



Preface

Audience

This guide is for the networking professional managing the Catalyst 3550 switch, hereafter referred to as the switch or the multilayer switch (when it has the enhanced multilayer switch image installed). Before using this guide, you should have experience working with the Cisco IOS and be familiar with the concepts and terminology of Ethernet and local area networking.

Purpose

This guide provides the information you need to configure Layer 2 and Layer 3 software features on your switch. It provides procedures for using the commands that have been created or changed for use with the Catalyst 3550 switch. It does not provide detailed information about these commands. For detailed information about these commands, refer to the *Catalyst 3550 Multilayer Switch Command Reference* for this release. For information about the standard IOS Release 12.1 commands, refer to the IOS documentation set available from the Cisco.com home page at **Service and Support > Technical Documents > Documentation Home Page > Cisco IOS Software Configuration > Cisco IOS Release 12.1**.

This guide also includes an overview of the Cluster Management Suite (CMS) web-based, switch management interface, which helps you create and manage clusters of switches. This guide does not provide field-level descriptions of the CMS windows nor does it provide the procedures for configuring switches and switch clusters from CMS. For all CMS window descriptions and procedures, refer to the CMS online help, which is integrated with the software image.

This guide does not describe system messages you might encounter or how to install your switch. For more information, refer to the *Catalyst 3550 Multilayer Switch System Message Guide* for this release and to the *Catalyst 3550 Multilayer Switch Hardware Installation Guide*.

Organization

This guide is organized into these chapters:

[Chapter 1, “Overview,”](#) lists the software features of this release and provides examples of how the switch can be deployed in a network.

[Chapter 2, “Using the Command-Line Interface,”](#) describes how to access the command modes, use the command-line interface (CLI), and describes CLI messages that you might receive. It also describes how to get help, abbreviate commands, use **no** and **default** forms of commands, use command history and editing features, and how to search and filter the output of **show** and **more** commands.

[Chapter 3, “Getting Started with CMS,”](#) describes the Cluster Management Suite (CMS) web-based, switch management interface. For information on configuring your web browser and accessing CMS, refer to the release notes. For field-level descriptions of all CMS windows and procedures for using the CMS windows, refer to the online help.

[Chapter 4, “Assigning the Switch IP Address and Default Gateway,”](#) describes how to create the initial switch configuration (for example, assign the switch IP address and default gateway information) by using a variety of automatic and manual methods. It also describes how to modify the switch startup configuration.

[Chapter 5, “Clustering Switches,”](#) describes switch clusters and the considerations for creating and maintaining them. The online help provides the CMS procedures for configuring switch clusters. Configuring switch clusters is most easily performed through CMS; therefore, CLI procedures are not provided. Cluster commands are described in the *Catalyst 3550 Multilayer Switch Command Reference*.

[Chapter 6, “Administering the Switch,”](#) describes how to perform one-time operations to administer your switch. It describes how to prevent unauthorized access to your switch through the use of passwords, privilege levels, and the Terminal Access Controller Access Control System Plus (TACACS+). It also describes how to set the system date and time, system name and prompt, create a login banner, how to manage the MAC address table, and how to optimize system resources for user-selected features.

[Chapter 7, “Configuring Interface Characteristics,”](#) defines the types of Layer 2 and Layer 3 interfaces on the switch. It describes the **interface** command and provides procedures for configuring physical interfaces.

[Chapter 8, “Creating and Maintaining VLANs,”](#) describes how to create and maintain virtual local-area networks (VLANs). It includes information about VLAN modes, the VLAN Trunk Protocol (VTP) database, and the VLAN Membership Policy Server (VMPS).

[Chapter 9, “Configuring STP,”](#) describes how to configure basic and advanced spanning-tree features on your switch.

[Chapter 10, “Configuring IGMP Snooping and MVR,”](#) describes how to configure Layer 2 Internet Group Management Protocol (IGMP) snooping on your switch. It also describes Multicast VLAN Registration (MVR), a local IGMP snooping feature available on the switch.

[Chapter 11, “Configuring Traffic Suppression and Traffic Control,”](#) describes how to reduce traffic storms by setting broadcast, multicast, and unicast traffic threshold levels; how to configure protected ports; and how to block unknown broadcast and unicast traffic.

[Chapter 12, “Configuring CDP,”](#) describes how to configure Cisco Discovery Protocol (CDP) on your switch.

[Chapter 13, “Configuring UDLD,”](#) describes how to configure the UniDirectional Link Detection (UDLD) feature. UDLD enables devices connected through fiber-optic or twisted-pair Ethernet cables to monitor the physical configuration of the cables and detect when a unidirectional link exists.

[Chapter 14, “Configuring RMON,”](#) describes how to configure remote monitoring (RMON). The RMON feature, which is used with the Simple Network Management Protocol (SNMP) agent in the switch, means that you can monitor all the traffic flowing among switches on all connected LAN segments.

