



Before You Begin

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

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About the Switch Prompt



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.

Once the switch is powered on successfully, you see the default switch prompt (`switch#`) as shown in [Example 1-1](#).

Example 1-1 Output When a Switch Boots Up

```
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
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
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>>>>>

switch login:admin101
Password:*****
Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
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at http://www.gnu.org/licenses/gpl.html.
switch#
```

You can perform embedded CLI operations, access command history, and use command parsing functions at this prompt. The switch gathers the command string upon detecting an **Enter** (CR) and accepts commands from the terminal.

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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.	switch#
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.	From EXEC mode, enter the config terminal command.	switch(config)#

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**.

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.

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 submode, you can query the available commands there.

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

```
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 submode
  fcdomain       Enter the interface submode
  fspf           To configure FSPF related parameters
  no             Negate a command or set its defaults
  shutdown       Enable/disable an interface
  switchport     Configure switchport parameters
```

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. From 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
```

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undebug	Disable Debugging functions (See also debug)
write	Write current configuration
zone	Execute Zone Server commands

Configuration Mode

In configuration mode, you can 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

Here 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
  fcdroplateness    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
```

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ssh	Configure SSH parameters
switchname	Configure system's network name
system	System config command
telnet	Enable telnet
trunk	Configure Switch wide trunk protocol
username	Configure user information.
vsan	Enter the vsan configuration mode
wnn	Set secondary base MAC addr and range for additional WNNs
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.



Note

In configuration mode, you can alternatively enter

- **Ctrl-Z** instead of the **end** command, and
- **Ctrl-G** instead of the **exit** command

You can execute an EXEC mode command from a configuration mode or submode prompt. You can issue this command from any submode within the configuration mode. When in configuration mode (or in any submode), enter the **do** command along with the required EXEC mode command. The entered command is executed at the EXEC level and the prompt resumes its current mode level.

```
switch(config)# do terminal session-timeout 0
switch(config)#
```

In this example, **terminal session-timeout** is an EXEC mode command—you are issuing an EXEC mode command using the configuration mode **do** command.

The **do** command applies to all EXEC mode commands other than the **end** and **exit** commands. You can also use the help (?) and command completion (**Tab**) features for EXEC commands when issuing a **do** command along with the EXEC command.

[Table 1-2](#) lists some useful command keys that can be used in both EXEC and configuration modes.

Table 1-2 Useful Command Key Description

Command	Description
Ctrl-P	Up history
Ctrl-N	Down history
Ctrl-R	Refreshes the current line and reprints it.
Ctrl-X-H	List history
Alt-P	History search backwards
	Note The difference between Tab completion and Alt-P or Alt-N is that Tab completes the current word while Alt-P and Alt-N completes a previously entered command.
Alt-N	History search forwards
Ctrl-G	Exit
Ctrl-Z	End
Ctrl-L	Clear screen

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Table 1-3 displays the commonly used configuration submodes.

Table 1-3 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-attrib)#	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
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
Zone	zone name string vsan vsan-id	switch(config-zone)#	Zone member
Zone set	zoneset name name vsan vsan-id	switch(config-zoneset)#	Zone set member

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