



# Recommendations for Upgrading a Catalyst 2950 Switch to a Catalyst 2960 Switch

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This appendix describes the configuration compatibility issues and the feature behavior differences that you might encounter when you upgrade a Catalyst 2950 switch to a Catalyst 2960 switch.

This appendix consists of these sections:

- [Configuration Compatibility Issues, page A-1](#)
- [Feature Behavior Incompatibilities, page A-5](#)

## Configuration Compatibility Issues

The configuration commands between the two switch platforms differ for these reasons:

- The Catalyst 2950 switch runs Cisco IOS 12.1EA software, and the Catalyst 2960 switch runs Cisco IOS 12.2SE software.
- The switch families have different hardware.

If you use a Catalyst 2950 switch command, it might not be supported on the Catalyst 2960 switch. The Catalyst 2960 switch software handles the incompatible commands in these ways:

- They are accepted and translated. A message appears.
- They are rejected. A message appears.

In most cases, configuration files are loaded without rejections. [Table A-1](#) lists the Catalyst 2950 exceptions. The features are listed in alphabetic order, with Catalyst 2950 commands and explanations, and the resulting action on the Catalyst 2960 switch.

Table A-1 Catalyst 2950 and 2960 Switch Configuration Incompatibilities

Feature	Catalyst 2950 Switch Command and Explanation	Result on the Catalyst 2960 Switch
AAA	<p>These global configuration commands are in Cisco IOS 12.1EA:</p> <p><b>aaa preauth</b></p> <p><b>aaa processes 1-64</b></p> <p><b>aaa route download 1-1440</b></p>	<p>When Cisco IOS 12.2E was restructured, these commands were intentionally removed and are not supported in Cisco IOS 12.2SE.</p> <p>The Catalyst 2960 switch rejects these commands, and this message appears:</p> <pre>Switch(config)# aaa processes 10 ^ %Invalid input detected at '^' marker.</pre>
Clustering	<p>The Catalyst 2950 switch supports only one management VLAN. You can use this global configuration command to change it:</p> <p><b>cluster management-vlan <i>vlan-id</i></b></p> <p>This command communicates the management VLAN when the switch is configured for clustering.</p>	<p>With the Catalyst 2960 switch, you can connect to candidate and cluster member switches through any VLAN in common with the cluster command switch.</p> <p>The Catalyst 2960 switch rejects the command, and this message appears:</p> <pre>Switch(config)# cluster management-vlan 2 ^ %Invalid input detected at '^' marker.</pre>
DHCP snooping	<p>A Catalyst 2950 switch DHCP snooping feature limits the number of DHCP packets per second that an interface can receive. You use this interface configuration command to configure it:</p> <p><b>ip dhcp snooping limit rate <i>rate</i></b></p> <p>The range is 1 to 4294967294, and by default, the rate limit is not configured.</p>	<p>In Cisco IOS 12.2SE, the range was changed to 1 to 2048 messages per second.</p> <p>The Catalyst 2960 switch accepts any range value. It changes the maximum value to 2048 (if it is more than 2048), and this message appears:</p> <pre>%Invalid input detected at '^' marker.%</pre>
Flow control	<p>The Catalyst 2950 switch supports pause frames on Gigabit Ethernet interfaces. You use this interface configuration command to configure it:</p> <p><b>flowcontrol send {desired   off   on}</b></p>	<p>The Catalyst 2960 switch accepts received pause frames but cannot send them. The <b>flowcontrol send</b> command is not supported on the Catalyst 2960 switch.</p> <p>The Catalyst 2960 switch rejects the command, and this message appears:</p> <pre>Switch(config-if)# flowcontrol send desired ^ %Invalid input detected at '^' marker.</pre> <p>You can configure QoS to restrict data traffic without affecting the control traffic. With flow control, all traffic is stopped. For more information, see <a href="#">Chapter 1, “Configuring QoS.”</a></p>

