

# Basic Configuration Commands

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## Chapter 1 System Management Commands

### 1.1 Configuring File Management Commands

File management commands include the following ones:

- copy
- delete
- dir
- download c0
- eraserom
- more
- upload c0
- download
- upload

#### 1.1.1 copy

You can access the TFTP server to read the file from the router by running the **copy** command and write a file in the file system of the router to the TFTP server.

You also can read a file in the U disk on a router or a TFTP server and write a file in the file system of the TFTP server or router to the U disk, a function which is only applied to the routers of series 1760, series 2650, series 2621, series 2622, series 2650B or series 2624.

**Copy {tftp<:filename> | flash<:filename>} {flash <:filename> | tftp<:filename>} <blksize>**

**Copy { flash<:filename> | usb<:filename>} {usb <:filename> | flash<:filename>}**

**Copy {tftp<:filename> | usb<:filename>} {usb <:filename> | tftp<:filename>} <blksize>**

#### Parameter

Parameter	Description
<i>tftp&lt;:filename&gt;</i>	When it is used as the first parameter in the previous command sentences, it means to read a file on the TFTP server. When it is used

	as the second one, it means to write a file to the TFTP server. <b>Filename</b> indicates the corresponding file name. If the file name is not specified, you will be notified to enter a file name after running the <b>copy</b> command.
<i>flash &lt;:filename&gt;</i>	When it is used as the first parameter in the previous command sentences, it means to read a file in the flash of the router. When it is used as the second one, it means to write a file to the flash of the router. <b>Filename</b> indicates the corresponding file name. If the file name is not specified, you will be notified to enter a file name after running the <b>copy</b> command.
<i>usb &lt;:filename&gt;</i>	When it is used as the first parameter in the previous command sentences, it means to read a file on the U disk. When it is used as the second one, it means to write a file to the U disk. <b>Filename</b> indicates the corresponding file name. If the file name is not specified, you will be notified to enter a file name after running the <b>copy</b> command.
<i>blksize</i>	Specifies the block size in the TFTP transmission.

### Default

None

### Command mode

EXEC

### Explanation

If you enter the question mark behind **flash:**, all the matched file names will be shown.  
如:

After you enter the question mark behind **copy flash: s**, all the file names started with the **s** letter in the current directory are shown.

```
flash: startup-config flash: sample
```

You also can enter the all-path or relative path of the **usb** file behind **usb:** to specify the to-be-copied file.

If a router has only one USB card and a U disk on the USB card, the all-path of the **usb** file is **/usb0/path/filename**.

If a router has two USB cards and two U disks on the two USB cards, the U disk at the smaller-number slot is labeled as **usb0** and the other one is labeled as **usb1**. The all-path of the **usb** file is like **/usb0/path/filename** or **/usb1/path/filename**.

### Example

If you run **copy flash: startup-config tftp: config.txt 600**, the **startup-config** file will be copied from the flash to the TFTP server and named as config.txt. At the same time the size of the transmission block is specified as 600 bytes.

If you run `copy flash:router.bin usb:/usb0/r.bin`, the `router.bin` file in the flash will be copied to the U disk at USB0 and labeled as `r.bin`.

If you run `copy tftp:router.bin usb:/usb1/r.bin 2.2.2.2 1024`, the `router.bin` file in the TFTP server will be copied to the U disk at USB1 and labeled as `r.bin`. Meanwhile, the address of the TFTP server is specified as `2.2.2.2` and the size of the transmission block as `1024` bytes.

```
cd /usb0
```

```
copy flash:router.bin usb:r.bin
```

The previous `cd` command is used to switch the current directory to a subdirectory under the `/usb0` directory. The relative path is used to copy the `router.bin` file in the flash to the root directory of the U disk at `usb0`, and then the `router.bin` file is named as `r.bin`.

#### Related command

None

#### 1.1.2 delete

It is used to delete a file.

```
delete file-name
```

#### Parameter

Parameter	Description
<i>file-name</i>	File name with up to 20 characters

#### Default

If the file name is not entered, the **startup-config** file is deleted by default.

#### Command mode

Monitoring mode

#### Explanation

None

#### Related command

None



### 1.1.3 dir

It is used to display the file and the directory name.

**dir** file-name

#### Parameter

Parameter	Description
<i>file-name</i>	File name with up to 20 characters

#### Default

None

#### Command mode

Monitoring mode

#### Explanation

None

#### Related command

None

### 1.1.4 download c0

It is used to download the files from the console port in monitor state.

download c0 *filename*

#### Parameter

Parameter	Description
<i>file-name</i>	Name of the local file

#### Default

None

#### Command mode

Monitoring mode

### Explanation

The command can be used to download files under the ZMODEM protocol.

