# Release Notes for Cisco IE3500 Series Switches, Release 26.2.x

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# Cisco IE3500 Series Switches, Release 26.2.x

This document provides Cisco IOS XE release information for the Cisco Industrial Ethernet (IE) switches.

## Cisco IE3500/IE3505 Series Switches

Cisco IE3500 and IE3505 Series Switches are rugged switching platforms that provide high bandwidth and a high PoE power budget with Cisco IOS XE Software for industrial environments. These switches are designed to operate in harsh conditions, including temperatures from -40°C to +75°C (-40°F to 167°F), and can withstand severe shock and vibration.

These switches are designed for hardened deployments such as factory automation, smart cities, energy and process control, Intelligent Transportation Systems (ITS), energy production sites, and mining. They also provide improved scale, built-in security features, and simplified management. For more information, see the data sheet.

## Cisco IE3500H/IE3505H Series Switches

Cisco IE3500H and IE3505H Series Switches are the next-generation managed IP67 switches powered by Cisco IOS XE. They are designed for deployment in harsh environments and are IP67-rated for water and dust resistance. These switches also operate in temperatures from -40°C to +75°C (-40°F to 167°F) and are built to withstand severe shock and vibration.

These switches are available with up to 24 ports. Fast Ethernet is supported through Fast Ethernet PIDs, and 1G PIDs can also operate at 100 Mbps. For a list of supported SFPs, see the data sheet. These switches can be wall-mounted and deployed without a housing cabinet. They offer a power budget of 240 W and support Power over Ethernet (PoE), PoE+, and Universal Power over Ethernet (UPoE) at 60 W.

These switches provide advanced security, segmentation, and visibility for demanding industrial IoT edge deployments such as mining, rail, and manufacturing. For more information, see the data sheet.

# New software features

This section provides a brief description of the new software features introduced in Cisco IOS XE Release 26.2.x.

## IOS XE 26.2.1

**Table 1.** New software features in release 26.2.1

| Product Impact | Feature | Description |
|---|---|---|
| Security | Resilient Infrastructure | As part of Cisco's Resilient Infrastructure program and Cisco's commitment to secure infrastructure, this release includes additional changes aimed towards continuing to make Cisco IOS XE more secure by default. Note that some of these changes may require operational changes if you are not following secure best practices. This release includes the following changes:<br>• The RADIUS client appends the Message-Authenticator attribute (Attribute 80 HMAC-MD5) to all outgoing Access-Request packets to mitigate cryptographic forgery and Blast-RADIUS vulnerabilities (CVE-2024-3596). |

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| Product Impact | Feature | Description |
| --- | --- | --- |
| | | • The RADIUS client drops incoming Access-Accept, Access-Reject, and Access-Challenge packets if the Message-Authenticator is absent or invalid. Ensure AAA servers (example, Cisco ISE) are configured to return Attribute 80.<br>• Outbound SSH connections enforce Trust-On-First-Use (TOFU). The device prompts to verify and store remote server host keys in the known-hosts database on first connection and validates against them on subsequent sessions.<br>• Proxy ARP is disabled by default across all routed interfaces, SVIs, and subinterfaces to reduce Layer 2 broadcast domains and prevent ARP spoofing. Configure the **ip proxy-arp** command explicitly if required.<br>• The embedded web server daemon is disabled by default on factory configurations to restrict unauthenticated management access. Web UI and RESTCONF require explicit enablement of the **ip http secure-server** command.<br>• The IOS XE device rejects unauthenticated NTP Mode 6 and Mode 7 control queries (monlist) to prevent NTP reflection and amplification DDoS attacks. Standard time synchronization (Modes 3 and 4) is unaffected.<br>• System logging timestamps automatically include the four-digit calendar year (service timestamps log datetime msec year) to standardize multi-year audit logs and SIEM compliance.<br>• Integrates Linux auditd inside Cisco IOx Guest Shell. All commands, system calls, and privilege escalation events (sudo) executed inside the container are forwarded to the host syslog facility.<br>• Warning messages are emitted on the console and logged to syslog whenever legacy insecure protocols (telnet, ftp, tftp, http) are enabled in the configuration.<br>• Real-time tracking of active insecure services is published to the operational database (operDB) and YANG data models, allowing management controllers (such as Cisco Catalyst Center) to monitor security compliance. |
| Upgrade | CIP password encryption | This feature provides enhanced security by converting legacy CIP passwords to the irreversible Type 8 (SHA-256) algorithm to resist |

