



Release Notes for the Cisco Catalyst Blade Switch 3020 for HP, Cisco IOS Release 12.2(53)SE and Later

March 16, 2010



Note

Cisco IOS Release 12.2(53)SE and later runs on the Cisco Catalyst Blade Switch 3020 for HP, referred to as the *switch*. If you wish to use Device Manager to upgrade the switch from Cisco IOS Release 12.2(35)SE through Cisco IOS Release 12.2(40)SE1 (the LAN Base image) to Cisco IOS Release 12.2(50)SE or later (the IP base image), you must first upgrade to Cisco IOS Release 12.2(40)SE2.

These release notes include important information about Cisco IOS Release 12.2(53)SE and later and any limitations, restrictions, and caveats that apply to them. 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 switch packaging.
- If your switch is on, use the **show version** privileged EXEC command. See the “[Finding the Software Version and Feature Set](#)” section on page 3.
- 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 3.

For the complete list of Cisco Catalyst Blade Switch 3020 for HP documentation, see the “[Related Documentation](#)” section on page 24.

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>

Contents

- “[System Requirements](#)” section on page 2
- “[Upgrading the Switch Software](#)” section on page 3



Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

© 2009-2010 Cisco Systems, Inc. All rights reserved.

- [“Installation Notes” section on page 6](#)
- [“New Software Feature” section on page 6](#)
- [“Limitations and Restrictions” section on page 6](#)
- [“Important Notes” section on page 10](#)
- [“Open Caveats” section on page 12](#)
- [“Resolved Caveats” section on page 13](#)
- [“Documentation Updates” section on page 16](#)
- [“Related Documentation” section on page 24](#)
- [“Obtaining Documentation, Obtaining Support, and Security Guidelines” section on page 25](#)

System Requirements

- [“Hardware Supported” section on page 2](#)
- [“Device Manager System Requirements” section on page 2](#)

Hardware Supported

[Table 1](#) lists the hardware supported on this release.

Table 1 **Supported Hardware**

Switch	Description	Supported by Minimum Cisco IOS Release
Cisco Catalyst Blade Switch 3020 for HP	24-Gigabit Ethernet ports and 4 SFP module slots	Cisco IOS Release 12.2(35)SE
Small form factor pluggable (SFP) modules	1000BASE-LX, -SX, and -T	Cisco IOS Release 12.2(35)SE

Device Manager System Requirements

- [“Hardware Requirements” section on page 2](#)
- [“Software Requirements” section on page 3](#)

Hardware Requirements

[Table 2](#) lists the minimum hardware requirements for running the device manager.

Table 2 **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

These are the supported operating systems and browsers for the device manager:

- Windows 2000, XP, Vista, and Windows Server 2003
- Internet Explorer 5.5, 6.0, 7.0, Firefox 1.5, 2.0 or later

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

Upgrading the Switch Software

- [“Finding the Software Version and Feature Set” section on page 3](#)
- [“Deciding Which Files to Use” section on page 3](#)
- [“Archiving Software Images” section on page 4](#)
- [“Upgrading a Switch by Using the Device Manager” section on page 4](#)
- [“Upgrading a Switch by Using the CLI” section on page 5](#)
- [“Recovering from a Software Failure” section on page 6](#)

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.



Note

If you wish to use Device Manager to upgrade the switch from Cisco IOS Release 12.2(35)SE through Cisco IOS Release 12.2(40)SE1 (the LAN Base image) to Cisco IOS Release 12.2(50)SE or later (the IP base image), you must first upgrade to Cisco IOS Release 12.2(40)SE2.

Table 3 lists the filenames for this software release.

Table 3 Cisco IOS Software Image Files

Filename	Description
cbs30x0-ipbase-tar.122-53.se1.tar	Cisco Catalyst Blade Switch 3020 for HP image file and device manager files. This image has Layer 2+ features.
cbs30x0-ipbasek9-tar.122-53.se1.tar	Cisco Catalyst Blade Switch 3020 for HP cryptographic image file and device manager files. This image has the Kerberos and SSH features.