### Example

```
monitor#download c0 router.bin
```

```
Prompt: speed[9600]?115200
```

After **speed[9600]?115200** appears, the speed rate is modified to 115200. You then choose the to-be-transmitted file in the transmission menu of the super terminal (simulated terminal) after reconnection.

After the file transmission is over, the following information appears:

```
ZMODEM:successfully receive 36 blocks ,18370 bytes
```

### Related command

None

## 1.1.5 eraserom

It is used to delete the updated BOOTROM version.

```
eraserom
```

### Parameter

None

### Default

None

### Command mode

Monitoring mode

### Explanation

None

### Related command

None

## 1.1.6 more

It is used to display the file content.

**more** file-name

## Parameter

Parameter	Description
<i>file-name</i>	File name with up to 20 characters

## Default

None

## Command mode

Monitoring mode

## Explanation

All the files are composed of displaying characters, use the ASCII code to display them; otherwise, use the binary system to display them.

## Related command

None

## 1.1.7 upload c0

It is used to upload the file in the flash to the host under the **zmodem** protocol.

upload c0 *filename*

## Parameter

Parameter	Description
<i>filename</i>	File name in the local flash

## Default

None

## Command mode

Monitoring mode

## Explanation

None

## Example

After you enter the command, you are required to enter the speed rate of the port.

```
Router#upload c0 router.bin
```

```
Prompt: speed[9600]?115200
```

After **speed[9600]?115200** appears, the speed rate is modified to 115200. You then choose the to-be-received file in the reception menu of the super terminal (simulated terminal) after reconnection.

After the file transmission is over, the following information appears:

```
Zmodem send process completed.
```

## Related command

None

## 1.1.8 download

It is used to copy the file from the host to the flash under the **zmodem** protocol.

```
download c0 filename
```

## Parameter

Parameter	Description
<i>filename</i>	File name in the memory

## Default

Identical with the filename in the host

## Command mode

EXEC

## Explanation

None

## Example

After you enter the command, you are required to enter the speed rate of the port.

```
Router#download c0 router.bin
```

```
Prompt: speed[9600]?115200
```

After **speed[9600]?115200** appears, the speed rate is modified to 115200. You then choose the to-be-transmitted file in the transmission menu of the super terminal (simulated terminal) after reconnection.

After the file transmission is over, the following information appears:

```
Zmodem receive process completed.
```

## Related command

None

### 1.1.9 upload

It is used to upload the file in the memory to the host under the **zmodem** protocol.

```
upload c0 filename
```

## Parameter

Parameter	Description
<i>filename</i>	File name in the memory

## Default

None

## Command mode

## EXEC

## Explanation

None

## Example

After you enter the command, you are required to enter the speed rate of the port.

Router#upload c0 router. Bin

Prompt: speed[9600]?115200

After **speed[9600]?115200** appears, the speed rate is modified to 115200. You then choose the to-be-received file in the reception menu of the super terminal (simulated terminal) after reconnection.

After the file transmission is over, the following information appears:

Zmodem send process completed

Related command

None

## 1.2 System Management Commands

Basic system management commands include:

- boot flash
- cd
- chram
- date
- md
- pwd
- rd
- rename
- reboot
- alias
- boot system flash
- help
- history
- job
- debug job
- jobd

- show alias
- show tech-support

### 1.2.1 boot flash

It is used in monitor mode to start up at the specified file

manually. **boot flash** *filename*

#### Parameter

Parameter	Description
<i>filename</i>	Specifies the file name

#### Default

None

#### Command mode

Monitoring mode

#### Explanation

After the system enters the monitor mode, the command is used to start up the system.

#### Example

```
monitor#boot flash router.bin
```

#### Related command

**dir**

### 1.2.2 cd

It is used in monitor mode to change the current directory.

**cd** *directory* | ..

#### Parameter

Parameter	Description
<i>directory</i>	Directory name with up to 20 characters

..	Upper-level directory
----	-----------------------

**Default**

None

**Command mode**

Monitoring mode

**Explanation**

None

**Example**

monitor#cd my\_dir

**Related command****pwd****1.2.3 chram**

It is used to change the memory data.

**chram** mem\_addr value**Parameter**

Parameter	Description
<i>mem_addr</i>	Memory address in the hex system, ranging from 0 to 0 x01FFFF00.
<i>value</i>	Memory data in the hex system

**Default**

None

**Command mode**

Monitoring mode

**Explanation**

The command is a debugging command and you are not recommended to use it.



**Example**

None

**Related command**

None

**1.2.4 date**

It is used to set the absolute systematic time.

