



Text Part Number: 78-6075-02

Release Notes for Catalyst 2900 Series XL for Cisco IOS Release 11.2(8)SA5

March 29, 1999

These release notes describe changes to the Catalyst 2900 series XL software that are not in the current Catalyst 2900 series XL documentation. This information includes the limitations, restrictions, and caveats of Cisco IOS Release 11.2(8)SA5. See the “Related Documentation” section on page 14 for the complete list of Catalyst 2900 series XL documentation.

Catalyst 2900 series XL switches are supported by a special release of Cisco IOS software that is not released on the same eight-week maintenance cycle that is used for other platforms. As maintenance releases and future Cisco IOS releases become available, they will be posted to CCO in the Cisco IOS software area.

These release notes apply to the Cisco IOS Release 11.2(8)SA5 Enterprise Edition Software (-EN) and standard edition software (-A). Those sections that make no reference to the Enterprise Edition Software or the standard edition software apply to both editions.

Contents

These release notes have the following sections:

- “Software and Hardware Supported” section on page 2
- “Upgrading to a New Software Release” section on page 3
- “New Features Added for this Release” section on page 8
- “Limitations and Restrictions” section on page 10
- “Current Caveats” section on page 12
- “Cisco IOS 11.2(8)SA4 Caveats/Release 11.2(8)SA5 Modifications” section on page 13
- “Related Documentation” section on page 14
- “Cisco Connection Online” section on page 14
- “Documentation CD-ROM” section on page 15

Corporate Headquarters

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

Copyright © 1999
Cisco Systems, Inc.
All rights reserved.

Software and Hardware Supported

Table 1 lists the Catalyst 2900 series XL switches that are supported by IOS Release 11.2(8)SA5 software. Table 2 lists the Catalyst 2900 series XL modules, the IOS releases they support, and the minimum IOS release required by the module.

Table 1 Catalyst 2900 Series XL Switches

Model Number	Description	IOS 11.2(8)SA5 -A	IOS 11.2(8)SA5 -EN	VLAN Trunking Ports?
WS-C 2912-XL-A WS-C2912-XL-EN	12 fixed autosensing 10/100 ports	Yes	Yes	Yes (-EN)
WS-C2924M-XL-A WS-C2924M-XL-EN	24 fixed autosensing 10/100 ports and 2 high-speed expansion slots	Yes	Yes	Yes (-EN)
WS-C2924-XL-A WS-C2924-XL-EN	24 fixed autosensing 10/100 ports	Yes	Yes	Yes (-EN)
WS-C2924C-XL-A WS-C2924C-XL-EN	22 fixed autosensing 10/100 ports and 2 fixed 100BaseFX ports	Yes	Yes	Yes (-EN)
WS-C2912MF-XL	12 100BaseFX ports and 2 high-speed expansion slots	No	Yes	Yes
WS-C2908-XL	8 fixed autosensing 10/100 ports	No	Yes	No
WS-C2924-XL	24 fixed autosensing 10/100 ports	No	Yes	No
WS-C2924C-XL	22 fixed autosensing 10/100 ports and 2 100BaseFX ports	No	Yes	No
WS-C2916M-XL	16 fixed autosensing 10/100 ports and 2 high-speed expansion slots	No	Yes	No ¹

¹ Module ports that support trunking can be installed in this switch if the switch is running Cisco IOS Release 11.2(8)SA5 Enterprise Edition Software.