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/products/sw/iosswrel/ps5187/prod_bulletin0900aec80281c0e.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* at this URL:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_command_reference_book09186a00800811e0.html

Upgrading a Switch by Using the Device Manager

You can upgrade switch software by using the device manager. 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 3 on page 4](#) to identify the file that you want to download.
- Step 2** Download the software image file. If you have a SmartNet support contract, go to this URL, and log in to download the appropriate files:

<http://www.cisco.com/kobayashi/sw-center/sw-lan.shtml>

- 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.

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/image-name.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 additional recovery procedures, see the “Troubleshooting” chapter in the software configuration guide for this release.

Installation Notes

You can assign IP information to your switch by using these methods:

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

New Software Feature

Support for the **ip vrf forwarding** *vrf-name* server-group configuration and the **ip radius source-interface** global configuration VRF-Aware RADIUS commands. For more information, see the [“Update to the Software Configuration Guide”](#) section on page 16.

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”](#) section on page 6
- [“Device Manager Limitations”](#) section on page 10

Cisco IOS Limitations

- [“Configuration”](#) section on page 7
- [“Ethernet”](#) section on page 7
- [“IP”](#) section on page 8
- [“IP Telephony”](#) section on page 8
- [“Multicasting”](#) section on page 8
- [“QoS”](#) section on page 9
- [“SPAN and RSPAN”](#) section on page 9
- [“Trunking”](#) section on page 10
- [“VLAN”](#) section on page 10

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 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 Mp/s full duplex or 100 Mp/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 Mp/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)
- 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)

Ethernet

- 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 might map to same member ports, based on hashing results calculated by the ASIC.

If this happens, traffic distribution is uneven 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 (for example, 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)

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)

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)
- A switch drops unicast traffic under these conditions:
 - The switch belongs to a Layer 2 ring.
 - More than 800 Mbps of multicast traffic is sent in both directions on the interface.

When multicast traffic is sent in one direction and unicast traffic is sent in another, unicast traffic is dropped at the multicast traffic source port.

The workaround is to apply a policy map so that the least significant traffic is discarded. (CSCsq83882)

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)
- A QoS service policy with a policy map containing more than 62 policers cannot be added to an interface by using the **service-policy** interface configuration command.

The workaround is to use policy maps with 62 or fewer policers. (CSCsc59418)

SPAN and RSPAN

- 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. (CSCdy81521)
- 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. (CSCea72326)

- Cisco Discovery Protocol (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)

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 dynamic ARP inspection is configured on a VLAN, and the ARP traffic on a port in the VLAN is within the configured rate limit, the port might go into an error-disabled state. The workaround is to configure the burst interval to more than 1 second. (CSCse06827)

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 start.
The workaround is to click *Yes* when you are prompted to accept the certificate. (CSCef45718)
- When the physical UID LED of the switch is on, it is blue. However, when the image of this LED on the device manager Front Panel view is on, it is green.
There is no workaround (CSCsd98457).

Important Notes

- [“Cisco IOS Notes” section on page 11](#)
- [“Device Manager Notes” section on page 11](#)

Cisco IOS Notes

- The behavior of the **no logging on** global configuration command changed in Cisco IOS Release 12.2(18)SE and later. You can only use the **logging on** and then the **no logging console** global configuration commands to disable logging to the console. (CSCec71490)
- In Cisco IOS Release 12.2(25)SEC, the implementation for multiple spanning tree (MST) changed from the previous release. Multiple STP (MSTP) complies with the IEEE 802.1s standard. Previous MSTP implementations were based on a draft of the IEEE 802.1s standard.
- 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, make sure that there is network connectivity between the switch and the ACS. You should also make sure that the switch has been properly configured as an AAA client on the ACS.

- Cisco IOS Release 12.2(40)SE and later

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

- We recommend this browser setting to more quickly 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	<code>configure terminal</code>	Enter global configuration mode.
Step 2	<code>ip http authentication {aaa enable local}</code>	Configure the HTTP server interface for the type of authentication that you want to use. <ul style="list-style-type: none"> 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	<code>end</code>	Return to privileged EXEC mode.
Step 4	<code>show running-config</code>	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 start the device manager.

Open Caveats

Device Manager

- CSCtf57222.
The chassis ID for the CBS3020 does not appear in the Device Manager window.
There is no workaround.

Cisco IOS

- CSCsx29696
On switches running Cisco IOS Release 12.2(35)SE or later, connectivity issues might occur with these messages:
`%SUPQ-4-CPUHB_RECV_STARVE: Still seeing receive queue stuck after throttling`
There is no workaround.

