Release Notes for the Catalyst 2960-P Switch, Cisco IOS Release 15.0(2)EZ

April, 2013

Cisco IOS Release 15.0(2)EZ runs on Catalyst 2960-P switch.

The release notes include important information about Cisco IOS Release 15.0(2)EZ and any limitations, restrictions that apply to the releases. 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 your switch.
- If your switch is on, use the **show version** privileged EXEC command. See the "Finding the Software Version and Feature Set" section on page 5.
- If you are upgrading to a new release, see the software upgrade filename for the software version. See the "Deciding Which Files to Use" section on page 6.

You can download the switch software from this site (registered Cisco.com users with a login password): http://www.cisco.com/cisco/web/download/index.html

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System Requirements

Supported Hardware

Table 1 Catalyst 2960, and 2960-P Switches Supported

Switch	Description	Supported by Minimum Cisco IOS Release
Catalyst 2960-48PST-S	48 10/100 PoE ports, 2 10/100/1000 ports, and 2 SFP module slots	Cisco IOS Release 12.2(50)SE2
Catalyst 2960-Plus 24PC-S	24 10/100BASE-TX PoE ports and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-24PC-S	24 10/100 PoE ports and 2 dual-purpose ports (2 10/100/1000BASE-T copper ports and 2 SFP module slots)	Cisco IOS Release 12.2(50)SE2
Catalyst 2960-Plus 24LC-S	24 10/100BASE-TX ports (8 of which are PoE) and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-24LC-S	24 10/100 ports (8 of which are PoE) and 2 dual-purpose ports (2 10/100/1000BASE-T copper ports and 2 SFP module slots)	Cisco IOS Release 12.2(50)SE2
Catalyst 2960-8TC-S	8 10/100 ports and 1 dual-purpose port[3] (1 10/100/1000BASE-T copper port and 1 small form-factor pluggable [SFP] module slot); (no fan or RPS port)	Cisco IOS Release 12.2(46)SE
Catalyst 2960-48TT-S	48 10/100 ports and 1 10/100/1000 ports	Cisco IOS Release 12.2(46)SE
Catalyst 2960-Plus 48PST-S	48 10/100B SE-TX PoE ports, 2 10/100/1000 ports, and 2 SFP module slots	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-48PST-L	48 10/100 PoE ports, 1 10/100/1000 ports and 2 SFP module slots	Cisco IOS Release 12.2(46)SE
Catalyst 2960-Plus 48TC-L	48 10/100BASE-TX Ethernet ports and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-24-S	24 10/100 BASE-TX Ethernet ports (no RPS port or SFP module slot)	Cisco IOS Release 12.2(37)EY
Catalyst 2960-Plus 24TC-S	24 10/100BASE-TX Ethernet ports and 2 dual-purpose ports (no RPS port)	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-24TC-S	24 10/100BASE-T Ethernet ports and 2 dual-purpose ports (two 10/100/1000BASE-T copper ports and two SFP module slots)	Cisco IOS Release 12.2(37)EY

Table 1 Catalyst 2960, and 2960-P Switches Supported (continued)

Switch	Description	Supported by Minimum Cisco IOS Release
Catalyst 2960-Plus 48TC-S	48 10/100BASE-TX Ethernet ports and 2 dual-purpose ports (no RPS port)	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-48TC-S	48 10/100BASE-T Ethernet ports and 2 dual-purpose ports (two 10/100/1000BASE-T copper ports and two SFP module slots)	Cisco IOS Release 12.2(37)EY
Catalyst 2960PD-8TT-L	8 10/100 ports and 1 10/100/1000 port that receives power	Cisco IOS Release 12.2(44)SE
Catalyst 2960-8TC-L	8 10/100 Ethernet ports and 1 dual-purpose port (one 10/100/1000BASE-T copper port, one SFP module slot,no fan or RPS port)	Cisco IOS Release 12.2(35)SE
Catalyst 2960G-8TC-L	7 10/100/1000 Ethernet ports and 1 dual-purpose port (one 10/100/1000BASE-T copper port and one SFP module slot)	Cisco IOS Release 12.2(35)SE
Catalyst 2960-24LT-L	24 10/100 ports, 8 of which are PoE, and 2 10/100/1000 ports	Cisco IOS Release 12.2(44)SE
Catalyst 2960-Plus 24PC-L	24 10/100BASE-TX PoE ports and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-48TC-L	48 10/100BASE-TX Ethernet ports and 2 dual-purpose ports	Cisco IOS Release 12.2(25)FX
Catalyst 2960G-48TC-L	44 10/100/1000BASE-T Ethernet ports and 4 dual-purpose ports	Cisco IOS Release 12.2(25)FX
Catalyst 2960-24TC-L	24 10/100BASE-TX Ethernet ports and 2 dual-purpose ports	Cisco IOS Release 12.2(25)FX
Catalyst 2960-24PC-L	24 10/100 Power over Ethernet (PoE) ports and 2 dual-purpose ports (2 10/100/1000BASE-T copper ports and 2 small form-factor pluggable [SFP] module slots)	Cisco IOS Release 12.2(44)SE
Catalyst 2960-Plus 24TC-L	24 10/100BASE-TX Ethernet ports and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-24TT-L	24 10/100BASE-T Ethernet ports and 2 10/100/1000BASE-T Ethernet ports	Cisco IOS Release 12.2(25)FX
Catalyst 2960-Plus 48PST-L	48 10/100BASE-TX PoE ports, 2 10/100/1000BASE-T copper ports, and 2 SFP module slots	Cisco IOS Release 15.0(2)EZ
Catalyst 2960-48TT-L	48 10/100BASE-T Ethernet ports 2 10/100/1000BASE-T Ethernet ports	Cisco IOS Release 12.2(25)FX
Catalyst 2960-Plus 24LC-L	24 10/100BASE-TX ports (8 of which are PoE) and 2 dual-purpose ports	Cisco IOS Release 15.0(2)EZ
Catalyst 2960G-24TC-L	24 10/100/1000BASE-T Ethernet ports, including 4 dual-purpose ports (four 10/100/1000BASE-T copper ports and four SFP module slots)	Cisco IOS Release 12.2(25)FX

Table 2 Other Supported Hardware

Switch	Description	Supported by Minimum Cisco IOS Release
Cisco CGS 2520 Switch	Cisco 2520 Connected Grid Switch (CGS 2520) is a rugged switch designed for the harsh, rugged environments often found in the energy and utility industries. http://www.cisco.com/en/US/partner/products/ps10978/products_installation_and_configuration_guides_list.html	Cisco IOS Release 12.2(53)EX
SFP modules (Catalyst 2960)	1000BASE-BX, -CWDM, -LX/LH, -SX, -ZX 100BASE-BX, FX, -LX For a complete list of supported SFPs and part numbers, see the compatibility information for SFP modules: http://www.cisco.com/en/US/partner/products/hw/modules/ps5455/products_device_support_tables_list.html	Cisco IOS Release 12.2(25)FX
Redundant power systems	Cisco RPS 675 Redundant Power System Cisco RPS 300 Redundant Power System (supported only on the Catalyst 2960 switch) Cisco Redundant Power System 2300	Supported on all software releases Supported on all software releases Cisco IOS Release 12.2(35)SE and later

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, and Windows Server 2003.
- Internet Explorer 6.0, 7.0, Firefox 1.5, 2.0 or later with JavaScript enabled.