Table 2 Catalyst 2900 Series XL Modules

Model Number	Description	IOS 11.2(8)SA5 -A	IOS 11.2(8)SA5 -EN	Minimum Release Required	VLAN Trunking Ports?
WS-X2972-XL	1 ATM 155 SM-LR fiber port	Yes	Yes	IOS Release 11.2(8)SA5	Yes
WS-X2971-XL	1 ATM 155 SM-MR fiber port	Yes	Yes	IOS Release 11.2(8)SA5	Yes
WS-X2961-XL	1 ATM 155 MM fiber port	Yes	Yes	IOS Release 11.2(8)SA5	Yes
WS-X2951-XL	1 ATM 155 UTP port	Yes	Yes	IOS Release 11.2(8)SA5	Yes
WS-X2931-XL	1 1000BaseX port	Yes	Yes	IOS Release 11.2(8)SA5	Yes
WS-X2924-XL-V	4 100BaseFX ports	Yes	Yes	IOS Release 11.2(8)SA4	Yes
WS-X2922-XL-V	2 100BaseFX ports	Yes	Yes	IOS Release 11.2(8)SA4	Yes
WS-X2922-XL	2 100BaseFX ports	Yes	Yes	IOS Release 11.2(8)SA	No
WS-X2914-XL-V	4 autosensing 10/100 UTP ports	Yes	Yes	IOS Release 11.2(8)SA4	Yes
WS-X2914-XL	4 autosensing 10/100 UTP ports	Yes	Yes	IOS Release 11.2(8)SA	No

Upgrading to a New Software Release

This section describes the procedure for upgrading your switch software by using the Cisco IOS command-line interface (CLI). If you are running Cisco IOS Release 11.2(8)SA3 or later, we recommend that you upgrade the switch by using the web-based Cisco Visual Switch Manager Software (CVSM). Instructions for upgrading via CVSM are in the *Catalyst 2900 Series XL Installation and Configuration Guide*.

Note You cannot use the web-based interface to upgrade a switch running Cisco IOS 11.2(8)SA2 or earlier. Use the CLI to perform the upgrade in such cases.

The CLI upgrade procedure consists of the following major steps:

- Step 1** Downloading the software file from CCO.
- Step 2** If necessary, downloading the TFTP server application to copy the switch software from your PC to the switch.
- Step 3** Using the CLI or CVSM to upgrade your switch to the new software.

Downloading Files from CCO

Follow these steps to download a new version of Catalyst 2900 series XL software and the TFTP server application.

- Step 1** Enter the following URL in your browser Go To or Location field:
<http://www.cisco.com/kobayashi/sw-center/switching/cat2900XL.shtml>
From this page you can select to download the Enterprise Edition Software, the standard edition software, or previous releases of software.
- Step 2** Login to Software Center if prompted and select the software option you want.
If you do not have an account for Software Center, you can download IOS 11.2(8)SA5 standard edition software from the following URL:
<http://www.cisco.com/public/sw-center/switching/cat2900XL-form.shtml>
You are prompted to complete a survey before you download the software.
- Step 3** Download the Cisco IOS file. The files follow these naming conventions:
 - Enterprise Edition Software: c2900XL-hs-mz-112.8-SAn.tar
 - Standard edition software: c2900XL-h-mz-112.8-SAn.tar
- Step 4** Download the TFTP server from this URL, if necessary. The readme.txt file describes how to download the TFTP server.

Upgrading Switch Software by Using the CLI

After you have downloaded the new file to your PC or workstation, you can use the CLI to perform a TFTP transfer of the files to the switch.

The procedure that follows includes the commands to address the following issues:

- Because the switch Flash memory can hold only one software image file, you need to change the name of the *current* image file to the name of the *new* file you are copying. You then replace the old file with the new file when you copy it into Flash memory.
- To avoid a conflict with users accessing the CVSM pages during the software upgrade, you need to delete the existing HTML files and disable access to the HTML pages before you upgrade the software.

Follow these steps to upgrade the switch software by using a TFTP transfer:

Step 1 If your PC or workstation cannot act as a TFTP server, copy the file to a TFTP server to which you have access.

Step 2 Access the CLI by starting a Telnet session or by connecting to the console port via the RS-232 connector.

To start a Telnet session on your PC or workstation, enter the following command:

```
server% telnet switch_ip_address
```

Step 3 Enter privileged EXEC mode:

```
switch> enable  
switch#
```

Step 4 Display the name of the current (default) image file. The following example shows the current name in *italic*:

```
switch# show boot  
BOOT path-list: flash:current_image  
Config file: flash:config.text  
Enable Break: 1  
Manual Boot: no  
HELPER path-list:  
NVRAM/Config file  
buffer size: 32768
```

Step 5 If there is no file defined in the BOOT path-list, enter **dir flash:** to display the contents of Flash memory. The file named c2900XL-h-mz_*current_version* is your current image file.

