Preface

This preface describes who should read this document, how it is organized, and its conventions. The preface also tells you how to 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 4500 series 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 4500 series 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 Supervisor Engine Redundancy Using RPR and SSO	Describes how to configure RPR and SSO on the Catalyst 4507R and 4510R switches
Chapter 8	Understanding and Configuring VLANs	Describes how to set up and modify VLANs
Chapter 9	Configuring Dynamic VLAN Membership	Describes how to configure dynamic VLAN membership
Chapter 10	Configuring Layer 2 Ethernet Interfaces	Describes how to configure interfaces to support Layer 2 features, including VLAN trunks

Chapter	Title	Description
Chapter 11	Configuring SmartPort Macros	Describes how to configure SmartPort macros
Chapter 12	Understanding and Configuring STP	Describes how to configure the Spanning Tree Protocol (STP) and explains how spanning tree works
Chapter 13	Configuring STP Features	Describes how to configure the spanning-tree PortFast, UplinkFast, BackboneFast, and other STP features
Chapter 14	Understanding and Configuring Multiple Spanning Trees	Describes how to configure the Multiple Spanning Tree (MST) protocol and explains how it works
Chapter 15	Understanding and Configuring EtherChannel	Describes how to configure Layer 2 and Layer 3 EtherChannel port bundles
Chapter 16	Configuring IGMP Snooping and Filtering	Describes how to configure Internet Group Management Protocol (IGMP) snooping
Chapter 17	Configuring 802.1Q and Layer 2 Protocol Tunneling	Describes how to configure 802.1Q and Layer 2 protocol Tunneling
Chapter 18	Understanding and Configuring CDP	Describes how to configure the Cisco Discovery Protocol (CDP)
Chapter 19	Configuring UDLD	Describes how to configure the UniDirectional Link Detection (UDLD) protocol
Chapter 20	Configuring Unidirectional Ethernet	Describes how to configure unidirectional Ethernet
Chapter 21	Configuring Layer 3 Interfaces	Describes how to configure interfaces to support Layer 3 features
Chapter 22	Configuring Cisco Express Forwarding	Describes how to configure Cisco Express Forwarding (CEF) for IP unicast traffic
Chapter 23	Understanding and Configuring IP Multicast	Describes how to configure IP Multicast Multilayer Switching (MMLS)
Chapter 24	Configuring Policy-Based Routing	Describes how to configure policy-based routing
Chapter 25	Understanding and Configuring VTP	Describes how to configure the VLAN Trunking Protocol
Chapter 26	Configuring VRF-lite	Describes how to configure multiple VPN routing/forwarding (multi-VRF) instances in customer edge (CE) devices
Chapter 27	Configuring QoS	Describes how to configure quality of service (QoS)
Chapter 28	Configuring Voice Interfaces	Describes how to configure multi-VLAN access ports for use with Cisco IP phones
Chapter 29	Understanding and Configuring 802.1X Port-Based Authentication	Describes how to configure 802.1X port-based authentication
Chapter 30	Configuring Port Security	Describes how to configure the port security feature
Chapter 31	Configuring DHCP Snooping and IP Source Guard	Describes how to configure DHCP snooping and display DHCP snooping information

Chapter	Title	Description
Chapter 32	Understanding and Configuring Dynamic ARP Inspection	Describes how to configure Dynamic ARP Inspection
Chapter 33	Configuring Network Security with ACLs	Describes how to configure ACLS, VACLs, and MACLs
Chapter 34	Configuring Private VLANs	Describes how to set up and modify private VLANs
Chapter 35	Port Unicast and Multicast Flood Blocking	Describes how to configure unicast flood blocking on the Catalyst 4500 series switches
Chapter 36	Configuring Port-Based Traffic Control	Describes how to configure storm control suppression on the Catalyst 4500 series switches
Chapter 37	Environmental Monitoring and Power Management	Describes how to configure environmental monitoring, power redundancy, and inline power features
Chapter 38	Configuring SPAN and RSPAN	Describes how to configure the Switched Port Analyzer (SPAN)
Chapter 39	Configuring NetFlow Statistics Collection	Describes how to configure NetFlow statistics gathering
Appendix A	Acronyms	Defines acronyms used in this book

Related Documentation

The following publications are available for the Catalyst 4500 series switches:

- *Catalyst 4000 Series Switch Installation Guide*
- *Catalyst 4500 Series Switch Installation Guide*
- *Catalyst 4500 Series Switch Module Installation Guide*
- *Catalyst 4500 Series Switch Cisco IOS Command Reference*
- *Catalyst 4500 Series Switch Cisco IOS System Message Guide*
- Release Notes for the Catalyst 4500 series switch
- 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/ios122/122cgcr/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**.
italic font	Command arguments for which you supply values are in *italics*.
[ ]	Command elements in square brackets are optional.
{ 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 `screen` font.
`boldface screen` font	Information you must enter verbatim is in **`boldface screen`** font.
`italic screen` font	Arguments for which you supply values are in *`italic screen`* font.
——→	This pointer highlights an important line of text in an example.
^	Represents the key labeled Control—for example, the key combination ^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.

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.

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, refer to the command in the *Catalyst 4500 Series Switch Cisco IOS Command Reference*.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

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

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

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

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

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool automatically provides recommended solutions. If your issue is not resolved using the recommended resources, your service request will be assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

  http://cisco.com/univercd/cc/td/doc/pcat/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html