**Parameter**

None

**Default**

None

**Command mode**

EXEC or global configuration mode

**Explanation**

Routers like series 1700, 2620, 2630 and 2650 need to reset the systematic time after powering off, the command, hence, is used to set the time for these routers. If time is not right, you should replace the battery.

**Example**

```
config#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 command**

None

### 1.2.5 md

It is used to create a directory.

**md directory**

#### Parameter

Parameter	Description
<i>directory</i>	Directory name with up to 20 characters

#### Default

None

#### Command mode

Monitoring mode

#### Explanation

None

#### Related command

None

### 1.2.6 pwd

It is used to display the current directory.

#### Parameter

None

#### Default

None

#### Command mode

Monitoring mode

## Explanation

None

## Related command

None

## 1.2.7 rd

It is used to delete a directory.

**rd** directory

## Parameter

Parameter	Description
<i>directory</i>	Directory name with up to 20 characters

## Default

None

## Command mode

Monitoring mode

## Explanation

The system will prompt you whether the directory exists or not. If the directory does not exist, the system will prompt that the directory does not exist.

## Related command

None

## 1.2.8 rename

It is used to change the file name.

**rename** old\_file\_name new\_file\_name

## Parameter

Parameter	Description
-----------	-------------

---

<i>old_file_name</i>	Original file name
<i>new_file_name</i>	New file name

**Default**

None

**Command mode**

Monitoring mode

**Explanation**

None

**Related command**

None

**1.2.9 reboot**

It is used to restart the router.

**Parameter**

None

**Default**

None

**Command mode**

Monitoring mode

**Explanation**

None

**Related command**

None

### 1.2.10 alias

It is used to set the alias of the command. The “no” form of the command is used to delete the alias of the command.

**[no] alias** [alias\_name command\_line]

#### Parameter

Parameter	Description
<i>alias_name</i>	Alias of the command, which is used to replace the command line
<i>command_line</i>	Command line which is replaced by the alias of the command

#### Default

None

#### Command mode

Configuration mode

#### Explanation

If you complex command lines are frequently used, you can use the command to specify the command alias.

#### Example

```
Router_config#alias c copy tftp:router.bin flash:router.bin 192.2.2.1
```

#### Related command

show alias

### 1.2.11 boot system flash

It is used to specify the mirroring file executed when the system is started. The “no” form of the command is used to delete the previous configuration.

boot system flash *filename*

no boot system flash *filename*

#### Parameter

Parameter	Description
-----------	-------------

<i>filename</i>	Specified file name with up to 20 characters
-----------------	--

**Default**

None

**Command mode**

Global configuration mode

**Explanation**

If the command is not configured, the system will run the first systematic mirroring file in the file system in the flash. If multiple commands are configured, the system will run the mirroring files in order. If a mirroring file does not exist or has the checksum error, the next mirroring file will be run. If all mirroring files fail to be run, the system enters the monitor mode.

**Example**

```
config#boot system flash router.bin
```

**Related command**

None

**1.2.12 help**

It is used to display the help system of the router.

**help****Parameter**

None

**Default**

None

**Command mode**

EXEC

## Explanation

None

## Example

After you run the command, the help system of the router is displayed.

```
Router# 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

It is used to browse the used commands. The "no" form of the command is used to delete the previously used commands.

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

## Parameter

Parameter	Description
+ <count>	<b>Displays 20 historical commands from beginning to end.</b>
- <count>	<b>Displays 20 historical commands from end to beginning.</b>

## Default

If there are less than 20 historical commands, all commands will be displayed; if there are more than 20 historical commands, the recent 20 historical commands will be displayed from beginning to end.

## Command mode

Any mode

## Explanation

Routers of modular series can save up to 20 historical commands. You can use the up/down arrow key to find these commands or edit them.

## Example

In the following examples, recent five historical commands are displayed from end to beginning.

```
Router#history - 5

config

int e1/1

no ip addr

ip addr 192.2.2.49 255.255.255.0

exit
```

## Related command

None

## 1.2.14 job

It is used to define a job and set the schedule of the job. The “no” form of the command is used to cancel the defined job.

```
[no] job    {[interval fireinterval | one-shot] |sleep sleeptime |stop jobname}
```

## Parameter

Parameter	Description
<b>exec</b> <i>jobname</i>	Performs a job immediately.
<i>jobname</i> <i>defination</i>	Defines a job.
<b>restart</b> <i>jobname</i>	Restarts a job.
<b>schedule</b> <i>jobname</i>	Sets a job if a schedule is performed.
<b>at</b> <i>firsttime</i>	Sets the first execution interval of a job after <b>jobd</b> is started.
<b>interval</b> <i>fireinterval</i>	Sets the interval between two job executions
<b>one-shot</b>	Sets a job to be performed once



<b>sleep</b> <i>sleeptime</i>	Sets the sleep time.
<b>stop</b> <i>jobname</i>	Stops the scheduled job.

