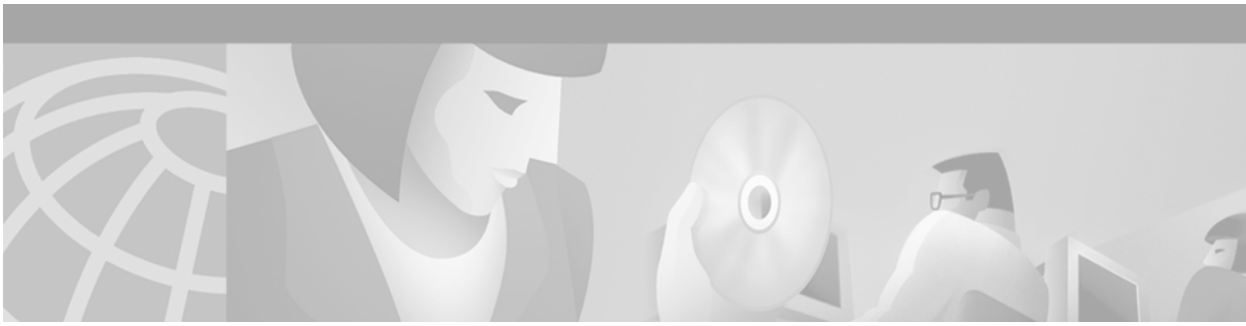

Release Notes for Catalyst 5000 Series FDDI Software Release 3.*x* and 2.*x*

Current Release (August 15, 2000)
3.2(2)

Previous Releases
3.2(1a), 3.1(1), 2.1(7), 2.1(6), 2.1(5), 2.1(2)

These release notes describe the modifications and caveats for Catalyst 5000 series Fiber Distributed Data Interface (FDDI) software release 3.*x*, 2.*x*, and 1.*x*. The current release is FDDI software release 3.2(2). These release notes apply to Catalyst 5000 series FDDI and CDDI switching modules.

Note Although the software image in a new Catalyst 5000 series switch operates correctly, later software images containing the latest upgrades and modifications are released regularly to provide you with the most optimized software available. We strongly recommend that you check for the latest released software images at the World Wide Web locations listed in the "Cisco Connection Online" section on page 12.

Note Release notes for prior Catalyst 5000 series software releases were accurate at the time of release. However, for information on the latest caveats and updates to previously released Catalyst 5000 series software releases, refer to the release notes for the latest maintenance release in your software release train. You can access all Catalyst 5000 series release notes at the World Wide Web locations listed in the "Cisco Connection Online" section on page 12.

Note Catalyst 5000 Series FDDI software release 3.2(2) is only available on CCO. It is not orderable from manufacturing.

CISCO SYSTEMS

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Year 2000 Compliance

The Catalyst 5000 series FDDI and CDDI modules are Year 2000 compliant in all FDDI module software releases. All time related functions are in the supervisor engine software.

The Catalyst 5000, 5002, and 5500 switches are Year 2000 compliant with the following supervisor engine software releases:

- Software releases 2.1(9) through 2.1(12)
- Software release 2.3(1) and later

The Catalyst 5505 and 5509, the Catalyst 2926G series, and the Catalyst 2926 series switches are Year 2000 compliant with all software releases in which these products are supported.

For more information on Cisco's Year 2000 compliance, visit this URL:

http://www.cisco.com/warp/public/752/2000/

New FDDI Onboard Flash Support in Software Release 3.2(1a)

Newer FDDI modules (version 1.7 or higher) have a new version of onboard Flash memory. FDDI module software release 3.2(1a) is required to support this hardware.

Caution Do not downgrade a version 1.7 or later FDDI module to a FDDI module software release prior to release 3.2(1a). The FDDI module will not function properly.

Use the **show version** [*mod_num*] command to identify the FDDI module hardware version. If the Hw (hardware) version number for the FDDI module is 1.7, the module uses the new onboard Flash memory and requires FDDI module software release 3.2(1a) or later.

