

Release Notes for Cisco Catalyst IE3x00 Rugged, IE 3400 Heavy Duty, and ESS3300 Series Switches, Cisco IOS XE Amsterdam 17.1.x

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Introduction

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 and complement Cisco's off-the-shelf Industrial Ethernet switching portfolio.

On the 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-based solutions.



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 hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

Cisco IOS-XE Release Schedule

Cisco IOS-XE releases generally follow the schedule as follows:

- Standard Maintenance (SM) Release - Defect fixes for 6 months, and PSIRT fixes for 6 months.
- Extended Maintenance (EM) Release - Defect fixes for 24 months, and PSIRT fixes for 12 months.

There are typically 3 major releases each year:

- End of March - Standard Maintenance
- End of July - Extended Maintenance
- End of November - Standard Maintenance

New Features for Cisco Catalyst IE and ESS Switches in Cisco IOS XE 17.1.1

The following features apply to both the IE3x00 and ESS3300 switches unless specifically mentioned.

Feature Name	License Level	Description, and Documentation Link Information
EIGRP (ie3300 and ie3400 only)	Network Advantage	Enhanced Interior Gateway Routing Protocol (EIGRP) is an interior gateway protocol suited for many different topologies and media. In a well designed network, EIGRP scales well and provides extremely quick convergence times with minimal network traffic.
Layer 3 Multicast support (ie3300 and ie3400 only)	Network Essentials	IP multicast is a bandwidth-conserving technology that reduces traffic by simultaneously delivering a single stream of information to potentially thousands of corporate recipients and homes. Applications that take advantage of multicast include video conferencing, corporate communications, distance learning, and distribution of software, stock quotes, and news. This release adds Multicast support over Layer 3 interfaces.
PAgP Port channel support	Network Essentials	The Port Aggregation Protocol (PAgP) is a Cisco-proprietary protocol that can be run only on Cisco switches and on those switches licensed by vendors to support PAgP.

Feature Name	License Level	Description, and Documentation Link Information
Profinet Support - (Not supported on the ESS3300)	Network Essentials	PROFINET is the PROFIBUS International (PI) open Industrial Ethernet Standard that uses TCP/IP and IT standards for automation control. PROFINET is particularly useful for industrial automation systems and process control networks, in which motion control and precision control of instrumentation and test equipment are important. It emphasizes data exchange and defines communication paths to meet speed requirements.
PROFINET-MRP- (Not supported on the ESS3300)	Network Essentials	After activating the license, you can push PROFINET MRP configuration to the Cisco switch using Siemens TIA or STEP7. PROFINET MRP is enabled by default on the switch when MRM or MRC licenses are enabled.
Routing Protocol support (Ipv4 and Ipv6) - ISIS (ie3300 and ie3400 only)	Network Advantage	This module provides a technical overview of the Integrated Intermediate System-to-Intermediate System (IS-IS) routing protocol. IS-IS is a link-state Interior Gateway Protocol (IGP). Link-state protocols are characterized by the propagation of the information required to build a complete network connectivity map on each participating device. That map is then used to calculate the shortest path to destinations. IP Routing: ISIS Configuration Guide

Feature Name	License Level	Description, and Documentation Link Information
Support for the gigabit Cisco Catalyst IE3400 Heavy Duty Series (PIDS IE-3400H-8T, IE-3400H-16T, and IE-3400H-24T) Switch	IE3400H products support both Network Essential or Network Advantage License levels depending upon feature set.	The Cisco® Catalyst® IE3400 Heavy Duty Series is Cisco’s next-generation, IP67-rated switching platform designed to provide enhanced network-based security, segmentation, and visibility in the most demanding industrial environments. The Cisco® Catalyst® IE3400 Heavy Duty Series switches extend the power of intent-based networking to the harshest Internet of Things (IoT) edge.
Netconf support for Netflow	Network Essentials	This release will have following new addition in NetFlow feature. <ol style="list-style-type: none"> 1. New match key fields “input interface” 2. New non-key collect field “output interface” 3. Programmability support for NetFlow, this will support yang model “Cisco-IOS-XE-flow-monitor-opyang”.

