



Using the Command-Line Interface

This chapter describes how to use the command-line interface of the Cisco Nexus 5000 Series switch. It contains the following sections:

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Accessing the Command Line Interface

You can connect to the switch using a terminal plugged into the console port.

You can also connect to the switch with Telnet or SSH. The switch supports up to eight simultaneous Telnet and SSH connections. To connect with Telnet or SSH, you need to know the hostname or IP address of the switch.

Telnet Connection

You can make a Telnet connection to a Cisco Nexus 5000 Series switch.

Before You Begin

Correctly set the console port parameters.

SUMMARY STEPS

1. Make a Telnet connection from your host to the switch that you want to access.
2. At the switch login prompt, enter your username and password.
3. Exit the session when finished.

DETAILED STEPS

Step 1 Make a Telnet connection from your host to the switch that you want to access.

```
host$ telnet {hostname | ip-addr}
```

Step 2 At the switch login prompt, enter your username and password.
The Cisco Nexus 5000 Series switch initiates authentication.

Note If no password has been configured, press
Return.

Step 3 Exit the session when finished.

```
switch# exit
```

This example shows how to make a Telnet connection to a switch:

```
host$ telnet 10.0.13.42
Trying 10.0.13.42...

Connected to 10.0.13.42
Escape character is '^]'.
switch Login: admin
Password: password
...
switch# exit
```

SSH Connection

You can make an SSH connection to a Cisco Nexus 5000 Series switch.

Before You Begin

Correctly set the console port parameters.

SUMMARY STEPS

1. Make an SSH connection from your host to the switch that you want to access.
2. At the switch login prompt, enter your username and password.
3. Exit the session when finished.

DETAILED STEPS

Step 1 Make an SSH connection from your host to the switch that you want to access.

```
host$ ssh [-D port] [{user@}] hostname | ip_addr
```

Step 2 At the switch login prompt, enter your username and password.
The Cisco Nexus 5000 Series switch initiates authentication.

Note If no password has been configured, press
Return.

Step 3 Exit the session when finished.
switch# **exit**

This example shows how to make an SSH connection to a switch:

```
host$ ssh 10.0.13.42
The authenticity of host '(10.0.13.42)' can't be established.
RSA key fingerprint is 53:b4:ad:c8:51:17:99:4b:c9:08:ac:c1:b6:05:71:9b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.13.42' (RSA) to the list of known hosts.
switch Login: admin
Password: password
...
switch# exit
```

Using the CLI

Using CLI Command Modes

Switches in the Cisco Nexus 5000 Series 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.

The following table 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 the commands that are available to you in that mode.

Table 1: Frequently Used Switch Command Modes

| Mode | Description | 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 configure 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 **configure terminal** command to **conf t**.

Changing Command Modes

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

Listing the Commands Used with Each Command Mode

You can display the commands available in any command mode by typing a question mark (?) at the switch prompt.

CLI Command Hierarchy

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 **configure terminal** command.

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

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

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# ?

bandwidth          Set bandwidth informational parameter
cdp                Configure CDP interface parameters
channel-group      Add to/remove from a port-channel
delay              Specify interface throughput delay
description         Enter description of maximum 80 characters
exit               Exit from command interpreter
fcoe               Fibre channel over ethernet configuration
fex                Configure FEX fabric
flowcontrol         Configure interface flowcontrol
ip                 Configure IP features
ipv6               Configure IPv6 features
lacp               Configure LACP parameters
link               Configure link
lldp               Configure Interface LLDP parameters
logging             Configure logging for interface
mac                MAC configuration commands
no                 Negate a command or set its defaults
priority-flow-control
Configure interface priority-flowcontrol
service-policy      Configure QoS service policy
shutdown           Enable/disable an interface
snmp               Modify SNMP interface parameters
spanning-tree       Spanning Tree Subsystem
speed              Enter the port speed
storm-control        Configure Interface storm control
switchport          Configure switchport parameters
untagged            default to use for untagged packets on interface
```

EXEC Mode Commands

When you start a session on the switch, you begin in EXEC mode. 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.

The following commands are available in EXEC mode:

```
switch# ?
attach          Connect to a specific linecard
callhome        callhome commands
cd              Change current directory
check           run consistency check on external storage device
clear           Reset functions
cli             CLI commands
clock           Manage the system clock
configure       Enter configuration mode
copy            Copy from one file to another
debug           Debugging functions
debug-filter    Enable filtering for debugging functions
delete          delete a file
dir             list files in a directory
discover        discover information
echo            echo argument back to screen (usefull for run script)
end             Exit configuration mode
ethanalyzer     Configure cisco fabric analyzer
exit            Exit from command interpreter
fcping          Ping an N-Port
fctrace         Trace the route for an N-Port.
fex             FEX control commands
find            Find a file below the current directory
format          Format disks
gunzip           Uncompresses LZ77 coded files
gzip            Compresses file using LZ77 coding
install         upgrade software
license         Enter the license configuration mode
mkdir           Create new directory
move            Move files
no              Negate a command or set its defaults
ntp             Execute NTP commands
ping            Test network reachability
ping6           Test IPv6 network reachability
purge           Deletes unused data
pwd             View current directory
reload          Reboot the entire box
rmdir           Delete a directory
routing-context Set the routing context
run-script      Run shell scripts
san-port-channel Port-Channel related commands
send            Send message to open sessions
session         Configure session preferences
setup           Run the basic SETUP command facility
show            Show running system information
sleep           Sleep for the specified number of seconds
ssh             SSH to another system
ssh6            SSH to another system
system          System management commands
tac-pac         save tac information to a specific location
tail            Display the last part of a file
telnet          Telnet to another system
telnet6         Telnet6 to another system
terminal        Set terminal line parameters
terminate       Terminates a config session
test            test command
traceroute      Traceroute to destination
traceroute6     Traceroute6 to destination
undebg          Disable Debugging functions (See also debug)
unmount         unmount compact flash disk or usb drive
update          Update license
where           shows the cli context you are in
write           Write current configuration
xml             xml agent
zone            Execute Zone Server commands
zoneset         Execute zoneset commands
```

Configuration Mode Commands

Configuration mode allows you to make changes to the existing configuration. When you save the configuration, these commands are saved 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.

The following commands are available in configuration mode:

```
switch# configure terminal
switch(config)# ?
  aaa                Configure aaa functions
  banner             Configure banner message
  boot               Configure boot variables
  callhome           Enter the callhome configuration mode
  cdp                Configure CDP parameters
  cfs                CFS configuration commands
  class-map          Configure class-map
  cli                Configure CLI aliases
  clock              Configure time-of-day clock
  device-alias       Device-alias configuration commands
  diagnostic          Diagnostic commands
  end                Exit configuration mode
  exit               Exit from command interpreter
  fabric-binding     Fabric Binding configuration
  fcalias             Fcalias configuration commands
  fcdomain           Enter the fcdomain configuration mode
  fcdroplateness     configure switch or network latency
  fcflow             Configure fcflow
  fcid-allocation    Add/remove company id(or OUIs) from auto area list
  fcinterop          Interop commands
  fcns               name server configuration
  fcroute            Configure FC routes
  fcs                Configure Fabric Config Server
  fcsp               Config commands for FC-SP
  fctimer            configure fibre channel timers
  fdmi               config commands for FDMI
  feature            Command to enable/disable features
  fex                FEX configuration
  fspf               Configure fspf
  hostname            Configure system's host name
  hw-module          Enable/Disable OBFL information
  in-order-guarantee set in-order delivery guarantee
  interface           Configure interfaces
  ip                 Configure IP features
  ipv6               Configure IPv6 features
  lacp               Configure LACP parameters
  license            Modify license features
  line               Configure a terminal line
  lldp               Configure global LLDP parameters
  logging            Modify message logging facilities
  mac                MAC configuration commands
  mac-address-table  MAC Address Table
  monitor            Ethernet SPAN
  no                 Negate a command or set its defaults
  npiv               Nx port Id Virtualization (NPIV) feature enable
  npv                Config commands for FC N_port Virtualizer
  ntp                NTP Configuration
  policy-map         Configure policy-map
  port-channel        Configure port channel parameters
  port-security       Configure Port Security
  port-track          Configure Switch port track config
  privilege           Command privilege parameters
  radius-server       Configure RADIUS related parameters
  resequence          Resequenece a list with sequence numbers
  rib                Configure RIB parameters
  rlir               config commands for RLIR
  rmon               Remote Monitoring
  role                Configure roles
  rscn               config commands for RSCN
  scsi-target         scsi-target configuration
  show               Show running system information
  snmp-server         Configure snmp server
  spanning-tree       Spanning Tree Subsystem
  ssh                Configure SSH parameters
  switchname          Configure system's host name
  system              system config command
  system              System management commands
  tacacs+             Enable tacacs+
  telnet              Enable telnet
```


| | |
|----------|---|
| track | Object tracking configuration commands |
| trunk | Configure Switch wide trunk protocol |
| username | Configure user information. |
| vlan | Vlan commands |
| vrf | Configure VRF parameters |
| vsan | Enter the vsan configuration mode |
| wwn | Set secondary base MAC addr and range for additional WWNs |
| xml | xml agent |
| zone | Zone configuration commands |
| zoneset | Zoneset configuration commands |

Using Commands

You can configure the CLI to function in two ways: configure it interactively by entering commands at the CLI prompt or create an ASCII file containing switch configuration information (use the CLI to edit and activate the file).

Listing Commands and Syntax

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