Table A-1 Catalyst 2950 and 2960 Switch Configuration Incompatibilities (continued)

Feature	Catalyst 2950 Switch Command and Explanation	Result on the Catalyst 2960 Switch
IEEE 802.1x	<p>In Cisco IOS 12.1EA, the Catalyst 2950 switch ranges for the IEEE 802.1x server-timeout, supp-timeout, and tx-period are 1 to 65535. You use these interface configuration commands to configure them:</p> <pre>dot1x timeout server-timeout seconds dot1x timeout supp-timeout seconds dot1x timeout tx-period seconds</pre>	<p>In Cisco IOS 12.2SE, the IEEE 802.1x server-timeout and supp-timeout ranges are 30 to 65535. The tx-period range is 15 to 65535.</p> <p>For server-timeout, the Catalyst 2960 switch accepts 1 to 29 as a valid lower value and changes the value to 30.</p> <p>For supp-timeout, the Catalyst 2960 switch accepts 1 to 29 as a valid lower value and changes the value to 30.</p> <p>For tx-timeout, the Catalyst 2960 switch accepts 1 to 14 as a valid lower value and changes the value to 15.</p> <p>For all three commands, this message appears:</p> <pre>%Invalid input detected at '^' marker.</pre>
IGMP <sup>1</sup> snooping	<p>The Catalyst 2950 switch implements IGMP snooping based on MAC addresses. You use this global configuration command to configure static groups:</p> <pre>ip igmp snooping vlan vlan-id static mac-address interface interface-id</pre> <p>These Catalyst 2950 switch global configuration commands were implemented to address hardware limitations:</p> <pre>ip igmp snooping source-only-learning [age-timer value] no ip igmp snooping mrouter learn pim v2</pre>	<p>The Catalyst 2960 switch implements IGMP snooping based on IP addresses and uses other advanced hardware. It rejects the Catalyst 2950 IGMP snooping commands, and these messages appear:</p> <pre>Switch(config)# ip igmp snooping vlan 1 static 0002.4b28.c482 interface gigabitethernet0/1 ^ %Invalid input detected at '^' marker.  Switch(config)# ip igmp snooping source-only-learning ^ %Invalid input detected at '^' marker.  Switch(config)# no ip igmp snooping mrouter learn pim v2 ^ %Invalid input detected at '^' marker.</pre>
Interface MAC address	<p>On the Catalyst 2950 switch, you can set the MAC address for both physical and switch virtual interfaces (SVIs) by using this interface configuration command:</p> <pre>mac-address mac-address</pre>	<p>On the Catalyst 2960 switch, you cannot set the MAC address for physical and SVIs.</p> <p>The switch rejects the command, and this message appears:</p> <pre>Switch(config-if)# mac-address 0100.0ccc.cccc ^ %Invalid input detected at '^' marker.</pre>

Table A-1 Catalyst 2950 and 2960 Switch Configuration Incompatibilities (continued)

Feature	Catalyst 2950 Switch Command and Explanation	Result on the Catalyst 2960 Switch
QoS <sup>2</sup>	<p>There is limited QoS configuration compatibility between the Catalyst 2950 switch and the Catalyst 2960 switch.</p> <p>We recommend that you enable automatic QoS (auto-QoS) on the Catalyst 2950 switch by using the <b>auto qos voip {cisco-phone   cisco-softphone   trust}</b> interface configuration command.</p> <p>If you have a custom QoS configuration on the Catalyst 2950 switch, we recommend that you use auto-QoS for transition to the Catalyst 2960 switch.</p> <p><b>Note</b> If auto-QoS does not provide the configuration required for your network, we recommend that you remove the QoS configuration on the Catalyst 2950 switch and create a new configuration on the Catalyst 2960 switch.</p>	<p>The Catalyst 2960 switch accepts the <b>auto qos</b> command and generates QoS commands that are appropriate for the Catalyst 2960 switch. The policer granularity is adjusted to 1 Mbps.</p> <p>For more information about the generated commands, see the <b>auto qos voip</b> command in the command reference for this release.</p>
	<p>Auto-QoS is not enabled on the Catalyst 2950 switch, but other QoS commands are configured.</p>	<p>These Catalyst 2950 switch commands might fail on the Catalyst 2960 switch:</p> <p><b>mls qos map dscp-cos</b> global configuration command</p> <p><b>wrr-queue cos-map</b> global configuration command</p> <p><b>wrr-queue cos-bandwidth</b> global configuration command</p> <p><b>mls qos trust cos pass-through dscp</b> interface configuration command</p> <p><b>police</b> policy-map class configuration command</p> <p>The switch might display this message:</p> <pre> ^ %Invalid input detected at '^' marker.</pre>