New Features in Software Release 3.2(1a)

This section describes new features in FDDI software release 3.2(1a):

- Software supports FDDI modules with hardware version 1.7 or later (see the "New FDDI Onboard Flash Support in Software Release 3.2(1a)" section on page 2 for more information).
- Switch TopN reports are supported on FDDI and CDDI modules.

New Features in Software Release 3.1(1)

This section describes new features in FDDI software release 3.1(1):

Fast switchover is supported with supervisor engine software release 3.1(2a) and later.

Usage Guidelines and Restrictions

This section describes usage guidelines and restrictions for the FDDI software:

- The FDDI CAM table only supports one aging time value regardless of the number of Ethernet VLANs configured on the FDDI port. To ensure the consistency of the FDDI CAM table aging time, set an equivalent aging time for all Ethernet VLANs on an FDDI port. (CSCdi63099)
- Occasionally, the FDDI module incorrectly generates "ICMP unreachable: MTU SIZE EXCEEDED" messages for traffic between FDDI stations on the same ring. The workaround is to disable ICMP unreachable messages, set the CAM aging time to zero, or enter FDDI ring MAC addresses in the CAM table as permanent entries. (CSCdj12157)
- The Automatic Packet Recognition and Translation (APaRT) feature is not supported for 802.10 trunking traffic. It is supported only on the native VLAN.
- When you insert or replace FDDI modules, clear the module configuration information, using the **clear config** *mod_num* command, to obtain the correct spanning-tree parameters for the modules.

Open and Resolved Caveats in Software Release 3.2(2)

These sections describe open and resolved caveats in FDDI software release 3.2(2):

- Open Caveats in Software Release 3.2(2), page 4
- Resolved Caveats in Software Release 3.2(2), page 4

Open Caveats in Software Release 3.2(2)

Note For a description of caveats resolved in software release 3.2(2), see the "Resolved Caveats in Software Release 3.2(2)" section on page 4.

This section describes open caveats in software release 3.2(2).

- When the ports on an FDDI module are disabled, you cannot download an FDDI software image to that module using the default in-band (multiple module) downloading algorithm. The workaround is to enable the FDDI ports before downloading or do an out-of-band (single module) download using the **scp** option as follows: **download** *host file module_num* **scp**. (CSCdj67143)
- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet received on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)

Resolved Caveats in Software Release 3.2(2)

Note For a description of open caveats in software release 3.2(2), see the "Open Caveats in Software Release 3.2(2)" section on page 4.

This section describes resolved caveats in software release 3.2(2).

- Some DECnet protocols require the FDDI priority bit in the FDDI control field to be cleared. This problem is resolved by the addition of the new global **set option fddi-user-pri** command that enables the priority field in the FDDI control field to be cleared for all protocols on all FDDI ports in a Catalyst 5000 family switch.

  This command is supported in Catalyst 5000 FDDI software release 3.2(2) and later and in supervisor engine software release 5.5(2) or later. (CSCdr42228)

Open and Resolved Caveats in Software Release 3.2(1a)

These sections describe open and resolved caveats in FDDI software release 3.2(1a):

- Open Caveats in Software Release 3.2(1a), page 5
- Resolved Caveats in Software Release 3.2(1a), page 6

Open Caveats in Software Release 3.2(1a)

Note For a description of caveats resolved in software release 3.2(1a), see the "Resolved Caveats in Software Release 3.2(1a)" section on page 6.

This section describes open caveats in software release 3.2(1a).

- When the ports on an FDDI module are disabled, you cannot download an FDDI software image to that module using the default in-band (multiple module) downloading algorithm. The workaround is to enable the FDDI ports before downloading or do an out-of-band (single module) download using the **scp** option as follows: **download** *host file module_num* **scp**. (CSCdj67143)
- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet received on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)

Resolved Caveats in Software Release 3.2(1a)

Note For a description of open caveats in software release 3.2(1a), see the "Open Caveats in Software Release 3.2(1a)" section on page 5.

There are no caveats resolved in software release 3.2(1a).