The device manager verifies the browser version when starting a session and does not require a plug-in.

Cluster Compatibility

You cannot create and manage switch clusters through the device manager. To create and manage switch clusters, use the command-line interface (CLI) or the Network Assistant application.

When creating a switch cluster or adding a switch to a cluster, follow these guidelines:

- When you create a switch cluster, we recommend configuring the highest-end switch in your cluster as the command switch.
- If you are managing the cluster through Network Assistant, the switch with the latest software should be the command switch.
- The standby command switch must be the same type as the command switch. For example, if the command switch is a Catalyst 3750 switch, all standby command switches must be Catalyst 3750 switches.

For additional information about clustering, see *Getting Started with Cisco Network Assistant* and *Release Notes for Cisco Network Assistant* (not orderable but available on Cisco.com), the software configuration guide, the command reference, and the Cisco EtherSwitch service module feature guide.

CNA Compatibility

Cisco IOS 12.2(50)SE and later is only compatible with Cisco Network Assistant (CNA) 5.0 and later. You can download Cisco Network Assistant from this URL:
http://www.cisco.com/pcgi-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. A subdirectory contains the files needed for web management. 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. The second line of the display shows the version.

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.

Deciding Which Files to Use

The upgrade procedures in these release notes describe how to perform the upgrade by using a combined tar file. This file contains the Cisco IOS image file and the files needed for the embedded device manager. You must use the combined tar file to upgrade the switch through the device manager. To upgrade the switch through the command-line interface (CLI), use the tar file and the **archive download-sw** privileged EXEC command.

Table 4 Cisco IOS Software Image Files

Filename	Description
c2960-lanbasek9-tar.150-2.EZ.tar	Catalyst 2960 cryptographic image file and device manager files. This image has the Kerberos and SSH features.
c2960-lanlitek9-tar.150-2.EZ.tar	Catalyst 2960 LAN Lite cryptographic image file and device manager files.

Archiving Software Images

Before upgrading your switch software, make sure that you have archived copies of the current Cisco IOS release and the Cisco IOS release to which you are upgrading. You should keep these archived images until you have upgraded all devices in the network to the new Cisco IOS image and until you have verified that the new Cisco IOS image works properly in your network.

Cisco routinely removes old Cisco IOS versions from Cisco.com. See *Product Bulletin 2863* for more information:
http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps6969/ps1835/prod_bulletin0900aecd80281c0e.html

You can copy the bin software image file on the flash memory to the appropriate TFTP directory on a host by using the **copy flash: tftp:** privileged EXEC command.

Note Although you can copy any file on the flash memory to the TFTP server, it is time consuming to copy all of the HTML files in the tar file. We recommend that you download the tar file from Cisco.com and archive it on an internal host in your network.

You can also configure the switch as a TFTP server to copy files from one switch to another without using an external TFTP server by using the **tftp-server** global configuration command. For more information about the **tftp-server** command, see the "Basic File Transfer Services Commands" section of the *Cisco IOS Configuration Fundamentals Command Reference, Release 12.2*:
http://www.cisco.com/en/US/docs/ios/fundamentals/command/reference/cf_t1.html

Upgrading a Switch by Using the Device Manager or Network Assistant

You can upgrade switch software by using the device manager or Network Assistant. For detailed instructions, click **Help**.

Note When using the device manager to upgrade your switch, do not use or close your browser session after the upgrade process begins. Wait until after the upgrade process completes.

Upgrading a Switch by Using the CLI

This procedure is for copying the combined tar file to the switch. You copy the file to the switch from a TFTP server and extract the files. You can download an image file and replace or keep the current image.

To download software, follow these steps:

Step 1 Use Table 4 on page 6 to identify the file that you want to download.

Step 2 Download the software image file:

a. If you are a registered customer, go to this URL and log in.

http://www.cisco.com/cisco/web/download/index.html

b. Navigate to **Switches > LAN Switches - Access**.

c. Navigate to your switch model.

d. Click **IOS Software**, then select the latest IOS release.

Download the image you identified in Step 1.

Step 3 Copy the image to the appropriate TFTP directory on the workstation, and make sure that the TFTP server is properly configured.

For more information, see Appendix B in the software configuration guide for this release.

Step 4 Log into the switch through the console port or a Telnet session.

Step 5 (Optional) Ensure that you have IP connectivity to the TFTP server by entering this privileged EXEC command:

```
Switch# ping tftp-server-address
```

For more information about assigning an IP address and default gateway to the switch, see the software configuration guide for this release.

Step 6 Download the image file from the TFTP server to the switch. If you are installing the same version of software that is currently on the switch, overwrite the current image by entering this privileged EXEC command:

```
Switch# archive download-sw /overwrite /reload
tftp:[[//location]/directory]/image-name.tar
```

The **/overwrite** option overwrites the software image in flash memory with the downloaded one.

The **/reload** option reloads the system after downloading the image unless the configuration has been changed and not saved.

The **/allow-feature-upgrade** option allows installation of an image with a different feature set (for example, upgrade from the IP base image to the IP services image).

For **//***location*, specify the IP address of the TFTP server.

For */directory/image-name***.tar**, specify the directory (optional) and the image to download. Directory and image names are case sensitive.

This example shows how to download an image from a TFTP server at 198.30.20.19 and to overwrite the image on the switch:

```
Switch# archive download-sw /overwrite
tftp://198.30.20.19/c3750-ipservices-tar.122-50.SE.tar
```

You can also download the image file from the TFTP server to the switch and keep the current image by replacing the **/overwrite** option with the **/leave-old-sw** option.

Recovering from a Software Failure

For recovery procedures, see the "Troubleshooting" chapter in the software configuration guide for this release.

Installation Notes

Use these methods to assign IP information to your switch:

- The Express Setup program, as described in the switch getting started guide.
- The CLI-based setup program, as described in the switch hardware installation guide.
- The DHCP-based autoconfiguration, as described in the switch software configuration guide.
- Manually assigning an IP address, as described in the switch software configuration guide.

New Software Features

New in Cisco IOS Release 15.0(2)EZ

- Cisco IOS Release 15.0(2)EZ on the Catalyst 2960-P switch has been submitted for certification under FIPS 140-2 and Common Criteria compliance with the US Government, Security Requirements for Network Devices (pp_nd_v1.0), version 1.0, dated 10 December 2010.

  Note The images for the Cisco IOS Release 15.0(2)EZ on the Catalyst 2960-P switch are FIPS certified. For information about using FIPS certifies images, see the "Boot Loader Upgrade and Image Verification for the FIPS Mode of Operation" section in the "Assigning the Switch IP Address and Default Gateway" chapter of the software configuration guide.

