



Release Notes for Catalyst 3560-CX and 2960-CX Series Switches, Cisco IOS Release 15.2(5)E and Later

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This release note describes the features and caveats for the Cisco IOS Release 15.2(5)E software on the Catalyst 3560-CX and the Catalyst 2960-CX family of switches.

Verify that these release notes are correct for your switch:

- If you are installing a new switch, see the Cisco IOS release label on the rear panel of the switch.
- If your switch is on, use the **show version** privileged EXEC command. See the “[Upgrading the Switch Software](#)” section on page 4.
- If you are upgrading to a new release, see the software upgrade filename for the software version. See the “[Software Image](#)” section on page 5.

You can download the switch software from this site (registered Cisco.com users with a login password):

<https://software.cisco.com/download/navigator.html>

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Introduction

The Catalyst 3560-CX and Catalyst 2960-CX switches are compact Gigabit Ethernet (GE) switches that have features comparable to high-end Cisco switches but in smaller form factors. Some of the key features are:

- Up to 10 Gigabit uplinks for high-bandwidth applications and business growth
- Cisco Catalyst Instant Access mode (on 3560cx-12PD-S and 3560CX-8XPD-S switches) for management simplicity on switches with 10G uplink. See Instant Access FAQ [here](#).
- Support for Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM) for software-defined networking (SDN) and programmability
- Integration with Cisco TrustSec® for identity, segmentation, and security
- Up to 240W of available power for PoE+ per switch — twice the available power of previous generation switches — for supporting more PoE devices
- Switch Hibernation Mode and Energy Efficient Ethernet (EEE) for lower energy costs
- NetFlow Lite for end-to-end visibility to the flows in the network

Supported Hardware

Switch Models

Table 1 *Catalyst 3560-CX Switch Models*

Switch Model	Cisco IOS Image	Description
WS-C3560CX-8TC-S	IP Base IP Services	Non-PoE, 8 downlink ports, 8 access ports of 1G access ports, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G ¹
WS-C3560CX-8PC-S	IP Base IP Services	240W PoE+, 8 downlink ports, 8 access ports of 1G access ports, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G
WS-C3560CX-12TC-S	IP Base IP Services	Non-PoE, 12 downlink ports, 12 access ports of 1G, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G
WS-C3560CX-12PC-S	IP Base IP Services	240W PoE+, 12 downlink ports, 12 access ports of 1G, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G
WS-C3560CX-12PD-S	IP Base IP Services	240W PoE+, 12 downlink ports, 12 access ports of 1G, 2 SFP+ uplink ports of 10G, 2 uplink Cu ports of 1G

Table 1 *Catalyst 3560-CX Switch Models (continued)*

Switch Model	Cisco IOS Image	Description
WS-C3560CX-8PT-S	IP Base IP Services	146W PoE+, 8 downlink ports, 8 access ports of 1G, 2 uplink UPoE+ ports of 1G
WS-C3560CX-8XPD-S	IP Base IP Services	240W PoE+, 8 downlink ports, 6 access ports of 1G, 2 access ports of 100M/1G/2.5G/5G/10G, 2 SFP+ uplink ports of 10G

1. For all switch models, the SFP ports and Cu ports are usable concurrently.

Table 2 *Catalyst 2960-CX Switch Models*

Switch Model	Cisco IOS Image	Description
WS-C2960CX-8TC-L	LAN Base	Non-PoE, 8 downlink ports, 8 access ports of 1G, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G ¹
WS-C2960CX-8PC-L	LAN Base	124W PoE+, 8 downlink ports, 8 access ports of 1G, 2 SFP uplink ports of 1G, 2 uplink Cu ports of 1G

1. For all switch models, the SFP ports and Cu ports are usable concurrently.

Optics Modules

The Catalyst 3560-CX and 2960-CX switches support a wide range of optics. Because the list of supported optics is updated on a regular basis, consult the tables at this URL for the latest SFP+ and SFP module compatibility information:

http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

Device Manager System Requirements

Hardware Requirements

Table 3 *Minimum Hardware Requirements*

Processor Speed	DRAM	Number of Colors	Resolution	Font Size
233 MHz minimum ¹	512 MB ²	256	1024 x 768	Small

1. We recommend 1 GHz.
2. We recommend 1 GB DRAM.

Software Requirements

- Windows 2000, XP, Vista, Windows 7, and Windows Server 2003.
- Internet Explorer 6.0, 7.0, Firefox up to version 26.0 with JavaScript enabled.

