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Cisco MDS 9000 Family Command Reference

Cisco MDS SAN-OS Release 1.0(3a)

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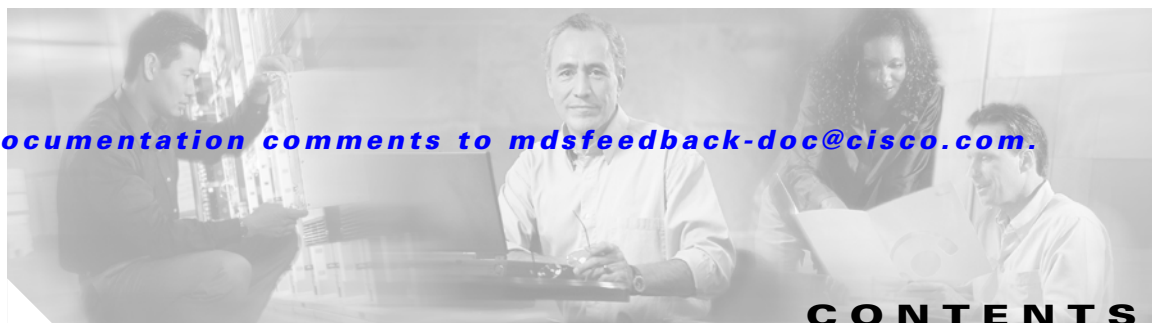
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Preface

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

Audience

This guide is for experienced network operators and 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	CLI Overview	Describes the CLI (command-line interface).
Chapter 2	A Commands	Describes all commands beginning with the letter “a.”
Chapter 3	B Commands	Describes all commands beginning with the letter “b.”
Chapter 4	C Commands	Describes all commands beginning with the letter “c.”
Chapter 5	D Commands	Describes all commands beginning with the letter “d.”
Chapter 6	E Commands	Describes all commands beginning with the letter “e.”
Chapter 7	F Commands	Describes all commands beginning with the letter “f.”
Chapter 8	I Commands	Describes all commands beginning with the letter “i.”
Chapter 9	L Commands	Describes all commands beginning with the letter “l.”
Chapter 10	M Commands	Describes all commands beginning with the letter “m.”
Chapter 11	N Commands	Describes all commands beginning with the letter “n.”
Chapter 12	P Commands	Describes all commands beginning with the letter “p.”
Chapter 13	Q Commands	Describes all commands beginning with the letter “q.”
Chapter 14	R Commands	Describes all commands beginning with the letter “r.”
Chapter 15	S Commands	Describes all commands beginning with the letter “s” except for the show commands.

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Chapter	Title	Description
Chapter 16	Show Commands	Describes all the show commands.
Chapter 17	T Commands	Describes all commands beginning with the letter “t.”
Chapter 18	U Commands	Describes all commands beginning with the letter “u.”
Chapter 19	V Commands	Describes all commands beginning with the letter “v.”
Chapter 20	W Commands	Describes all commands beginning with the letter “w.”
Chapter 21	Z Commands	Describes all commands beginning with the letter “z.”

Document Conventions

Command descriptions use these conventions:

boldface font	Commands and keywords are in boldface.
<i>italic font</i>	Arguments for which you supply values are in italics.
[]	Elements in square brackets are optional.
{ x y z }	Required 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.

Screen examples use these conventions:

screen font	Terminal sessions and information the switch displays are in <code>screen font</code> .
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> .
< >	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.

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Related Documentation

Regulatory Compliance and Safety Information for the Cisco MDS 9000 Family

Quick Start Guide for the Cisco MDS 9000 Family

Cisco MDS 9200 Series Hardware Installation Guide

Cisco MDS 9500 Series Hardware Installation Guide

Cisco MDS 9000 Family Command Reference

Cisco MDS 9000 Family Fabric Manager User Guide

Cisco MDS 9000 Family Troubleshooting Guide

Cisco MDS 9000 Family System Messages Guide

Cisco MDS 9000 Family MIB Reference Guide

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

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

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CLI Overview

This chapter prepares you to configure switches from the CLI (command-line interface). It also lists the information you need to have before you begin, and it describes the CLI command modes.

This chapter includes the following sections:

- [About the Cisco MDS 9000 Family Switch Prompt, page 1-2](#)
- [About the CLI Command Modes, page 1-3](#)
- [Understanding CLI Command Hierarchy, page 1-4](#)
- [Navigating Through CLI Commands, page 1-9](#)
- [Using the File System, page 1-12](#)
- [Role-Based CLI, page 1-19](#)
- [Using Valid Formats and Ranges, page 1-20](#)

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About the Cisco MDS 9000 Family Switch Prompt

When the switch boots for the first time, you see the following output if you are connected to the console port:

```
Auto booting bootflash:/boot-279 bootflash:/system_image;...
Booting kickstart image:bootflash:/boot-279....
.....Image verification OK

Starting kernel...
INIT:version 2.78 booting
Checking all filesystems..... done.
Loading system software
Uncompressing system image:bootflash:/system_image
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
INIT:Entering runlevel:3

<<<<<SAN OS bootup log messages>>>>>

      ---- Basic System Configuration Dialog ----

This setup utility will guide you through the basic configuration of
the system. Use ctrl-c to abort configuration dialog at any prompt.

Basic management setup configures only enough connectivity for
management of the system.

Would you like to enter the basic configuration dialog (yes/no):yes

<<<<<after configuration>>>>>

MDS Switch
switch login:
```



Note

Refer to the *Cisco MDS 9200 Series Hardware Installation Guide* or the *Cisco MDS 9500 Series Hardware Installation Guide* for installation and connection instructions.

When the switch boots each subsequent time, you see the following output if you are connected to the console port:

```
Auto booting bootflash:/boot-279 bootflash:/system_image;...
Booting kickstart image:bootflash:/boot-279....
.....Image verification OK

Starting kernel...
INIT:version 2.78 booting
Checking all filesystems..... done.
Loading system software
Uncompressing system image:bootflash:/system_image
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
INIT:Entering runlevel:3

MDS Switch
switch login:
```

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Once the switch is powered on successfully, you see the default switch prompt (`switch#`). You can perform embedded CLI operations, access command history, and access command parsing functions at this prompt. The switch gathers the command string upon detecting an **Enter** (CR). It accepts commands from a terminal, from a file (input redirection), or from the piped output from another program.

About the CLI Command Modes

Switches in the Cisco MDS 9000 Family have two main command modes—user EXEC mode and configuration mode. The commands available to you depend on the mode you are in. To obtain a list of available commands in either mode, type a question mark (?) at the system prompt.

[Table 1-1](#) lists and describes the two commonly used modes, how to enter the modes, and the resulting system prompts. The system prompt helps you identify which mode you are in and hence, which commands are available to you.

Table 1-1 Frequently Used Switch Command Modes

Mode	Description of Use	How to Access	Prompt
EXEC	Enables you to temporarily change terminal settings, perform basic tests, and display system information. Note Changes made in this mode are generally not saved across system resets.	At the switch prompt, enter the required EXEC mode command.	<code>switch#</code>
Configuration mode	Enables you to configure features that affect the system as a whole. Note Changes made in this mode are saved across system resets if you save your configuration. See the “Saving a Configuration” section on page 1-19 .	From EXEC mode, enter the config terminal command.	<code>switch(config)#</code>

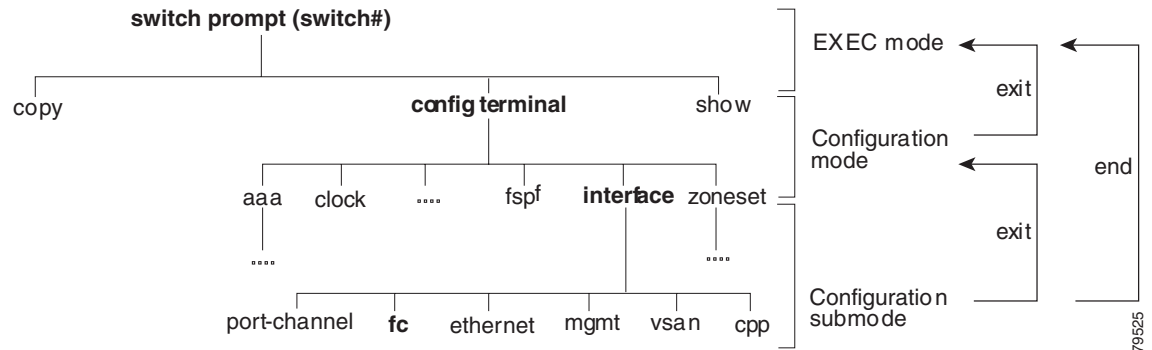
You can abbreviate commands and keywords by entering just enough characters to make the command unique from other commands. For example, you can abbreviate the **config terminal** command to **conf t**.

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Understanding CLI Command Hierarchy

The CLI commands are organized hierarchically, with commands that perform similar functions grouped under the same level. For example, all commands that display information about the system, configuration, or hardware are grouped under the **show** command, and all commands that allow you to configure the switch are grouped under the **config terminal** command. Figure 1-1 illustrates a portion of the **config terminal** command hierarchy.

Figure 1-1 CLI Command Hierarchy Example



To execute a command, you enter the command by starting at the top level of the hierarchy. For example, to configure a Fibre Channel interface, use the **config terminal** command. Once you are in configuration mode, issue the **interface** command. When you are in the interface submenu, you can query the available commands there.

The following example shows how to query the available commands in the interface submenu:

```

switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# interface fc1/1
switch(config-if)# ?
Interface configuration commands:
  channel-group  Add to/remove from a port-channel
  exit           Exit from this submenu
  fcdomain       Enter the interface submenu
  fspf           To configure FSPF related parameters
  no             Negate a command or set its defaults
  shutdown       Enable/disable an interface
  switchport     Configure switchport parameters
  
```

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EXEC Mode Options

When you start a session on the switch, you begin in EXEC mode. Based on the role or group to which you belong, you have access to limited commands or to all commands. Refer to the *Cisco MDS 9000 Family Configuration Guide* for further information. From the EXEC mode, you can enter configuration mode. Most of the EXEC commands are one-time commands, such as **show** commands, which display the current configuration status. Here is a list of EXEC mode commands:

```
switch# ?
Exec Commands:
  attach      Connect to a specific linecard
  callhome    Callhome commands
  cd          Change current directory
  clear       Reset functions
  clock       Manage the system clock
  config      Enter configuration mode
  copy        Copy from one file to another
  debug       Debugging functions
  delete      Remove files
  dir         Directory listing for files
  discover    Discover information
  exit        Exit from the EXEC
  fcping      Ping an N-Port
  fctrace     Trace the route for an N-Port.
  find        Find a file below the current directory
  format      Format disks
  install     Upgrade software
  load        Load system image
  mkdir       Create new directory
  move        Move files
  no          Disable debugging functions
  ping        Send echo messages
  purge       Deletes unused data
  pwd         View current directory
  reload      Reboot the entire box
  rmdir       Remove existing directory
  run-script  Run shell scripts
  send        Send message to all the open sessions
  setup       Run the basic SETUP command facility
  show        Show running system information
  sleep       Sleep for the specified number of seconds
  system      System management commands
  tail        Display the last part of a file
  telnet      Telnet to another system
  terminal    Set terminal line parameters
  test        Test command
  traceroute  Trace route to destination
  undebg      Disable Debugging functions (See also debug)
  write       Write current configuration
  zone        Execute Zone Server commands
```

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Configuration Mode

Configuration mode allows you to make changes to the existing configuration. When you save the configuration, these commands are preserved across switch reboots. Once you are in configuration mode, you can enter interface configuration mode, zone configuration mode, and a variety of protocol-specific modes. Configuration mode is the starting point for all configuration commands. When you are in configuration mode, the switch expects configuration commands from the user.

The following example shows output from the **config terminal** command:

```
switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)#
```

Configuration Mode Commands and Submodes

The following is a list of configuration mode commands:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ?
Configure commands:
  aaa          Configure AAA
  arp          [no] remove an entry from the ARP cache
  boot         Configure boot variables
  callhome     Enter the callhome configuration mode
  clock        Configure time-of-day clock
  end          Exit from configure mode
  exit         Exit from configure mode
  fcalias      Fcalias configuration commands
  fcanalyzer   Configure cisco fabric analyzer
  fcc          Configure FC Congestion Control
  fcdomain     Enter the fcdomain configuration mode
  fcdroplateny Configure switch or network latency
  fcflow       Configure fcflow
  fcinterop    Interop commands.
  fcns         Name server configuration
  fcroute      Configure FC routes
  fcs          Configure Fabric Config Server
  fctimer      Configure fibre channel timers
  fspf         Configure fspf
  in-order-guarantee Set in-order delivery guarantee
  interface    Select an interface to configure
  ip           Configure IP features
  line         Configure a terminal line
  logging      Modify message logging facilities
  no           Negate a command or set its defaults
  ntp          NTP Configuration
  power        Configure power supply
  poweroff     Poweroff a module in the switch
  qos          Configure priority of FC control frames
  radius-server Configure RADIUS related parameters
  role         Configure roles
  rscn         Config commands for RSCN
  snmp-server  Configure snmp server
  span         Enter SPAN configuration mode
  ssh          Configure SSH parameters
  switchname   Configure system's network name
  system       System config command
  telnet       Enable telnet
  trunk        Configure Switch wide trunk protocol
```

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```
username      Configure user information.
vsan          Enter the vsan configuration mode
wwn           Set secondary base MAC addr and range for additional WWNs
zone          Zone configuration commands
zoneset       Zoneset configuration commands
```

Configuration mode, also known as terminal configuration mode, has several submodes. Each of these submodes places you deeper in the prompt hierarchy. When you type **exit**, the switch backs out one level and returns you to the previous level. When you type **end**, the switch backs out to the user EXEC level. You can also type **Ctrl-Z** in configuration mode as an alternative to typing **end**.



Note

When in configuration mode, you can enter an EXEC mode command followed by a **Ctrl-z**. In response, the switch returns to the EXEC level. The entered command is then executed at the EXEC level. The following example executes the **copy running-config startup-config** command from configuration mode, if you press **Ctrl-z**, instead of **Enter**.

```
switch(config)# copy run start
[#####] 100%
switch#
```

Table 1-2 displays the commonly used configuration submodes.

Table 1-2 Submodes Within the Configuration Mode

Submode Name	From Configuration Mode Enter	Submode Prompt	Configured Information
Call Home	callhome	switch(config-callhome)#	Contact, destination, and e-mail
FCS Registration	fcs register	switch(config-fcs-register)#	FCS attribute registration
	From FCS registration submode: platform name name vsan vsan-id	switch(config-fcs-register-attr)#	Platform name and VSAN ID association
Fibre Channel alias	fcalias name name vsan vsan-id	switch(config-fcalias)#	Alias member
FSPF	fspf config vsan vsan-id	switch(config-(fspf-config))#	Static SPF computation, hold time, and autonomous region
Interface configuration	interface type slot/port	switch(config-if)#	Channel groups, Fibre Channel domains, FSPF parameters, switch port trunk and beacon information, and IP address
	From the VSAN or mgmt0 (management) interface configuration submode: vrrp number	switch(config-if-vrrp)#	Virtual router. Refer to the <i>Cisco MDS 9000 Family Configuration Guide</i> .
Line console	line console	switch(config-console)#	Primary terminal console
VTY	line vty	switch(config-line)#	Virtual terminal line
Role	role name	switch(config-role)#	Rule
SPAN	span session number	switch(config-span)#	SPAN source, destination, and suspend session information
VSAN database	vsan database	switch(config-vsan-db)#	VSAN database

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Table 1-2 Submodes Within the Configuration Mode (continued)

Submode Name	From Configuration Mode Enter	Submode Prompt	Configured Information
Zone	zone <i>name string</i> vsan <i>vsan-id</i>	switch(config-zone)#	Zone member
Zone set	zoneset <i>name name</i> vsan <i>vsan-id</i>	switch(config-zoneset)#	Zone set member

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Navigating Through CLI Commands

To redisplay a command you previously entered, press the **Up Arrow** key. You can continue to press the **Up Arrow** key to see more previously issued commands. Similarly, you can press the **Down Arrow**, **Right Arrow**, **Left Arrow**, and **Delete** keys to navigate through the command history and to modify an existing command string.

Getting Help

In any command mode, you can get a list of available commands by entering a question mark (?).

```
switch# ?
```

To obtain a list of commands that begin with a particular character sequence, type in those characters followed immediately by the question mark (?). Do not include a space.

```
switch# co?
configure copy
```

To list keywords or arguments, enter a question mark in place of a keyword or argument. Include a space before the question mark. This form of help is called command syntax help, because it reminds you which keywords or arguments are applicable based on the commands, keywords, and arguments you have already entered.

```
switch# config ?
terminal Configure the system from the terminal
```



Tip

If you are having trouble entering a command, check the system prompt and enter the question mark (?) for a list of available commands. You might be in the wrong command mode or using incorrect syntax.

Command Completion

In any command mode, you can begin a particular command sequence and immediately press the **Tab** key to complete the rest of the command.

```
switch (config)# ro<Tab>
switch (config)# role <Tab>
switch (config)# role name
```

This form of help is called command completion, because it completes a word for you. If several options are available for the typed letters, all options that match those letters are presented:

```
switch(config)# fc<Tab>
fcalias          fcdomain          fcs
fcanalyzer       fcdroplacency    fcns              fctimer
fcc              fcinterop       fcroute
switch(config)# fcd<Tab>
fcdomain         fcdroplacency
switch(config)# fcd<Tab>
switch(config)# fcd<Tab>
switch(config)# fcdomain
```

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Using the no and Default Forms of Commands

You can issue the **no** form of any command to perform the following actions:

- Undo a wrongly issued command.

If you issue the **zone member** command, you can undo the results:

```
switch(config)# zone name test vsan 1
switch(config-zone)# member pwnn 12:12:12:12:12:12:12:12
switch(config-zone)# no member pwnn 12:12:12:12:12:12:12:12
WARNING: Zone is empty. Deleting zone test. Exit the submode.
switch(config-zone)#
```

- Delete a created facility

If you want to delete a zone that you created:

```
switch(config)# zone name test vsan 1
switch(config-zone)# exit
switch(config)# no zone name test vsan 1
switch(config)#
```

You cannot delete a zone facility called test while residing in it. You must first exit the zone submode and return to configuration mode.

Entering CLI Commands

You can configure the software in one of two ways:

- You can create the configuration for the switch interactively, working at the CLI prompt.
- You can create an ASCII file containing a switch configuration and then load this file on the required system. You can then use the CLI to edit and activate the file (refer to the *Cisco MDS 9000 Family Configuration Guide*).

Viewing a Configuration

You can view the ASCII form of the configuration file when required. To view the current configuration tree from the EXEC prompt, issue the **show running-config** command. If the running configuration is different from the startup configuration, issue the **show startup-config** command to view the ASCII version of the current startup configuration that was used to boot the switch.

You can gather specific information on the entire switch configuration by issuing the relevant **show** commands. Available **show** commands for each feature are listed at the end of each chapter.

Examples 1-1 to 1-3 display a few **show** command examples.

Example 1-1 Displays the Specified Interface

```
switch# show interface fc1/1
fc1/1 is up
  Hardware is Fibre Channel, 20:01:ac:16:5e:4a:00:00
  vsan is 1
  Port mode is E
  Speed is 1 Gbps
  Beacon is turned off
  FCID is 0x0b0100
    0 frames input, 0 bytes, 0 discards
```

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```
0 runs, 0 jabber, 0 too long, 0 too short
0 input errors, 0 CRC, 0 invalid transmission words
0 address id, 0 delimiter
0 EOF abort, 0 fragmented, 0 unknown class
0 frames output, 0 bytes, 0 discards
Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```

Example 1-2 *Displays the Software and Hardware Version*

```
switch# show version
Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2003 by Cisco Systems, Inc. All rights reserved.
The copyright for certain works contained herein are owned by
Andiamo Systems, Inc. and/or other third parties and are used and
distributed under license.

Software
  BIOS:      version 1.0.3
  loader:    version error [last 1.0(1)]
  kickstart: version 1.1(1) [build 1.1(0.94)] [gdb]
  system:    version 1.1(1) [build 1.1(0.94)] [gdb]

  BIOS compile time:      11/18/02
  kickstart image file is: bootflash:/bootimage
  kickstart compile time: 2/12/2003 11:00:00
  system image file is:   isanimage
  system compile time:    2/12/2003 12:00:00

Hardware
  RAM 1027628 kB

  bootflash: 1000944 blocks (block size 512b)
  slot0:      0 blocks (block size 512b)

172.22.90.171 uptime is 0 days 2 hours 48 minute(s) 26 second(s)

Last reset at 669882 usecs after Thu Feb 13 07:20:41 2003
Reason: Reset Requested by CLI command reload
System version: 1.0(1)
```

Example 1-3 *Displays the Running Configuration*

```
switch# show running-config
Building Configuration ...
  interface fc1/1
  interface fc1/2
  interface fc1/3
  interface fc1/4
  interface mgmt0
ip address 172.22.95.112 255.255.255.0
no shutdown
vsan database
boot system bootflash:system-237; sup-1
boot kickstart bootflash:boot-237 sup-1
callhome
ip default-gateway 172.22.95.1
switchname switch
trunk protocol enable
username admin password 5 /AFDAMD4B2xK2 role network-admin
```

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Using the File System

The file system on a switch in the supervisor module provides a number of useful commands to help you manage software image files and configuration files.

You have access to two directories within the internal bootflash: file system. They are volatile: (temporary storage, also the default) and bootflash: (permanent storage). Files in temporary storage (volatile:) are erased when the switch reboots.

Setting the Current Directory

The **cd** command changes the current directory level to a specified directory level. CLI defaults to the volatile: files system. This command expects a directory name input.



Tip

Any file saved in the volatile: file system will be erased when the switch reboots.

The syntax for this command is **cd** *directory name*

This example changes the current directory to the mystorage directory that resides in the slot0 directory:

```
switch# cd slot0:mystorage
```

This example changes the current directory to the mystorage directory that resides in the current directory.

```
switch# cd mystorage
```

If the current directory is slot0:mydir, this command changes the current directory to slot0:mydir/mystorage.

Displaying the Current Directory

The **pwd** command displays the current directory location. This example changes the directory and displays the current directory.

```
switch# cd bootflash:
switch# pwd
bootflash:
```

Listing the Files in a Directory

The **dir** command displays the contents of the current directory or the specified directory. The syntax for this command is **dir** *directory or file name*

This example shows how to list the files on the default volatile: file system:

```
switch# dir
          Usage for volatile: filesystem
                   0 bytes total used
          20971520 bytes free
          20971520 bytes available
```

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Creating a New Directory

The **mkdir** command creates a directory at the current directory level or at a specified directory level.

The syntax for this command is **mkdir** *directory name*

This example creates a directory called test in the slot0 directory.

```
switch# mkdir slot0:test
```

This example creates a directory called test at the current directory level.

```
switch# mkdir test
```

If the current directory is slot0:mydir, this command creates a directory called slot0:mydir/test.

Deleting an Existing Directory

The **rmdir** command deletes an existing directory at the current directory level or at a specified directory level. The directory must be empty to be deleted.

The syntax for this command is **rmdir** *directory name*

This example deletes the directory called test in the slot0 directory.

```
switch# rmdir slot0:test
```

This example deletes the directory called test at the current directory level.

```
switch# rmdir test
```

If the current directory is slot0:mydir, this command deletes the slot0:mydir/test directory.

Moving Files

The **move** command removes a file from the source directory and places it in the destination directory. If a file with the same name already exists in the destination directory, that file is overwritten by the moved file.

This example moves the file called samplefile from the slot0 directory to the mystorage directory.

```
switch# move slot0:samplefile slot0:mystorage/samplefile
```

This example moves a file from the current directory level.

```
switch# move samplefile mystorage/samplefile
```

If the current directory is slot0:mydir, this command moves slot0:mydir/samplefile to slot0:mydir/mystorage/samplefile.

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Copying Files

The **copy** command copies a file.

This example copies the file called samplefile from the slot0 directory to the mystorage directory.

```
switch# copy slot0:samplefile slot0:mystorage/samplefile
```

This example copies a file from the current directory level.

```
switch# copy samplefile mystorage/samplefile
```

If the current directory is slot0:mydir, this command copies slot0:mydir/samplefile to slot0:mydir/mystorage/samplefile.

You can also use the **copy** command to upload and download files from the slot0: or bootflash: file system to or from a FTP, TFTP, SFTP, or SCP server (refer to the *Cisco MDS 9000 Family Configuration Guide*).

Displaying File Contents

The **show file** command displays the contents of a specified file in the file system.

The syntax for this command is **show file file_name**

This example displays the contents of the test file that resides in the slot0 directory.

```
switch# show file slot0:test
config t
Int fc1/1
no shut
end
show int
```

This example displays the contents of a file residing in the current directory.

```
switch# show file myfile
```

Displaying Disk Usage

The **show flash** command displays the disk usage of various devices.

```
switch# show flash
```

Filesystem	1k-blocks	Used	Available	Use%	Mounted on
none	409600	37024	372576	10%	/system
none	204800	39816	164984	20%	/var
none	102400	2084	100316	3%	/dev/shm
none	20480	0	20480	0%	/volatile
/dev/hd-cfg0	19976	1699	17246	9%	/mnt/cfg/0
/dev/hd-pss	20005	1473	17499	8%	/mnt/pss

Displaying Users

The **show users** command displays all users currently accessing the switch.

```
switch# show users
admin pts/7 Jan 12 20:56 (10.77.202.149)
admin pts/9 Jan 12 23:29 (modena.cisco.com)
```

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admin pts/11 Jan 13 01:53 (dhcp-171-71-49-49.cisco.com)

Executing Commands Specified in a Script

The **run-script** command executes the commands specified in a file.



Note

You cannot create the script files at the switch prompt. You can create the script file on an external machine and copy it the bootflash: directory. This section assumes that the scrip file resides in the bootflash: directory.

The syntax for this command is **run-script** *file_name*

This example displays the CLI commands specified in the testfile that resides in the slot0 directory.

```
switch# show file slot0:testfile
conf t
interface fc 1/1
no shutdown
end
sh interface fc1/1
```

This file output is in response to the **run-script** command executing the contents in the testfile file:

```
switch# run-script slot0:testfile
'conf t'
Enter configuration commands, one per line. End with CNTL/Z.

'interface fc1/1'

'no shutdown'

'end'

'sh interface fc1/1'
fc1/1 is down (Fcot not present)
  Hardware is Fibre Channel
  Port WWN is 20:01:00:05:30:00:48:9e
  Admin port mode is auto, trunk mode is on
  vsan is 1
  Beacon is turned off
  Counter Values (current):
    0 frames input, 0 bytes, 0 discards
    0 runts, 0 jabber, 0 too long, 0 too short
    0 input errors, 0 CRC, 0 invalid transmission words
    0 address id, 0 delimiter
    0 EOF abort, 0 fragmented, 0 unknown class
    0 frames output, 0 bytes, 0 discards
    Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
    Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Counter Values (5 minute averages):
    0 frames input, 0 bytes, 0 discards
    0 runts, 0 jabber, 0 too long, 0 too short
    0 input errors, 0 CRC, 0 invalid transmission words
    0 address id, 0 delimiter
    0 EOF abort, 0 fragmented, 0 unknown class
    0 frames output, 0 bytes, 0 discards
    Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
    Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```

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To use this command, be sure to create the file and specify commands in the required order.

Setting the Delay Time

The **sleep** command delays an action by a specified number of seconds.

The syntax for this command is **sleep** *<seconds>*

```
switch# sleep 30
```

You will see the switch prompt return after 30 seconds.

This command is useful within scripts. For example, if you create a script called `lashtest-script`:

```
switch# show file slot0:test-script
discover scsi-target remote
sleep 10
show scsi-target disk
```

```
switch# run-script slot0:test-script
```

When you execute the `slot0:test-script`, the switch software executes the **discover scsi-target remote** command, and then waits for 10 seconds before executing the **show scsi-target disk** command.

Displaying the Last Line in a File

The **tail** command displays the last lines (tail end) of a specified file.

The syntax for this command is **tail** *<file name>* [*<number of lines>*]

```
switch# tail mylog 10
```

You see the last 10 lines of the `mylog` file.

If you specify a long file and would like to exit in the middle, enter **Ctrl-c** to exit this command.

Setting the Switch's Shell Timeout

Use the **exec-timeout** command in configuration mode to configure the lifetime of all terminal sessions on that switch. When the time limit configured by this command is exceeded, the shell exits and closes that session.

The syntax for this command from is **exec-timeout** *minutes*

The default is 30 minutes. You can configure different timeout values for a console or a virtual terminal line (VTY) session. You can set the **exec-timeout** value to 0 to disable this feature so the session remains active until you exit the switch. This change is saved in the configuration file.

- From the console:

```
switch(config)# line console
switch(config-console)# exec-timeout 60
```

Specifies the current console shell timeout to be 60 minutes.

- From a VTY session (Telnet or SSH):

```
switch(config)# line vty
switch(config-line)# exec-timeout 60
```

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Specifies the current console shell timeout to be 60 minutes.

Setting the Switch's Terminal Timeout

Use the **terminal session-timeout** command in EXEC mode to configure the automatic logout time for the current terminal session on that switch. When the time limit configured by this command is exceeded, the switch closes that session and exits.

The syntax for this command from is **terminal session-timeout** *minutes*

The default is 30 minutes. You can set the **terminal session-timeout** value to 0 to disable this feature so the terminal remains active until you choose to exit the switch. This change is not saved in the configuration file.

```
switch# terminal session-timeout 600
```

Specifies the terminal timeout to be 600 minutes for the current session.

Setting the Switch's Terminal Type

Use the **terminal terminal-type** command in EXEC mode to specify the terminal type for a switch:

The syntax for this command is **terminal terminal-type** *terminal-type*

```
switch# terminal terminal-type vt100
```

Specifies the terminal type. The *terminal-type* string is restricted to 80 characters and must be a valid type (for example vt100 or xterm). If a Telnet or SSH session specifies an unknown terminal type, the switch uses the vt100 terminal by default.

Setting the Switch's Terminal Length

To set the terminal screen length for the current session, use the **terminal length** command in EXEC mode:

The syntax for this command is **terminal length** *lines*

```
switch# terminal length 20
```

Sets the screen length for the current session to 20 lines for the current terminal session. The default is 24 lines.

This command is specific to only the console port. Telnet and SSH sessions set the length automatically.

Setting the Switch's Terminal Width

To set the terminal screen width for the current session, use the **terminal width** command in EXEC mode:

The syntax for this command is **terminal width** *columns*

```
switch# terminal width 86
```

Sets the screen length for the current session to 86 columns for the current terminal session. The default is 80 columns.

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This command is specific to only the console port. Telnet and SSH sessions set the width automatically.

Displaying Terminal Settings

The `show terminal` command displays the terminal settings for the current session:

```
switch# show terminal
TTY: Type: "vt100"
Length: 24 lines, Width: 80 columns
Session Timeout: 525600 minutes
```

Saving Command Output to a File

You can force all screen output to go to a file by appending `> filename` to any command. For example, enter `show interface > samplefile` at the EXEC mode switch prompt to save the interface configuration to *samplefile*—a file created at the same directory level. At the EXEC mode switch prompt, issue a `dir` command to view all files in this directory, including the recently saved *samplefile*. Refer to the *Cisco MDS 9000 Family Configuration Guide* for further information.



Note

Redirection is allowed only if the current directory is on the `volatile:` (default) or `slot0:` file systems. Redirection is not allowed if the current directory is on the `bootflash:` file system. The current directory can be viewed using the `pwd` command and changed using the `cd` command.

Sending Messages to Users

The `send` command sends a message to all active CLI users currently using the switch. This message is restricted to 80 alphanumeric characters with spaces.

This example sends a warning message to all active users about the switch being shut down.

```
switch# send Shutting down the system in 2 minutes. Please log off.
```

```
Broadcast Message from admin@excal-112
      (/dev/pts/3) at 16:50 ...
```

```
Shutting down the system in 2 minutes. Please log off.
```

Using ping

The `ping` command verifies the connectivity of a remote host or server by sending echo messages.

The syntax for this command is `ping <host or ip address>`

```
switch# ping 171.71.181.19
PING 171.71.181.19 (171.71.181.19): 56 data bytes
64 bytes from 171.71.181.19: icmp_seq=0 ttl=121 time=0.8 ms
64 bytes from 171.71.181.19: icmp_seq=1 ttl=121 time=0.8 ms

--- 171.71.181.19 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 0.8/0.8/0.8 ms
```

To abnormally terminate a ping session, type the **Ctrl-C** escape sequence

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Using traceroute

The **traceroute** command prints the routes taken by a specified host or IP address.

The syntax for this command is **traceroute** *<host or ip address>*

```
switch# traceroute www.cisco.com
traceroute to www.cisco.com (171.71.181.19), 30 hops max, 38 byte packets
 1 kingfisher1-92.cisco.com (172.22.92.2)  0.598 ms  0.470 ms  0.484 ms
 2 nubulab-gw1-bldg6.cisco.com (171.71.20.130)  0.698 ms  0.452 ms  0.481 ms
 3 172.24.109.185 (172.24.109.185)  0.478 ms  0.459 ms  0.484 ms
 4 sjc12-lab4-gw2.cisco.com (172.24.111.213)  0.529 ms  0.577 ms  0.480 ms
 5 sjc5-sbb4-gw1.cisco.com (171.71.241.174)  0.521 ms  0.495 ms  0.604 ms
 6 sjc12-dc2-gw2.cisco.com (171.71.241.230)  0.521 ms  0.614 ms  0.479 ms
 7 sjc12-dc2-cec-css1.cisco.com (171.71.181.5)  2.612 ms  2.093 ms  2.118 ms
 8 www.cisco.com (171.71.181.19)  2.496 ms * 2.135 ms
```

To abnormally terminate a traceroute session, type the **Ctrl-C** escape sequence

Saving a Configuration

To save the configuration, enter the **copy running-config startup-config** command from the EXEC mode prompt to save the new configuration into nonvolatile storage. Once this command is issued, the running and the startup copies of the configuration are identical.

Refer to the *Cisco MDS 9000 Family Configuration Guide*.

Clearing a Configuration

To completely clear a configuration, enter the **write erase** command from the EXEC mode prompt. Once this command is issued, the existing configuration is cleared and the switch reverts to factory defaults.

Role-Based CLI

By default, two roles exist in all switches:

- Network operator—Has permission to view the configuration.
- Network administrator—Has permission to execute all commands and to set up to 64 permission levels based on user roles and groups. Refer to the *Cisco MDS 9000 Family Configuration Guide*.

When you execute a command, perform command completion, or obtain context sensitive help, the switch software allows the operation to progress if you have the correct permission as specified in the description of the command.

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Using Valid Formats and Ranges



Note

Do not enter ellipsis (...), vertical bar (|), less or great (<>), bracket ([]), or braces ({ }) in command lines. These characters have special meaning in SAN-OS text strings.

Some commands require a MAC address, IP address, or IDs that must be designated in a standard format or given a range. See [Table 1-3](#).

Table 1-3 Valid Formats and Ranges

Address	Description	Valid Format Example	Range
MAC address	6 bytes in hexadecimal format separated by colons (not case-sensitive)	00:00:0c:24:d2:Fe	—
IP address	32 bytes, written as 4 octets separated by periods (dotted decimal format) that are made up of a network section, an optional netmask section, and a host section.	126.2.54.1	—
VSAN	Integer that specifies the VSAN.	7	1 to 4093
Port WWN (pWWN)	Eight hexadecimal numbers separated by colons (not case-sensitive).	12:34:56:78:9A:BC:dE:F1	—
Node WWN (nWWN)	Eight hexadecimal numbers separated by colons (not case-sensitive).	12:34:56:78:9A:BC:dE:F1	—
LUN	8 bytes in hexadecimal format separated by colons. A minimum of two hex characters are acceptable. The valid format is hhhh[:hhhh[:hhhh[:hhhh]]]	64 (100d = 64h)	—
FC ID	Six character hexadecimal value prepended by 0x.	0xabc123	—
Domain ID	Integer that specifies the domain.	7	1 to 239
Timers	Integer that specifies timers in milliseconds for latency, FC time out values (TOV).	100	0 to 2147483647
Switching module	Slot in which the applicable switching module resides.	1	1 to 15
Switch priority	Integer specifying switch priority.	5	1 to 254
Channel group	Integer that specifies a PortChannel group addition.	1	1 to 100
Fabric Shortest Path First (FSPF)	Integer that specifies the hold time (in milliseconds) before making FSPF computations.	1000	0 to 65535
Fabric Analyzer	The allowed range for the frame size limit in bytes.	64	64 to 65536
Fabric Analyzer captures	An example of 10 frames, limits the number of frames captured to 10.	10	0 to 2147483647



A Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [aaa accounting, page 2-2](#)
- [aaa authentication login, page 2-3](#)
- [arp, page 2-4](#)
- [attach module, page 2-5](#)

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aaa accounting

Use the **aaa accounting logsize** command to set the size of the local authentication, authorization, and accounting (AAA) log file. Use the **no** form of the command to clear the accounting configuration.

aaa accounting {logsize *integer*} [method {local | radius}]

Syntax Description

aaa accounting	Sets the size of the log file on the local disk.
logsize	Configures the local accounting log file size (in bytes).
<i>integer</i>	Sets the size limit of the local accounting log file in bytes from 0-300K.
method	Configures method to be used for accounting.
local	Enables local accounting.
radius	Enables RADIUS to be used as accounting method.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example shows the log file size configured at 29000 bytes.

```
switch# config t
switch(config)# aaa accounting logsize 29000
```

The following example shows the accounting method configured as RADIUS.

```
switch# config t
switch(config)# aaa accounting method radius
```

Related Commands

Command	Description
show accounting config	Displays the configured accounting parameters.
show accounting logsize	Displays the configured log size.
show accounting log	Displays the entire log file.

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aaa authentication login

To configure the authentication method, use the `aaa authentication login` command in all modes.

aaa authentication login local [console | telnet] none [console | telnet] radius [console | telnet]

Syntax Description	local	Local authentication method.
	console	Authentication method for console login.
	telnet	Authentication method for remote access (SSH/Telnet).
	none	No authentication, everyone permitted.
	radius	RADIUS authentication method.

Defaults Disabled.

Command Modes Available in all command modes.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The **local** option disables other authentication methods and configures local authentication to be used exclusively.

Examples The following example shows the authentication method for remote access configured as RADIUS.

```
switch# config t
switch(config)# aaa authentication login radius telnet
```

The following example shows the authentication method for console login configured as RADIUS.

```
switch(config)# aaa authentication login radius console
```

The following example shows the local authentication method configured as the authentication method for remote access.

```
switch(config)# aaa authentication login local telnet
```

The following example shows no authentication method configured for console login.

```
switch(config)# aaa authentication login none console
```

Related Commands	Command	Description
	show authentication	Displays the configured authentication methods.

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arp

To disable the Address Resolution Protocol (ARP) for the switch, use the **no arp** command.

no arp *hostname*

Syntax Description	<i>hostname</i> Name of the host. Maximum length is 20 characters.								
Defaults	Enabled.								
Command Modes	Configuration mode.								
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).								
Usage Guidelines	None.								
Examples	The following example disables the Address Resolution Protocol configured for the host with the IP address 10.1.1.1. <pre>switch(config)# no arp 10.1.1.1 switch(config)#</pre>								
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>show arp</td><td>Displays the ARP table.</td></tr> <tr> <td>no arp</td><td>Removes an ARP entry from the ARP table.</td></tr> <tr> <td>clear arp</td><td>Deletes a specific entry or all entries from the ARP table.</td></tr> </table>	Command	Description	show arp	Displays the ARP table.	no arp	Removes an ARP entry from the ARP table.	clear arp	Deletes a specific entry or all entries from the ARP table.
Command	Description								
show arp	Displays the ARP table.								
no arp	Removes an ARP entry from the ARP table.								
clear arp	Deletes a specific entry or all entries from the ARP table.								

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attach module

To connect to a specific module, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the module-number# prompt, or type **\$.** to forcibly abort the attach session.

attach module *slot-number*

Syntax Description

<i>slot-number</i>	Specifies slot number of the module you want to connect to. Slot numbers range from 1 to 9 for Cisco MDS 9509 switches.
--------------------	---

Command Modes

EXEC.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

You can use the **attach module** command to view the standby supervisor module information, but you cannot configure the standby supervisor module using this command.

You can also use the **attach module** command on the switching module portion of the Cisco MDS 9216 supervisor module, which resides in slot 1 of this two-slot switch.

Examples

The following example connects to the module in slot 2. Note that after you connect to the image on the module using the **attach module** command, the prompt changes to module-number#.

```
switch# attach module 1
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-1# exit
switch#
```

Related Commands

Command	Description
show module	Displays the status of a module.

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CHAPTER 3

B Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [boot](#), page 3-2

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boot

To perform operations on the system, use the **boot** command in configuration mode.

boot [**kickstart** | **system**] [**bootflash:** | **slot0:** | **tftp:**] [**sup-1** | **sup-2**]

Syntax Description

kickstart	Configures the kickstart image.
system	Configures the system image.
bootflash:	Specifies system image URI for bootflash.
slot0:	Specifies system image URI for slot 0.
tftp:	Specifies system image URI for TFTP.
sup-1	The upper supervisor.
sup-2	The lower supervisor.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

The **boot kickstart slot0:image** command is currently not allowed. For kickstart, only bootflash: is allowed.

Examples

The following example adds the new system image file to the SYSTEM environment variable.

```
switch(config)# boot system bootflash:system.img
switch(config)#
```

The following example boots from the CompactFlash device (slot0:).