  FIPS 140-2 is a cryptographic-focused certification, required by many government and enterprise customers, which ensures the compliance of the encryption and decryption operations performed by the switch to the approved FIPS cryptographic strengths and management methods for safeguarding these operations. For more information, see:

  - The security policy document at: http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1657
  - The installation notes at: http://www.cisco.com/en/US/products/ps10745/prod_installation_guides_list.html

- Support for Resilient Ethernet Protocol (REP). REP is a Cisco proprietary protocol that provides an alternative to Spanning Tree Protocol (STP) to control network loops, handle link failures, and improve convergence time in ring topologies. See the *Configuring Resilient Ethernet Protocol* chapter in the software configuration guide on cisco.com.

- Support for IOS IPv6 Host mode, which is compliant with the IPv6 Ready Logo Phase-2 Core Protocols test suite. (LAN Lite image for Catalyst 2960-P switch).
- Support for specifying the VLAN to be used for Smart Install Management. The **vstack startup-vlan** command has been added. For more information, see the command reference on Cisco.com.
- Support for configurable MAC authentication bypass (MAB). You can configure how MAB authentication is performed for client MAC address that deviate from the expected standard format or where the RADIUS configuration requires that the user name and password to differ. For more information, see the *Configuring IEEE 802.1x Port-Based Authentication* chapter in the software configuration guide on Cisco.com.
- Support for configuring static IPv6 routes in the routing table so that packet data can be sent to networks that are not directly connected to the router. (LAN Base image for Catalys t 2960)
- Support for Cisco TrustSec SXP version 2, syslog messages, and SNMP support is now extended to the LAN Base license.
- Support for port security on Etherchannels. For more information, see the *Configuring Port-Based Traffic Control* chapter in the software configuration guide.
- Support for IP Source Guard on Etherchannels. For more information, see the *Configuring DHCP and IP Source Guard* chapter in the software configuration guide.
- Support for Precision Time Protocol (PTP) and Temperature and Voltage Monitoring on the Cisco CGS 2520 Switch.

Minimum Cisco IOS Release for Major Features

Table 5 lists the minimum software release required to support the major features of the Catalyst 3750, 3560, 2960-S, and 2960 switches and the Cisco EtherSwitch service modules.

Table 5 Catalyst 3 , 2960, 2and 2960-P Switches Features and the Minimum Cisco IOS Release Required

Feature	Minimum Cisco IOS Release Required	Catalyst Switch Support
Critical voice VLAN	15.0(1)SE	2960, 2960-P
NEAT enhancement to control access to the supplicant port	15.0(1)SE	2960, 2960-P
Auto Smartports improved device classification	15.0(1)SE	2960, 2960-P
EnergyWise Phase 2.5	12.2(58)SE1	2960, 2960-P
Protocol storm protection	12.2(58)SE1	2960, 2960-P
Smart Install 3.0	12.2(58)SE1	2960, 2960-P
Auto Smartports enhancements to enable auto-QoS on a digital media player.	12.2(58)SE1	2960, 2960-P
Call Home support	12.2(58)SE1	2960, 2960-P
NTP version 4	12.2(58)SE1	2960, 2960-P
RADIUS, TACACS+, and SSH/SCP over IPv6	12.2(58)SE1	2960, 2960-P
IETF IP-MIB and IP-FORWARD-MIB(RFC4292 and RFC4293) updates	12.2(58)SE1	2960, 2960-P

Table 5 Catalyst 3 , 2960, 2and 2960-P Switches Features and the Minimum Cisco IOS Release Required

Feature	Minimum Cisco IOS Release Required	Catalyst Switch Support
Auto-QoS enhancements	12.2(55)SE	2960, 2960-P
Auto Smartport enhancements including global macros	12.2(55)SE	2960, 2960-P
Smart Install enhancements and new features	12.2(55)SE	2960, 2960-P
Port ACL improvements	12.2(55)SE	2960, 2960-P
CDP and LLDP location enhancements	12.2(55)SE	2960, 2960-P
Multi-authentication with VLAN assignment	12.2(55)SE	2960, 2960-P
Cisco TrustSec	12.2(55)SE	2960, 2960-P
Memory-consistency check routines	12.2(55)SE	2960, 2960-P
Static routing support on SVIs	12.2(55)SE	2960, 2960-P
MAC replace to end a session when a host disconnects from a port.	12.2(55)SE	2960, 2960-P
DHCP snooping and Option 82 and LLPD-MED in LAN lite image	12.2(55)SE	2960, 2960-P
Smart Install to allow a single point of management (director) in a network.	12.2(52)SE	2960, 2960-P
Support for IP source guard on static hosts.	12.2(52)SE	2960, 2960-P
AutoSmartPort enhancements (macro persistency, LLDP-based triggers, MAC address and OUI-based triggers, remote macros).	12.2(52)SE	2960, 2960-P
RADIUS Change of Authorization (CoA).	12.2(52)SE	2960, 2960-P
802.1x User Distribution for deployments with multiple VLANs.	12.2(52)SE	2960, 2960-P
Critical VLAN with multiple-host authentication.	12.2(52)SE	2960, 2960-P
Customizable web authentication enhancement to allow the creation of user-defined pages.	12.2(52)SE	2960, 2960-P
Network Edge Access Topology (NEAT) to change the port host mode.	12.2(52)SE	2960, 2960-P
VLAN-ID based MAC authentication.	12.2(52)SE	2960, 2960-P
MAC move to allow hosts to move across ports on the same switch.	12.2(52)SE	2960, 2960-P
3DES and AES with SNMPv3.	12.2(52)SE	2960, 2960-P
Hostname support in the option 12 field of DHCPDISCOVER packets.	12.2(52)SE	2960, 2960-P
DHCP Snooping enhancement for the circuit-id sub-option.	12.2(52)SE	2960, 2960-P
Increased support for LLPD-MED	12.2(52)SE	2960, 2960-P
LLPD-MED MIB and the CISCO-ADMISSION-POLICY-MIB.	12.2(52)SE	2960, 2960-P
IPv6 QoS trust capability.	12.2(52)SE	2960, 2960-P
Cisco Medianet to enable intelligent services in the network infrastructure for video applications.	12.2(52)SE	2960, 2960-P
Cisco EnergyWise Phase 2 to manage EnergyWise-enabled Cisco devices and non-Cisco end points running EnergyWise agents.	12.2(53)SE1	2960, 2960-P
Network Edge Access Topology (NEAT) with 802.1X switch supplicant, host authorization with CISP, and auto enablement	12.2(50)SE	2960, 2960-P

Table 5 Catalyst 3 , 2960, 2and 2960-P Switches Features and the Minimum Cisco IOS Release Required

