Basic Configuration Commands

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Chapter 1 System Management Commands

1.1 Configuring File Management Commands

- copy
- delete
- dir
- ip address
- ip route
- show configuration
- format
- more

1.1.1 copy

To read a file from the tftp server to a switch, use the **copy** command.
copy tftp<*:filename*> {**flash**<*:filename*>|**rom**} [*ip_addr*]

Parameter

Parameter	Description
tftp<:filename>	Read a file from the tftp server. Filename indicates the relevant filename. If not specified the filename, the system will prompt user to input the filename after executing the copy command.
flash <:filename>	Write a file to the flash memory of the switch. Filename indicates the relevant filename. If not specified the filename, the system will prompt user to input the filename after executing the copy command.
rom	Updates bootrom for the switch.
ip_addr	Specifies the IP address of tftp srever. If not specified, the system will prompt user to input the IP address after executing the copy command.

Default

None

Command mode

monitor mode

Instrution

None

Example

monitor#copy tftp:switch.bin flash:switch.bin 192.2.2.1

The example shows how to read the switch.bin from the tftp server to the flash memory of the switch:

Related commands

None

1.1.2 delete

To delete a file, use the **delete** command.
delete *file-name*

Parameter

Parameter	Description
file-name	Specifies the filename (maximum 20 characters)

Default

If not specified the file-name, the system will delete startup-config by default.

Command mode

monitor mode

Instruction

None

Related commands

None

1.1.3 dir

To display filename, use the **dir** command.

dir *file-name*

Parameter

Parameter	Description
file-name	Specifies the filename (maximum 20 characters)

Default

None

Command mode

monitor mode

Instruction

None

Related commands

None

1.1.4 ip address

To set an IP address for an Ethernet interface, use the **ip address** command.
ip address *ip-address mask*

Parameter

Parameter	Description
ip-address	IP address
mask	IP network mask

Default

None

Command mode

monitor mode

Instruction

None

Example

monitor#ip address 192.168.1.1 255.255.255.0

Related commands

ip route
ping

1.1.5 ip route

To specify a default gateway, use the **ip route** default command.
ip route default gw_ip_addr

Parameter

Parameter	Description
gw_ip_addr	Default gateway address

Default

None

Command mode

Monitor mode

Instrution

None

Example

monitor#ip route default 192.168.1.3

Related commands

ip address

1.1.6 show configuration

To display the running configuration file, use the **show configuration** command.
show configuration

Parameter

None

Default

None

Command mode

monitor mode

Instrution

None

Related commands

None

1.1.7 format

To format file system, use the **format** command.
format

Parameter

None

Default

None

Command mode

EXEC

Instrution

All files in the file system will de deleted after executing the format command.

Related commands

None

1.1.8 more

To display the contents of a file, use the **more** command.
more *file-name*

Parameter

Parameter	Description
file-name	Specifies the name of a file (maximum 20 characters)

Default

None

Command mode

EXEC

Instrution

If all files are displayable characters, they will be displayed in ASCII format, or they will be displayed binary format.

Related commands

None

1.2 Basic System Management Commands

- bootflash
- cd
- chram
- date
- debub job
- md
- pwd
- rd
- rename

- reboot
- show break
- show memory
- alias
- boot system flash
- help
- history
- job
- jobd
- show alias
- show job

1.2.1 boot flash

To enable the system from the specified file in monitor mode, use the **boot flash** command.
boot flash *filename*

Parameter

Parameter	Description
filename	Specified file name.

Default

None

Command mode

monitor mode

Command mode

Use the boot flash command to enable the device after user entering the monitor mode.

Example

monitor#boot flash switch.bin

Related commands

None

1.2.2 cd

To change the current directory, use the **cd** command.

cd *directory*|*..*

Parameter:

Parameter	Description
directory	Name of the directory. (maximum 20 characters)
..	Upper directory.

Default

None

Command mode

Monitor mode

Command mode

None

Example

monitor#cd my_dir

Related commands

pwd

1.2.3 date

To set the absolute time, use the **date** command.

Parameter

None

Default

None

Command mode

Monitor mode

Command mode

This command is used to set the abslute time for the system. For the switch with a battery-powered clock, the clock will be powered by the battery. If the clock doesn't keep good time, you need to change the battery.

For the swich without a battery-powered clock, the system date is configured to July 1st, 1970 after the reboot of the switch, and user needs to set the current time each time when starting the switch.

Example

monitor#date

The current date is 2000-7-27 21:17:24

Enter the new date(yyyy-mm-dd):2000-7-27 Enter

the new time(hh:mm:ss):21:17:00

Related commands

1.2.4 debug job

To track the debug condition of the job, run **debug job**.

Parameter

None

Command mode

EXEC

Instrution

Output the debug and execution condition of the job after turn on the debug switch of the job.

Example

config#debug job JOB:

<showver> fired

JOB: job <showver>, cmd "show ver" is parsing

Related commands

job jobd

show job

1.2.5 md

md *directory*

Parameter

Parameter	Description
directory	Name of directory (maximum 20 characters)

Default

None

Command mode

monitor

Instruction

To set a directory, use the **md** command

Related commands

None

1.2.6 pwd

Parameter

None

Default

None

Command mode

monitor mode

Instruction

To display the current directory, use the **pwd** command

Related commands

None

1.2.7 rd

rd *directory*

Parameter

Parameter	Description
directory	Name of the directory(maximum 20 characters)

Default

None

Command mode

monitor mode

Instruction

The system prompts if the directory is not empty. The system prompts if the directory doesn't exist. To delete a command, use the rd command.

Related commands

None

1.2.8 rename

To rename a file in a file system, use the **rename** command.

rename *old_file_name* *new_file_name*

Parameter

Parameter	Description
old_file_name	The original filename.
new_file_name	The new filename.

Default

None

Command mode

monitor mode

Instruction

None

Related commands

None

1.2.9 reboot

To reboot a switch, use the **reboot** command.

Parameter

None

Default

None

Command mode

monitor mode

Instruction

None

Related commands

None

1.2.10 alias

[no] history [+ <*count*> | - <*count*> | clear]

Parameter

Parameter	Description
+ <count>	To display the count<1-20> historial command from the beginning to the end
- <count>	To display the count<1-20> historial command from the end to the beginning

Default

If there are no more than 20 commands executed, all historical command lines will be displayed from the beginning to the end. If there are more than 20 commands executed, all historical command lines will be displayed from the beginning to the end.

Comand mode

Random command mode

Explanation

The modularized switch can save up to 20 historical commands. You can invoke these commands with the "up" or “down” key or directly use it after edition. The command is used to browse the **history** command. You can run the **[no] history** command to delete the **history** command.

Example

The following example shows the latest five historical commands from the end to the beginning:

```
switch#history - 5
config
int e0/1
no ip addr
```

ip addr 192.2.2.49 255.255.255.0

exit

Related command

None

1.2.11 boot system flash

Run the **boot system flash** command to specify the systematic mirroring files when the system is started up. Run the **no boot system flash** command to delete the previous configuration.

boot system flash *filename*

no boot system flash *filename*

Parameter

Parameter	Description
filename	It is the specified filename, which contains no more than 20 characters.

Default

None

Command mode

Global configuration mode

Instruction

If you have not configured the command, the system will execute the first systematic mirroring file in the flash file system. If you have configured multiple commands, the system will execute the mirroring files one by one. If the file does not exist or the check sum is wrong, the system will execute the next file. If both fail, the system will run at the monitoring state.

