license. It is permanent. A connection to the Smart Licensing server is not required if the IE switch will be deployed with a Network Essentials license.
- Add-on licenses (DNA Essentials, DNA Advantage) are ordered and fulfilled only with a term license type.
- An add-on license level is included when you choose a network license level. If you use DNA features, renew the license before term expiry, to continue using it, or deactivate the add-on license and then reload the switch to continue operating with the base license capabilities.
- Evaluation licenses cannot be ordered. They are not tracked via Cisco Smart Software Manager and expire after a 90-day period. Evaluation licenses can be used only once on the switch and cannot be

regenerated. Warning system messages about an evaluation license expiry are generated only 275 days after expiration and every week thereafter. An expired evaluation license cannot be reactivated after reload.




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**Note** Evaluation licenses are only used in Cisco IOS XE Release 17.3.1. Starting with Cisco IOS XE Release 17.3.2, Evaluation licenses are no longer used by Smart Licensing.

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## Smart Licensing

Cisco Smart Licensing is a unified license management system that manages all the software licenses across Cisco products.

It enables you to purchase, deploy, manage, track, and renew Cisco Software. It provides information about license ownership and consumption through a single user interface.

The solution is composed of Smart Accounts and Cisco Smart Software Manager. The former is an online account of your Cisco software assets and is required to use the latter. Cisco Smart Software Manager is where you can perform all your licensing management-related tasks such as establishing trust, checking license usage, transferring licenses, removing devices, and so forth. Users can be added and given access and permissions to the smart account and specific virtual accounts.




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**Important** Cisco Smart Licensing is the default and the only available method to manage licenses on IE3x00 products.

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## Deploying Smart Licensing

The following provides a process overview of a day 0 to day *N* deployment directly initiated from a device. Links to the configuration guide provide detailed information to help you complete each one of the smaller tasks.

### Procedure

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**Step 1** Begin by establishing a connection from your network to Cisco Smart Software Manager on cisco.com.

**Step 2** Create and activate your Smart Account, or login if you already have one.

To create and activate Smart Account, go to Cisco Software Central → [Create Smart Accounts](#). Only authorized users can activate the Smart Account.

**Step 3** Complete the Cisco Smart Software Manager set up.

- a) Accept the Smart Software Licensing Agreement.
- b) Set up the required number of Virtual Accounts, users and access rights for the virtual account users.

Virtual accounts help you organize licenses by business unit, product type, IT group, and so on.

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With this,



- The device is now in an authorized state and ready to use.
- The licenses that you have purchased are displayed in your Smart Account.

### What to do next

Register and convert traditional licenses to Smart Licenses.

## Using Smart Licensing on an Out-of-the-Box Device

If an out-of-the-box device has the software version factory-provisioned, all licenses on such a device remain in evaluation mode until registered in Cisco Smart Software Manager.

## How Upgrading or Downgrading Software Affects Smart Licensing

Note how upgrading to a release that supports Smart Licensing or moving to a release that does not support Smart Licensing affects licenses on a device:

- **When you upgrade from an earlier release to one that supports Smart Licensing**—all existing licenses remain in evaluation mode until registered in Cisco Smart Software Manager. After registration, they are made available in your Smart Account.
- **When you downgrade to a release where Smart Licensing is not supported**—all smart licenses on the device are converted to traditional licenses and all smart licensing information on the device is removed.

## Smart Licensing Using Policy

An enhanced version of Smart Licensing is available, with the overarching objective of providing a licensing solution that does not interrupt the operations of your network, rather, one that 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 at a later date.

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.



**Note** Starting with Cisco IOS XE Amsterdam 17.3.2, with the introduction of Smart Licensing Using Policy, even if you configure a hostname for a product instance or device, only the Unique Device Identifier (UDI) is displayed.

This change in the display can be observed in all licensing utilities and user interfaces where the hostname was displayed in earlier releases. It does not affect any licensing functionality. There is no workaround for this limitation.