```
switch# ?
```

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

```
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# # configure ?
<CR>
terminal Configure the system from terminal input
```

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.

Entering Command Sequences

In any command mode, you can begin a particular command sequence, and then 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 displayed.

Undoing or Reverting to Default Values or Conditions

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

- Undo an incorrectly entered command.

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

```
switch(config)# zone name test vsan 1
switch(config-zone)# member pwn 12:12:12:12:12:12:12:12
switch(config-zone)# no member pwn 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, enter the following commands:

```
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 still in zone configuration submode. You must first exit the zone submode and return to configuration mode.

- Revert to the default value.

If you enter the **zone merge-control restrict vsan** command, you can undo the results:

```
switch(config)# zone merge-control restrict vsan 10
switch(config)# no zone merge-control restrict vsan 10
switch(config)#
```

Using Keyboard Shortcuts

You can execute an EXEC mode command from a configuration mode or submode prompt. You can enter this command from any submode within the configuration mode. The command is executed at the EXEC level, and the prompt resumes its current mode level, as in the following example:

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

In this example, **terminal session-timeout** is an EXEC mode command.

The following table lists some useful command keys that can be used in both EXEC and configuration modes.

Table 2: Useful Command Keys

| Command | Description |
|----------|---|
| Ctrl-P | Up history |
| Ctrl-N | Down history |
| Ctrl-X-H | List history |
| Alt-P | History search backwards |
| | Note The difference between Tab completion and Alt-P or Alt-N is that pressing Tab completes the current word, while Alt-P and Alt-N completes a previously entered command. |

| Command | Description |
|---------|-------------------------|
| Alt-N | History search forwards |
| Ctrl-G | Exit |
| Ctrl-Z | End |
| Ctrl-L | Clear session |

The following table describes the commonly used configuration submodes.

Table 3: Common Configuration Submodes

| Submode Name | From Configuration Mode, Enter: | Submode Prompt |
|-------------------------|--|--------------------------------------|
| Call home | callhome | switch(config-callhome) # |
| FCS Registration | fcs register | switch(config-fcs-register) # |
| | From FCS registration submode: platform name name vsan vsan-id | switch(config-fcs-register-attrib) # |
| Fibre Channel alias | fcalias name name vsan vsan-id | switch(config-fcalias) # |
| FSPF | fspf config vsan vsan-id | switch(config-(fspf-config)) # |
| Interface configuration | interface type slot/port | switch(config-if) # |
| Line console | line console | switch(config-console) |
| Virtual terminal line | line vty | switch(config-line) # |
| Role | role name | switch(config-role) # |
| VLAN | vlan | switch(config-vlan) # |
| VSAN database | vsan database | switch(config-vsan-db) # |
| Zone | zone name string vsan vsan-id | switch(config-zone) # |
| Zone set | zoneset name name vsan vsan-id | switch(config-zoneset) # |

Using CLI Variables

The Cisco Nexus 5000 Series CLI parser supports the definition and use of variables in CLI commands. CLI variables can be used as follows:

- Entered directly on the command line.

- Passed to the child script initiated using the **run-script** command.
The variables defined in the parent shell are available for use in the child **run-script** command process.
- Passed as command line arguments to the **run-script** command.

CLI variables have the following characteristics:

- You cannot reference a variable through another variable using nested references.
- You can define persistent variables that are available across switch reloads.
- You can reference only one predefined system variable, which is the **TIMESTAMP** variable.

User-Defined Persistent CLI Variables

You can define CLI session variables to persist only for the duration of your CLI session using the **cli var name** command in EXEC mode. CLI session variables are useful for scripts that you execute periodically.

The following example shows how to create a user-defined CLI session variable:

```
switch# cli var name testinterface fc 1/1
```

You can reference a variable using the syntax **\$(variable)**. The following example shows how to reference a user-defined CLI session variable:

```
switch# show interface $(testinterface)
fc2/1 is up
Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
  Port WWN is 20:01:00:0d:ec:0e:1d:00
  Admin port mode is auto, trunk mode is on
  snmp traps are enabled
  Port mode is F, FCID is 0x01000b
  Port vsan is 1
  Speed is 2 Gbps
  Transmit B2B Credit is 7
  Receive B2B Credit is 16
  Receive data field Size is 2112
  Beacon is turned off
  5 minutes input rate 256 bits/sec, 32 bytes/sec, 1 frames/sec
  5 minutes output rate 256 bits/sec, 32 bytes/sec, 1 frames/sec
    232692 frames input, 7447280 bytes
      0 discards, 0 errors
      0 CRC, 0 unknown class
      0 too long, 0 too short
    232691 frames output, 7448692 bytes
      0 discards, 0 errors
    0 input OLS, 0 LRR, 0 NOS, 0 loop inits
    1 output OLS, 1 LRR, 0 NOS, 1 loop inits
    16 receive B2B credit remaining
    7 transmit B2B credit remaining
```

Use the **show cli variables** command to display user-defined CLI session variables. The following example displays user-defined CLI session variables:

```
switch# show cli variables
VSH Variable List
-----
TIMESTAMP="2005-10-24-21.29.33"
testinterface="fc 1/1"
```

Use the **cli no var name** command to remove user-defined CLI session variables. The following example removes a user-defined CLI session variable:

```
switch# cli no var name testinterface
```

Using Command Aliases

Command alias support has the following characteristics:

- Command aliases are global for all user sessions.
- Command aliases are saved across reboots.
- Commands being aliased must be typed in full without abbreviation.
- Command alias translation always takes precedence over any keyword in any configuration mode or submode.
- Command alias support is only available on the supervisor module, not the switching modules.
- Command alias configuration takes effect for other user sessions immediately.
- You cannot override the default command alias **alias**, which aliases the **show cli alias** command.
- Nesting of command aliases is permitted to a maximum depth of 1. One command alias can refer to another command alias that must refer to a valid command, not to another command alias.
- A command alias always replaces the first command keyword on the command line.
- You can define command aliases for commands in any configuration submode or the EXEC mode.

Defining Command Aliases

You can define command aliases using the **cli alias name** command in configuration mode.

This following example shows how to define command aliases:

```
switch# configure terminal
switch(config)# cli alias name eth interface ethernet
switch(config)# cli alias name shintbr show interface brief
switch(config)# cli alias name shfcintup shintbr | include up | include fc
```

You can display the command aliases defined on the switch using the **alias** default command alias.

The following example shows how to display the command aliases defined on the switch:

```
switch# alias
CLI alias commands
=====
alias      :show cli alias
gigint     :interface gigabitethernet
shintbr     :show interface brief
shfcintup  :shintbr | include up | include fc
```

Command Scripts

Executing Commands Specified in a Script

The **run-script** command executes the commands specified in a file. To use this command, be sure to create the file and specify commands in the required order.

**Note**

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

The syntax for this command is **run-script** *filename*.

This example displays the CLI commands specified in a test file that resides in the `bootflash:` directory.