Feature	Minimum Cisco IOS Release Required	Catalyst Switch Support
802.1x with open access	12.2(50)SE	2960, 2960-P
802.1x authentication with downloadable ACLs and redirect URLs	12.2(50)SE	2960, 2960-P
Flexible-authentication sequencing	12.2(50)SE	2960, 2960-P
Multiple-user authentication	12.2(50)SE	2960, 2960-P
Cisco EnergyWise Phase 1 to manage power usage over PoE devices.	12.2(50)SE	2960, 2960-P
Wired location service	12.2(50)SE	2960, 2960-P
CPU utilization threshold trap	12.2(50)SE	2960, 2960-P
Cisco IOS Configuration Engine (previously the Cisco IOS CNS agent)	12.2(50)SE	2960, 2960-P
LLDP-MED network-policy profile time, length, value (TLV)	12.2(50)SE	2960, 2960-P
RADIUS server load balancing	12.2(50)SE	2960, 2960-P
Auto Smartports Cisco-default and user-defined macros	12.2(50)SE	2960, 2960-P
SCP attribute support in the CONFIG_COPY MIB, CISCO-AUTH-FRAMEWORK-MIB,CISCO-MAC-AUTH-BYPASS MIBs, LLDP MIB	12.2(50)SE	2960, 2960-P
802.1x authentication with restricted VLANs	12.2(50)SE	2960, 2960-P
IP source guard	12.2(50)SE	2960, 2960-P
Dynamic ARP inspection	12.2(50)SE	2960, 2960-P
Generic message authentication support with SSH Protocol and compliance with RFC 4256	12.2(46)SE	2960, 2960-P
Generic message authentication support	12.2(46)SE	2960, 2960-P
Disabling MAC address learning on a VLAN	12.2(46)SE	2960, 2960-P
PAgP Interaction with Virtual Switches and Dual-Active Detection	12.2(46)SE	2960, 2960-P
DHCP server port-based address allocation	12.2(46)SE	2960, 2960-P
IPv6 default router preference (DRP)	12.2(46)SE	2960, 2960-P
Dynamic voice virtual LAN (VLAN) for multidomain authentication (MDA) (LAN base image only)	12.2(46)SE	2960, 2960-P
Monitoring real-time power consumption on a per-PoE port basis	12.2(46)SE	2960, 2960-P
IEEE 802.1x Authentication with ACLs and the RADIUS Filter-Id Attribute	12.2(46)SE	2960, 2960-P
IEEE 802.1x readiness check	12.2(44)SE	2960, 2960-P
DHCP-based autoconfiguration and image update	12.2(44)SE	2960, 2960-P
Configurable small-frame arrival threshold	12.2(44)SE	2960, 2960-P
HTTP and HTTP(s) support over IPV6	12.2(44)SE	2960, 2960-P
SNMP configuration over IPv6 transport	12.2(44)SE	2960, 2960-P
IPv6 stateless autoconfiguration	12.2(44)SE	2960, 2960-P

Table 5 Catalyst 3 , 2960, 2and 2960-P Switches Features and the Minimum Cisco IOS Release Required

Feature	Minimum Cisco IOS Release Required	Catalyst Switch Support
Flex Link Multicast Fast Convergence	12.2(44)SE	2960, 2960-P
Configuration replacement and rollback	12.2(40)SE	2960, 2960-P
Link Layer Discovery Protocol Media Extensions (LLDP-MED)	12.2(40)SE	2960, 2960-P
Enhanced Interior Gateway Routing Protocol (EIGRP) IPv6	12.2(40)SE	2960, 2960-P
Automatic quality of service (QoS) Voice over IP (VoIP)	12.2(40)SE	2960, 2960-P
MLD snooping	12.2(40)SE	2960, 2960-P
IPv6 host	12.2(40)SE	2960, 2960-P
IP phone detection enhancement	12.2(37)SE	2960, 2960-P
Link Layer Discovery Protocol (LLDP) and LLDP Media Endpoint Discovery (LLDP-MED)	12.2(37)SE	2960, 2960-P
VLAN aware port security option	12.2(37)SE	2960, 2960-P
VLAN Flex Links load balancing	12.2(37)SE	2960, 2960-P
Web authentication	12.2(35)SE	2960, 2960-P
MAC inactivity aging	12.2(35)SE	2960, 2960-P
DHCP Option 82 configurable remote ID and circuit ID	12.2(25)SEE	2960, 2960-P
IPv6 ACLs	12.2(25)SED	2960, 2960-P
IPv6 Multicast Listener Discovery (MLD) snooping	12.2(25)SED	2960, 2960-P
QoS hierarchical policy maps on a port	12.2(25)SED	2960, 2960-P
NAC Layer 2 IEEE 802.1x validation	12.2(25)SED	2960, 2960-P
NAC Layer 2 IP validation	12.2(25)SED	2960, 2960-P
IEEE 802.1x inaccessible authentication bypass.	12.2(25)SED 12.2(25)SEE	2960, 2960-P
IEEE 802.1x with restricted VLAN	12.2(25)SED	2960, 2960-P
Budgeting power for devices connected to PoE ports	12.2(25)SEC	2960, 2960-P
Multiple spanning-tree (MST) based on the IEEE 802.1s standard	12.2(25)SEC 12.2(25)SED	2960, 2960-P
Unique device identifier (UDI)	12.2(25)SEC 12.2(25)SED	2960, 2960-P
IEEE 802.1x with wake-on-LAN	12.2(25)SEC 12.2(25)SED	2960, 2960-P
Configuration logging	12.2(25)SEC 12.2(25)SED	2960, 2960-P
Secure Copy Protocol	12.2(25)SEC 12.2(25)SED	2960, 2960-P

Table 5 Catalyst 3 , 2960, 2and 2960-P Switches Features and the Minimum Cisco IOS Release Required

Feature	Minimum Cisco IOS Release Required	Catalyst Switch Support
Cross-stack EtherChannel	12.2(25)SEC	2960, 2960-P
Private-VLAN on interfaces configured for dynamic ARP inspection	12.2(25)SEB	2960, 2960-P
IP source guard on private VLANs	12.2(25)SEB	2960, 2960-P
IEEE 802.1x restricted VLAN	12.2(25)SED	2960, 2960-P
IGMP leave timer	12.2(25)SEB 12.2(25)SED	2960, 2960-P
IGMP snooping querier	12.2(25)SEA 12.2(25)FX	2960, 2960-P
DSCP transparency	12.2(25)SE 12.2(25)FX	2960, 2960-P
VLAN-based QoS[1] and hierarchical policy maps on SVIs[2]	12.2(25)SE	2960, 2960-P
Device manager	12.2(25)SE 12.2(25)FX	2960, 2960-P
SSL version 3.0 for secure HTTP communication (cryptographic images only)	12.2(25)SE 12.2(25)FX	2960, 2960-P
Cisco intelligent power management	12.2(25)SE	2960, 2960-P
IEEE 802.1x accounting and MIBs (IEEE 8021-PAE-MIB and CISCO-PAE-MIB)	12.2(20)SE 12.2(25)FX	2960, 2960-P
Dynamic ARP inspection	12.2(20)SE	2960, 2960-P
Flex Links	12.2(20)SE 12.2(25)FX	2960, 2960-P
Software upgrade (device manager or Network Assistant only)	12.2(20)SE 12.2(25)FX	2960, 2960-P
IP source guard	12.2(20)SE	2960, 2960-P
Private VLAN (IP services image only)	12.2(20)SE	2960, 2960-P
SFP module diagnostic management interface	12.2(20)SE 12.2(25)FX	2960, 2960-P
Smartports macros	12.2(18)SE 12.2(25)FX	2960, 2960-P
Flex Links Preemptive Switchover	12.2(25)SEE	2960, 2960-P

1. QoS = quality of service
2. SVIs = switched virtual interfaces

Limitations and Restrictions

You should review this section before you begin working with the switch. These are known limitations that will not be fixed, and there is not always a workaround. Some features might not work as documented, and some features could be affected by recent changes to the switch hardware or software.