```
switch(config)# boot system slot0:system.img
```

The switch updates the SYSTEM environment variable to reflect the new image file in the specified Flash device.

The following example overwrites the old Kickstart environment variable in the configuration file:

```
switch(config)# boot kickstart kickstart.img
switch(config)#
```



C Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the [“About the CLI Command Modes”](#) section on page 1-3 to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [callhome](#), page 4-2
- [callhome test](#), page 4-6
- [cd](#), page 4-7
- [clear arp-cache](#), page 4-8
- [clear cores](#), page 4-9
- [clear counters](#), page 4-10
- [clear debug-logfile](#), page 4-11
- [clear fcanalyzer](#), page 4-12
- [clear fcflow stats](#), page 4-13
- [clear fcns statistics](#), page 4-14
- [clear fcs statistics](#), page 4-15
- [clear fspf counters](#), page 4-16
- [clear ntp statistics](#), page 4-17
- [clear processes log](#), page 4-18
- [clear qos statistics](#), page 4-19
- [clear rscn statistics](#), page 4-20
- [clear screen](#), page 4-21
- [clear vrrp](#), page 4-22
- [clear zone](#), page 4-23
- [clock](#), page 4-24
- [configure terminal](#), page 4-27
- [configure terminal](#), page 4-27
- [copy](#), page 4-28

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callhome

To configure the callhome function, use the **callhome** command in configuration mode. To set a command back to its factory defaults or negate the command, use the **no** form of the command.

callhome [**customer-id** *customer-id*] [**contract-id** *contract-id*] [**destination-profile** **full-txt-destination** **email-addr** *email-address* | **message-size** *size*] [**destination-profile** **short-txt-destination** **email-addr** *email-address* | **message-size** *size*] [**destination-profile** **XML-destination** **email-addr** *email-address* | **message-size** *size*] [**disable**] [**email-contact** *email-address*] [**enable**] [**phone-contact** *number*] [**site-id** *site number*] [**streetaddress** *street number, city, state, zip*] [**switch-priority** *priority value*] [**transport email from** *email-address*] [**reply-to** *email-address*] [**smtp-server** *ip address* **port** *port-number*]

no callhome [**customer-id** *customer-id*] [**contract-id** *contract-id*] [**destination-profile** **full-txt-destination** **email-addr** *email-address* | **message-size** *size*] [**destination-profile** **short-txt-destination** **email-addr** *email-address* | **message-size** *size*] [**destination-profile** **XML-destination** **email-addr** *email-address* | **message-size** *size*] [**disable**] [**email-contact** *email-address*] [**enable**] [**phone-contact** *number*] [**site-id** *site number*] [**streetaddress** *street number, city, state, zip*] [**switch-priority** *priority value*] [**transport email from** *email-address*] [**reply-to** *email-address*] [**smtp-server** *ip address* **port** *port-number*]

Syntax Description

contract-id <i>contract-id</i>	(Optional). Configures service contract ID of the customer. Allows up to 64 characters for contract number.
customer-id <i>customer-id</i>	(Optional). Configures the customer ID for the switch. Allows customer ID up to 64 alphanumeric characters in free format.
destination-profile	(Optional) Configures a destination e-mail address for a message sent in full text format. This text provides the complete, detailed explanation of the failure.
full-txt-destination	Configures destination profile for plain text message.
email-addr <i>email-address</i>	Configures email address. Uses a standard e-mail address that does not have any text size restrictions.
message-size <i>size</i>	Configures a destination message size for a message sent in full text format. Allows from 0 to 1,000,000 bytes for the message size and the default is 500,000. A value of 0 implies that a message of any size can be sent
short-txt-destination	(Optional). Configures a destination profile for a short text message.
email-addr <i>email-address</i>	Configures a destination e-mail address for a message sent in short text format. This text provides the basic explanation of the failure. Uses a pager-related e-mail address for this option.
message-size <i>short-text-size</i>	Configures a destination message size for a message sent in short text format. Allows from 0 to 1,000,000 bytes for the message size and the default is 4000. A value of 0 implies that a message of any size can be sent.
XML-destination	(Optional). Configures destination profile for XML message.
email-addr <i>email-address</i>	Configure a destination e-mail address for a message sent in XML format. This option provides the full information that is compatible with Cisco Systems TAC support. Do not add a pager-related e-mail address to this destination profile because of the large message size.

Send documentation comments to mdsfeedback-doc@cisco.com.

message-size <i>xml-size</i>	Configure a destination message size for a message sent in XML format. Enter the message size. The valid range is 0 to 1,000,000 bytes and the default is 500,000. A value of 0 implies that a message of any size can be sent.
disable	Disables callhome.
email-contact <i>email-address</i>	(Optional). Configures the customer's e-mail address. Allows up to 128 alphanumeric characters in e-mail address format.
enable	Enables callhome.
phone-contact <i>number</i>	(Optional). Configures the customer's phone number. Allows up to 20 alphanumeric characters international phone format. Do not use spaces. Use the + prefix before the number.
site-id <i>site number</i>	(Optional). Identifies the unit to the outsourced throughput. Allows up to 256 alphanumeric characters in free format.
streetaddress <i>street number, city, state, zip</i>	(Optional). Configures the customer's street address where the equipment is located. Allows up to 256 alphanumeric characters in free format for the street number, city, state, and zip (combined).
switch-priority <i>priority value</i>	(Optional). Configures the switch priority. Specifies a priority value. 0 is the highest priority and 7 the lowest.
transport	Optional. Configure the e-mail address from the user.
email	Configure the e-mail address from the user.
from <i>email-address</i>	Configure from email address. Provide from email address, example: SJ-9500-1@xyz.com (Max Size - 255).
reply-to <i>email-address</i>	Configure reply to email address. Provide reply-to email address, example: admin@xyz.com (Max Size - 255).
smtp-server <i>ip address</i>	Configure SMTP server address. The SMTP server (DNS name or IP address) (Max Size - 255).
port <i>port-number</i>	(Optional). Changes depending on the server location. The port usage defaults to 25 if no port number is specified.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

The CallHome configuration commands available in the (config-callhome) submode.

A CallHome message is used to contact a support person or organization in case an urgent alarm is raised.

Once you have configured the contact information, you must enable the Call Home function. The **enable** command is required for the Call Home function to start operating. When you disable the Call Home function, all input events are ignored.

Note Even if Call Home is disabled, basic information for each Call Home event is sent to syslog.

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Examples

The following examples assign contact informations:

```
switch# config t
switch# snmp-server contact personname@companyname.com
switch(config)# callhome
switch(config-callhome)# email-contact username@company.com
successfully updated the information
switch(config-callhome)# phone-contact +1-800-123-4567
successfully updated the information
switch(config-callhome)# streetaddress 1234 Picaboo Street, Any city, Any state, 12345
successfully updated the information
switch(config-callhome)# switch-priority 0
successfully updated the information
switch(config-callhome)# customer-id Customer1234
successfully updated the information
switch(config-callhome)# site-id Site1ManhattanNY
successfully updated the information
switch(config-callhome)# contract-id Company1234
successfully updated the information
```

The following example configures full-text destination profiles:

```
switch(config-callhome)# destination-profile full-txt-destination email-addr
person@place.com
successfully updated the information
switch(config-callhome)# destination-profile full-txt-destination message-size 1000000
successfully updated the information
```

The following example configures short-text destination profiles:

```
switch(config-callhome)# destination-profile short-txt-destination email-addr
person@place.com
successfully updated the information
switch(config-callhome)# destination-profile short-txt-destination message-size 100000
successfully updated the information
```

The following example configures the from and reply-to e-mail addresses:

```
switch(config-callhome)# transport email from user@company1.com
successfully updated the information
switch(config-callhome)# transport email reply-to person@place.com
successfully updated the information
```

The following example configures the SMTP server and ports:

```
switch(config-callhome)# transport email smtp-server 192.168.1.1
successfully updated the information
switch(config-callhome)# transport email smtp-server 192.168.1.1 port 30
successfully updated the information
```

The following example enables and disables the CallHome function:

```
switch(config-callhome)# enable
callhome enabled successfully
switch(config-callhome)# disable
```

Related Commands

Send documentation comments to mdsfeedback-doc@cisco.com.

Command	Description
callhome test	Sends a dummy test message to the configured destination(s).
callhome test inventory	Sends a dummy test inventory message to the configured destination(s).
show callhome	Displays configured Call Home information.

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callhome test

To simulate a CallHome message generation, use the **callhome test** command.

callhome test [inventory]

Syntax Description	inventory Sends a dummy CallHome inventory.						
Defaults	none.						
Command Modes	EXEC mode.						
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).						
Usage Guidelines	You can simulate a message generation by issuing a test command.						
Examples	The following example sends a test message to the configured destination(s): <pre>switch# callhome test trying to send test callhome message successfully sent test callhome message</pre> The following example sends a test inventory message to the configured destination(s) <pre>switch# callhome test inventory trying to send test callhome message successfully sent test callhome message</pre>						
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>callhome</td><td>Configures CallHome functions.</td></tr> <tr> <td>show callhome</td><td>Displays configured Call Home information.</td></tr> </table>	Command	Description	callhome	Configures CallHome functions.	show callhome	Displays configured Call Home information.
Command	Description						
callhome	Configures CallHome functions.						
show callhome	Displays configured Call Home information.						

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cd

To change the default directory or file system, use the **cd** command.

cd {*directory* | **bootflash:**[*directory*] | **slot0:**[*directory*] | **volatile:**[*directory*]}

Syntax Description	<table> <tr> <td><i>directory</i></td><td>Name of the directory on the file system.</td></tr> <tr> <td>bootflash:</td><td>URI or alias of the bootflash or file system.</td></tr> <tr> <td>slot0:</td><td>URI or alias of the slot0 file system.</td></tr> <tr> <td>volatile:</td><td>URI or alias of the volatile file system.</td></tr> </table>	<i>directory</i>	Name of the directory on the file system.	bootflash:	URI or alias of the bootflash or file system.	slot0:	URI or alias of the slot0 file system.	volatile:	URI or alias of the volatile file system.						
<i>directory</i>	Name of the directory on the file system.														
bootflash:	URI or alias of the bootflash or file system.														
slot0:	URI or alias of the slot0 file system.														
volatile:	URI or alias of the volatile file system.														
Defaults	The initial default file system is flash:. For platforms that do not have a physical device named flash:, the keyword flash: is aliased to the default Flash device. If you do not specify a directory on a file system, the default is the root directory on that file system.														
Command Modes	EXEC mode														
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).														
Usage Guidelines	For all EXEC commands that have an optional file system argument, the system uses the file system specified by the cd command when you omit the optional file system argument. For example, the dir command, which displays a list of files on a file system, contains an optional file system argument. When you omit this argument, the system lists the files on the file system specified by the cd command.														
Examples	The following example sets the default file system to the Flash memory card inserted in slot 0: <pre>switch# pwd bootflash:/ switch# cd slot0: switch# pwd slot0:/</pre>														
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>copy</td><td>Copies any file from a source to a destination.</td></tr> <tr> <td>delete</td><td>Deletes a file on a Flash memory device.</td></tr> <tr> <td>dir</td><td>Displays a list of files on a file system.</td></tr> <tr> <td>pwd</td><td>Displays the current setting of the cd command.</td></tr> <tr> <td>show file systems</td><td>Lists available file systems and their alias prefix names.</td></tr> <tr> <td>undelete</td><td>Recovers a file marked deleted on a Class A or Class B Flash file system.</td></tr> </table>	Command	Description	copy	Copies any file from a source to a destination.	delete	Deletes a file on a Flash memory device.	dir	Displays a list of files on a file system.	pwd	Displays the current setting of the cd command.	show file systems	Lists available file systems and their alias prefix names.	undelete	Recovers a file marked deleted on a Class A or Class B Flash file system.
Command	Description														
copy	Copies any file from a source to a destination.														
delete	Deletes a file on a Flash memory device.														
dir	Displays a list of files on a file system.														
pwd	Displays the current setting of the cd command.														
show file systems	Lists available file systems and their alias prefix names.														
undelete	Recovers a file marked deleted on a Class A or Class B Flash file system.														

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clear arp-cache

To clear the arp-cache table entries, use the **clear arp-cache** command in EXEC mode.

clear arp-cache

Syntax Description This command has no arguments or keywords.

Defaults The ARP table is empty by default.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Examples The following example shows how to clear the arp-cache table entries.

```
switch# clear arp-cache
```

Related Commands	Command	Description
	show arp	Displays Address Resolution Protocol (ARP) entries.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear cores

To clear all core dumps for the switch, use the **clear cores** command in EXEC mode.

clear cores

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	The system software keeps the last few cores per service and per slot and clears all other cores present on the active supervisor module.
-------------------------	---

Examples	The following example shows how to clear all core dumps for the switch. switch# clear cores
-----------------	---

Related Commands	Command	Description
	show cores	Displays core dumps that have been made.

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clear counters

To clear the counters, use the **clear counters** command in EXEC mode.

clear counters {statistics vrrp | interface {fc | mgmt | port-channel | sup-fc | vsan} *number*}

Syntax Description	statistics vrrp	Clears global virtual router statistics.
	interface	Clears interface counters for the specified interface.
	type	Specifies the interface type. See the Keywords table in the “Usage Guidelines” section.
	<i>number</i>	Specifies the number of the slot or interface being cleared.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The following table lists the keywords and number ranges for the **clear counters** interface types:

keyword	Interface Type	Number
fc	Fibre Channel	1- 2 or 1 - 9 (slot)
mgmt	Management	0-0 (management interface)
port-channel	PortChannel	1-128 (PortChannel)
sup-fc	Inband	0-0 (Inband interface)
vsan	VSAN	1- 4093 (VSAN ID)

Examples The following example shows how to clear global virtual router statistics.

```
switch# clear counters statistics vrrp
```

```
switch# clear counters interface vsan 13
```

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clear debug-logfile

To clear the debug logfile, use the **clear debug-logfile** command in EXEC mode.

clear debug-logfile *filename*

Syntax Description	<i>filename</i> The name of the log file to be cleared. Maximum size is 1024 bytes.
Command Modes	EXEC.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Examples	The following example shows how to clear the debug logfile. switch# clear debug-logfile

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clear fcanalyzer

To clear the entire list of configured hosts for remote capture, use the **clear fcanalyzer** command in EXEC mode.

clear fcanalyzer

Syntax Description This command has no arguments or keywords.

Command Modes EXEC.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines This command clears only the list of configured hosts. Existing connections are not terminated.

Examples The following example shows how to clear the entire list of configured hosts for remote capture.

```
switch# clear fcanalyzer
```

Related Commands	Command	Description
	show fcanalyzer	Displays the list of hosts configured for a remote capture.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear fcflow stats

To clear Fibre Channel flow counters, use the **clear fcflow stats** command in EXEC mode.

clear fcflow stats {**aggregated** | **module** *module-number* | **index** *flow-number*}

Syntax Description	aggregated	Clears fcflow aggregated statistics.
	module	Clears statistics for a specified module.
	index	Clears fcflow counters for a specified flow index.
	<i>flow-number</i>	Specifies flow index number.

Command Modes	EXEC.
----------------------	-------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Examples	The following example shows how to clear aggregated Fibre Channel flow statistics for flow index 1 of module 2.
-----------------	---

```
switch(config)# # clear fcflow stats aggregated module 2 index 1
```

Related Commands	Command	Description
	show fcflow	Displays the fcflow statistics.

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clear fcns statistics

To clear the name server statistics, use the **clear fcns statistics** command in EXEC mode.

clear fcns statistics [*vsan* *vsan-id*]

Syntax Description

vsan	Statistics are to be cleared for a VSAN.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Command Modes

EXEC.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Examples

The following example shows how to clear the name server statistics.

```
switch# show fcns statistics

Name server statistics for vsan 1
=====
registration requests received = 0
deregistration requests received = 0
queries received = 23
queries sent = 27
reject responses sent = 23
RSCNs received = 0
RSCNs sent = 0

switch# clear fcns statistics

switch# show fcns statistics

Name server statistics for vsan 1
=====
registration requests received = 0
deregistration requests received = 0
queries received = 0
queries sent = 0
reject responses sent = 0
RSCNs received = 0
RSCNs sent = 0
switch#
```

Related Commands

Command	Description
show fcns statistics	Displays the name server statistics.

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clear fcs statistics

To clear the fabric configuration server statistics, use the **clear fcs statistics** command in EXEC mode.

clear fcs statistics [**vsan** *vsan-id*]

Syntax Description	vsan	FCS statistics are to be cleared for a specified VSAN.
	vsan-id	The ID of the VSANs are from 1 to 4093.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
-----------------	---

Examples	The following example shows how to clear the fabric configuration server statistics. <pre>switch# clear fcs statistics</pre>
----------	---

Related Commands	Command	Description
	show fcs	Displays the fabric configuration server information.

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clear fspf counters

To clear the Fabric Shortest Path First statistics, use the **clear fspf counters** command in EXEC mode.

clear fspf counters vsan *vsan-id* [**interface type**]

Syntax Description	vsan	Indicates that the counters are to be cleared for a VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	interface type	(Optional). The counters are to be cleared for an interface. The interface types are fc for Fibre Channel, and port-channel for PortChannel.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines If the interface is not specified, then all of the counters of a VSAN are cleared. If the interface is specified, then the counters of the specific interface are cleared.

Examples The following example clears the FSPF t statistics on VSAN 1.

```
switch# clear fspf counters vsan 1
```

The following example clears FSPF statistics specific to the Fibre Channel interface in VSAN 1, Slot 9 Port 32.

```
switch# clear fspf counters vsan 1 interface fc 9/32
```

Related Commands	Command	Description
	show fspf	Displays global FSPF information for a specific VSAN.

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clear ntp statistics

To clear Network Time Protocol statistics, use the **clear ntp statistics** command in EXEC mode.

clear ntp statistics {all-peers | io | local | memory}

Syntax Description	all-peers	Clears I/O statistics for all peers.
	io	Clears I/O statistics for I/O devices.
	local	Clears I/O statistics for local devices.
	memory	Clears I/O statistics for memory.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None mode.

Examples

The following example shows how to clear NTP statistics for all peers.

```
switch# clear ntp statistics all-peers
```

The following example shows how to clear NTP statistics for I/O devices.

```
switch# clear ntp statistics io
```

The following example shows how to clear NTP statistics for local devices.

```
switch# clear ntp statistics local
```

The following example shows how to clear NTP statistics for memory.

```
switch# clear ntp statistics memory
```

Related Commands	Command	Description
	show ntp	Displays the configured server and peer associations.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear processes log

To clear the log files on the switch, use the **clear processes log** command in EXEC mode.

clear processes log {all | pid *pid-number*}

Syntax Description	all	Deletes all of the log files.
	pid	Deletes the log files of a specific process.
	<i>pid-number</i>	Specifies the process ID, which must be from 0 to 2147483647.

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following examples show how to clear all of the log files on the switch. <pre>switch# clear processes log all</pre>
-----------------	--

Related Commands	Command	Description
	show processes	Displays the detailed running or log information of processes or high availability applications.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear qos statistics

To clear the quality of services statistics counters, use the **clear qos statistics** command in EXEC mode.

clear qos statistics

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following examples shows how to clear the quality of service counters. <pre>switch# clear qos statistics</pre>
-----------------	---

Related Commands	Command	Description
	show qos statistics	Displays the current QoS settings, along with a number of frames marked high priority.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear rscn statistics

To clear the registered state change notification statistics for a specified VSAN, use the **clear rscn statistics** command in EXEC mode.

clear rscn statistics vsan *vsan-id*

Syntax Description

vsan	The RSCN statistics are to be cleared for a VSAN.
<i>vsan-id</i>	The ID for the VSAN for which you want to clear RSCN statistics.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example shows how to clear rscn statistics for VSAN 1.

```
switch# clear rscn statistics 1
```

Related Commands

Command	Description
show rscn	Displays RSCN information.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear screen

To clear the terminal screen, use the **clear screen** command in EXEC mode.

clear screen

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example shows how to clear the terminal screen. <pre>switch# clear screen</pre>
-----------------	--

[Send documentation comments to mdsfeedback-doc@cisco.com.](mailto:mdsfeedback-doc@cisco.com)

clear vrrp

To clear all the software counters for the specified virtual router, use the **clear vrrp** command in EXEC mode.

clear vrrp *number* **interface** *type* [*vsan-id* | *mgmt-int*]

Syntax Description

<i>number</i>	A number from 1-255.
interface	The counters are cleared for an interface.
<i>type</i>	The interface types are mgmt for the management interface, and vsan for the IPFC VSAN interface.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
<i>mgmt-int</i>	(Optional). The management interface number is 0.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following examples shows how to clear all the software counters for virtual router 7 on VSAN 2.

```
switch# clear vrrp 7 interface vsan2
```

Related Commands

Command	Description
show vrrp	Displays VRRP configuration information.

Send documentation comments to mdsfeedback-doc@cisco.com.

clear zone

To clear all configured information in the zone server for a specified VSAN, use the **clear zone** command in EXEC mode.

clear zone {**database** | **statistics**} **vsan** *vsan-id*

Syntax Description

database	Indicates that zone server database information is to be cleared.
statistics	Indicates that zone server statistics are to be cleared.
vsan	Indicates that zone information is to be cleared for a VSAN.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

After issuing a **clear zone database** command, you need to explicitly issue the **copy running-config startup-config** to ensure that the running configuration is used when you next start the switch.

Examples

The following examples shows how to clear all configured information in the zone server for VSAN 1.

```
switch# clear zone database vsan 1
```

Related Commands

Command	Description
show zone	Displays zone information for any configured interface.

Send documentation comments to mdsfeedback-doc@cisco.com.

clock

To configure the time zone and the summer time of day, use the **clock** command in configuration mode. To disable the daylight saving time adjustment, use the **no** form of this command.

clock {**summer-time** | **time-zone** *daylight-timezone-name start-week start-day start-month start-time end-week end-day end-month end-time daylight-offset-to-be-added-in-minutes*}

no clock {**summer-time** | **time-zone** *daylight-timezone-name start-week start-day start-month start-time end-week end-day end-month end-time daylight-offset-to-be-added-in-minutes*}

Syntax Description	summer-time	Adjusts the daylight savings time for the Pacific time zone by 60 minutes starting the first Sunday in April at 2 a.m. and ending the last Sunday in October at 2 a.m.
	time-zone	Sets the time zone for a specified time zone name.
	<i>daylight-timezone-name</i>	The 8-character name of the time zone
	<i>start-week</i> <i>end-week</i>	The week ranging from 1 through 5
	<i>start-day</i> <i>end-day</i>	The day ranging from Sunday through Saturday
	<i>start-month</i> <i>end-month</i>	The month ranging from January through December
	<i>start-time</i> <i>end-time</i>	The time ranging from
	<i>daylight-offset-to-be-added-in-minutes</i>	The daylight offset ranges from 1 through 1440 minutes that will be added to the start time and deleted from the end time

Defaults Coordinated Universal Time (UTC), which is the same as Greenwich Mean Time (GMT).

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Use this command if you need to change the UTC or GMT time or time zone.

Examples The following example shows how to configure the time zone and summer time of day.

```
switch# config t
switch(config)# clock timezone <daylight timezone name> <start week> <start day> <start month> <start time> <end week> <end day> <end month> <end time> <daylight offset to be added in minutes>
switch(config)# clock summer-time Pacific 1 Sun Apr 02:00 5 Sun Oct 02:00 60
switch(config)# no clock summer-time
```

Send documentation comments to mdsfeedback-doc@cisco.com.

```
switch(config)# exit  
switch#
```

Related Commands

Command	Description
clock set	Changes the default time on the switch.
show clock	Displays the current date and time.
show run	Displays changes made to the time zone configuration along with other configuration information.

[Send documentation comments to mdsfeedback-doc@cisco.com.](mailto:mdsfeedback-doc@cisco.com)

clock set

To change the default time on a Cisco MDS 9000 Family switch, use the **clock set** command in EXEC mode.

clock set *HH:MM:SS DD Month YYYY*

Syntax Description	<i>HH</i>	The two-digit time in hours in military format (15 for 3 p.m.).
	<i>MM</i>	The two-digit time in minutes (58).
	<i>SS</i>	The two-digit time in seconds(15).
	<i>DD</i>	The two-digit date (12).
	<i>Month</i>	The month in words (August).
	<i>YYYY</i>	The four-digit year (2002).

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Generally, if the system is synchronized by a valid outside timing mechanism, such as an NTP clock source, or if you have a switch with calendar capability, you do not need to set the system clock. Use this command if no other time sources are available. The time specified in this command is relative to the configured time zone.

The **clock set** command changes are saved across system resets.

Examples The following example displays the **clock set** command:

```
switch# clock set 15:58:15 12 August 2002
Mon Aug 12 15:58:00 PDT 2002
```

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configure terminal

To enter the configuration mode, use the **configure terminal** command in EXEC mode.

configure terminal

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example enters the configuration mode: <pre>switch# conf t switch(config)#</pre>

Send documentation comments to mdsfeedback-doc@cisco.com.

copy

To save a backup of the system software, use the **copy** command in EXEC mode.

copy *source-URL destination-URL*

Syntax Description

<i>source-URL</i>	The location URL or alias of the source file or directory to be copied.
<i>destination-URL</i>	The destination URL or alias of the copied file or directory.

The following table lists the aliases for source and destination URLs.

running-config	The configuration currently running on the switch. The system:running-config keyword represents the current running configuration file.
startup-config	The configuration used during initialization (startup). You can copy the startup configuration into or from NVRAM. The nvruntime:startup-config keyword represents the configuration file used during initialization.
bootflash:	Source or destination location for internal bootflash memory.
slot0:	Source or destination location for the CompactFlash memory or PCMCIA card.
volatile:	Source or destination location for the volatile file system.
snapshot-config	Snapshot file.
system	Source or destination location for system memory, which includes the running configuration.
tftp:	Source or destination location for a Trivial File Transfer Protocol (TFTP) network server. The syntax for this alias is tftp:[[/location]/directory]/filename .
<i>filename</i>	The name of the Flash file.
sup-#	The number of the supervisor module, where sup-1 is the slot 5 supervisor (active) and sup-2 is the slot 6 supervisor (standby).

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

This command makes the running and the backup copy of the software identical.

A file can only be copied from an active supervisor to a standby supervisor, not from standby to active.

This command does not allow 127.x.x.x IP addresses.

The copy function will not be completed if the required space is not available in the directory. First change to the required directory (for example, **cd bootflash:**) and verify the available space (for example, **dir bootflash:**).

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The entire copying process may take several minutes.

Do not copy a file from an external source directly to the standby supervisor. You must copy from the external source to the active supervisor, and then copy the saved file to the standby supervisor.

Examples

The following example saves your configuration to the startup configuration.

```
switch# copy system:running-config nvram:startup-config
```

The following example copies the file called samplefile from the slot0 directory to the mystorage directory.

```
switch# copy slot0:samplefile slot0:mystorage/samplefile
```

The following example copies a file from the current directory level.

```
switch# copy samplefile mystorage/samplefile
```

If the current directory is slot0:mydir, this command copies slot0:mydir/samplefile to slot0:mydir/mystorage/samplefile.

The following command downloads a configuration file from an external CompactFlash to the running configuration.

```
switch copy slot0:dns-config.cfg system:running-config
```

The following command downloads a configuration file from an external CompactFlash to the startup configuration.

```
switch# copy slot0:dns-config.cfg nvram:startup-config
```

The following command saves a running configuration file to an external CompactFlash.

```
switch# copy system:running-config slot0:dns-config.cfg
```

The following command saves a startup configuration file to an external CompactFlash.

```
switch# copy system:startup-config slot0:dns-config.cfg
```

The following example creates a copy of the binary configuration in NVRAM.

```
switch# copy system:running-config nvram:startup-config
```

The following example creates a backup copy of the binary configuration.

```
switch# copy nvram:startup-config nvram:snapshot-config
```

The following example overwrites the contents of an existing configuration in NVRAM.

```
switch# copy nvram:snapshot-config nvram:startup-config
```

Warning: Snapshot file is going to override the current startup-config.

Do you wish to proceed anyway? {y/n} [y] **y**

The following example copies an image in bootflash on the active supervisor to the bootflash on the standby supervisor.

Send documentation comments to mdsfeedback-doc@cisco.com.

```
switch# copy bootflash:myimage bootflash://sup-2/myimage
```

The following example creates a running configuration copy in bootflash.

```
switch# copy system:running-config bootflash:my-config
```

The following examples creates a startup configuration copy in bootflash.

```
switch# copy nvram:startup-config bootflash:my-config
```

Related Commands

Command	Description
cd	Changes the default directory or file system.
dir	Displays a list of files on a file system.
reload	Reloads the operating system.
show version	Displays the version of the running configuration file.



D Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [delete](#), page 5-2
- [dir](#), page 5-3
- [discover scsi-target](#), page 5-5

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delete

To delete a specified file or directory on a Flash memory device, use the **delete** command in EXEC mode.

delete { **bootflash:***filename* | **slot0:***filename* | **volatile:***filename* }

Syntax Description	bootflash:	Flash image that resides on the supervisor module.
	slot0:	Flash image that resides on another module.
	volatile:	Flash image that resides on the volatile file system.
	<i>filename</i>	The name of the file to be deleted.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines When you delete a file, the software erases the file.

If you attempt to delete the configuration file or image specified by the CONFIG_FILE or BOOTLDR environment variable, the system prompts you to confirm the deletion. Also, if you attempt to delete the last valid system image specified in the BOOT environment variable, the system prompts you to confirm the deletion.

Examples The following example deletes the file named test from the Flash card inserted in slot 0.

```
switch# delete slot0:test
Delete slot0:test? [confirm]
```

The following example deletes a file from a directory.

```
switch# delete dns_config.cfg
```

The following example deletes a file from an external CompactFlash (slot0).

```
switch# delete slot0:dns_config.cfg
```

The following example deletes the entire my-dir directory:

```
switch# delete bootflash:my-dir
```

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dir

To display the contents of the current directory or the specified directory, use the **dir** command in EXEC mode.

dir [**bootflash:***directory or filename* | **slot0:***directory or filename* | **volatile:***directory or filename*]

Syntax Description	bootflash:	(Optional) Flash image that resides on the supervisor module.
	slot0:	(Optional) Flash image that resides on another module.
	<i>filename</i> <i>directory</i>	(Optional) Name of the files or directories to display on a specified device. The files can be of any type. You can use wildcards in the filename. A wildcard character (*) matches all patterns. Strings after a wildcard are ignored.
	volatile:	Flash image on the volatile file system.

Defaults The default file system is specified by the **cd** command.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example shows how to list the files on the bootflash directory.

```
switch# dir bootflash:
total 100756
drwxrwxrwx   2 admin          1024 Fri Sep 27 17:35:13 2002 .ssh
drwxrwxrwx   2 admin          1024 Fri Sep 27 17:35:13 2002 .ssh2
-rw-r--r--   1 admin           37 Thu Sep 19 12:16:36 2002 ^[[2C
-rw-r--r--   1 admin      13636096 Fri Sep 20 19:58:56 2002 kickstart-233b
-rw-rw-rw-   1 admin      13636096 Wed Sep 25 17:26:47 2002 kickstart-233d
-rw-rw-rw-   1 admin      14340096 Fri Sep 27 17:28:41 2002 kickstart-240
drwxr-xr-x   2 admin          1024 Thu Apr 18 08:27:44 2002 harshabh
-rw-r--r--   1 admin      19280051 Fri Sep 20 20:02:33 2002 san-ios-233b
-rw-rw-rw-   1 admin      19281464 Wed Sep 25 17:28:12 2002 san-ios-233d
-rw-rw-rw-   1 admin      21917189 Fri Sep 27 17:29:51 2002 san-ios-240
drwxr-xr-x   2 admin          3072 Tue Oct 01 10:54:18 2002 logs
drwxr-xr-x   2 admin      12288 Sun Mar 31 19:18:26 2002 lost+found
drwxr-xr-x   3 admin          1024 Wed Apr 10 20:17:44 2002 old-fs
drwxr-xr-x   3 admin          1024 Wed Sep 18 13:18:54 2002 old-fs-old
-rwxr-xr-x   1 admin      636579 Mon Sep 30 05:32:42 2002 rdl
drwxr-xr-x   2 admin          1024 Mon Sep 30 05:37:55 2002 src
124688384 bytes total used
311350272 bytes free
459779072 bytes available
```

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The following example is sample output from the **dir** command.

```
switch# dir slot0:
```

Related Commands

Command	Description
cd	Changes the default directory or file system.
delete	Deletes a file on a Flash memory device.

Send documentation comments to mdsfeedback-doc@cisco.com.

discover scsi-target

To discover SCSI targets on local storage to the switch or remote storage across the fabric, use the **discover scsi-target** command in EXEC mode.

discover scsi-target {**local** | **partial** | **remote** | **vsan** *vsan-id* **fcid** *fcid-id*}

Syntax Description

local	Discovers local SCSI targets.
remote	Discovers remote SCSI targets.
vsan <i>vsan-id</i>	Discovers SCSI targets for the specified VSAN ID.
fcid <i>fcid-id</i>	Discovers SCSI targets for the specified FC ID.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

On-demand discovery only discovers Nx ports present in the name server database that have registered a FC4 Type = SCSI_FCP.

Examples

The following example shows how to discover local targets.

```
switch# discover scsi-target local
discovery started
```

The following example shows how to discover remote targets.

```
switch# discover scsi-target remote
discovery started
```

The following example shows how to discover both local and remote targets.

```
switch# discover scsi-target
discovery started
```

The following example shows how to discover SCSI targets for the specified VSAN (1) and FC ID (0x9c03d6).

```
switch# discover scsi-target vsan 1 fcid 0x9c03d6
discover scsi-target vsan 1 fcid 0x9c03d6
VSAN:      1 FCID: 0x9c03d6 PWWN: 00:00:00:00:00:00:00:00
PRLI RSP: 0x01 SPARM: 0x0012
SCSI TYPE: 0 NLUNS: 1
Vendor: Company 4 Model: ST318203FC      Rev: 0004
Other: 00:00:02:32:8b:00:50:0a
```

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E Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [end](#), page 6-2
- [exit](#), page 6-3

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end

To exit any of the configuration modes and return to EXEC mode, use the **end** command in configuration mode.

end

Syntax Description

This command has no arguments or keywords.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

You can also press **Ctrl-Z** to exit configuration mode.

Examples

The following example changes the name to george. Entering the **end** command causes the system to exit configuration mode and return to EXEC mode.

```
switch(config)# hostname george
switch(config)# end
switch#
```

Related Commands

Command	Description
exit	Exits configuration mode, or any of the configuration modes.

Send documentation comments to mdsfeedback-doc@cisco.com.

exit

To exit any configuration mode or close an active terminal session and terminate the EXEC, use the **exit** command at the system prompt.

exit

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None
-----------------	------

Command Modes	EXEC and Configuration modes.
----------------------	-------------------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	Use the exit command at the EXEC levels to exit the EXEC mode. Use the exit command at the configuration level to return to privileged EXEC mode. Use the exit command in interface configuration mode to return to configuration mode. You also can press Ctrl-Z , or use the end command, from any configuration mode to return to EXEC mode.
-------------------------	--



Note

The **exit** command is associated with privilege level 0. If you configure AAA authorization for a privilege level greater than 0, this command will not be included in the command set for that privilege level.

Examples	The following example displays an exit from the interface configuration mode for VRRP to return to the interface configuration mode.
-----------------	--

```
switch(config-if-vrrp)# exit
switch(config-if)#
```

The following example displays an exit from the interface configuration mode to return to the configuration mode.

```
switch(config-if)# exit
switch(config)#
```

The following example shows how to exit an active session (log-out).

```
switch# exit
```

Related Commands	<table border="1"> <tr> <th>Command</th> <th>Description</th> </tr> <tr> <td>end</td> <td>Returns you to EXEC mode.</td> </tr> </table>	Command	Description	end	Returns you to EXEC mode.
Command	Description				
end	Returns you to EXEC mode.				

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F Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [fcalias name, page 7-2](#)
- [fcanalyzer, page 7-3](#)
- [fcc, page 7-5](#)
- [fcdomain, page 7-6](#)
- [fcdroplacency, page 7-8](#)
- [fcflow stats, page 7-9](#)
- [fcinterop fcid-allocation, page 7-11](#)
- [fcinterop loop-monitor, page 7-12](#)
- [fcns proxy-port, page 7-13](#)
- [fcping, page 7-14](#)
- [fcroute, page 7-16](#)
- [fcs, page 7-17](#)
- [fctimer, page 7-18](#)
- [fctrace, page 7-19](#)
- [find, page 7-20](#)
- [format, page 7-21](#)
- [fspf config, page 7-22](#)

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fcalias name

To configure an FC alias, use the **fcalias name** command. To disable an FC alias, use the **no** form of this command.

fcalias name *alias name* **vsan** *vsan-id*

Syntax Description	<i>alias-name</i>	The name of the fcalias. Maximum length is 64 characters.
	vsan	The fcalias is for a VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines To include multiple members in any alias, use the FC ID, fWWN, or pWWN values.

Examples The following examples show how to configure an fcalias called AliasSample on VSAN 3.

```
switch# config t
switch(config)# fcalias name AliasSample vsan 3
switch(config-fcalias)#
switch(config-fcalias)# member fcid 0x222222
switch(config-fcalias)#
switch(config-fcalias)# member pwn 10:00:00:23:45:67:89:ab
switch(config-fcalias)#
switch(config-fcalias)# member fwn 10:01:10:01:10:ab:cd:ef
switch(config-fcalias)#
```

Related Commands	Command	Description
	member fcid	Configures alias member for a specified zone.
	member pwn	Configures alias members based on the specified port WWN type and value.
	member fwn	Configures alias members based on the specified fWWN type and value.

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fcanalyzer

To configure the Cisco Fabric Analyzer use the **fcanalyzer** command in configuration mode.

fcanalyzer [**local** | **local brief** | **display-filter** | **limit-frame-size** | **limit-captured-frames** **write**]
[**remote** *ip-address* **active** *port-number*]

Syntax Description		
local		Begins capturing the frames locally (supervisor module).
local brief		Displays the protocol summary in a brief format.
display-filter		Displays the filtered frames.
limit-frame-size		Limits the size of the frame capture to the first 64 bytes. The allowed range is 64 to 65536 bytes.
limit-captured-frames		Limits the number of frames captured to 10. The allowed range is 0 to 2147483647 frames and the default is 100 frames. Use 0 if you do not want to limit the captures frames.
write		Saves the captured frames to a specified file.
remote		Configures the remote IP address to which the captured frames will be sent.
<i>ip-address</i>		Specifies IP address or hostname. Maximum length is 1024 characters.
active		Enables active mode (passive is the default) with the remote host.
<i>port-number</i>		Specifies port number

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines You can capture Fibre Channel control traffic from a switch and decode it without having to disrupt connectivity and without having to be local to the point of analysis.

Examples The following examples shows how to configure the Cisco Fabric Analyzer.

```
switch# config t
switch(config)# fcanalyzer local
Capturing on eth2
switch(config)#
switch(config)# fcanalyzer local brief
Capturing on eth2
switch(config)#
switch(config)# fcanalyzer local display-filter SampleF
Capturing on eth2
switch(config)# fcanalyzer local limit-frame-size 64
Capturing on eth2
```

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```
switch(config)#
switch(config)# fcanalyzer local limit-captured-frames 10
Capturing on eth2
switch(config)#
switch(config)# fcanalyzer local write SampleFile
Capturing on eth2
switch(config)#
switch(config)# fcanalyzer remote 10.21.0.3
Capturing on eth2
switch(config)#
switch(config)# fcanalyzer remote 10.21.0.3 active
Capturing on eth2
```

Related Commands

Command	Description
clear fcanalyzer	Clears the entire list of configured hosts.
show fcanalyzer	Displays the list of hosts configured for a remote capture.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcc

To assign Fibre Channel Congestion Control priority, use the **fcc priority** command in configuration mode.

fcc [*priority number*]

Syntax Description	fcc	Enables FCC for the entire switch.
	priority	Assigns FCC priority for the entire switch.
	<i>number</i>	The FCC priority threshold, with 0 being the lowest and 7 being the highest.

Defaults	Disabled.
-----------------	-----------

Command Modes	Configuration mode.
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Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	FCC reduces the congestion in the traffic without interfering with standard Fibre Channel protocol.
-------------------------	---

Examples	The following example shows the FCC priority threshold configured as 2.
-----------------	---

```
switch# config t  
switch(config)# fcc priority 2
```

Related Commands	Command	Description
	show fcc	Displays FCC settings.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcdomain

To configure the Fibre Channel domain feature, use the **fcdomain** command. The **no** form of this command, disables the FC domain.

fcdomain [**auto-reconfigure** **vsan** *vsan-id*] [**contiguous-allocation** **vsan** *vsan-id*] [**domain** *id* **preferred** | **static** **vsan** *vsan-id* | **static** **c**] [**fabric-name** *name*] [**fcid** **database** **vsan** *vsan-id* | **persistent** **vsan** *vsan-id*] [**priority** *value* **vsan** *vsan-id*] [**restart** **disruptive** **vsan** *vsan-id*] [**vsan** *vsan-id*] [**restart** **vsan** *vsan-id*] [**vsan** *vsan-id*]

Syntax Description	auto-reconfigure	Configures autoreconfigure.
	vsan	Specifies a VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	contiguous-allocation	Configures contiguous allocation.
	domain	Configures the domain ID and its type.
	<i>id</i>	Specifies the domain ID, which is from 0 to 239.
	preferred	Configures the domain ID as preferred (default—the local switch accepts the domain ID assigned by the principal switch and the assigned domain ID becomes the runtime domain ID).
	static	Configures the domain ID as static (the assigned domain ID is discarded, all local interfaces are isolated, and the local switch assigns itself the configured domain ID, which becomes the runtime domain ID.).
	fabric-name	Configures the fabric name.
	<i>name</i>	Specifies the fabric name.
	fcid	Configures FC domain persistent FCIDs.
	database	Enters persistent FCIDs submenu.
	persistent	Enables or disables FC domain persistent FCIDs.
	priority	Configures the FC domain priority.
	<i>value</i>	Specifies the FC domain priority, which is from 1 to 254.
	restart disruptive	Forces the disruptive fabric reconfiguration.
	restart	Starts a disruptive or nondisruptive reconfiguration.