- CSCsy85676
When you configure an ACL and enter the **access-group** interface configuration command to apply it to an interface for web authentication, the output from the **show epm session ip-address** or **show ip access_list interface interface-id** privileged EXEC command does not show any web authentication filter ID.
There is no workaround.
- CSCsz18634
On a switch running Cisco IOS Release 12.2(46)SE, the output of the **show interfaces** privileged EXEC command shows 0 packets for port channel input and output rates.
The workaround is to reload the switch by entering the **reload** privileged EXEC command.
- CSCta72141
The bootloader label is incorrect and displays “CISCO DEVELOPMENT TEST VERSION.” However, the actual bootloader software is the correct version with the correct functionality.
There is no workaround. It does not impact functionality.
- CSCtc02635
On switches running Cisco IOS Release 12.2(50)SE3 running MAC authentication bypass with multidomain authentication (MDA), IP phones connected to a port might not be able to regain network connectivity in the VOICE domain if the session times out and all RADIUS servers are unreachable.
There is no workaround.
- CSCtd29049
A switch that has at least one trunk port configured might fail when you configure more than 950 VLANs by using the **vlan vlan-id** global configuration command.
There is no workaround.
- CSCtf57222
When you use the device manager, the dashboard does not display the switch chassis ID.
There is no workaround.

Resolved Caveats

- [“Resolved Caveats in Cisco IOS Release 12.2\(53\)SE1” section on page 13](#)
- [“Resolved Caveats in Cisco IOS Release 12.2\(53\)SE” section on page 14](#)

Resolved Caveats in Cisco IOS Release 12.2(53)SE1

- CSCsx97605
The CISCO-RTTMON-MIB is not correctly implemented in this release.
- CSCtb10158
A switch can fail when an SNMP process attempts to configure dot1x authentication when it is already configured.
There is no workaround.

- CSCtc43231

A switch does not receive SNMP trap and inform messages from the correct interface after you have entered the **snmp-server trap-source loopback0** and **snmp-server source-interface informs loopback0** global configuration commands.

There is no workaround.
- CSCtc59162

Modifying a prefix list that is configured as an inbound or outbound distribute-list causes the EIGRP peer to resynchronize.
- CSCte52821

When you enter the **no ip ftp passive** global configuration command to allow all types of FTP connections on a switch running Cisco IOS Release 12.2(52)SE or 12.2(53)SE, FTP sessions could disable Telnet or console connections. Then you can no longer use the vty.

Workaround: When you cannot use the vty, restart the switch. To prevent FTP sessions from disabling Telnet or console connections, enter the **ip ftp passive** global configuration command.
- CSCte67201

On a switch that is configured for IP routing and that is running Cisco IOS Release 12.2(50)SE or later, Cisco Express Forwarding (CEF) can use a large amount of memory. The IP RIB Update process uses about 2000 bytes for each prefix that CEF uses.

There is no workaround. You can reduce the memory use by reducing the number of routes the switch processes.
- CSCte72365

After upgrading from Cisco IOS Release 12.2(52)SE to Cisco IOS 12.2(53)SE, EIGRP hello packets are flooded on access ports of other subnets. This also occurs when pings are sent to the broadcast address of other subnets.

Resolved Caveats in Cisco IOS Release 12.2(53)SE

- CSCsj68446

The Network Time Protocol (NTP) might not synchronize when the switch is configured as an NTP client. These are the two possible workarounds:

 - Enter the **no ntp** global configuration command twice.
 - Reconfigure NTP on the port. For more information, see the “Configuring NTP” section of the “Administering the Switch” chapter in the software configuration guide.
- CSCsv92937

When a blade server starts, the switch internal interface might flap due to the network interface card (NIC) driver. In Cisco IOS Release 12.2(46)SE and earlier, the port might enter the error-disabled state.

The workaround is to enter the **errdisable max flap 10 time 10** global configuration command in Cisco IOS Release 12.2(46)SE and earlier. In Cisco IOS Release 12.2(50)SE and later, the switch no longer detects link flapping on the internal interfaces.
- CSCsz18634

On a switch running Cisco IOS release 12.2(46)SE, the output of the **show interfaces** privileged EXEC command shows 0 packets for port channel input and output rates.

The workaround is to reload the switch by entering the reload privileged EXEC command.