Open and Resolved Caveats in Software Release 3.1(1)

These sections describe open and resolved caveats in FDDI software release 3.1(1):

- Open Caveats in Software Release 3.2(1a), page 5
- Resolved Caveats in Software Release 3.2(1a), page 6

Open Caveats in Software Release 3.1(1)

Note For a description of caveats resolved in software release 3.1(1), see the "Resolved Caveats in Software Release 3.1(1)" section on page 7.

This section describes open caveats in software release 3.1(1).

- When the ports on an FDDI module are disabled, you cannot download an FDDI software image to that module using the default in-band (multiple module) downloading algorithm. The workaround is to enable the FDDI ports before downloading or do an out-of-band (single module) download using the **scp** option as follows: **download** *host file module_num* **scp**. (CSCdj67143)
- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)

Resolved Caveats in Software Release 3.1(1)

Note For a description of open caveats in software release 3.1(1), see the "Open Caveats in Software Release 3.1(1)" section on page 6.

This section describes caveats resolved in software release 3.1(1):

- When an FDDI module receives an IP frame with a 60 byte IP header, and the first byte after the header is a nonzero byte, the FDDI module may stop switching traffic. This problem is fixed in software release 3.1(1). (CSCdj40695)
- In some circumstances, the offset and IP length can be incorrectly calculated when fragmenting an IP packet received on the FDDI ring. This problem is fixed in software release 3.1(1). (CSCdj42926)
- Under certain conditions, with a large number of CAM entries, FDDI CAM entries are not cleared when there is a spanning-tree topology change. This problem is fixed in software release 3.1(1). (CSCdj24505)
- Under certain conditions, if the FDDI CAM table is full (4096 entries), the switch might not learn some new addresses from the FDDI ring. This problem is fixed in software release 3.1(1). (CSCdj59712)

Open and Resolved Caveats in Software Release 2.1(7)

These sections describe open and resolved caveats in FDDI software release 2.1(7):

- Open Caveats in Software Release 3.2(1a), page 5
- Resolved Caveats in Software Release 3.2(1a), page 6

Open Caveats in Software Release 2.1(7)

Note For a description of caveats resolved in software release 2.1(7), see the "Resolved Caveats in Software Release 2.1(7)" section on page 8.

This section describes open caveats in software release 2.1(7).

- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)

- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)

Resolved Caveats in Software Release 2.1(7)

Note For a description of open caveats in software release 2.1(7), see the "Open Caveats in Software Release 2.1(7)" section on page 7.

This section describes caveats resolved in software release 2.1(7):

- If the FDDI module fails (indicated by a red status LED) and the Catalyst 5000 system halts, you must perform a reboot to recover. This problem is resolved in software release 2.1(7). (CSCdi92283, CSCdi74923)
- In some instances, the Ethernet-to-FDDI 802.10 translation improperly ignores the IEEE length field, using the physical length of the frame instead. This causes the receiving application to interpret padding bytes at the end of the packet as data. This problem is fixed in software release 2.1(7). (CSCdj00316)
- In some instances, when large amounts of broadcast traffic exist on the FDDI ring and a port link transition occurs, the FDDI module might stop forwarding traffic. This problem is fixed in software release 2.1(7). (CSCdj04211)
- After the switch or the FDDI module is reset, the FDDI module might fail to come online. This problem is fixed in software release 2.1(7). (CSCdi88013, CSCdj00539)
- If VLAN 1 is configured to translate to an FDDI VLAN (that is, VLAN 1 is a trunking VLAN) and the FDDI module is reset, the translation will be ignored by the FDDI module. This problem is fixed in software release 2.1(7). (CSCdj04280)

Open and Resolved Caveats in Software Release 2.1(6)

These sections describe open and resolved caveats in FDDI software release 2.1(6):

- Open Caveats in Software Release 3.2(1a), page 5
- Resolved Caveats in Software Release 3.2(1a), page 6

Open Caveats in Software Release 2.1(6)

Note For a description of caveats resolved in software release 2.1(6), see the "Resolved Caveats in Software Release 2.1(6)" section on page 9.

