



Preface

This preface describes the intended audience for this manual, how it is organized, what the typographical conventions mean, and how to obtain additional documentation and technical support.

Audience

This guide is for experienced network administrators who are responsible for configuring and maintaining Catalyst enterprise LAN switches.

Organization

The major sections of this guide are as follows:

Chapter	Title	Description
Part 1—Getting Started		
Chapter 1	Product Overview	Presents an overview of the Catalyst enterprise LAN switches.
Chapter 2	Using the Command-Line Interface	Describes how to use the different command-line interfaces (CLIs).
Chapter 3	Configuring the Switch IP Address and Default Gateway	Describes how to perform a baseline configuration of the switch.
Part 2—Ethernet Switching		
Chapter 4	Configuring Ethernet and Fast Ethernet Switching	Describes how to configure Ethernet and Fast Ethernet switching on the switch.
Chapter 5	Configuring Gigabit Ethernet Switching	Describes how to configure Gigabit Ethernet switching on the switch.
Chapter 6	Configuring Fast EtherChannel and Gigabit EtherChannel	Describes how to configure Fast EtherChannel and Gigabit EtherChannel port bundles.

Chapter	Title	Description
Part 3—Spanning Tree Protocol		
Chapter 7	Configuring Spanning Tree Protocol	Describes how to configure the Spanning Tree Protocol and explains how spanning tree works.
Chapter 8	Configuring Spanning Tree PortFast, BPDU Guard, BPDU Filter, UplinkFast, BackboneFast, and Loop Guard	Describes how to configure the spanning tree PortFast, UplinkFast, and BackboneFast features.
Part 4—VLANs and VLAN Trunks		
Chapter 9	Configuring VTP	Describes how to configure VLAN Trunking Protocol (VTP) on the switch.
Chapter 10	Understanding and Configuring VLANs	Describes how to configure VLANs and private VLANs on the switch.
Chapter 11	Configuring VLAN Trunks on Fast Ethernet and Gigabit Ethernet Ports	Describes how to configure Inter-Switch Link (ISL) and IEEE 802.1Q VLAN trunks on Fast Ethernet and Gigabit Ethernet ports.
Chapter 12	Configuring Dynamic VLAN Membership with VMPS	Describes how to configure VLAN Membership Policy Server (VMPS) and dynamic ports on the switch.
Chapter 13	Configuring GVRP	Describes how to configure GARP VLAN Registration Protocol (GVRP) on the switch.
Part 5—Directing and Filtering Traffic		
Chapter 14	Configuring QoS	Describes how to configure quality of service (QoS).
Chapter 15	Configuring Multicast Services	Describes how to configure Cisco Group Management Protocol (CGMP), Internet Group Management Protocol (IGMP) snooping, and GARP Multicast Registration Protocol (GMRP) on the switch.
Chapter 16	Configuring Port Security	Describes how to configure port security on the switch.
Chapter 17	Configuring the IP Permit List	Describes how to configure IP permit list on the switch.
Chapter 18	Configuring Protocol Filtering	Describes how to configure protocol filtering on Ethernet, Fast Ethernet, and Gigabit Ethernet ports.
Part 6—Monitoring and Managing the Switch		
Chapter 19	Checking Port Status and Connectivity	Describes how to display information about modules and switch ports and how to check connectivity using ping, Telnet, and IP traceroute.
Chapter 20	Configuring CDP	Describes how to configure Cisco Discovery Protocol (CDP) on the switch.
Chapter 21	Using Switch TopN Reports	Describes how to generate switch TopN reports on the switch.
Chapter 22	Configuring UDLD	Describes how to configure the UniDirectional Link Detection (UDLD) protocol on the switch.
Chapter 23	Configuring SNMP	Describes how to configure the Simple Network Management Protocol (SNMP) on the switch.

Chapter	Title	Description
Chapter 24	Configuring RMON	Describes how to configure Remote Monitoring (RMON) on the switch.
Chapter 25	Configuring SPAN and RSPAN	Describes how to configure the Switched Port Analyzer (SPAN) on the switch.
Part 7—Administration		
Chapter 26	Administering the Switch	Describes how to set the system name, create a login banner, and perform other administrative tasks on the switch.
Chapter 27	Configuring Switch Access Using AAA	Describes how to configure local and TACACS+ authentication on the switch.
Chapter 28	Modifying the Switch Boot Configuration	Describes how to modify the switch boot configuration, including the BOOT environment variable and the configuration register.
Chapter 29	Working with System Software Images	Describes how to download and upload system software images.
Chapter 30	Using the Flash File System	Describes how to work with the Flash file system available on some switch platforms.
Chapter 31	Working with Configuration Files	Describes how to create, download, and upload switch configuration files.
Chapter 32	Configuring Switch Acceleration	Describes the Backplane Channel module and the switch acceleration feature.
Chapter 33	Configuring System Message Logging	Describes how to configure system message logging (syslog) on the switch.
Chapter 34	Configuring DNS	Describes how to configure Domain Name System (DNS) on the switch.
Chapter 35	Configuring NTP	Describes how to configure Network Time Protocol (NTP) on the switch.

Related Documentation

The following publications are available for the Catalyst enterprise LAN switches:

- *Catalyst 4000 Family Installation Guide*
- *Catalyst 4500 Family Installation Guide*
- *Catalyst 4912G Installation Guide*
- *Catalyst 2948G and 2980G Installation Guide*
- *Quick Software Configuration—Catalyst 4000 Family*
- *Command Reference—Catalyst 4000 Family, Catalyst 2948G, and Catalyst 2980G Switches*
- *System Message Guide—Catalyst 6000 Family, 5000 Family, 4000 Family, 2926G Series, 2948G, and 2980G Switches*
- *Release Notes for Catalyst 4000 Family Supervisor Engine Software Release 6.x*

Conventions

Throughout this publication, these conventions are used in reference to switch platforms:

- Catalyst enterprise LAN switches—Refers to the Catalyst 4000 family, Catalyst 2948G, and Catalyst 2980G switches.
- Catalyst 4000 family switches—Refers to the Catalyst 4000 Series and Catalyst 4500 Series switches. The Catalyst 4000 Series includes the Catalyst 4003, Catalyst 4006, and Catalyst 4912G switches. The Catalyst 4500 Series includes the Catalyst 4503 and Catalyst 4506 switches.

Command descriptions use these typographical conventions:

boldface font	Commands and keywords are in boldface .
<i>italic font</i>	Arguments for which you supply values are in <i>italics</i> .
[]	Elements in square brackets are optional.
{ x y z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Instructions and screen examples use these typographical conventions:

<i>screen font</i>	Terminal sessions and information that the system displays are in <i>screen font</i> .
boldface screen font	Information you must enter is in boldface screen font .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
Ctrl-D	The key combination Ctrl-D means to hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.
.	Indicates that screen output not relevant to the example was removed to save space and preserve clarity.

Notes use these conventions:

**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Cautions use these conventions:

**Caution**

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com>

Translated documentation is available at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

Ordering Documentation

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products Marketplace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. In the Cisco Documentation home page, click the **Fax** or **Email** option in the “Leave Feedback” section at the bottom of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit your comments by mail by using the response card behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com is a highly integrated Internet application and a powerful, easy-to-use tool that provides a broad range of features and services to help you with these tasks:

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

If you want to obtain customized information and service, you can self-register on Cisco.com. To access Cisco.com, go to this URL:

<http://www.cisco.com>

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

<http://www.cisco.com/register/>

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC Web Site, you can open a case online by using the TAC Case Open tool at this URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