- CSCtc02635

On switches running Cisco IOS Release 12.2(50)SE3 running MAC authentication bypass with multidomain authentication (MDA), IP phones connected to a port might not be able to regain network connectivity in the VOICE domain if the session times out and all RADIUS servers are unreachable.

There is no workaround.

- CSCtc16848

The output of the **show inventory** user EXEC command sometimes does not display all of the connected SFP modules. The EntityMIB does not report these SFP modules.

There is no workaround.

- CSCtc20603

If IEEE 802.1Q native VLAN tagging is enabled on a switch, PDUs sent from an EtherChannel in LACP mode are tagged.

There is no workaround.

- CSCtc30872

When a BPDU guard is globally enabled on a switch and the access VLAN is a VLAN other than VLAN 1, BPDU guard does not run on a multiple VLAN access port.

The workaround is to enable BPDU guard on the port.

- CSCtc57809

When the **no mac address-table static mac-addr vlan vlan-id interface interface-id** global configuration command is used to remove a dynamically learned MAC address, the switch fails under these conditions:

- The physical interface is in a no shut state.
- The MAC address is first dynamically learned and then changed to static.
- There is no workaround.

- CSCtd31242

An IP phone loses network connectivity under these conditions:

- The IP phone is authenticated by MAB (in Open1x mode) on a supplicant switch.
- The supplicant switch is connected to an authenticator switch through the NEAT protocol.
- A call is placed using the IP phone. After approximately 5 minutes, network connectivity to the phone is lost.

The workaround is to statically configure the MAC address of the IP phone on the authenticator switch.

- CSCtd72456

After you have entered the **snmp-server host informs** global configuration command to enable SNMP informs on a switch, the switch might fail if you enter the show snmp pending user EXEC command.

There is no workaround. Do not enter the show command when SNMP informs are enabled.

Documentation Updates

- “Update to the Software Configuration Guide” section on page 16
- “Updates to the System Message Guide” section on page 17
- “Updates to the Getting Started Guide” section on page 24

Update to the Software Configuration Guide

This section was added to the “Configuring IP Unicast Routing” chapter:

User Interface for VRF-Aware RADIUS

To configure VRF-Aware RADIUS, you must first enable AAA on a RADIUS server. This release supports the **ip vrf forwarding** *vrf-name* server-group configuration and the **ip radius source-interface** global configuration commands, as described in the *Per VRF AAA Feature Guide* at this URL:

http://www.cisco.com/en/US/docs/ios/12_2t/12_2t13/feature/guide/ftvrfaaa.html

This section was added to the “Configuring IEEE 802.1x Port-Based Authentication” chapter:

Common Session ID

Authentication manager uses a single session ID (referred to as a common session ID) for a client no matter which authentication method is used. This ID is used for all reporting purposes, such as the show commands and MIBs. The session ID appears with all per-session syslog messages.

The session ID includes:

- The IP address of the Network Access Device (NAD)
- A monotonically increasing unique 32 bit integer
- The session start time stamp (a 32 bit integer)

This example shows how the session ID appears in the output of the **show authentication** command. The session ID in this example is 160000050000000B288508E5:

```
Switch# show authentication sessions
```

Interface	MAC Address	Method	Domain	Status	Session ID
Fa4/0/4	0000.0000.0203	mab	DATA	Authz Success	160000050000000B288508E5

This is an example of how the session ID appears in the syslog output. The session ID in this example is also 160000050000000B288508E5:

```
1w0d: %AUTHMGR-5-START: Starting 'mab' for client (0000.0000.0203) on Interface Fa4/0/4
AuditSessionID 160000050000000B288508E5
1w0d: %MAB-5-SUCCESS: Authentication successful for client (0000.0000.0203) on Interface
Fa4/0/4 AuditSessionID 160000050000000B288508E5
1w0d: %AUTHMGR-7-RESULT: Authentication result 'success' from 'mab' for client
(0000.0000.0203) on Interface Fa4/0/4 AuditSessionID 160000050000000B288508E5
```

The session ID is used by the NAD, the AAA server, and other report-analyzing applications to identify the client. The ID appears automatically. No configuration is required.