Step 6 Using the name of the tar file that you downloaded, rename the current image file to that name. The new image file name is then the same as the file name that you downloaded *with a bin extension*. This step does not affect the operation of the switch.

```
switch# rename flash:current_image flash:new_image.bin  
Source filename [current_image]?  
Destination filename [new_image]?
```

Step 7 Display the contents of Flash memory to verify the renaming of the file:

```
switch# dir flash:
Directory of flash:
-rwx      910426 Mar 06 1993 23:47:28  new_image
-rwx       80971 Sep 14 1998 03:10:38  c2900XL-diag-mz-112.0.0.11-SA2
-rwx        4800 Mar 01 1993 00:04:14  html
-rwx         159 Jan 01 1970 00:00:34  env_vars
-rwx        1121 Mar 01 1993 18:46:01  config.text
```

Step 8 If you are upgrading a WS-C2908-XL, WS-C2924-XL, WS-C2924C-XL, or WS-C2916M-XL, you need to delete the diagnostics file to make room for the new software.

Note If you are not upgrading one of the listed models, you do not need to delete this file.

The diagnostics file has a name in the following format: `c2900XL-diag-mz-version_name`. The string `version_name` depends on the switch and software you are running.

Display the diagnostics file:

```
switch# dir flash:c2900XL-diag-mz*
Directory of flash:
-rwx       80971 Sep 14 1998 03:10:38  c2900XL-diag-mz-112.0.0.11-SA2
```

Delete the diagnostics file:

```
Switch# del flash:c2900XL-diag-mz-112.0.0.11-SA2
Delete filename [c2900XL-diag-mz-112.0.0.11-SA2]?
Delete flash:c2900XL-diag-mz-112.0.0.11-SA2? [confirm]
Switch#
```

Step 9 Enter terminal configuration mode:

```
switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

Step 10 Disable access to the switch HTML pages:

```
switch(config)# no IP http server
```

Step 11 Change the name of the default image file:

```
switch(config)# boot system flash:new_image
```

Step 12 Return to privileged EXEC mode:

```
switch(config)# end
```

Step 13 Verify that the name of the default image file is correct:

```
switch# show boot
BOOT path-list:      flash:new_image
Config file:        flash:config.text
Enable Break:       1
Manual Boot:        no
HELPER path-list:
NVRAM/Config file
buffer size: 32768
```

- Step 14** Remove the manager software HTML files:

```
switch# del flash:html/*.*
```

Press **Enter** to confirm the deletion of each file. Do not press any other keys during this process.

- Step 15** If you are running Cisco IOS Release 11.2(8)SA3 or later, remove the files in the Snmp directory:

```
switch# del flash:html/Snmp/*.*
```

Make sure the "S" in "Snmp" is uppercase.

Press **Enter** to confirm the deletion of each file. Do not press any other keys during this process.

- Step 16** If you are running Cisco IOS Release 11.2(8)SA2 or earlier, create a directory on the switch Flash memory to be used for the HTML files:

```
switch# mkdir flash:html/Snmp
```

Make sure the "S" in "Snmp" is uppercase.

- Step 17** Enter the following command to copy the new software file to the switch Flash memory:

```
switch# tar /x tftp://server_ip_address//path/filename.tar flash:
Loading /path/filename.tar from server_ip_address (via!)
extracting advanced.gif (2648 bytes)
extracting amber.gif (530 bytes)!
extracting bar.gif (4156 bytes)!
extracting cool.gif (530 bytes)
extracting daytona.gif (1470 bytes)
extracting duplgnd.gif (639 bytes)!
. . .
```

Depending on the TFTP server being used, you might need to enter only one slash (/) after the *server_ip_address* in the **tar** command.

- Step 18** Enter terminal configuration mode:

```
switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

- Step 19** Reenable access to the switch HTTP pages:

```
switch(config)# IP http server
```

- Step 20** Return to privileged EXEC mode:

```
switch(config)# end
```

- Step 21** Reload the new software with the following command:

```
switch# reload
System configuration has been modified. Save? [yes/no]:y
Proceed with reload? [confirm]
```

- Step 22** Press **Return** to confirm the reload.