Cisco Network Assistant Compatibility

For Cisco IOS Release 15.2(4)E, Cisco Network Assistant support is available on release Version 5.8.9 and later.

You can download Cisco Network Assistant from this URL:
<http://www.cisco.com/cgi-bin/tablebuild.pl/NetworkAssistant>

For more information about Cisco Network Assistant, see the *Release Notes for Cisco Network Assistant* on Cisco.com.

Upgrading the Switch Software

Finding the Software Version and Feature Set

The Cisco IOS image is stored as a bin file in a directory that is named with the Cisco IOS release number. The files necessary for web management are contained in a subdirectory. The image is stored on the system board flash device (flash:).

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 directory names of other software images that you might have stored in flash memory.

Software Image

If you have a service support contract and order a software license or if you order a switch, you receive the universal software image and a specific software license.

Table 4 *Software Image for Cisco Catalyst 3560-CX*

Image	Filename	Description
Universal image	c3560cx-universalk9-mz.152-5.E.bin	IP Base and IP Services images.
Universal image	c3560cx-universalk9-tar.152-5.E.tar	IP Base and IP Services cryptographic images with Device Manager.

Table 5 *Software Image for Cisco Catalyst 3560-CX*

Image	Filename	Description
Universal image	c2960cx-universalk9-mz.152-5.E.bin	LAN Base image.
Universal image	c2960cx-universalk9-tar.152-5.E.tar	LAN Base cryptographic image with Device Manager.

Features of the Switch

Cisco Catalyst 3560-CX switches features:

- PoE+ and non-PoE, 8 and 12 downlink ports, 1G SFP and 10G SFP+ uplink port models
- IPv4 and IPv6 routing, Multicast routing, advanced quality of service (QoS), and security features in hardware
- Cisco Catalyst Instant Access mode (on WS-C3560CX-12PD-S and WS-C3560CX-8XPD-S switches) for management simplicity on switches with 10G uplink
- Up to 240W of available power for PoE+ per switch
- Switch Hibernation Mode and Energy Efficient Ethernet (EEE) for lower energy costs
- Horizontal Stacking (on WS-C3560CX-12PD-S and WS-C3560CX-8XPD-S switches)
- Enhanced Limited Lifetime Warranty (E-LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support
- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network
- USB Type-A and Type-B ports for storage and console respectively
- Application visibility and capacity planning with integrated NetFlow Lite
- Hardware support for Secure Group Access Control lists (SGACL) and IEEE 802.1AE MACsec.
- Software support for IEEE 802.1AE MACsec from Cisco IOS Release 15.2(4)E.

Cisco Catalyst 2960-CX switches features:

- PoE+ and non-PoE models, 8 downlink ports, 1G SFP uplink port models
- Reduced power consumption and advanced energy management features
- USB Type-A and Type-B ports for storage and console respectively

- Application visibility and capacity planning with integrated NetFlow Lite
- Switch Hibernation Mode and Energy Efficient Ethernet (EEE) for lower energy costs
- Enhanced Limited Lifetime Warranty (E-LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support
- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network

New Software Features

- [Features Introduced in Cisco IOS Release 15.2\(5\)E2, page 7](#)
- [Features Introduced in Cisco IOS Release 15.2\(5\)E1, page 7](#)
- [Features Introduced in Cisco IOS Release 15.2\(5\)E, page 7](#)

Features Introduced in Cisco IOS Release 15.2(5)E2

- Bluetooth Support—(All license levels) Support for switch configuration via Bluetooth.
- Flexible NetFlow (FNF) for AVC with DNS-AS—Introduces the ability to export application information using FNF. Enables you to gain visibility into the applications running on your network, and the use of FNF option templates to export application ID, description, and attribute information. The feature is supported only on the Cisco 3560-CX Series Switches, and you must enable the [Cisco ONE for Access](#) license to use the feature.