This section describes open caveats in software release 2.1(6).

- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)

- An Ethernet SNAP packet received on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- After the switch or the FDDI module is reset, the FDDI module might fail to come online. This problem is fixed in software release 2.1(7). (CSCdi88013, CSCdj00539)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)
- If the FDDI module fails (indicated by a red status LED) and the Catalyst 5000 system halts, you must perform a reboot to recover. This problem is resolved in software release 2.1(7). (CSCdi92283, CSCdi74923)

Caution To run the 802.10 features of Catalyst 5000 series FDDI software release 2.1(6), you must use Catalyst 5000 series Supervisor Engine software release 2.1(2) or above.

Resolved Caveats in Software Release 2.1(6)

Note For a description of open caveats in software release 2.1(6), see the "Open Caveats in Software Release 2.1(6)" section on page 8.

This section describes caveats resolved in software release 2.1(6):

- Performance problems when the same MAC address appears in two different VLANs. In Catalyst 5000 series FDDI software release 2.1(6), this problem has been corrected. (CSCdi77241)
- When switching from FDDI to Ethernet on the Catalyst 5000 series switch with IP fragmentation enabled, the switch fragmentation process generates runts on some frames. In Catalyst 5000 series FDDI software release 2.1(6), this problem has been corrected. (CSCdi73487)
- FDDI software cannot be downloaded to the FDDI module on the Catalyst 5000 series switch over the FDDI module using a Telnet session. In Catalyst 5000 series FDDI software release 2.1(6), this problem has been corrected. (CSCdi74097)
- When using the Switched Port Analyzer (SPAN) feature to monitor large packets of greater than 1518 bytes on the FDDI ring, only the first fragment of the large packet is received by the monitoring port. In Catalyst 5000 series FDDI software release 2.1(6), this problem has been corrected. (CSCdi73407)
- The Catalyst 5000 series switch occasionally may send out a link down/up trap for port A of a dual-homed FDDI module. In Catalyst 5000 series FDDI software release 2.1(6), this problem has been corrected. (CSCdi77781)

Open and Resolved Caveats in Software Release 2.1(5)

These sections describe open and resolved caveats in FDDI software release 2.1(5):

- Open Caveats in Software Release 3.2(1a), page 5
- Resolved Caveats in Software Release 3.2(1a), page 6

Open Caveats in Software Release 2.1(5)

Note For a description of caveats resolved in software release 2.1(5), see the "Resolved Caveats in Software Release 2.1(5)" section on page 11.

This section describes open caveats in software release 2.1(5).

- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet received on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- After the switch or the FDDI module is reset, the FDDI module might fail to come online. This problem is fixed in software release 2.1(7). (CSCdi88013, CSCdj00539)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)
- If the FDDI module fails (indicated by a red status LED) and the Catalyst 5000 system halts, you must perform a reboot to recover. This problem is resolved in software release 2.1(7). (CSCdi92283, CSCdi74923)

Caution To run the 802.10 features of Catalyst 5000 series FDDI software release 2.1(6), you must use Catalyst 5000 series Supervisor Engine software release 2.1(2) or above.

Resolved Caveats in Software Release 2.1(5)

Note For a description of open caveats in software release 2.1(5), see the "Open Caveats in Software Release 2.1(5)" section on page 10.

This section describes caveats resolved in software release 2.1(5):