Example

config#boot system flash switch.bin

Related command

None

1.2.12 help

help

Parameter

None

Default

None

Command mode

Management mode

Instruction

The command is used to display the help system of the switch.

Example

After you enter the command, the help system of the switch is displayed.

switch# help

Help may be requested at any point in a command by entering a question mark '?',If nothing matches, the help list will be empty and you must backup until entering a '?' shows the available options.

Two styles of help are provided:

1. Full help is available when you are ready to enter a command argument (e.g.'show ?') and describes each possible argument.

2. Partial help is provided when an abbreviated argument is entered and you want to know what arguments match the input (e.g. 'interface e?'.)

Related command

None

1.2.13 history

The command is used to check the historical commands. Run the **[no] history** command to delete the historical commands.

[no] history [+ <*count*> | - <*count*> | clear]

Parameter

Parameter	Description
+ <count>	Displays the count<1-20> historial command from the beginning to the end.
- <count>	Displays the count<1-20> historial command from the end to the beginning.

Default

If there are no more than 20 commands executed, all historical command lines will be displayed from the beginning to the end. If there are more than 20 commands executed, all historical command lines will be displayed from the beginning to the end.

Command mode

Abandom command mode

Instruction

The modularized switch can save up to 20 historical commands. You can invoke these commands with the "up" or “down” key or directly use it after edition.

Example

The following example shows the latest five commands from the end to the beginning:

```
switch#history - 5
config
int e1/1
no ip addr
ip addr 192.2.2.49 255.255.255.0
exit
```

Related command

N/A

1.1.1 show

To display the relevant information of the system, which or specific ones of which can be filtered through the filter, run the following command:

show <sub-command> [| <begin | include | exclude | redirect> <*WORD*> [*SEPARATOR WORD*]]

Parameter

Parameter	Description
sub-command	Stands for a child command.
|	Uses the output filter.
begin	Means to show the result of the **show** command starting with a specific word.
include	Means to show the sentences of the result of the **show** command containing a specific word.
exclude	Means not to show the lines of the result of the **show** command containing a specific word.
redirect	Redirects the result of the **show** command to the file in the designated file system.
WORD	Stands for a designated word, which is the designated filename as to the **redirect** command.
SEPARATOR WORD	Stands for the designated separator, which is space by default to separate the words.

Default value

N/A

Command mode

the EXEC mode or the configuration mode

Explanation

This command can be used to filter the useless information in the

result of the **show** command, especially when the result is too much to read. For example, if you want to browse a designated MAC address in an MAC address table, which contains a lot of MAC addresses, this command will give you convenience for you.

Example

The following example shows how to display the lines, in which the word "interface" is contained, in the result of **show running-config**.

```
Switch#show running-config | include interface
Building configuration...


Current configuration:
!
interface GigaEthernet0/1
interface GigaEthernet0/2
interface GigaEthernet0/3
interface GigaEthernet0/4
interface GigaEthernet0/5
interface GigaEthernet0/6
interface GigaEthernet0/7
interface GigaEthernet0/8
```

Related command

N/A

1.2.16 show job

It is used to display the parameters of the job and the information about job execution:
show job {*paramter* | *status*}

Parameter

Parameter	Description
paramter	Displays the parameters of the job.
status	Displays the execution state of the job.

Default

None

Command mode

Management mode or configuration mode

Instruction

Run the **show job** command to browse the defined parameters and the dynamic execution state of the job.

Example

The following example shows how to display the parameters of the job:

```
switch_config#show job parameter
<showver> fires interval, first at 5, re-fires per 5 secs, on error stop
        will do "show ver"
```

The following example shows how to display the dynamic execution state of the job:

```
Jobd disabled at 245218 seconds
 Name:     job's name
 Type:     None - Not scheduled, interval - Fire interval, one-shot - Fire once
 Status: null - Not scheduled, idle - To fire first
           started - Fired ever, to fire again, stopped - Can't fire
 First:    first time to fire
 Last:     last time of firing or restarting
 Next-due: next time to fire(after now)
 Times:    times fired ever
 Cause:    auto - Automatic, error - Error meeting, command - By command
                        Job's status and statistics
                        ==========================
Name       Type      State    First    Last    Next-due  Times    Cause
           ------------------------------------------------------------------------------
showver    interval  idle     5        *       *         2        auto
           ------------------------------------------------------------------------------
Total 1 jobs, 0 null, 1 idle, 0 started, 0 stopped
```

Related command

debug job
job
jobd

1.2.17 show break

It is used to display the abnormal information of the system. The system stores all abnormal information in the latest running. The abnormal information contains the times of abnormity, the stack content and the invoked functions when abnormity occurs.

Parameter

None

Default

None

Command mode

Monitoring state

Instruction

The command is only used for debugging.

Related command

None

Chapter 2 Terminal Service Configuration Command

2.1 Telnet Configuration Command

The chapter describes telnet and related commands. The **telnet** command is used to establish a session with the remote server. The **telnet** command is always working at the UNIX operating systems. Option negotiation is required. Telnet does not provide itself the login authentication. Telnet is different from Rlogin because telnet does not provide itself password check.

The following are telnet configuration commands:

- telnet
- ip telnet
- where
- disconnect
- resume
- switchkey
- switchmsg
- sequence-char
- clear Telnet
- show Telnet
- debug Telnet

2.1.1 telnet

The following is a command sentence for establishing a telnet session:

telnet *server-ip-addr/server-host-name* [**/port** *port*][**/source-interface** *interface*] [**/local** *local-ip-addr*] [**/debug**][**echo/noecho**] [**/script** *scriptname*]

Parameter

Parameter	Description
server-ip-addr	Dotted-decimal IP address of the remote server
server-host-name	Name of the remote server, which is configured by the **ip host** command

port	Telnet port of the remote server
interface	Local interface where the telnet connection is originated
local-ip-addr	Local IP address where the telnet connection is originated
/debug	A negotiation process for openning the debug at the client side and printing the connection
echo/noecho	Enable or disable the local echo. The default value is **noecho**.
scriptname	A script name used for auto login

Default

The default port number is 23. The interface has no default number.

Command mode

Management mode

Instruction

You can use one of the following command lines to establish a remote login.

telnet server-ip-addr/server-host-name

In this case, the application program directly sends the telnet login request to port 23 of the remote server. The local IP address is the IP address which is nearest to the peer and found by the routing table.

telnet server-ip-addr/server-host-name /port port

In this case, the application program sends a telnet login request to the port of the peer.

telnet server-ip-addr/server-host-name /source-interface interface

In this case, the application program uses the IP address on the interface ass the local IP address.

telnet server-ip-addr/server-host-name /debug

In this case, the application program opens the debug and exports the connection at the client side.

telnet server-ip-addr/server-host-name echo/noecho

In this case, the application program enables or disables the local echo. The local echo is disabled by default. The echo is completed at the server side. Only when the server is not in charge of echo is the local echo enabled.

telnet server-ip-addr/server-host-name /script scriptname

Before executing the automatic login command of the script, run the command **ip telnet script** to configure the script.

The previous commands can be used together.

During the session with the remote server, you can press the **Q** button to exit the session. If the session is not manually closed, the session will be complete after a 10-second timeout.

Example

Suppose you want to telnet server 192.168.20.124, the telnet port of the server is port 23 and port 2323, and the local two interfaces are e1/1(192.168.20.240) and s1/0(202.96.124.240). You can run the following operations to complete the remote login.