Defaults Enabled.

Command Modes Configuration mode.

Usage Guidelines You can use this command to select the principle switch, domain ID distribution, reconfigure fabric, and allocate FC IDs.

Examples The following examples show how to configure the Fibre Channel domain feature.

Send documentation comments to mdsfeedback-doc@cisco.com.

```
switch# config t
switch(config)#
switch(config)# fcdomain domain 3 preferred vsan 87
switch(config)#
switch(config)# no fcdomain domain 3 preferred vsan 87
switch(config)# fcdomain domain 2 static vsan 237
switch(config)# no fcdomain domain 2 static vsan 237
switch(config)# fcdomain restart vsan 1
switch(config)#
switch(config)# fcdomain restart disruptive vsan 1
switch(config)#
switch(config)# fcdomain priority 25 VSAN 99
switch(config)# no fcdomain priority 25 VSAN 99
switch(config)#
switch(config)# fcdomain auto-reconfigure vsan 10
switch(config)#
switch(config)# fcdomain contiguous-allocation vsan 81-83
switch(config)#
switch(config)# no fcdomain contiguous-allocation vsan 1030
switch(config)#
switch(config)# fcdomain fabric-name 20:1:ac:16:5e:0:21:01 vsan 3
switch(config)#
switch(config)# no fcdomain fabric-name 20:1:ac:16:5e:0:21:01 vsan 3010
switch(config)#
```

Related Commands

Command	Description
show fcdomain	Displays global information about the FC domain configurations.

[Send documentation comments to mdsfeedback-doc@cisco.com.](mailto:mdsfeedback-doc@cisco.com)

fcdroplateny

To configure the network and switch FC drop latency time, use the **fcdroplateny** command in configuration mode. To disable the FC latency time, use the **no** form of this command.

fcdroplateny [**network** *milliseconds*| **switch** *milliseconds*]

Syntax Description

network <i>milliseconds</i>	Configures network latency.
switch	Configures switch latency.
<i>milliseconds</i>	Specifies latency from 0 to 2147483647 milliseconds.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example shows how to configure the network latency to 5000 milliseconds.

```
switch# config t
switch(config)#
switch(config)# fcdroplateny network 5000
switch(config)#
```

The following example shows how to disable network latency.

```
switch(config)# no fcdroplateny network
switch(config)#
```

The following example shows how to configure the switch latency to 4000 milliseconds.

```
switch(config)# fcdroplateny switch 4000
switch(config)#
```

The following example shows how to disable switch latency.

```
switch(config)# no fcdroplateny switch
switch(config)#
```

Related Commands

Command	Description
show fcdroplateny	Displays the configured FC drop latency parameters.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcflow stats

To configure fcflow statistics, use the **fcflow stats** command in configuration mode. To disable the counter, use the **no** form of this command.

fcflow stats {**aggregated module** *module-number* **index** *flow-number* **vsan** *vsan-id* | **module** *module-number* **index** *flow-number* *destination-fcid* *source-fcid* *netmask*}

no fcflow stats {**aggregated module** *module-number* **index** *flow-number* **vsan** *vsan-id* | **module** *module-number* **index** *flow-number* *destination-fcid* *source-fcid* *netmask*}

Syntax Description	aggregated	Configures aggregated fcflow statistics.
	index	Specifies the flow index.
	<i>flow-number</i>	Specifies a flow number from 0-2147483647.
	vsan	Specifies a VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	module	Clear fcflow statistics on a module.
	<i>module-number</i>	Specifies a module number from 1 to 9.
	<i>destination-fcid</i>	Enters the destination FC ID in hex format.
	<i>source-fcid</i>	Enters the source FC ID in hex format.
	<i>netmask</i>	Enters the mask for the source and destination FC ID (restricted to 6 characters ranging from 000000 to ffffff).

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines If you enable flow counters, you can enable a maximum of 1K entries for aggregate flow and flow statistics. Be sure to assign an unused flow index to a module for each new flow. Flow indexes can be repeated across modules. The number space for flow index is shared between the aggregate flow statistics and the flow statistics.

Examples The following example shows how to configure aggregated fcflow statistics for module 1.

```
switch-config# fcflow stats aggregated module 1
switch-config#
```

The following example enables the aggregated flow counter.

```
switch(config)# fcflow stats aggregated module 1 index 1005 vsan 1
```

Send documentation comments to mdsfeedback-doc@cisco.com.

The following example disables the aggregated flow counter.

```
switch(config)# no fcflow stats aggregated module 1 index 1005 vsan 1
```

The following example enables the flow counter for module 1.

```
switch(config)# fcflow stats module 1 index 1 0x145601 0x5601 fffff vsan 1
```

The following example disables the flow counter for module 1.

```
switch(config)# no fcflow stats aggregated module 2 index 1001 vsan 2
```

Send documentation comments to mdsfeedback-doc@cisco.com.

fcinterop fcid-allocation

To allocate FC IDs on the switch, use the **fcinterop fcid-allocation** command in configuration mode. To disable FC IDs on the switch, use the **no** form of the command.

fcinterop [fcid-allocation auto | flat | none]

no fcinterop [fcid-allocation auto | flat | none]

Syntax Description	fcid-allocation	Sets single FCID interop mode.
	auto	Assigns single FCID to compatible HBAs.
	flat	Assign single FCID.
	none	Assigns FCID range.

Defaults The default is **fcinterop fcid-allocation auto**.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines This command defines how the switch assigns FC IDs.

Examples

```
switch# config t
switch(config)#
switch(config)# fcinterop fcid-allocation none
switch(config)#
switch(config)# fcinterop fcid-allocation flat
switch(config)#
switch(config)# fcinterop fcid-allocation auto
switch(config)#
```

Related Commands	Command	Description
	show flogi database	Displays the fabric login (FLOGI) table.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcinterop loop-monitor

To monitor removal of discs from a loop port, use the **fcinterop loop-monitor** command in configuration mode. To disable loop monitoring, use the **no** form of this command.

fcinterop loop-monitor

no fcinterop loop-monitor

Syntax	Description				
loop-monitor	Configures monitoring of NL ports in a loop.				
Defaults	Disabled.				
Command Modes	Configuration mode.				
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).				
Usage Guidelines	This command detects devices that are removed from a looped port.				
Examples	The following example configures monitoring of NL ports in a loop. <pre>switch# config t switch(config)# switch(config)# fcinterop loop-monitor switch(config)# no fcinterop loop-monitor</pre>				
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>show flogi database</td><td>Verify if a storage device is displayed in the Fabric login (FLOGI) table.</td></tr> </table>	Command	Description	show flogi database	Verify if a storage device is displayed in the Fabric login (FLOGI) table.
Command	Description				
show flogi database	Verify if a storage device is displayed in the Fabric login (FLOGI) table.				

Send documentation comments to mdsfeedback-doc@cisco.com.

fcns proxy-port

To register a name server proxy, use the **fcns proxy-port** command in configuration mode.

fcns [**proxy-port** *wwn-id* | [**vsan** *vsan-id*]

Syntax Description	<i>wwn-id</i>	The port WWN, with the format <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
	vsan	Configures a proxy port for the specified VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults	None.
-----------------	-------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	One name server can be configured to proxy another name server and name server information can be displayed using the CLI. The name server can be viewed using the CLI or the Cisco Fabric Manager.
	All name server registration requests come from the same port whose parameter is registered or changed. If it doesn't, then the request is rejected.

Examples	The following example shows registering a name server proxy.
-----------------	--

```
switch# config t
switch(config)#
switch(config)# fcns proxy-port 21:00:00:e0:8b:00:26:d
switch(config)#
```

The following example shows configuring a proxy port for VSAN 2.

```
switch(config)# fcns proxy-port 21:00:00:e0:8b:00:26:d vsan 2
switch(config)#
```

Related Commands	Command	Description
	show fcns	Displays the name server database and statistical information for a specified VSAN or for all VSANs.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcping

To ping an N port with a specified FC ID, use the **fcping fcid** command in EXEC mode.

fcping {fcid *fc-port* vsan *vsan-id* [count *number* | timeout *value* | usr-priority] | pwwn *wwn-id*}

Syntax Description	fc id	The FC ID of the destination N port.
	<i>fc-port</i>	The port FC ID, with the format <i>0xhhhhhh</i> .
	pwwn	The port WWN of the destination N port.
	<i>wwn-id</i>	The port WWN, with the format <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
	vsan	Configures the VSAN ID of the destination N port.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	count	Configure the frames to send.
	<i>number</i>	Specifies the number of frames to send. A value of 0 sends forever.
	timeout	The timeout value.
	usr-priority	The priority the frame receives in the switch fabric.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example shows a fcping operation for the specified pWWN or the FCID of the destination. By default, five frames are sent.

```
switch# fcping fcid 0xd70000 vsan 1
28 bytes from 0xd70000 time = 730 usec
28 bytes from 0xd70000 time = 165 usec
28 bytes from 0xd70000 time = 262 usec
28 bytes from 0xd70000 time = 219 usec
28 bytes from 0xd70000 time = 228 usec

5 frames sent, 5 frames received, 0 timeouts
Round-trip min/avg/max = 165/270/730 usec
```

The following example shows the setting of the number of frames to be sent using the count option. The range is from 0 through 2147483647. A value of 0 will ping forever.

```
switch# fcping fcid 0xd70000 vsan 1 count 10
28 bytes from 0xd70000 time = 730 usec
```

Send documentation comments to mdsfeedback-doc@cisco.com.

```
28 bytes from 0xd70000 time = 165 usec
28 bytes from 0xd70000 time = 262 usec
28 bytes from 0xd70000 time = 219 usec
28 bytes from 0xd70000 time = 228 usec
28 bytes from 0xd70000 time = 230 usec
28 bytes from 0xd70000 time = 230 usec
28 bytes from 0xd70000 time = 225 usec
28 bytes from 0xd70000 time = 229 usec
28 bytes from 0xd70000 time = 183 usec

10 frames sent, 10 frames received, 0 timeouts
Round-trip min/avg/max = 165/270/730 usec
```

The following example shows the setting of the timeout value. The default period to wait is 5 seconds. The range is from 1 through 10 seconds.

```
switch# fcping fcid 0xd500b4 vsan 1 timeout 10
28 bytes from 0xd500b4 time = 1345 usec
28 bytes from 0xd500b4 time = 417 usec
28 bytes from 0xd500b4 time = 340 usec
28 bytes from 0xd500b4 time = 451 usec
28 bytes from 0xd500b4 time = 356 usec

5 frames sent, 5 frames received, 0 timeouts
Round-trip min/avg/max = 340/581/1345 usec
```

This command shows the No response from the N port message even when the N port or NL port is active. This is due to resource exhaustion at the N port or NL port. Retry the command a few seconds later.

```
switch# fcping fcid 0x010203 vsan 1
No response from the N port.

switch# fcping pwwn 21:00:00:20:37:6f:db:dd vsan 1
28 bytes from 21:00:00:20:37:6f:db:dd time = 1454 usec
28 bytes from 21:00:00:20:37:6f:db:dd time = 471 usec
28 bytes from 21:00:00:20:37:6f:db:dd time = 372 usec
28 bytes from 21:00:00:20:37:6f:db:dd time = 364 usec
28 bytes from 21:00:00:20:37:6f:db:dd time = 1261 usec

5 frames sent, 5 frames received, 0 timeouts
Round-trip min/avg/max = 364/784/1454 usec
```

Send documentation comments to mdsfeedback-doc@cisco.com.

fcroute

To configure Fibre Channel routes, use the **fcroute** command.

fcroute *FCID* [*network_mask*] **interface** *type* [**domain** *domain-id*] **metric** *number* | **remote** | **vsan** *vsan-id*]

Syntax Description		
	<i>network_mask</i>	Configures the FCID network mask.
	interface	Configures the route for the specified Fibre Channel interface.
	<i>type</i>	Specifies the Fibre Channel number or the PortChannel number.
	domain	Configures the route for the domain of the next hop switch.
	<i>domain-id</i>	Specifies the domain ID.
	metric	Assigns the cost of the route.
	<i>number</i>	Specifies the cost of the route. Default cost is 10.
	vsan	Configures the static route for a specific VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	remote	Configures the static route for a destination switch remotely connected.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Use this command to assign forwarding information to the switch.

Examples

```
switch# config t
switch(config)#
switch(config)# fcroute 0x111211 interface fc1/1 domain 3 vsan 2
switch(config)#
switch(config)# fcroute 0x111211 interface port-channel 1 domain 3 vsan 4
switch(config)#
switch(config)# fcroute 0x031211 interface fc1/1 domain 3 metric 1 vsan 1
switch(config-if)#
switch(config)# fcroute 0x111112 interface fc1/1 domain 3 metric 3 remote vsan 3
```

Related Commands	Command	Description
	show fcroute	Displays Fibre Channel routes.

Send documentation comments to mdsfeedback-doc@cisco.com.

fcs

To perform platform and node name checking fabric wide, and register FCS attributes, use the **fcs** command in configuration mode.

fcs {plat-check-global vsan *vsan-id* | register [exit | no | platform] *name*}

Syntax Description	<table> <tr> <td>plat-check-global vsan</td><td>Configures platform name or node name checking.</td></tr> <tr> <td><i>vsan-id</i></td><td>Specifies the VSAN ID for platform checking, which is from 1 to 4096.</td></tr> <tr> <td>register</td><td>Registers FCS attributes.</td></tr> <tr> <td>exit</td><td>Exits submode.</td></tr> <tr> <td>no</td><td>Negates a command or sets its defaults.</td></tr> <tr> <td>platform</td><td>Configures platform object registration.</td></tr> <tr> <td><i>name</i></td><td>Specifies name of the platform.</td></tr> </table>	plat-check-global vsan	Configures platform name or node name checking.	<i>vsan-id</i>	Specifies the VSAN ID for platform checking, which is from 1 to 4096.	register	Registers FCS attributes.	exit	Exits submode.	no	Negates a command or sets its defaults.	platform	Configures platform object registration.	<i>name</i>	Specifies name of the platform.
plat-check-global vsan	Configures platform name or node name checking.														
<i>vsan-id</i>	Specifies the VSAN ID for platform checking, which is from 1 to 4096.														
register	Registers FCS attributes.														
exit	Exits submode.														
no	Negates a command or sets its defaults.														
platform	Configures platform object registration.														
<i>name</i>	Specifies name of the platform.														
Defaults	None.														
Command Modes	Configuration mode.														
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).														
Usage Guidelines	None.														
Examples	<pre>switch## config t switch(config)## switch(config)# # fcs plat-check-global vsan 2 switch (config)# fcs register switch (config-fcs-register)# platform Platform1</pre>														
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>show fcs</td><td>Displays fabric configuration server information.</td></tr> </table>	Command	Description	show fcs	Displays fabric configuration server information.										
Command	Description														
show fcs	Displays fabric configuration server information.														

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fctimer

To change the default Fibre Channel timers, use the **fctimer** command in configuration mode.

fctimer {**D_S_TOV** *milliseconds* | **E_D_TOV** *milliseconds* | **R_A_TOV** *milliseconds*}

Syntax Description	D_S_TOV	The distributed services time out value ranges from 5000 to 100000 ms.
	E_D_TOV	The error detect time out value ranges from 1000 to 100000, with a default of 2000.
	R_A_TOV	The resolution allocation time out value ranges from 5000 to 100000, with a default of 10000.
	<i>milliseconds</i>	Number of milliseconds

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The Cisco MDS 9000, Brocade, and McData FC Error Detect (ED_TOV) and Resource Allocation (RA_TOV) timers default to the same values. They can be changed if needed. In accordance with the FC-SW2 standard, these values must be the same on each switch within in the fabric.

Examples The following examples show how to change the default Fibre Channel timers.

```
switch# config t
switch(config)#
switch(config)# fctimer e_d_tov ?
<1000-100000> E_D_TOV in milliseconds(1000-100000)
switch(config)# fctimer r_a_tov ?
<5000-100000> R_A_TOV in milliseconds(5000-100000)
```

Related Commands	Command	Description
	show fctimer	Displays the configured Fibre Channel timer values.

Send documentation comments to mdsfeedback-doc@cisco.com.

fctrace

To trace the route to an N port, use the **fctrace** command in EXEC mode.

fctrace {fcid *fcid* vsan *vsan-id* [timeout *value*] | pwwn *pwwn-id* [timeout *value*]}

Syntax Description		
fcid		The FCID of the destination N port.
<i>fcid</i>		The port FCID, with the format <i>0xhhhhhh</i> .
pwwn		The PWWN of the destination N port.
<i>pwwn-id</i>		The port WWN, with the format <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
vsan		Configures the VSAN ID of the destination N-port.
<i>vsan-id</i>		Specifies the VSAN ID of the destination N-port, which is from 1 to 4096.
timeout		Configures the timeout value.
<i>value</i>		Specifies the timeout value, which is from 1 to 10 seconds.

Defaults By default, the period to wait before timing out is 5 seconds.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example traces a route to the specified fcid in VSAN 1.

```
switch# fctrace fcid 0x660000 vsan 1
Route present for : 0x660000
20:00:00:05:30:00:5f:1e(0xfffc65)
Latency: 0 msec
20:00:00:05:30:00:61:5e(0xfffc66)
Latency: 0 msec
20:00:00:05:30:00:61:5e(0xfffc66)
```

Send documentation comments to mdsfeedback-doc@cisco.com.

find

To display a list of files on a file system, use the **find** command in EXEC mode.

find *filename*

Syntax Description	<i>filename</i> Filenames with the specified characteristics.						
Defaults	None.						
Command Modes	EXEC mode.						
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).						
Usage Guidelines	Use the find (Flash file system) command to display more detail about the files in a particular file system.						
Examples	The following example is sample output of all files that begin with the letter <i>a</i>: <pre>switch# find a ./accountingd ./acl ./ascii_cfg_server ./arping</pre>						
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>cd</td><td>Changes the default directory or file system.</td></tr> <tr> <td>dir</td><td>Displays all files in a given file system.</td></tr> </table>	Command	Description	cd	Changes the default directory or file system.	dir	Displays all files in a given file system.
Command	Description						
cd	Changes the default directory or file system.						
dir	Displays all files in a given file system.						

Send documentation comments to mdsfeedback-doc@cisco.com.

format

To erase all the information on a module, use the **format** command in EXEC mode.

format {bootflash: | slot0:}

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example erases all information on a module's bootflash. <pre>switch# format bootflash:</pre>

Send documentation comments to mdsfeedback-doc@cisco.com.

fspf config

To configure an FSPF feature for the entire VSAN, and to enable or disable FSPF, use the **fspf config** command in configuration mode. To delete FSPF configuration for the entire VSAN, and to enable or disable FSPF routing protocols, use the **no** form of the command.

fspf config *vsan vsan-id* | **enable vsan** *vsan-id*

no fspf config *vsan vsan-id* | **enable vsan** *vsan-id*

Syntax Description

vsan <i>vsan-id</i>	Enters FSPF global configuration mode for the specified VSAN or range of VSANs. If no VSAN ID is specified, the default VSAN is selected.
fspfenable vsan	Enables FSPF on the entire VSAN.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
region	Defines the autonomous region to which the switch belongs.
<i>region-id</i>	Specifies the autonomous region to which the switch belongs. The backbone region has <i>region-id</i> =0. The parameter <i>region-id</i> is an unsigned integer value ranging from 0 to 255.
spf hold-time	Configures the time between two consecutive SPF computations. If the time is small then routing will react faster to changes but CPU usage will be more.
<i>spf-holdtime</i>	Specifies the time between two consecutive SPF computations. The parameter <i>spf-holdtime</i> is an integer (0-65535) specifying time in milliseconds.
min-ls-arrival	Configures the minimum time before a new link state update for a domain will be accepted by switch.
<i>ls-arrival-time</i>	Specifies the minimum time before a new link state update for a domain will be accepted by switch. The parameter <i>ls-arrival-time</i> is an integer (0-65535) specifying time in milliseconds.
min-ls-interval	Configures the minimum time before a new link state update for a domain will be generated by the switch.
<i>ls-interval-time</i>	Specifies the minimum time before a new link state update for a domain will be generated by the switch. The parameter <i>ls-interval-time</i> is an integer (0-65535) specifying time in milliseconds.

Defaults

In Configuration mode, the default is enabled.

In the FSPF configuration mode, the default is dynamic.

If configuring spf hold-time, the default value for FSPF is 0.

If configuring min-ls-arrival, the default value for FSPF is 1000 msec.

If configuring min-ls-interval, the default value for FSPF is 5000 msec.

Command Modes

Configuration mode.

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Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

This command configures FSPF on VSANs globally.

For the commands issued in FSPF configuration mode, you do not have to specify the VSAN number every time. This prevents configuration errors that might result from specifying the wrong VSAN number for these commands.

Examples

The following example configures FSPF globally in VSAN 1, deletes the FSPF configured in VSAN 3, disables FSPF in VSAN 5, and enables FSPF in VSAN 7.

```
switch## config t
switch(config)##
switch(config)# fspf config vsan 1
switch-config- (fspf-config)#
switch-config- (fspf-config)# exit
switch(config)##
switch(config)# no fspf config vsan 3
switch(config)#
switch(config)# no fspf enable vsan 5
switch(config)#
switch(config)# fspf enable vsan 7
switch(config)#
```

Related Commands

Command	Description
show fspf interface	Displays information for each selected interface.
fspf enable	Enables FSPF routing protocol in the specified VSAN (from the <code>switch(config-if)#</code> prompt).
fspf cost	Configures the cost for the selected interface in the specified VSAN (from the <code>switch(config-if)#</code> prompt).
fspf hello-interval	Specifies the hello message interval to verify the health of a link in the VSAN (from the <code>switch(config-if)#</code> prompt).
fspf passive	Disables the FSPF protocol for the specified interface in the specified VSAN (from the <code>switch(config-if)#</code> prompt).
fspf retransmit	Specifies the retransmit time interval for unacknowledged link state updates in specified VSAN (from the <code>switch(config-if)#</code> prompt).

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I Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [in-order-guarantee, page 8-2](#)
- [install all, page 8-3](#)
- [install module bios, page 8-6](#)
- [install module image, page 8-7](#)
- [install module loader, page 8-9](#)
- [interface, page 8-10](#)
- [interface fc, page 8-11](#)
- [interface fc switchport, page 8-13](#)
- [interface mgmt, page 8-15](#)
- [interface port-channel, page 8-17](#)
- [interface sup-fc, page 8-19](#)
- [interface vsan, page 8-20](#)
- [ip default-gateway, page 8-21](#)
- [ip default-network, page 8-22](#)
- [ip domain-list, page 8-23](#)
- [ip domain-lookup, page 8-24](#)
- [ip domain-name, page 8-25](#)
- [ip name-server, page 8-26](#)
- [ip route, page 8-27](#)
- [ip routing, page 8-28](#)

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in-order-guarantee

To enable in-order delivery in the Cisco MDS 9000 Family of switches, use the **in-order-guarantee** command in configuration mode. To disable in-order delivery, use the **no** form of the command.

in-order-guarantee

no in-order-guarantee

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

In-order delivery of data frames guarantees frame delivery to a destination in the same order that they were sent by the originator.

Examples

The following example shows how to enable in-order delivery.

```
switch## config t
switch(config)##
switch(config)# in-order-guarantee
switch(config)#
switch(config)# no in-order-guarantee
switch(config)#
```

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install all

To upgrade all modules in any Cisco MDS 9000 family switch, use the **install all** command. This upgrade can happen nondisruptively or disruptively depending on the current configuration of your switch.

install all system *URL* kickstart *URL*

Syntax Description		
install all		Upgrades the system.
system		Upgrades the system image.
kickstart		Upgrades the kickstart image.
<i>URL</i>		The location URL of the source file to be installed.

The following table lists the aliases for *URL*.

bootflash:	Source location for internal bootflash memory.
slot0:	Source location for the CompactFlash memory or PCMCIA card.
volatile:	Source location for the volatile file system.
tftp:	Source location for a Trivial File Transfer Protocol (TFTP) network server. The syntax for this URL is tftp:[<i>location</i>]/<i>directory</i>]/<i>filename</i> .
ftp:	Source location for a File Transfer Protocol (FTP) network server. The syntax for this URL is ftp:[<i>location</i>]/<i>directory</i>]/<i>filename</i> .
sftp:	Source location for a Secure Trivial File Transfer Protocol (SFTP) network server. The syntax for this URL is sftp:[<i>username</i>@<i>location</i>]/<i>directory</i>]/<i>filename</i> .
scp:	Source location for a Secure Copy Protocol (SCP) network server. The syntax for this URL is scp:[<i>location</i>]/<i>directory</i>]/<i>filename</i> .
<i>image-filename</i>	The name of the source image file.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines The **install all** command upgrades all modules in any Cisco MDS 9000 Family switch. To copy a remote file, specify the entire remote path exactly as it is. See the *Cisco MDS 9000 Family Configuration Guide* for detailed procedures.

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Examples

The following example displays the result of the **install all** command if the system and kickstart files are specified locally.

```
switch# install all system bootflash:system_image kickstart bootflash:kickstart_image
```

Image verification is in progress, please wait.

This command is going to install system image system_image
and kickstart image kickstart_image on this system

The command will:

- Install the Loader, if required
- Install the BIOS, if required
- Update boot variables
- Save configuration
- Reload the standby supervisor
- Perform a HA Switchover
- Perform a hitless upgrade of module 1, 2, 3, 4, 7, 8, 9

Do you want to continue y/n ? [n] : **y**

Image synchronization is in progress, please wait.

Installing Loader, please wait.

Installing Loader on module 5 ... successful

Installing Loader on module 6 ... successful

Installing BIOS, please wait.

Installing BIOS on module 1 ... not required (same version)

Installing BIOS on module 2 ... not required (same version)

Installing BIOS on module 3 ... not required (same version)

Installing BIOS on module 4 ... not required (same version)

Installing BIOS on module 5 ... not required (same version)

Installing BIOS on module 6 ... not required (same version)

Installing BIOS on module 7 ... not required (same version)

Installing BIOS on module 8 ... not required (same version)

Installing BIOS on module 9 ... not required (same version)

Updating boot variables .. successful

Saving configuration, please wait.

Reload of the standby supervisor is in progress, please wait

Success, the standby supervisor is online and ready to takeover

The following example displays the result of the **install all** command if the system and kickstart files are specified remotely.

```
switch# install all
```

```
system scp://user@171.71.00.000:/home/user/golden-sanity/system_image
```

```
kickstart scp://user@171.71.00.000:/home/user/golden-sanity/kickstart_image
```

Copying

```
scp://user@171.71.00.000/home/user/golden-sanity/system_image to  
bootflash:/system_image
```

..

Copying

```
scp://user@171.71.00.000/home/user/golden-sanity/kickstart_image to  
bootflash:/kickstart_image
```

aharihar@171.71.00.000's password:

```
system_image-3u          100% |*****| 19941 KB  
00:24
```

Image verification is in progress, please wait.

This command is going to install system image system_image
and kickstart image kickstart_image on this system

Send documentation comments to mdsfeedback-doc@cisco.com.

```
The command will:
- Install the Loader, if required
- Install the BIOS, if required
- Update boot variables
- Save configuration
- Reload the standby supervisor
- Perform a HA Switchover
- Perform a hitless upgrade of module 1, 2, 3, 4, 7, 8, 9

Do you want to continue y/n ? [n] : y

Image synchronization is in progress, please wait.

Installing Loader, please wait.
Installing Loader on module 5 ... successful
Installing Loader on module 6 ... successful

Installing BIOS, please wait.
Installing BIOS on module 1 ... not required (same version)
Installing BIOS on module 2 ... not required (same version)
Installing BIOS on module 3 ... not required (same version)
Installing BIOS on module 4 ... not required (same version)
Installing BIOS on module 5 ... not required (same version)
Installing BIOS on module 6 ... not required (same version)
Installing BIOS on module 7 ... not required (same version)
Installing BIOS on module 8 ... not required (same version)
Installing BIOS on module 9 ... not required (same version)

Updating boot variables .. successful
Saving configuration, please wait.
Reload of the standby supervisor is in progress, please wait
Success, the standby supervisor is online and ready to takeover
```

This example displays the file output on the console of the standby supervisor module:

```
Installation procedure in progress, please wait.
The login will be disabled until the installation is completed.
Switchover to this supervisor is successful
Install of module 1 is in progress, please wait.
Install of module 2 is in progress, please wait.
Install of module 3 is in progress, please wait.
Install of module 4 is in progress, please wait.
Install of module 7 is in progress, please wait.
Install of module 8 is in progress, please wait.
Install of module 9 is in progress, please wait.

The installation procedure has completed successfully.

MDS Switch
switch login:
```

Related Commands

Command	Description
install module bios	Upgrades the supervisor or switching module BIOS.
install module image	Upgrades the supervisor or switching module image.
install module loader	Upgrades the bootloader on the active or standby supervisor or modules.

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install module bios

To program the supervisor or switching module BIOS, use the **install module bios system** command.

install module *module-number* **bios** {**system** [**bootflash:** | **slot0:** | **volatile:** | *system-image*]}

Syntax Description	install module	Upgrades the BIOS for a supervisor or switching module.
	<i>module-number</i>	From slot 1 to 9 in a Cisco MDS 9500 Series switch. From slot 1 to 2 in a Cisco MDS 9200 Series switch.
	bios	Configures the BIOS in the specified module.
	system	Specifies the system image to use (optional). If system is not specified, the current running image is used.
	bootflash:	Source location for internal bootflash memory
	slot0:	Source location for the CompactFlash memory or PCMCIA card.
	volatile:	Source location for the volatile file system.
	<i>system-image</i>	The name of the system or kickstart image.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines

If the BIOS is upgraded, you need to reboot to make the new BIOS effective. You can schedule the reboot at a convenient time so traffic will not be impacted.

The console baud rate automatically reverts to the default rate (9600) after any BIOS upgrade.

The URL is always the system image URL in the supervisor module, and points to the bootflash: or slot0: directories.

Examples The following example shows how to perform a non disruptive upgrade for the system.

```
switch# install module 1 bios
Started bios programming .... please wait
###
BIOS upgrade succeeded for module 1
```

In this example, the switching module in slot 1 was updated.

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install module image

To program the supervisor or switching module image, use the **install module image** command.

install module *module-number* **image kickstart** [**bootflash:** | **slot0:** | **volatile:** | *system-image*]

Syntax Description		
install module	image	Upgrades the BIOS for a supervisor or switching module.
<i>module-number</i>	kickstart	Switching modules: From slot 1 to 4 and 7 to 9 in a Cisco MDS 9500 Series switch. For slot 2 in a Cisco MDS 9200 Series switch. Supervisor modules: Slot 5 or 6—only on the active supervisor module in a Cisco MDS 9500 Series switch. Slot 1—upgrades both the supervisor and switching parts of the module in a Cisco MDS 9200 Series switch.
	image	Configures the running image if system is not specified.
	kickstart	Specifies the kickstart image to use (optional). If the image is not specified, the current running image is used.
	bootflash:	Source location for internal bootflash memory
	slot0:	Source location for the CompactFlash memory or PCMCIA card.
	volatile:	Source location for the volatile file system.
	<i>system-image</i>	The name of the system image.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines The **install module** command only upgrades the system image on any module (other than the standby supervisor module). If error occur for any switching module, the module is reset and the new image is downloaded for that module.

If you are issuing this command on the supervisor module, follow these requirements:

- Update the environment variables before issuing this command.
- If any errors occur during this process, the switch is reset to guarantee that the system does not continue with a half installed image. In this case, the switch uses the image that was saved in the SYSTEM environment variable prior to this installation procedure.
- Specify the slot number of the active supervisor module. The following example assumes the active supervisor module is in slot 5.

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Examples

The following example shows how to perform a non disruptive upgrade for the system.

```
switch# install module 5 image system bootflash:system.img
Beginning the install check...
  bootflash:/system.img and kickstart image...is compatible.
  bootflash:/system.img image...can be upgraded non-disruptively from current.
Preliminary install check done.
Beginning the install process.
  Parsing of versioning database successful.
  Preparing file system plan now...Done.
  Preparing upgrade group plan now...Done.
  Executing pre-uninstall scripts...Done.
  Updating the File System for installation...Done.
  Executing post-install scripts...Done.
  System Manager will restart the services according to upgrade plan..Done.
Installation completed successfully.
```

Related Commands

Command	Description
show version compatibility	Shows the system software that is currently running on the switch

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install module loader

To upgrade the bootloader on either the active or standby supervisor module, use the **install module loader** command. This command is only for supervisor modules, not switching modules.

install module *module-number* **loader** **kickstart** [**bootflash:** | **slot0:** | **volatile:** | *kickstart-image*]

Syntax Description		
install module		Upgrades the BIOS for a supervisor or switching module.
<i>module-number</i>		Enters the module number for the active or standby supervisor modules (only slot 5 or 6).
loader		Configures the bootloader.
kickstart		Specifies the kickstart image to use.
bootflash:		Source location for internal bootflash memory
slot0:		Source location for the CompactFlash memory or PCMCIA card.
volatile:		Source location for the volatile file system.
<i>kickstart-image</i>		The name of the kickstart image.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines Before issuing the **install module loader** command, be sure to read the release notes to verify compatibility issues between the boot loader and the kickstart or system images.

If you install a loader version that is the same as the currently-installed version, the loader will not be upgraded. When both the current version and the installed version are the same, use the **init system** command to force a loader upgrade.

Examples The following example shows how to perform a non disruptive upgrade for the system.

```
switch# install module 6 loader bootflash:kickstart_image
```

This example displays the command being issued on the standby supervisor module in slot 6.

Related Commands	Command	Description
	show version	Verify the output before and after the upgrade.

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interface

To configure an interface on the Cisco MDS 9000 Family of switches, use the **interface** command in configuration mode. To disable an interface, use the **no** form of the command.

interface fc | mgmt | port-channel | sup-fc | vsan

no interface fc | mgmt | port-channel | sup-fc | vsan

Syntax Description	fc	Fiber Channel interface. Slot number range is from 1 to 9.
	mgmt	Management interface. Management interface number range is 0-0.
	port-channel	PortChannel interface.
	sup-fc	Inband interface
	vsan	IPFC VSAN interface. VSAN number range is from 1 to 4093.

Defaults Disabled.

Command Modes Configuration mode

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines You can specify a range of interfaces by issuing a command with the following example format:

interface fc1/1 - 5 , fc2/5 - 7

The spaces are required before and after the dash (-) and before and after the comma (,).

Examples The following example displays the options for the interface command.

```
switch## config t
switch(config)# interface ?
  cpp           Virtualization IPFC interface
  fc            Fiber Channel interface
  fc-tunnel     Fc-tunnel interface
  fcip          Fcip interface
  gigabitethernet Ethernet interface
  iscsi         ISCSI interface
  mgmt          Management interface
  port-channel  Port Channel interface
  sup-fc        Inband Interface
  vsan          IPFC VSAN interface
```

Related Commands	Command	Description
	show interface	Displays an interface configuration for a specified interface.

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interface fc

To configure a Fibre Channel interface on the Cisco MDS 9000 Family of switches, use the **interface fc** command. To disable a Fibre Channel interface, use the **no** form of the command.

interface fc *slot_number* [**channel-group** *number* **force**] **exit** | **fcdomain** **rcf-reject** **vsan** *vsan-id* [**fspf** **cost** *link_cost* **vsan** *vsan-id* | **dead-interval** *seconds* **vsan** *vsan-id* | **hello-interval** *seconds* **vsan** *vsan-id* | **passive** **vsan** *vsan-id* | **retransmit-interval** *seconds* **vsan** *vsan-id*] **no** | **shutdown** | **switchport**

no interface fc *slot_number* [**channel-group** *number* **force**] **exit** | **fcdomain** **rcf-reject** **vsan** *vsan-id* [**fspf** **cost** *link_cost* **vsan** *vsan-id* | **dead-interval** *seconds* **vsan** *vsan-id* | **hello-interval** *seconds* **vsan** *vsan-id* | **passive** **vsan** *vsan-id* | **retransmit-interval** *seconds* **vsan** *vsan-id*] **no** | **shutdown** | **switchport**

Syntax	Description
<i>slot-number</i>	Specifies a slot number and port number.
channel-group	Adds to or removes from a PortChannel.
<i>number</i>	Specify a PortChannel number from 1 to 128.
force	Forcefully adds a port.
exit	Exits from submode.
fcdomain	Enters the interface submode.
rcf-reject	Configures the rcf-reject flag.
vsan	Configures the VSAN range.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
fspf	Configures FSPF parameters.
cost	Configures FSPF link cost.
<i>link-cost</i>	Enters FSPF link cost 1-65535.
dead-interval	Configures FSPF dead interval.
<i>seconds</i>	Specifies interval in seconds from 1 to 65535.
hello-interval	Configures FSPF hello-interval.
passive	Enables or disables FSPF on the interface.
retransmit-interval	Configures FSPF retransmit interface.
no	Negates a command or sets its defaults.
shutdown	Enables or disables an interface.
switchport	Configures switchport parameters.

Defaults Disabled

Command Modes Configuration mode

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

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Usage Guidelines

You can specify a range of interfaces by issuing a command with the following example format:
interface space fc1/1space-space5space,spacefc2/5space-space7

Examples

The following example configures ports 1 to 4 in Fibre Channel interface 9.

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# int fc9/1 - 4
```

Related Commands

Command	Description
show interface	Displays an interface configuration for a specified interface.

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interface fc switchport

To configure an interface on the Cisco MDS 9000 Family of switches, use the **interface** command in configuration mode.

```
interface fc slot-number {switchport beacon | description text | encap eisl | [fcrxbbcredit credit
mode E | Fx] fcrxbbcredit default | switchport [fcrxbufsize size | mode auto (E | F | FL | Fx
| SD | TL) | speed (1000 | 2000 | auto) | trunk allowed vsan vsan-id] | add [vsan number | all]
| mode [auto | off | on]}
```

```
no interface fc slot-number {switchport beacon | description text | encap eisl | [fcrxbbcredit
credit mode E | Fx] fcrxbbcredit default | switchport [fcrxbufsize size | mode auto (E | F |
FL | Fx | SD | TL) | speed (1000 | 2000 | auto) | trunk allowed vsan vsan-id] | add [vsan
number | all] | mode [auto | off | on]}
```

Syntax Description

interface	Selects an interface to configure.
fc	Fiber Channel interface. Slot number range is 1-9.
<i>slot-number</i>	Specifies a slot number and port number.
switchport	Configure switchport parameters
beacon	Disable/enable the beacon for an interface
description	Enter description of maximum 80 characters
<i>text</i>	Description text of maximum 80 characters (Max Size - 80)
encap	Configure encapsulation for the port
eisl	EISL encapsulation
fcrxbbcredit	Configure receive BB_credit for the port
<i>credit</i>	Enter receive BB_credit 1-255
mode	Configure receive BB_credit for specific mode
E	Configure receive BB_credit for E or TE mode
Fx	Configure receive BB_credit for F or FL mode
default	Default receive BB_credit
fcrxbufsize	Configure receive data field size for the port
<i>size</i>	Enter receive data field size 256-2112
mode	Enter the port mode
auto	Autosense mode
E	E port mode
F	F port mode
FL	FL port mode
Fx	Fx port mode
SD	SD port mode
TL	TL port mode
speed	Enter the port speed
1000	1000 Mbps speed
2000	2000 Mbps speed

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auto	Autosense speed
trunk	Configure trunking parameters on an interface
allowed	Configure allowed list for interface(s)
add	Give VSAN id range to add to allowed vsan list
all	Add all the VSANs to allowed VSAN list
mode	Configure trunking mode
auto	Autosense trunking for an interface
off	Disable trunking for an interface
on	Enable trunking for an interface

Defaults

Disabled

Command Modes

Configuration mode

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

You can specify a range of interfaces by issuing a command with the following example format:

interface space fc1/1space-space5space,spacefc2/5space-space7

Examples

The following example changes to Configuration mode, configures a Fibre Channel interface, and configures switchport mode E for the specified BB credit.

```
switch## config t
switch(config)# interface fc1/1
switch(config-if)# switchport fcrxbbscredit 2 mode E
```

Related Commands

Command	Description
show interface	Displays an interface configuration for a specified interface.

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interface mgmt

To configure a management interface on the Cisco MDS 9000 Family of switches, use the **interface mgmt** command in configuration mode.

```
interface mgmt number | exit [ip | no ip] no | shutdown | switchport description text [vrrp | no vrrp vrrp_id]
```

Syntax Description		
<i>number</i>		Specifies the management interface number which is 0.
ip		IP address
shutdown		Enable/disable an interface
switchport		Configure switchport parameters
description		Enter description of maximum 80 characters
<i>text</i>		Description text of maximum 80 characters (Max Size - 80)
vrrp		Configure vrrp on this interface
<i>vrrp_id</i>		Enters VRRP id.

Defaults Disabled

Command Modes Configuration mode. Issue **interface mgmt** commands from the config-interface (config-if) mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example configures the management interface, displays the options available for the configured interface, and exits to configuration mode.