### Default

None

### Command mode

Global configuration mode

### Explanation

Job here stands for a segment of script, defining the to-be-run command combination, the time to perform the job and the interval of the operation.

### Example

The following example shows that jobs on all ports are defined to be shutdown.

```
job shutall "int s1/0;shut;int s1/1;shut;int s1/2;shut;int s1/3;shut"
```

The following example shows that jobs on all ports are defined to be **no shutdown**.

```
job noshutall "int s1/0; no shut;int s1/1;no shut;int s01/2;no shut;int s1/3;no shut"
```

The following example shows that all ports perform the **shutdown** operation and the **no shutdown** operation.

```
job schedule shutall at 100 interval 60
```

```
job schedule noshutall at 130 interval 60
```

After 100 seconds of jobd startup, **shutall** a job and the job will be restarted every 60 seconds; After 130 seconds of the router startup, **noshutall shutall** the job and the job will be restarted every 60 seconds.)

To execute the order of shutall or noshutall, define and schedule like the following:

```
job reshut "job exec shutall; job exec noshutall"
```

```
job schedule reshut at 100 interval 30
```

If error occurs when shutall is operated, run the following command (paused by default):

```
job shutall on-error next
```

To run **noshutall**, do the following: (the job cannot be recursively called) `job shutall on-error exec noshutall`

The following example shows that a job is paused.

```
job stop shutall
```

The following example shows that a paused job is restarted. `job restart shutall`

#### Related command

`jobd`

`show job`

`debug job`

#### 1.2.15 debug job

It is used to trace the execution of a job.

#### Parameter

None

#### Command mode

EXEC

#### Explanation

After the job debugging information is opened, the execution and schedule of the job is exported.

#### Example

```
config#debug job JOB
```

```
: <showver> fired
```

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

## Related command:

job

jobd

**show job**

## 1.2.16 jobd

It is used to start up the protection process for executing the job. The “no” form of the command is used to terminate the protection process of the job.

**[no] jobd**

## Parameter

None

## Default

None

## Command mode

Global configuration mode

## Explanation

The execution of the job need be scheduled and executed by **jobd**. The execution time of the job takes the startup time of **jobd** as the basis. Press **q**, **Q** or **Ctrl+Shift+6** to terminate **jobd**.

## Example

The following example shows how **jobd** is started:

```
Router_config# jobd
```

```
Job daemon started. No commands can be entered.End with q,Q,or Ctrl+Shift+6
```

## Related command

debug job

job

show job

### 1.2.17 show alias

It is used to display all aliases or specified aliases.

**Show alias** [*<alias name>*]

#### Parameter

Parameter	Description
<b><i>alias name</i></b>	Alias of a command

#### Default

All aliases are displayed according to the formula “alias name=command line”.

#### Command mode

EXEC mode or configuration mode

#### Explanation

None

#### Example

In the following example, all aliases in the current system are displayed:

```
Router_config# show alias
```

```
hualab=date
```

```
router=snmp
```

#### Related command

**alias**

### 1.2.18 show tech – support

It is used to display some important information about the system.

**show tech – support**

#### Parameter

None

**Default**

None

**Command mode**

EXEC mode or configuration mode

**Explanation**

The command is used to display some important information about the system, which is required by technical support.

## 1.3 HTTP Configuration Commands

HTTP configuration commands include:

- ip http access-class
- ip http port
- ip http server

### 1.3.1 ip http access-class

It is used to receive the specified HTTP request successfully. ip http access-class *string*

**no ip http access**

**Parameter**

Parameter	Description
<i>string</i>	Name of the specified standard access control list (ACL)

**Command mode**

Global configuration mode

**Explanation**

The specified ACL must be set before the command is used.

The “no” form of the command is used to cancel the limitation to the HTTP request.

## Example

```
router_config# ip access-list standard http-acl
router_config_std_nacl# permit 192.2.2.37 255.255.255.0
router_config_std_nacl# exit
router_config# ip http access-class http-acl
```

## Related command

```
ip http server
```

```
ip http port
```

### 1.3.2 ip http port

It is used to specify the number of the HTTP port.

```
ip http port number
```

## Parameter

Parameter	Description
<i>number</i>	Port number of the HTTP service

## Default

Port 80 is taken by the browser as the default port number of the HTTP service.

