Preface

This preface describes the audience, organization, and conventions of the *Cisco MDS 9000 Family Configuration Guide*. It also provides information on how to obtain related documentation.

Audience

This guide is for experienced network administrators who are responsible for configuring and maintaining the Cisco MDS 9000 Family of multilayer directors and fabric switches.

Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Product Overview	Presents an overview of the Cisco MDS 9000 Family of multilayer switches and directors.
Chapter 2	Before You Begin	Describes the command-line interface (CLI).
Chapter 3	Initial Configuration	Provides initial switch configuration options and then subsequent switch access information.
Chapter 4	Configuring High Availability	Provides details on the high availability feature including switchover mechanisms
Chapter 5	Software Images	Describes how to upgrade Cisco MDS 9000 Family switches; installs software image files; use the Flash file system on the supervisor engine; and recover a corrupted bootflash image.
Chapter 6	Managing Modules	Explains how to display and analyze the status of each module, and specifies the power on and power off process for modules.
Chapter 7	Managing System Hardware	Provides details on switch hardware inventory, power usage, power supply, module temperature, fan and clock modules, and environment information.

Chapter	Title	Description
Chapter 8	Configuring and Managing VSANs	Describes how virtual SANs (VSANs) work; explains the concept of default VSANs, isolated VSANs, VSAN IDs and attributes; and provides details on how to create, delete, and view VSANs.
Chapter 9	Configuring Interfaces	Explains port and operational state concepts in Cisco MDS 9000 Family switches and provides details on configuring ports and interfaces.
Chapter 10	Configuring Trunking	Explains TE ports and trunking concepts.
Chapter 11	Configuring PortChannels	Explains PortChannels and load balancing concepts and provides details on configuring PortChannels, adding ports to PortChannels, and deleting ports from PortChannels.
Chapter 12	Configuring and Managing Zones	Defines various zoning concepts and provides details on configuring a zone set and zone management features.
Chapter 13	Managing FLOGI, Name Server, and RSCN Databases	Provides name server and fabric login details required to manage storage devices and display registered state change notification (RSCN) databases.
Chapter 14	Configuring System Security and AAA Services	Discusses the AAA parameters, user profiles, RADIUS authentication, SSH services, and SNMP Security options provided in all switches in the Cisco MDS 9000 Family and provides configuration information for these options.
Chapter 15	Configuring Fibre Channel Routing Services and Protocols	Provides details and configuration information on Fibre Channel routing services and protocols.
Chapter 16	Configuring IP Services	Provides details on IP over Fibre Channel (IPFC) services and provides configuring IPFC, virtual router, and DNS server configuration information.
Chapter 17	Configuring Call Home	Provides details on the Call Home service and includes information on Call Home, event triggers, contact information, destination profiles, and e-mail Options.
Chapter 18	Configuring Domain Parameters	Explains the Fibre Channel domain (fcdomain) feature, which includes principal switch selection, domain ID distribution, FC ID allocation, and fabric reconfiguration functions.
Chapter 19	Configuring Traffic Management	Provides details on the quality of service (QoS) and Fibre Channel Congestion Control (FCC) features.
Chapter 20	Configuring System Message Logging	Describes how system message logging is configured and displayed.

Chapter	Title	Description
Chapter 21	Discovering SCSI Targets	Describes how the SCSI LUN discovery feature is started and displayed.
Chapter 22	Monitoring Network Traffic Using SPAN	Describes the switched port analyzer (SPAN), identifies SPAN sources, specifies filters, explains SPAN Sessions, SD port characteristics, and configuration details.
Chapter 23	Advanced Features and Concepts	Describes the advanced configuration features features—time out values, fctrace, fabric analyzer, world wide names, flat FC IDs, loop monitoring, and interoperating switches.
Chapter 24	Configuring Fabric Configuration Servers	Describes how the fabric Configuration Server (FCS) feature is configured and displayed.
Chapter 25	Monitoring System Processes and Logs	Provides information on displaying system processes and status. It also provides information on configuring core and log files, HA policy, heartbeat and watchdog checks, and upgrade resets.

Document Conventions

Command descriptions use these conventions:

boldface font	Commands and keywords are in boldface.
italic font	Arguments for which you supply values are in italics.
[ ]	Elements in square brackets are optional.
[x	y	z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.

Screen examples use these conventions:

`screen font`	Terminal sessions and information the switch displays are in screen font.
`boldface screen font`	Information you must enter is in boldface screen font.
`italic screen font`	Arguments for which you supply values are in italic screen font.
`< >`	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.

This document uses the following conventions:

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

⚠️

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

Related Documentation

Regulatory Compliance and Safety Information for the Cisco MDS 9000 Family, Release 1.0(2a)

Quick Start Guide for the Cisco MDS 9000 Family, Release 1.0(2a)

Cisco MDS 9200 Series Hardware Installation Guide, Release 1.0(2a)

Cisco MDS 9500 Series Hardware Installation Guide, Release 1.0(2a)

Cisco MDS 9000 Family Command Reference, Release 1.0(2a)

Cisco MDS 9000 Family Fabric Manager User Guide, Release 1.0(2a)

Cisco MDS 9000 Family Troubleshooting Guide, Release 1.0(2a)

Cisco MDS 9000 Family System Messages Guide, Release 1.0(2a)

Cisco MDS 9000 Family MIB Reference Guide, Release 1.0(2a)

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.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 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 the **Fax** or **Email** option under the "Leave Feedback" at the bottom of the Cisco Documentation home page.

You can e-mail your comments to mdsfeedback-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.