1．telnet 192.168.20.124 /port 2323

In this case, the telnet connection with port 2323 of the peer is to be established. The local IP address of the peer is 192.168.20.240.

2．telnet 192.168.20.124 /source-interface s1/0

In this case, the telnet connection with port 23 of the peer is to be established. The local IP address of the peer is 202.96.124.240.

3．telnet 192.168.20.124 /local 192.168.20.240

In this case, the telnet connection with port 23 of the peer is to be established. The local IP address of the peer is 192.168.20.240.

4．telnet 192.168.20.124 /debug

In this case, the telnet connection negotiation with port 23 of the peer will be printed out.

5．telnet 192.168.20.124 /echo

In this case, the local echo is enabled. If the echo is also enabled at the server side, all input will be echoed twice.

6．telnet 192.168.20.124 /script s1

Use login script S1 for automatic login.

2.1.2 ip telnet

The following are the configuration command formats of the telnet session:

ip telnet source-interface vlan *value*

ip telnet access-class *accesslist*

ip telnet listen-port *start-port [end-port]*

ip telnet script *scriptname ‘user_prompt’ user_answer ‘pwd_prompt’ pwd_answer*

Parameter

Parameter	Description
value	Local interface where the telnet request is originated
accesslist	Access list name to limit the source address when the local client receives the connection
start-port	Starting port number designated at the listening port area
end-port	End port number designated at the listening port area
scriptname	Name of the login script
user_prompt	Username prompt returned by the telnet server
user_answer	Username response information from the client side
pwd_prompt	Password prompt returned by the telnet server
pwd_answer	Password response information submitted by the client side

Default

None

Command mode

Global configuration

Instruction

- Run the following command to configure the local interface for originating the telnet connection:

  ip telnet source-interface *interface*

  In this case, all telnet connections originated afterwards are through the interface. The configuration command is similar to the command **telnet source-interface *interface***. However, the **telnet** command has no interface parameters followed. When the interface is configured and the **telnet** command has interface parameters, the interface followed the telnet command is used.
- Run the following command to configure the name of the access list which performs limitation on local telnet connection reception.

  ip telnet access-class *accesslist*

In this case, the access list will be checked when the server accepts all telnet connections.

- Run the following command to configure a port, except the default port 23, to receive the telnet service.

  ip telnet listen-port *start-port [end-port]*

  Explanation: If the end port number is not designated, the listening will be executed at a specific port. The number of the designated ports cannot be bigger than 16 and the port number ranges between 3001 and 3999.

- Run the following command to configure the telnet login script.

  ip telnet script s1 ‘login:’ switch ‘Password:’ test

  Explanation: When the script is configured, the username prompt and password prompt and their answers must be correctly matched, especially the prompt information is capital sensitive and has inverted comma (‘’). If one of them is wrongly configured, the automatic login cannot be performed.

Note:

You can add the NO prefix on the above four commands and then run them to cancel previous configuration.

Example

1．ip telnet source-interface s1/0

In this case, the s1/0 interface will be adopted to originate all telnet connections afterwards.

2．ip telnet access-class abc

In this case, all the received telnet connections use access list **abc** to perform the access list check.

3．ip telnet listen-port 3001 3010

Except port 23, all ports from port 3001 to port 3010 can receive the telnet connection.

4．ip telnet script s1 ‘login:’ switch ‘Password:’ test

The login script **s1** is configured. The username prompt is **login:** and the answer is **switch**. The password prompt is **Password:** and the answer is **test**.

2.1.3 ctrl-shift-6+x (the current connection is mounted)

Run the following command to mount the current telnet connection:

ctrl-shift-6+x

Parameter

None

Default

None

Command mode

Any moment in the current telnet session

Instruction

You can use the shortcut key to mount the current telnet connection at the client side.

Example

switchA>telnet 192.168.20.1

switchB>ena

switchB#(press ctrl-shift-6+x)

switchA>

You press **ctrl-shift-6+x** to mount the telnet connection to switch B and return to the current state of switch A.

2.1.4 where

Run the following command to check the currently mounted telnet session:

where

Parameter

None

Default

None

Command mode

Global configuration

Instruction

You can use the command to check the mounted outward telnet connection at the client side. The displayed information contains the serial number, peer address, local address and local port.

Note:

The **where** command is different from the **show telnet** command. The former is used at the client side and the displayed information is the outward telnet connection. The latter is used at the server and the displayed information is the inward telnet connection.

Example

```
switchA>telnet 192.168.20.1
switchB>ena
switchB#(Press ctrl-shift-6+x)
switchA> telnet 192.168.20.2
switchC>ena
switchC#(Press ctrl-shift-6+x)
switchA>where
NO.        Remote Addr        Remote Port        Local Addr        Local Port
  1        192.168.20.1       23                 192.168.20.180    20034
  2        192.168.20.2       23                 192.168.20.180    20035
```

Enter where at switch A. The mounted outward connection is displayed.

2.1.5 resume

It is used to resume the currently mounted outward telnet connection:

resume *no*

Parameter

Parameter	Description
no	Number of the currently mounted telnet session that is checked

	through the **where** command

Default

None

Command mode

Global configuration

Instruction

The command can be used to resume the currently mounted outward telnet connection at the client side.

Example

switchA>telnet 192.168.20.1

switchB>ena

switchB#(press ctrl-shift-6+x)

switchA> telnet 192.168.20.2

switchC>ena

switchC#(press ctrl-shift-6+x)

switchA>where

NO. Remote Addr Remote Port Local Addr Local Port

1 192.168.20.1 23 192.168.20.180 20034

2 192.168.20.2 23 192.168.20.180 20035

switchA>Resume 1

[Resuming connection 1 to 192.168.20.73 . . .]

(enter)

switchB#

After you enter **where** at switch A and the mounted outward connection of switch A is displayed, enter **Resume1**. You will be prompted that connection 1 is resumed. The command prompts of switch B are displayed after the **Enter** key is pressed.

2.1.6 disconnect

The following command is used to clear the currently mounted outward telnet session:

disconnect *no*

Parameter

Parameter	Description
No	Number of the currently mounted telnet session that is checked through the **where** command

Default

None

Command mode

Global configuration

Instruction

The command can be used to clear the currently mounted outward telnet connection at the client side.

Note:

The **disconnect** command is different from the **clear telnet** command. The former is used at the client side and clears the outward telnet connection. The latter is used at the server and clears the inward telnet connection.

Example

switchA>telnet 192.168.20.1

switchB>ena

switchB#(press ctrl-shift-6+x)

switchA> telnet 192.168.20.2

switchC>ena

switchC#(press ctrl-shift-6+x)

switchA>where

NO. Remote Addr Remote Port Local Addr Local Port

```
 1              192.168.20.1                    23              192.168.20.180
20034
 2              192.168.20.2                    23              192.168.20.180
20035
switchA>disconnect 1
<Closing connection to 192.168.20.1> <y/n>y

 Connection closed by remote host.
switchA>
```

After you enter **where** at switch A and the mounted outward connection of switch A is displayed, enter **disconnect 1**. You will be prompted whether the connection of switch B is closed. After you enter **Y**, the connection is closed.

2.1.7 clear telnet

The following is a command format to clear the telnet session at the server:

clear telnet *no*

Parameter

Parameter	Description
no	Number of the telnet session that is displayed after the **show telnet** command is run

Default

None

Command mode

Management mode

Instruction

The command is used to clear the telnet session at the server.