Cisco IOS Limitations

Unless otherwise noted, these limitations apply to the Catalyst 3750, and 3560, and 2960 switches and the Cisco EtherSwitch service modules:

Configuration

- A static IP address might be removed when the previously acquired DHCP IP address lease expires.

  This problem occurs under these conditions:

  - When the switch is booted up without a configuration (no config.text file in flash memory).
  - When the switch is connected to a DHCP server that is configured to give an address to it (the dynamic IP address is assigned to VLAN 1).
  - When an IP address is configured on VLAN 1 before the dynamic address lease assigned to VLAN 1 expires.

  The workaround is to reconfigure the static IP address. (CSCea71176 and CSCdz11708)

- When connected to some third-party devices that send early preambles, a switch port operating at 100 Mb/s full duplex or 100 Mb/s half duplex might bounce the line protocol up and down. The problem is observed only when the switch is receiving frames.

  The workaround is to configure the port for 10 Mb/s and half duplex or to connect a hub or a nonaffected device to the switch. (CSCed39091)

- When port security is enabled on an interface in restricted mode and the **switchport block unicast interface** command has been entered on that interface, MAC addresses are incorrectly forwarded when they should be blocked

The workaround is to enter the **no switchport block unicast** interface configuration command on that specific interface. (CSCee93822)

- A traceback error occurs if a crypto key is generated after an SSL client session.

  There is no workaround. This is a cosmetic error and does not affect the functionality of the switch. (CSCef59331)

- (Cisco EtherSwitch service modules) You cannot change the console baud rate by using the switch CLI. The console on the Cisco EtherSwitch service modules only supports three baud rates (9600 b/s, 19200 b/s, and 38400 b/s) and must be set at the bootloader prompt. The switch rejects a CLI command to change the baud rate.

  To change the baud rate, reload the Cisco EtherSwitch service module with the bootloader prompt. You can then change the baud rate and change the speed on the TTY line of the router connected to the Cisco EtherSwitch Service module console.

  There is no workaround. (CSCeh50152)

- The far-end fault optional facility is not supported on the GLC-GE-100FX SFP module.

  The workaround is to configure aggressive UDLD. (CSCsh70244).

- A ciscoFlashMIBTrap message appears during switch startup. This does not affect switch functionality. (CSCsj46992)

- When you enter the **boot host retry timeout** global configuration command to specify the amount of time that the client should keep trying to download the configuration and you do not enter a timeout value, the default value is zero, which should mean that the client keeps trying indefinitely. However, the client does not keep trying to download the configuration.

  The workaround is to always enter a non zero value for the timeout value when you enter the **boot host retry timeout** *timeout-value* command. (CSCsk65142)

- If you enter the **show tech-support** privileged EXEC command after you enter the **remote command** {**all** | *stack-member-number*} privileged EXEC command, the complete output does not appear.

  The workaround is to use the **session** *stack-member-number* privileged EXEC command. (CSCsz38090)

- When authorization and accounting are enabled on the switch and you use the interface range command to change the configuration on a range of interfaces, the change might cause high CPU utilization and authentication failures.

  The workaround is to disable authorization and accounting or to enter the configuration change for one interface at a time. (CSCsg80238, CSCti76748)

- Identity Services Engine (ISE) is not available on Catalyst 2000 series switches.

- The **device-sensor accounting** global configuration command is not available on Catalyst 2000 series switches.

Ethernet

- (Cisco EtherSwitch service modules) Link connectivity might be lost between some older models of the Intel Pro1000 NIC and the 10/100/1000 switch port interfaces. The loss of connectivity occurs between the NIC and Gigabit Ethernet ports on the Cisco EtherSwitch service modules

  These are the workarounds:

  - Contact the NIC vendor, and get the latest driver for the card.
  - Configure the interface for 1000 Mb/s instead of for 10/100 Mb/s.

  - Connect the NIC to an interface that is not listed here. (CSCea77032)

  For more information, enter *CSCea77032* in the Bug Toolkit at this URL: http://www.cisco.com/cgi-bin/Support/Bugtool/home.pl

- (Cisco EtherSwitch service modules) When a Cisco EtherSwitch service module reloads or the internal link resets, there can be up to a 45-second delay in providing power to PoE devices, depending on the configuration. If the internal Gigabit Ethernet interface on a Cisco EtherSwitch service module connected to the router is configured as a switch port in access mode or in trunk mode, the internal link is not operational until it reaches the STP forwarding state. Therefore, the PoE that comes from the host router is also not available until the internal Gigabit Ethernet link reaches the STP forwarding state. This is due to STP convergence time. This problem does not occur on routed ports.

  If the Cisco EtherSwitch service module is in access mode, the workaround is to enter the **spanning-tree portfast** interface configuration command on the internal Gigabit Ethernet interface. If the service module is in trunk mode, there is no workaround.

- Traffic on EtherChannel ports is not perfectly load-balanced. Egress traffic on EtherChannel ports are distributed to member ports on load balance configuration and traffic characteristics like MAC or IP address. More than one traffic stream may map to same member ports based on hashing results calculated by the ASIC.

  If this happens, uneven traffic distribution will happen on EtherChannel ports.

  Changing the load balance distribution method or changing the number of ports in the EtherChannel can resolve this problem. Use any of these workarounds to improve EtherChannel load balancing:

  - for random source-ip and dest-ip traffic, configure load balance method as **src-dst-ip**
  - for incrementing source-ip traffic, configure load balance method as **src-ip**
  - for incrementing dest-ip traffic, configure load balance method as **dst-ip**
  - Configure the number of ports in the EtherChannel so that the number is equal to a power of 2 (i.e. 2, 4, or 8)

  For example, with load balance configured as **dst-ip** with 150 distinct incrementing destination IP addresses, and the number of ports in the EtherChannel set to either 2, 4, or 8, load distribution is optimal.(CSCeh81991)

EtherSwitch Modules

- A duplex mismatch occurs when two Fast Ethernet interfaces that are directly connected on two EtherSwitch service modules are configured as both 100 Mb/s and full duplex *and* as automatic speed and duplex settings. This is expected behavior for the PHY on the Cisco EtherSwitch service modules.