Your Telnet session ends when the switch resets.

Upgrading the Switch Software by Using IOS 11.2(8)SA5 Cisco Visual Switch Manager

This section describes the procedure for upgrading switch software after you have upgraded to IOS Release 11.2(8)SA5. To upgrade to IOS Release 11.2(8)SA5, see the “Upgrading to a New Software Release” section on page 3. To upgrade the following models from IOS Release 11.2(8)SA4 to IOS Release 11.2(8)SA5, you need to use the command-line interface procedure described in the “Upgrading Switch Software by Using the CLI” section on page 4:

- WS-C2908-XL
- WS-C2924-XL
- WS-C2924C-XL
- WS-C2916M-XL

With IOS Release 11.2(8)SA5, you can upgrade the switch software by using a single file. You can download this file by using the procedure described in “Downloading Files from CCO” section on page 3.

Follow these steps to upgrade the switch software by using the combined (tar) file that contains the image and the HTML pages:

Step 1 Open the CVSM System Configuration page.

Note To avoid errors during the upgrade process, close any other switch CVSM pages open.

Step 2 In the Combined Cisco IOS and Visual Switch Manager Upgrade section, enter the IP address of your TFTP server in the Server IP Address or Name of TFTP Server field.

Step 3 In the Cisco IOS and Visual Switch Manager Upgrade Filename field, enter the filename of the combined IOS image and HTML tar file that you downloaded from CCO (such as c2900XL-h-mz-112.8-SA5.tar or c2900XL-hs-mz-112.8-SA5.tar)

Note Do not enter the path name. Enter only the filename in this field. You set the path in the TFTP root directory of the TFTP server application.

Step 4 Click **Upgrade Cisco IOS and Visual Switch Manager**.

In the CVSM software message window that appears, click **OK** to change the old image filename into the new image filename. Changing the filenames enables the old image to be overwritten by the new version. Only enough Flash memory is available for one version.

Step 5 In the CVSM software confirmation window that appears, click **OK** to continue the upgrade process. This can take several minutes.

Step 6 In the TFTP server window, wait for the successful message to appear.

Step 7 Reboot the switch.

Step 8 Reload the CVSM page to access the new HTML files.

New Features Added for this Release

IOS Release 11.2(8)SA5 includes support for the following new modules:

- Catalyst 2900 Series XL ATM Module
- Catalyst 2900 Series XL Gigabit Ethernet Module

The documentation for these modules is listed in the “Related Documentation” section on page 14.

IOS Command Changes

Several IOS commands have changed to support the ATM and Gigabit Ethernet modules. The ATM commands will be documented in the *Configuration Notes for Cisco IOS Release 11.2(8)SA5* and posted on CCO with the Catalyst 2900 series XL ATM module documentation.

The *Catalyst 2900 Series Command Reference* describes the commands that refer to the Catalyst 2900 Series XL Gigabit Ethernet module.

One command supporting the Gigabit Ethernet module is described in the section flowcontrol.

flowcontrol

Use the **flowcontrol** interface configuration command on Gigabit Ethernet ports to control traffic rates during congestion. Use the **no** form of this command to disable flow control on the port.

flowcontrol [**asymmetric** | **symmetric**]
no flowcontrol

Syntax

- asymmetric** Enable the local port to perform flow control of the remote port. If the local port is congested, it can request the remote port to stop transmitting. When the congestion clears, the local port requests that the remote port begin transmitting.
- symmetric** Enable the local port to perform flow control only if the remote port can also perform flow control of the local port. If the remote port cannot perform flow control, the local port also will not.