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| Product Impact | Feature | Description |
|---|---|---|
| | | cryptographic attacks. It ensures credential integrity and uninterrupted authentication across industrial deployments. |
| Software Reliability | EVPN Multihoming All-Active Mode | EVPN multihoming all-active mode provides non-blocking Layer 2 connectivity by enabling traffic load balancing across redundant links. It improves network resiliency and utilization while maintaining continuous connectivity during link or device failures. |
| Security | HTTPS Servers Disabled by Default Except for Express Setup | Starting with Cisco IOS XE 26.2.1, HTTPS servers remain disabled by default, excluding express setup deployments which retain existing settings. |
| Enhanced Reliability | FlexLink+ | FlexLink+ provides Layer 2 link redundancy without using STP. It supports active-standby failover on physical interfaces and EtherChannel bundles. VLAN load balancing lets both links forward traffic for different VLANs. After a failed link recovers, the preferred VLAN forwarding can be restored manually or automatically after a configured delay. |
| Security | Post Quantum Cryptography for MACsec with EAP-TLS | Cisco Industrial Ethernet switches can use ML-KEM-based key exchange with EAP-TLS 1.3 to provide quantum-resistant key establishment for MACsec connections. EAP-TLS derives keying material that MKA uses to establish secure MACsec communication between switches. |
| Security | Post Quantum Cryptography for SSHv2 Sessions | Cisco Industrial Ethernet switches can combine ML-KEM with traditional key-exchange algorithms to secure SSHv2 sessions. This hybrid approach provides quantum-resistant key establishment for secure remote management while retaining protection against classical attacks. |
| Security | PROFINET Netload-3 Robustness | This feature increases resilience to abnormal network traffic. It detects unexpected PROFINET Real-Time traffic, invokes Layer 2 source blocking, and rate-limits incoming Layer 3 traffic directed to the PROFINET VLAN IP address. |
| Enhanced Reliability | PTP over DLR | This feature maintains millisecond-level timing across Device Level Ring networks during link failures by preventing PTP re-convergence delays. Supporting multiple-VLAN transparent clock across up to three rings with 50 nodes each, you achieve continuous synchronization for time-sensitive automation in EtherNet/IP and CIP-based industrial deployments. |
| | PTP over REP | This feature combines Precision Time Protocol with Resilient Ethernet Protocol to maintain millisecond-level time synchronization during network failures with <200 ms failover, eliminating PTP re-convergence delays that disrupt industrial applications. |
| | PTP over HSR | This release introduces Precision Time Protocol (PTP) over High-availability Seamless Redundancy (HSR), enabling millisecond-level time synchronization with zero network downtime. This feature ensures continuous PTP operation during network failures, eliminating the 4-10 second re-convergence delays that disrupt time-sensitive industrial applications. PTP over HSR supports Power Profile with Boundary Clock and P2P Transparent Clock modes for up to 50 nodes per HSR ring. |
| Enhanced Reliability | 12-Ring Support on Fast MRP | This feature expands Fast MRP support on IE3500 from 3 to 12 rings with 30 ms convergence and up to 50 nodes per ring. It enables you to build larger, more scalable industrial networks with near-zero downtime during failures, reducing infrastructure costs while maintaining continuous operation of critical manufacturing and automation systems. |

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| Product Impact | Feature | Description |
|---|---|---|
| Enhanced Reliability | 26 Segment Support on REP Fast | This feature now supports 26 open segments and 13 closed segments. For details on REP Fast information and its configuration, refer to REP Fast. |

## New hardware features

This section provides a brief description of the new hardware features introduced in Cisco IOS XE Release 26.2.x.

### IOS XE 26.2.1

There are no new hardware features in this release.

## Change in behavior

### WebHelp documentation discontinued

Starting with Cisco IOS XE Release 26.2.1, WebHelp documentation is not available for Industrial Ethernet switches. We recommend using the product documentation available on Cisco.com.

### MRP uses the VLAN 1 MAC address

Starting with IOS XE Release 26.2.1, MRP uses the MAC address of the VLAN 1 interface to identify the best manager host.

### Meraki mode changes to cloud management mode

Starting with Cisco IOS XE Release 26.2.1, Meraki mode is renamed to cloud management mode (also known as cloud-mgmt). Use cloud management mode to manage the device through the Meraki cloud.