Features Introduced in Cisco IOS Release 15.2(5)E1

- Embedded Event Manager (LANbase)—Embedded Event Manager (EEM) offers the ability to monitor events and take informational, corrective, or any desired EEM action when the monitored events occur or when a threshold is reached. An EEM policy is an entity that defines an event and the actions to be taken when that event occurs. EEM is supported on Catalyst 2960-CX Series Switches.
- Application Visibility and Control (AVC) with Domain Name System-Authoritative Source (DNS-AS) — Provides a centralized means of controlling the identification and classification of trusted network traffic. It accomplishes this by using metadata stored in an authoritative DNS Server to identify applications and domains and provide traffic classification and business relevance information. Multi Layer Switch (MLS) Quality of Service (QoS) configuration settings on the switch (DNS-AS Client) determine the policies that are enforced. The feature is disabled by default. The feature is available only on the Cisco Catalyst 3560-CX Series Switches, and you must enable the [Cisco ONE for Access](#) license to use the feature.

Features Introduced in Cisco IOS Release 15.2(5)E

GLC-T SFP Module Support—The switches can now be used with GLC-T SFP module. For more details on the Operating temperature limitations, please refer the *Catalyst 3560-CX and 2960-CX Switch Hardware Installation Guide* on www.cisco.com.

Service and Support

Information About Caveats

If you need information about a specific caveat that does not appear in these release notes, you can use the Cisco Bug Toolkit to find caveats of any severity. Click this URL to browse to the Bug Toolkit:

<http://tools.cisco.com/Support/BugToolKit/>

If you request a defect that cannot be displayed, the defect number might not exist, the defect might not yet have a customer-visible description, or the defect might be marked Cisco Confidential.

Troubleshooting

For the most up-to-date, detailed troubleshooting information, see the Cisco TAC website at this URL:

<http://www.cisco.com/en/US/support/index.html>

Click **Product Support > Switches**. Choose your product and click **Troubleshooting** to find information on the problem you are experiencing.

Limitations and Restrictions

- Starting with Cisco IOS Release 15.2(5)E, Secure Shell (SSH) Version 1 is deprecated. Use SSH Version 2 instead.
- When a logging discriminator is configured and applied to a device, memory leak is seen under heavy syslog or debug output. The rate of the leak is dependent on the quantity of logs produced. In extreme cases, the device may crash. As a workaround, disable the logging discriminator on the device.
- Standalone web-based authentication fails if the switch port is configured without any port ACL. (CSCuu91975)

Caveats

- [Cisco Bug Search Tool, page 9](#)
- [Open Caveats, page 9](#)
- [Caveats Resolved in Cisco IOS Release 15.2\(5\)E2, page 9](#)
- [Caveats Resolved in Cisco IOS Release 15.2\(5\)E1, page 10](#)

Cisco Bug Search Tool

The Bug Search Tool (BST), which is the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The 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 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 listed in this document:

1. Access the BST (use your Cisco user ID and password) at <https://tools.cisco.com/bugsearch/>.
2. Enter the bug ID in the **Search For:** field.

Open Caveats

No open bugs.

Caveats Resolved in Cisco IOS Release 15.2(5)E2

No resolved bugs.

Caveats Resolved in Cisco IOS Release 15.2(5)E1

Table 6 *Resolved Caveats in Cisco IOS Release 15.2(5)E1*

Bug ID	Headline
CSCux15191	Catalyst 3750 crash due to corrupted redzone with dot1.x configured.
CSCvb05793	Traffic drop observed up to 2 minutes on the active Supervisor pull with ECMP.
CSCva35194	PTF card crashes while provisioning, when all VTY sessions are exhausted.
CSCux05246	snmpwalk and snmpget have incorrect behavior on IP SLA.
CSCuu13476	Cisco IOS and IOS XE Software OpenSSH TCP Denial-of-Service vulnerability.
CSCva37519	Stale Flow Manager entry during IPv6 TACACS transaction leads to crash.
CSCuz72344	IP SSH Version 2 missing after the reload.
CSCvb16274	PPTP Start-Control-Connection-Reply packet leaks router memory contents.

Related Documentation

- Catalyst 3560-CX and Catalyst 2960-CX switch documentation at these URLs:
<http://www.cisco.com/c/en/us/support/switches/catalyst-2960-cx-series-switches/tsd-products-support-series-home.html>
<http://www.cisco.com/c/en/us/support/switches/catalyst-3560-cx-series-switches/tsd-products-support-series-home.html>
- Cisco SFP and SFP+ modules documentation, including compatibility matrices at this URL:
http://www.cisco.com/en/US/products/hw/modules/ps5455/tsd_products_support_series_home.html
- Cisco Validated Designs documents at this URL:
<http://www.cisco.com/go/designzone>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*.

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). The RSS feeds are a free service.

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