This guideline was added to the “MSTP Configuration Guidelines” section of the “Configuring MSTP” chapter:

- When the switch is in MST mode, it uses the long path-cost calculation method (32 bits) to compute the path cost values. With the long path-cost calculation method, these path cost values are supported:

Speed	Path Cost Value
10 Mb/s	2,000,000
100 Mb/s	200,000
1 Gb/s	20,000
10 Gb/s	2,000
100 Gb/s	200

Updates to the System Message Guide

New System Messages

Error Message DOT1X-4-MEM_UNAVAIL: Memory was not available to perform the 802.1X action. AuditSessionID [chars]

Explanation The system memory is not sufficient to perform the IEEE 802.1x authentication. [chars] is the session ID.

Recommended Action Reduce other system activity to reduce memory demands.

Error Message DOT1X-5-FAIL: Authentication failed for client ([chars]) on Interface [chars] AuditSessionID [chars]

Explanation The authentication was unsuccessful. The first [chars] is the client ID, the second [chars] is the interface, and the third [chars] is the session ID.

Recommended Action No action is required.

Error Message %DOT1X-5-RESULT_OVERRIDE: Authentication result overridden for client ([chars]) on Interface [chars] AuditSessionID [chars]

Recommended Action The authentication result was overridden. The first [chars] is the client ID, the second [chars] is the interface, and the third [chars] is the session ID.

Explanation No action is required.

Error Message DOT1X-5-SUCCESS: Authentication successful for client ([chars]) on Interface [chars] AuditSessionID [chars]

Explanation Authentication was successful. The first [chars] is the client ID, the second [chars] is the interface, and the third [chars] is the session ID.

Recommended Action No action is required.

Error Message DOT1X_SWITCH-5-ERR_ADDING_ADDRESS: Unable to add address [enet] on [chars] AuditSessionID [chars]

Explanation The client MAC address could not be added to the MAC address table because the hardware memory is full or the address is a secure address on another port. This message might appear if IEEE 802.1x is enabled. [enet] is the client MAC address, the first [chars] is the interface, and the second [chars] is the session ID.

Recommended Action If the hardware memory is full, remove some of the dynamic MAC addresses. If the client address is on another port, remove it from that port.

Error Message DOT1X_SWITCH-5-ERR_INVALID_PRIMARY_VLAN: Attempt to assign primary VLAN [dec] to 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign a primary VLAN to an IEEE 802.1x port, which is not allowed. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Use a different VLAN.

Error Message DOT1X_SWITCH-5-ERR_INVALID_SEC_VLAN: Attempt to assign invalid secondary VLAN [dec] to PVLAN host 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign a nonsecondary VLAN to a private VLAN host IEEE 802.1x port. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Change the mode of the port so that it is no longer a PVLAN host port or use a valid secondary VLAN.

Error Message DOT1X_SWITCH-5-ERR_PRIMARY_VLAN_NOT_FOUND: Attempt to assign VLAN [dec], whose primary VLAN does not exist or is shutdown, to 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign a private VLAN whose primary VLAN does not exist or is shut down. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Make sure the primary VLAN exists and is not shut down. Verify that the private VLAN is associated with a primary VLAN.

Error Message DOT1X_SWITCH-5-ERR_SEC_VLAN_INVALID: Attempt to assign secondary VLAN [dec] to non-PVLAN host 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign a secondary VLAN to a port that is not a private VLAN host port, which is not allowed. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Change the mode of the port so that it is configured as a private VLAN host port, or use a different VLAN that is not configured as a secondary VLAN.

Error Message DOT1X_SWITCH-5-ERR_SPAN_DST_PORT: Attempt to assign VLAN [dec] to 802.1x port [chars], which is configured as a SPAN destination AuditSessionID [chars]

Explanation An attempt was made to assign a VLAN to an IEEE 802.1x port that is configured as a Switched Port Analyzer (SPAN) destination port. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Change the SPAN configuration so that the port is no longer a SPAN destination port, or change the configuration so that no VLAN is assigned.

Error Message DOT1X_SWITCH-5-ERR_VLAN_EQ_MDA_INACTIVE: Multi-Domain Authentication cannot activate because Data and Voice VLANs are the same on port AuditSessionID [chars]

Explanation Multi-Domain Authentication (MDA) host mode cannot start if the configured data VLAN on a port is the same as the voice VLAN. [chars] is the port session ID.