### Migration from Meraki mode (also known as cloud-mgmt mode) to Catalyst mode

Starting with Cisco IOS XE Release 26.2.1, the Cisco Catalyst IE3500 switches support migrating a device from Meraki mode to Catalyst mode. This option changes the device mode to Catalyst mode.

## Resolved issues

This section lists resolved issues in Cisco IOS XE Release 26.2.x.

**Note**: This software release may contain bug fixes first introduced in other releases. To see additional information, click the bug ID in Cisco Bug Search Tool.

### IOS XE 26.2.1

**Table 2.** Resolved issues in release 26.2.1

| Bug ID | Description |
|---|---|
| CSCwt45045 | Triggering a contact alarm could generate both assertion and clearing syslog messages even when the contact was closed and the alarm remained deasserted. |
| CSCwt94316 | Communication between translated addresses could fail when Layer 2 Network Address Translation (NAT) was configured. |
| CSCwt95175 | A Cisco Catalyst Industrial Ethernet switch may appear as Device Unresponsive after it is added to the Cisco Catalyst Center inventory. |

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| Bug ID | Description |
|---|---|
| CSCwt94165 | A peer device may report input errors and fail to process packets received from a Cisco Catalyst IE3500 switch. |
| CSCwt56767 | The serial number displayed in the software may not match the serial number printed on the physical device. |

## Open issues

This section lists open issues in Cisco IOS XE Release 26.2.x.

**Note**: This Cisco IOS XE software release may contain open bugs first identified in other releases. To see additional information, click the bug ID in Cisco Bug Search Tool.

### IOS XE 26.2.1

**Table 3.** Open issues in release 26.2.1

| Bug ID | Description |
|---|---|
| CSCwv57930 | IE3505 DLR: Inconsistent convergence times observed following a power-cycle event. |
| CSCwv83174 | IE3505 DLR access ring: Multicast traffic experiences convergence delays of up to 300 ms following a device power-off event. |
| CSCwv87192 | IE3505 DLR trunk ring: Multicast traffic experiences convergence delays of 700 to 1000 ms following a device power-off event. |

## Known issues

This section lists known issues in Cisco IOS XE Release 26.2.x.

### IOS XE 26.2.1

There are no known issues in this release.

## Supported hardware

This section lists supported hardware information.

**Table 4.** Supported IE3500 SKUs

| PID | Uplink Ports | | | Downlink Ports | | |
|---|---|---|---|---|---|---|
| | Type | Ports | Interface name | Type | Ports | Interface name |
| IE-3500-8T3S | SFP/SFP+ | 3 | Gigabit Ethernet 1/1-3 | Copper | 8 | Gigabit Ethernet 1/4-11 |
| IE-3500-8P3S | | | | | | |
| IE-3505-8T3S | | | | | | |

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| PID | Uplink Ports | | | Downlink Ports | | |
|---|---|---|---|---|---|---|
| | Type | Ports | Interface name | Type | Ports | Interface name |
| IE-3505-8P3S | | | | | | |
| IE-3500-8U3X | | | TenGigabit Ethernet 1/1-3 | | | |
| IE-3500-8T3X | | | | | | |

**Table 5.** Supported IE3500H SKUs

| System | PIDs | SW | Uplinks | Downlinks | Data Path FPGA | PoE | Alternate PIDs (TAA and COO) |
|---|---|---|---|---|---|---|---|
| All Gig Copper | IE-3500H-8T | Network Essentials or Network Advantage | 4x1G Copper | 4x1G Copper | No | No | none |
| | IE-3500H-16T | | | 12x1G Copper | | | none |
| | IE-3500H-24T | | | 20x1G Copper | | | none |
| Mixed Gig/GE Copper | IE-3500H-12FT4T | | | 12xFE Copper | No | No | none |
| | IE-3500H-20FT4T | | | 20xFE Copper | | | |
| Advanced Copper | IE-3505H-16T | | | 12x1G Copper | Yes | No | none |
| PoE | IE-3500H-14P2T | | 2x1G Copper | 14x1G Copper | No | Yes | none |
| | IE-3500H-12P2MU2X | | 2x10G SFP | 12x1G PoE and 2 x mGig/4PPoE | | | |