  There is no workaround. (CSCeh35595)

HSRP

- When the active switch fails in a switch cluster that uses HSRP redundancy, the new active switch might not contain a full cluster member list.

  The workaround is to ensure that the ports on the standby cluster members are not in the spanning-tree blocking state. To verify that these ports are not in the blocking state, see the "Configuring STP" chapter in the software configuration guide. (CSCec76893)

IP

- When the rate of received DHCP requests exceeds 2,000 packets per minute for a long time, the response time might be slow when you are using the console.

  The workaround is to use rate limiting on DHCP traffic to prevent a denial of service attack from occurring. (CSCeb59166)

IP Telephony

- After you change the access VLAN on a port that has IEEE 802.1x enabled, the IP phone address is removed. Because learning is restricted on IEEE 802.1x-capable ports, it takes approximately 30 seconds before the address is relearned.

  No workaround is necessary. (CSCea85312)

- Phone detection events that are generated by many IEEE phones connected to the switch ports can consume a significant amount of CPU time if the switch ports cannot power the phones because the internal link is down.

  The workaround is to enter the **power inline never** interface configuration command on all the Fast Ethernet ports that are not powered by but are connected to IP phones if the problem persists. (CSCef84975, Cisco EtherSwitch service modules only)

- Some access point devices are incorrectly discovered as IEEE 802.3af Class 1 devices. These access points should be discovered as Cisco pre-standard devices. The **show power inline** user EXEC command shows the access point as an IEEE Class 1 device.

  The workaround is to power the access point by using an AC wall adaptor. (CSCin69533)

- The Cisco 7905 IP Phone is error-disabled when the phone is connected to wall power.

  The workaround is to enable PoE and to configure the switch to recover from the PoE error-disabled state. (CSCsf32300)

Multicasting

- If the number of multicast routes and Internet Group Management Protocol (IGMP) groups are more than the maximum number specified by the **show sdm prefer** global configuration command, the traffic received on unknown groups is flooded in the received VLAN even though the **show ip igmp snooping multicast-table** privileged EXEC command output shows otherwise.

  The workaround is to reduce the number of multicast routes and IGMP snooping groups to less than the maximum supported value. (CSCdy09008)

- IGMP filtering is applied to packets that are forwarded through hardware. It is not applied to packets that are forwarded through software. Hence, with multicast routing enabled, the first few packets are sent from a port even when IGMP filtering is set to deny those groups on that port.

  There is no workaround. (CSCdy82818)

- If an IGMP report packet has two multicast group records, the switch removes or adds interfaces depending on the order of the records in the packet:
  - If the ALLOW_NEW_SOURCE record is before the BLOCK_OLD_SOURCE record, the switch removes the port from the group.
  - If the BLOCK_OLD_SOURCE record is before the ALLOW_NEW_SOURCE record, the switch adds the port to the group.

  There is no workaround. (CSCec20128)

- When IGMP snooping is disabled and you enter the **switchport block multicast** interface configuration command, IP multicast traffic is not blocked.

  The **switchport block multicast** interface configuration command is only applicable to non-IP multicast traffic.

  There is no workaround. (CSCee16865)

- Incomplete multicast traffic can be seen under either of these conditions:
  - You disable IP multicast routing or re-enable it globally on an interface.
  - A switch mroute table temporarily runs out of resources and recovers later.

  The workaround is to enter the **clear ip mroute** privileged EXEC command on the interface. (CSCef42436)

  After you configure a switch to join a multicast group by entering the **ip igmp join-group** *group-address* interface configuration command, the switch does not receive join packets from the client, and the switch port connected to the client is removed from the IGMP snooping forwarding table.

  Use one of these workarounds:
  - Cancel membership in the multicast group by using the **no ip igmp join-group** *group-address* interface configuration command on an SVI.
  - Disable IGMP snooping on the VLAN interface by using the **no ip igmp snooping vlan** *vlan-id* global configuration command. (CSCeh90425)

Power

- Non-PoE devices attached to a network might be erroneously detected as an IEEE 802.3af-compliant powered device and powered by the Cisco EtherSwitch service module.

  There is no workaround. You should use the **power inline never** interface configuration command on Cisco EtherSwitch service module ports that are not connected to PoE devices. (CSCee71979)

- When you enter the **show power inline** privileged EXEC command, the out put shows the total power used by all Cisco EtherSwitch service modules in the router. The remaining power shown is available for allocation to switching ports on all Cisco EtherSwitch service modules in the router.

  To display the total power used by a specific EtherSwitch service module, enter the **show power inline** command on the router. This output appears:

```
Router# show power inline
PowerSupply   SlotNum.   Maximum   Allocated       Status
-----------   --------   -------   ---------       ------
INT-PS           0       360.000   121.000         PS1 GOOD   PS2 ABSENT
Interface   Config   Device    Powered    PowerAllocated
---------   ------   ------    -------    --------------
Gi4/0       auto     Unknown  On        121.000 Watts
```

  This is not a problem because the display correctly shows the total used power and the remaining power available on the system. (CSCeg74337)

- Entering the **shutdown** and the **no shutdown** interface configuration commands on the internal link can disrupt the PoE operation. If a new IP phone is added while the internal link is in shutdown state, the IP phone does not get inline power if the internal link is brought up within 5 minutes.

  The workaround is to enter the **shutdown** and the **no shutdown** interface configuration commands on the Fast Ethernet interface of a new IP phone that is attached to the service module port after the internal link is brought up. (CSCeh45465)

QoS

- Some switch queues are disabled if the buffer size or threshold level is set too low with the **mls qos queue-set output** global configuration command. The ratio of buffer size to threshold level should be greater than 10 to avoid disabling the queue.

  The workaround is to choose compatible buffer sizes and threshold levels. (CSCea76893)

- When auto-QoS is enabled on the switch, priority queuing is not enabled. Instead, the switch uses shaped round robin (SRR) as the queuing mechanism. The auto-QoS feature is designed on each platform based on the feature set and hardware limitations, and the queuing mechanism supported on each platform might be different. There is no workaround. (CSCee22591)

- If you configure a large number of input interface VLANs in a class map, a traceback message similar to this might appear:

  ```
  01:01:32: %BIT-4-OUTOFRANGE: bit 1321 is not in the expected range of 0 to 1024
  ```

  There is no impact to switch functionality.

  There is no workaround. (CSCtg32101)

RADIUS

- RADIUS change of authorization (COA) reauthorization is not supported on the critical auth VLAN.

  There is no workaround. (CSCta05071)

Smart Install

- When upgrading switches in a stack, the director cannot send the correct image and configuration to the stack if all switches in the stack do not start at the same time. A switch in the stack could then receive an incorrect image or configuration.