Default

Asymmetric

Command Mode

Interface configuration

Examples

The following example shows how to configure the local port to support any level of flowcontrol by the remote port:

```
Switch(config-if) # flowcontrol
```

The following example shows how to configure the local port to control the flow of traffic from the remote port:

```
Switch(config-if) # flowcontrol asymmetric
```

Limitations and Restrictions

This section should be reviewed before you begin working with the Catalyst 2900 series XL switches or Catalyst 2900 series XL modules. Some features might not work as documented, and some features could be affected by recent changes to the switch hardware or software.

Limitations Removed Since Last Release

The following limitations that existed in IOS 11.2(8)SA4 have been removed:

- Any port can be a multi-VLAN port.
- IEEE 802.1Q tagging is supported.
- Gigabit Ethernet connectivity is supported.

Hot-Swapping Not Supported on ATM and Gigabit Ethernet Modules

A Catalyst 2900 series XL switch must be turned off before you can insert one of the following modules:

- Catalyst 2900 series XL Gigabit Ethernet module
- Catalyst 2900 series XL ATM module

In addition the following commands are not supported:

- **hw-module *n* stop**
- **hw-mod restart**

Mixed 10/100 and Gigabit Ethernet Port Groups

You can create EtherChannel port groups that consist of Gigabit ports or of 10/100 ports but not both at the same time. Port groups with a mixture of Gigabit Ethernet ports and 10/100 ports are not supported.

Changes to CVSM

In CVSM, the following fields on the Port Configuration page have been changed for this release:

Port	Displays the word Fa (Fast Ethernet), Gi (Gigabit Ethernet) or AT (ATM); the module number: 0 (fixed) 1 (right slot) or 2 (left slot); and the port number.
Speed	For Gigabit Ethernet ports, the field displays 1000 and is read-only. For ATM ports, the field displays 155 (155 Mbps) and is read-only.
Flow Control	Enables or disables flow control on Gigabit Ethernet ports. Flow control enables the connected Gigabit Ethernet ports to control traffic rates during congestion. If one port experiences congestion and cannot receive any more traffic, it notifies the other port to stop transmitting until the condition clears. Select Symmetric when you want the local port to perform flow control of the remote port only if the remote port can also perform flow control on the local port. Select Asymmetric when you want the local port to perform flow control on the remote port. For example, if the local port is congested, it notifies the remote port to stop transmitting. The default setting for flow control is Asymmetric . Select Any when the local port can support any level of flow control required by the remote port. This field is displayed only when a Gigabit Ethernet port is present; it does not apply to Fast Ethernet or ATM ports. Select None to disable flow control on the port.

Gigabit Ethernet Autonegotiation Mismatches

When a 10/100 port fails to match the duplex setting of an attached device, it can reduce performance or cause link errors. When a Gigabit Ethernet port fails to match the settings of an attached device, the link does not come up, and no statistics are generated.

Setting the STP Path Cost for an ATM Module

For the path cost parameter, enter a number from 1 to 65535. The default value for Catalyst 2900 series XL ATM Module ports (155 Mbps) is 14.

Assigning ATM Ports to VLANs

You can use the command-line interface (CLI) of the ATM module to map the LAN emulation (LANE) client to a VLAN or bind one or more permanent virtual connections (PVCs) to a VLAN. The VLAN ID is then displayed in the Assigned VLANs column of the VLAN membership page.

In the standard edition version of IOS 11.2(8)SA5, an ATM port is always a static-access port. In Enterprise Edition Software, an ATM port is always a trunk port.

Port Configuration Conflicts

Certain combinations of port features create configuration conflicts (see Table 3). For example, the network port floods all unknown unicast and multicast packets to a port; therefore, port security, which limits traffic on a port, cannot be enabled on the network port. If you try to enable incompatible features, the manager software issues a warning message and prevents you from making the change. Reload the page to refresh the manager software. In Table 3, **no** means that the two referenced features are not compatible.