The licensing utilities and user interfaces that are affected by this limitation include only the following: Cisco Smart Software Manager (CSSM), Cisco Smart License Utility (CSLU), and Smart Software Manager On-Prem (SSM On-Prem).

For more information about Smart Licensing, see [Smart Licensing Using Policy for Cisco Enterprise Routing Platforms](#).

## 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.

### Cisco Bug Search Tool

[Cisco Bug Search Tool](#) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

Click the link for the caveat in the sections below to view details for the caveat in Bug Search Tool.

### Open Caveats for Release 17.9.x

Identifier	Description
<a href="#">CSCwi77102</a>	RSPAN causing control plane information shared to peer
<a href="#">CSCwi69364</a>	NETCONF get config returns <add-vlans> <add> and <remove> after changing allowed trunk VLANs via CLI
<a href="#">CSCwi79160</a>	IE3300-8U2X: link flap happening randomly on base module connected with UPoE APs
<a href="#">CSCwj97078</a>	IE3400: Traffic is not forwarded over mrouter ports.
<a href="#">CSCwm36038</a>	Failure on private vlan functions.

### Resolved Caveats in Cisco IOS XE Cupertino 17.9.5

Identifier	Description
<a href="#">CSCwf74861</a>	REP is not working correctly on Rugged IE-3x00 with MACSEC enabled on REP ports

Identifier	Description
<a href="#">CSCwf83475</a>	IE3100:Moving port across vlan, MRP ring does not converge
<a href="#">CSCwh75542</a>	IE3400 and IE3400H switches increasing the memory usage
<a href="#">CSCwh79813</a>	All IE3x00 platforms and ESS3300: Etherchannel Mismatch Triggers Loop (mac-flap)
<a href="#">CSCwe44846</a>	IOT switch reaches critical memory level when running Cyber Vision with 2GB of memory
<a href="#">CSCwfl2599</a>	IE3x00 - MRP ring status is CLOSED though ring is physically open via profinet mode
<a href="#">CSCwf98958</a>	PEN hostname reverts to switch after reload
<a href="#">CSCwh38767</a>	IE3x00: Interface input errors(ifInErrors) is getting reset on every read
<a href="#">CSCwf80202</a>	REP Alt port does not return to the designated port after recovering from the malfunction
<a href="#">CSCwi01476</a>	All IE3x00 platforms and ESS3300: Memory leak in "Pool manager", small buffers leaking memory due to PTP packets
<a href="#">CSCwi23741</a>	EAP-TLS auth issue after updating IE3400 Switches from 17.1.x or 17.3.x releases to 17.7.x and above

## Resolved Caveats in Cisco IOS XE Cupertino 17.9.4a

Identifier	Description
<a href="#">CSCwh87343</a>	Cisco IOS XE Software Web UI Privilege Escalation Vulnerability

## Resolved Caveats in Cisco IOS XE Cupertino 17.9.4

Identifier	Description
<a href="#">CSCwe18850</a>	802.1x and MAB authentication fails against the RADIUS server over IPv6 transport
<a href="#">CSCwe36005</a>	[SNMP] Traceback observed with get-bulk of LRE MIB's

## Resolved Caveats in Cisco IOS XE Cupertino 17.9.3

Identifier	Description
<a href="#">CSCwd19424</a>	PTPv1 is not working on Tengig ports when forward-mode is enabled on IE3x00 device
<a href="#">CSCwd40311</a>	config: Logging buffered max returns no memory available

Identifier	Description
<a href="#">CSCwd41453</a>	Ingress feature configured on SPAN destination port stops working when port is bounced
<a href="#">CSCwd49796</a>	IE3400H -- Express setup physical press is not working
<a href="#">CSCwd54449</a>	IE3x00: Input errors are observed on Interface
<a href="#">CSCwd73631</a>	IE3300 could not handle fragmented PIM bootstrap received in Trunk port
<a href="#">CSCwd74622</a>	User in Isolated PVLAN is Unable to Ping Primary VLAN SVI
<a href="#">CSCwd97578</a>	Log is generate after link flapping: Error: LPM IPv4 100% capacity is reached