  The workaround is to use an on-demand upgrade to upgrade switches in a stack by entering the **vstack download config** and **vstack download image** commands. (CSCta64962)

- When you upgrade a Smart Install director to Cisco IOS Release 12.2(55)SE but do not upgrade the director configuration, the director cannot upgrade client switches.

  When you upgrade the director to Cisco IOS Release 12.2(55)SE, the workaround is to also modify the configuration to include all built-in, custom, and default groups. You should also configure the tar image name instead of the image-list file name in the stored images. (CSCte07949)

- Backing up a Smart Install configuration could fail if the backup repository is a Windows server and the backup file already exists in the server.

  The workaround is to use the TFTP utility of another server instead of a Windows server or to manually delete the existing backup file before backing up again. (CSCte53737)

- In a Smart Install network, when the director is connected between the client and the DHCP server and the server has options configured for image and configuration, then the client does not receive the image and configuration files sent by the DHCP server during an automatic upgrade. Instead the files are overwritten by the director and the client receives the image and configuration that the director sends.

  Use one of these workarounds:

  - If client needs to upgrade using an image and configuration file configured in the DHCP server options, you should remove the client from the Smart Install network during the upgrade.
  - In a network using Smart Install, you should not configure options for image and configuration in the DHCP server. For clients to upgrade using Smart Install, you should configure product-id specific image and configuration files in the director. (CSCte99366)

- In a Smart Install network with the backup feature enabled (the default), the director sends the backup configuration file to the client during zero-touch replacement. However, when the client is a switch in a stack, the client receives the seed file from the director instead of receiving the backup configuration file.

  The workaround, if you need to configure a switch in a stack with the backup configuration, is to use the **vstack download config** privileged EXEC command so that the director performs an on-demand upgrade on the client.

  - When the backup configuration is stored in a remote repository, enter the location of the repository.
  - When the backup file is stored in the director flash memory, you must manually set the permissions for the file before you enter the **vstack download config** command. (CSCtf18775)

- If the director in the Smart Install network is located between an access point and the DHCP server, the access point tries to use the Smart Install feature to upgrade even though access points are not supported devices. The upgrade fails because the director does not have an image and configuration file for the access point.

  There is no workaround. (CSCtg98656)

- When a Smart Install director is upgrading a client switch that is not Smart Install-capable (that is, not running Cisco IOS Release 12.2(52)SE or later), the director must enter the password configured on the client switch. If the client switch does not have a configured password, there are unexpected results depending on the software release running on the client:
  - When you select the NONE option in the director CLI, the upgrade should be allowed and is successful on client switches running Cisco IOS Release 12.2(25)SE through 12.2(46)SE, but fails on clients running Cisco IOS Release 12.2(50)SE through 12.2(50)SEx.
  - When you enter any password in the director CLI, the upgrade should not be allowed, but it is successful on client switches running Cisco IOS Release 12.2(25)SE through 12.2(46)SE, but fails on clients running Cisco IOS Release 12.2(50)SE through 12.2(50)SEx.

  There is no workaround. (CSCth35152)

SPAN and RSPAN

- When the RSPAN feature is configured on a switch, Cisco Discovery Protocol (CDP) packets received from the RSPAN source ports are tagged with the RSPAN VLAN ID and forwarded to trunk ports carrying the RSPAN VLAN. When this happens a switch that is more than one hop away incorrectly lists the switch that is connected to the RSPAN source port as a CDP neighbor.

  This is a hardware limitation. The workaround is to disable CDP on all interfaces carrying the RSPAN VLAN on the device connected to the switch. (CSCeb32326)

- (Cisco EtherSwitch service modules) An egress SPAN copy of routed unicast traffic might show an incorrect destination MAC address on both local and remote SPAN sessions. This limitation does not apply to bridged packets. The workaround for local SPAN is to use the **replicate** option. For a remote SPAN session, there is no workaround.

  This is a hardware limitation and only applies to Cisco EtherSwitch service modules (CSCdy72835):

- (Cisco EtherSwitch service modules) Egress SPAN routed packets (both unicast and multicast) show the incorrect source MAC address. For remote SPAN packets, the source MAC address should be the MAC address of the egress VLAN, but instead the packet shows the MAC address of the RSPAN VLAN. For local SPAN packets with native encapsulation on the destination port, the packet shows the MAC address of VLAN 1. This problem does not appear with local SPAN when the **encapsulation replicate** option is used. This limitation does not apply to bridged packets. The workaround is to use the **encapsulate replicate** keywords in the **monitor session** global configuration command. Otherwise, there is no workaround.

  This is a hardware limitation and only applies to Cisco EtherSwitch service modules (CSCdy81521):

- (Cisco EtherSwitch service modules) During periods of very high traffic when two RSPAN source sessions are configured, the VLAN ID of packets in one RSPAN session might overwrite the VLAN ID of the other RSPAN session. If this occurs, packets intended for one RSPAN VLAN are incorrectly sent to the other RSPAN VLAN. This problem does not affect RSPAN destination sessions. The workaround is to configure only one RSPAN source session.

  This is a hardware limitation and only applies to Cisco EtherSwitch service modules (CSCea72326):

- CDP, VLAN Trunking Protocol (VTP), and Port Aggregation Protocol (PAgP) packets received from a SPAN source are not sent to the destination interfaces of a local SPAN session. The workaround is to use the **monitor session** *session_number* **destination** {**interface** *interface-id* **encapsulation replicate**} global configuration command for local SPAN. (CSCed24036)

Spanning Tree Protocol

- CSCtl60247

  When a switch or switch stack running Multiple Spanning Tree (MST) is connected to a switch running Rapid Spanning Tree Protocol (RSTP), the MST switch acts as the root bridge and runs per-VLAN spanning tree (PVST) simulation mode on boundary ports connected to the RST switch. If the allowed VLAN on all trunk ports connecting these switches is changed to a VLAN other than VLAN 1 and the root port of the RSTP switch is shut down and then enabled, the boundary ports connected to the root port move immediately to the forward state without going through the PVST+ slow transition.

  There is no workaround.

Trunking

- The switch treats frames received with mixed encapsulation (IEEE 802.1Q and Inter-Switch Link [ISL]) as frames with FCS errors, increments the error counters, and the port LED blinks amber. This happens when an ISL-unaware device receives an ISL-encapsulated packet and forwards the frame to an IEEE 802.1Q trunk interface.

  There is no workaround. (CSCdz33708)

- IP traffic with IP options set is sometimes leaked on a trunk port. For example, a trunk port is a member of an IP multicast group in VLAN X but is not a member in VLAN Y. If VLAN Y is the output interface for the multicast route entry assigned to the multicast group and an interface in VLAN Y belongs to the same multicast group, the IP-option traffic received on an input VLAN interface other than one in VLAN Y is sent on the trunk port in VLAN Y because the trunk port is forwarding in VLAN Y, even though the port has no group membership in VLAN Y.

  There is no workaround. (CSCdz42909).