## Command mode

Global configuration mode

## Explanation

After the command is run, if the http service is enabled, shut down the original listening port and then use the specified port (the specified port is available) to receive the request of the http service; if the http service is not enabled, the command has no effect on the http service request temporarily.

## Example

The following example shows the number of the http port is changed from 80 to 90.

```
router_config# ip http server
```

```
router_config# ip http port 90
```

#### Related command

**ip http access-class**

ip http server

### 1.3.3 ip http server

It is used to enable the http service.

**ip http server**

**no** ip http server

#### Parameter

None

#### Command mode

Global configuration mode

#### Explanation

You can use the command to specify a port of the router to accept the http request, handle the request and to return the result to the browser.

#### Example

```
router_config# ip http server
```

#### Related command

ip http access-class

ip http port

## Chapter 2 Terminal Service Configuration Commands

### 2.1 Telnet Configuration Commands

Telnet configuration commands include:

- telnet
- ip telnet
- ctrl-shift-6+x
- where
- disconnect
- resume
- switchkey
- switchmsg
- sequence-char
- clear telnet
- show telnet
- debug telnet

#### 2.1.1 telnet

The command line for establishing the telnet session is shown in the following:

```
telnet server-ip-addr/server-host-name [/port port][/source-interface interface] [/local
local-ip-addr] [/debug][/echo/noecho] [/script scriptname] [/ts-block | /ts-discard]
[/info information] [/source-port sourceport]
```

Parameter

Parameter	Description
<i>server-ip-addr</i>	Dotted-decimal IP address of the remote server
<i>server-host-name</i>	Host name of the remote server, which need be configured by the <b>ip host</b> command
<b>port</b>	Port of the telnet service provided by the remote server
<b>interface</b>	Local interface which triggers the telnet connection



<i>local-ip-addr</i>	Local IP address which triggers the telnet connection
<b>/debug</b>	Opens the debug switch at the client and prints the negotiation process during the connection.
<b>echo/noecho</b>	Opens and shuts down the local echo. The echo is not enabled by default.
<i>scriptname</i>	Name of the script which is used for automatic logging
<b>/ts-block</b>	Sets to block the local telnet connection when it is at the background.
<b>/ts-discard</b>	Sets the telnet message to be dropped when the local telnet connection is at the background.
<b>/info</b>	Sets related printing information before the telnet connection.
<b>/source-port</b>	Sets the local port for the telnet connection
<b>/router-id</b>	Authenticates the router ID.

### Default

The default value of the port is 23, while the interface has no default value.

### Command mode

EXEC

### Explanation

You can use the following command line for remote login.

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

In this case, the application program will directly send the request for creating a telnet link to port 23 of the remote server. The adopted local IP address is the one nearest to the peer which is found by the routing table.

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

The application program sends the request for creating a telnet link to the peer port.

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

The application program takes the IP address on the interface as the local address.

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

The application program enables the **debug** switch and exports the connection negotiation information on the client.

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

The application program enables/disables the local echo. In general, the local echo is disabled. The echo process is performed by the server. Only when the server does not echo is the switch of the local echo enabled.

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

The automatic login command for running the script need be configured by the **ip telnet script** command.

In some print-screen applications, corresponding **routeras** software is not installed on the server. When the local telnet connection is at the background and is set with the parameter **/ts-block** or **/ts-discard**, if there is data from the server, the router can temporarily save 4000-bytes data for the telnet connection. As for the later data, the router will take the following two strategies:

If the **/ts-block** parameter is set, the server will be blocked from transmitting the data to the local computer until the telnet connection is at the front workstation.

```
telnet server-ip-addr/server-host-name /info information
```

In this case, the application program will print the configuration information out and then sends the request for creating telnet link to the remote server.

```
telnet server-ip-addr/server-host-name /source-port sourceport
```

In this case, the application program sends a request for creating telnet link to port 23 of the remote server. The used local TCP port is the configured source port.

The commands and parameters above can be used together.

During the session between remote server and client, you can press **Q** to exit the session. If you does not exit the session manually, the session will be over after 10 seconds.