- If an FDDI module fails to come online, the **show test** *mod_num* command may indicate that the module has been removed. This problem is resolved in software release 2.1(5). (CSCdi64564)
- The **clear cam dynamic** command may fail to delete some entries in the FDDI CAM table. In Catalyst 5000 series FDDI software release 2.1(5), this problem has been corrected. (CSCdi60839)
- IP packets with IP lengths greater than 4352 bytes are not supported in Catalyst 5000 series FDDI software release 2.1(2); these packets are dropped by the FDDI interface. This problem has been corrected in Catalyst 5000 series FDDI software release 2.1(5)—IP lengths of up to 4470 bytes are now supported. (CSCdi61244)
- Catalyst 5000 series FDDI software release 2.1(2) does not support the translation of IP frames with 60-byte IP headers; these packets are dropped by the FDDI interface. In Catalyst 5000 series FDDI software release 2.1(5), this problem has been corrected. (CSCdi63784 and CSCdi65577)
- If trunking is enabled on an FDDI module and you dynamically move the native VLAN for FDDI from one VLAN to another, trunking may not function in the VLAN that was previously defined as the native VLAN. In Catalyst 5000 series FDDI software release 2.1(5), this problem has been corrected. (CSCdi68694)

Open Caveats in Software Release 2.1(2)

This section describes open caveats in software release 2.1(2).

- Broadcast and multicast packets received in non-native VLANs are not counted properly by the FDDI module. (CSCdj17298)
- Fragmentation (that is, handling of packets greater than 1500 bytes in size) is not supported over non-native VLANs on an 802.10 FDDI trunk. (CSCdj05075)
- An Ethernet SNAP packet received on an 802.10 FDDI trunk is translated into an Ethernet II packet on an outgoing Ethernet port when the OUI is equal to zero. (CSCdi69517)
- On FDDI 802.10 trunks, the physical lengths of IPX FDDI raw frames are used to determine the lengths of the translated Ethernet frames. This could result in loss of data. (CSCdi83885)
- If an FDDI port is configured as a trunk, under high traffic conditions the supervisor engine module might not be able to access some FDDI module parameters and an error such as "Unable to access the FDDI counters" might appear. (CSCdi63030)
- IEEE 802.10 trunking for Ethernet II does not work with three Catalyst 5000 switches in an FDDI chain. The workaround is to place the client and server in VLAN 1 (native for FDDI) or remove the intermediate Catalyst 5000 switch. (CSCdi87701)
- After the switch or the FDDI module is reset, the FDDI module might fail to come online. This problem is fixed in software release 2.1(7). (CSCdi88013, CSCdj00539)
- If the FDDI module fails (indicated by a red status LED) and the Catalyst 5000 system halts, you must perform a reboot to recover. This problem is resolved in software release 2.1(7). (CSCdi92283, CSCdi74923)

- The **clear cam dynamic** command may fail to delete some entries in the FDDI CAM table. The workaround is to use the **clear cam** command to delete these entries. (CSCdi60839)
- Catalyst 5000 series FDDI software release 2.1(2) does not support the translation of IP frames with 60-byte IP headers. These packets are dropped by the FDDI interface. This problem is resolved in software release 2.1(5). (CSCdi63784)
- If an FDDI module fails to come online, the **show test** *mod_num* command may indicate that the module has been removed. This problem is resolved in software release 2.1(5). (CSCdi64564)

Additional Documentation

The following documents are available for the Catalyst 5000 series switch:

- Quick Installation Guides—Available for the Catalyst 5002, Catalyst 5000 and Catalyst 5005, Catalyst 5509, and Catalyst 5500
- *Catalyst 5000 Series Quick Software Configuration*
- *Catalyst 5000 Series Installation Guide*
- *Catalyst 5000 Series Supervisor Engine Installation Guide*
- *Catalyst 5000 Series Module Installation Guide*
- *Software Configuration Guide – Catalyst 5000, 4000, 2948G, 2926G, 2926 Series Switches*
- *Command Reference – Catalyst 5000, 4000, 2948G, 2926G, 2926 Series Switches*
- *System Message Guide – Catalyst 5000, 4000, 2948G, 2926G, 2926 Series Switches*
- *Enterprise MIB User Quick Reference* (online only)

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more current than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or http://www-europe.cisco.com.

If you are reading Cisco product documentation on the World Wide Web, you can submit comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco. We appreciate your comments.

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

WWW: http://www.cisco.com

WWW: http://www-europe.cisco.com

WWW: http://www-china.cisco.com

Telnet: cco.cisco.com

Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Software Configuration Guide* and the *Command Reference* publications for your switch.