```
switch## config t
switch(config)##
switch(config)# interface mgmt 0
switch(config-if)# ?
Interface configuration commands:
  exit          Exit from this submode
  ip            [no] ip address
  no            Negate a command or set its defaults
  shutdown      Enable/disable an interface
  switchport    Configure switchport parameters
  vrrp          [no] vrrp vr_id: Configure vrrp on this interface

switch(config-if)# exit
switch(config)#
```

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Related Commands

Command	Description
show interface mgmt	Displays interface configuration for specified interface.

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interface port-channel

To configure a port channel interface on the Cisco MDS 9000 Family of switches, use the **interface port-channel** command.

```
interface port-channel number [fcdomain rcf-reject vsan vsan-id] | fspf [cost link_cost |  
dead-interval seconds | hello-interval seconds | passive | retransmit-interval seconds] |  
shutdown | switchport
```

```
no interface port-channel number [fcdomain rcf-reject vsan vsan-id] | fspf [cost link_cost |  
dead-interval seconds | hello-interval seconds | passive | retransmit-interval seconds] |  
shutdown | switchport
```

Syntax Description

interface	Selects an interface to configure.
port-channel	Configure port channel parameters
<i>number</i>	Enter PortChannel number 1-128
fcdomain	Enter the interface submode
rcf-reject	Configure the rcf-reject flag
vsan	Specify the vsan range
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
fspf	Configure FSPF parameters
cost	Configure FSPF link cost
<i>link_cost</i>	Enter FSPF link cost 1-65535
dead-interval	Configure FSPF dead interval
<i>seconds</i>	Enter dead interval (in sec) 2-65535
hello-interval	Configure FSPF hello-interval
<i>seconds</i>	Enter hello interval (in sec) 1-65535
passive	Enable/disable FSPF on the interface
retransmit-interval	Configure FSPF retransmit interface
<i>seconds</i>	Enter retransmit interval (in sec) 1-65535
no	Negate a command or set its defaults
shutdown	Enable/disable an interface
switchport	Configure switchport parameters

Defaults

Disabled

Command Modes

Configuration mode

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Send documentation comments to mdsfeedback-doc@cisco.com.

Usage Guidelines None.

Examples The following example enters configuration mode and configures a PortChannel interface.

```
switch## config t
switch(config)##
switch(config)# interface port-channel 32
switch(config-if)#
```

Related Commands	Command	Description
	show interface	Displays interface configuration for specified interface.

Send documentation comments to mdsfeedback-doc@cisco.com.

interface sup-fc

To configure Fibre Channel interface on the supervisor module on the Cisco MDS 9000 Family of switches, use the **interface sup-fc** command.

interface sup-fc *number* **exit** | **no**

Syntax Description	interface	Selects an interface to configure.
	sup-fc	Inband Interface
	<i>number</i>	Inband interface number.
	exit	Exit from submode
	no	Negate a command or set its defaults

Defaults	Disabled.
----------	-----------

Command Modes	Configuration mode.
---------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
-----------------	---

Usage Guidelines	None.
------------------	-------

Examples	The following example configures the Fibre Channel interface on the supervisor module.
----------	--

```
switch(config)# interface sup-fc 0
switch(config-if)#
```

Related Commands	Command	Description
	show interface	Displays interface configuration for specified interface.

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interface vsan

To configure a VSAN interface on the Cisco MDS 9000 Family of switches, use the **interface vsan** command.

interface vsan *vsan-id* **exit** [**ip** | **no ip**] **no** | **shutdown** | [**vrrp** | **no vrrp** *vr_id*]

Syntax Description		
interface		Selects an interface to configure.
vsan		IPFC VSAN interface. VSAN number range is 1-4093.
<i>vsan-id</i>		VSAN id range 1-4093
no		Negate a command or set its defaults
shutdown		Enable/disable an interface
ip		ip address
shutdown		Enable/disable an interface
vrrp		Configure vrrp on this interface
<i>vr_id</i>		Enter vrrp id

Defaults Disabled.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example configures a VSAN interface.

```
switch(config)# interface vsan 1
switch(config-if)#
```

Related Commands	Command	Description
	show interface	Displays interface configuration for specified interface.

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ip default-gateway

To configure the IP address of the default gateway, use the **ip default-gateway** command. To disable the IP address of the default gateway, use the **no** form of the command.

ip default-gateway *destination-ip-address*

no ip default-gateway *destination-ip-address*

Syntax Description	<i>destination-ip-address</i> Specifies the IP address,				
Defaults	None.				
Command Modes	Configuration mode.				
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).				
Usage Guidelines	None.				
Examples	The following examples configures the IP default gateway to 1.1.1.4. <pre>switch## config t switch(config)## switch(config)# ip default-gateway 1.1.1.4 switch(config)#</pre>				
Related Commands	<table><tr><th>Command</th><th>Description</th></tr><tr><td>show ip route</td><td>Displays the IP address of the default gateway.</td></tr></table>	Command	Description	show ip route	Displays the IP address of the default gateway.
Command	Description				
show ip route	Displays the IP address of the default gateway.				

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ip default-network

To configure the IP address of the default network, use the **ip default-network** command in configuration mode. To disable the IP address of the default network, use the **no** form of the command.

ip default-network *ip-address*

no ip default-network *ip-address*

Syntax Description	<i>ip-address</i> Specifies the IP address of the default network.
Defaults	None.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following examples configures the IP address of the default network to 1.1.1.4. <pre> switch## config t switch(config)## switch(config)# ip default-network 1.1.1.4 switch(config)# </pre>

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ip domain-list

To configure the IP domain list, use the **ip domain-list** command in configuration mode. To disable the IP domain list, use the **no** form of the command.

ip domain-list *domain-name*

no ip domain-list *domain-name*

Syntax Description

<i>domain-name</i>	Specifies the domain name for the IP domain list.
--------------------	---

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example configures the IP domain list.

```
switch## config t
switch(config)##
switch(config)# ip domain domain name
switch(config)#
```

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ip domain-lookup

To enable the DNS server lookup feature, use the **ip domain-lookup** command in configuration mode. Use the **no** form of this command to disable this feature.

ip domain-lookup

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	Instead of IP addresses, you can configure the switch using meaningful names. The configured name automatically looks up the corresponding IP address.
Examples	The following example configures a DNS server domain name. <pre> switch## config t switch(config)## switch(config)# ip domain-lookup switch(config)# </pre>

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ip domain-name

To configure a domain name, use the **ip domain-name** command in configuration mode.

ip domain-name *domain name*

Syntax Description	<i>domain-name</i> Specifies the domain name.
Defaults	None.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example configures a domain name. <pre>switch## config t switch(config)## switch(config)# ip domain-name domain name switch(config)#</pre>

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ip name-server

To configure a name server, use the **ip name-server** command in configuration mode.

ip name-server *ip-address*

Syntax Description	<i>ip-address</i> Specifies the IP address for the name server.
Defaults	None.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	You can configure a maximum of six servers. By default, no server is configured.
Examples	The following example configure a name server with an IP address of 1.1.1.4. <pre>switch## config t switch(config)# ip name-server 1.1.1.4</pre> The following example specifies the first address (15.1.0.1) as the primary server and the second address (15.2.0.0) as the secondary sever. <pre>switch(config)# ip name-server 15.1.0.1 15.2.0.0</pre> The following example deletes the configured server(s) and reverts to factory default. <pre>switch(config)# no ip name-server</pre>

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ip route

To configure a static route, use the **ip route** command in configuration mode.

ip route *ip-address subnet-mask* [*nexthop_ip-address*] [**interface** (**mgmt 0** | **vsan number**)]
[**distance** *distance-number*]

Syntax Description

<i>ip-address</i>	Specifies the IP address for the route.
<i>subnet-mask</i>	Specifies the subnet mask for the route.
<i>nexthop_ip-address</i>	Specifies the IP address of the next hop switch.
interface	Configures the interface associated with the route.
mgmt 0	Specifies the management interface (mgmt 0).
vsan	Specifies a VSAN interface.
<i>number</i>	Specifies the VSAN interface number.
distance	Configures the distance metric for this route.
<i>distance-number</i>	Specifies the distance metric for this route. It can be from 0 to 32766.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following examples shows how to configure a static route.

```
switch## config t
switch(config)##
switch(config)# IP route 10.0.0.0 255.0.0.0 20.20.20.10 distance 10 interface vsan 1
switch(config)#
```

Related Commands

Command	Description
show ip route	Displays the IP address routes configured in the system.

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ip routing

To enable the IP forwarding feature, use the **ip routing** command in configuration mode.

ip routing

Syntax Description	This command has no arguments or keywords.
Defaults	Disabled.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example enables the IP forwarding feature. <pre>switch## config t switch(config)## switch(config)# ip routing switch(config)#</pre>



L Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [line console, page 9-2](#)
- [line vty, page 9-4](#)
- [logging console, page 9-5](#)
- [logging level, page 9-6](#)
- [logging logfile, page 9-10](#)
- [logging module, page 9-11](#)
- [logging monitor, page 9-12](#)
- [logging server, page 9-13](#)

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line console

To configure a terminal line, use the **line console** command.

line console [**databits** *number*] [**exec-timeout** *minutes*] [**exit**] [**flowcontrol** **none** | **software**] [**no**]
 [**parity** **even** | **none** | **odd**] [**speed** *speed*] [**stopbits** **1** | **2**]

Syntax	Description
line console	Configures a primary terminal line.
databits	Set number of databits per character.
<i>number</i>	Enters number of databits.
exec-timeout	Configure exec timeout.
<i>minutes</i>	Enter timeout in minutes 0-525600. 0 to disable.
exit	Exit from this submode.
flowcontrol	Set the flow control.
none	Set no flowcontrol.
software	Set software flowcontrol.
no	Negate a command or set its defaults.
parity	Set terminal parity.
even	Set even parity.
none	Set no parity.
odd	Set odd parity.
speed	Set the transmit and receive speeds.
<i>speed</i>	Set transmit and receive speeds.
stopbits	Set async line stopbits.
1	Set one stop bit.
2	Set two stop bits.

Defaults Disabled

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The **line console** command available in **config t** command mode. **line console** configuration commands available in config-console submode.

Examples The following example configures a line console and sets the options for that terminal line.

```
switch## config t
switch(config)##
```

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```
switch(config)# line console
switch(config-console)# databits 60
switch(config-console)# exec-timeout 60
switch(config-console)# flowcontrol software
switch(config-console)# parity even
switch(config-console)# stopbits 1
```

Related Commands

Command	Description
line vty	Configure virtual terminal line.

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line vty

To configure a virtual terminal line, use the **line vty** command.

line vty exec-timeout *minutes* | **exit** | **no**

Syntax	Description
line vty	Configures a virtual terminal line.
exec-timeout	Configure exec timeout.
<i>minutes</i>	Enter timeout in minutes 0-525600. 0 to disable.
exit	Exit from this submode.
no	Negate a command or set its defaults.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The **line vty** command available in **config t** command mode. **line vty** configuration commands available in config-line submode.

Examples The following example configures a virtual terminal line and sets the timeout for that line.

```
switch## config t
switch(config)# line vty
switch(config-line)# exec-timeout 60
```

Related Commands	Command	Description
	line console	Configure primary terminal line.

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logging console

To set console logging, use the **logging console** command.

logging console *range* [*size bytes*]

Syntax	Description
logging console	Sets console logging.
<i>range</i>	0-7 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
size bytes	Configures the size of the log file in bytes. The valid range is 4096- 4194304 bytes.

Defaults Disabled.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example reverts console logging to the factory set default severity level of 2 (critical). Logging messages with a severity level of 2 or above will be displayed on the console.

```
switch## config t
switch(config)# logging console 2
switch(config-console)#
```

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logging level

To modify message logging facilities, use the **logging level** command.

logging level [**acl** severity level] [**all** severity level] [**auth** severity level] [**authpriv** severity level] [**bootvar** severity level] [**callhome** severity level] [**cron** severity level] [**daemon** severity level] [**fcc** severity level] [**fcdomain** severity level] [**fcns** severity level] [**fcs** severity level] [**flogi** severity level] [**fspf** severity level] [**ftp** severity level] [**ipconf** severity level] [**ipfc** severity level] [**kernel** severity level] [**local0** severity level] [**local1** severity level] [**local2** severity level] [**local3** severity level] [**local4** severity level] [**local5** severity level] [**local6** severity level] [**local7** severity level] [**mail** severity level] [**mcast** severity level] [**module**] [**news**] [**ntp**] [**platform**] [**port**] [**port-channel**] [**qos**] [**rdl**] [**rib** severity level] [**rscn** severity level] [**scsi-target** severity level] [**security** severity level] [**syslog** severity level] [**sysmgr** severity level] [**tlport** severity level] [**user** severity level] [**uucp** severity level] [**vni** severity level] [**vrrp configuraion** severity level] [**engine** severity level] [**vsan** severity level] [**vshd** severity level] [**wwnm** severity level] [**xbar** severity level] [**zone** severity level]

no logging level [**acl** severity level] [**all** severity level] [**auth** severity level] [**authpriv** severity level] [**bootvar** severity level] [**callhome** severity level] [**cron** severity level] [**daemon** severity level] [**fcc** severity level] [**fcdomain** severity level] [**fcns** severity level] [**fcs** severity level] [**flogi** severity level] [**fspf** severity level] [**ftp** severity level] [**ipconf** severity level] [**ipfc** severity level] [**kernel** severity level] [**local0** severity level] [**local1** severity level] [**local2** severity level] [**local3** severity level] [**local4** severity level] [**local5** severity level] [**local6** severity level] [**local7** severity level] [**mail** severity level] [**mcast** severity level] [**module**] [**news**] [**ntp**] [**platform**] [**port**] [**port-channel**] [**qos**] [**rdl**] [**rib** severity level] [**rscn** severity level] [**scsi-target** severity level] [**security** severity level] [**syslog** severity level] [**sysmgr** severity level] [**tlport** severity level] [**user** severity level] [**uucp** severity level] [**vni** severity level] [**vrrp configuraion** severity level] [**engine** severity level] [**vsan** severity level] [**vshd** severity level] [**wwnm** severity level] [**xbar** severity level] [**zone** severity level]

Syntax	Description
logging level	Sets console logging.
acl	Sets 0-7 syslog filter level for acl manager. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
all	Sets 0-7 severity level for all facilities. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
auth	Sets 0-7 severity level for authorization system. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
authpriv	Sets 0-7 severity level for authorization (private) system. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
bootvar	Sets 0-7 severity level for bootvar. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
callhome	Sets 0-7 severity level for Callhome feature. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
cron	Sets 0-7 severity level 1 for Cron/at facility. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
daemon	Sets 0-7 severity level for system daemons 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug

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fcc	Sets 0-7 severity level for FCC. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
fcdomain	Sets 0-7 syslog message level for fcdomain. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
fcns	Sets 0-7 syslog filter level for name server 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
fcs	Sets 0-7 syslog filter level for FCS. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
flogi	Sets 0-7 syslog message level for flogi. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
fspf	Sets 0-7 syslog message level for FSPF. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
ftp	Sets 0-7 syslog message level for File Transfer System. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
ipconf	Sets 0-7 syslog message level for IP configuration. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
ipfc	Sets 0-7 syslog message level for IPFC. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
kernel	Sets 0-7 syslog message level for kernel. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local0	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local2	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local3	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local4	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local5	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local6	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
local7	Sets 0-7 syslog message level for local use daemons. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
lpr	Sets 0-7 syslog message level for line printer system. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
mail	Sets 0-7 syslog message level for mail system. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
mcast	Sets 0-7 syslog message level for mcast 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
module	Sets 0-7 syslog message level for module. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
news	Sets 0-7 syslog message level for USENET news 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
ntp	Sets 0-7 syslog message level for NTP. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug

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platform	Sets 0-7 syslog message level for platform manager. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
port	Sets 0-7 syslog message level for port. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
port-channel	Sets 0-7 syslog message level for a Port Channel. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
qos	Sets 0-7 syslog message level for QoS manager. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
rdl	Sets 0-7 syslog message level for RDL. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
rib	Sets 0-7 syslog message level for rib. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
rscn	Sets 0-7 syslog message level for RSCN. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
scsi-target	Sets 0-7 syslog message level for SCSI target. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
security	Sets 0-7 syslog message level for security. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
syslog	Sets 0-7 syslog message level for internal syslog messages. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
sysmgr	Sets 0-7 syslog message level for system manager. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
tlport	Sets 0-7 syslog message level for TL Port. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
user	Sets 0-7 syslog message level user process. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
uucp	Sets 0-7 syslog message level for Unix-to-Unix copy system. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vni	Sets 0-7 syslog message level for virtual network interface. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vrrp	Sets 0-7 syslog message level for vrrp. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vrrp configuration	Sets 0-7 syslog message level 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vrrp engine	Sets 0-7 syslog message level 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vsan	Sets 0-7 syslog message level for VSAN. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
vshd	Sets 0-7 syslog message level for vshd. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
wwnm	Sets 0-7 syslog message level for WWN manager. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
xbar	Sets 0-7 syslog message level for Xbar. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
zone	Sets 0-7 syslog message level for for zone server. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug

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Defaults	Disabled
Command Modes	Configuration mode
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	Configures Telnet or SSH logging for the kernel facility at level 4 (warning). As a result, logging messages with a severity level of 4 or above will be displayed. <pre>switch## config t switch(config)# logging level kernal 4</pre>

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logging logfile

To set message logging for logfile, use the **logging logfile** command.

logging logfile *file name severity level*

Syntax	Description	logging logfile	Sets message logging for logfile.
		<i>file name</i>	Enters the logfile name.
		<i>severity level</i>	0-7 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
Defaults	None.		
Command Modes	Configuration mode.		
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).		
Usage Guidelines	None.		
Examples	The following example configures logging information for errors or events above a severity level of 3 (errors) to be logged in a file named ManagerLogFile. By configuring this limit, the file size is restricted to 3000000 bytes. <pre>switch## config t switch(config)# logging logfile ManagerLogFile 3 size 3000000</pre>		
Related Commands	Command	Description	
	show logging logfile	Displays the message logging for the logfile.	

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logging module

To set message logging for linecards, use the **logging module** command.

logging module *severity level*

Syntax	Description	logging module	Sets message logging for modules.
		<i>severity level</i>	0-7 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example sets message logging for modules at level 7.

```
switch## config t
switch(config)##
switch(config)# logging module 7
```

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logging monitor

To set monitor message logging, use the **logging monitor** command.

logging monitor *severity level*

Syntax	Description
logging monitor	Sets message logging.
<i>severity level</i>	0-7 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example sets terminal line (monitor) message logging at level 2.

```
switch## config t
switch(config)# logging monitor 2
```

Related Commands	Command	Description
	show logging monitor	Displays the message logging for the logfile.

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logging server

To set message logging for the remote server, use the **logging server** command.

logging server [*hostname* | *ip address* *severity_level* | **facility** **auth** | **authpriv** | **cron** | **daemon** | **ftp** | **kernel** | **local0** | **local1** | **local2** | **local3** | **local4** | **local5** | **local6** | **local7** | **lpr** | **mail** | **news** | **syslog** | **user** | **uucp**]

Syntax	Description
logging server	Sets message logging for remote server.
<i>hostname</i>	Enters host name for remote server.
<i>ip address</i>	Enters the IP address for the remote server.
<i>severity_level</i>	Enter severity level of message. 0-emerg;1-alert;2-crit;3-err;4-warn;5-notif;6-inform;7-debug
facility	Facility to use when forwarding to server
auth	Use auth facility
authpriv	Use authpriv facility
cron	Use Cron/at facility
daemon	Use daemon facility
ftp	Use file transfer system facility
kernel	Use kernel facility
local0	Use local0 facility
local1	Use local1 facility
local2	Use local2 facility
local3	Use local3 facility
local4	Use local4 facility
local5	Use local5 facility
local6	Use local6 facility
local7	Use local7 facility
lpr	Use lpr facility
mail	Use mail facility
news	Use USENET news facility
syslog	Use syslog facility
user	Use user facility
uucp	Use Unix-to-Unix copy system facility

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Send documentation comments to mdsfeedback-doc@cisco.com.

Usage Guidelines None.

Examples Enable message logging to the specified remote server for level 7 messages.

```
switch## config t
switch(config)# logging sever sanjose 7
```

Related Commands	Command	Description
	show logging server	Displays the message logging for the remote server.



M Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [mkdir, page 10-2](#)
- [move, page 10-3](#)

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mkdir

To create a directory in the Flash file system, use the **mkdir** command in EXEC mode.

mkdir *directory*

Syntax Description	<i>directory</i> Name of the directory to create.						
Defaults	This command has no default settings.						
Command Modes	EXEC						
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).						
Usage Guidelines	This command is only valid on Class C Flash file systems. You can specify whether to create the directory on bootflash: or on slot0 or on volatile: If you do not specify the directory name in the command line, the switch prompts you for it.						
Examples	The following example creates a directory called test in the slot0 directory. <pre>switch# mkdir slot0:test</pre> The following example creates a directory called test at the current directory level. <pre>switch# mkdir test</pre> If the current directory is slot0:mydir, this command creates a directory called slot0:mydir/test.						
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>dir</td><td>Displays a list of files on a file system.</td></tr> <tr> <td>rmdir</td><td>Removes an existing directory in the Flash file system.</td></tr> </table>	Command	Description	dir	Displays a list of files on a file system.	rmdir	Removes an existing directory in the Flash file system.
Command	Description						
dir	Displays a list of files on a file system.						
rmdir	Removes an existing directory in the Flash file system.						

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move

To remove a file from the source directory and place it in the destination directory, use the **move** command in EXEC mode.

move {**bootflash:** | **slot0:** | **volatile:**} *directory* {**bootflash:** | **slot0:** | **volatile:**} *directory*

Syntax Description

bootflash:	Source or destination location for internal bootflash memory.
slot0:	Source or destination location for the CompactFlash memory or PCMCIA card.
volatile:	Source or destination location for volatile memory.
<i>directory</i>	Name of the directory to move or to create.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

If you do not specify the directory name in the command line, the switch prompts you for it.

Examples

The following example moves the file called samplefile from the slot0 directory to the mystorage directory.

```
switch# move slot0:samplefile slot0:mystorage/samplefile
```

The following example moves a file from the current directory level.

```
switch# move samplefile mystorage/samplefile
```

If the current directory is slot0:mydir, this command moves slot0:mydir/samplefile to slot0:mydir/mystorage/samplefile.

Related Commands

Command	Description
dir	Displays a list of files on a file system.
mkdir	Creates a directory in the Flash file system.
rmdir	Removes an existing directory in the Flash file system.

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N Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [ntp](#), page 11-2

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ntp

To configure NTP settings on the switch, use the **ntp** command in configuration mode.

ntp {peer *hostname* | server | timestamp-check}

Syntax Description	peer <i>hostname</i>	The hostname/IP address of the NTP peer (Max Size - 80).
	server	The hostname/IP address of the NTP server (Max Size - 80).
	timestamp-check	Enables or disables the Timestamp Check.

Defaults This command has no default settings.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples This example forms a server association with a server.

```
switch(config)# ntp server 10.10.10.10
switch(config)#
```

This example forms a peer association with a peer. You can specify multiple associations.

```
switch(config)# ntp peer 10.20.10.0
switch(config)#
```



P Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [ping](#), page 12-2
- [power redundancy-mode](#), page 12-3
- [poweroff](#) module, page 12-5
- [purge fcdomain fcid](#), page 12-6
- [pwd](#), page 12-7

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ping

To diagnose basic network connectivity, use the **ping** (packet internet groper) command in EXEC mode.

ping {*host-name* | *system-address*}

Syntax Description	<i>host-name</i>	Host name of system to ping. Maximum length is 64 characters.
	<i>system-address</i>	Address of system to ping.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The ping program sends an echo request packet to an address, and then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether the host can be reached or is functioning.

Verify connectivity to the TFTP server using the **ping** command.

To abnormally terminate a ping session, type the **Ctrl-C** escape sequence

Examples The following example pings system 192.168.7.27.

```
switch# ping 192.168.7.27
PING 192.168.7.27 (192.168.7.27): 56 data bytes
64 bytes from 192.168.7.27: icmp_seq=0 ttl=255 time=0.4 ms
64 bytes from 192.168.7.27: icmp_seq=1 ttl=255 time=0.2 ms
64 bytes from 192.168.7.27: icmp_seq=2 ttl=255 time=0.2 ms
64 bytes from 192.168.7.27: icmp_seq=3 ttl=255 time=0.2 ms

--- 192.168.7.27 ping statistics ---
13 packets transmitted, 13 packets received, 0% packet loss
round-trip min/avg/max = 0.2/0.2/0.4 ms
```

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power redundancy-mode

To configure the capacity of the power supplies on the Cisco MDS 9500 Family of switches, use the **power redundancy-mode** command in configuration mode.

power redundancy-mode {combined | redundant [force]}

Syntax	Description	combined	Configures power supply redundancy mode as combined.
		force	Forces combined mode without prompting.
		redundant	Configures power supply redundancy mode as redundant.

Defaults	Redundant mode.
-----------------	-----------------

Command Modes	Configuration mode
----------------------	--------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	• If power supplies with different capacities are installed in the switch, the total power available differs based on the configured mode: • In redundant mode, the total power is the lesser of the two power supply capacities. This reserves enough power to keep the system powered on in case of a power supply failure. This is the recommended or default mode. • In combined mode, the total power is twice the lesser of the two power supply capacities. In case of a power supply failure, the entire system could be shut down, depending on the power usage at that time. • When a new power supply is installed, the switch automatically detects the power supply capacity. If the new power supply has a capacity that is lower than the current power usage in the switch and the power supplies are configured in redundant mode, the new power supply will be shut down. • When you change the configuration from combined to redundant mode and the system detects a power supply that has a capacity lower than the current usage, the power supply is shut down. If both power supplies have a lower capacity than the current system usage, the configuration is not allowed.
-------------------------	--

Examples	The following examples demonstrate how the power supply redundancy mode could be set.
-----------------	---

```
switch(config)# power redundancy-mode combined
WARNING: This mode can cause service disruptions in case of a power supply failure.
Proceed ? [y/n] y
switch(config)# power redundancy-mode redundant
```

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Related Commands	Command	Description
	show environment power	Displays status of power supply modules, power supply redundancy mode, and power usage summary.
	copy running-config startup-config	Copies all running configuration to the startup configuration.

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poweroff module

To power off individual modules in the system, use the **poweroff module** command in configuration mode in configuration mode.

[no] poweroff module *module-number*

Syntax Description

no	Powers up the specified module in the switch
<i>module-number</i>	Specifies the module number from 1 to 9.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Use the **poweroff module** command to power off individual modules. The **poweroff module** command cannot be used to power off supervisor modules.

Examples

The following example powers off and powers up module 1.

```
switch# config t
switch(config)# poweroff module 1
switch(config)#
switch(config)# no poweroff 1
switch(config)#
```

Related Commands

Command	Description
show module	Displays information for a specified module.
copy running-config startup-config	Copies all running configuration to the startup configuration.

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purge fcdomain fcid

To purge persistent FCIDs, use the **purge fcdomain fcid** command in EXEC mode.

purge fcdomain fcid vsan *vsan-id*

Syntax Description	vsan	Indicates that FCIDs are to be purged for a VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example shows how to purge all dynamic, unused FC IDs in VSAN 4
-----------------	---

```
switch# purge fcdomain fcid vsan 4
switch#
```

The following example shows how to purge all dynamic, unused FC IDs in VSANs 4, 5, and 6.

```
switch# purge fcdomain fcid vsan 3-5
switch#
```

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pwd

To display the current directory location, use the **pwd** command in EXEC mode.

pwd

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example changes the directory and displays the current directory. <pre>switch# cd bootflash:logs switch# pwd bootflash:/logs</pre>
-----------------	---

Related Commands	Command	Description
	cd	Changes the current directory to the specified directory.

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Q Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [qos control priority](#), page 13-2

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qos control priority

To enable the QoS priority assignment for control traffic feature on the Cisco MDS 9000 family of switches, use the **qos control** command in configuration mode. To disable the QoS priority assignment for control traffic feature, use the **no** form of the command.

qos control priority *value*

no qos control *value*

Syntax	Description	qos control	Controls QoS traffic from one fabric controller to another.
		priority	Sets the priority level.
		<i>value</i>	Specifies priority value ranging from 0 to 7.

Defaults Enabled and priority 7 are the defaults.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example disables the QoS priority assignment feature.

```
switch# config t
switch(config)# no qos control priority
```

Related Commands	Command	Description
	show qos internal	Displays internal debug information.
	show qos statistics	Displays QoS related statistics.



R Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [radius-server host, page 14-2](#)
- [radius-server key, page 14-4](#)
- [radius-server retransmit, page 14-5](#)
- [radius-server timeout, page 14-6](#)
- [reload, page 14-7](#)
- [rmdir, page 14-9](#)
- [role name, page 14-10](#)
- [rscn, page 14-12](#)
- [run-script, page 14-13](#)

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radius-server host

To configure RADIUS authentication related parameters, use the **radius** command.

radius-server host *server name or ip address* [**accounting**] | [**acct-port** *port number* (**accounting** | **authentication accounting**) | **primary accounting** | **authentication accounting**] | [**auth-port** *port number* (**accounting**) (**acct-port** *port number* | **accounting** | **authentication accounting** | **primary accounting** | **primary authentication**)] | [**authentication accounting**] | [**key** *shared secret*] | [**primary accounting** | **primary authentication**]

no radius-server host *server name or ip address* [**accounting**] | [**acct-port** *port number* (**accounting** | **authentication accounting**) | **primary accounting** | **authentication accounting**] | [**auth-port** *port number* (**accounting**) (**acct-port** *port number* | **accounting** | **authentication accounting** | **primary accounting** | **primary authentication**)] | [**authentication accounting**] | [**key** *shared secret*] | [**primary accounting** | **primary authentication**]

Syntax Description	
<i>server name or ip address</i>	Enter RADIUS server's DNS name or its IP address. The maximum character size is 256.
accounting	Use for accounting.
acct-port	RADIUS server's port for accounting.
authentication	Use for authentication.
key	RADIUS shared secret.
primary	Whether this RADIUS server is a primary server or not.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following examples provide various scenarios to configure RADIUS authentication.

```
switch# config t

switch(config)# radius host 10.10.0.0 primary

switch(config)# radius host 10.10.0.0 key HostKey

switch(config)# radius host 10.10.0.0 auth-port 2003

switch(config)# radius host 10.10.0.0 acct-port 2004
```

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```
switch(config)# radius host 10.10.0.0 accounting
switch(config)# radius host radius1 primary
switch(config)# radius host radius2 key 0 abcd
switch(config)# radius host radius3 key 7 1234
```

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radius-server key

To configure a global RADIUS shared secret, use the **radius-server key** command. Use the **no** form of this command to removed a configured shared secret.

radius-server key [**0** | **7**] *shared secret*

no radius-server key [**0** | **7**] *shared secret*

Syntax Description	key	Global RADIUS shared secret.
	0	Configures a preshared key specified in clear text (indicated by 0) to authenticate communication between the RADIUS client and server. This is the default.
	7	Configures a preshared key specified in encrypted text (indicated by 7) to authenticate communication between the RADIUS client and server.
	<i>shared secret</i>	Configures a preshared key to authenticate communication between the RADIUS client and server.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines You need to configure the RADIUS preshared key to authenticate the switch to the RADIUS server. The length of the key is restricted to 65 characters and can include any printable ASCII characters (white spaces are not allowed). You can configure a global key to be used for all RADIUS server configurations on the switch. You can override this global key assignment by explicitly using the **key** option in the **radius-server host** command.

Examples The following examples provide various scenarios to configure RADIUS authentication.

```
switch# config t
switch(config)# radius key AnyWord
switch(config)# radius key 0 AnyWord
switch(config)# radius key 7 public
```

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radius-server retransmit

To specify the number of times that RADIUS servers should try to authenticate a user, use the **radius-server retransmit** command.

radius-server retransmit *count*

Syntax Description	retransmit	RADIUS server retransmit count.
	<i>count</i>	Configures the number of times (3) the switch tries to connect to a RADIUS server(s) before reverting to local authentication.

Defaults	None.
-----------------	-------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	By default, a switch retries a RADIUS server connection only once. This number can be configured. The maximum is five retries per server. You can revert the retry number to its default by issuing the no radius-server retransmit command.
-------------------------	---

Examples	The following examples provide various scenarios to configure RADIUS authentication.
-----------------	--

```
switch# config t
switch(config)# radius-server retransmit 3
```

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radius-server timeout

To specify the time between retransmissions to the RADIUS servers, use the **radius-server timeout** command. You can revert the retransmission time to its default by issuing the **no** form of this command.

radius-server timeout *seconds*

no radius-server timeout *seconds*

Syntax Description	timeout	RADIUS server timeout period in seconds.
	<i>seconds</i>	Specifies the time (in seconds) between retransmissions to the RADIUS server. The default is one (1) second and the valid range is 1 to 60 seconds.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following examples provide various scenarios to configure RADIUS authentication.

```
switch# config t
```

```
switch(config)# radius-server timeout 30
```

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reload

To reload the entire switch, an active supervisor module, a standby supervisor module, or a specific module, or to force a netboot on a given module, use the **reload** command in EXEC mode.

reload [*module module-number force-dnld*]

Syntax Description

module	Reloads a specific module or active/standby supervisor module.
<i>module-number</i>	Specifies a module, either 1 or 2.
force-dnld	Reloads, initiates netboot, and forces the download of the latest module firmware version to a specific module.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Use the **reload** command to reboot the system, or to reboot a specific module, or to force a netboot on a specific module. The **reload** command used by itself, powers down all the modules and reboots the supervisor modules.

The **reload module module-number** command is used if the given slot has a module or standby supervisor module. It then power-cycles that module. If the given slot has an active supervisor module, then it causes the currently active supervisor module to reboot and the standby supervisor module becomes active.

The **reload module module-number force-dnld** command is similar to the previous command. This command forces netboot to be performed. If the slot contains a module, then the module netboots with the latest firmware and updates its corresponding flash with this image.

Examples

The following example uses **reload** to reboot the system.

```
switch# reload
This command will reboot the system. (y/n)? y
```

The following example uses **reload** to initiate netboot on a specific module.

```
switch# reload module 8 force-dnld
```

The following example uses **reload** to reboot a specific module.

```
switch# reload module 8
reloading module 8 ...
```

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The following example uses **reload** to reboot an active supervisor module.

```
switch# reload module 5
```

```
This command will cause supervisor switchover. (y/n)? y
```

Related Commands

Command	Description
install	Installs a new software image.
copy system:running-config nvram:startup-config	Copies any file from a source to a destination.

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rmdir

To delete an existing directory from the Flash file system, use the **rmdir** command in EXEC mode.

rmdir {**bootflash:** | **slot0:** | **volatile:**} *directory*

Syntax Description	bootflash:	Source or destination location for internal bootflash memory.
	slot0:	Source or destination location for the CompactFlash memory or PCMCIA card.
	volatile:	Source or destination location for volatile file system.
	<i>directory</i>	Name of the directory to remove.

Defaults This command has no default settings.

Command Modes EXEC

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines This command is only valid on Flash file systems.

The **rmdir** command deletes an existing directory at the current directory level or at a specified directory level. The directory must be empty to be deleted.

Examples The following example deletes the directory called test in the slot0 directory.

```
switch# rmdir slot0:test
```

The following example deletes the directory called test at the current directory level.

```
switch# rmdir test
```

If the current directory is slot0:mydir, this command deletes the slot0:mydir/test directory.

Related Commands	Command	Description
	dir	Displays a list of files on a file system.
	mkdir	Creates a new directory in the Flash file system.

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role name

To configure and assign users to a new role or to modify the profile for an existing role, use the **role name** command in configuration mode. Use the no form of this command to delete a configured role.

role name *name* [**description** *user description*] [**rule** *number* **permit** **clear** **feature** *name* | **permit** **config** **feature** *name* | **permit** **debug** **feature** *name* | **permit** **show** **feature** *name*] [**rule** *number* **deny** **clear** **feature** *name* | **deny** **config** **feature** *name* | **deny** **debug** **feature** *name* | **deny** **exec** **feature** *name* | **deny** **show** **feature** *name*]

no role name *name* [**description** *user description*] [**rule** *number* **permit** **clear** **feature** *name* | **permit** **config** **feature** *name* | **permit** **debug** **feature** *name* | **permit** **show** **feature** *name*] [**rule** *number* **deny** **clear** **feature** *name* | **deny** **config** **feature** *name* | **deny** **debug** **feature** *name* | **deny** **exec** **feature** *name* | **deny** **show** **feature** *name*]

Syntax Description

role name	Configures RADIUS server.
name	Adds RADIUS server. The maximum size is 32.
description	Add a description for the role. The maximum size is 80.
user description	Add description of users to the role.
exit	Exit from this submode
no	Negate a command or set its defaults
rule	Enter the rule number 1-16.
number	Enter the rule number 1-16.
permit	Remove commands from the role.
deny	Add commands to the role
clear	Clear commands
config	Configuration commands
debug	Debug commands
show	Show commands
feature	Enter the feature name
exec	Exec commands
name	Enter the feature name (Max Size - 32)

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Roles are assigned rules. Roles are a group of rules defining a user's access to certain commands. Users are

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assigned roles. The rules within roles can be assigned to permit or deny access to the following commands:

clear Clear commands
config Configuration commands
debug Debug commandss
exec EXEC commands
show Show commands

These commands can have **permit** or **deny** options within that command line.

Examples

The following example shows how to assign users to a new role.

```
switch# config t
switch(config)# role name techdocs
switch(config-role)#
switch(config)# no role name techdocs
switch(config)#
switch(config-role)# description Entire Tech. Docs. group
switch(config-role)# no description
switch# config t
switch(config)# role name sangroup
switch(config-role)#
switch(config-role)# rule 1 permit config
switch(config-role)# rule 2 deny config feature fspf
switch(config-role)# rule 3 permit debug feature zone
switch(config-role)# rule 4 permit exec feature fcping
switch(config-role)# no rule 4
```

Role: network-operator

Description: Predefined Network Operator group. This role cannot be modified

Access to Show commands and selected Exec commands

Related Commands

Command	Description
show role	Displays all roles configured on the switch including the rules based on each role.

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rscn

To configure a registered state change notification (RSCN), a Fibre Channel service that informs Nx ports about changes in the fabric, use the **rscn** command in configuration mode.

rscn {multi-pid *value* | supress interface fc *slot-number* }

Syntax Description	multi-pid	Sends RSCNs in multi-PID format.
	vsan	Configures VSAN information or membership.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
	fc	Fiber Channel interface. Slot number range is from 1 to 9.
	<i>slot-number</i>	Specifies a slot number and port number.

Defaults	None.
-----------------	-------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example configures RSCNs in multi-PID format.
-----------------	---

```
switch# config t
excal-113(config)# rscn multi-pid vsan 1
```

Related Commands	Command	Description
	show rscn internal	Displays RSCN internal information.
	show rscn src-table	Displays state change registration table,
	show rscn statistics	Displays RSCN statistics.

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run-script

To execute the commands specified in a file, use the **run script** command.

run-script {bootflash: | slot0: | volatile:} *filename*

Syntax Description	bootflash:	Source or destination location for internal bootflash memory.
	slot0:	Source or destination location for the CompactFlash memory or PCMCIA card.
	volatile:	Source or destination location for volatile file system.
	<i>filename</i>	Name of the file containing the commands.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines To use this command, be sure to create the file and specify commands in the required order.

Examples The following example executes the CLI commands specified in the testfile that resides in the slot0 directory.

```
switch# show file slot0:testfile
conf t
interface fc 1/1
no shutdown
end
sh interface fc1/1
```

In response to the **run-script** command, this is the file output:

```
switch# run-script slot0:testfile
'conf t'
Enter configuration commands, one per line. End with CNTL/Z.

'interface fc 1/1'

'no shutdown'

'end'

'sh interface fc1/1'
fc1/1 is down (Fcot not present)
  Hardware is Fibre Channel
  Port WWN is 20:01:00:05:30:00:48:9e
  Admin port mode is auto, trunk mode is on
```

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```
vsan is 1
Beacon is turned off
Counter Values (current):
  0 frames input, 0 bytes, 0 discards
  0 runts, 0 jabber, 0 too long, 0 too short
  0 input errors, 0 CRC, 0 invalid transmission words
  0 address id, 0 delimiter
  0 EOF abort, 0 fragmented, 0 unknown class
  0 frames output, 0 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
Counter Values (5 minute averages):
  0 frames input, 0 bytes, 0 discards
  0 runts, 0 jabber, 0 too long, 0 too short
  0 input errors, 0 CRC, 0 invalid transmission words
  0 address id, 0 delimiter
  0 EOF abort, 0 fragmented, 0 unknown class
  0 frames output, 0 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```



S Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [send](#), page 15-2
- [setup](#), page 15-3
- [sleep](#), page 15-4
- [snmp-server](#), page 15-5
- [snmp-server host](#), page 15-7
- [span session](#), page 15-8
- [ssh key](#), page 15-10
- [ssh server enable](#), page 15-11
- [switchname](#), page 15-12
- [system auto-sync](#), page 15-13
- [system cores](#), page 15-14
- [system default switchport](#), page 15-15
- [system hap-reset](#), page 15-16
- [system heartbeat](#), page 15-17
- [system memlog](#), page 15-18
- [system statistics reset](#), page 15-19
- [system switchover](#), page 15-20
- [system trace](#), page 15-21
- [system upgrade-reset](#), page 15-22
- [system watchdog](#), page 15-23

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send

To send a message to all active CLI users currently using the switch, use the **send** command in EXEC mode.

send *message-text*

Syntax Description

<i>message-text</i>	The text of your message.
---------------------	---------------------------

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

This message is restricted to 80 alphanumeric characters with spaces.

Examples

The following example sends a warning message to all active users about the switch being shut down.