## Example

Suppose you telnet the remote server whose IP address is 192.168.20.124 and the telnet service ports of the server are port 23 and port 2323. There are two local ports **e1/1(192.168.20.240)** and **s1/0(202.96.124.240)**. You can use the following command lines for remote login:

```
telnet 192.168.20.124 /port 2323
```

After you perform the previous command line, a telnet connection will be established between port 2323 of host 192.168.20.124 and host 192.168.20.240. The local IP address seen on the peer is 192.168.20.240.

```
telnet 192.168.20.124 /source-interface s1/0
```

After you perform the previous command line, a telnet connection will be established between port 23 of host 192.168.20.124 and host 192.168.20.240. The local IP address seen on the peer is 202.96.124.240.

```
telnet 192.168.20.124 /local 192.168.20.240
```

After you perform the previous command line, a telnet connection will be established between port 23 of host 192.168.20.124 and host 192.168.20.240. The local IP address seen on the peer is 192.168.20.240.

```
telnet 192.168.20.124 /debug
```

After you perform the previous command line, information about the negotiation process of the telnet connection with the peer port 23 is printed out.

```
telnet 192.168.20.124 /echo
```

The local echo switch is opened. If the echo also occurs on the server, all entered information will be echoed twice.

```
telnet 192.168.20.124 /script s1
```

The s1 login script will be used for automatic login.

```
telnet 192.168.20.124 /info
```

After you run the previous command line, the information “qtech” will be first printed out.

```
telnet 192.168.20.124 /source-port 601
```

After you perform the previous command line, a telnet connection will be established between port 23 and local machine. The local tcp port is port 601.

```
telnet 192.168.20.124 /router-id /p 10000
```

A telnet connection will be established between port 1000 and local machine. The router ID authentication will be performed afterwards. You need configure corresponding router ID authentication on the peer (fixed terminal provided by qtech).

## 2.1.2 ip telnet

The command lines for establishing the telnet session is shown in the following:

```
ip telnet source-interface interface
```

```
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
```

```
ip telnet server-port server-port
```

### Parameter

Parameter	Description
interface	Local interface which triggers the telnet connection
accesslist	Name of the ACL which limits the source address when the local machine receives the connection
start-port	Start port number for specifying the listening port area
end-port	End port number for specifying the listening port area
scriptname	Name of the login script
user_prompt	Prompt information about the user name sent back by the telnet server
user_answer	Response information about user name provided by the client

pwd_prompt	Prompt information about the user password sent back by the telnet server
pwd_answer	Response information about password provided by the client

## Default

None

## Command mode

Global configuration mode

## Explanation

You can run the following command to configure the local interface for triggering the telnet connection.

```
ip telnet source-interface interface
```

In this case, all the coming telnet connections will use the interface. The command has the similar function as the **telnet source-interface *interface*** command, but the command has not followed by the **interface** parameter. After the interface is configured and the telnet command has the **interface** parameter followed, take the followed interface as the standard.

You can use the following command to configure the name of the ACL which limits the local machine to receive the telnet connection.

```
ip telnet access-class accesslist
```

In this case, the server will check the ACL before it receives all telnet connections.

You can run the following command to configure the ports except default port (23) to receive the telnet connection.

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

Note: If the end port number is not specified, the port listening must be performed on a certain port. The number of specified listening ports cannot be larger than 16 and the port number ranges between 3001 and 3999.

You can run the following command to configure the telnet login script.

```
ip telnet script s1 'login:' router 'Password:' test
```

### Note:

During script configuration, username prompt and answer, password prompt and answer must be completely matched. The prompt information is case sensitive. The prompt information must be in the inverted comma ("). If error occurs in the configuration, the automatic logon cannot go on.

### Note:

The previous four commands can use the “no” form of these commands to cancel the configuration.

You can run the following command to correct the telnet listening

```
port. ip telnet server-port serverport
```

**Note:**

You can run the command to modify the telnet listening port to any port except port 23.

**Note:**

- 1) When you run this command to modify the listening port, all telnet connections on the original listening port will be deleted.
- 2) Run the corresponding command to resume the telnet listening port to port 23.
- 3) Run corresponding “no” form of these commands to disable the telnet listening function, that is, the router cannot serve as a telnet server after you run the “no” form commands.

### Example

- 1) ip telnet source-interface s1/0

In this case, all the coming telnet connections will use interface s1/0.

- 2) ip telnet access-class abc

In this case, the following received telnet connections will be checked by the **abc** ACL.

- 3) ip telnet listen-port 3001 3010

Except port 23, all ports between port 3001 and port 3010 can receive the telnet connection.

- 4) ip telnet script s1 'login:' router 'Password:' test

The s1 logon script is configured. The username prompt is **login** and the answer is **router**. The password prompt is **password** and the answer is **test**.

### 2.1.3 ctrl-shift-6+x (mounting the current telnet connection)

Run the following command to mount the current telnet connection.

```
ctrl-shift-6+x
```

#### Parameter

None

**Default**

None

**Command mode**

Any time in the current telnet session

**Explanation**

You can use the shortcut key to mount the currently outgoing telnet connection at the client.

**Example**

```
RouterA>telnet 192.168.20.1
```

```
Welcome to Multi-Protocol 1700 Series Router
```

```
RouterB>ena
```

```
RouterB#( ctrl-shift-6+x)
```

```
RouterA>
```

If you press **ctrl-shift-6+x** during the current telnet session which connects router B, the connection of router B is mounted and the system gets back to the current state of router A.