Feature Name	License Level	Description, and Documentation Link Information
Serviceability Features <ul style="list-style-type: none"> • MRP (Not supported on ESS3300) PRP (Not supported on ESS3300, IE3xOO Advances SKUs only) PTP (Not supported on ESS3300) CTS (Not supported on ESS3300) Netflow CIP (Not supported on ESS3300) L2NAT (Not supported on ESS3300, or IE3200) REP (Supported on ESS3300 since 16.12) Radio active tracing for IGMP/MLD features 	Network Essentials	Serviceability CLIs are added for many new features to enable customer/TAC engineers to collect debug information in a simple and easier way. Please note that, MRP needs a feature license activated to work.
BGP (ie3300 and ie3400 only, not supported on ESS3300)	Network Advantage	Border Gateway Protocol (BGP) is an interdomain routing protocol designed to provide loop-free routing between separate routing domains that contain independent routing policies (autonomous systems).
RIP	Network Advantage	RIP is a commonly used routing protocol in small to medium TCP/IP networks. Routing Information Protocol (RIP) is a stable protocol that uses a distance-vector algorithm to calculate routes.
HTTP over IPv6	Network Essentials	The HTTP client sends requests to both IPv4 and IPv6 HTTP servers, which respond to requests from both IPv4 and IPv6 HTTP clients. URLs with literal IPv6 addresses must be specified in hexadecimal using 16-bit values between colons.

Feature Name	License Level	Description, and Documentation Link Information
Host Support IPv6	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ip6n-xe-3s-book/ip6-snmp.html
SNMP over IPv6	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ip6n-xe-3s-book/ip6-snmp.html
Syslog over IPv6	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ip6n-xe-3s-book/ip6-snmp.html
DHCPv6 bulk lease query	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dhcp/configuration/xe-16/dhcp-xe-16-book/ip6-dhcp-stateless-auto.html
DHCPv6 relay source	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dhcp/configuration/xe-16/dhcp-xe-16-book/ip6-dhcp-stateless-auto.html
Entity sensor MIB	Network Essentials	https://mibs.cloudapps.cisco.com/ITDIT/MIBS/servlet/index
IP-MIB and IP-Forward MIB	Network Essentials	https://mibs.cloudapps.cisco.com/ITDIT/MIBS/servlet/index
SCP/SSH, Radius, TACACS+, NTP over IPv6	Network Essentials	https://www.cisco.com/c/en/us/support/docs/ip/access-lists/13608-21.html
DHCP based Auto Config	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dhcp/configuration/xe-3s/dhcp-xe-3s-book/config-dhcp-server-xe.html
IPv6 ND cache expire	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ip6n-xe-3s-book/ip6-snmp.html
IPv6 DNS Transport	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ip6n-xe-3s-book/ip6-snmp.html

Feature Name	License Level	Description, and Documentation Link Information
IPv6 support for TFTP	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ipv6n-xe-3s-book/ipv6-snmp.html
IPv6 Stateless Auto Config	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_nman/configuration/xe-3s/ipv6n-xe-3s-book/ipv6-snmp.html
DHCP snooping ASCII circuit ID	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dhcp/configuration/xe-3s/dhcp-xe-3s-book/config-dhcp-server-xe.html
3DES and AES support with SNMPv3	Network Essentials	https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/snmp/configuration/xe-3se/3850/snmp-xe-3se-3850-book/nm-snmp-encrypt-snmp-support.html

Important Notes

Complete List of Supported Features

For the complete list of features supported on a platform, see the Cisco Feature Navigator at <https://www.cisco.com/go/cfn>.

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.



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.

- 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.



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.

Catalyst IE3x00 Rugged and ESS3300 Supported Hardware

Cisco Catalyst IE3x00 Rugged, IE 3400 Heavy Duty and ESS3300 Series Switches—Model Numbers (17.1.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*.

	Default License Level ¹	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-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

	Default License Level¹	Description
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-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
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-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

	Default License Level¹	Description
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 .
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 .

¹ See section *Licensing* → *Table: Permitted Combinations*, in this document for information about the add-on licenses that you can order.

Expansion Modules

The following table lists the optional expansion modules for the IE3300 and IE3400 base systems. Modules with IEM-3400-xx are only supported on IE3400 base systems. IEM expansion modules that support POE are only supported on Base systems that support POE.