```
switch# send Shutting down the system in 2 minutes. Please log off.
```

```
Broadcast Message from admin@excal-112
(/dev/pts/3) at 16:50 ...
```

```
Shutting down the system in 2 minutes. Please log off.
```

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setup

To enter the switch setup mode, use the **setup** command in EXEC mode.

setup

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	Refer to the <i>Cisco MDS 9000 Family Configuration Guide</i> for more information on using the setup command. The setup utility guides you through the basic configuration process. Type Ctrl-c at any prompt to skip the remaining configuration options and proceed with what is configured until that point. If you do not wish to answer a previously-configured question, or if you wish to skip answers to any questions press Enter. If a default answer is not available (for example switch name), the switch uses what is previously configured and skips to the next question.
-------------------------	--

Examples	The following example shows how to enter switch setup mode.
-----------------	---

```
switch# setup
---- Basic System Configuration Dialog ----

This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

*Note: setup always assumes a predefined defaults irrespective
of the current system configuration when invoked from CLI.

Press Enter incase you want to skip any dialog. Use ctrl-c at anytime
to skip away remaining dialogs.

Would you like to enter the basic configuration dialog (yes/no): yes
```

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sleep

To delay an action by a specified number of seconds, use the **sleep** command.

sleep *<seconds>*

Syntax Description	<i><seconds></i> The number of seconds to delay an action.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	This command is useful within scripts. For example, if you create a script called test-script: <pre>switch# show file slot0:test-script discover scsi-target remote sleep 10 show scsi-target disk</pre> switch# run-script slot0:test-script When you execute the slot0:test-script, the switch software executes the discover scsi-target remote command, and then waits for 10 seconds before executing the show scsi-target disk command.
Examples	The following example shows how to delay the switch prompt return. <pre>switch# sleep 30</pre> You will see the switch prompt return after 30 seconds.

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snmp-server

To set the contact information, switch location, and switch name, use the **snmp-server** command in configuration mode. To remove the system contact information, use the **no** form of the command.

snmp-server [**community** *community string*] [**ro** | **rw**] [**contact** *name-string*] [**location** *location*]
[**user** *name group* **auth** **md5** *password* **priv** *password* | **sha** *password* **priv** *password*]

no snmp-server [**community** *snmp community string*] [**ro** | **rw**] [**contact** *name-string*] [**location** *location*]
[**user** *name group* **auth** **md5** *password* **priv** *password* | **sha** *password* **priv** *password* | **localizedkey**]

Syntax Description

community	Sets community string and access privileges.
<i>community string</i>	Specifies SNMP community string. Maximum length is 32 characters.
ro	Sets read-only access with this community string.
rw	Sets read-write access with this community string.
contact	Modifies system contact.
<i>name-string</i>	Specifies the name of the contact.
location	Modifies sysLocation.
<i>location</i>	Specifies and modifies system location.
user	Sets a user who can access the SNMP engine.
<i>group</i>	Specifies group to which the user belongs. Maximum length is 32 characters.
auth	Sets authentication parameters for the user.
md5	Sets HMAC MD5 algorithm for authentication.
<i>password</i>	Specifies user password. Maximum length is 64 characters.
priv	Sets encryption parameters for the user.
sha	Uses HMAC SHA algorithm for authentication.
localizedkey	Sets passwords in localized key format.

Defaults

The default is read-only (ro).

Command Modes

Configuration mode

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

The localized keys are not portable across devices as they contain information on the engine ID of the device. If a configuration file is copied into the device, the passwords may not be set correctly if the configuration file was generated at a different device. We recommend that passwords be explicitly configured to the desired passwords after copying the configuration into the device.

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Examples

The following example sets the contact information, switch location, and switch name.

```
switch# config t
switch(config)# snmp-server contact NewUser
switch(config)#
switch(config)# no snmp-server contact NewUser
switch(config)#
switch(config)# snmp-server location SanJose
switch(config)#
switch(config)# no snmp-server location SanJose
switch(config)#
switch(config)# snmp-server name NewName
switch(config)#
switch(config)# no snmp-server name NewName
switch(config)#
switch(config)# snmp-server user joe network-admin auth sha abcd1234
switch(config)#
switch(config)# snmp-server user sam network-admin auth md5 abcdefgh
switch(config)#
switchl12(config)# snmp-server user Bill network-admin auth sha abcd1234 priv abcdefgh
switchl12(config)#
switchl12(config)# no snmp-server user usernameA
switchl12(config)# snmp-server user user1 network-admin auth md5 0xab0211gh priv
0x45abf342 localizedkey
```

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snmp-server host

To specify the recipient of an Simple Network Management Protocol notification operation, use the **snmp-server host** global configuration command. To remove the specified host, use the no form of this command.

snmp-server host *host-address* [**traps** | **informs**] [**version** {**1** | **2c** | **3** [**auth** | **noauth** | **priv**]}] *community-string* [**udp-port** *port*] [**notification-type**]

no snmp-server host *host-address* [**traps** | **informs**]

Syntax Description

<i>host-address</i>	Specifies the name or IP address of the host (the targeted recipient).
traps	Sends SNMP traps to this host.
informs	Sends SNMP informs to this host.
version	Specifies the version of the Simple Network Management Protocol (SNMP) used to send the traps. Version 3 is the most secure model, as it allows packet encryption with the priv keyword.
1	SNMPv1 (default). This option is not available with informs.
2c	SNMPv2C.
3	SNMPv3 has three optional keywords (auth , no auth (default), or priv).
auth	Enables Message Digest 5 (MD5) and Secure Hash Algorithm (SHA) packet authentication
noauth	Specifies the noAuthNoPriv security level.
priv	Enables Data Encryption Standard (DES) packet encryption (privacy).
<i>community-string</i>	Sends a password-like community string with the notification operation.
udp-port	Specifies the port UDP port of the host to use. The default is 162.

Defaults

Sends SNMP traps.

Command Modes

Configuration mode

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines

If you use the version keyword, one of the following must be specified: 1, 2c, or 3.

Though you can set the **community-string** using the **snmp-server host** command by itself, we recommend you define this string using the snmp-server community command prior to using the **snmp-server host** command.

Examples

The following example specify the recipient of an SNMP notification.

```
switch# config t
switch(config)# snmp-server host 10.1.1.1 traps version 2c abcdsfsf udp-port 500
```

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span session

To configure a SPAN session, use the **span session** command. To remove a configured SPAN feature or revert it to factory defaults, use the **no** form of the command.

span session *session-id* { **destination interface fc** *slot-number* | **source** [**filter** | **rx** | **tx**] **vsan** *vsan-id* | **interface fc** *slot-number* | **port-channel** *port-channel-number* | **sup-fc** *inband-interface-number* | } **suspend** }

no span session *session-id* { **destination interface fc** *slot-number* | **source** [**filter** | **rx** | **tx**] **vsan** *vsan-id* | **interface fc** *slot-number* | **port-channel** *port-channel-number* | **sup-fc** *inband-interface-number* | } **suspend** }

Syntax Description

<i>session-id</i>	Enter SPAN session ID from 1 to 16.
destination	Specifies the SPAN destination.
interface	Specifies SPAN destination configuration.
fc	Configures the Fiber Channel interface.
<i>slot-number</i>	Specifies the slot number and port number.
source	Specifies the SPAN source.
filter	Specifies the SPAN session filter.
rx	Specifies SPAN traffic in ingress direction
tx	Specifies SPAN traffic in egress direction
vsan	SPAN source VSAN configuration.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
interface	SPAN source interface configuration.
port-channel	PortChannel interface.
<i>port-channel-number</i>	PortChannel number from 1 to 128.
sup-fc	Inband interface.
<i>inband interface number</i>	Inband interface number, which is 0.
suspend	SPAN suspend session.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

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Examples

The following example shows how to configure a SPAN session.

```
switch# config t
switch(config)# span session 1
switch(config-span)#
switch(config)# no span session 6
switch(config-span)# destination interface fc9/1
switch(config-span)# no destination interface fc1/5
switch(config-span)# source interface sup-fc0
switch(config-span)# source vsan1
switch(config-span)# source interface po1
switch(config-span)# no source interface po3
switch(config-span)# suspend
switch(config-span)# no suspend
switch(config-span)# exit
switch(config)# span session 1
switch(config-span)#
switch(config-span)# source interface fc9/1 tx filter vsan 1
switch(config-span)# source filter vsan 1-2
```

Related Commands

Command	Description
show span session	Displays all SPAN session information.

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ssh key

To generate a host key, use the **ssh key** command in configuration mode.

ssh key {*dsa number* | *rsa number* | **rsa1** *number*}

Syntax Description	dsa	Generates a DSA key.
	rsa	Generates an RSA key.
	rsa1	Generates an RSA1 key.
	<i>number</i>	Specifies a number of bits from 768 to 2048.

Defaults Disabled

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example shows how to generate a host key.

```
switch# config t
switch(config)# ssh key rsa1 1024
generating rsa1 key.....
generated rsa1 key
switch(config)#
switch(config)# ssh key dsa 1024
generating dsa key.....
generated dsa key
switch(config)#
switch(config)# ssh key rsa 1024
generating rsa key.....
generated rsa key
switch(config)#
switch(config)# no ssh key rsa 1024
cleared RSA keys
switch(config)#
```

Related Commands	Command	Description
	ssh server enable	Enables SSH server.

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ssh server enable

To enable the SSH server, use the **ssh server enable** command in configuration mode. To disable the SSH service, use the **no** form of the command.

ssh server enable

no ssh server enable

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Disabled
-----------------	----------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example enables the SSH server.
-----------------	---

```
switch# config t
switch(config)# ssh server enable
updated
switch(config)# no ssh server enable
updated
```

Related Commands	Command	Description
	ssh key	Generates an SSH key.

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switchname

To change the name of the switch, use the **switchname** command in configuration mode. To revert the switch name to the default name, use the **no** form of the command.

switchname *name*

no switchname *name*

Syntax Description	<i>name</i> Specifies a switch name				
Defaults	Disabled				
Command Modes	Configuration mode.				
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).				
Usage Guidelines	None.				
Examples	The following example changes the name of the switch to myswitch1. <pre>switch# config t switch(config)# switchname myswitch1 myswitch1(config)# myswitch1(config)# no switchname switch(config)#</pre>				
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>snmp-server</td><td>Sets the contact information, switch location, and switch name within the limit of 20 characters (without spaces).</td></tr> </table>	Command	Description	snmp-server	Sets the contact information, switch location, and switch name within the limit of 20 characters (without spaces).
Command	Description				
snmp-server	Sets the contact information, switch location, and switch name within the limit of 20 characters (without spaces).				

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system auto-sync

To synchronize the standby supervisor module software image with the bootflash image, use the **system auto-sync** command in configuration mode. To disable auto syncing of the image, use the **no** form of this command.

system auto-sync image

no system auto-sync image

Syntax Description	image System auto-sync image
Defaults	Disabled.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example shows how to synchronize the standby supervisor module software image with the bootflash image. <pre>switch# config t switch(config)# system auto-sync image switch(config)# no system auto-sync image Automatic synchronization of BOOT and KICKSTART is now disabled switch(config)#</pre>

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system cores

To copy the core and log files periodically, use the **system cores** command in configuration mode. To revert the switch to factory defaults, use the **no** form of this command.

system cores slot0 | tftp:

no system cores

Syntax Description	<table> <tr> <td>slot0</td><td>Selects destination file system.</td></tr> <tr> <td>tftp:</td><td>Selects destination file system.</td></tr> </table>	slot0	Selects destination file system.	tftp:	Selects destination file system.
slot0	Selects destination file system.				
tftp:	Selects destination file system.				
Defaults	None.				
Command Modes	Configuration mode.				
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).				
Usage Guidelines	Create any required directory before issuing this command. If the directory specified by this command does not exist, the switch software logs a syslog message each time a copy cores is attempted.				
Examples	The following example copies the core and log files. <pre>switch# config t switch(config)# system cores slot0:coreSample switch(config)# switch(config)# no system cores switch(config)#</pre>				
Related Commands	<table> <tr> <th>Command</th><th>Description</th></tr> <tr> <td>show system cores</td><td>Displays the currently configured scheme for copying cores.</td></tr> </table>	Command	Description	show system cores	Displays the currently configured scheme for copying cores.
Command	Description				
show system cores	Displays the currently configured scheme for copying cores.				

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system default switchport

To configure default values for various switchport attributes, use the **system default switchport** command in configuration mode.

system default switchport [shutdown] [trunk mode auto | off | on]

Syntax Description	shutdown	(Optional) Disables or enables switch ports by default.
	trunk	(Optional) Configures trunking parameters as a default.
	mode	(Optional) Configures trunking mode.
	auto	(Optional) Sets autosense trunking.
	off	(Optional) Disables trunking.
	on	(Optional) Enables trunking.

Defaults Enabled

Command Modes Configuration mode

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Attributes configured using this command are applied globally to all future switch port configurations, even if you do not individually specify them at that time.

Examples The following example configures default values for switchport attributes.

```
switch# config t
switch(config)# system default switchport shutdown
switch(config-if)#
switch(config)# no system default switchport shutdown
switch(config-if)#
switch(config)# system default switchport trunkmode auto
switch(config-if)#
```

Related Commands	Command	Description
	show system default switchport	Displays default values for switch port attributes.

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system hap-reset

To configure the HA reset policy, use the **system hap-reset** command in EXEC mode. Use the **no** form of this command to disable this feature.

system hap-reset

system no hap-reset

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

You can disable the HA policy supervisor reset feature (enabled by default) for debugging and troubleshooting purposes.

Examples

The following example enables the supervisor reset HA policy.

```
switch# system hap-reset
```

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system heartbeat

To enable system heartbeat checks, use the **system heartbeat** command in EXEC mode. Use the **no** form of this command to disable this feature.

system heartbeat

system no heartbeat

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Enabled
-----------------	---------

Command Modes	EXEC
----------------------	------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	You can disable the heartbeat checking feature (enabled by default) for debugging and troubleshooting purposes like attaching a GDB to a specified process.
-------------------------	---

Examples	The following example enables the system heartbeat checks. switch# system heartbeat
-----------------	---

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system memlog

To collect system memory statistics, use the **system memlog** command in EXEC mode.

system memlog

Syntax Description	This command has no arguments or keywords.
Defaults	Enabled
Command Modes	EXEC
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	Use this command for debugging and troubleshooting purposes.
Examples	The following example enables system memory logging. <pre>switch# system memlog</pre>

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system statistics reset

To reset the high availability statistics collected by the system, use the **system statistics reset** command in EXEC mode.

system statistics reset

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

You can disable the system statistics reset feature (enabled by default) for debugging and troubleshooting purposes.

Examples

The following example resets the HA statistics.

```
switch# system statistics reset
```

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system switchover

To specifically initiate a switchover from an active supervisor module to a standby supervisor module, use the **system switchover** command in configuration mode.

system switchover {ha | warm}

Syntax Description

ha	Enables high availability.
warm	Enables a warm switchover.

Defaults

system switchover ha

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Perform a switchover when the switch has two supervisor modules functioning in the switch. The **system switchover** command returns a `Failed to switchover: (supervisor has no standby)` message when the standby supervisor is not present in the switch.

Any switchover function is nonrevertive. Once a switchover has occurred and the failed processor has been replaced or successfully restarted, you cannot switch back to the original, active supervisor module (unless there is a subsequent failure or you issue the **system switchover** command).

Examples

The following example initiates a HA switchover from an active supervisor module to a standby supervisor module.

```
switch# config t
switch(config)# system switchover HA
```

Related Commands

Command	Description
show version compatibility	Determines version compatibility between switching modules.
show module	Displays the HA-standby state for the standby supervisor module.
show system redundancy status	Determines whether the system is ready to accept a switchover.

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system trace

To configure the system trace level, use the **system trace** command in configuration mode. Use the **no** form of this command to disable this feature.

system trace *bit-mask*

no system trace

Syntax Description	<i>bit-mask</i> Specifies the bit mask to change the trace level.
Defaults	None.
Command Modes	Configuration mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	This command is used for debugging purposes.
Examples	The following example shows how to configure the system trace level. <pre>switch# config t switch(config)# system trace bit-mask</pre>

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system upgrade-reset

To enable a supervisor module reset, use the **system upgrade-reset** command in EXEC mode. Use the no form of this command to disable this feature.

system upgrade-reset

system no upgrade-reset

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

This feature enables supervisor module resets when an upgrade has failed. If the upgrade fails for any reason, the software reboots the switch since the file system may be in an unstable state.

You can disable the upgrade-reset feature (enabled by default) for debugging and troubleshooting purposes.

Examples

The following example enables the supervisor reset HA policy.

```
switch# system upgrade-reset
```

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system watchdog

To enable watchdog checks, use the **system watchdog** command in EXEC mode. Use the no form of this command to disable this feature.

system watchdog

system no watchdog

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Enabled
-----------------	---------

Command Modes	EXEC
----------------------	------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	If a watchdog is not logged at every 8 seconds by the software, the supervisor module reboots the switch. You can disable the watchdog checking feature (enabled by default) for debugging and troubleshooting purposes like attaching a GDB or a kernel GDB (KGDB) to a specified process.
-------------------------	---

Examples	The following example enables the supervisor reset HA policy. <pre>switch# system watchdog</pre>
-----------------	--

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Show Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

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show accounting

To display configured accounting information, use the **show accounting** command.

show accounting {config | log | logsize}

Syntax Description	config	Shows RADIUS accounting configuration information.
	log	Shows accounting log.
	logsize	Shows local accounting log file size.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples To display configured accounting parameters.

```
switch# show accounting config
RADIUS accounting not enabled
local accounting enabled
```

To display configured log size.

```
switch# show accounting logsize
maximum local accounting log size:29000
```

To display the entire log file.

```
switch# show accounting log
2002:stop:snmp_1033151784_171.71.49.83:admin:
Fri Sep 27 18:36:24 2002:start:_1033151784:root
Fri Sep 27 18:36:28 2002:update:::fcc configuration requested
Fri Sep 27 18:36:33 2002:start:snmp_1033151793_171.71.49.83:admin:
Fri Sep 27 18:36:33 2002:stop:snmp_1033151793_171.71.49.83:admin:
Fri Sep 27 18:39:28 2002:start:snmp_1033151968_171.71.49.96:admin:
Fri Sep 27 18:39:28 2002:stop:snmp_1033151968_171.71.49.96:admin:
Fri Sep 27 18:39:28 2002:start:_1033151968:root
Fri Sep 27 18:39:31 2002:update:::fcc configuration requested
Fri Sep 27 18:39:37 2002:start:snmp_1033151977_171.71.49.96:admin:
Fri Sep 27 18:39:37 2002:stop:snmp_1033151977_171.71.49.96:admin:
Fri Sep 27 18:39:37 2002:start:snmp_1033151977_171.71.49.96:admin:
Fri Sep 27 18:42:12 2002:start:snmp_1033152132_171.71.49.96:admin:
Fri Sep 27 18:42:12 2002:stop:snmp_1033152132_171.71.49.96:admin:
Fri Sep 27 18:42:12 2002:start:snmp_1033152132_171.71.49.96:admin:
Fri Sep 27 18:42:40 2002:start:snmp_1033152160_171.71.49.96:admin
```

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show arp

To view Address Resolution Protocol (ARP) entries, use the **show arp** command.

show arp

Syntax Description This command has no arguments or keywords.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples This displays the ARP table.

```
switch# show arp
Protocol Address          Age (min)  Hardware Addr  Type   Interface
Internet  171.1.1.1                0           0006.5bec.699c  ARPA   mgmt0
Internet  172.2.0.1                4           0000.0c07.ac01  ARPA   mgmt0
```

Related Commands	Command	Description
	clear arp-cache	Clears the arp-cache table entries.

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show authentication

To display the configured authentication methods, use the **show authentication** command.

show authentication

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays authentication information. <pre>switch# show authentication authentication method:none console:not enabled telnet/ssh:not enabled authentication method:radius console:not enabled telnet/ssh:not enabled authentication method:local console:enabled telnet/ssh:enabled</pre>

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show boot

To display the boot variables, use the **show boot** command.

show boot [**sup-1** | **sup-2**]

Syntax Description	show boot	Displays the boot variables in any Cisco MDS 9000 Family switch.
	sup-1	Displays the boot variables for the active supervisor module in any Cisco MDS 9500 Series switch.
	sup-2	Displays the boot variables for the standby supervisor module in any Cisco MDS 9500 Series switch.
Defaults	None.	
Command Modes	EXEC mode.	
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2) and modified in Release 1.0(3).	
Usage Guidelines	None.	
Examples	To display the current contents of the boot variable, enter the following command at the switch prompt: <pre>switch# show boot sup-1 KICKSTART variable = bootflash:/kickstart-image SYSTEM variable = bootflash:/system-image; sup-2 KICKSTART variable = bootflash:/kickstart-image SYSTEM variable = bootflash:/system-image;</pre>	

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show callhome

To display related Call Home information configured on a switch, use the **show callhome** command.

show callhome [*destination-profile profile*] [*transport-email*]

Syntax Description	destination-profile <i>profile</i>	Shows callhome destination profile information for the specified profile.
	transport-email	Shows callhome email transport information.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
-----------------	---

Usage Guidelines	None.
------------------	-------

Examples	The following example displays configured callhome information.
----------	---

```
switch# show callhome
callhome enabled
Callhome Information:
contact person name:who@where
contact person's email:person@place.com
contact person's phone number:310-408-4000
street addr:1234 Picaboo Street, Any city, Any state, 12345
site id:Site1ManhattanNewYork
customer id:Customer1234
contract id:Andiamo1234
switch priority:0
```

The following example displays destination profile information.

```
switch# show callhome destination-profile
XML destination profile information
maximum message size:250000
email addresses configured:
findout@.cisco.com
```

```
Short-txt destination profile information
maximum message size:4000
email addresses configured:
person1@epage.company.com
```

```
full-txt destination profile information
maximum message size:250000
email addresses configured:
person2@company2.com
```

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The following example displays the full-text profile.

```
switch# show callhome destination-profile profile full-txt-destination
full-txt destination profile information
maximum message size:250000
email addresses configured:
person2@company2.com
```

The following example displays the short-text profile.

```
switch# show callhome destination-profile profile short-txt-destination
Short-txt destination profile information
maximum message size:4000
email addresses configured:
person2@company2.com
```

The following example displays the XML destination profile.

```
switch# show callhome destination-profile profile XML-destination
XML destination profile information
maximum message size:250000
email addresses configured:
findout@cisco.com
```

The following example displays e-mail and SMTP information.

```
switch# show callhome transport-email
from email addr:user@company1.com
reply to email addr:pointer@company.com
return receipt email addr:user@company1.com
smtp server:server.company.com
smtp server port:25
```

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show clock

To show the system date and time and verify the time zone configuration., use the **show clock** command.

show clock

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	<pre>switch# show clock Fri Mar 14 01:31:48 UTC 2003</pre>

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show cores

To shows all the cores presently available for upload from active sup, use the **show cores** command.

show cores

Syntax Description This command has no arguments or keywords.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples In the following example, an FSPF core was generated on the active supervisor (slot 5), an FCC core on the standby supervisor (slot 6) and acltcam and fib on module (slot 8).

```
switch# show cores
```

Module-num	Process-name	PID	Core-create-time
-----	-----	---	-----
5	fspf	1524	Jan 9 03:11
6	fcc	919	Jan 9 03:09
8	acltcam	285	Jan 9 03:09
8	fib	283	Jan 9 03:08

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show environment

To display all environment-related switch information (status of chassis clock, chassis fan modules, power supply modules, power supply redundancy mode and power usage summary, module temperature thresholds and alarm status, use the **show environment** command.

show environment [clock | fan | power | temperature]

Syntax Description	clock	Display status of chassis clock modules
	fan	Display status of chassis fan modules
	power	Display status of power supply modules, power supply redundancy mode and power usage summary.
	temperature	Display module temperature thresholds and alarm status of temperature sensors.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays the status and alarm states of the clock, fan, power supply and temperature sensors.

```
switch# show environment
switch-180# show env
Clock:
-----
Clock          Model          Hw          Status
-----
A              DS-C9500-CL    0.0         ok/active
B              DS-C9500-CL    0.0         ok/standby

Fan:
-----
Fan            Model          Hw          Status
-----
Chassis        WS-9SLOT-FAN    0.0         ok
PS-1           --             --          ok
PS-2           --             --          ok

Temperature:
```

■ show environment

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Module	Sensor	MajorThresh (Celsius)	MinorThres (Celsius)	CurTemp (Celsius)	Status
1	Outlet	75	60	38	ok
1	Intake	65	50	35	ok
5	Outlet	75	60	36	ok
5	Intake	65	50	36	ok
6	Outlet	75	60	40	ok
6	Intake	65	50	33	ok
9	Outlet	75	60	28	ok
9	Intake	65	50	40	ok

Power Supply:

PS	Model	Power (Watts)	Power (Amp @42V)	Status
1	DS-CAC-2500W	1153.32	27.46	ok
2	WS-CAC-2500W	1153.32	27.46	ok

Mod	Model	Power Requested (Watts)	Power Requested (Amp @42V)	Power Allocated (Watts)	Power Allocated (Amp @42V)	Status
1	DS-X9016	220.08	5.24	220.08	5.24	powered-up
5	DS-X9530-SF1-K9	220.08	5.24	220.08	5.24	powered-up
6	DS-X9530-SF1-K9	220.08	5.24	220.08	5.24	powered-up
9	DS-X9016	220.08	5.24	220.08	5.24	powered-up

Power Usage Summary:

Power Supply redundancy mode: non-redundant (combined)

Total Power Capacity 2306.64 W

Power reserved for Supervisor(s) [-] 440.16 W

Power reserved for Fan Module(s) [-] 210.00 W

Power currently used by Modules [-] 440.16 W

Total Power Available 1216.32 W

Related Commands

Command	Description
show hardware	Displays all hardware components on a system.

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show fc2

To display fc2 information, use the **show fc2** command.

show fc2 {bind | classf | exchange | exchresp | flogi | nport | plogi | plogi_pwwn | port | port brief | socket | sockexch | socknotify | socknport | vsan}

Syntax Description	
bind	Shows fc2 socket bindings.
classf	Shows fc2 classf sessions.
exchange	Shows fc2 active exchanges.
exchresp	Shows fc2 active responder exchanges.
flogi	Shows fc2 flogi table.
nport	Shows fc2 local Nports.
plogi	Shows fc2 plogi sessions.
plogi_pwwn	Shows fc2 plogi pwwn entries.
port brief	Shows fc2 physical port table.
socket	Shows fc2 active sockets.
sockexch	Shows fc2 active exchanges for each socket.
socknotify	Shows fc2 local nport plogi/logo notifications per each socket.
socknport	Shows fc2 local nports per each socket.
vsan	Shows fc2 vsan table.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples

```
switch# show fc2 socket
SOCKET  REFCNT  PROTOCOL  PID    RCVBUF  RMEM_USED  QLEN  NOTSK
b2a64b20      2        0        1421   65535      0        0      0
b2a647e0      3        0        1418   262142     0        0      0
b2a644a0      3        0        1417   65535      0        0      0
b2a64160      3        0        1417   262142     0        0      0
b294b180      3        0        1411   65535      0        0      0
b294ae40      3        0        1411   65535      0        0      0
b294a7c0      3        0        1410   65535      0        0      0
b294a480      2        7        1410   65535      0        0      0
b294a140      3        0        1409   262142     0        0      0
b278bb20      3        0        1409   262142     0        0      0
```

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```

b278b4a0      3      0      1407      65535      0      0      0
b278b160      3      0      1407      256000      0      0      0
b278ae20      3      0      1407      65535      0      0      0
b1435b00      3      0      1408      65535      0      0      0
b1434e00      3      0      1406      65535      0      0      0
b1434ac0      3      0      1406      131072      0      0      0
b1434780      3      0      1406      65535      0      0      0
b1434440      2      0      1405      131072      0      0      0
b1434100      3      0      1405      262142      0      0      b1434440
b22e2420      2      0      1372      65535      0      0      0
...
switch# show fc2 bind
      SOCKET RULE      SINDEXTS      VSAN      D_ID      MASK TYPE      SUBTYPE M_VALUES
b23ba0c0      16      6081000      1      0      0      00:00:00 00:00:00:00:00:00:00
b2a647e0      7      ffffffff      65535      fffffd      ffffff      22 03:01:00 14:15:16:00:00:00:00
b294b180      7      ffffffff      65535      fffffd      ffffff      1 02:01:00 61:62:00:00:00:00:00
b294ae40      7      ffffffff      65535      fffc00      ffff00      22 01:01:00 1b:00:00:00:00:00:00
b294a7c0      7      ffffffff      65535      fffffd      ffffff      1 01:01:00 10:00:00:00:00:00:00
...
switch# show fc2 nport
REF      VSAN      D_ID      MASK      FL      ST      IFINDEX      CF      TC      2-SO      IC      RC      RS      CS
EE 3-SO      IC      RC      RS      CS      EE
1      65535      fffffd      ffffff      3      0      ffffffff      c800      0128      8000      0000      0000      2112      0064      0
008 8000      0000      0000      2112      0064      0000
6      65535      fffc00      ffff00      18b      0      ffffffff      c800      0128      8000      0000      0000      2112      0064      0
008 8000      0000      0000      2112      0064      0000
2      65535      fffffa      ffffff      3      0      ffffffff      c800      0128      8000      0000      0000      2112      0064      0
008 8000      0000      0000      2112      0064      0000
1      65535      ffffc0      ffffff      3      0      ffffffff      c800      0128      8000      0000      0000      2112      0064      0
008 8000      0000      0000      2112      0064      0000
...
switch# show fc2 plogi
HIX ADDRESS      VSAN      S_ID      D_ID      IFINDEX      FL      STATE      CF      TC      2-SO      IC      RC
RS      CS      EE 3-SO      IC      RC      RS      CS      EE EECNT      TCCNT      2CNT      3CNT      REFCNT
2157 af364064      1      fffc6c      123400      ffffffff      0000      0      0000      0001      8000      0000      2000
0256 0001      0001      8000      0000      2000      0256      0001      0000      0      0      0      0      1
...
switch# show fc2 port
IX ST MODE EMUL      TXPKTS      TXDROP      TXERR      RXPKTS      RXDROP      R_A_TOV      E_D_TOV
F-SO      RC      RS      CS      EE 2-SO      RS 3-SO      RS
0      D      1      0      0      0      0      0      0      10000      2000
8000      0000      2112      0001      0001      8000      0256      8000      0256
1      D      1      0      0      0      0      0      0      10000      2000
8000      0000      2112      0001      0001      8000      0256      8000      0256
2      D      1      0      0      0      0      0      0      10000      2000
8000      0000      2112      0001      0001      8000      0256      8000      0256
3      D      1      0      0      0      0      0      0      10000      2000
8000      0000      2112      0001      0001      8000      0256      8000      0256
4      D      1      0      0      0      0      0      0      10000      2000
8000      0000      2112      0001      0001      8000      0256      8000      0256
...
switch# show fc2 socknotify
      SOCKET ADDRESS REF      VSAN      D_ID      MASK      FL      ST      IFINDEX
b2a64160 b27f01e4      6      65535      fffc00      ffff00      18b      0      ffffffff
b294a7c0 b27f01e4      6      65535      fffc00      ffff00      18b      0      ffffffff
af8a3a60 b27f01e4      6      65535      fffc00      ffff00      18b      0      ffffffff
...
switch# show fc2 socknport
      SOCKET ADDRESS REF      VSAN      D_ID      MASK      FL      ST      IFINDEX
b2a64160 b27f01e4      6      65535      fffc00      ffff00      18b      0      ffffffff
b294b180 b27f0294      1      65535      fffffd      ffffff      3      0      ffffffff
b294a7c0 b27f01e4      6      65535      fffc00      ffff00      18b      0      ffffffff

```

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```
b278ae20 b27f0134 2 65535 fffffa ffffff 3 0 ffffffff
b1434e00 b27f0134 2 65535 fffffa ffffff 3 0 ffffffff
b1434780 b27f0084 1 65535 fffffc ffffff 3 0 ffffffff
af8a3a60 b27f01e4 6 65535 fffc00 ffff00 18b 0 ffffffff
```

```
switch# show fc2 vsan
VSAN      X_ID  E_D_TOV  R_A_TOV  WWN
1          4      2000     10000    20:01:00:05:30:00:58:1f
2          1      2000     10000    20:02:00:05:30:00:58:1f
3          1      2000     10000    20:03:00:05:30:00:58:1f
4          1      2000     10000    20:04:00:05:30:00:58:1f
5          1      2000     10000    20:05:00:05:30:00:58:1f
6          1      2000     10000    20:06:00:05:30:00:58:1f
7          1      2000     10000    20:07:00:05:30:00:58:1f
8          1      2000     10000    20:08:00:05:30:00:58:1f
9          1      2000     10000    20:09:00:05:30:00:58:1f
10         1      2000     10000    20:0a:00:05:30:00:58:1f
11         1      2000     10000    20:0b:00:05:30:00:58:1f
12         1      2000     10000    20:0c:00:05:30:00:58:1f
13         1      2000     10000    20:0d:00:05:30:00:58:1f
14         1      2000     10000    20:0e:00:05:30:00:58:1f
15         1      2000     10000    20:0f:00:05:30:00:58:1f
16         1      2000     10000    20:10:00:05:30:00:58:1f
17         1      2000     10000    20:11:00:05:30:00:58:1f
18         1      2000     10000    20:12:00:05:30:00:58:1f
....
```

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show fcalias

Use the **show fcalias** command to display fcalias configuration.

show fcalias [*name string*] [*active*] [*vsan vsan-range*]

Syntax Description	name <i>string</i>	Shows members of a specified fcalias
	active	Shows aliases which are part of active zoneset
	vsan <i>vsan-range</i>	Shows aliases belonging to the specified VSAN range. The VSAN ID range is from 1 to 4093.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays fcalias configuration.

```
switch# show fcalias vsan 1
fcalias name Alias2 vsan 1

fcalias name Alias1 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
  pwwn 21:00:00:20:37:9c:48:e5
```

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show fcanalyzer

Use the **show fcanalyzer** command to display the list of hosts configured for a remote capture.

show fcanalyzer

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	The DEFAULT keyword shown with an ActiveClient entry specifies that the default port is used in attempting the connection to the client.
Examples	Displays Configured Hosts <pre>switch# show fcanalyzer PassiveClient = 10.21.0.3 PassiveClient = 10.21.0.3 ActiveClient = 10.21.0.3, DEFAULT</pre>

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show fcc

Use the **show fcc** commands to view FCC settings.

show fcc

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	Displays Configured FCC Information <pre>switch# show fcc fcc is disabled fcc is applied to frames with priority up to 4</pre>

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show fcdomain

To show the fcdomain information, use the **show fcdomain** command.

show fcdomain {**address-allocation** [**cache**] | **domain-list** | **fcid persistent** | **statistics** | **interface** | **vsan** [**vsan-id** | **vsan-range**]}

Syntax Description	
address-allocation	Shows statistics for the fcid allocation
cache	The cache is used by the principle switch to reassign the FC IDs for a device (disk or host) that exited and reentered the fabric. In the cache content, VSAN refers to the VSAN that contains the device, WWN refers to the device that owned the FC IDs, and mask refers to a single or entire area of FC IDs.
domain-list	Shows list of domain ids granted by the principal sw
fcid persistent	Shows persistent FCIDs (across reboot)
statistics interface	Shows the statistics of fcdomain
vsan <i>vsan-id</i> <i>vsan-range</i>	The ID or range of the VSAN (from 1 to 4093).

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Issuing the **show fcdomain** with no arguments shows all VSANs. The VSANs should be active or you will get an error.

Examples

```
switch# show fcdomain vsan 1

The local switch is a Subordinated Switch.

Local switch run time information:
  State: Stable
  Local switch WWN:      20:01:00:05:30:00:51:1f
  Running fabric name:  10:00:00:60:69:22:32:91
  Running priority: 128
  Current domain ID: 0x64(100) B verify domain id

Local switch configuration information:
  State: Enabled
  Auto-reconfiguration: Disabled
  Contiguous-allocation: Disabled
  Configured fabric name: 41:6e:64:69:61:6d:6f:21
  Configured priority: 128
```

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Configured domain ID: 0x64(100) (preferred)

Principal switch run time information:

Running priority: 2

Interface	Role	RCF-reject
fc2/1	Downstream	Disabled
fc2/2	Downstream	Disabled
fc2/7	Upstream	Disabled

switch# **show fcdomain domain-list vsan 1**

Number of domains: 5

Domain ID	WWN
0x61(97)	10:00:00:60:69:50:0c:fe
0x62(98)	20:01:00:05:30:00:47:9f
0x63(99)	10:00:00:60:69:c0:0c:1d
0x64(100)	20:01:00:05:30:00:51:1f [Local]
0x65(101)	10:00:00:60:69:22:32:91 [Principal]

switch# **show fcdomain vsan 1**

The local switch is a Subordinated Switch.

Local switch run time information:

State: Stable

Local switch WWN: 20:01:00:05:30:00:47:9f

Running fabric name: 10:00:00:60:69:22:32:91

Running priority: 128

Current domain ID: 0x62(98) & verify domain

Local switch configuration information:

State: Enabled

Auto-reconfiguration: Disabled

Contiguous-allocation: Disabled

Configured fabric name: 41:6e:64:69:61:6d:6f:21

Configured priority: 128

Configured domain ID: 0x62(98) (preferred)

Principal switch run time information:

Running priority: 2

Interface	Role	RCF-reject
fc1/1	Upstream	Disabled
fc1/3	Non-principal	Disabled
fc1/6	Non-principal	Disabled

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show fcdroplateny

To view the configured latency parameters, use the **show fcdroplateny** command.

show fcdroplateny [network | switch]

Syntax Description	network	Network latency in milliseconds.
	switch	Switch latency in milliseconds.
Defaults	None.	
Command Modes	EXEC mode.	
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).	
Usage Guidelines	None.	
Examples	<pre>switch# show fcdroplateny switch latency value:4000 milliseconds network latency value:5000 milliseconds</pre>	

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show fcflow stats

To view the configured fcflow information, use the **show fcflow stats** command.

show fcflow stats

Syntax Description	aggregated	Shows aggregated fcflow statistics.
	module <i>module-number</i>	Shows fcflow statistics for a specified module. The module number is a number from 1-9.
	usage	Shows flow index usage

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays aggregated fcflow details for the specified module.

```
switch# show fcflow stats aggregated module 2
Idx  VSAN # frames # bytes
----  ---
0000 4      387,653  674,235,875
0001 6      34,402   2,896,628
```

The following example displays fcflow details for the specified module.

```
switch# show fcflow stats module 2
Idx  VSAN D ID          S ID          mask          # frames # bytes
----  ---
0000 4      032.001.002 007.081.012 ff.ff.ff      387,653  674,235,875
0001 6      004.002.001 019.002.004 ff.00.00      34,402   2,896,628
```

The following example displays fcflow index usage for the specified module.

```
switch# show fcflow stats usage module 2
2 flows configured
configured flow : 3,7
```

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show fcfwd

To view the configured fcfwd tables and statistics, use the **show fcfwd** command.