```
switch# show file bootflash:testfile
configure terminal
interface fc 3/1
no shutdown
end
show interface fc 3/1
```

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

```
switch# run-script bootflash:testfile
'configure terminal'
Enter configuration commands, one per line. End with CNTL/Z.
'interface fc 3/1'
'no shutdown'
'end'
'show interface fc 3/1'
fc3/1 is trunking
  Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
  Port WWN is 20:81:00:0d:ec:6b:cd:c0
  Peer port WWN is 20:01:00:0d:ec:0d:d0:00
  Admin port mode is auto, trunk mode is on
  snmp link state traps are enabled
  Port mode is TE
  Port vsan is 1
  Speed is 2 Gbps
  Transmit B2B Credit is 255
  Receive B2B Credit is 16
  Receive data field Size is 2112
  Beacon is turned off
  Trunk vsans (admin allowed and active) (1)
  Trunk vsans (up) (1)
  Trunk vsans (isolated) ()
  Trunk vsans (initializing) ()
  5 minutes input rate 96 bits/sec, 12 bytes/sec, 0 frames/sec
  5 minutes output rate 64 bits/sec, 8 bytes/sec, 0 frames/sec
    77423 frames input, 6708868 bytes
      0 discards, 0 errors
      0 CRC, 0 unknown class
      0 too long, 0 too short
    77302 frames output, 4184976 bytes
      0 discards, 0 errors
      1 input OLS, 2 LRR, 0 NOS, 0 loop inits
      1 output OLS, 0 LRR, 1 NOS, 0 loop inits
      16 receive B2B credit remaining
      255 transmit B2B credit remaining
```

Using CLI Variables in Scripts

You can use CLI variables defined by the **cli var** command or passed as arguments in the **run-script** command.

The following example shows how to use CLI session variables in a script file used by the **run-script** command:

```
switch# cli var name testinterface fc 1/1
switch# show file bootflash:test1.vsh
show interface $(testvar)
switch# run-script bootflash:test1.vsh
`show interface $(testvar)`
fc2/1 is down (SFP not present)
Hardware is Fibre Channel
Port WWN is 20:01:00:05:30:00:8e:1e
Admin port mode is auto, trunk mode is on
Port vsan is 1
Receive data field Size is 2112
Beacon is turned off
5 minutes input rate 0 bits/sec, 0 bytes/sec, 0 frames/sec
5 minutes output rate 0 bits/sec, 0 bytes/sec, 0 frames/sec
1 frames input, 128 bytes
0 discards, 0 errors
0 CRC, 0 unknown class
0 too long, 0 too short
1 frames output, 128 bytes
0 discards, 0 errors
0 input OLS, 0 LRR, 0 NOS, 0 loop inits
0 output OLS, 0 LRR, 0 NOS, 0 loop inits
0 receive B2B credit remaining
0 transmit B2B credit remaining
```

The following example shows how you can pass a CLI session variable as arguments to a child **run-script** command process:

```
switch# show file bootflash:test1.vsh
show interface $(var1) $(var2)
switch# run bootflash:test2.vsh var1="fc2/1" var2="brief"
`show interface $(var1) $(var2)`
```

```
-----
Interface  Vsan      Admin  Admin  Status      SFP      Oper  Oper  Port
          Mode      Trunk                                     Mode  Speed  Channel
                               Mode                                     (Gbps)
-----
fc2/1 1 auto on sfpAbsent -- -- -- \
```

Related Topics

- [Using Command Aliases , page 13](#)

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 command script called test-script and then you execute the 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.

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