[Chapter 15, “Configuring System Message Logging,”](#) describes how to configure system message logging. It describes the message format, how to change the message display destination device, limit the type of messages sent, configure UNIX server syslog daemon and define the UNIX system logging facility, and timestamp messages.

[Chapter 16, “Configuring SNMP,”](#) describes how to configure the Simple Network Management Protocol (SNMP). It describes how to configure community strings, enable trap managers and traps, set the agent contact and location information, and how to limit TFTP servers used through SNMP.

[Chapter 17, “Configuring Network Security with ACLs,”](#) describes how to configure network security on your switch using two types of access control lists (ACLs), router ACLs and VLAN maps. It describes how to apply ACLs to interfaces and provides examples.

[Chapter 18, “Configuring QoS,”](#) describes how to configure quality of service (QoS) on your switch. With this feature, you can provide preferential treatment to certain traffic at the cost of others.

[Chapter 19, “Configuring EtherChannel,”](#) describes how to bundle a set of individual ports into a single logical link on Layer 2 and Layer 3 interfaces.

[Chapter 20, “Configuring IP Unicast Routing,”](#) describes how to configuring IP unicast routing on your switch, including configuring IP addressing features, Routing Information Protocol (RIP), Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF) protocol, and Enhanced IGRP (EIGRP). To use this feature, you must have the enhanced multilayer switch image installed on your switch.

[Chapter 21, “Configuring HSRP,”](#) describes how to use Hot Standby Router Protocol (HSRP) to provide routing redundancy for routing IP traffic without depending on the availability of any single router. To use this feature, you must have the enhanced multilayer switch image installed on your switch.

[Chapter 22, “Configuring IP Multicast Routing,”](#) how to configuring IP multicast routing. It describes how to use and configure the Internet Group Management Protocol (IGMP), Protocol-Independent Multicast (PIM) protocol, Cisco Group Management Protocol (CGMP) server functionality, and how to inter-operate between PIM and Distance Vector Multicast Routing Protocol (DVMRP) domains. To use this feature, you must have the enhanced multilayer switch image installed on your switch.

[Chapter 23, “Configuring MSDP,”](#) describes how to configure the Multicast Source Discovery Protocol (MSDP), which is a mechanism to connect multiple PIM sparse-mode domains. To use this feature, you must have the enhanced multilayer switch image installed on your switch.

[Chapter 24, “Configuring Fallback Bridging,”](#) describes how to configure fallback bridging on your switch. With fallback bridging, you can bridge non-IP protocols between VLAN bridge domains and routed ports. To use this feature, you must have the enhanced multilayer switch image installed on your switch

[Chapter 25, “Troubleshooting,”](#) describes how to identify and resolve software problems related to the IOS software.

Appendix A, “Supported MIBs,” lists the supported MIBs for this release and how to use FTP to access the MIB files.

Appendix B, “Working with the IOS File System, Configuration Files, and Software Images,” describes how to manipulate the Flash file system, how to copy configuration files, and how to archive (upload and download) software images.

Appendix C, “Unsupported CLI Commands in Release 12.1(4)EA1,” lists the unsupported command-line interface (CLI) commands that are displayed when you enter the question mark (?) at the switch prompt. The unsupported commands are listed by software feature and command mode.

Conventions

This publication uses these conventions to convey instructions and information:

Command descriptions use these conventions:

- Commands and keywords are in **boldface** text.
- Arguments for which you supply values are in *italic*.
- Square brackets ([]) mean optional elements.
- Braces ({ }) group required choices, and vertical bars (|) separate the alternative elements.
- Braces and vertical bars within square brackets ([{ | }]) mean a required choice within an optional element.

Interactive examples use these conventions:

- Terminal sessions and system displays are in `screen` font.
- Information you enter is in **boldface screen** font.
- Nonprinting characters, such as passwords or tabs, are in angle brackets (< >).

Notes, cautions, and warnings use these conventions and symbols:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Caution

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



Timesaver

Means the following *will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information.

Related Publications

You can order printed copies of documents with a DOC-xxxxxxx= number. For more information, see the “[Ordering Documentation](#)” section on page xxx.

These publications provide more information about the switch:

- Catalyst 3550 Multilayer Switch Documentation CD

This CD is shipped with the switch and contains these documents:

- *Catalyst 3550 Multilayer Switch Software Configuration Guide* (order number DOC-7811194=)
- *Catalyst 3550 Multilayer Switch Command Reference*, (order number DOC-7811195=)
- *Catalyst 3550 Multilayer Switch System Message Guide*, (order number DOC-7811196=)
- *Catalyst 3550 Multilayer Switch Hardware Installation Guide* (order number DOC-7811358=)
- *Release Notes for the Catalyst 3550 Multilayer Switch, Cisco IOS Release 12.1(4)EAI*

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at these sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.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 is updated monthly and might be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in these 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, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

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

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to this address:

Cisco Systems, Inc.
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. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to this website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

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

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to this website:

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

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at this website:

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

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to this website:

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

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.