```
show fcfwd {idxmap [interface-toport | port-to-interface | statistics] | pemap [interface] |sfib
[multicast | statistics | unicast] | spanmap [rx | tx]}
```

Syntax Description	
idxmap	Shows FC fwd index tables.
interface-to-port	Shows interface index to port index table.
port-to-interface	Shows port index to interface index table.
statistics	Shows index table statistics.
pemap	Shows FC fwd PortChannel table.
interface	Shows PortChannel table for an interface.
sfib	Shows software forwarding tables.
multicast	Shows multicast software forwarding tables.
statistics	Shows software forwarding statistics.
unicast	Shows unicast software forwarding tables.
spanmap	Shows spanmap tables.
rx	Shows spanmap table in ingress -rx direction.
tx	Shows spanmap table in egress -tx direction.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples

```
switch# show fcfwd spanmap rx
SPAN source information: size [c8]
dir source                vsan    bit    drop_thresh destination

switch# show fcfwd idxmap statistics
idxmap statistics:
```

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show fctimer

To view the Fibre Channel timers, use the **show fctimer** command.

show fctimer [**D_S_TOV** | **E_D_TOV** | **F_S_TOV** | **R_A_TOV**]

Syntax Description	D_S_TOV	D_S_TOV in milliseconds
	E_D_TOV	E_D_TOV in milliseconds
	F_S_TOV	F_S_TOV in milliseconds
	R_A_TOV	R_A_TOV in milliseconds

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples

```
switch# show fctimer
F_S_TOV : 5000 milliseconds
D_S_TOV : 5000 milliseconds
E_D_TOV : 2000 milliseconds
R_A_TOV : 10000 milliseconds
```

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show fcns database

Use the **show fcns database** command to display the results of the discovery, or to display the name server database for a specified VSAN or for all VSANs.

show fcns database [**detail** [**vsan** *vsan-id*] | **domain** *domain-id* [**detail**] **vsan** *vsan-range* | *fcid* *fcid-id* | **local** [**detail**] *vsan* *vsan-range*] | *vsan* *vsan-id*}

Syntax Description

detail	Shows all objects in each entry.
vsan <i>vsan-id</i>	Shows entries for a specified VSAN or VSANs (from 1 to 4093.).
domain <i>domain-id</i>	Shows entries in a domain.
fcid <i>fcid-id</i>	Shows entry for the given port.
local	Shows local entries.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

The discovery can take several minutes to complete, especially if the fabric is large fabric or if several devices are slow to respond.

Examples

```
switch# show fcns database
VSAN 1:
```

FCID	TYPE	PWWN	(VENDOR)	FC4-TYPE:FEATURE
0x9c0000	N	21:00:00:e0:8b:08:96:22	(Company 1)	scsi-fcp:init
0x9c0100	N	10:00:00:05:30:00:59:1f	(Company 2)	ipfc
0x9c0200	N	21:00:00:e0:8b:07:91:36	(Company 3)	scsi-fcp:init
0x9c03d6	NL	21:00:00:20:37:46:78:97	(Company 4)	scsi-fcp:target
0x9c03d9	NL	21:00:00:20:37:5b:cf:b9	(Company 4)	scsi-fcp:target
0x9c03da	NL	21:00:00:20:37:18:6f:90	(Company 4)	scsi-fcp:target
0x9c03dc	NL	21:00:00:20:37:5a:5b:27	(Company 4)	scsi-fcp:target
0x9c03e0	NL	21:00:00:20:37:36:0b:4d	(Company 4)	scsi-fcp:target
0x9c03e1	NL	21:00:00:20:37:39:90:6a	(Company 4)	scsi-fcp:target
0x9c03e2	NL	21:00:00:20:37:18:d2:45	(Company 4)	scsi-fcp:target
0x9c03e4	NL	21:00:00:20:37:6b:d7:18	(Company 4)	scsi-fcp:target
0x9c03e8	NL	21:00:00:20:37:38:a7:c1	(Company 4)	scsi-fcp:target
0x9c03ef	NL	21:00:00:20:37:18:17:d2	(Company 4)	scsi-fcp:target

Total number of entries = 13

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show fcns statistics

Use the **show fcns statistics** command to display the statistical information for a specified VSAN or for all VSANs.

show fcns statistics [**detail**] **vsan** *vsan-range*

Syntax Description	detail	Shows detailed statistics.
	vsan <i>vsan-range</i>	Shows statistics for the specified VSAN or VSANs (from 1 to 4093).

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples

```
switch# show fcns statistics
registration requests received = 27
deregistration requests received = 0
queries received = 57
queries sent = 10
reject responses sent = 14
RSCNs received = 0
RSCNs sent = 0
switch#
```

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show fcroute

Use the **show fcroute** command to view specific information about existing Fibre Channel and FSPF configurations.

show fcroute [**distance** | **label** [*label*] **vsan** *vsan-id* | **multicast** **vsan** *vsan-id* | **summary** **vsan** *vsan-id* | **unicast** *fc-id* **vsan** *vsan-id* | **unicast** **vsan** *vsan-id*]

distance	Shows FC route preference.
label	Shows label routes.
multicast	Shows FC multicast routes.
summary	Shows FC routes summary.
unicast	Shows FC unicast routes.
vsan <i>vsan-id</i>	The ID of the VSAN (from 1 to 4093).
<i>fc-id-id</i>	The Fibre Channel ID.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

When the number of routes are displayed in the command output, both visible and hidden routes are included in the total number of routes.

Examples

The following example displays administrative distance.

```
switch# show fcroute distance

      Route
UUID   Distance      Name
----   -
10      20             RIB
22      40             FCDOMAIN
39      80             RIB-CONFIG
12     100             FSPF
17     120             FLOGI
21     140             TLPM
14     180             MCAST
64     200             RIB-TEST
```

The following example displays multicast routing information.

```
switch# show fcroute multicast
VSAN FC ID    # Interfaces
----
1      0xffffffff 0
2      0xffffffff 1
```

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```

3      0xffffffff 1
4      0xffffffff 0
5      0xffffffff 0
6      0xffffffff 0
7      0xffffffff 0
8      0xffffffff 0
9      0xffffffff 0
10     0xffffffff 0

```

The following example displays FCID information for a specified VSAN.

```
switch# show fcroute multicast vsan 3
```

```

VSAN FC ID      # Interfaces
----
3      0xffffffff 1

```

The following example displays FCID and interface information for a specified VSAN.

```
switch# show fcroute multicast 0xffffffff vsan 2
```

```

VSAN FC ID      # Interfaces
----
2      0xffffffff 1
      fc1/1

```

The following example displays unicast routing information.

```
switch# show fcroute unicast
```

D:direct R:remote P:permanent V:volatile A:active N:non-active

						# Next	
Protocol	VSAN	FC ID/Mask	RCtl/Mask	Flags	Hops	Cost	
static	1	0x010101 0xffffffff	0x00 0x00	D P A	1	10	
static	2	0x111211 0xffffffff	0x00 0x00	R P A	1	10	
fspf	2	0x730000 0xff0000	0x00 0x00	D P A	4	500	
fspf	3	0x610000 0xff0000	0x00 0x00	D P A	4	500	
static	4	0x040101 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040102 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040103 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040104 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x111211 0xffffffff	0x00 0x00	D P A	1	10	

The following example displays unicast routing information for a specified VSAN.

```
switch# show fcroute unicast vsan 4
```

D:direct R:remote P:permanent V:volatile A:active N:non-active

						# Next	
Protocol	VSAN	FC ID/Mask	RCtl/Mask	Flags	Hops	Cost	
static	4	0x040101 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040102 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040103 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x040104 0xffffffff	0x00 0x00	R P A	1	103	
static	4	0x111211 0xffffffff	0x00 0x00	D P A	1	10	

The following example displays unicast routing information for a specified FCID.

Send documentation comments to mdsfeedback-doc@cisco.com.

```
switch# show fcroute unicast 0x040101 0xffffffff vsan 4

D:direct R:remote P:permanent V:volatile A:active N:non-active
# Next
Protocol VSAN    FC ID/Mask      RCtrl/Mask  Flags Hops   Cost
-----
static   4      0x040101 0xffffffff  0x00 0x00 R P A 1      103
      fc1/2 Domain 0xa6(166)
```

The following example displays route database information.

```
switch# show fcroute summary

FC route database created Tue Oct 29 01:24:23 2002
VSAN    Ucast    Mcast    Label    Last Modified Time
-----
1        2         1         0        Tue Oct 29 18:07:02 2002
2        3         1         0        Tue Oct 29 18:33:24 2002
3        2         1         0        Tue Oct 29 18:10:07 2002
4        6         1         0        Tue Oct 29 18:31:16 2002
5        1         1         0        Tue Oct 29 01:34:39 2002
6        1         1         0        Tue Oct 29 01:34:39 2002
7        1         1         0        Tue Oct 29 01:34:39 2002
8        1         1         0        Tue Oct 29 01:34:39 2002
9        1         1         0        Tue Oct 29 01:34:39 2002
10       1         1         0        Tue Oct 29 01:34:39 2002
Total    19         10         0
```

The following example displays route database information for a specified VSAN.

```
switch# show fcroute summary vsan 4

FC route database created Tue Oct 29 01:24:23 2002
VSAN    Ucast    Mcast    Label    Last Modified Time
-----
4        6         1         0        Tue Oct 29 18:31:16 2002
Total    6         1         0
```

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show fcs

Use the **show fcs** commands to display the status of the fabric configuration.

```
show fcs {database vsan vsan-range | ie [nwwn wwn vsan vsan-range | vsan vsan-range] |
platform [name string vsan vsan-range | vsan vsan-range] | port [pwwn wwn vsan
vsan-range | vsan vsan-range] | statistics vsan vsan-range | vsan}
```

Syntax Description

database	Shows local database of FCS.
ie	Shows Interconnect Element Objects Information.
platform	Shows Platform Objects Information.
port	Shows Port Objects Information.
statistics	Shows statistics for FCS packets.
vsan	Shows list of all the VSANs and plat-check-mode for each.
<i>vsan-range</i>	Range of the required VSANs (from 1 to 4093)

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example displays FCS database information.

```
switch# show fcs database

FCS Local Database in VSAN: 1
-----
Switch WWN                : 20:01:00:05:30:00:16:df
Switch Domain Id          : 0x7f(127)
Switch Mgmt-Addresses      : snmp://172.22.92.58/eth-ip
                           : http://172.22.92.58/eth-ip
Fabric-Name                : 20:01:00:05:30:00:16:df
Switch Logical-Name        : 172.22.92.58
Switch Information List    : [Cisco Systems*DS-C9509*0*20:00:00:05:30:00
Switch Ports:
-----
Interface  pWWN                Type      Attached-pWWNs
-----
fc2/1      20:41:00:05:30:00:16:de  TE        20:01:00:05:30:00:20:de
fc2/2      20:42:00:05:30:00:16:de  Unknown   None
fc2/17     20:51:00:05:30:00:16:de  TE        20:0a:00:05:30:00:20:de

FCS Local Database in VSAN: 5
```

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```

-----
Switch WWN                : 20:05:00:05:30:00:12:5f
Switch Domain Id          : 0xef(239)
Switch Mgmt-Addresses     : http://172.22.90.171/eth-ip
                          : snmp://172.22.90.171/eth-ip
                          : http://10.10.15.10/vsan-ip
                          : snmp://10.10.15.10/vsan-ip
Fabric-Name               : 20:05:00:05:30:00:12:5f
Switch Logical-Name       : 172.22.90.171
Switch Information List    : [Cisco Systems*DS-C9509**20:00:00:05:30:00:12:5e]
Switch Ports:
-----
Interface  pWWN                Type      Attached-pWWNs
-----
fc3/1      20:81:00:05:30:00:12:5e  TE        22:01:00:05:30:00:12:9e
fc3/2      20:82:00:05:30:00:12:5e  TE        22:02:00:05:30:00:12:9e
fc3/3      20:83:00:05:30:00:12:5e  TE        22:03:00:05:30:00:12:9e

```

The following example displays Interconnect Element object information for a specific VSAN.

```

switch# show fcs ie vsan 1

IE List for VSAN: 1
-----
IE-WWN                IE-Type                Mgmt-Id
-----
20:01:00:05:30:00:16:df  Switch (Local)                0xffffc7f
20:01:00:05:30:00:20:df  Switch (Adjacent)            0xffffc64
[Total 2 IEs in Fabric]

```

This command displays Interconnect Element object information for a specific WWN.

```

switch# show fcs ie nwwn 20:01:00:05:30:00:16:df vsan 1
IE Attributes
-----
Domain-Id = 0x7f(127)
Management-Id = 0xffffc7f
Fabric-Name = 20:01:00:05:30:00:16:df
Logical-Name = 172.22.92.58
Management Address List =
    snmp://172.22.92.58/eth-ip
    http://172.22.92.58/eth-ip
Information List:
    Vendor-Name = Cisco Systems
    Model Name/Number = DS-C9509
    Release-Code = 0

```

This command displays platform information.

```

switch# show fcs platform name SamplePlatform vsan 1
Platform Attributes
-----
Platform Node Names:
    11:22:33:44:55:66:77:88
Platform Type = Gateway
Platform Management Addresses:
    1.1.1.1

```

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This command displays platform information within a specified VSAN.

```
switch# show fcs platform vsan 1
Platform List for VSAN: 1
Platform-Names
-----
SamplePlatform
[Total 1 Platforms in Fabric]
```

This command displays FCS port information within a specified VSAN.

```
switch# show fcs port vsan 24
Port List in VSAN: 24
-- IE WWN: 20:18:00:05:30:00:16:df --
-----
Port-WWN                Type      Module-Type      Tx-Type
-----
20:41:00:05:30:00:16:de  TE_Port   SFP with Serial Id  Shortwave Laser
20:51:00:05:30:00:16:de  TE_Port   SFP with Serial Id  Shortwave Laser

[Total 2 switch-ports in IE]
-- IE WWN: 20:18:00:05:30:00:20:df --
-----
Port-WWN                Type      Module-Type      Tx-Type
-----
20:01:00:05:30:00:20:de  TE_Port   SFP with Serial Id  Shortwave Laser
20:0a:00:05:30:00:20:de  TE_Port   SFP with Serial Id  Shortwave Laser

[Total 2 switch-ports in IE]
```

This command displays ports within a specified WWN.

```
switch# show fcs port pwn 20:51:00:05:30:00:16:de vsan 24
Port Attributes
-----
Port Type = TE_Port
Port Number = 0x1090000
Attached-Port-WWNs:
    20:0a:00:05:30:00:20:de
Port State = Online
```

This command displays FCS statistics.

```
switch# show fcs statistics

FCS Statistics for VSAN: 1
-----
FCS Rx Get Reqs    :2
FCS Tx Get Reqs    :7
FCS Rx Reg Reqs    :0
FCS Tx Reg Reqs    :0
FCS Rx Dereg Reqs  :0
FCS Tx Dereg Reqs  :0
```

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```
FCS Rx RSCNs      :0
FCS Tx RSCNs      :3
FCS Rx RJTs       :3
FCS Tx RJTs       :0
FCS Rx ACCs       :4
FCS Tx ACCs       :2
FCS No Response   :0
FCS Retransmit    :0
```

```
FCS Statistics for VSAN: 30
```

```
-----
FCS Rx Get Reqs   :2
FCS Tx Get Reqs   :2
FCS Rx Reg Reqs   :0
FCS Tx Reg Reqs   :0
FCS Rx Dereg Reqs :0
FCS Tx Dereg Reqs :0
FCS Rx RSCNs      :0
FCS Tx RSCNs      :0
FCS Rx RJTs       :0
FCS Tx RJTs       :0
FCS Rx ACCs       :2
FCS Tx ACCs       :2
FCS No Response   :0
FCS Retransmit    :0
```

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show file

To display the contents of a specified file in the file system, use the **show file** command.

show file *filename*

Syntax Description

<i>filename</i>	The name of the file for which you want to display contents.
-----------------	--

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example displays the contents of the test file that resides in the slot0 directory.

```
switch# show file slot0:test
config t
Int fc1/1
no shut
end
show int
```

The following example displays the contents of a file residing in the current directory.

```
switch# show file myfile
```

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show flash

To display the flash usage, use the **show flash** command.

show flash

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The show flash command displays the disk usage of various devices. <pre>switch# show flash</pre>

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show flogi database

To list all the flogi sessions through all interfaces across all vsans, use the **show flogi database** command.

show flogi database [**fcid** *fcid-id* | **interface** *interface* | **vsan** *vsan-id*]

Syntax Description	fcid	Optional - filters flogi based on the fcid allocated.
	interface	Optional - filters flogi based on the logged in interface.
	vsan	Optional - filters flogi based on the vsan.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Output of this command is first sorted on interface and then on vsans.

In a Fibre Channel fabric, each host or disk requires an FC ID. Use the **show flogi** command to verify if a storage device is displayed in the Fabric login (FLOGI) table as in the examples below. If the required device is displayed in the FLOGI table, the fabric login is successful. Examine the flogi database on a switch that is directly connected to the host HBA and connected ports.

Examples This command displays details on the FLOGI database.

```
switch# show flogi database
-----
INTERFACE  VSAN    FCID      PORT NAME      NODE NAME
-----
sup-fc0    2       0xb30100  10:00:00:05:30:00:49:63  20:00:00:05:30:00:49:5e
fc9/13     1       0xb200e2  21:00:00:04:cf:27:25:2c  20:00:00:04:cf:27:25:2c
fc9/13     1       0xb200e1  21:00:00:04:cf:4c:18:61  20:00:00:04:cf:4c:18:61
fc9/13     1       0xb200d1  21:00:00:04:cf:4c:18:64  20:00:00:04:cf:4c:18:64
fc9/13     1       0xb200ce  21:00:00:04:cf:4c:16:fb  20:00:00:04:cf:4c:16:fb
fc9/13     1       0xb200cd  21:00:00:04:cf:4c:18:f7  20:00:00:04:cf:4c:18:f7

Total number of flogi = 6.
```

This command displays the FLOGI interface.

```
switch# show flogi database interface fc1/11
-----
INTERFACE  VSAN    FCID      PORT NAME      NODE NAME
-----
fc9/13     1 0xa002ef 21:00:00:20:37:18:17:d2  20:00:00:20:37:18:17:d2
fc9/13     1 0xa002e8 21:00:00:20:37:38:a7:c1  20:00:00:20:37:38:a7:c1
```

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```
fc9/13      1 0xa002e4 21:00:00:20:37:6b:d7:18 20:00:00:20:37:6b:d7:18
fc9/13      1 0xa002e2 21:00:00:20:37:18:d2:45 20:00:00:20:37:18:d2:45
fc9/13      1 0xa002e1 21:00:00:20:37:39:90:6a 20:00:00:20:37:39:90:6a
fc9/13      1 0xa002e0 21:00:00:20:37:36:0b:4d 20:00:00:20:37:36:0b:4d
fc9/13      1 0xa002dc 21:00:00:20:37:5a:5b:27 20:00:00:20:37:5a:5b:27
fc9/13      1 0xa002da 21:00:00:20:37:18:6f:90 20:00:00:20:37:18:6f:90
fc9/13      1 0xa002d9 21:00:00:20:37:5b:cf:b9 20:00:00:20:37:5b:cf:b9
fc9/13      1 0xa002d6 21:00:00:20:37:46:78:97 20:00:00:20:37:46:78:97
```

Total number of flogi = 10.

This command displays the FLOGI VSAN.

```
switch# show flogi database vsan 1
```

INTERFACE	VSAN	FCID	PORT NAME	NODE NAME
fc9/13	1	0xef02ef	22:00:00:20:37:18:17:d2	20:00:00:20:37:18:17:d2
fc9/13	1	0xef02e8	22:00:00:20:37:38:a7:c1	20:00:00:20:37:38:a7:c1
fc9/13	1	0xef02e4	22:00:00:20:37:6b:d7:18	20:00:00:20:37:6b:d7:18
fc9/13	1	0xef02e2	22:00:00:20:37:18:d2:45	20:00:00:20:37:18:d2:45
fc9/13	1	0xef02e1	22:00:00:20:37:39:90:6a	20:00:00:20:37:39:90:6a
fc9/13	1	0xef02e0	22:00:00:20:37:36:0b:4d	20:00:00:20:37:36:0b:4d
fc9/13	1	0xef02dc	22:00:00:20:37:5a:5b:27	20:00:00:20:37:5a:5b:27
fc9/13	1	0xef02da	22:00:00:20:37:18:6f:90	20:00:00:20:37:18:6f:90
fc9/13	1	0xef02d9	22:00:00:20:37:5b:cf:b9	20:00:00:20:37:5b:cf:b9
fc9/13	1	0xef02d6	22:00:00:20:37:46:78:97	20:00:00:20:37:46:78:97

Total number of flogi = 10.

This command displays the FLOGI FCID.

```
switch# show flogi database fcid 0xef02e2
```

INTERFACE	VSAN	FCID	PORT NAME	NODE NAME
fc9/13	1	0xef02e2	22:00:00:20:37:18:d2:45	20:00:00:20:37:18:d2:45

Total number of flogi = 1.

Related Commands

Command	Description
show fcns database	Shows all the local and remote name server entries

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show fspf

To display global FSPF information, use the **show fspf** command. This information includes:

- the domain number of the switch
- the autonomous region for the switch
- Min_LS_arrival: the minimum time that must elapse before the switch accepts LSR updates
- Min_LS_interval: the minimum time that must elapse before the switch can transmit an LSR
- LS_refresh_time: the interval lapse between refresh LSR transmissions
- Max_age: the maximum time aa LSR can stay before being deleted

show fspf database [*vsan vsan-id*] [**domain** *domain-id*] [**detail**]

show fspf interface

show fspf [*vsan vsan-id*] [**interface** [*interface range*]]

Syntax Description	database	To display information of fspf database for a VSAN. If no other parameters are given all the LSRs in the database are displayed. If more specific information is required then the domain number of the owner of the LSR may be given. Detail gives more detailed information on each LSR.
	domain <i>domain-id</i>	The domain of the database. The parameter <i>domain_num</i> is unsigned integers in the range 0-255.
	interface <i>interface</i>	Display FSPF interface information for a given VSAN. If the interface number is specified information on the neighbor on that interface is displayed. If no interface is specified information on all interfaces are displayed. The parameter <i>interface_range</i> is of the format fcslot/port - fcslot/port
	vsan	Specifies the VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples

```
switch# show fspf vsan 1 interface fc 2/14
FSPF interface fc2/14 in VSAN 1
FSPF routing administrative state is active
```

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```
Interface cost is 500
Timer intervals configured, Hello 20 s, Dead 80 s, Retransmit 5 s
FSPF State is FULL
Neighbor Domain Id is 0x03(3), Neighbor Interface index is 0x0001060d

Statistics counters :
  Number of packets received :LSU 184 LSA 184 Hello 5477 Error packets 0
  Number of packets transmitted :LSU 184 LSA 184 Hello 5478 Retransmitted
LSU 0
  Number of times inactivity timer expired for the interface = 0
```

The following example displays FSPF interface information.

```
switch# show fspf interface vsan 1 fc1/1
FSPF interface fc1/1 in VSAN 1
FSPF routing administrative state is active
Interface cost is 500
Timer intervals configured, Hello 20 s, Dead 80 s, Retransmit 5 s
FSPF State is FULL
Neighbor Domain Id is 0x0c(12), Neighbor Interface index is 0x0f100000

Statistics counters :
  Number of packets received : LSU 8 LSA 8 Hello 118 Error packets 0
  Number of packets transmitted : LSU 8 LSA 8 Hello 119 Retransmitted LSU
0
  Number of times inactivity timer expired for the interface = 0
```

The following example displays FSPF database information.

```
switch# show fspf database vsan 1

FSPF Link State Database for VSAN 1 Domain 0x0c(12)
LSR Type = 1
Advertising domain ID = 0x0c(12)
LSR Age = 1686
LSR Incarnation number = 0x80000024
LSR Checksum = 0x3caf
Number of links = 2
  NbrDomainId      IfIndex    NbrIfIndex    Link Type      Cost
-----
  0x65(101) 0x0000100e    0x00001081          1          500
  0x65(101) 0x0000100f    0x00001080          1          500

FSPF Link State Database for VSAN 1 Domain 0x65(101)
LSR Type = 1
Advertising domain ID = 0x65(101)
LSR Age = 1685
LSR Incarnation number = 0x80000028
LSR Checksum = 0x8443
Number of links = 6
  NbrDomainId      IfIndex    NbrIfIndex    Link Type      Cost
-----
  0xc3(195) 0x00001085    0x00001095          1          500
  0xc3(195) 0x00001086    0x00001096          1          500
  0xc3(195) 0x00001087    0x00001097          1          500
  0xc3(195) 0x00001084    0x00001094          1          500
  0x0c(12) 0x00001081    0x0000100e          1          500
  0x0c(12) 0x00001080    0x0000100f          1          500

FSPF Link State Database for VSAN 1 Domain 0xc3(195)
LSR Type = 1
```

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```

Advertising domain ID   = 0xc3(195)
LSR Age                 = 1686
LSR Incarnation number  = 0x80000033
LSR Checksum            = 0x6799
Number of links         = 4
  NbrDomainId      IfIndex  NbrIfIndex  Link Type      Cost
-----
    0x65(101) 0x00001095    0x00001085        1        500
    0x65(101) 0x00001096    0x00001086        1        500
    0x65(101) 0x00001097    0x00001087        1        500
    0x65(101) 0x00001094    0x00001084        1        500

```

This command displays FSPF information for a specified VSAN.

```

switch# show fspf vsan 1
FSPF routing for VSAN 1
FSPF routing administration status is enabled
FSPF routing operational status is UP
It is an intra-domain router
Autonomous region is 0
SPF hold time is 0 msec
MinLsArrival = 1000 msec , MinLsInterval = 5000 msec
Local Domain is 0x65(101)
Number of LSRs = 3, Total Checksum = 0x0001288b

Protocol constants :
  LS_REFRESH_TIME = 1800 sec
  MAX_AGE         = 3600 sec

Statistics counters :
  Number of LSR that reached MaxAge = 0
  Number of SPF computations        = 7
  Number of Checksum Errors         = 0
  Number of Transmitted packets :   LSU 65 LSA 55 Hello 474 Retranmsitted LSU 0
  Number of received packets :     LSU 55 LSA 60 Hello 464 Error packets 10

```

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show hardware

Use the **show hardware** command to display switch hardware inventory details.

show hardware

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	<pre> switch# sho hardware Cisco Storage Area Networking Operating System (SAN-OS) Software TAC support:http://www.cisco.com/tac Copyright (c) 1986-2002 by cisco Systems, Inc. All rights reserved. The copyright for certain works contained herein are owned by Andiamo Systems, Inc. and/or other third parties and are used and distributed under license. Software BIOS: version 0.0.0 loader: version 1.0(0.259) kickstart: version 1.0(2) [build 1.0(0.280)] system: version 1.0(2) [build 1.0(0.280)] BIOS compile time: 10/10/02 kickstart image file is: bootflash:/boot-280 kickstart compile time: 11/20/2002 6:00:00 system image file is: isan-280 system compile time: 11/20/2002 6:00:00 Hardware RAM 963108 kB bootflash:503808 blocks (block size 512b) slot0: 0 blocks (block size 512b) 172.22.92.28 uptime is 0 days 0 hour 31 minute(s) 23 second(s) Last reset Reason: Watchdog Timeout/External Reset System version: 1.0(2) </pre>

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```
This supervisor carries Pentium processor with 963108 kB of memory
Intel(R) Pentium(R) III CPU at 800MHz with 512 KB L2 Cache
Rev:Family 6, Model 11 stepping 1
```

```
512K bytes of non-volatile memory.
503808 blocks of internal bootflash (block size 512b)
```

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show hosts

Use the **show hosts** command to display configured DNS host configuration details details.

show hosts

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays the configured hosts including the default domain, domain list, and name servers. <pre>switch# show hosts Default domain is cisco.com Domain list: ucsc.edu harvard.edu yale.edu stanford.edu Name/address lookup uses domain service Name servers are 15.1.0.1 15.2.0.0</pre>

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show in-order-gaurantee

Use the **show in-order-gaurantee** command to display the present configured state of the in-order delivery feature.

show in-order-gaurantee

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example displays the present configuration status of the in-order delivery feature. <pre>switch# show in-order-guarantee inorder delivery is not guaranteed</pre>
-----------------	---

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show interface

You can check the status of an interface at any time by using the **show interface** command.

show interface [**brief** | **counters** | **description** | **fc** | **mgmt** | **port-channel** | **sup-fc** | **transceiver** | **trunk** | **vsan** *vsan-id*] [**interface range**]

Syntax Description

<i>interface range</i>	Enters the selected range of physical interfaces.
brief	Shows brief info of interface.
counters	Shows counters of interface.
description	Shows description of interface.
fc	Fibre Channel interface.
mgmt	Management interface.
port-channel	Port Channel interface.
sup-fc	Inband interface
transceiver	Shows transceiver information for interface.
trunk	Shows trunking information for one or more VSANs
vsan <i>vsan-id</i>	Shows IPFC VSAN interface

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

```
switch# show interface fc1/1
fc1/1 is up
  Hardware is Fibre Channel, 20:01:ac:16:5e:4a:00:00
  vsan is 1
  Port mode is E
  Speed is 1 Gbps
  Beacon is turned off
  FCID is 0x0b0100
    0 frames input, 0 bytes, 0 discards
    0 runts, 0 jabber, 0 too long, 0 too short
    0 input errors, 0 CRC, 0 invalid transmission words
    0 address id, 0 delimiter
    0 EOF abort, 0 fragmented, 0 unknown class
    0 frames output, 0 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```

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```
switch# show int sup-fc0
sup-fc0 is up
  Hardware is FastEthernet, address is 0000.0000.0000
  MTU 2596 bytes, BW 1000000 Kbit
  66 packets input, 7316 bytes
  Received 0 multicast frames, 0 compressed
  0 input errors, 0 frame, 0 overrun 0 fifo
  64 packets output, 28068 bytes, 0 underruns
  0 output errors, 0 collisions, 0 fifo
  0 carrier errors
```

```
switch# show int vsan 2
vsan2 is up, line protocol is up
  WWPN is 10:00:00:05:30:00:59:1f, FCID is 0xb90100
  Internet address is 10.1.1.1/24
  MTU 1500 bytes, BW 1000000 Kbit
  0 packets input, 0 bytes, 0 errors, 0 multicast
  0 packets output, 0 bytes, 0 errors, 0 dropped
```

```
switch# show interface description
```

```
fc1/1
  no description
fc1/2
  no description
fc1/15
fcAn1
```

```
sup-fc0 is up
```

```
mgmt0 is up
```

```
vsan1 - IPFC interface
```

```
port-channel 15
no description
```

```
port-channel 98
no description
```

```
switch# show interface fc2/1 - 5 brief
show int brief
```

Interface	Vsan	Admin Mode	Admin Trunk Mode	Status	Oper Mode	Oper Speed (Gbps)	Port-channel
fc1/1	1	auto	on	down	--	--	--
fc1/2	1	auto	on	fcotAbsent	--	--	--
fc1/3	1	F	--	notConnected	--	--	--
fc1/4	1	auto	on	fcotAbsent	--	--	--
fc1/5	1	F	--	up	F	2	--
fc1/6	1	auto	on	fcotAbsent	--	--	--
fc1/7	1	auto	on	down	--	--	--
fc1/8	1	auto	on	fcotAbsent	--	--	--
fc1/9	1	auto	on	fcotAbsent	--	--	--
fc1/10	1	auto	on	fcotAbsent	--	--	--
fc1/11	1	auto	on	down	--	--	--
fc1/12	1	auto	on	fcotAbsent	--	--	--
fc1/13	1	auto	on	down	--	--	--
fc1/14	1	auto	on	fcotAbsent	--	--	--

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```
fc1/15      1      auto  on      down      --      --      --
fc1/16      1      auto  on      fcotAbsent --      --      --
```

```
-----
Interface      Status      IP Address      Speed      MTU
-----
sup-fc0         up          --              1 Gbps     2596
-----
```

```
Interface      Status      IP Address      Speed      MTU
-----
mgmt0          up          172.22.95.112/24 100 Mbps   1500
-----
```

```
Interface      Status      IP Address      Speed      MTU
-----
vsan1          up          10.1.1.1/24     1 Gbps     1500
-----
```

```
switch# show interface counters
```

```
fc1/2
  Class-2 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Class-3 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Class-F 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Total 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Errors 0 link failures, 0 sync losses
  0 signal losses, 0 primitive sequence protocol
  0 invalid CRCs, 0 invalid transmission words
  0 delimiter, 0 address identifier, 0 transmit wait
  0 runts, 0 jabber, 0 too long, 0 too short
  0 EOF abort, 0 fragmented, 0 unknown class
```

```
fc1/5
  Class-2 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Class-3 58 frames output, 25316 bytes
  59 frames input, 3444 bytes, 0 discards
  Class-F 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Total 58 frames output, 25316 bytes
  59 frames input, 3444 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 6 OLS, 3 LRR, 1 NOS, 0 loop inits
  Errors 0 link failures, 0 sync losses
  0 signal losses, 0 primitive sequence protocol
  0 invalid CRCs, 0 invalid transmission words
  0 delimiter, 0 address identifier, 0 transmit wait
  0 runts, 0 jabber, 0 too long, 0 too short
  0 EOF abort, 0 fragmented, 0 unknown class
```

```
fc1/15
  Class-2 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Class-3 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Class-F 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Total 0 frames output, 0 bytes
  0 frames input, 0 bytes, 0 discards
  Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
  Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```

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```

Errors 0 link failures, 0 sync losses
0 signal losses, 0 primitive sequence protocol
0 invalid CRCs, 0 invalid transmission words
0 delimiter, 0 address identifier, 0 transmit wait
0 runts, 0 jabber, 0 too long, 0 too short
0 EOF abort, 0 fragmented, 0 unknown class

fc1/16
Class-2 0 frames output, 0 bytes
0 frames input, 0 bytes, 0 discards
Class-3 0 frames output, 0 bytes
0 frames input, 0 bytes, 0 discards
Class-F 0 frames output, 0 bytes
0 frames input, 0 bytes, 0 discards
Total 0 frames output, 0 bytes
0 frames input, 0 bytes, 0 discards
Received 0 OLS, 0 LRR, 0 NOS, 0 loop inits
Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
Errors 0 link failures, 0 sync losses
0 signal losses, 0 primitive sequence protocol
0 invalid CRCs, 0 invalid transmission words
0 delimiter, 0 address identifier, 0 transmit wait
0 runts, 0 jabber, 0 too long, 0 too short
0 EOF abort, 0 fragmented, 0 unknown class

sup-fc0
66 packets input, 7316 bytes
Received 0 multicast frames, 0 compressed
0 input errors, 0 frame, 0 overrun 0 fifo
64 packets output, 28068 bytes, 0 underruns
0 output errors, 0 collisions, 0 fifo
0 carrier errors

mgmt0
630891 packets input, 190902354 bytes
Received 0 multicast frames, 0 compressed
0 input errors, 0 frame, 0 overrun 0 fifo
494455 packets output, 116219488 bytes, 0 underruns
0 output errors, 50 collisions, 0 fifo
5 carrier errors

switch# show interface transceiver
fc1/1 fcot is present but not supported
name is IBM
part number is IBM42P21SNY
revision is AA20
serial number is 53P148700109D
vendor specific data (bytes 96-127)
0x49 0x42 0x4D 0x20 0x53 0x46 0x50 0x53
0x20 0x41 0x52 0x45 0x20 0x43 0x4C 0x41
0x53 0x53 0x20 0x31 0x20 0x4C 0x41 0x53
0x45 0x52 0x20 0x53 0x41 0x46 0x45 0x20
fc1/2 fcot not present
fc1/3 fcot is present but not supported
name is Company
part number is Company42P21SNY
revision is AA20
serial number is 53P1487000ZXR
vendor specific data (bytes 96-127)
0x49 0x42 0x4D 0x20 0x53 0x46 0x50 0x53
0x20 0x41 0x52 0x45 0x20 0x43 0x4C 0x41
0x53 0x53 0x20 0x31 0x20 0x4C 0x41 0x53
0x45 0x52 0x20 0x53 0x41 0x46 0x45 0x20

```

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```
switch# show interface trunk vsan 1-1000
fc3/1 is not trunking
fc3/7 is trunking
Vsan 1000 is down (Isolation due to vsan not configured on peer)
fc3/10 is trunking
Vsan 1 is up, FCID is 0x760001
Vsan 2 is up, FCID is 0x6f0001
fc3/11 is trunking
Belongs to port-channel 6
Vsan 1 is up, FCID is 0xef0000
Vsan 2 is up, FCID is 0xef0000
port-channel 6 is trunking
Vsan 1 is up, FCID is 0xef0000
Vsan 2 is up, FCID is 0xef0000
```

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show ip route

To display the ip routes currently active, use the **show ip route** command.

show ip route

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	<pre>switch# show ip route Codes: C - connected, S - static Default gateway is 172.22.95.1 C 10.0.0.0/24 is directly connected, vsan1 C 172.22.95.0/24 is directly connected, mgmt0</pre>

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show ip routing

To display the ip routing state, use the **show ip routing** command.

show ip routing

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	<pre>switch# show ip routing ip routing is disabled</pre>

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show logging

Use the **show logging** command to display the current system message logging configuration.

```
show logging [console | level [auth | authpriv | callhome | cron | daemon | ftp | kernel | local/
llpr | mail | news | security | syslog | user | uucp | vsan] | info | last lines | logfile | module |
monitor | nvram | server servername ]
```

Syntax Description		
console		Shows console logging configuration.
info		Shows logging configuration.
last		Shows last few lines of logfile.
level		Shows last few lines of logfile.
logfile		Shows contents of logfile.
module		Shows module logging configuration.
monitor		Shows monitor logging configuration.
nvram		Shows NVRAM log.
server <i>servername</i>		Shows server logging configuration.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays current system message logging.

```
switch# show logging

Logging console:          enabled (Severity: notifications)
Logging monitor:         enabled (Severity: information)
Logging linecard:        enabled (Severity: debugging)
Logging server:          enabled
{172.22.0.0}
    server severity:      debugging
    server facility:      local7
{172.22.0.0}
    server severity:      debugging
    server facility:      local7
Logging logfile:         enabled
    Name - external/sampleLogFile: Severity - notifications Size - 3000000

syslog_get_levels :: Error(-1) querying severity values for fcmps at SAP 30
syslog_get_levels :: Error(-1) querying severity values for fcfwd at SAP 38
```

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Facility -----	Default Severity -----	Current Session Severity -----
kern	6	4
user	3	3
mail	3	3
daemon	7	7
auth	0	0
syslog	3	3
lpr	3	3
news	3	3
uucp	3	3
cron	3	3
authpriv	3	3
ftp	3	3
local0	3	3
local1	3	3
local2	3	3
local3	3	3
local4	3	3
local5	3	3
local6	3	3
local7	3	3
fspf	3	3
fcdomain	2	2
module	5	5
zone	2	2
vni	2	2
ipconf	2	2
ipfc	2	2
xbar	3	3
fcns	2	2
fcs	2	2
acl	2	2
tlport	2	2
port	5	5
port_channel	5	5
fcmpls	0	0
wnn	3	3
fcc	2	2
qos	3	3
vrrp_cfg	2	2
fcfwd	0	0
ntp	2	2
platform	5	5
vrrp_eng	2	2
callhome	2	2
mcast	2	2
rscn	2	2
securityd	2	2
vhbad	2	2
rib	2	2
vshd	5	5

0(emergencies)

1(alerts)

2(critical)

3(errors)

4(warnings)

5(notifications)

6(information)

7(debugging)

Nov 8 16:48:04 excal-113 %LOG_VSHD-5-VSHD_SYSLOG_CONFIG_I: Configuring console from pts/1 (171.71.58.56)

Nov 8 17:44:09 excal-113 %LOG_VSHD-5-VSHD_SYSLOG_CONFIG_I: Configuring console from pts/0 (171.71.58.72)

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The following example displays console logging status.

```
switch# show logging console
Logging console:                enabled (Severity: notifications)
```

The following example displays logging facility status.

```
switch# show logging facility
syslog_get_levels :: Error(-1) querying severity values for fcmps at SAP 30
syslog_get_levels :: Error(-1) querying severity values for fcfwd at SAP 38
Facility              Default Severity      Current Session Severity
-----
kern                   6                      4
user                   3                      3
mail                   3                      3
daemon                7                      7
auth                   0                      0
syslog                 3                      3
lpr                    3                      3
news                   3                      3
uucp                   3                      3
cron                   3                      3
authpriv               3                      3
ftp                    3                      3
local0                 3                      3
local1                 3                      3
local2                 3                      3
local3                 3                      3
local4                 3                      3
local5                 3                      3
local6                 3                      3
local7                 3                      3
fspf                   3                      3
fcdomain               2                      2
module                 5                      5
zone                   2                      2
vni                    2                      2
ipconf                 2                      2
ipfc                   2                      2
xbar                   3                      3
fcns                   2                      2
fcs                    2                      2
acl                    2                      2
tlport                2                      2
port                   5                      5
port_channel           5                      5
fcmps                  0                      0
wwn                    3                      3
fcc                    2                      2
qos                    3                      3
vrrp_cfg               2                      2
fcfwd                  0                      0
ntp                    2                      2
platform               5                      5
vrrp_eng               2                      2
callhome               2                      2
mcast                  2                      2
rscn                   2                      2
securityd              2                      2
vhbad                  2                      2
rib                    2                      2
vshd                   5                      5
```

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```

0(emergencies)          1(alerts)          2(critical)
3(errors)               4(warnings)       5(notifications)
6(information)         7(debugging)

```

The following example displays logging information.

```
switch# show logging info
```

```

Logging console:          enabled (Severity: notifications)
Logging monitor:         enabled (Severity: information)
Logging linecard:        enabled (Severity: debugging)
Logging server:          enabled
{172.22.95.167}
    server severity:      debugging
    server facility:      local7
{172.22.92.58}
    server severity:      debugging
    server facility:      local7
Logging logfile:         enabled
Name - external/sampleLogFile: Severity - notifications Size - 3000000

```

```

syslog_get_levels :: Error(-1) querying severity values for fcmpls at SAP 30
syslog_get_levels :: Error(-1) querying severity values for fcfwd at SAP 38

```

Facility	Default Severity	Current Session Severity
-----	-----	-----
kern	6	4
user	3	3
mail	3	3
daemon	7	7
auth	0	0
syslog	3	3
lpr	3	3
news	3	3
uucp	3	3
cron	3	3
authpriv	3	3
ftp	3	3
local0	3	3
local1	3	3
local2	3	3
local3	3	3
local4	3	3
local5	3	3
local6	3	3
local7	3	3
fspf	3	3
fcdomain	2	2
module	5	5
zone	2	2
vni	2	2
ipconf	2	2
ipfc	2	2
xbar	3	3
fcns	2	2
fcs	2	2
acl	2	2
tlport	2	2
port	5	5
port_channel	5	5
fcmpls	0	0
wnn	3	3
fcc	2	2

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qos	3	3
vrrp_cfg	2	2
fcfwd	0	0
ntp	2	2
platform	5	5
vrrp_eng	2	2
callhome	2	2
mcast	2	2
rscn	2	2
securityd	2	2
vhbad	2	2
rib	2	2
vshd	5	5
0 (emergencies)	1 (alerts)	2 (critical)
3 (errors)	4 (warnings)	5 (notifications)
6 (information)	7 (debugging)	

The following example displays last few lines of a log file.