Table A-1 Catalyst 2950 and 2960 Switch Configuration Incompatibilities (continued)

Feature	Catalyst 2950 Switch Command and Explanation	Result on the Catalyst 2960 Switch
RSPAN <sup>3</sup>	<p>You have to specify one port as the reflector port with this global configuration command:</p> <p><b>monitor session session-number destination remote vlan vlan-id reflector-port interface-id</b></p>	<p>Because of advanced hardware in the Catalyst 2960 switch, you do not need to configure a reflector port.</p> <p>The Catalyst 2960 switch accepts the <b>monitor session session-number destination remote vlan vlan-id reflector-port interface-id</b> command, and this message appears:</p> <p>Note: Reflector port configuration is not required on this platform, ignoring the reflector port configuration</p>
STP	<p>The Catalyst 2950 switch supports cross-stack UplinkFast on GBIC<sup>4</sup> interfaces. You enable the stack port with this interface configuration command:</p> <p><b>spanning-tree stack-port</b></p>	<p>The Catalyst 2960 switch does not support GBIC interfaces.</p> <p>It rejects the command, and this message appears:</p> <pre>Switch(config-if)# spanning-tree stack-port                     ^ %Invalid input detected at '^' marker.</pre>

1. IGMP = Internet Group Management Protocol
2. QoS = quality of service
3. RSPAN = Remote Switched Port Analyzer
4. GBIC = Gigabit Interface Converter

## Feature Behavior Incompatibilities

Some features behave differently on the Catalyst 2950 and Catalyst 2960 switches, and some features are not supported on the Catalyst 2960 switch:

- Access control lists (ACLs)

Even though the command syntax is the same on the Catalyst 2960 switch and on the Catalyst 2950 switch, the semantics of the IP and the MAC ACL between the two platforms differ. For example, you can apply MAC ACLs for IP packets on the Catalyst 2950 switch, but on the Catalyst 2960 switch:

- You cannot apply MAC ACLs to IP packets.
- You cannot apply any ACLs for IPv6 frames.
- With MAC ACLs, an Ethertype of Appletalk is not supported.

- QoS

The Catalyst 2960 switch uses different port hardware than the Catalyst 2950 switch, and more QoS features are offered on the Catalyst 2960 switch. For example, the Catalyst 2950 switch supports WRR scheduling, whereas the Catalyst 2960 switch supports SRR scheduling. Also, you must enable QoS globally on the Catalyst 2960 switch, whereas QoS is enabled by default on the Catalyst 2950 switch. For more information, see [Chapter 1, “Configuring QoS.”](#)

- RSPAN

The Catalyst 2950 switch uses an extra port, called the reflector port, for its RSPAN implementation. This is not necessary in the Catalyst 2960 switch RSPAN implementation. The Catalyst 2960 switch also supports VLANs as SPAN sources and can forward received packets on SPAN destination ports.

- Multicast

The multicast forwarding decisions on the Catalyst 2960 switch are based on IP addresses. Some Catalyst 2950 switch workarounds to address platform limitations (such as the **ip igmp snooping source-only-learning** global configuration command) are not required on the Catalyst 2960 switch.