Expansion Module	Description
IEM-3300-8T	8 copper Gigabit Ethernet ports. Non PoE.
IEM-3300-8P	8 copper Gigabit Ethernet ports. With PoE
IEM-3300-8S	8 SFP Gigabit Ethernet ports. Non PoE.
IEM-3300-16T	16 copper Gigabit Ethernet ports. Non PoE.
IEM-3300-16P	16 copper Gigabit Ethernet ports. With PoE.
IEM-3300-6T2S	6 copper Gigabit Ethernet ports and 2 SFP Gigabit ports. Non PoE.
IEM-3300-14T2S	14 copper Gigabit Ethernet ports, and 2 SFP Gigabit ports. Non PoE.
IEM-3400-8T	8 copper Gigabit Ethernet ports with Advanced features. Non PoE.
IEM-3400-8S	8 SFP Gigabit Ethernet ports with Advanced features. Non PoE.
IEM-3400-8P	8 copper Gigabit Ethernet ports with Advanced features with PoE.

Optics Modules

Cisco Catalyst Series Switches support a wide range of optics and the list of supported optics is updated on a regular basis. Use the [Transceiver Module Group \(TMG\) Compatibility Matrix](#) tool, or consult the tables at this URL for the latest transceiver module compatibility information: https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

The Cisco Catalyst IE3x00 Rugged, IE3400 Heavy Duty and ESS3300 Series Switches datasheets contain the current list of supported SFP and optics.

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 ²	512 MB ³	256	1280 x 800 or higher	Small

- ² We recommend 1 GHz
³ 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 IloT 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

Release	Image Type	File Name
Cisco IOS XE.16.12.6	Universal	ie3x00-universalk9.16.12.06.SPA.bin
		ess3x00-universalk9.16.12.06.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.06.SPA.bin
Cisco IOS XE.16.12.5	Universal	ie3x00-universalk9.16.12.05.SPA.bin
		ess3x00-universalk9.16.12.05.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.05.SPA.bin
Cisco IOS XE.16.12.4	Universal	ie3x00-universalk9.16.12.04.SPA.bin
		ess3x00-universalk9.16.12.04.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.04.SPA.bin
Cisco IOS XE.16.12.3	Universal	ie3x00-universalk9.16.12.03.SPA.bin
		ess3x00-universalk9.16.12.03.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.03.SPA.bin
Cisco IOS XE.16.12.2	Universal	ie3x00-universalk9.16.12.02.SPA.bin
		ess3x00-universalk9.16.12.02.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.02.SPA.bin
Cisco IOS XE.16.12.1	Universal	ie3x00-universalk9.16.12.01.SPA.bin
		ess3x00-universalk9.16.12.01.SPA.bin
	NPE	ie3x00-universalk9_npe.16.12.01.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	<p>Boot loader may be upgraded to version "4.1.3" for IE3x00 and ESS-3300.</p> <pre> Checking Bootloader upgrade... ... Bootloader upgrade successful </pre>

Bundle Mode Upgrade

To upgrade the Cisco IOS XE software when the switch is running in bundle mode, follow these steps:

Procedure

-
- Step 1** Download the bundle file to local storage media.
 - Step 2** Configure the **boot system** global configuration command to point to the bundle file.
 - Step 3** Reload the switch.
-

Example

Upgrading Cisco IOS XE Software Bundle Mode

This example shows the steps to upgrade the Cisco IOS XE software on a switch that is running in bundle mode. It shows using the **copy** command to copy the bundle file to flash:, configuring the boot system variable to point to the bundle file, saving a copy of the running configuration, and finally, reloading the switch.

```

Switch# copy scp: sdfsflash:
Address or name of remote host [10.1.1.54]?
Source username [xxxxxxx]?
Source filename? ie3x00-universalk9.16.12.05.SPA.bin
Destination filename [ie3x00-universalk9.16.12.05.SPA.bin]?
This is a Cisco managed device to be used only for authorized purposes.
Your use is monitored for security, asset protection, and policy compliance.

Password:
Sending file modes: C0644 269211776 ie3x00-universalk9.16.12.05.SPA.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
269211776 bytes copied in 408.784 secs (658567 bytes/sec)
SWITCH#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#no boot system
Switch (config)#no boot manual
Switch (config)#boot system sdfsflash:ie3x00-universalk9.16.12.05.SPA.bin
Switch (config)#end
Switch #reload

System configuration has been modified. Save? [yes/no]:
*Feb 2 16:12:04.780: %SYS-5-CONFIG_I: Configured from console by console
yes
Building configuration...
[OK]
Proceed with reload? [confirm]