Example

```
clear telnet 1
```

The telnet session whose sequence number is 1 is cleared at the server.

2.1.8 show telnet

The following is a command format to display the telnet session at the server:
show telnet

Parameter

None

Default

None

Command mode

All command modes except the user mode

Instruction

The command is used to display the telnet session at the server. The displayed information includes the sequence number, peer address, peer port, local address and local port.

Example

Switch# show telnet

If you run the previous command, the result is shown as follows:

NO.	Remote Addr	Remote Port	Local Addr	Local Port
1	192.168.20.220	1097	192.168.20.240	23
2	192.168.20.180	14034	192.168.20.240	23

2.1.9 debug telnet

The following is a format of the **debug** command for the telnet session:
debug telnet

Parameter

None

Default

None

Command mode

Management mode

Instruction

The command is used to open the switch of the telnet debug.
If the switch of the telnet debug is opened, the negotiation processes of all the incoming telnet sessions are printed on the window that the debug command invokes. The **debug telnet** command is different from the **telnet debug** command. The former is to export the debug information of the telnet session connected to the server. The latter is to export the debug information of the telnet session that the client originates.

Example

debug telnet

The debug information of the telnet session that is connected to the server is displayed.

2.2 Terminal Configuration Command

The following are terminal configuration commands:

- attach-port
- autocommand
- clear line
- connect
- disconnect
- exec-timeout
- length
- line
- location
- login authentication
- monitor
- no debug all
- password
- printer enable
- printer start
- printer stop

- resume
- script activation
- script callback
- script connection
- script dialer
- script reset
- script startup
- sequence-char
- show debug
- show line
- show tty-status
- switchkey
- switchmsg
- terminal-type
- terminal monitor
- terminal width
- terminal length
- where
- width

2.2.1 attach-port

The following command is to bind the telnet listening port to the **line vty** number and enable the telnet connection at a specific port generates **vty** according to the designated sequence number.

[no] attach-port *PORT*

Parameter

Parameter	Description
port	Listening port of the telnet server (3001-3999)

Default

None

Command mode

Line configuration mode

Example

Bind listening port 3001 to line vty 2 3.

switch_config# line vty 2 3

switch_config_line#attach-port 3001

2.2.2 autocommand

It is used to set the automatically-run command when user logs in to the terminal. The connection is cut off after the command is executed.

autocommand *LINE*

no autocommand

Parameter

Parameter	Description
LINE	Command to be executed

Command mode

Line configuration mode

Example

switch_conf#line vty 1

switch_conf_line#autocommand pad 123456

After you successfully log in, the host whose X.121 address is 123456 will be automatically padded.

2.2.3 clear line

It is to clear the designated line.

clear line [*aux* | *tty* | *vty*] [*number*]

Parameter

Similar to the **line** command

Command mode

Management mode

Example

switch#clear line vty 0

2.2.4 connect

It is to connect the telnet server.

connect *server-ip-addr*/*server-host-name* {[/**port** *port*][/**source-interface** *interface*] [/**local** *local-ip-addr*]}

Parameter

Parameter	Description
server-ip-addr/server-host-name	IP address of the server or the host name of the server
port	Port number
interface	Name of the interface where the connection is originated
local-ip-addr	Local IP address where the connection is originated

Command mode

All configuration modes

Example

switch# connect 192.168.20.1

2.2.5 disconnect

It is used to delete the mounted telnet session.

disconnect *N*

Parameter

Parameter	Description
N	Number of the mounted telnet session

Command mode

All configuration modes

Example

switch#disconnect 1

2.2.6 exec-timeout

It is to set the maximum spare time for the terminal.

[**no**] **exec-timeout** [*time*]

Parameter

Parameter	Description
time	Spare time whose unit is second

Default

0 (No time-out limitation)

Command mode

Line configuration mode

Example

Set the spare time of the line to one hour.

switch_config_line#exec-timeout 3600

2.2.7 length

It is used to set the line number on the screen of the terminal.

[**no**] **length** [*value*]

Parameter

Parameter	Description
value	A value between 0 and 512 The value **0** means there is no pause.

Default

24

Command mode

Line configuration mode

2.2.8 line

It is used to enter the line configuration mode.

line [**aux | console | tty | vty**] [*number*]

Parameter

Parameter	Description
aux	Auxiliary line, which has only one number **0**
console	Monitoring line, which has only one number **0**
tty	Asynchronous line
vty	Virtual lines such as Telnet, PAD and RIogin
number	Number in the line of the type

Command mode

Global configuration

Example

The following example shows how to enter the line configuration mode of VTY 0 to 10.

switch_config#line vty 0 10

2.2.9 location

It is used to recoded the description of the current line.

location [*LINE*]

no location

Parameter

Parameter	Description
LINE	Description of the current line

Command mode

Line configuration mode

2.2.10 login authentication

It is used to set line login authentication:
[**no**] **line login authentication** [**default** | *WORD*]

Parameter

Parameter	Description
Default	Default authentication mode
WORD	Name of the authentication list

Command mode

Line configuration mode

Example

switch_conf_line#login authentication test

In the example, the authentication list of the line is set to **test**.

2.2.11 monitor

It is used to export the log and debugging information to the line:
[**no**] **monitor**

Parameter

None

Command mode

Line configuration mode

Example

switch_config_line#monitor

2.2.12 no debug all

It is used to shut down all debugging output of the current VTY:
no debug all

Parameter

None

Command mode

Management mode

Example

switch#no debug all

2.2.13 password

It is used to set the password for the terminal:
password {*password* | [encryption-type] *encrypted-password* }
no password

Parameter

Parameter	Description
password	Password configured on the line, which is entered in the plaintext form and whose maximum length is 30 bits.
[encryption-type] *encrypted-password*	**encryption-type** means the encryption type of the password. Currently, MY COMPANY products only support two encryption modes: 0 and 7. The number **0** means the password is not encrypted and the plaintext of password is directly entered. It is the same as the way of directly entering the password. The number **7** means the password is encrypted through an algorithm defined by MY COMPANY. You need to enter the encryption text for the encrypted password. The encryption text can be copied from the configuration files of other switches.

For password encryption, refer to the explanation of the commands **service *password-encryption*** and **enable password**.

Command mode

Line configuration mode

Example

switch_conf#line vty 1
switch_conf_line#password test
The previous example shows the login password of VTY1 is set to

test.

2.2.14 resume

It is used to resume the mounted telnet session:

resume *N*

Parameter

Parameter	Description
N	Number of the mounted telnet session

Command mode

All configuration modes

Example

switch#resume 1

2.2.15 show debug

It is used to display all debugging information of the current VTY:
show debug

Parameter

None

Command mode

Management mode or global configuration mode

Example

Switch# show debug
http authentication debug is on
http cli debug is on
http request debug is on
http response debug is on
http session debug is on
http erro debug is on
http file debug is on

TELNET:

Incoming Telnet debugging is on

2.2.16 show line

It is used to display the status of the current effective line:
show line {[**console** | **aux** | **tty** | **vty**] [*number*]}

Parameter

If there is no parameter followed, the status of all effective lines will be displayed.
The definition of other parameters is similar to that of the **line** command.

Command mode

All configuration modes except the user mode

2.2.17 terminal length

It is used to change the line number on the current terminal screen. The parameter can be obtained by the remote host. The rlogin protocol uses the parameter to notify the remote UNIX host. Run the **no terminal length** command to resume the default value:
terminal length *length*
no terminal length

Parameter

Parameter	Description
Length	Line number displayed on each screen

Default

Pause when 24 lines are displayed on the screen.