Table 3 Port Configuration Conflicts

	ATM Port	Port Group	Port Security	Monitor Port	Multi-VLAN Port	Network Port
ATM port	–	No	No	No	No	No
Port group	No	–	No	No	Yes	Yes
Port security	No	No	–	No	No	No
Monitor port	No	No	No	–	No	No
Multi-VLAN port	No	Yes	No	No	–	Yes
Network port	No	Yes (only source-based destination group)	No	No	Yes	–

IEEE 802.1Q Configuration Considerations

IEEE 802.Q trunks impose some limitations on the trunking strategy for a network. The following restrictions apply when using 802.1Q trunks:

- Make sure the native VLAN for an 802.1Q trunk is the same on both ends of the trunk link. If the native VLAN on one end of the trunk is different from the native VLAN on the other end, spanning-tree loops might result.

- Disabling STP on the native VLAN of an IEEE 802.1Q trunk without disabling STP on every VLAN in the network can potentially cause STP loops. We recommend that you leave STP enabled on the native VLAN of an 802.1Q trunk or disable STP on every VLAN in the network. Make sure your network is loop-free before disabling STP.

Spanning-Tree Maximum Age Command

The range of seconds for the **span-tree max-age** command is now 6 to 200 seconds. If you use this command to set a value greater than this new range in a previous release and upgrade your software to version Cisco IOS 11.2(8)SA4, the switch sets this value to the default: 20 seconds for IEEE STP, 15 seconds for DEC STP, and 10 seconds for IBM STP.

Using BOOTP to Assign IP Address Information

You can use BOOTP to assign IP information to a Catalyst 2900 series XL switch. A database with a list of physical MAC addresses and corresponding IP addresses must be set up on the BOOTP server. Other information, such as the corresponding subnet masks and default gateway addresses can also be stored in the database but are optional. The switch must be able to access the BOOTP server through one of its ports.

If the switch starts and no IP address has been assigned, it transmits a BOOTP broadcast request to all of its ports having a physical connection, requesting a mapping for its physical MAC address. A valid response includes the IP address, which is mandatory, and the subnet mask and the default gateway, which are optional.

The reception of a valid BOOTP response immediately activates the rest of the system protocol suite, without requiring a system reset. The running configuration is set, but the saved configuration in Flash memory is not automatically updated. To save the IP information in the saved-configuration file, log in to the command-line interface and enter the **write memory** command. The IP information is then preserved, and the switch does not issue BOOTP messages the next time it resets.

Current Caveats

This section describes possibly unexpected behavior by Cisco IOS Release 11.2(8)SA5.

- If a 4-Mb DRAM switch (Catalyst 2908 XL, 2916M XL, 2924 XL, or 2924C XL) learns 2048 addresses, has 64 VLANs, and has 5 or more trunk ports, the following message appears on the console when CVSM is in use:

```
%SYS-2-MALLOCFAIL: Memory allocation of 1680 bytes failed from 0x1071C8, pool I/O, alignment 0
```

The workaround is to either not use the CVSM or to change the configuration by reducing the number of addresses in use, the number of VLANs, or the number of trunk ports. (CSCdk87690)

- If a monitor port is not monitoring port Fa0/1, the monitor port will still receive the Cisco Discovery Protocol (CDP) and BPDU packets sent to port Fa0/1. This happens when the monitor port is monitoring VLAN 1.

There is no work around for this bug. (CSCdk88060)

- If a switch is configured to get its IP address from a BOOTP server, dynamic access ports will not be assigned to a VLAN. As a result, dynamic access ports cannot be used on a switch that is configured to get its IP address from a BOOTP server.

To workaroud this problem: Either configure an IP address on the switch, or do not use dynamic access ports on the switch. (CSCdk93323)

- Frames received and dropped on a trunk port that is blocked by Spanning-Tree Protocol are sometimes incorrectly counted as FCS errors.