Recommended Action Change either the voice VLAN or the access VLAN on the interface so that they are not the same. MDA then starts.

Error Message DOT1X_SWITCH-5-ERR_VLAN_EQ_VVLAN: Data VLAN [dec] on port [chars] cannot be equivalent to the Voice VLAN AuditSessionID [chars]

Explanation An attempt was made to assign a data VLAN to an IEEE 802.1x port that is the same as the voice VLAN. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Change either the voice VLAN or the IEEE 802.1x-assigned VLAN on the interface so that they are not the same.

Error Message DOT1X_SWITCH-5-ERR_VLAN_INTERNAL: Attempt to assign internal VLAN [dec] to 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign an invalid VLAN to an IEEE 802.1x port. The VLAN specified is used internally and cannot be assigned to this port. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Explanation Assign a different VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_INVALID: Attempt to assign invalid VLAN [dec] to 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign an invalid VLAN to an IEEE 802.1x port. The VLAN specified is out of range. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Update the configuration to use a valid VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_NOT_FOUND: Attempt to assign non-existent or shutdown VLAN [chars] to 802.1x port [chars] AuditSessionID [chars]

Explanation An attempt was made to assign a VLAN to an IEEE 802.1x port, but the VLAN was not found in the VLAN Trunking Protocol (VTP) database. [dec] is the VLAN, the first [chars] is the port, and the second [chars] is the session ID.

Recommended Action Make sure the VLAN exists and is not shutdown or use another VLAN.

Deleted System Messages

Error Message DOT1X-4-MEM_UNAVAIL: Memory was not available to perform the 802.1X action.

Explanation The system memory is not sufficient to perform the IEEE 802.1x authentication.

Recommended Action Reduce other system activity to reduce memory demands.

Error Message DOT1X-5-SUCCESS: Authentication successful for client ([chars]) on Interface [chars]

Explanation Authentication was successful. [chars] is the interface.

Recommended Action No action is required.

Error Message DOT1X_SWITCH-5-ERR_ADDING_ADDRESS: Unable to add address [enet] on [chars]

Explanation The client MAC address could not be added to the MAC address table because the hardware memory is full or the address is a secure address on another port. This message might appear if IEEE 802.1x is enabled. [enet] is the client MAC address, and [chars] is the interface.

Recommended Action If the hardware memory is full, remove some of the dynamic MAC addresses. If the client address is on another port, remove it from that port.

Error Message DOT1X_SWITCH-5-ERR_INVALID_PRIMARY_VLAN: Attempt to assign primary VLAN [dec] to 802.1x port [chars]

Explanation An attempt was made to assign a primary VLAN to an IEEE 802.1x port, which is not allowed. [dec] is the VLAN, and [chars] is the port.

Recommended Action Use a different VLAN.

Error Message DOT1X_SWITCH-5-ERR_INVALID_SEC_VLAN: Attempt to assign invalid secondary VLAN [dec] to PVLAN host 802.1x port [chars]

Explanation An attempt was made to assign a nonsecondary VLAN to a private VLAN host IEEE 802.1x port. [dec] is the VLAN, and [chars] is the port.

Recommended Action Change the mode of the port so that it is no longer a private VLAN host port, or use a valid secondary VLAN.

Error Message DOT1X_SWITCH-5-ERR_PRIMARY_VLAN_NOT_FOUND: Attempt to assign VLAN [dec], whose primary VLAN does not exist or is shutdown, to 802.1x port [chars]

Explanation An attempt was made to assign a private VLAN whose primary VLAN does not exist or is shut down. [dec] is the VLAN, and [chars] is the port.

Recommended Action Make sure the primary VLAN exists and is not shut down. Verify that the private VLAN is associated with a primary VLAN.

Error Message DOT1X_SWITCH-5-ERR_SEC_VLAN_INVALID: Attempt to assign secondary VLAN [dec] to non-PVLAN host 802.1x port [chars]

Explanation An attempt was made to assign a secondary VLAN to a port that is not a private VLAN host port, which is not allowed. [dec] is the VLAN, and [chars] is the port.

Recommended Action Change the mode of the port so that it is configured as a private VLAN host port, or use a different VLAN that is not configured as a secondary VLAN.