Command mode

Global configuration

Instruction

The command is effective only to the current terminal. When the session is complete, the terminal attribute is invalid.

Example

switch#terminal length 40

Related command

line

2.2.18 terminal monitor

It is used to display the debugging output information and system faulty information at the current terminal. The negative form of the command is used to disable the monitoring:

terminal monitor

no terminal monitor

Parameter

None

Default

The system monitoring port (console) is open by default. Other terminals are closed by default.

Command mode

Global configuration

Instruction

The command is effective only to the current terminal. When the session is complete, the terminal attribute is invalid.

Example

switch#terminal monitor

Related command

line

debug

2.2.19 terminal width

In default settings, the switch is to export 80 characters in each line. If the default settings cannot meet your requirements, you can reset it.

The parameter can be obtained by the remote host. Run the **terminal width** command to set the character number in each line. Run the **no terminal width** command to resume to the default value.

terminal width *number*
no terminal width

Parameter

Parameter	Description
number	Character number of each line

Default

80 characters in each line

Command mode

Global configuration

Instruction

The command is effective only to the current terminal. When the session is complete, the terminal attribute is invalid.

Example

switch#terminal width 40

Related command

line

2.2.20 terminal-type

It is used to set the terminal type:
[**no**] **terminal-type** [*name*]

Parameter

Parameter	Description
Name	Terminal name Terminal types currently supported are VT100, ANSI and

	VT100J.

Default

ANSI

Command mode

Line configuration mode

2.2.21 where

It is used to check the currently mounted outward telnet session at the client side:
where

Parameter

None

Command mode

All configuration modes

Example

switch#where

2.2.22 width

It is used to set the terminal width of the line:
[**no**] **width** [*value*]

Parameter

Parameter	Description
Value	A value between 0 and 512 The value **0** means no execution.

Default

80

Command mode

Line configuration mode

Chapter 3 Maintenance and Debugging Tool Commands

3.1 Network Testing Tool Commands

3.1.1 ping

It is used to test host accessibility and network connectivity. After the **ping** command is run, an ICMP request message is sent to the destination host, and then the destination host returns an ICMP response message.

ping [**-f**] [**-i** {source-ip-address | source-interface}] [**-j** host1 [host2 host3 …]] [**–k** host1 [host2, host3 …]] [**-l** length] [**-n** number] [**-r** hops] [**-s** tos] [**-t** ttl] [**-v**] [**-w** *waittime*] **host**

Parameter

Parameter	Description
-f	Sets the DF digit (message is not segmented). If the message required to be sent is larger than the MTU of the path, the message will be dropped by the routing switch on the path and the routing switch will then return an ICMP error message to the source host. If network performance has problems, one node in the network may be configured to a small MTU. You can use the **–f** option to decide the smallest MTU on the path. Default value: No resetting
-i	Sets the source IP address of the message or the IP address of an interface. Default value: Main IP address of the message-sending interface
source-ip-address	Source IP address adopted by the message

source-interface	Message takes the IP address of the **source-interface** interface as the source address.
-j *host1* [*host2 host3*…]	Sets the relaxation source route. Default: Not set
-k *host1* [*host2 host3*…]	Sets the strict source route Default: Not set
-l *length*	Sets the length of ICMP data in the message. Default: 56 bytes
-n *number*	Sets the total number of messages. Default: 5 messages
-r *hops*	Records routes. Up to **hops** routes are recorded. Default: not record
-s *tos*	Sets IP TOS of the message to ***tos***. Default: 0
-t *ttl*	Sets IP TTL of the message to **ttl**. Default: 255
-**v**	Detailed output Default: simple output
-w *waittime*	Time for each message to wait for response Default: 2 seconds
host	Destination host

Command mode

Management mode, global configuration mode and interface configuration mode

Instruction

The command supports that the destination address is the broadcast address or the multicast address. If the destination address is the broadcast address (255.255.255.255) or the multicast address, the ICMP request message is sent on all interfaces that support broadcast or multicast. The routing switch is to export the addresses of all response hosts. By pinging multicast address 224.0.0.1, you can obtain the information about all hosts in directly-connected network segment that support multicast transmission.

Press the **Q** key to stop the **ping** command.

Simple output is adopted by default.

Parameter	Description
!	A response message is received.
.	Response message is not received in the timeout time.
U	The message that the ICMP destination cannot be reached is received.
Q	The ICMP source control message is received.
R	The ICMP redirection message is received.
T	The ICMP timeout message is received.
P	The ICMP parameter problem message is received.

The statistics information is exported:

Parameter	Description
packets transmitted	Number of transmitted messages
packets received	Number of received response messages, excluding other ICMP messages
packet loss	Rate of messages that are not responded to
round-trip min/avg/max	Minimum/average/maximum time of a round trip (ms)

Example

switch#ping -l 10000 -n 30 192.168.20.125

PING 192.168.20.125 (192.168.20.125): 10000 data bytes

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

--- 192.168.20.125 ping statistics ---

30 packets transmitted, 30 packets received, 0% packet loss

round-trip min/avg/max = 50/64/110 ms

3.1.2 traceroute

It is used to detect which routes have already reached the destination. You can transmit to the destination the UDP packets (or ICMP ECHO packets) of different TTLs to confirm which routes have come to the destination. Each router on this path has to deduct 1 from the TTL value before forwarding ICMP ECHO packets. Speaking from this aspect, TTL is an effective hop count. When the TTL value of a packet is deducted to zero, the router sends back to the source system the ICMP timeout message.

By checking the ICMP timetout message sent back by intermedial routers, you can confirm the routers. At the arrival of the destination, the traceroute sends a UPD packet whose port ID is larger than 30000; the destination node hence can only transmit back a Port Unreachable ICMP message. This reception of this message means the arrival of destination.

traceroute [**-i** source-ip-address] [**-m** source-interface}] [**-j** host1 [host2 host3 …]]
[**–k** host1 [host2, host3 …]] [**-p** port-number] [**-q** probe-count] [**-r** hops] [**-t** ttl] [**-w** *waittime*] [**-x icmp**] **host**

Parameter

Parameter	Description
-i *source-ip-address*	Sets the source IP address of packet.
-m *source-interface*	Sets the packet-transmitted port.
-j *host1* [*host2 host3…*]	Sets the loose source route.Default: Not set
-k *host1* [*host2 host3…*]	Sets the strict source route. Default: Not set
-p *port-number*	Sets the ID of destination port that transmits UDP packets. Default value: 33434

-q *probe-count*	Sets the number of packets that you detect each time. Default: 3 packets
-r *hops*	Records the routes (at most ***hops*** routes can be recorded). Default: The routes are not recorded.
-t *ttl*	Sets the IP TTL of packets as TTL. Default: the minimum and maximum TTLs are 1 and 30 respectively.
-w *waittime*	Means the time that each packet waits for echo. Default value: 3 seconds
-x icmp	Sets the detection packet to be the ICMP ECHO packet. Default: UDP packet
host	Means the destination host.

Command mode

EXEC or global configuration mode

Explanation

The UDP packet is used for detection by default, but you can run **–x icmp** to replace it with ICMP ECHO for detection.
If you want to stop traceroute, press **q** or **Q**.
By default, the simple output information is as follows.

Parameter	Description
!N	Receives an ICMP-route unreachable packet.
!H	Receives an ICMP-host unreachable packet.
!P	Receives an ICMP-protocol unreachable packet.
!F	Receives an ICMP unreachable (need to be fragmented) packet.
!S	Receive an ICMP unreachable (failing to detect the source-station route) packet.