```

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— install add file filename [activate commit]	
add file tftp: <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.
activate [auto-abort-timer]	Activates the file, and reloads the device. The auto-abort-timer keyword automatically rolls back image activation.
commit	Makes changes persistent over reloads.
remove	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, and ESS3300 Series Switches.

License Levels

The software features available on Cisco Catalyst ie3x00 Rugged and ESS3300 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 pre-requisite. The features available with add-on license levels provide Cisco innovations on the switch, as well as 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://www.cisco.com/go/cfn>. An account on cisco.com is not required.

Feature Licenses

Feature Licenses are bound to a specific feature or set of features. Feature licenses can be enabled regardless of Base License (Network Advantage or Network Essential). Feature licenses are smart licenses as well and require a smart account to be activated.

MRP requires a feature license. there are 2 MRP licenses available for IE3x00.

- LIC-MRP-MGR-XE= MRP Ring Manager license.
- LIC-MRP-CLIENT-XE= MRP Ring Client License.

```
platform license feature [mrp-client | mrp-manager]
```

Use "platform license feature [mrp-client | mrp-manager]" to add the license, then follow the SL or SLR process to activate the feature license.

License Types

The following license types are available:

- Permanent—for a license level, and without an expiration date.
- Evaluation—a license that is not registered.

License Levels - Usage Guidelines

- Base licenses (Network-Advantage) are ordered and fulfilled only with a permanent license type.
- Add-on licenses (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.



Note 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.

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, registering, de-registering, moving, and transferring licenses. Users can be added and given access and permissions to the smart account and specific virtual accounts.



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

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

- 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.
- Accept the Smart Software Licensing Agreement.
 - 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.
-

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.

Important Note

Multicast traffic not registered with the switch will be distributed to every port.

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.

Cisco Bug Search Tool

The Cisco [Bug Search Tool](#) (BST) allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The BST is designed to improve the effectiveness in network risk management and device troubleshooting. The tool has a provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To view the details of a caveat, click on the identifier.

Open Caveats in Cisco IOS XE 17.1.1

Identifier	Description
CSCvr75395	Traceback seen with Process= "MRP Topology change" on downloading configs from PLC
CSCvr75772	Ring state flaps twice on local failure at MRM

Identifier	Description
CSCvr77751	MRP Ports are not displayed properly in TIA Diagnostics.
CSCvr99457	MRP convergence not working after manager swap via Profinet
CSCvs06943	Although the format command provides options of file systems such as FAT16,FAT32,ext2,ext3, it internally always formats it to "vfat" file system. Hence, it would not be possible to store files bigger than 4gb on the USB flash.For any reason, if we have to store files bigger than 4gb on the USB flash inserted on the switch, the work around is to format it to ext2/ext3 file system types externally and use it on the switch.Then switch correctly identifies the USB flash file system as ext2/ext3 and will be able to store files bigger than 4gb.
CSCvs08326	Link not coming online when connected to downlink SFP ports in expansion module
CSCvs15672	Interface shows up with SFPs connected on both ports with GLC-FE-100FX-RGD in one of ports
CSCvt71855	IE3x00 does not see the mrouter interfaces
CSCvr49453	Amber LED doesn't emit through light pipe for ports g2/5-6 (IEM-3300-6T2S)
CSCvs25912	show controller eth counters stop with speed/duplex auto/auto with 10HD connection (IE3400H)

Resolved Caveats in Cisco IOS XE 17.1.1

Identifier	Description
CSCvq83438	L3 Multicast traffic on SVI doesn't obey IGMP/MLD snooping functionality
CSCvr07621	FNF output interface is not getting displayed properly for Multicast traffic
CSCvq28971	Cannot configure port/PRP channel via CLI or WebUI when access list is applied to I/f.
CSCvq51010 (IE 3x00 only)	MRP: Traffic is getting flood when configure macsec on MRP BLOCKED

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>

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