Error Message DOT1X_SWITCH-5-ERR_SPAN_DST_PORT: Attempt to assign VLAN [dec] to 802.1x port [chars], which is configured as a SPAN destination

Explanation An attempt was made to assign a VLAN to an IEEE 802.1x port that is configured as a Switched Port Analyzer (SPAN) destination port. [dec] is the VLAN, and [chars] is the port.

Recommended Action Change the SPAN configuration so that the port is no longer a SPAN destination port, or change the configuration so that no VLAN is assigned.

Error Message DOT1X_SWITCH-5-ERR_VLAN_EQ_MDA_INACTIVE: Multi-Domain Authentication cannot activate because Data and Voice VLANs are the same on port [chars]

Recommended Action Multi-Domain Authentication (MDA) host mode cannot start if the configured data VLAN on a port is the same as the voice VLAN. [chars] is the port.

Recommended Action Change either the voice VLAN or the access VLAN on the interface so that they are not the same. MDA then starts.

Error Message DOT1X_SWITCH-5-ERR_VLAN_EQ_VVLAN: Data VLAN [dec] on port [chars] cannot be equivalent to the Voice VLAN.

Explanation An attempt was made to assign a data VLAN to an IEEE 802.1x port that is the same as the voice VLAN. [dec] is the VLAN, and [chars] is the port.

Recommended Action Change either the voice VLAN or the IEEE 802.1x-assigned VLAN on the interface so that they are not the same.

Error Message DOT1X_SWITCH-5-ERR_VLAN_INTERNAL: Attempt to assign internal VLAN [dec] to 802.1x port [chars]

Explanation An attempt was made to assign an invalid VLAN to an IEEE 802.1x port. The VLAN specified is used internally and cannot be assigned to this port. [dec] is the VLAN, and [chars] is the port.

Recommended Action Assign a different VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_INVALID: Attempt to assign invalid VLAN [dec] to 802.1x port [chars]

Explanation An attempt was made to assign an invalid VLAN to an IEEE 802.1x port. The VLAN specified is out of range. [dec] is the VLAN, and [chars] is the port.

Recommended Action Update the configuration to use a valid VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_NOT_FOUND: Attempt to assign non-existent or shutdown VLAN [dec] to 802.1x port [chars]

Explanation An attempt was made to assign a VLAN to an IEEE 802.1x port, but the VLAN was not found in the VLAN Trunking Protocol (VTP) database. [dec] is the VLAN, and [chars] is the port.

Recommended Action Make sure that the VLAN exists and is not shut down, or use another VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_ON_ROUTED_PORT: Dot1x cannot assign a VLAN [dec] to a routed port [chars]

Explanation An attempt was made to assign a VLAN to a supplicant on a routed port, which is not allowed. [dec] is the VLAN ID and [chars] is the port.

Recommended Action Either disable the VLAN assignment, or change the port type to a nonrouted port.

Error Message DOT1X_SWITCH-5-ERR_VLAN_PROMISC_PORT: Attempt to assign VLAN [dec] to promiscuous 802.1x port [chars]

Explanation An attempt was made to assign a VLAN to a promiscuous IEEE 802.1x port, which is not allowed. [dec] is the VLAN, and [chars] is the port.

Recommended Action Change the port mode so that it is no longer a promiscuous port, or change the configuration so that no VLAN is assigned.

Error Message DOT1X_SWITCH-5-ERR_VLAN_RESERVED: Attempt to assign reserved VLAN [dec] to 802.1x port [chars]

Explanation An attempt was made to assign an invalid VLAN to an IEEE 802.1x port. The VLAN specified is a reserved VLAN and cannot be assigned to this port. [dec] is the VLAN, and [chars] is the port.

Recommended Action Assign a different VLAN.

Error Message DOT1X_SWITCH-5-ERR_VLAN_RSPAN: Attempt to assign RSPAN VLAN [dec] to 802.1x port [chars]. 802.1x is incompatible with RSPAN

Explanation This message means that remote SPAN should not be enabled on a VLAN with IEEE 802.1x-enabled. [dec] is the VLAN, and [chars] is the port.

Recommended Action Either disable remote SPAN configuration on the VLAN, or disable IEEE 802.1x on all the ports in this VLAN.

Error Message SW_VLAN-4-VTP_USER_NOTIFICATION: VTP protocol user notification: [chars].