- For trunk ports or access ports configured with IEEE 802.1Q tagging, inconsistent statistics might appear in the **show interfaces counters** privileged EXEC command output. Valid IEEE 802.1Q frames of 64 to 66 bytes are correctly forwarded even though the port LED blinks amber, and the frames are not counted on the interface statistics.

  There is no workaround. (CSCec35100).

VLAN

- If the number of VLANs times the number of trunk ports exceeds the recommended limit of 13,000, the switch can fail.

  The workaround is to reduce the number of VLANs or trunks. (CSCeb31087)

- When line rate traffic is passing through a dynamic port, and you enter the **switchport access vlan dynamic** interface configuration command for a range of ports, the VLANs might not be assigned correctly. One or more VLANs with a null ID appears in the MAC address table instead.

  The workaround is to enter the **switchport access vlan dynamic** interface configuration command separately on each port. (CSCsi26392)

- When many VLANs are configured on the switch, high CPU utilization occurs when many links are flapping at the same time.

  The workaround is to remove unnecessary VLANs to reduce CPU utilization when many links are flapping. (CSCtl04815)

Device Manager Limitations

- When you are prompted to accept the security certificate and you click *No*, you only see a blank screen, and the device manager does not launch.

  The workaround is to click *Yes* when you are prompted to accept the certificate. (CSCef45718)

Important Notes

Cisco IOS Notes

- If the switch requests information from the Cisco Secure Access Control Server (ACS) and the message exchange times out because the server does not respond, a message similar to this appears:

  ```
  00:02:57: %RADIUS-4-RADIUS_DEAD: RADIUS server 172.20.246.206:1645,1646 is not
  responding.
  ```

  If this message appears, check that there is network connectivity between the switch and the ACS. You should also check that the switch has been properly configured as an AAA client on the ACS

- If the switch has interfaces with automatic QoS for voice over IP (VoIP) configured and you upgrade the switch software to Cisco IOS Release 12.2(40)SE (or later), when you enter the **auto qos voip cisco-phone** interface configuration command on another interface, you might see this message:

  ```
  AutoQoS Error: ciscophone input service policy was not properly applied
  policy map AutoQoS-Police-CiscoPhone not configured
  ```

  If this happens, enter the **no auto qos voip cisco-phone** interface command on all interface with this configuration to delete it. Then enter the **auto qos voip cisco-phone** command on each of these interfaces to reapply the configuration.

Device Manager Notes

- You cannot create and manage switch clusters through the device manager. To create and manage switch clusters, use the CLI or Cisco Network Assistant.
- When the switch is running a localized version of the device manager, the switch displays settings and status only in English letters. Input entries on the switch can only be in English letters.
- For device manager session on Internet Explorer, popup messages in Japanese or in simplified Chinese can appear as garbled text. These messages appear properly if your operating system is in Japanese or Chinese
- The Legend on the device manager incorrectly includes the 1000BASE-BX SFP module.
- We recommend this browser setting to speed up the time needed to display the device manager from Microsoft Internet Explorer.

  From Microsoft Internet Explorer:

  1. Choose **Tools** > **Internet Options**.
  2. Click **Settings** in the "Temporary Internet files" area.
  3. From the Settings window, choose **Automatically**.
  4. Click **OK**.
  5. Click **OK** to exit the Internet Options window.
- The HTTP server interface must be enabled to display the device manager. By default, the HTTP server is enabled on the switch. Use the **show running-config** privileged EXEC command to see if the HTTP server is enabled or disabled.

  If you are *not* using the default method of authentication (the enable password), you need to configure the HTTP server interface with the method of authentication used on the switch

Beginning in privileged EXEC mode, follow these steps to configure the HTTP server interface:

	Command	Purpose
Step 1	**configure terminal**	Enter global configuration mode.
Step 2	**ip http authentication** {**aaa** | **enable** | **local**}	Configure the HTTP server interface for the type of authentication that you want to use. • **aaa**—Enable the authentication, authorization, and accounting feature. You must enter the **aaa new-model** interface configuration command for the **aaa** keyword to appear. • **enable**—Enable password, which is the default method of HTTP server user authentication, is used. • **local**—Local user database, as defined on the Cisco router or access server, is used.
Step 3	**end**	Return to privileged EXEC mode.
Step 4	**show running-config**	Verify your entries.

The device manager uses the HTTP protocol (the default is port 80) and the default method of authentication (the enable password) to communicate with the switch through any of its Ethernet ports and to allow switch management from a standard web browser.

If you change the HTTP port, you must include the new port number when you enter the IP address in the browser **Location** or **Address** field (for example, http://10.1.126.45:184 where 184 is the new HTTP port number). You should write down the port number through which you are connected. Use care when changing the switch IP information.

- If you use Internet Explorer Version 5.5 and select a URL with a nonstandard port at the end of the address (for example, *www.cisco.com:84*), you must enter *http://* as the URL prefix. Otherwise, you cannot launch the device manager.

Related Documentation

User documentation in HTML format includes the latest documentation updates and might be more current than the complete book PDF available on Cisco.com.

These documents provide complete information about the 2960 switches and the Cisco EtherSwitch service modules and are available at Cisco.com:

http://www.cisco.com/en/US/products/hw/switches/ps5023/tsd_products_support_series_home.html

http://www.cisco.com/en/US/products/hw/switches/ps5528/tsd_products_support_series_home.html

http://www.cisco.com/en/US/products/ps10081/tsd_products_support_series_home.html

http://www.cisco.com/en/US/products/ps6406/tsd_products_support_series_home.html

These documents provide complete information about the Catalyst 2960 and 2960-P switches and are available on Cisco.com:

- *Catalyst 2960 and 2960-P Switch Software Configuration Guide*
- *Catalyst 2960 and 2960-P Switch Command Reference*
- *Catalyst 2960 Switch Hardware Installation Guide*
- *Catalyst 2960 Switch Getting Started Guide*
- *Catalyst 2960 Switch Hardware Installation Guide*
- *Catalyst 2960 Switch Getting Started Guide*
- *Catalyst 2960 Switch Getting Started Guide*—available in English, simplified Chinese, French, German, Italian, Japanese, and Spanish
- *Regulatory Compliance and Safety Information for the Catalyst 2960 and 2960-S Switch*

For other information about related products, see these documents:

- *Smart Install Configuration Guide*
- *Auto Smartports Configuration Guide*
- *Cisco EnergyWise Configuration Guide*
- *Getting Started with Cisco Network Assistant*
- *Release Notes for Cisco Network Assistant*
- *Cisco RPS 300 Redundant Power System Hardware Installation Guide*
- *Cisco RPS 675 Redundant Power System Hardware Installation Guide*
- For more information about the Network Admission Control (NAC) features, see the *Network Admission Control Software Configuration Guide*
- Information about Cisco SFP, SFP+, and GBIC modules is available from this Cisco.com site: http://www.cisco.com/en/US/products/hw/modules/ps5455/prod_installation_guides_list.html

  SFP compatibility matrix documents are available from this Cisco.com site: http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation:
http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.
