



Preface

This preface describes who should read this document, how it is organized, and typographical conventions used. The book also tells you how you can obtain Cisco documents as well as how to obtain technical assistance.

Audience

This guide is for experienced network administrators who are responsible for configuring and maintaining Catalyst 4000 family switches.

Organization

This guide is organized into the following chapters:

Chapter	Title	Description
Chapter 1	Product Overview	Presents an overview of the Cisco IOS software for the Catalyst 4000 family switches
Chapter 2	Command-Line Interfaces	Describes how to use the CLI
Chapter 3	Configuring the Switch for the First Time	Describes how to perform a baseline configuration of the switch
Chapter 4	Configuring Interfaces	Describes how to configure non-layer-specific features on Fast Ethernet and Gigabit Ethernet interfaces
Chapter 5	Checking Port Status and Connectivity	Describes how to check module and interface status
Chapter 6	Configuring Layer 2 Ethernet Interfaces	Describes how to configure interfaces to support Layer 2 features, including VLAN trunks
Chapter 7	Understanding and Configuring VLANs	Describes how to set up and modify VLANs
Chapter 8	Configuring Private VLANs	Describes how to set up and modify private VLANs
Chapter 9	Understanding and Configuring VTP	Describes how to configure the VLAN Trunking Protocol

Chapter	Title	Description
Chapter 10	Understanding and Configuring STP	Describes how to configure the Spanning Tree Protocol (STP) and explains how spanning tree works
Chapter 11	Configuring STP Features	Describes how to configure the spanning-tree PortFast, UplinkFast, BackboneFast, and other STP features
Chapter 12	Understanding and Configuring Multiple Spanning Trees	Describes how to configure the Multiple Spanning Tree (MST) protocol and explains how it works.
Chapter 13	Understanding and Configuring IGMP Snooping and Filtering	Describes how to configure Internet Group Management Protocol (IGMP) snooping
Chapter 14	Understanding and Configuring CDP	Describes how to configure the Cisco Discovery Protocol (CDP)
Chapter 15	Understanding and Configuring EtherChannel	Describes how to configure Layer 2 and Layer 3 EtherChannel port bundles
Chapter 16	Understanding and Configuring UDLD	Describes how to configure the UniDirectional Link Detection (UDLD) protocol
Chapter 17	Understanding and Configuring DHCP Snooping	Describes how to configure DHCP snooping and display DHCP snooping information
Chapter 18	Configuring Layer 3 Interfaces	Describes how to configure interfaces to support Layer 3 features
Chapter 19	Configuring Cisco Express Forwarding	Describes how to configure Cisco Express Forwarding (CEF) for IP unicast traffic
Chapter 20	Understanding and Configuring IP Multicast	Describes how to configure IP Multicast Multilayer Switching (MMLS)
Chapter 21	Configuring Network Security with ACLs	Describes how to configure ACLs, VACLs, and MACLS.
Chapter 22	Configuring 802.1x Port-Based Authentication	Describes how to configure 802.1x port-based authentication.
Chapter 23	Understanding and Configuring QoS	Describes how to configure quality of service (QoS)
Chapter 24	Configuring SPAN	Describes how to configure the Switched Port Analyzer (SPAN)
Chapter 25	Environmental Monitoring and Power Management	Describes how to configure environmental monitoring, power redundancy, and inline power features
Chapter 26	Configuring Supervisor Engine Redundancy on the Catalyst 4507R	Describes how to configure RPR on the Catalyst 4507R.
Chapter 27	Configuring Voice Interfaces	Describes how to configure multi-VLAN access ports for use with Cisco IP phones
Appendix A	Acronyms	Definitions for acronyms used in this book

Related Documentation

The following publications are available for the Catalyst 4000 family switches:

- *Catalyst 4000 Series Installation Guide*
- *Catalyst 4500 Series Installation Guide*
- *Catalyst 4000 Family Module Installation Guide*
- *Cisco IOS Command Reference for the Catalyst 4000 Family Switch*
- *Cisco IOS System Message Guide for the Catalyst 4000 Family*
- Release Notes for the Catalyst 4000 Family
- Cisco IOS configuration guides and command references—Use these publications to help you configure Cisco IOS software features not described in the preceding publications:
 - *Configuration Fundamentals Configuration Guide*
 - *Configuration Fundamentals Command Reference*
 - *Interface Configuration Guide*
 - *Interface Command Reference*
 - *Network Protocols Configuration Guide, Part 1, 2, and 3*
 - *Network Protocols Command Reference, Part 1, 2, and 3*
 - *Security Configuration Guide*
 - *Security Command Reference*
 - *Switching Services Configuration Guide*
 - *Switching Services Command Reference*
 - *Voice, Video, and Fax Applications Configuration Guide*
 - *Voice, Video, and Fax Applications Command Reference*
 - *Cisco IOS IP Configuration Guide*
 - *Cisco IOS IP Command Reference*

The Cisco IOS configuration guides and command references are at <http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/index.htm>

- For information about MIBs, refer to <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

Conventions

This document uses the following typographical conventions:

Convention	Description
boldface font	Commands, command options, and keywords are in boldface .
<i>italic font</i>	Command arguments for which you supply values are in <i>italics</i> .
[]	Command elements in square brackets are optional.

Convention	Description
{ x y z }	Alternative keywords in command lines 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 because the string will include the quotation marks.
screen font	System displays are in <i>screen font</i> .
boldface screen font	Information you must enter verbatim is in boldface screen font .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
→	This pointer highlights an important line of text in an example.
Ctrl-D	Ctrl represents the Control key—for example, the key combination Ctrl-D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters such as passwords are in angle brackets.

Commands in Task Tables

Commands listed in task tables show only the relevant information for completing the task and not all available options for the command. For a complete description of a command, please refer to the command in the *Cisco IOS Command Reference for the Catalyst 4000 Family Switch*.

Notes use the following conventions:



Note

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

Cautions use the following 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

The following 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 the following URL:

<http://www.cisco.com>

Translated documentation is available at the following 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

Cisco documentation is available in the following ways:

- Registered 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 corporate headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

If you are reading Cisco product documentation on Cisco.com, you can submit technical comments electronically. Click **Leave Feedback** at the bottom of the Cisco Documentation home page. After you complete the form, print it out and fax it to Cisco at 408 527-0730.

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

To submit your comments by mail, use the response card behind the front cover of your document, or write 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 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 to

- 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

You can self-register on Cisco.com to obtain customized information and service. To access Cisco.com, go to the following URL:

<http://www.cisco.com>

Technical Assistance Center

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

Inquiries to Cisco TAC 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.

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

Cisco TAC Web Site

The Cisco TAC Web Site allows you 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 the following URL:

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

All customers, partners, and resellers who have a valid Cisco services 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 the following URL to register:

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

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

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

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; 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 will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following 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). In addition, please have available your service agreement number and your product serial number.