**2.1.4 where**

It is used to check the currently mounted outgoing telnet session at the client.

where

**Parameter**

None

**Default**

None

**Command mode**

Global configuration mode

## Explanation

You can run the command at the client to check the currently mounted outgoing telnet session. The displayed information includes the serial number, peer address, peer port, local address and local port.

### Note:

The **where** command and the **show telnet** command are different. The former is used at the client and can display the outgoing telnet connection, while the latter is used at the server and can display the incoming telnet connection.

## Example

```
RouterA>telnet 192.168.20.1
```

```
Welcome to Multi-Protocol 1700 Series Router
```

```
RouterB>ena
```

```
RouterB#( ctrl-shift-6+x)
```

```
RouterA> telnet 192.168.20.2
```

```
Welcome to Multi-Protocol 1700 Series Router
```

```
RouterC>ena
```

```
RouterC#( ctrl-shift-6+x)
```

```
RouterA>where
```

NO.	Remote Addr	Remote Port	Local Addr	Local Port
1 20034	192.168.20.1	23		192.168.20.180
2 20035	192.168.20.2	23		192.168.20.180

If you run where on router A, the information about the mounted outgoing connection of router A is displayed.

### 2.1.5 resume

It is used to resume the currently mounted outgoing telnet session at the client.

```
resume no
```

### Parameter

Parameter	Description
-----------	-------------

<i>No</i>	Serial number of the currently-mounted telnet session which is observed after the <b>where</b> command is run
-----------	---

### Default

None

### Command mode

Global configuration mode

### Explanation

You can run the command at the client to resume the currently mounted outgoing telnet session.

### Example

```
RouterA>telnet 192.168.20.1
```

```
Welcome to Multi-Protocol 1700 Series Router
```

```
RouterB>ena
```

```
RouterB#( ctrl-shift-6+x)
```

```
RouterA> telnet 192.168.20.2
```

```
Welcome to Multi-Protocol 1700 Series Router
```

```
RouterC>ena
```

```
RouterC#( ctrl-shift-6+x)
```

```
RouterA>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

```
RouterA>Resume 1
```

```
[Resuming connection 1 to 192.168.20.73 . . . ]
```

```
RouterB#
```



After you run **where** at router A and the mounted outgoing connections on router A are displayed, enter **resume 1**. Connection 1 is resumed. After you press **Enter**, the command prompt appears on router B.

### 2.1.6 disconnect

It is used to delete the currently mounted outgoing telnet session at the client.

`disconnect no`

#### Parameter

Parameter	Description
<i>No</i>	Serial number of the currently-mounted telnet session which is observed after the <b>where</b> command is run

#### Default

None

#### Command mode

Global configuration mode

#### Explanation

You can run the command at the client to delete the currently-mounted outgoing telnet session.

#### Note:

The **disconnect** command and the **clear telnet** command are different. The former is used at the client and can delete the outgoing telnet connection, while the latter is used at the server and can delete the incoming telnet connection.

#### Example

```
RouterA>telnet 192.168.20.1

Welcome to Multi-Protocol 1700 Series Router

RouterB>ena

RouterB#(Press ctrl-shift-6+x)

RouterA> telnet 192.168.20.2

Welcome to Multi-Protocol 1700 Series Router

RouterC>ena
```

```
RouterC#( Press ctrl-shift-6+x)
```

```
RouterA>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

```
RouterA>disconnect 1
```

```
<Closing connection to 192.168.20.1> <y/n>y
```

Connection closed by remote host.

```
RouterA>
```

After you run **where** at router A and the mounted outgoing connections on router A are displayed, enter **disconnect 1**. You are notified whether the connection of router B is closed. After you press **Y**, the connection is cut off.

### 2.1.7 switchkey

The following command is used to configure the terminal switchover key on the line.

**switchkey** key cmdalias server-name

#### Parameter

Parameter	Description
<i>Key</i>	The composite key is formed of the <b>ctrl</b> key plus any letter key except the <b>H</b> key.
<i>cmdalias</i>	Alias of the <b>connect</b> command
<i>Server name</i>	Name of the remote host, which appears in the shift prompt information and the shift menu.

#### Default

None

#### Command mode

Line configuration mode

#### Explanation

You can run the command in line configuration mode to configure the terminal shift key, the alias of the corresponding command and the name of the remote host.

**Note:**

- 1) The **cmdalias** parameter must be pointed to a correct **connect** command.
- 2) Ctrl-h cannot be the key parameter.
- 3) The server-name parameter will appear in the shift prompt information and the shift menu.
- 4) autocommand cannot be configured on the line, or the terminal shift function is out of function.