```
switch# show logging last 2
Nov  8 16:48:04 excal-113 %LOG_VSHD-5-VSHD_SYSLOG_CONFIG_I: Configuring console
from pts/1 (171.71.58.56)
Nov  8 17:44:09 excal-113 %LOG_VSHD-5-VSHD_SYSLOG_CONFIG_I: Configuring console
from pts/0 (171.71.58.72)
```

The following example displays switching module logging status.

```
switch# show logging module
Logging linecard:                enabled (Severity: debugging)
```

The following example displays monitor logging status.

```
switch# show logging monitor
Logging monitor:                enabled (Severity: information)
```

The following example displays server information.

```
switch# show logging server
Logging server:                enabled
{172.22.95.167}
    server severity:           debugging
    server facility:           local7
{172.22.92.58}
    server severity:           debugging
    server facility:           local7
```

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show module

To verify the status of a module, use the **show module** command.

show module [**diag** | *slot*]

Syntax Description	diag	Shows module-related information.
	<i>slot</i>	Slot number for the required module (1 - 9 for the MDS 9500 Series switch and 1 - 2 for the MDS 9200 Series switch).

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	If your chassis has more than one switching module, you will see the progress check if you issue the show module command several times and view the status column each time.
	The switching module goes through a testing and an initializing stage before displaying an <code>ok</code> status.
	The following table describes the possible states in which a module can exist.

show module Output	Description
powered up	The hardware has electrical power. When the hardware is powered up, the software begins booting.
testing	The module has established connection with the supervisor and the switching module is performing bootup diagnostics.
initializing	The diagnostics have passed and the configuration is being downloaded.
failure	The switch detects a switching module failure on initialization and automatically attempts to power-cycle the module three (3) times. After the third attempt it continues to display a failed state.
ok	The switch is ready to be configured.
power-denied	The switch detects insufficient power for a switching module to power up. In this case, issue a show environment power command to determine power consumption issues.
active	This module is the active supervisor module and the switch is ready to be configured.

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show module Output	Description
HA-standby	This module is the standby supervisor module and that the HA switchover mechanism is enabled.
standby	This module is the standby supervisor module and the warm switchover mechanism is enabled.

Examples

```
switch# show module
Mod  Ports  Module-Type                Model                Status
---  -
1    16     1/2 Gbps FC Module        DS-X9016             ok
5     0     Supervisor/Fabric-1       DS-X9530-SF1-K9     active *
6     0     Supervisor/Fabric-1       DS-X9530-SF1-K9     ha-standby
9    16     1/2 Gbps FC Module        DS-X9016             ok

Mod  Sw          Hw          World-Wide-Name(s) (WWN)
---  -
1    1.0(2.34)   0.3         20:01:00:05:30:00:13:9e to 20:10:00:05:30:00:13:9e
5    1.0(2.34)   0.602      --
6    1.0(2.34)   0.0        --
9    1.0(2.34)   0.0        22:01:00:05:30:00:13:9e to 22:10:00:05:30:00:13:9e

Mod  MAC-Address(es)                Serial-Num
---  -
1    00-05-30-00-81-6e to 00-05-30-00-81-72  jab063908gj
5    00-05-30-00-84-1a to 00-05-30-00-84-1e  jab063909cv
6    00-05-30-00-2c-5e to 00-05-30-00-2c-62
9    00-05-30-00-03-0c to 00-05-30-00-03-10  123

* this terminal session

switch# show module diag

Diag status for module 2 (. = PASS, F = FAIL, N = N/A)
CPU          .
SPROM        .
ASICS        .

Diag status for module 4 (. = PASS, F = FAIL, N = N/A)
CPU          .
SPROM        .
ASICS        .
```

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show ntp

To display the configured server and peer associations, use the **show ntp** command.

show ntp peers | statistics [io | local | memory | peer (ipaddr | name)] | timestamp-status

Syntax Description	
peers	Shows all the peers.
statistics	Shows the NTP statistics
io	Shows the input-output statistics.
local	Shows the counters maintained by the local NTP.
memory	Shows the statistics counters related to memory code.
peer	Shows the per-peer statistics counter of a peer.
ipaddr	Shows the peer statistics for the specified IP address.
name	Shows the peer statistics for the specified peer name.
timestamp-status	Shows if the timestamp check is enabled.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following examples display the NTP information.

```
switch# show ntp peers
-----
Peer IP Address          Serv/Peer
-----
10.20.10.2              Server
10.20.10.0              Peer

switch# show ntp statistics io
time since reset:      11152
receive buffers:       9
free receive buffers:  9
used receive buffers:  9
low water refills:     0
dropped packets:       0
ignored packets:       0
received packets:      3
packets sent:          2
packets not sent:      0
interrupts handled:    3
```

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```

received by int:      3

switch# show ntp statistics local
system uptime:        11166
time since reset:     11166
bad stratum in packet: 0
old version packets:  4
new version packets:  0
unknown version number: 0
bad packet format:    0
packets processed:    0
bad authentication:   0

switch# show ntp statistics memory
time since reset:     11475
total peer memory:    15
free peer memory:     15
calls to findpeer:    0
new peer allocations: 0
peer demobilizations: 0
hash table counts:    0  0  0  0  0  0  0  0
                      0  0  0  0  0  0  0  0
                      0  0  0  0  0  0  0  0
                      0  0  0  0  0  0  0  0

switch# show ntp statistics peer ipaddr 10.1.1.1

switch# show ntp statistics peer name Peer1

switch# show ntp timestamp-status
Linecard 9 does not support Timestamp check.

```

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show port-channel

Use the **show port-channel** command to view information about existing PortChannel configurations

show port-channel compatibility-parameters

show port-channel consistency

show port-channel consistency detail

show port-channel database

show port-channel database interface port-channel *port channel number*

show port-channel summary

show port-channel usage

Syntax Description	compatibility-parameters	Shows compatibility parameters.
	consistency	Verify database consistency of all modules.
	detail	Shows port channel database information for all modules.
	database	Shows port-channel database.
	interface port-channel <i>port channel number</i>	Port channel number (1-128)
	summary	Shows port-channel summary.
	usage	Shows port-channel number usage.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays the PortChannel summary.

```
switch# show port-channel summary
NEW
```

The following example displays the PortChannel compatibility.

```
switch# show port-channel compatibility-parameters
physical port layer      fibre channel or ethernet
port mode                E/TE/AUTO only
```

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```
trunk mode
speed
port VSAN
port allowed VSAN list
```

The following example shows the PortChannel database.

```
switch# show port-channel database
port-channel 2
  Administrative channel mode is on
  Operational channel mode is on
  Last membership update succeeded
  First operational port is fc2/2
  1 port in total, 1 port up
  Ports:   fc2/2   [up]
```

The **show port-channel consistency** command has two options—without detail and detail.

Command Without Details

```
switch# show port-channel consistency
Database is consistent
switch#
```

Command With Details

```
switch# show port-channel consistency detail
Authoritative port-channel database:
=====
totally 1 port-channels
port-channel 2:
  1 ports, first operational port is fc2/2
  fc2/2   [up]
=====
database 1: from module 5
=====
totally 1 port-channels

port-channel 2:
  1 ports, first operational port is fc2/2
  fc2/2   [up]
=====
database 2: from module 2
=====
totally 1 port-channels
port-channel 2:
  1 ports, first operational port is fc2/2
  fc2/2   [up]
=====
```

The **show port-channel usage** command displays details of the used and unused PortChannel numbers.

PortChannel Usage

```
switch# show port-channel usage
Totally 2 port-channel numbers used
=====
Used   :   3, 9
Unused:  1-2, 4-8, 10-128
switch#
```

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show processes

To show general information about all the processes, use the show processes command.

show processes [**cpu** | **log** [**details** | **pid** *process-id* | **memory**]

Syntax Description	cpu	Shows processes CPU Info
	log	Shows information about process logs
	memory	Shows processes Memory Info

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following examples displays general information about system processes.

```
switch# show process
PID      State  PC      Start_cnt  TTY  Process
-----
  868     S    2ae4f33e      1      -  snmpd
  869     S    2acee33e      1      -  rscn
  870     S    2ac36c24      1      -  qos
  871     S    2ac44c24      1      -  port-channel
  872     S    2ac7a33e      1      -  ntp
    -     ER           -      1      -  mdog
    -     NR           -      0      -  vbuilder
```

PID: process ID.

State: process state

```
D  uninterruptible sleep (usually IO)
R  runnable (on run queue)
S  sleeping
T  traced or stopped
Z  a defunct ("zombie") process
```

NR not-running

ER should be running but currently not-running

PC: Current program counter in hex format

Start_cnt: how many times a process has been started.

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TTY: Terminal that controls the process. A "-" usually means a daemon not running on any particular tty.

Process: name of the process.

=====

2. show processes cpu (new output)

Description: show cpu utilization information about the processes.

switch# **show processes cpu**

PID	Runtime(ms)	Invoked	uSecs	1Sec	Process
842	3807	137001	27	0.0	sysmgr
1112	1220	67974	17	0.0	syslogd
1269	220	13568	16	0.0	fcfwd
1276	2901	15419	188	0.0	zone
1277	738	21010	35	0.0	xbar_client
1278	1159	6789	170	0.0	wnn
1279	515	67617	7	0.0	vsan

Runtime(ms): cpu time the process has used, expressed in milliseconds

Invoked: Number of times the process has been invoked.

uSecs: Microseconds of CPU time in average for each process invocation.

1Sec: CPU utilization in percentage for the last 1 second.

=====

3. show processes mem

Description: show memory information about the processes.

PID	MemAlloc	StackBase/Ptr	Process
1277	120632	7ffffcd0/7ffffefe4	xbar_client
1278	56800	7ffffce0/7ffffb5c	wnn
1279	1210220	7ffffce0/7ffffbac	vsan
1293	386144	7ffffcf0/7ffffebd4	span
1294	1396892	7ffffce0/7ffffdff4	snmpd
1295	214528	7ffffcf0/7ffff904	rscn
1296	42064	7ffffce0/7ffffb5c	qos

MemAlloc: total memory allocated by the process.

StackBase/Ptr: process stack base and current stack pointer in hex format

=====

3. show processes log

Description: list all the process logs

switch# **show processes log**

Process	PID	Normal-exit	Stack-trace	Core	Log-create-time
fsfpf	1339	N	Y	N	Jan 5 04:25
lcm	1559	N	Y	N	Jan 2 04:49
rib	1741	N	Y	N	Jan 1 06:05

Normal-exit: whether or not the process exited normally.

Stack-trace: whether or not there is a stack trace in the log.

Core: whether or not there exists a core file.

Log-create-time: when the log file got generated.

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The following example displays the detail log information about a particular process.

```
switch# show processes log pid 1339
Service: fspf
Description: FSPF Routing Protocol Application

Started at Sat Jan  5 03:23:44 1980 (545631 us)
Stopped at Sat Jan  5 04:25:57 1980 (819598 us)
Uptime: 1 hours 2 minutes 2 seconds

Start type: SRV_OPTION_RESTART_STATELESS (23)
Death reason: SYSMGR_DEATH_REASON_FAILURE_SIGNAL (2)
Exit code: signal 9 (no core)
CWD: /var/sysmgr/work

Virtual Memory:

      CODE      08048000 - 0809A100
      DATA      0809B100 - 0809B65C
      BRK        0809D988 - 080CD000
      STACK      7FFFFD20
      TOTAL      23764 KB

Register Set:

      EBX 00000005      ECX 7FFFF8CC      EDX 00000000
      ESI 00000000      EDI 7FFFF6CC      EBP 7FFFF95C
      EAX FFFFFDFE      XDS 8010002B      XES 0000002B
      EAX 0000008E (orig) EIP 2ACE133E      XCS 00000023
      EFL 00000207      ESP 7FFFF654      XSS 0000002B

Stack: 1740 bytes. ESP 7FFFF654, TOP 7FFFFD20

0x7FFFF654: 00000000 00000008 00000003 08051E95 .....
0x7FFFF664: 00000005 7FFFF8CC 00000000 00000000 .....
0x7FFFF674: 7FFFF6CC 00000001 7FFFF95C 080522CD .....\"..
0x7FFFF684: 7FFFF9A4 00000008 7FFFFC34 2AC1F18C .....4.....*
```

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show qos statistics

To display the current QoS settings along with a the number of frames marked high priority, use the **show qos statistics** command.

show qos statistics

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays configures QoS statistics. <pre>switch# show qos statistics Total number of FC frames transmitted from the Supervisor= 15767 Number of highest-priority FC frames transmitted = 8224 Current priority of FC control frames = 0 (0 = lowest; 7 = highest)</pre>

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show radius-server

To display all configured RADIUS server parameters, use the **show radius-server** command.

show radius-server

Syntax Description	This command has no keywords or arguments.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	Only administrators can view the RADIUS pre-shared key.

Examples

```
switch# show radius-server
Global RADIUS shared secret:Myxgqc
retransmission count:5
timeout value:10

following RADIUS servers are configured:
  myradius.cisco.users.com:
    available for authentication on port:1812
    available for accounting on port:1813
  172.22.91.37:
    available for authentication on port:1812
    available for accounting on port:1813
    RADIUS shared secret:23MHcUnD
  10.10.0.0:
    available for authentication on port:1812
    available for accounting on port:1813
    RADIUS shared secret:hostkey----> for administrators only
```

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show role

To display rules (and their associated rules) configured on the switch, including those roles that have not yet been committed to persistent storage, use the **show role** command.

show role [*name string*]

Syntax Description	name string The name of the role for which you want to display information.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	The rules are displayed by rule number and are based on each role. All roles are displayed even if role name is not specified. Only network-admin role can access this command.

Examples

```
switch# show role
Role: network-admin
Description: Predefined Network Admin group. This role cannot be modified
Access to all the switch commands

Role: network-operator
Description: Predefined Network Operator group. This role cannot be modified
Access to Show commands and selected Exec commands

Role: sangroup
Description: SAN management group
-----
Rule   Type   Command-type   Feature
-----
1.    permit   config         *
2.     deny   config         fspf
3.    permit   debug         zone
4.    permit   exec          fcping
```

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show rscn

To display RSCN information, use the **show rscn** command.

show rscn [**scr-table** **vsan** *vsan-range* | **statistics** **vsan** *vsan-range*]

Syntax Description	scr-table	Shows State Change Registration table.
	statistics	Shows RSCN statistics.
	vsan <i>vsan-range</i>	Range of the required VSANs (from 1 to 4093).

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The SCR table cannot be configured, it is only populated if one or more Nx ports send SCR frames to register for RSCN information. If the **show rscn scr-table** command does not return any entries, no Nx port is interested in receiving RSCN information.

Examples The following examples display RSCN information.

```
switch# show rscn scr-table vsan 1
SCR table for VSAN: 1
-----
FC-ID          REGISTERED FOR
-----
0x1b0300       fabric detected rscns

Total number of entries = 1

switch# show rscn statistics vsan 1

Statistics for VSAN: 1
-----

Number of SCR received           = 0
Number of SCR ACC sent           = 0
Number of SCR RJT sent           = 0
Number of RSCN received          = 0
Number of RSCN sent              = 0
Number of RSCN ACC received      = 0
Number of RSCN ACC sent          = 0
Number of RSCN RJT received      = 0
Number of RSCN RJT sent          = 0
Number of SW-RSCN received       = 0
Number of SW-RSCN sent           = 0
```

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```
Number of SW-RSCN ACC received = 0
Number of SW-RSCN ACC sent      = 0
Number of SW-RSCN RJT received = 0
Number of SW-RSCN RJT sent      = 0
```

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show running-config

To view the running configuration file, use the **show running-config** command

show running-config [diff]

Syntax Description

This command has no arguments or keywords.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

If the running configuration is different from the startup configuration, issue the **show startup-config** command to view the ASCII version of the current startup configuration that was used to boot the switch.

Examples

The following example displays the configuration currently running on the switch.

```
switch# show running-config
Building Configuration ...
  interface fc1/1
  interface fc1/2
  interface fc1/3
  interface fc1/4
  interface mgmt0
ip address 172.22.95.112 255.255.255.0
no shutdown
vsan database
boot system bootflash:isan-237; sup-1
boot kickstart bootflash:boot-237 sup-1
callhome
ip default-gateway 172.22.95.1
switchname switch
trunk protocol enable
username admin password 5 /AFDAMD4B2xK2 role network-admin
```

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show scsi-target

Use the **show scsi target** command to view specific information about existing SCSI configurations.

show scsi target {**devices** [**vsan** *vsan-range* | **fcid** *fcid-id*] | **disk** [**vsan** *vsan-range* | **fcid** *fcid-id*] | **lun** [**vsan** *vsan-range* | **fcid** *fcid-id*] | **status** | **tape** [**vsan** *vsan-range* | **fcid** *fcid-id*]}

Syntax Description	devices	Shows discovered scsi-target devices information
	disk	Shows discovered disk information.
	lun	Shows discovered SCSI target LUN information.
	vsan <i>vsan-range</i>	Specifies the VSAN ID or VSAN range (from 1 to 4093).
	fcid <i>fcid-id</i>	Specifies the FCID of the SCSI target to display.
	status	Shows SCSI target discovery status.
	tape	Shows discovered tape information

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays the status of a SCSI discovery.

```
switch# show scsi-target status
discovery completed
```

The following example displays discovered disk information.

```
switch# show scsi-target disk
```

VSAN	FCID	PWWN	VENDOR	MODEL	REV
1	0x9c03d6	21:00:00:20:37:46:78:97	Company 4	ST318203FC	0004
1	0x9c03d9	21:00:00:20:37:5b:cf:b9	Company 4	ST318203FC	0004
1	0x9c03da	21:00:00:20:37:18:6f:90	Company 4	ST318203FC	0004
1	0x9c03dc	21:00:00:20:37:5a:5b:27	Company 4	ST318203FC	0004
1	0x9c03e0	21:00:00:20:37:36:0b:4d	Company 4	ST318203FC	0004
1	0x9c03e1	21:00:00:20:37:39:90:6a	Company 4	ST318203 CLAR18	3844
1	0x9c03e2	21:00:00:20:37:18:d2:45	Company 4	ST318203 CLAR18	3844
1	0x9c03e4	21:00:00:20:37:6b:d7:18	Company 4	ST318203 CLAR18	3844
1	0x9c03e8	21:00:00:20:37:38:a7:c1	Company 4	ST318203FC	0004
1	0x9c03ef	21:00:00:20:37:18:17:d2	Company 4	ST318203FC	0004

The following example displays the discovered LUNs.

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```
switch# show scsi-target lun
- ST318203FC          from Company 4  (Rev 0004)
  FCID is 0x9c03d6 in VSAN 1, PWWN is 21:00:00:20:37:46:78:97
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LRA2510000007027 C:1 A:0 T:3 20:00:00:20:37:46:78:97
- ST318203FC          from Company 4  (Rev 0004)
  FCID is 0x9c03d9 in VSAN 1, PWWN is 21:00:00:20:37:5b:cf:b9
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LR948730000007029 C:1 A:0 T:3 20:00:00:20:37:5b:cf:b9
- ST318203FC          from Company 4  (Rev 0004)
  FCID is 0x9c03da in VSAN 1, PWWN is 21:00:00:20:37:18:6f:90
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LR185918000001004 C:1 A:0 T:3 20:00:00:20:37:18:6f:90
- ST318203FC          from Company 4  (Rev 0004)
  FCID is 0x9c03dc in VSAN 1, PWWN is 21:00:00:20:37:5a:5b:27
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LRC449820000007031 C:1 A:0 T:3 20:00:00:20:37:5a:5b:27
- ST318203FC          from Company 4  (Rev 0004)
  FCID is 0x9c03e0 in VSAN 1, PWWN is 21:00:00:20:37:36:0b:4d
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LR1818470000007024 C:1 A:0 T:3 20:00:00:20:37:36:0b:4d
- ST318203 CLAR18    from Company 4  (Rev 3844)
  FCID is 0x9c03e1 in VSAN 1, PWWN is 21:00:00:20:37:39:90:6a
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18200      Online LR641471000001017 C:1 A:0 T:3 20:00:00:20:37:39:90:6a
- ST318203 CLAR18    from Company 2  (Rev 3844)
  FCID is 0x9c03e2 in VSAN 1, PWWN is 21:00:00:20:37:18:d2:45
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18200      Online LR283495000001952 C:1 A:0 T:3 20:00:00:20:37:18:d2:45
- ST318203 CLAR18    from Company 2  (Rev 3844)
  FCID is 0x9c03e4 in VSAN 1, PWWN is 21:00:00:20:37:6b:d7:18
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18200      Online LRF71505000001041 C:1 A:0 T:3 20:00:00:20:37:6b:d7:18
- ST318203FC          from Company 2  (Rev 0004)
  FCID is 0x9c03e8 in VSAN 1, PWWN is 21:00:00:20:37:38:a7:c1
-----
LUN      Capacity    Status Serial Number    Device-Id
      (MB)
-----
0x0      18210      Online LR435883000001011 C:1 A:0 T:3 20:00:00:20:37:38:a7:c1
```

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```
- ST318203FC          from Company 2  (Rev 0004)
  FCID is 0x9c03ef in VSAN 1, PWWN is 21:00:00:20:37:18:17:d2
-----
  LUN      Capacity   Status Serial Number   Device-Id
          (MB)
-----
  0x0      18210      Online LR06903200001949 C:1 A:0 T:3 20:00:00:20:37:18:17:d2
```

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show snmp

The **show snmp** command displays the count information for all SNMP settings.

show snmp [community | host | user]

Syntax Description	community	Shows SNMP community strings.
	host	Shows snmp hosts.
	user	Shows SNMPv3 users.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays SNMP information.

```
switch# show snmp
sys contact:
sys location:

1631 SNMP packets input
    0 Bad SNMP versions
    0 Unknown community name
    0 Illegal operation for community name supplied
    0 Encoding errors
64294 Number of requested variables
    1 Number of altered variables
1628 Get-request PDUs
    0 Get-next PDUs
    1 Set-request PDUs
152725 SNMP packets output
    0 Too big errors
    1 No such name errors
    0 Bad values errors
    0 General errors

Community                               Access
-----                               -
public                                 rw

User                                   Group                               Auth   Priv
---                                   -                               -
admin                                network-admin                       md5    no
```

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The following example displays SNMP user details.

```
switch# show snmp user
```

User	Group	Auth	Priv
steve	network-admin	md5	des
sadmin	network-admin	md5	des
stever	network-operator	md5	des

The following example displays SNMP community information.

```
switch# show snmp community
```

Community	Access
private	rw
public	ro
v93RACqPNH	ro

The following example displays SNMP host information.

```
switch# show snmp host
```

Host	Port	Version	Level	Type	SecName
171.16.126.34	2162	v2c	noauth	trap	public
171.16.75.106	2162	v2c	noauth	trap	public
171.31.124.81	2162	v2c	noauth	trap	public
171.31.157.193	2162	v2c	noauth	trap	public
171.31.157.98	2162	v2c	noauth	trap	public
171.31.49.25	2162	v2c	noauth	trap	public
171.31.49.32	2188	v2c	noauth	trap	public
171.31.49.49	2162	v2c	noauth	trap	public
171.31.49.49	3514	v2c	noauth	trap	public
171.31.49.54	2162	v2c	noauth	trap	public
171.31.58.54	2162	v2c	noauth	trap	public
171.31.58.81	2162	v2c	noauth	trap	public
171.31.58.97	1635	v2c	noauth	trap	public
171.31.58.97	2162	v2c	auth	trap	public
171.31.58.97	3545	v2c	auth	trap	public
172.22.00.43	2162	v2c	noauth	trap	public
172.22.00.65	2162	v2c	noauth	trap	public
172.22.05.234	2162	v2c	noauth	trap	public
172.22.05.98	1050	v2c	noauth	trap	public

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show span session

Use the **show span session** command to view specific information about a SPAN session.

show span session [*session-id* [**brief**] | **brief**]

Syntax Description	session	Shows SPAN session configuration.
	<i>session-id</i>	SPAN session ID (1-16).
	brief	Shows SPAN session configuration in brief format.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays SPAN sessions in a brief format.

```
switch# show span session brief
-----
Session  Admin      Oper      Destination
         State      State      Interface
-----
  7       no suspend  active    fc2/7
```

The following example displays a specific SPAN session details.

```
switch# show span session 7
Session 7 (active)
  Destination is fc2/7
  No session filters configured
  No ingress (rx) sources
  Egress (tx) sources are
    port-channel 7,
```

The following example displays ALL SPAN sessions.

```
switch# show span session
Session 1 (inactive as no destination)
Destination is not specified
  Session filter vsans are 1
  No ingress (rx) sources
  No egress (tx) sources

Session 2 (active)
  Destination is fc9/5
  No session filters configured
```

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```
Ingress (rx) sources are
  vsans 1
  sup-fc0,
Egress (tx) sources are
  sup-fc0,
```

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show sprom

To show vendor ID, product's component attributes, serial number information that can be used to track field replaceable units, use the **show sprom** command.

show sprom sup

show sprom clock *clock-module-index*

show sprom backplane *backplane-index*

show sprom module *module-number sprom-index*

show sprom fan

show sprom powersupply *powersupply-index*

show sprom mgmt-module

Syntax Description		
sup		Display Vendor ID, product's component attributes for the current supervisor module
module <i>module-number</i> <i>sprom-index</i>		Display Vendor ID, product's component attributes for the given switching module. There can be up to 4 sub-components in a module. Each of them will have a SPROM associated with it.
clock clock-module-index>		Display attributes of the clock module. There are two clock modules in a switch. This module is absent in MDS9216 type switch.
backplane <backplane-index>		Display attributes that can be used to uniquely identify a switch.
powersupply <powersupply-index>		Displays attributes of the first or the second power-supply. This contains information about the powersupply capacity in watts when it is used in 110Volts and 220Volts respectively. This information is used for power-budget allocation.
fan		Display attributes that uniquely identified fan.
mgmt-module		Display attributes of management module. This module is only present in MDS9216 type switch.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

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Usage Guidelines

Use the **show sprom** command to get unique information about a specific module, supervisor module, switch, power-supply module, or a fan module. If the customer needs to report a problem with a module, supervisor module, switch, power-supply module, or a fan module and does not have access to management station, then he can extract serial number information from **show sprom**.

Examples

The following example displays management module information. This module and command are specific to the Cisco MDS 9216 switch.

```
switch# show sprom mgmt-module
DISPLAY SAM sprom contents:
Common block:
  Block Signature :0xabab
  Block Version   :2
  Block Length    :156
  Block Checksum  :0x1295
  EEPROM Size     :0
  Block Count     :2
  FRU Major Type  :0x0
  FRU Minor Type  :0x0
  OEM String      :Cisco Systems Inc
  Product Number  :SAM SMITH
  Serial Number   :12345678901
  Part Number     :SAM-SMITH-06
  Part Revision   :A0
  Mfg Deviation   :
  H/W Version     :1.0
  Mfg Bits        :1
  Engineer Use    :0
  snmpOID         :0.0.0.0.0.0.0.0
  Power Consump   :~200
  RMA Code        :0-0-0-0
Linecard Module specific block:
  Block Signature :0x6003
  Block Version   :2
  Block Length    :103
  Block Checksum  :0x3c7
  Feature Bits    :0x0
  HW Changes Bits :0x0
  Card Index      :9009
  MAC Addresses   :00-12-34-56-78-90
  Number of MACs  :4
  Number of EOBC links :4
  Number of EPLD  :0
  Port Type-Num   :200-16
  SRAM size       :0
  Sensor #1       :0,0
  Sensor #2       :0,0
  Sensor #3       :0,0
  Sensor #4       :0,0
  Sensor #5       :0,0
  Sensor #6       :0,0
  Sensor #7       :0,0
  Sensor #8       :0,0
```

The following command displays supervisor module information.

```
switch# show sprom sup
DISPLAY supervisor sprom contents:
Common block:
  Block Signature : 0xabab
```

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```

Block Version      : 2
Block Length       : 156
Block Checksum     : 0x10a8
EEPROM Size        : 512
Block Count        : 2
FRU Major Type     : 0x6002
FRU Minor Type     : 0x7d0
OEM String         : Cisco Systems
Product Number     : DS-X9530-SF1-K9
Serial Number      : abcdefgh
Part Number        : 73-7523-06
Part Revision      : 0.0
Mfg Deviation      : 0.0
H/W Version        : 0.0
Mfg Bits           : 0
Engineer Use       : 0
snmpOID            : 9.5.1.3.1.1.2.2000
Power Consump      : -524
RMA Code           : 0-0-0-0
Supervisor Module  : specific block:
Block Signature    : 0x6002
Block Version      : 2
Block Length       : 103
Block Checksum     : 0x927
Feature Bits       : 0x0
HW Changes Bits    : 0x0
Card Index         : 9003
MAC Addresses      : 00-05-30-00-18-be
Number of MACs     : 4
Number of EPLD     : 1
EPLD A             : 0x0
Sensor #1          : 75,60
Sensor #2          : 60,55
Sensor #3          : -127,-127
Sensor #4          : -127,-127
Sensor #5          : -128,-128
Sensor #6          : -128,-128
Sensor #7          : -128,-128
Sensor #8          : -128,-128

```

Related Commands	Command	Description
	show hardware	Displays brief information about the list of field replaceable units in the switch.

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show ssh

Use the **show ssh key** command to display the host key pair details for the specified key or for all keys, if no key is specified. Use the **show ssh server** command to display the status of the SSH protocol (enabled or disabled) and the versions that are enabled for that switch. `show ssh key`

show ssh [key [dsa | rsa | rsa1] | server]

Syntax Description

key	Shows ssh keys.
server	Shows whether ssh server is enabled or not.
dsa	Shows dsa ssh keys.
rsa	Shows rsa ssh keys.
rsa1	Shows rsa1 ssh keys.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example displays SSH protocol status.

```
switch# show ssh server
ssh is enabled
version 1 enabled
version 2 enabled
```

The following example displays Host Key Pair details.

```
switch# show ssh key
rsa1 Keys generated:Sun Jan 13 07:16:26 1980

1024 35

fingerprint:
1024 67:76:02:bd:3e:8d:f5:ad:59:5a:1e:c4:5e:44:03:07

could not retrieve rsa key information

dsa Keys generated:Sun Jan 13 07:40:08 1980

ssh-dss AAAAB3NzaC1kc3MAAABBAJTCRQOydNRel2v7uiO6Fix+OTn8eGdnnDVxw5eJs5OcOEXOyjaW
cMMYsEgxc9ada1NElp8Wy7GPMWGOQYj9CU0AAAAVAMCcWhNN18zFNOIPo7cU3t7d0iEbAAAAQBdQ8UAO
i/Cti84qFb3kTqXLS9mEhdQUo0lHcH5bw5PKfj2Y/dLR437zCBKXetPj4p7mhQ6Fq5os8RZtJEyOsNsA
AABAA0oxZbPyWeR5NHATXiyXdPI7j9i8fgyn9FNipMkOF2Mn75Mi/lqQ4NIq0gQNvQOx27uCeQlRts/Q
```

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```
wI4q68/eaw==
```

```
fingerprint:
```

```
512 f7:cc:90:3d:f5:8a:a9:ca:48:76:9f:f8:6e:71:d4:ae
```

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show startup-config

To view the startup configuration file, use the **show startup-config** command

show startup-config [log]

Syntax Description	log Displays execution log of last used ascii startup configuration.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays the switch configuration at startup. <pre> switch# show startup-config vsan database vsan 2 vsan 3 vsan 4 vsan 5 vsan 31 vsan 32 suspend vsan 100 vsan 300 interface port-channel 1 switchport mode E switchport trunk mode off interface port-channel 2 fspf cost 100 vsan 2 switchport mode E no switchport trunk allowed vsan all switchport trunk allowed vsan add 1-99 switchport trunk allowed vsan add 101-4093 interface port-channel 3 switchport mode E switchport trunk mode off interface port-channel 4 switchport mode E no switchport trunk allowed vsan all switchport trunk allowed vsan add 1-99 switchport trunk allowed vsan add 101-4093 </pre>

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```
interface port-channel 5
switchport mode E
no switchport trunk allowed vsan all
switchport trunk allowed vsan add 1-10
interface port-channel 5
switchport mode E
no switchport trunk allowed vsan all
switchport trunk allowed vsan add 1-10

interface port-channel 8
switchport mode E

interface vsan1

no shutdown

snmp-server community public rw
snmp-server user admin network-admin auth md5 0xe84b06201ae3bfb726a2eab9f485eb57
  localizedkey
snmp-server host 171.69.126.34 traps version 2c public udp-port 2162
snmp-server host 171.69.75.106 traps version 2c public udp-port 2162
vsan database
vsan 3 interface fc2/9
vsan 3 interface fc2/14
vsan 5 interface fc9/11
vsan 2 interface fc9/12
vsan 3 interface port-channel 3
vsan 3 interface port-channel 4
vsan 100 interface port-channel 8

boot system bootflash:/isan-8b-u sup-1
boot kickstart bootflash:/boot-3b sup-1
boot system bootflash:/isan-8b-u sup-2
boot kickstart bootflash:/boot-3b sup-2

ip default-gateway 172.22.90.1
power redundancy-mode combined force

username admin password 5 HyLyYqb4.q74Y role network-admin
zone name Z1 vsan 1
  member pwn 10:00:00:00:77:99:60:2c
  member pwn 21:00:00:20:37:a6:be:14

zone default-zone permit vsan 1
zoneset distribute full vsan 51-58

zoneset name ZS1 vsan 1
  member Z1

zoneset activate name ZS1 vsan 1

interface fc2/1
switchport mode E
switchport trunk mode off
no shutdown

interface fc2/2

interface fc2/3
channel-group 1 force
no shutdown

interface fc2/6
channel-group 2 force
no shutdown
```

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```

    interface fc2/7
switchport mode E
no shutdown
no switchport trunk allowed vsan all
switchport trunk allowed vsan add 1-25

    interface fc2/9
switchport mode E
switchport trunk mode off
no shutdown

    interface fc2/10
channel-group 3 force
no shutdown

    interface fc2/12
channel-group 4 force
no shutdown

    interface fc2/14
switchport mode E
no shutdown
no switchport trunk allowed vsan all
switchport trunk allowed vsan add 1-99
switchport trunk allowed vsan add 101-4093

    interface fc2/15
channel-group 6 force
no shutdown

    interface fc2/16
channel-group 6 force
no shutdown
.
.
.
    interface fc9/10
switchport mode F
no shutdown

    interface fc9/11
switchport trunk mode off
no shutdown

    interface fc9/12
switchport mode E
switchport speed 1000
switchport trunk mode off
no shutdown

    interface fc9/15
no shutdown
no switchport trunk allowed vsan all
switchport trunk allowed vsan add 1-99
switchport trunk allowed vsan add 101-4093

    interface fc9/16
switchport mode FL
no shutdown

    interface mgmt0
ip address 172.22.90.38 255.255.255.0
no shutdown

```

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show switchname

To view the switch's network name, use the **show switchname** command.

show switchname

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays the name of the switch. <pre>switch# show switchname switch-123</pre>

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show system

To show the system information use the **show system** command.

show system autosync | cores | default switchport | directory information | error-id [list | hex] | exception-info | redundancy status | reset-reason | uptime

Syntax Description

autosync	Shows image autosync status
cores	Displays core transfer option
default switchport	Shows system default values
directory information	Directory information of System Manager
error-id	Shows description about errors
exception-info	Shows last exception log information
redundancy status	Redundancy status
reset-reason	Shows last reset reason
uptime	Shows how long the system has been up and running

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Use the **show system redundancy status** command to ensure that the system is ready to accept a switchover.

Examples

The following example displays the system redundancy status.

```
switch# show system redundancy status
This supervisor
-----
Redundancy state:   Active
Supervisor state:   Active
Internal state:     Active with no standby

Other supervisor
-----
Redundancy state:   Initializing
```

The following example displays the default switch port states.

```
switch# show system default switchport
System default port state is down
System default trunk mode is on
```

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The following example displays error information for a specified ID.

```
switch# show system error-id 0x401D0019
Error Facility: module
Error Description: Failed to stop Linecard Async Notification.
```

The following example displays the system reset information.

```
switch# show system reset reason
1) No time
   Reason: Watchdog Timeout
   Service:
   Version: 1.0(0.253e)

2) At 125982 usecs after Tue Jan  1 06:45:55 1980
   Reason: Reset Requested CLI command reload
   Service:
   Version: 1.0(0.253e)
```

The following example displays the system uptime.

```
switch# show system uptime
Start Time: Sun Oct 13 18:09:23 2030
Up Time:    0 days, 9 hours, 46 minutes, 26 seconds
```

Use the **show system cores** command to display the currently configured scheme for copying cores.

```
switch# show system cores
Transfer of cores is enabled
```

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show system switchover impact

To compare the image files between kickstart, system, and module images, use the **show system switchover** command.

show system switchover impact [**bootflash:** |**slot0:** | **volatile:**] *image-filename* [**bootflash:** |**slot0:** | **volatile:**] *image-filename*

Syntax Description.	show system switchover impact	Upgrades the BIOS for a supervisor or switching module.
	bootflash:	Source or destination location for internal bootflash memory
	slot0:	Source or destination location for the CompactFlash memory or PCMCIA card.
	volatile:	Source location for the volatile file system.
	<i>image-filename</i>	The name of the system or kickstart image.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(3).

Usage Guidelines None.

Examples This command shows the output if this command is issued on a single supervisor switch:

```
switch# show system switchover impact
No standby supervisor present.
```

This command shows the effects of the switchover assuming that the standby supervisor module is running 1.0(2) and the active supervisor module is running 1.0(2) system image.

```
switch# show system switchover impact
Effects of switching-over to m9500-sflek9-mz.1.0.2.bin from m9500-sflek9-mz.1.0.1.bin
Switchover type: HA
Impact on modules: modules 1, 2 will reset
```

```
Per module compatibility with system image 1.0(2) running on the standby supervisor
Module Compatibility check
1 Module running version 1.0(2): not compatible
2 Module running version 1.0(2): not compatible
7 Module running version 1.0(2): compatible
```

If a switchover is issued to sup 6 (new active), switching modules 1 and 2 will reset, switching module 7 will remain active after the switchover.

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This command shows the effects of the switchover assuming that standby supervisor module has a new_system.bin, and is running 1.0(2) image.

```
switch# show system switchover impact bootflash:new_system.bin
Effects of switching-over to m9500-sflek9-mz.1.0.2.bin from m9500-sflek9-mz.1.0.1.bin
Switchover type:                HA
Impact on modules:              modules 1, 2 will reset

Per module compatibility with system image 1.0(2) running on the standby supervisor
Module  Compatibility check
1       Module running version 1.0(2): not compatible
2       Module running version 1.0(2): not compatible
7       Module running version 1.0(2): compatible
```

This command shows the effects of the switchover to view the effects of a matrix between two images, instead of comparing it to running images.

```
switch# show system switchover impact bootflash:new_system.bin bootflash:old_system.bin
Effects of switching-over to m9500-sflek9-mz.1.0.2.bin from m9500-sflek9-mz.1.0.1.bin
Switchover type:                HA
Impact on modules:              module(s) will reset

Per module compatibility with system image 1.0(2) running on the standby supervisor
Module  Compatibility check
-       Module running version 1.0(2): not compatible
```

This command shows the effects of the switchover if the parameters in the above display are swapped.