The exported statistics information is as follows:

Parameter	Description

hops max	Means the maximum detection hops (the threshold of ICMP).
byte packets	Stands for the size of each detection packet.

Example

```
switch#traceroute 90.1.1.10
traceroute to 90.1.1.10 (90.1.1.10), 30 hops max, 36 byte packets
 1   90.2.2.1    0 ms    0 ms  0 ms
 2   90.1.1.10   0 ms    0 ms    0 ms
```

3.2 Fault Diagnosis Commands

The chapter describes the commands used for fault diagnosis. All the following commands are used to detect the reason of the fault. You can use other commands to remove the fault, such as the **debug** command.

The following are fault diagnosis commands:

- logging
- logging buffered
- logging console
- logging facility
- logging monitor
- logging on
- logging trap
- service timestamps
- clear logging
- show break
- show controller
- show debug
- show logging

3.2.1 logging

It is used to record the log information to the **syslog** server.
logging *A.B.C.D*
no logging *A.B.C.D*

Parameter

Parameter	Description
A.B.C.D	IP address of the **syslog** server

Default:

The log information is not recorded to the server.

Command mode

Global configuration

Instruction

It is used to record the log information to the designated **syslog** server. It can be used for many times to designate multiple **syslog** servers.

Example

logging 192.168.1.1

Related command

logging trap

3.2.2 logging buffered

It is used to record the log information to the memory of the switch.
logging buffered [*size* | *level* | *dump*]

no logging buffered

Parameter

Parameter	Description
size	Size of memory cache Value range: 4096-2147483647 Unit: byte
level	Information level of the log recorded to memory cache Refer to table 1.

dump	When the system has abnormality, the information in the current memory is currently recorded to the flash and the information is resumed after the system is restarted.

Default

The information is not recorded to the memory cache.

Command mode

Global configuration

Instruction

The command records the log information to the memory cache of the switch. The memory cache is circularly used. After the memory cache is fully occupied, the latter information will cover the previous information.

You can use the **show logging** command to display the log information recorded in the memory cache of the switch.

Do not use big memory for it causes the shortage of memory.

Table 1 Level of log recording

Prompt	Level	Description	Syslog Definition
emergencies	0	System unusable	LOG_EMERG
alerts	1	Immediate action needed	LOG_ALERT
critical	2	Critical conditions	LOG_CRIT
errors	3	Error conditions	LOG_ERR
warnings	4	Warning conditions	LOG_WARNING
notifications	5	Normal but significant condition	LOG_NOTICE
informational	6	Informational messages only	LOG_INFO
debugging	7	Debugging messages	LOG_DEBUG

Related command

clear logging
show loggin

3.2.3 logging console

Run the command **logging console** to control the information volume displayed on the console.
Run the command **no logging console** to forbid the log information to be displayed on the console:
logging console *level*
no logging console

Parameter

Parameter	Description
level	Information level of the logs displayed on the console Refer to table 2.

Default

None

Command mode

Global configuration

Instruction

After the information level is specified, information of this level or the lower level will be displayed on the console.
Run the command **show logging** to display the currently configured level and the statistics information recorded in the log.

Table 2 Level of log recording

Prompt	Level	Description	Syslog Definition
emergencies	0	System unusable	LOG_EMERG
alerts	1	Immediate action needed	LOG_ALERT
critical	2	Critical conditions	LOG_CRIT

errors	3	Error conditions	LOG_ERR
warnings	4	Warning conditions	LOG_WARNING
notifications	5	Normal but significant condition	LOG_NOTICE
informational	6	Informational messages only	LOG_INFO
debugging	7	Debugging messages	LOG_DEBUG

Example

logging console alerts

Related command

logging facility
show logging

3.2.4 logging facility

Run the command **logging facility** to configure to record specified error information. To restore to **local7**, run the command **no logging facility**.
logging facility *facility-type*
no logging facility

Parameter

Parameter	Description
facility-type	Facility type Refer to table 3.

Default

local7

Command mode

Global configuration

Instruction

Table 3 Facility type

Type	Description
auth	Authorization system
cron	Cron facility
daemon	System daemon
kern	Kernel
local0-7	Reserved for locally defined messages
lpr	Line printer system
mail	Mail system
news	USENET news
sys9	System use
sys10	System use
sys11	System use
sys12	System use
sys13	System use
sys14	System use
syslog	System log
user	User process
uucp	UNIX-to-UNIX copy system

Example

logging facility kern

Related command

logging console

3.2.5 logging monitor

Run the command **logging monitor** to control the information volume displayed on the terminal line.
Run the command **no logging monitor** to forbid the log information to be displayed on the terminal line.

logging monitor *level*
no logging monitor

Parameter

Parameter	Description
level	Information level of the logs displayed on the terminal line Refer to table 4.

Default

debugging

Command mode

Global configuration

Instruction

Table 4 Level of log recording

Prompt	Level	Description	Syslog Definition
emergencies	0	System is unusable	LOG_EMERG
alerts	1	Immediate action needed	LOG_ALERT
critical	2	Critical conditions	LOG_CRIT
errors	3	Error conditions	LOG_ERR
warnings	4	Warning conditions	LOG_WARNING
notifications	5	Normal but significant condition	LOG_NOTICE

informational	6	Informational messages only	LOG_INFO
debugging	7	Debugging messages	LOG_DEBUG

Example

logging monitor errors

Related command

terminal monitor

3.2.6 logging on

Run the command **logging on** to control the recording of error information.
Run the command **no logging on** to forbid all records.
logging on
no logging on

Parameter

None

Default

logging on

Command mode

Global configuration

Example

switch_config# **logging on**
switch_config# ^Z
switch#
Configured from console 0 by DEFAULT
switch# **ping 192.167.1.1**

switch#ping 192.167.1.1
PING 192.167.1.1 (192.167.1.1): 56 data bytes
!!!!!

--- 192.167.1.1 ping statistics ---

5 packets transmitted, 5 packets received, 0% packet loss

round-trip min/avg/max = 0/4/10 ms

switch#IP: s=192.167.1.111 (local), d=192.167.1.1 (FastEthernet0/0), g=192.167.1.1, len=84, sending

IP: s=192.167.1.1 (FastEthernet0/0), d=192.167.1.111 (FastEthernet0/0), len=84,rcvd

IP: s=192.167.1.111 (local), d=192.167.1.1 (FastEthernet0/0), g=192.167.1.1, len=84, sending

IP: s=192.167.1.1 (FastEthernet0/0), d=192.167.1.111 (FastEthernet0/0), len=84,rcvd

IP: s=192.167.1.111 (local), d=192.167.1.1 (FastEthernet0/0), g=192.167.1.1, len=84, sending

IP: s=192.167.1.1 (FastEthernet0/0), d=192.167.1.111 (FastEthernet0/0), len=84,rcvd

IP: s=192.167.1.111 (local), d=192.167.1.1 (FastEthernet0/0), g=192.167.1.1, len=84, sending

IP: s=192.167.1.1 (FastEthernet0/0), d=192.167.1.111 (FastEthernet0/0), len=84,rcvd

IP: s=192.167.1.111 (local), d=192.167.1.1 (FastEthernet0/0), g=192.167.1.1, len=84, sending

IP: s=192.167.1.1 (FastEthernet0/0), d=192.167.1.111 (FastEthernet0/0), len=84,rcvd

switch_config# **no logging on**

switch_config# ^Z

switch#

switch# **ping** 192.167.1.1

PING 192.167.1.1 (192.167.1.1): 56 data bytes

!!!!!