## Resolved Caveats in Cisco IOS XE Cupertino 17.9.2

Identifier	Description
<a href="#">CSCwc04550</a>	Unable to Change PTP Profile via Web UI
<a href="#">CSCwc33322</a>	IOX: Observing Disk space issue for CCV app installation through sensor extension.
<a href="#">CSCwc52194</a>	ESS-3300-CON drops DHCP Discovery packets when ipv6 dhcp guard policy is enabled on an interface.
<a href="#">CSCwc58174</a>	Loop Triggered when use wrong Portchannel member
<a href="#">CSCwc72101</a>	IE3400 OSPFv3 neighbor stuck at EXSTART
<a href="#">CSCwd02557</a>	IE3x00-without exp module shows error in topology
<a href="#">CSCwd07571</a>	Crash: add netflow to existing template
<a href="#">CSCwd14921</a>	lldp packets sent by Lenze and SEW devices are rejected by Profinet

## Closed Caveats in Cisco IOS XE Cupertino 17.9.1

Identifier	Description
<a href="#">CSCwa65562</a>	Vlan assignment fails with %PM-3-INTERNALERROR platform IE-3x00

## Resolved Caveats in Cisco IOS XE Cupertino 17.9.1

Identifier	Description
<a href="#">CSCvz88804</a>	QoS drops within IE3300 switch for Layer2 transit traffic below line rate
<a href="#">CSCwa30349</a>	VACL affecting traffic on non-specified vlans on IE3x00
<a href="#">CSCwa62280</a>	FHS IPv6 RAGUARD policy in IE3400 is not blocking RA traffic

Identifier	Description
<a href="#">CSCwb02945</a>	IE3400H-FE—Unable to configure MTU other than 1500 in 3400 FE switch with Network Essentials
<a href="#">CSCwb08531</a>	Autonegotiate to 10 Gbps instead of 1 Gbps with GLC-TE SFP
<a href="#">CSCwb30529</a>	CRC errors observed with IE3xxx with 10Mbps speed in Half-Duplex Mode
<a href="#">CSCwb32319</a>	EPC on IE3300 switches dropping packets of flows not allowed in the ACL filter
<a href="#">CSCwb41302</a>	Interface Gi2/1 in expansion module IEM-3400-8S not working in 17.X releases
<a href="#">CSCwb46595</a>	IE3300 16P expansion module granting POE to ports where power inline never was configured
<a href="#">CSCwb66011</a>	Interface vlan with unassigned IP address generating ICMPv6 Router Solicitation (IE-3300)
<a href="#">CSCwc07172</a>	When we have IOX/Cybervision enabled on the switch and attempt to soft reload it hangs

## 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>

All support documentation for Cisco Catalyst IE3100 Rugged Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/catalyst-ie3100-rugged-series/series.html>

All support documentation for Cisco Catalyst IE3200 Rugged Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/catalyst-ie3200-rugged-series/tsd-products-support-series-home.html>

All support documentation for Cisco Catalyst IE3300 Rugged Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/catalyst-ie3300-rugged-series/tsd-products-support-series-home.html>

All support documentation for Cisco Catalyst IE3400 Rugged Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/catalyst-ie3400-rugged-series/tsd-products-support-series-home.html>

All support documentation for Cisco Catalyst IE3400H Heavy Duty Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/catalyst-ie3400-heavy-duty-series/tsd-products-support-series-home.html>

All support documentation for Cisco ESS3300 Series Switches is at this URL: <https://www.cisco.com/c/en/us/support/switches/embedded-service-3000-series-switches/tsd-products-support-series-home.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>

## Communications, Services, and Additional Information

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