Ignore this counter value when a trunk port is blocked by STP. (CSCdk61602)

- If VTP pruning is enabled and a trunk port is shut down or has no link, the VTP pruning join-transmitted counter might increase erroneously. (CSCdk45332)

Cisco IOS 11.2(8)SA4 Caveats/Release 11.2(8)SA5 Modifications

This section describes IOS Release 11.2(8)SA4 caveats that were resolved with IOS Release 11.2(8)SA5.

- When a Catalyst 2900 XL trunk is connected to a Virtual Trunk Protocol (VTP) v1-only device, such as a Catalyst 1900 or 2820, you might see the VTP revision error count increase erroneously on both switches. This does not affect VTP functionality. (CSCdk58875)
- VTP traps specified in the CISCO-VTP-MIB are not supported in IOS Release 11.2(8)SA4. (CSCdk61632)
- IOS Release 11.2(8)SA4 allows secure addresses to be defined without checking to see if the port is defined as a dynamic access port. (CSCdk61650)
- If there is a change in configuration or link status on a port while incoming broadcast traffic is blocked by broadcast storm control, forwarding of broadcast packets to the port remains blocked even after the normal forwarding of broadcast packets resumes. (CSCdk67149)
- When the configuration of VTP pruning mode changes (via CLI or SNMP or received VTP advertisements), the following message might display. (CSCdk70408)

```
Error message %SW_VLAN-4-BAD_VLAN_TIMER_ACTIVE_VALUE: encountered
```

- The **no vmmps retry** and **no vmmps reconfirm** configuration commands do not work as expected in Cisco IOS Release 11.2(8)SA4. (CSCdk72786)

Related Documentation

The product documentation for the Catalyst 2900 series XL switches and modules is as follows:

Catalyst 2900 Series XL Installation and Configuration Guide

Quick Start: Catalyst 2900 Series XL Cabling and Setup

Catalyst 2900 Series XL Enterprise Edition Software Configuration Guide

Catalyst 2900 Series XL Command Reference (online only)

Catalyst 2900 Series XL Modules Installation Guide

Release Notes for the Catalyst 2900 Series XL Modules

Catalyst 2900 Series XL Gigabit Ethernet Module Installation Guide

Catalyst 2900 Series XL ATM Modules Installation and Configuration Guide

Release Notes for the Catalyst 2900 Series XL ATM Modules

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.

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.

This document is to be used in conjunction with the documents listed in the "Related Documentation" section.

Access Registrar, AccessPath, Any to Any, AtmDirector, CCDA, CCDE, CDP, CCIE, CCNA, CCNP, CCSI, CD-PAC, Centri, Cisco Certified Internetwork Expert logo, *CiscoLink*, the Cisco Management Connection logo, the Cisco NetWorks logo, the Cisco Powered Network logo, Cisco Systems Capital, the Cisco Systems Capital logo, the Cisco Technologies logo, ControlStream, Fast Step, FireRunner, GigaStack, IGX, JumpStart, Kernel Proxy, LoopRunner, MGX, Natural Network Viewer, NetSonar, Network Registrar, *Packet*, PIX, Point and Click Internetworking, Policy Builder, Precept, RouteStream, Secure Script, SMARTnet, SpeedRunner, Stratm, StreamView, *The Cell*, TrafficDirector, TransPath, ViewRunner, VirtualStream, VlanDirector, Workgroup Director, and Workgroup Stack are trademarks; Changing the Way We Work, Live, Play, and Learn, Empowering the Internet Generation, The Internet Economy, and The New Internet Economy are service marks; and BPX, Catalyst, Cisco, Cisco IOS, the Cisco IOS logo, Cisco Systems, the Cisco Systems logo, the Cisco Systems Cisco Press logo, Enterprise/Solver, EtherChannel, FastHub, ForeSight, FragmentFree, IOS, IP/TV, IPX, LightStream, LightSwitch, MICA, NetRanger, Phase/IP, Registrar, StrataSphere, and StrataView Plus are registered trademarks of Cisco Systems, Inc. in the U.S. and certain other countries. All other trademarks mentioned in this document are the property of their respective owners. (9902b R)

Copyright © 1999, Cisco Systems, Inc.
All rights reserved.