```
switch# show system switchover impact bootflash:old_system.bin bootflash:new_system.bin
Effects of switching-over to m9500-sflek9-mz.1.0.1.bin from m9500-sflek9-mz.1.0.2.bin
Switchover type:                warm
Impact on modules:              module(s) will reset

Per module compatibility with system image 1.0(2) running on the standby supervisor
Module  Compatibility check
-       Module running version 1.0(2): not compatible
```

This displays shows that a warm switchover is possible and a HA switchover is not possible because image 1.0(2) is superseded by 1.0(2).

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show tech-support

To display relevant information about entities like modules, interfaces that can be provided to technical support, use the **show tech-support** command.

show tech-support [**interface** | **module** | **vsan** *vsan-id*]

Syntax Description

interface	Display interface status and configuration information
module	Display module status information
vsan	Display vsan status and configuration information
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

The 'show tech-support internal' option provides internal information relevant to troubleshooting problems associated with modules, interfaces and VSANs that can be provided to technical support personnel.

Examples

switch# **sho tech-support module 1**

```
'terminal length 0'
```

```
'show module '
```

Mod	Ports	Module-Type	Model	Status
1	16	1/2 Gbps FC/Supervisor	DS-X9216-K9-SUP	active *
2	32	1/2 Gbps FC Module	DS-X9032	ok

Mod	Sw	Hw	World-Wide-Name(s) (WWN)
1	1.0(0.271)	0.0	20:01:00:05:30:00:21:9e to 20:10:00:05:30:00:21:9e
2	1.0(0.271)	0.0	20:41:00:05:30:00:21:9e to 20:60:00:05:30:00:21:9e

Mod	MAC-Address(es)	Serial-Num
1	00-05-30-00-40-b6 to 00-05-30-00-40-ba	
2	00-05-30-00-11-22 to 00-05-30-00-11-26	

```
* this terminal session
```

```
'show environment'
Clock:
```

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```

-----
Clock          Model          Hw          Status
-----
A              Clock Module    --         ok/active
B              Clock Module    --         ok/standby

```

Fan:

```

-----
Fan           Model          Hw          Status
-----
Chassis      DS-2SLOT-FAN    0.0         ok
PS-1         --              --          ok
PS-2         --              --          absent

```

Temperature:

```

-----
Module  Sensor  MajorThresh  MinorThres  CurTemp  Status
        (Celsius)  (Celsius)  (Celsius)
-----
1       1       75           60          30       ok
1       2       65           50          28       ok
1       3      -127         -127        40       ok
1       4      -127         -127        36       ok

2       1       75           60          32       ok
2       2       65           50          26       ok
2       3      -127         -127        41       ok
2       4      -127         -127        31       ok

```

Power Supply:

```

-----
PS  Model          Power      Power      Status
    (Watts)  (Amp @42V)
-----
1   WS-CAC-950W    919.38    21.89     ok
2   --              --         --         absent

```

```

Mod Model          Power      Power      Power      Power      Status
    (Watts)  (Amp @42V)  Allocated  Allocated
-----
1   DS-X9216-K9-SUP 220.08    5.24       220.08    5.24       powered-up
2   DS-X9032        199.92    4.76       199.92    4.76       powered-up

```

Power Usage Summary:

```

-----
Power Supply redundancy mode:                redundant

Total Power Capacity                        919.38    W

Power reserved for Supervisor(s) [-]        220.08    W
Power reserved for Fan Module(s) [-]        47.88     W
Power currently used by Modules [-]          199.92    W

-----
Total Power Available                        451.50

```

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show telnet server

The **show telnet server** command displays the state of the Telnet access configuration.

show telnet server

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	<pre>switch# show telnet server telnet service enabled</pre>
-----------------	--

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show terminal

To view the terminal information, use the **show terminal** command

show terminal

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays terminal information. <pre>switch# show terminal TTY: Type: "vt100" Length: 25 lines, Width: 80 columns Session Timeout: 30 minutes</pre>

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show tlport

To view configured TL port information, use the **show tlport** command

```
show tlport {discapp [fcid fcid-id | verbose | vsan vsan-id] | interface [all | private | proxied |
topology | unsupported] | list [vsan vsan-id]}
```

Syntax Description		
discapp		Shows private N port parameters.
fcid <i>fcid-id</i>		Specifies the FCID of the N port.
verbose		Specifies the verbose mode.
vsan <i>vsan-id</i>		Specifies the N port VSAN.
interface		Shows TL ports in the selected interface.
all		Shows all proxied & private devices on this TL Port.
private		Shows all private devices on this TL Port.
proxied		Shows all proxied devices on this TL Port.
topology		Shows loop topology for this TL Port.
unsupported		Shows all unsupported devices on this TL Port.
list		Shows TL ports in all VSANs.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines The **show tlport** command displays the TL port interface configurations. This command provides a list of all TL ports configured on a box and shows the associated VSAN, the FC ID for the port (only domain and area are valid), and the current operational state of the TL port (up or initializing).

Examples The following example displays the TL ports in all VSANs

```
switch# show tlport list
-----
Interface Vsan FC-ID    State
-----
fc1/16    1    0x420000 Init
fc2/26    1    0x150000 Up
```

The following example displays the detailed information for a specific TL port

```
switch# show tlport interface fc1/16 all
fc1/16 is up, vsan 1, FCID 0x420000
```

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```
-----
alpha pWWN                      nWWN                      SCSI Type Device  FC-ID
-----
0x01 20:10:00:05:30:00:4a:de 20:00:00:05:30:00:4a:de Initiator Proxied 0xffffc42
0x73 22:00:00:20:37:39:ae:54 20:00:00:20:37:39:ae:54 Target Private 0x420073
0xef 20:10:00:05:30:00:4a:de 20:00:00:05:30:00:4a:de Initiator Switch 0x0000ef
-----
```

The following example displays TL port information for private devices

```
switch# show tlport int fc1/16 pri
fc1/16 is up, vsan 1, FCID 0x420000
```

```
-----
alpha pWWN                      nWWN                      SCSI Type FC-ID
-----
0x73 22:00:00:20:37:39:ae:54 20:00:00:20:37:39:ae:54 Target 0x420073
0x74 22:00:00:20:37:38:d3:de 20:00:00:20:37:38:d3:de Target 0x420074
-----
```

The following example displays TL port information for proxied devices

```
switch# show tlport int fc1/16 prox
fc1/16 is up, vsan 1, FCID 0x420000
```

```
-----
alpha pWWN                      nWWN                      SCSI Type FC-ID
-----
0x01 20:10:00:05:30:00:4a:de 20:00:00:05:30:00:4a:de Initiator 0xffffc42
0x02 21:00:00:e0:8b:01:95:e7 20:00:00:e0:8b:01:95:e7 Initiator 0x420100
-----
```

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show trunk protocol

To show trunk protocol information, use the **show trunk protocol** command.

show trunk protocol

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays trunk protocol <pre>switch# show trunk protocol Trunk protocol is enabled</pre>

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show user-account

Use the **show user-account** command to display configured information about user accounts.

show user-account [*user-name*]

Syntax	<i>user-name</i>	Displays the user account information for the specified user name.
Defaults	None.	
Command Modes	EXEC mode.	
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).	
Usage Guidelines	None.	
Examples	The following example displays information for a specified user. <pre>switch# show user-account user1 user:user1 this user account has no expiry date roles:network-operator no password set. Local login not allowed Remote login through RADIUS is possible</pre> The following example displays information for all users. <pre>switch# show user-account show user-account user:admin this user account has no expiry date roles:network-admin user:usam expires on Sat May 31 00:00:00 2003 roles:network-admin network-operator user:msam this user account has no expiry date roles:network-operator user:user1 this user account has no expiry date roles:network-operator no password set. local login not allowed Remote login through RADIUS is possible</pre>	

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show users

The **show users** command displays all users currently accessing the switch.

show users

Syntax Description	This command has no arguments or keywords.
Defaults	None.
Command Modes	EXEC mode.
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
Usage Guidelines	None.
Examples	The following example displays all users.

```
switch# show users
switch# show users
admin    pts/7          Jan 12 20:56 (10.77.202.149)
admin    pts/9          Jan 12 23:29 (modena.cisco.com)
admin    pts/10         Jan 13 03:05 (dhcp-171-71-58-120.cisco.com)
admin    pts/11         Jan 13 01:53 (dhcp-171-71-49-49.cisco.com)
```

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show version

To show the version of system software that is currently running on the switch, use the **show version** command.

show version {**detail** | **image** [**bootflash:** | **slot0:**]*image-filename* | [**module** *module-number*]}

Syntax Description	
detail	Shows the software version.
image	Shows the software version of a given image.
bootflash:	Source location for internal bootflash memory
slot0:	Source location for the CompactFlash memory or PCMCIA card.
<i>image-filename</i>	The name of the system or kickstart image.
module	Shows the software version of a module.
<i>module-number</i>	Slot number in which the required module resides.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2) and modified in Release 1.0(3).

Usage Guidelines Use the **show version image** command to verify the integrity of the image before loading the images. This command can be used for both the system and kickstart images.

Use the **show version** command to verify the version on the active and standby supervisor modules before and after an upgrade.

Examples The following examples depict version of the system, kickstart, and failed images.

```
switch boot# show version image bootflash:system_image <-----system image
image name: m9500-sflek9-mz.1.0.3.bin
system:      version 1.0(3)
compiled:    10/25/2010 12:00:00
```

```
switch boot# show version image bootflash:kickstart_image <-----kickstart image
image name: m9500-sflek9-kickstart-mz.1.0.3.upg.bin
kickstart:   version 1.0(3)
loader:      version 1.0(3)
compiled:    10/25/2010 12:00:00
```

```
switch# show version image bootflash:bad_image <-----failure case
Md5 Verification Failed
Image integrity check failed
```

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The following examples provide a before and after comparison scenario after the loader version is updated.

```
switch# show version
Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2003 by Cisco Systems, Inc. All rights reserved.
The copyright for certain works contained herein are owned by
Andiamo Systems, Inc. and/or other third parties and are used and
distributed under license.
Software
  BIOS:      version 1.0(3)
  loader:    version 1.0(2) <-----existing version
  kickstart: version 1.0(3)
  system:    version 1.0(3)
  BIOS compile time:      11/18/02
  kickstart image file is: bootflash:/kickstart_image
  kickstart compile time: 1/20/2003 12:00:00
  system image file is:   bootflash:/system_image
  system compile time:    1/20/2003 12:00:00
```

```
switch# show version
Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2003 by Cisco Systems, Inc. All rights reserved.
The copyright for certain works contained herein are owned by
Andiamo Systems, Inc. and/or other third parties and are used and
distributed under license.
Software
  BIOS:      version 1.0(3)
  loader:    version 1.0(3) <-----new version
  ....
```

The following example show the version details for a specified module.

```
switch# show ver mod 4
Mod No  Mod Type  SW Version      SW Interim Version
4       LC          1.0(3)          1.0(3)
```

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show version compatibility

To show the software compatibility matrix of a specific image, use the **show version compatibility** command.

show version compatibility [**bootflash:** | **slot0:**] *image-filename*

Syntax Description	bootflash:	Source location for internal bootflash memory
	slot0:	Source location for the CompactFlash memory or PCMCIA card.
	<i>image-filename</i>	The name of the system or kickstart image.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples Use the **show version compatibility** command to view the effect of updating the system from the running image to another specified image.

```
switch# show version compatibility bootflash:system_image
Version comparison between /bootflash/system_image and running-image:
Mod No   Mod Type   SRG Compare Result
1         LC         Linecard version is compatible
2         LC         Linecard version is compatible
3         LC         Linecard version is compatible
4         LC         Linecard version is compatible
6         SUP      Non-Disruptive upgrade is possible
7         LC         Linecard version is compatible
8         LC         Linecard version is compatible
9         LC         Linecard version is compatible
```

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show vrrp

Use the **show vrrp vr** command to display the VRRP configuration information

show vrrp [**statistics** | **vr** [*integer interface group*]]

Syntax Description	statistics	Shows cumulative vrrp statistics for this machine.
	vr	Shows virtual router information.
	group	The ID of the group (1-255).
	interface	Enter mgmt for management interface, or VSAN for the IPFC VSAN interface.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays VRRP configured information.

```
switch# show vrrp vr 7 interface vsan 2 configuration
vr id 7 configuration
admin state down
priority 100
no authentication
advertisement-Interval 1
preempt yes
tracking interface vsan1 priority 2
protocol IP
```

The following example displays VRRP status information.

```
switch# show vrrp vr 7 interface vsan 2 status
vr id 7 status
MAC address 00:00:5e:00:01:07
Operational state: init
```

The following example displays VRRP statistics

```
switch# show vrrp vr 7 interface vsan 2 statistics
vr id 7 statistics
Become master 0
Advertisement 0
Advertisement Interval Error 0
Authentication Failure 0
```

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```
TTL Error 0
Priority 0 Received 0
Priority 0 Sent 0
Invalid Type 0
Mismatch Address List 0
Invalid Authentication Type 0
Mismatch Authentication 0
Invalid Packet Length 0
```

The following example displays VRRP cumulative statistics.

```
switch# show vrrp statistics
Invalid checksum 0
Invalid version 0
Invalid VR ID 0
```

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show vsan

Use the **show vsan** command to display information about configured VSAN.

show vsan [**vsan-range**] | [**membership interface** *vsan-range*] | **usage**]

Syntax Description

vsan <i>vsan-range</i>	The VSAN ID range (from 1 to 4093).
membership	Shows membership information.
usage	Shows VSNA usage in the system.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

For the **show vsan membership interface** command, interface information is not displayed if interfaces are not configured on this VSAN.

Examples

The following examples displays configured VSAN information.

```
switch# show vsan 1
vsan 1 information
    name:VSAN0001 state:active
    interoperability mode:yes & verify mode
    loadbalancing:src-id/dst-id/oxid
    operational state:up
```

```
switch# show vsan usage
4 vsan configured
configured vsans:1-4
vsans available for configuration:5-4093
```

```
switch# show vsan
switch# show vsan
vsan 1 information
    name:VSAN0001 state:active
    in-order guarantee:no interoperability mode:no
    loadbalancing:src-id/dst-id/oxid
vsan 2 information
    name:VSAN0002 state:active
    in-order guarantee:no interoperability mode:no
    loadbalancing:src-id/dst-id/oxid
vsan 7 information
    name:VSAN0007 state:active
    in-order guarantee:no interoperability mode:no
```

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```

        loadbalancing:src-id/dst-id/oxid
vsan 100 information
        name:VSAN0100  state:active
        in-order guarantee:no  interoperability mode:no
        loadbalancing:src-id/dst-id/oxid
vsan 4094:isolated vsan

switch # show vsan 1 membership
vsan 1 interfaces:
        fc1/1  fc1/2  fc1/3  fc1/4  fc1/5  fc1/6  fc1/7  fc1/9
        fc1/10 fc1/11 fc1/12 fc1/13 fc1/14 fc1/15 fc1/16 port-channel 99

```

The following example displays membership information for all VSANs

```

switch # show vsan membership
vsan 1 interfaces:
        fc2/16 fc2/15 fc2/14 fc2/13 fc2/12 fc2/11 fc2/10 fc2/9
        fc2/8  fc2/7  fc2/6  fc2/5  fc2/4  fc2/3  fc2/2  fc2/1
        fc1/16 fc1/15 fc1/14 fc1/13 fc1/12 fc1/11 fc1/10 fc1/9
        fc1/7  fc1/6  fc1/5  fc1/4  fc1/3  fc1/2  fc1/1
vsan 2 interfaces:
vsan 7 interfaces:
        fc1/8
vsan 100 interfaces:
vsan 4094(isolated vsan) interfaces:

```

The following example displays membership information for a specified interface.

```

switch # show vsan membership interface fc1/1
fc1/1
        vsan:1
        allowed list:1-4093

```

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show wwn

Use the **show wwn** commands to display the status of the WWN configuration.

show wwn [*status block-id number* | **switch**]

Syntax Description	status	Shows overall WWN Usage and Alarm Status
	switch	Shows switch WWN.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
-----------------	---

Usage Guidelines	None.
------------------	-------

Examples	The following example displays the WWN of VSAN 1.
----------	---

```
switch# show wwn vsan 1
VSAN WWN of VSAN# 1 is 20:01:ac:16:5e:52:00:01
```

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show zone

To display zone information, use the **show zone** command.

show zone [active]

show zone [change [event-history] [vsan vsan-range]

show zone [member [[fcalias alias-name] [active] [vsan vsan-range] | [fcid fcid-id] [active] [vsan vsan-range] | pwwn wwn [active] [vsan vsan-range]]

show zone [merge] [event-history] [interface interface vsan vsan-id]

show zone [name string active vsan vsan-range]

show zone [statistics vsan vsan-range]

show zone [status vsan vsan-range]

Syntax Description

active	Shows zones which are part of active zoneset.
change	Shows log transaction changes.
member	Shows all zones in which the given member is part of.
merge	Shows log transaction merges.
name	Shows members of a specified zone.
statistics	Shows zone server statistics.
status	Shows zone server current status.
vsan	Shows zones belonging to the specified VSAN.
<i>vsan-range</i>	Range of the required VSANs (from 1 to 4093).

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example displays configured zone information.

```
switch(config)# show zone
zone name Zone3 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
  pwwn 21:00:00:20:37:9c:48:e5
```

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```
zone name Zone2 vsan 2
  fwwn 20:41:00:05:30:00:2a:1e
  fwwn 20:42:00:05:30:00:2a:1e
  fwwn 20:43:00:05:30:00:2a:1e
```

```
zone name Zone1 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
  pwwn 21:00:00:20:37:a6:be:2f
  pwwn 21:00:00:20:37:9c:48:e5
  fcalias Alias1
```

Use the **show zone vsan** command to display zone information for a specific VSAN.

```
switch(config)# show zone vsan 1
zone name Zone3 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
  pwwn 21:00:00:20:37:9c:48:e5
```

```
zone name Zone2 vsan 1
  fwwn 20:41:00:05:30:00:2a:1e
  fwwn 20:42:00:05:30:00:2a:1e
  fwwn 20:43:00:05:30:00:2a:1e
  fwwn 20:44:00:05:30:00:2a:1e
  fwwn 20:45:00:05:30:00:2a:1e
  fwwn 20:46:00:05:30:00:2a:1e
  fwwn 20:47:00:05:30:00:2a:1e
  fwwn 20:48:00:05:30:00:2a:1e
  fwwn 20:49:00:05:30:00:2a:1e
  fwwn 20:4a:00:05:30:00:2a:1e
  fwwn 20:4b:00:05:30:00:2a:1e
  fwwn 20:4c:00:05:30:00:2a:1e
  fwwn 20:4d:00:05:30:00:2a:1e
  fwwn 20:4e:00:05:30:00:2a:1e
  fwwn 20:4f:00:05:30:00:2a:1e
  fwwn 20:50:00:05:30:00:2a:1e
  fwwn 20:51:00:05:30:00:2a:1e
  fwwn 20:52:00:05:30:00:2a:1e
  fwwn 20:53:00:05:30:00:2a:1e
  fwwn 20:54:00:05:30:00:2a:1e
  fwwn 20:55:00:05:30:00:2a:1e
  fwwn 20:56:00:05:30:00:2a:1e
  fwwn 20:57:00:05:30:00:2a:1e
  fwwn 20:58:00:05:30:00:2a:1e
  fwwn 20:59:00:05:30:00:2a:1e
  fwwn 20:5a:00:05:30:00:2a:1e
  fwwn 20:5b:00:05:30:00:2a:1e
  fwwn 20:5c:00:05:30:00:2a:1e
  fwwn 20:5d:00:05:30:00:2a:1e
  fwwn 20:5e:00:05:30:00:2a:1e
  fwwn 20:5f:00:05:30:00:2a:1e
  fwwn 20:60:00:05:30:00:2a:1e
```

```
zone name Zone1 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
  pwwn 21:00:00:20:37:a6:be:2f
  pwwn 21:00:00:20:37:9c:48:e5
  fcalias Alias1
```

Use the **show zone name** command to display members of a specific zone.

```
switch# show zone name Zone1
zone name Zone1 vsan 1
  pwwn 21:00:00:20:37:6f:db:dd
```

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```
pwwn 21:00:00:20:37:a6:be:2f
pwwn 21:00:00:20:37:9c:48:e5
fcalias Alias1
```

Use the **show zone member** command to display all zones to which a member belongs using the FC ID.

```
@switch# show zone member pwwn 21:00:00:20:37:9c:48:e5
          VSAN: 1
zone Zone3
zone Zone1
fcalias Alias1
```

Use the **show zone statistics** command to display the number of control frames exchanged with other switches.

```
switch# show zone statistics
Statistics For VSAN: 1
*****
Number of Merge Requests Sent: 24
Number of Merge Requests Recvd: 25
Number of Merge Accepts Sent: 25
Number of Merge Accepts Recvd: 25
Number of Merge Rejects Sent: 0
Number of Merge Rejects Recvd: 0
Number of Change Requests Sent: 0
Number of Change Requests Recvd: 0
Number of Change Rejects Sent: 0
Number of Change Rejects Recvd: 0
Number of GS Requests Recvd: 0
Number of GS Requests Rejected: 0
Statistics For VSAN: 2
*****
Number of Merge Requests Sent: 4
Number of Merge Requests Recvd: 4
Number of Merge Accepts Sent: 4
Number of Merge Accepts Recvd: 4
Number of Merge Rejects Sent: 0
Number of Merge Rejects Recvd: 0
Number of Change Requests Sent: 0
Number of Change Requests Recvd: 0
Number of Change Rejects Sent: 0
Number of Change Rejects Recvd: 0
Number of GS Requests Recvd: 0
Number of GS Requests Rejected: 0
```

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show zoneset

Use the **show zoneset** command to view the configured zone sets.

show zoneset [**name** | **brief** | **active** | **vsan** *vsan-id*]

Syntax Description	active	Shows only active zonesets.
	brief	Shows members in brief mode.
	name	Shows members of a specified zoneset.
	vsan	Shows zonesets belonging to the specified VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example displays configured zoneset information.

```
switch# show zoneset vsan 1
zoneset name ZoneSet2 vsan 1
  zone name Zone2 vsan 1
    fwwn 20:4e:00:05:30:00:2a:1e
    fwwn 20:4f:00:05:30:00:2a:1e
    fwwn 20:50:00:05:30:00:2a:1e
    fwwn 20:51:00:05:30:00:2a:1e
    fwwn 20:52:00:05:30:00:2a:1e

  zone name Zone1 vsan 1
    pwwn 21:00:00:20:37:6f:db:dd
    pwwn 21:00:00:20:37:a6:be:2f
    pwwn 21:00:00:20:37:9c:48:e5
    fcalias Alias1

zoneset name ZoneSet1 vsan 1
  zone name Zone1 vsan 1
    pwwn 21:00:00:20:37:6f:db:dd
    pwwn 21:00:00:20:37:a6:be:2f
    pwwn 21:00:00:20:37:9c:48:e5
    fcalias Alias1
```

The following example displays configured zone set information for a specific VSAN.

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```
switch# show zoneset vsan 2-3
zoneset name ZoneSet2 vsan 1
  zone name Zone2 vsan 1
    fwwn 20:52:00:05:30:00:2a:1e
    fwwn 20:53:00:05:30:00:2a:1e
    fwwn 20:54:00:05:30:00:2a:1e
    fwwn 20:55:00:05:30:00:2a:1e
    fwwn 20:56:00:05:30:00:2a:1e

  zone name Zone1 vsan 1
    pwwn 21:00:00:20:37:6f:db:dd
    pwwn 21:00:00:20:37:a6:be:2f
    pwwn 21:00:00:20:37:9c:48:e5
    fcalias Alias1

zoneset name ZoneSet1 vsan 1
  zone name Zone1 vsan 1
    pwwn 21:00:00:20:37:6f:db:dd
    pwwn 21:00:00:20:37:a6:be:2f
    pwwn 21:00:00:20:37:9c:48:e5
    fcalias Alias1
```

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T Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [tail, page 17-2](#)
- [telnet, page 17-3](#)
- [telnet server enable, page 17-4](#)
- [terminal, page 17-5](#)
- [traceroute, page 17-6](#)
- [trunk protocol enable, page 17-7](#)

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tail

To display the last lines (tail end) of a specified file, use the **tail** command in EXEC mode.

tail *filename* [*number-of-lines*]

Syntax Description	<i>filename</i>	The name of the file for which you want to view the last lines.
	<i>number-of-lines</i>	(Optional) The number of lines you want to view. If you do not specify the number of lines, the last 10 lines are displayed.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines You need two separate CLI terminals to use this command. In one terminal, execute the run-script or any other desired command. In the other, issue the **tail** command for the mylog file. In the second terminal, you will see the last lines of the mylog file (as it grows) that is being saved in response to the command issued in the first terminal.

If you specify a long file and would like to exit in the middle, enter **Ctrl-c** to exit this command.

Examples The following example displays the last lines (tail end) of a specified file.

```
switch# run-script slot0:test mylog
```

In another terminal, issue the **tail** command for the mylog file.

```
switch# tail mylog
config t
```

In the second CLI terminal, you see the last lines of the mylog file (as it grows) that is being saved in response to the command issued in the first terminal.

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telnet

To log in to a host that supports Telnet, use the **telnet** command in EXEC mode.

telnet [hostname | ip-address]

Syntax Description	hostname	(Optional) Host name. Maximum length is 64 characters.
	ip-address	(Optional) IP address Maximum length is 64 characters.

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example establishes a Telnet session to the specified IP address.
-----------------	---

```
switch# telnet 172.22.91.153
Trying 172.22.91.153...
Connected to 172.22.91.153.
Login:xxxxxxxx
Password:xxxxxxxx
switch#
```

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telnet server enable

To enable the Telnet server if you wish to return to a Telnet connection from a secure SSH connection, use the **telnet server enable** command. To disable the Telnet server, use the **no** form of this command

telnet server enable

no telnet server enable

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Enabled.
-----------------	----------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	None.
-------------------------	-------

Examples	The following example enables the Telnet server.
-----------------	--

```
switch(config)# telnet server enable
updated
```

```
switch(config)# no telnet server enable
updated
```

Related Commands	Command	Description
	telnet	Logs in to a host that supports Telnet.

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terminal

To configure terminal attributes, use the **terminal** command in EXEC mode. To stop the display of syslog output, use the **no** form of the command.

terminal [**length** *number-of-lines* | **monitor** | **terminal-type** | **unlock** | **width** *integer*]

Syntax Description	length	(Optional) Sets the number of lines on the screen.
	<i>number-of-lines</i>	(Optional) Specifies the number of lines on the screen from 0 to 512. Enter 0 to scroll continuously.
	monitor	(Optional) Displays syslog output for the current terminal and session.
	terminal-type	(Optional) Sets the terminal type.
	width	(Optional) Sets the width of the display terminal, from 0 to 80.
	<i>integer</i>	Sets the width of the display terminal, from 0 to 80.

Defaults

The default number of lines for the length is 24. The default width is 80 lines.

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Remember that all terminal parameter-setting commands are set locally and do not remain in effect after a session is ended. You must perform this task at the EXEC prompt at each session to see the debugging messages.

If the length is not 24 and the width is not 80, then you need to set a length and width.

Examples

The following example displays debug command output and error messages during the current terminal session.

```
switch# terminal monitor
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_CFG_PWRDN: Module 1 powered down
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_PWRDN: Module 1 powered down
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_INSERT: Module 1 has been inserted
Aug  8 10:33:12 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_PWRON: Module 1 powered up
Aug  8 10:33:13 sup48 % LOG_MODULE-5-MOD_REG_OK: LCM - Registration succeeded for module 1
Aug  8 10:38:15 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_CFG_PWRDN: Module 1 powered down
Aug  8 10:38:15 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_INSERT: Module 1 has been inserted
Aug  8 10:38:45 sup48 % LOG_MODULE-5-MOD_REG_OK: LCM - Registration succeeded for module 1
Aug  8 10:43:10 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_CFG_PWRDN: Module 1 powered down
Aug  8 10:43:10 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_PWRDN: Module 1 powered down
.....
```

The following example stops the current terminal monitoring session.

```
switch# terminal no monitor
```

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tracert

To print the route an IP packet takes to a network host, use the **tracert** command in EXEC mode.

tracert {hostname | ip-address}

Syntax Description	<i>host name</i>	The host name.
	<i>ip-address</i>	The IP address.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines This command traces the route an IP packet follows to an internet host by launching UDP probe packets with a small TTL (time to live) then listening for an ICMP (Internet Control Message Protocol) “time exceeded” reply from a gateway.



Note

Probes start with a TTL of one and increase by one until encountering an ICMP “port unreachable.” This means that the host was accessed or a maximum flag was hit. A line is printed showing the TTL, address of the gateway and round trip time of each probe. If the probe answers come from different gateways, the address of each responding system is printed.

Examples The following example prints the route IP packets take to the network host www.cisco.com.

```
switch# tracert www.cisco.com
tracert to www.cisco.com (171.71.181.19), 30 hops max, 38 byte packets
 1 kingfisher1-92.cisco.com (172.22.92.2) 0.598 ms 0.470 ms 0.484 ms
 2 nubulab-gw1-bldg6.cisco.com (171.71.20.130) 0.698 ms 0.452 ms 0.481 ms
 3 172.24.109.185 (172.24.109.185) 0.478 ms 0.459 ms 0.484 ms
 4 sjc12-lab4-gw2.cisco.com (172.24.111.213) 0.529 ms 0.577 ms 0.480 ms
 5 sjc5-sbb4-gw1.cisco.com (171.71.241.174) 0.521 ms 0.495 ms 0.604 ms
 6 sjc12-dc2-gw2.cisco.com (171.71.241.230) 0.521 ms 0.614 ms 0.479 ms
 7 sjc12-dc2-cec-css1.cisco.com (171.71.181.5) 2.612 ms 2.093 ms 2.118 ms
 8 www.cisco.com (171.71.181.19) 2.496 ms * 2.135 ms
```

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trunk protocol enable

To configure the trunk protocol, use the **trunk protocol enable** command in configuration mode. To disable the trunk protocol, use the **no** form of the command.

trunk protocol enable

no trunk protocol enable

Syntax Description This command has no arguments or keywords.

Command Modes Configuration mode

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines If the trunking protocol is disabled on a switch, no port on that switch can apply new trunk configurations. Existing trunk configurations are not affected—the TE port continues to function in trunking mode, but only supports traffic in VSANs that it negotiated previously (when the trunking protocol was enabled). Also, other switches that are directly connected to this switch are similarly affected on the connected interfaces. In some cases, you may need to merge traffic from different port VSANs across a non-trunking ISL. If so, you need to disable the trunking protocol.

Examples The following example shows how to enable and disable the trunk protocol feature.

```
switch# config t
switch(config)# trunk protocol enable
switch(config)# no trunk protocol enable
```

■ trunk protocol enable

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U Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [username](#), page 18-2

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username

To define a user, use the **username** command in configuration mode.

username *name* [**expire** *date*] [**role** *string*] [**update-snmpv3**]

username *string* [**password** [0 | 5 *user-password*] [**expire** *string*] [**role**]=

Syntax Description

expire	Date when this user account expires (in YYYY-MM-DD format).
password	Password for the user.
role	Role which the user is to be assigned
update-snmpv3	Update SNMPv3 password also (provide old SNMPv3 password)
<i>name</i>	The name of the user. Maximum length is 32 characters.
<i>date</i>	The expiration date.
<i>string</i>	The role.
<i>user-password</i>	The password. Maximum length is 32 characters.
0	Password for the user (clear text)
5	Strongly encrypted password

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

None.

Examples

The following example shows how to define a user.

```
switch(config)# username knuckles password testpw role bodega
switch(config)# end
Jan 12 16:05:33 vshd: <<%LOG_VSHD-5-VSHD_SYSLOG_CONFIG_I>> Configuring console)

switch# show user-account
user:admin
    this user account has no expiry date
    roles:network-admin

user:knuckles
    this user account has no expiry date
    roles:bodega
```



V Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [vsan database, page 19-2](#)
- [vrrp, page 19-4](#)

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vsan database

To create multiple fabrics sharing the same physical infrastructure, to assign which ports are in which VSAN, whether Interop mode is on or off, and whether load balancing is per exchange or src-dest ID., use the **vsan** command.

```
vsan database [exit] [no] [vsan vsan-id interface fc slot-number | port-channel port-number]
[vsan vsan-id interop loadbalancing src-dst-id | src-dst-ox-id] [vsan vsan-id loadbalancing
src-dst-id | src-dst-ox-id] [vsan vsan-id name name interop loadbalancing src-dst-id |
src-dst-ox-id] [vsan vsan-id name name loadbalancing src-dst-id | src-dst-ox-id] [vsan
vsan-id suspend interop | loadbalancing] [vsan vsan-id suspend]
```

Syntax Description	
exit	Exits from submode.
no	Negates a command or sets its defaults.
vsan	Configures VSAN information or membership.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
interface	Adds interfaces to VSAN.
fc	Configures Fiber Channel interface.
<i>slot_number</i>	Specifies a slot number and port number.
port-channel	Configures PortChannel interface.
<i>port-number</i>	Specifies PortChannel number.
interop	Turns on interoperability mode.
loadbalancing	Configures loadbalancing scheme.
src-dst-id	Sets src-id/dst-id for loadbalancing.
src-dst-ox-id	Sets ox-id/src-id/dst-id for loadbalancing (default).
suspend	Suspends VSAN.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Change to the VSAN database submode to issue this command.

Examples The following examples show how to create multiple fabrics sharing the same physical infrastructure and to assign which ports are in which VSAN.

```
switch# config t
switch(config)# vsan database
switch(config-db)#
```

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```
switch-config-db# vsan 2
switch(config-vsan-db)#
switch(config-vsan-db)# vsan 2 name TechDoc
updated vsan 2
switch(config-vsan-db)#
switch(config-vsan-db)# vsan 2 loadbalancing src-dst-id
switch(config-vsan-db)#
switch(config-vsan-db)# vsan 2 loadbalancing src-dst-ox-id
switch(config-vsan-db)#
switch(config-vsan-db)# vsan 2 suspend
switch(config-vsan-db)#
switch(config-vsan-db)# no vsan 2 suspend
vs.-config-vsan-db#
switch(config-vsan-db)# end
switch#
```

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vrrp

To enable VRRP, use the **vrrp** command in configuration mode. Use the **no** form of the command to revert to the factory defaults or to negate a command.

vrrp *vrrp-number*
[*address* | *advertisement-interval* | *authentication* | *preempt* | *priority* | *shutdown* | *track*]

no vrrp *vrrp-number*
[*address* | *advertisement-interval* | *authentication* | *preempt* | *priority* | *shutdown* | *track*]

Syntax Description

vrrp <i>vrrp-number</i>	Configures a VRRP on the selected VSAN or management interface
address	Adds or removes an IP address to the virtual router.
advertisement-interval	Sets the time interval between advertisements.
authentication	Sets the authentication method.
preempt	Enables preemption of lower priority master.
priority	[1-254] Configure the virtual router priority.
shutdown	Enables or disables a virtual router.
track	Tracks the availability of another interface.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Enter the Virtual Router configuration submode to access the options for this command. From the VSAN or mgmt0 (management) interface configuration submode, enter **vrrp** *number* to enter the `switch(config-if-vrrp)#` prompt. By default, a virtual router is always disabled (**shutdown**). VRRP can be configured only if this state is disabled. Be sure to configure at least one IP address before attempting to enable a VR.

Refer to the Cisco MDS 9000 Family Configuration Guide.

Examples

The following example enables VRRP configuration.

```
switch(config-if-vrrp)# no shutdown
```

The following example disables VRRP configuration.

```
switch(config-if-vrrp)# shutdown
```

The following example configures an IP address for the selected VRRP.

```
switch# config t
```

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```
switch(config)# interface vsan 1
switch(config-if)# vrrp 250
switch(config-if-vrrp)# address 10.0.0.10
```

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W Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. Please see the Command Mode section to determine the appropriate mode for each command. For more information, see the *Cisco MDS 9000 Family Configuration Guide*.

- [write erase, page 20-2](#)
- [wwn secondary-mac, page 20-3](#)

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write erase

To clear a startup configuration, enter the **write erase** command from the EXEC mode prompt.

write erase [**boot** | **debug**]

Syntax Description	<table> <tr> <td>boot</td><td>Destroys boot configuration.</td></tr> <tr> <td>debug</td><td>Clears the existing debug configuration.</td></tr> </table>	boot	Destroys boot configuration.	debug	Clears the existing debug configuration.
boot	Destroys boot configuration.				
debug	Clears the existing debug configuration.				
Defaults	None.				
Command Modes	EXEC mode.				
Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).				
Usage Guidelines	Once this command is issued, the switch's startup configuration reverts to factory defaults. The running configuration is not affected. The write erase command erases the entire startup configuration with the exception of any configuration that affects the loader functionality. The write erase boot command only erases the configuration that affects the loader functionality. The loader functionality configuration includes the boot variables and the mgmt0 IP configuration information (IP address, netmask and default gateway).				
Examples	The following example clears the existing startup configuration completely. <pre>switch# write erase</pre> The following example clears the loader functionality configuration. <pre>switch# write erase boot</pre> This command will erase the boot variables and the ip configuration of interface mgmt 0				

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wwn secondary-mac

To allocate secondary MAC addresses, use the **wwn secondary-mac** command.

wwn secondary-mac *wwn-id* **range** *address-range*

Syntax Description	secondary-mac <i>wwn-id</i>	The secondary MAC address with the format <i>hh:hh:hh:hh:hh:hh</i> .
	range <i>address-range</i>	The range for the specified WWN (64).

Command Modes	EXEC
----------------------	------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
------------------------	---

Usage Guidelines	This command cannot be undone.
	Changes to the worldwide names are only performed as required. They should not be changed on a daily basis. These changes should be made by an administrator or individual who is completely familiar with switch operations.
	For more information, refer to the <i>Cisco MDS 9000 Family Configuration Guide</i> .

Examples	switch(config)# wwnm secondary-mac 00:99:55:77:55:55 range 64
	This command CANNOT be undone.
	Please enter the BASE MAC ADDRESS again: 00:99:55:77:55:55
	Please enter the mac address RANGE again: 64
	From now on WWN allocation would be based on new MACs.
	Are you sure? (yes/no) no
	You entered: no. Secondary MAC NOT programmed

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Z Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See the “Command Modes” section to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family Configuration Guide*.

- [zone copy, page 21-2](#)
- [zone default-zone, page 21-3](#)
- [zone merge, page 21-4](#)
- [zone name, page 21-5](#)
- [zoneset, page 21-7](#)

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zone copy

To copy the active zone set to the full zoneset, use the **zone copy** command in EXEC mode. Use the no form of the command to negate the command or revert to the factory defaults.

zone copy *active -zoneset full-zoneset* [**vsan** *vsan-id*]

Syntax Description	active-zoneset	Copies from the active zone set.
	full-zoneset	Copies active zone set to full zone set.
	vsan	Configures to copy active zone set on a VSAN to full zone set.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes EXEC.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines None.

Examples The following example copies the active zoneset to the full zoneset.

```
switch# zone copy active-zoneset full-zoneset vsan 1
```

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zone default-zone

To define whether a default zone (nodes not assigned a created zone) permits or denies access to all in the default zone, use the **zone default-zone** command in configuration mode.

zone default-zone permit vsan *vsan-id*

Syntax Description	permit	Permits access to all in the default zone.
	vsan	Sets default zoning behavior for the specified VSAN.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults	All default zones are permitted access.
----------	---

Command Modes	Configuration mode.
---------------	---------------------

Command History	This command was introduced in Cisco MDS SAN-OS Release 1.0(2).
-----------------	---

Usage Guidelines	None.
------------------	-------

Examples	The following example permits default zoning in VSAN 2.
----------	---

```
switch# config t
switch(config)# zone default-zone permit vsan 2
```

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zone merge

To merge zone server databases, use the **zone merge** command.

zone merge interface [*fc slot-number* | **port-channel** *port-number*] **import** | **export** **vsan** *vsan-id*

Syntax Description	interface	Configures the interface.
	fc	Configures a Fibre Channel interface.
	<i>slot-number</i>	Specifies a slot number and port number.
	port-channel	A PortChannel interface.
	<i>port-number</i>	Specifies the PortChannel number.
	export	Exports the zone server database to the adjacent switch on the specified interface. The active zone set in this switch becomes the activated zone set of the merged SAN.
	import	Imports the zone server database to the adjacent switch on the specified interface. The active zoneset in the adjacent switch becomes the activated zone set of the merged SAN.
	vsan	Merges the zone server database of a VSAN on the specified interface.
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes EXEC mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines This command can be used to recover from link isolation due to zone merge failure.

Examples The following example merges zone server databases.

```
switch# zone merge interface port-channel 3 export vsan 3
```

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zone name

To create a zone, use the **zone name** command in configuration mode.

```
zone name zone-name vsan vsan-id [exit] [member fcalias name | fcid fcid-value | fwwn
fwwn-value | pwwn pwwn-value] [no]
```

Syntax Description

<i>zone-name</i>	Specifies the name of the zone. Maximum length is 64 characters.
vsan	Configures a zone on a VSAN.
<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.
exit	(Optional) Exits from this submode.
member	(Optional) Adds a member to zone.
fcalias	(Optional) Adds fcalias to zone.
<i>fcalias-name</i>	Specifies the name of fcalias (Max Size - 64).
fcid	Adds FCID member to zone.
<i>fcid-value</i>	Specifies the FCID in the format 0xhhhhhh.
fwwn	Adds fabric port WWN member to zone.
<i>fwwn-value</i>	Specifies fabric port WWN in the format hh:hh:hh:hh:hh:hh:hh:hh.
pwwn	Adds port WWN member to zone.
<i>pwwn-value</i>	Specifies port WWN in the format hh:hh:hh:hh:hh:hh:hh:hh.
no	Negates a command or sets its defaults.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

Zones are assigned to zone sets, zone sets are then activated from one switch and propagate across the fabric to all switches. Zones allow security by permitting and denying access between nodes (hosts and storage). **zone name** commands are issued from the configuration mode. Configure a zone for a VSAN from the config-zone submode.

Examples

The following example configures a member for the specified zone (Zone1) based on the type (pWWN, fabric pWWN, FC ID, or FC alias) and value specified.

```
switch# config t
switch(config)# zone name Sample vsan 1
switch(config-zone)# member <type> <value>
pWWN example:
switch(config-zone)# member pwwn 10:00:00:23:45:67:89:ab
```

■ zone name

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```
Fabric pWWN example:
switch(config-zone)# member fwwn 10:01:10:01:10:ab:cd:ef
FC ID example:
switch(config-zone)# member fcid 0xce00d1
FC alias example:
switch(config-zone)# member fcalias Payroll
```

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zoneset

To group zones under one zoneset, use the **zoneset** command in configuration mode.

zoneset [**activate name** *zoneset-name* **vsan** *vsan-id*] [**distribute full vsan** *vsan-id*][**name** *zoneset-name* **vsan** *vsan-id*]

Syntax Description	activate	Activate a zoneset
	name	Configures a zone set.
	<i>zoneset-name</i>	Specifies a name for a zone set. Maximum length is 64 characters.
	distribute full	Enables zone set propagation
	vsan	Activates a zone set on the specified VSAN. The id of the VSAN (1-4096).
	<i>vsan-id</i>	The ID of the VSAN is from 1 to 4093.

Defaults None.

Command Modes Configuration mode.

Command History This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines Zones are activated by activating the parent zone set.

Examples The following example activates a zoneset named gottons in VSAN 333.

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# zoneset ?
  activate    Activates a zoneset
  distribute  Enable zoneset propagation
  name        Configures a zoneset

switch(config)# zoneset name gottons ?
  vsan        Configures a zoneset on a VSAN

switch(config)# zoneset activate name gottons vsan 333
Zoneset Activation initiated. check zone status
```

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