## Supported expansion modules

**Table 6.** Supported expansion modules

| PID | Downlink Ports | | |
|---|---|---|---|
| | Type | Ports | Interface name |
| IEM-3500-16P | Copper RJ-45 | 16 PoE | Gigabit Ethernet 2/1-16 |
| IEM-3500-16T | | 16 | Gigabit Ethernet 2/1-16 |
| IEM-3500-8P | | 8 PoE | Gigabit Ethernet 2/1-8 |

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| PID | Downlink Ports | | |
|---|---|---|---|
| | Type | Ports | Interface name |
| IEM-3500-8T | | 8 | Gigabit Ethernet 2/1-8 |
| IEM-3500-4MU | | 4 PoE | Gigabit Ethernet 2/1-4 |
| IEM-3500-8S | SFP | 8 | Gigabit Ethernet 2/1-8 |
| IEM-3500-14T2S | Copper RJ-45/ SFP | Copper RJ-45: 14<br>SFP: 2 | Gigabit Ethernet 2/1-16 |
| IEM-3500-6T2S | | Copper RJ-45: 6<br>SFP: 2 | Gigabit Ethernet 2/1-8 |

## Web UI system requirements

The Web UI is a web browser-based switch management tool that runs on the switch.

### Minimum hardware requirements

**Table 7.** Minimum hardware requirements

| Processor Speed | DRAM | Number of colors | Resolution |
|---|---|---|---|
| 233 MHz minimum<br>1 GHz recommended | 512 MB<br>1 GB recommended | 256 | 1280 x 800 or higher |

### Operating systems

- Windows 10 or later
- macOS 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)

# Supported software packages

## 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 platform configuration.
- Use the **show version** privileged EXEC command to display the software version running on the switch. The model name displayed at the end of the output reflects the factory configuration and does not change after software license upgrades.

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- Use the **dir filesystem:** privileged EXEC command to view the names and versions of software images stored in flash memory.

## Software images for Cisco IOS XE 26.2.x

This table provides the file names for the Cisco IOS XE 26.2.x software images for Cisco IE3500 Series Switches.

**Table 8.** Software package for release 26.2.x

| Release | Image Type | Platform | File Name |
|---|---|---|---|
| Cisco IOS XE 26.2.1 | Universal | IE3500, IE3505, IE3500H and IE3505H | ie35xx-universalk9.26.02.01.SPA.bin |

## Automatic boot loader upgrade

When you upgrade from the existing Cisco IOS XE release on your switch to a later or newer Cisco IOS XE release for the first time, the boot loader may be automatically upgraded based on the hardware version of the switch. If a boot loader upgrade occurs, it takes effect on the next reload.
For later Cisco IOS XE releases, if a new boot loader is included, it may also be automatically upgraded when the new image is booted for the first time.

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

### Software installation commands

To install the software successfully, Cisco recommends having free space in flash equal to at least twice the image size. If insufficient space is available, remove inactive packages with the **install remove inactive** command or manually delete unnecessary files such as old core files or any other files that occupy a large amount of space in flash.

To install and activate the specified file, and to make the changes persistent across reloads, use the **install add file** *filename* [**activate commit**] command.

**Table 9.** Summary of software installation commands for install mode

| Command | Description |
|---|---|
| add file tftp: *filename* | 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. |

## Related resources

**Table 10.** Additional references for Cisco IE3500 Rugged and IE3500 Heavy Duty Series Switches

| Document | Description |
|---|---|
| Cisco IOS XE | Provides information about Cisco IOS XE. |

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| Document | Description |
|---|---|
| Cisco Warranty Finder | Provides warranty information for a specific product or product family. |
| Cisco IE3500 Rugged Series Switches | Provides information about Cisco IE3500 Rugged Series Switches. |
| Cisco IE3500 Heavy Duty Series Switches | Provides information about Cisco IE3500 Heavy Duty Series Switches. |
| Cisco Validated Designs | Provides information about Cisco Validated Designs. |
| Cisco Profile Manager | Provides timely and relevant information from Cisco. |
| Cisco Services | Provides the business outcomes and technical support services needed to maximize the value of your Cisco technologies. |
| Cisco Support | You can submit a service request here. |
| Cisco DevNet | Enables you to discover and browse secure, validated, enterprise-class applications, products, solutions, and services. |
| Cisco Press | Provides general networking, training, and certification titles. |
| Cisco Community | You can ask and answer questions, share suggestions, and collaborate with your peers. |
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