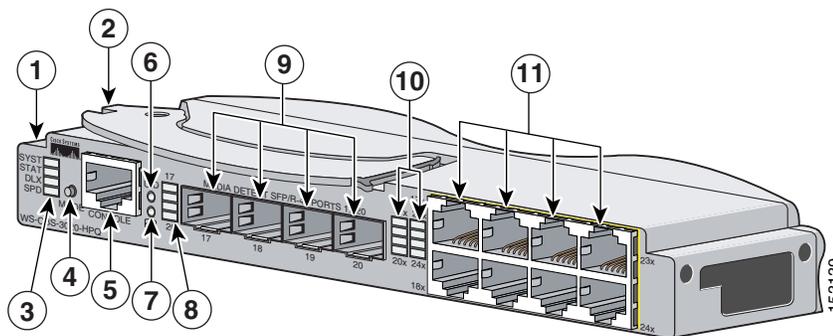
Explanation This message means that the VTP code encountered an unusual diagnostic situation. [chars] is a description of the situation.

Recommended Action Find out more about the error by using the **show tech-support** privileged EXEC command. Copy the message exactly as it appears on the console or in the system log. Research and attempt to resolve the error by using the Output Interpreter. Use the Bug Toolkit to look for similar reported problems. If you still require assistance, open a case with the TAC, or contact your Cisco technical support representative, and provide the representative with the gathered information.

Updates to the Getting Started Guide

This illustration in the *Cisco Catalyst Blade Switch 3020 for HP Getting Started Guide* has been updated:

Figure 1 The Catalyst Blade Switch 3020 for HP



1	Switch module	7	Health LED
2	Release latch	8	SFP module port LEDs for ports 17 to 20
3	System status LEDs	9	SFP module ports 17 to 20
4	Mode button	10	Gigabit Ethernet ports LEDs for ports 17x to 24x
5	Console port	11	Gigabit Ethernet ports 17x to 24x
6	UID ¹ LED		

1. UID: unit identifier.

This information in the *Cisco Catalyst Blade Switch 3020 for HP Getting Started Guide* has been updated:

When you launch Express Setup, you are prompted for the switch password. Enter the default password, *cisco*. The switch ignores text in the username field. Before you complete and exit Express Setup, you must change the password from the default password, *cisco*.

Related Documentation

These documents provide complete information about the Cisco Catalyst Blade Switch 3020 for HP and are available at Cisco.com:

http://www.cisco.com/en/US/products/ps8743/tsd_products_support_series_home.html

These documents provide complete information about the Cisco Catalyst Blade Switch 3020 for HP:

- *Cisco Catalyst Blade Switch 3020 for HP Getting Started Guide*
- *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3020 for HP*
- *Cisco Catalyst Blade Switch 3020 for HP Software Configuration Guide*
- *Cisco Catalyst Blade Switch 3020 for HP Command Reference*
- *Cisco Catalyst Blade Switch 3020 for HP System Message Guide*

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

CCDE, CCENT, CCSI, Cisco Eos, Cisco Explorer, Cisco HealthPresence, Cisco IronPort, the Cisco logo, Cisco Nurse Connect, Cisco Pulse, Cisco SensorBase, Cisco StackPower, Cisco StadiumVision, Cisco TelePresence, Cisco TrustSec, Cisco Unified Computing System, Cisco WebEx, DCE, Flip Channels, Flip for Good, Flip Mino, Flipshare (Design), Flip Ultra, Flip Video, Flip Video (Design), Instant Broadband, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn, Cisco Capital, Cisco Capital (Design), Cisco:Financed (Stylized), Cisco Store, Flip Gift Card, and One Million Acts of Green are service marks; and Access Registrar, Aironet, AllTouch, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Lumin, Cisco Nexus, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, Continuum, EtherFast, EtherSwitch, Event Center, Explorer, Follow Me Browsing, GainMaker, iLynX, IOS, iPhone, IronPort, the IronPort logo, Laser Link, LightStream, Linksys, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, PCNow, PIX, PowerKEY, PowerPanels, PowerTV, PowerTV (Design), PowerVu, Prisma, ProConnect, ROSA, SenderBase, SMARTnet, Spectrum Expert, StackWise, WebEx, and the WebEx logo are registered trademarks of Cisco and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1002R)

Copyright © 2009-2010 Cisco Systems, Inc. All rights reserved.