--- 192.167.1.1 ping statistics ---

5 packets transmitted, 5 packets received, 0% packet loss

round-trip min/avg/max = 0/4/10 ms

Related command

logging
logging buffered
logging monitor

logging console

3.2.7 logging trap

Run the command **logging trap** to control the information volume recorded to the syslog server.
Run the command **no logging trap** to forbid the information to be recorded to the syslog server.

logging trap *level*
no logging trap

Parameter

Parameter	Description
level	Information level of the logs displayed on the syslog server Refer to table 5.

Default

Informational

Command mode

Global configuration

Instruction

Table 5 Level of log recording

Prompt	Level	Description	Syslog Definition
emergencies	0	System is unusable	LOG_EMERG
alerts	1	Immediate action needed	LOG_ALERT
critical	2	Critical conditions	LOG_CRIT
errors	3	Error conditions	LOG_ERR
warnings	4	Warning conditions	LOG_WARNING

notifications	5	Normal but significant condition	LOG_NOTICE
informational	6	Informational messages only	LOG_INFO
debugging	7	Debugging messages	LOG_DEBUG

Example

logging 192.168.1.1

logging trap notifications

Related command

logging

3.2.8 logging command

To enable the command execution recording, run **logging command**. After this function is opened, a log will be generated for each of all entered commands, in which the line to execute this command, the command line, the execution result, the login line and the login address will be recorded.

You can use **no logging command** to disable this function.

Parameter

N/A

Default value

no logging command

Command mode

Global configuration mode

Example

Switch_config#logging command

Switch_config#Jul 11 15:26:56 %CMD-6-EXECUTE: `logging command ` return 0, switch(vty 0, 192.168.25.42).

Related command

logging

3.2.9 logging source-interface

This command is used to set the source port of log exchange.
You can use **no logging source-interface** to disable this function.

Parameter

N/A

Default value

no logging source-interface

Command mode

Global configuration mode

Example

Switch_config# logging source-interface vlan 1

Related command

logging

3.2.10 logging history alerts

This command is used to set the level of the historical log table to **alerts** (need to act immediately).

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history alerts

Related command

logging

3.2.11 logging history critical

This command is used to set the level of the historical log table to **critical**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history critical

Related command

logging

3.2.12 logging history debugging

This command is used to set the level of the historical log table to **debugging**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history debugging

Related command

logging

3.2.13 logging history emergencies

This command is used to set the level of the historical log table to **emergencies**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history emergencies

Related command

logging

3.2.14 logging history errors

This command is used to set the level of the historical log table to **errors**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history errors

Related command

logging

3.2.15 logging history informational

This command is used to set the level of the historical log table to **informational**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history informational

Related command

logging

3.2.16 logging history notifications

This command is used to set the level of the historical log table to **notifications**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history notifications

Related command

logging

3.2.17 logging history warnings

This command is used to set the level of the historical log table to **warnings**.

Parameter

N/A

Default value

logging history warnings

Command mode

Global configuration mode

Example

Switch_config#logging history warnings

Related command

logging

3.2.18 logging history rate-limit

This command is used to set the log output rate.

Parameter

Parameter	Description
<1-512>	Stands for the number of logs which are exported each second.

Default value

logging history rate-limit 0

Command mode

Global configuration mode

Example

Switch_config#logging history rate-limit 256

Related command

logging

3.2.19 logging history size

This command is used to set the number of entries in the historical log table.

Parameter

Parameter	Description
<0-500>	Stands for the number of historical log entries.

Default value

logging history size 0

Command mode

Global configuration mode

Example

Switch_config#logging history size 256

Related command

logging

3.2.20 service timestamps

Run the command **service timestamps** to configure the time stamp that is added when the system is debugged or records the log information.
Run the command **no service timestamps** to cancel the time stamp that is added when the system is debugged or records the log information.

service timestamps [log|debug] [*uptime*| *datetime*]
no service timestamps [log|debug]

Parameter

Parameter	Description
log	Adds the time stamp before the log information.
debug	Adds the time stamp before the debug information.
uptime	Duration between the startup of the switch and the current time
datetime	Real-time clock time

Default

Service timestamps log date
Service timestamps debug date

Command mode

Global configuration

Instruction

The time stamp in the **uptime** form is displayed like HHHH:MM:SS, meaning the duration from the start-up of the switch to the current time. The time stamp in the **date** form is displayed like YEAR-MON-DAY HH:MM:SS, meaning the real-time clock time.

Example

Service timestamps debug uptime

3.2.21 clear logging

It is used to clear the log information recorded in the memory cache.
clear logging

Parameter

None

Command mode

Management mode

Related command

logging buffered
show logging

3.2.22 show break

It is used to display the information about abnormal breakdown of the switch.
show break [*map-filename*]

Parameter

Parameter	Description
map-filename	Specifies the filename of the function mapping table.

Default

None

Command mode

Management mode

Instruction

It is used to display the information about abnormal breakdown of the switch, helping to find the cause of the abnormality.

Example

```
switch#sh break
Exception Type:1400-Data TLB error
BreakNum: 1 s date: 2000-1-1    time: 0:34:6
r0          r1          r2          r3          r4          r5          r6
00008538-01dbc970-0054ca18-00000003-80808080-fefefeff-01dbcca1-
r7          r8          r9          r10         r11         r12         r13
00000000-00009032-00000000-7ffffff0-00008588-44444444-0054c190-
r14         r15         r16         r17         r18         r19         r20
000083f4-000083f4-00000000-00000000-00000000-00000000-00000000-
r21         r22         r23         r24         r25         r26         r27
00000000-0000000a-00000001-00000000-00000000-004d6ce8-01dbd15c-
r28         r29         r30         r31         spr8        spr9        ip
00000002-00467078-00010300-00000300-00000310-00008588-00000370-
Variables :
00008538-44444444-01dbd15c-01dbcaac-00000002-00000000-004d6ce8-
01dbca18-
 00008538 --- do_chram_mem_sys_addr---bspcfg.o
 0001060c --- subcmd---cmdparse.o---libcmd.a
 000083e4 --- do_chram_mem_sys---bspcfg.o
 0000fb24 --- lookupcmd---cmdparse.o---libcmd.a
 0000f05c --- cmdparse---cmdparse.o---libcmd.a
 003e220c ---  vty---vty.o---libvty.a
 00499820 ---   pSOS_qcv_broadcast---ksppc.o---os\libsys.a
```

The whole displayed content can be divided into six parts:

1 RROR:file function.map not found

The prompt information means that the system has not been installed the software **function.map**, which does not affect the system running. If the version of the software **function.map** is not consistent with that of the switch, the system prompts that the version is not consistent.

2 Exception Type—Abnormal hex code plus abnormal name

3 BreakNum

It is the current abnormal number. It means the number of abnormalities that the system has since it is powered on in the latest time. It is followed by the time when the abnormality occurs.

4 Content of the register

The common content of the register is listed out.

5 Variable area
The content in the stack is listed out.

6 Calling relationship of the number
If the **map** file is not installed on the system, only the function's address is displayed. If the **map** file is installed on the system, the corresponding function name, **.o** file name and **.a** file name are displayed.
The calling relationship is from bottom to top.

3.2.23 show debug

It is used to display all the enabled debugging options of the switch.
show debug

Parameter

None

Command mode

Management mode

Example

```
switch# show debug

Crypto Subsystem:
  Crypto Ipsec debugging is on
  Crypto Isakmp debugging is on
  Crypto Packet debugging is on
```

Related command

debug

3.2.24 show logging

It is used to display the state of logging (syslog).
show logging

Parameter

None

Command mode

Management mode

Instruction

It is used to display the state of logging (syslog), including the login information about the console, monitor and syslog.

Example

```
switch# show logging

Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
    Console logging: level debugging, 12 messages logged
    Monitor logging: level debugging, 0 messages logged
    Buffer logging: level debugging, 4 messages logged
    Trap logging: level informations, 0 message lines logged

Log Buffer (4096 bytes):
2000-1-4 00:30:11 Configured from console 0 by DEFAULT
2000-1-4 00:30:28 User DEFAULT enter privilege mode from console 0, level = 15
```

Related command

clear logging

Chapter 4 SSH Configuration Commands

4.1.1 ip sshd enable

Command description

ip sshd enable
no ip sshd enable

Parameter

None

Default

1024 bits

Instruction

It is used to generate the rsa encryption key and then monitor the connection to the ssh server. The process of generating encryption key is a process of consuming the calculation time. It takes one or two minutes.

Command mode

Global configuration mode

Example

In the following example, the SSH service is generated.

device_config#ip sshd enable

4.1.2 ip sshd timeout

Command description

ip sshd timout *time-length*
no ip timeout

Parameter

Parameter	Description

time-length	Maximum time from the establishment of connection to the authentication approval Value range: 60-65535

Default

180 seconds

Instruction

To prevent the illegal user from occupying the connection resources, the connections that are not approved will be shut down after the set duration is exceeded.

Command mode

Global configuration mode

Example

In the following example, the timeout time is set to 360 seconds:

device_config#ip sshd timeout 360

4.1.3 ip sshd auth-method

Command description

ip sshd auth-method *method*

no sshd auth-method

Parameter

Parameter	Description
method	Sets authentication method list.

Default

The **default** authentication method list is used.

Instrunction

The ssh server uses the authentication method list of the login type.

Command mode

Global configuration mode

Example

In the following example, an **auth-ssh** authentication method list is configured and it is applied to the ssh server:

device_config#aaa authentication login auth-ssh local

device_config#ip sshd auth-method auth-ssh

4.1.4 ip sshd access-class

Command description

ip sshd access-class *access-list*
no ip sshd access-class

Parameter

Parameter	Description
access-list	Standard IP access list

Default

No access control list

Instrunction

It is used to configure the access control list for the ssh server. Only the connections complying with the regulations in the access control list can be approved.

Command mode

Global configuration mode

Example

In the following example, an **ssh-accesslist** access control list is configured and applied in the ssh server:

device_config# ip access-list standard ssh-accesslist

device_config_std_nacl#deny 192.168.20.40

device_config#ip sshd access-class ssh-accesslist

4.1.5 ip sshd auth-retries

Command description

ip sshd auth-retries *times*
no ip sshd auth-retries

Parameter

Parameter	Description
times	Maximum re-authentication times Value range: 0-65535

Default

3 times

Instrunction

The connection will be shut down when the re-authentication times exceeds the set times.

Command mode

Global configuration mode

Example

In the following example, the maximum re-authentication times is set to five times:

device_config#ip sshd auth-retries 5

4.1.6 ip sshd clear

Command description

ip sshd clear *ID*

Parameter

Parameter	Description
ID	Number of the SSH connection to the local device Value range: 0-65535

Default

N/A

Instruction

It is used to mandatorily close the incoming ssh connection with the specified number. You can run the command **show ip sshd line** to check the current incoming connection's number.

Command mode

Global configuration mode

Example

In the following example, the No.0 incoming connection is mandatorily closed:

device_config#ip sshd clear 0

4.1.7 ip sshd silence-period

Syntax

ip sshd silence-period *time-length*
no ip sshd silence-period

Parameter

Parameter	Description
time-length	Means the time of the silence, which ranges from 0 to 3600.

Default value

60s

Remarks

This command is used to set the login silence period. After the accumulated login failures exceed a certain threshold, the system regards that there exist attacks and disables the SSH service in a period of time, that is, the system enters the login silence period.
The silence period is set by the **ip sshd silence-period** command. The default silence period is 60 seconds. The allowable login failures are set by the **ip sshd auth-retries** command, whose default value is 6.

Command mode

Global configuration mode

Example

The following example shows how to set the silence period to 200 seconds.
switch_config#ip sshd silence-period 200

4.1.8 ip sshd sftp

Syntax

ip sshd **sftp**
no ip sshd **sftp**

Parameter

N/A

Default value

N/A

Remarks

This command is used to enable the SFTP function. The SFTP function refers to the secure file transmission system based on SSH, of which the authentication procedure and data transmission are encrypted. Though it has low transmission efficiency, network security is highly improved.

Command mode

Global configuration mode

Example

The following example shows how to enable the SFTP function.
switch_config#ip sshd sftp

4.1.9 ip sshd save

Syntax

ip sshd save

no ip sshd save

Parameter

N/A

Default value

N/A

Remarks

This command is used to save the initial key. When the SSH server is restarted, the key will be first read from the flash; if the key reading is successful, the recalculation of key will be avoided and the startup time will be shortened.

Command mode

Global configuration mode

Example

The following example shows how to enable the key protection function.
switch_config#ip sshd save

4.1.10 ip sshd disable-aes

Syntax

ip sshd disable-aes
no ip sshd disable-aes

Parameter

N/A

Default value

The AES encryption algorithm is forbidden.

Remarks

This command is used to decide whether to use the AES algorithm during the encryption algorithm negotiation. The AES algorithms such as aes128-cbc and aes256-cbc are not used by default.

Command mode

Global configuration mode

Example

The following example shows how to disable the AES encryption algorithm.
switch_config#ip sshd disable-aes

4.1.11 ssh

Command description

ssh –l *userid* **–d** *destIP* **[-c {des|3des|blowfish }] [-o** *numberofpasswdprompts***] [-p** *port***]**

Parameter

Parameter	Description
–l userid	User account on the server
–d destI	Destination IP address in the dotted decimal system
-o numberofpasswdprompts	Re-authentication times after the first authentication fails Actual re-authentication times is the set value plus the smallest value set on the server. Its default value is three times. Value range: 0-65535
-p port	Port number that the server monitors Its default value is 22. Value range: 0-65535
-c {des|3des|blowfish}	Encryption algorithm used during communication The encryption algorithm is 3des by default.

Default

N/A

Instruction

The command is used to create a connection with the remote ssh server.

Command mode

Privileged mode

Example

In the following example, a connection with the ssh server whose IP address is 192.168.20.41 is created. The account is **zmz** and the encryption algorithm is **blowfish**:

device#ip ssh –l zmz –d 192.168.20.41 –c blowfish

4.1.12 show ssh

Command description

show ssh

Parameter

None

Default value

N/A

Instrunction

It is used to display the sessions on the ssh server.

Command mode

Privileged mode

Example

In the following example, the sessions on the ssh server are displayed:

device#show ssh

4.1.13 show ip sshd

Command description

show ip sshd

Parameter

None

Default value

N/A

Instrunction

It is used to display the current state of the ssh server.

Command mode

Privileged mode

Example

In the following example, the current state of the ssh server is displayed:

device#show ip sshd