## Example

```
RouterA>switchkey ctrl-a cona ServerA
```

The shift key is set to **ctrl-a** and the command alias is set to **cona**. The server which is switched to is server A.

## 2.1.8 switchmsg

The following command is used to configure whether the terminal shift information is exported or not.

**switchmsg** enable/disable

## Parameter

Parameter	Description
<i>Enable</i>	Exports the prompt information about terminal shift.
<i>Disable</i>	Forbids to export the prompt information about terminal shift.

## Default

disable

## Command mode

Line configuration mode

## Explanation

You can use the command during terminal shift configuration to decide whether to export the prompt information about terminal shift.

## Example

```
RouterA>switchmsg enable
```

When the terminal is shifted, the prompt information appears.

### 2.1.9 sequence-char

The following command is used to configure the terminal switchover key on the line. **sequence-char** key char1 char2 char3 ...

#### Parameter

Parameter	Description
Key	The composite key is formed of the <b>ctrl</b> key plus any letter key except the <b>H</b> key.
<i>char1 char2 char3 ...</i>	Character sequence about the specific terminal

#### Default

None

#### Command mode

Line configuration mode

#### Explanation

You can use this command to configure the terminal shift key and the character sequence of the corresponding terminal on the line.

#### Note:

**Ctrl-h** cannot be the key parameter.

The character sequence is related with the detailed terminal. The terminal manual can be found on the terminal manuscript.

The character sequence must be in the hex system and starts with 0x. Each character are separated by pressing the space key.

#### Example

```
RouterA>sequence-char ctrl-a 0x1b 0x21 0x38 0x51
```

The character sequence of the **ctrl-a** shift key is set to **0x1b 0x21 0x38 0x5**.

For other **alias** and **async** commands, see relative configuration explanation.

#### Application example

The configuration of the router is as follows:

```

...
...
...
interface Serial1/1
  physical-layer mode async
  no ip directed-broadcast
  async mode interactive
line tty 1
switchkey CTRL-U cona ServerA
sequence-char CTRL-U 0x1b 0x21 0x38 0x51
switchkey CTRL-V conb ServerB
sequence-char CTRL-V 0x1b 0x21 0x39 0x51
switchkey CTRL-W conc ServerC
sequence-char CTRL-W 0x1b 0x21 0x31 0x30 0x51
switchmsg enable
...
...
alias cona connect 192.168.20.1
alias conb connect 192.168.20.2
alias conc connect 192.168.20.3

```

After all configuration and the connections are done, open the terminal. The shift menu automatically appears. In this case, you press the composite key **Ctrl-U**, the system is automatically shifted to server A. The prompt information of the current host, server A, is exported automatically.

After you enter **Ctrl-V**, the system is automatically shifted to server B and the prompt information of the current host, server B, is exported automatically.

After you enter **Ctrl-W**, the system is automatically shifted to server C and the prompt information of the current host, server C, is exported automatically. No matter when you enter **ctrl-\**, the current screen displays the shift menu and the "\*" symbol is added behind the current server.

The following information is displayed after you press **ctrl-\**.

```
=====
```

Terminal Switch Menu

- 1) CTRL-U      ServerA   \*
- 2) CTRL-V      ServerB
- 3) CTRL-W    ServerC

**Note:** During the operation of multiple connections, if you enable the system to exit from one connection, the system will take the first connection as the current connection and the interface of the first host is shown on the screen. If the first connection has been exited, the second connection will be taken as the current connection and the interface of the second host is shown on the screen.

After all services are completed, the recommended exit method is to directly shut down the terminal no matter how many connections are opened currently.

Before other connections are not exited, you'd better not enable the system to exit the first connection.

You are strongly suggested to switch a connection to another not just to disable a connection. After all operations are done, you can shut down the terminal.

During terminal switchover, the function to mount or resume the connection through the **ctrl-shift-6+x** command is disabled.

### 2.1.10 clear telnet

Run the following command to remove the telnet session on the server.

```
clear telnet no
```

#### Parameter

Parameter	Description
<i>No</i>	Serial number of the telnet session displayed by the <b>show telnet</b> command

#### Default

None

#### Command mode

EXEC

#### Explanation

You can run the command to remove the telnet session on the server.

**Example**

1. clear telnet 1

The telnet session (192.168.20.220:1097) whose serial number is 1 is deleted.

**2.1.11 show telnet**

Run the following command to display the telnet session on the server.

**show telnet**

**Parameter**

None

**Default**

None

**Command mode**

All modes except the user mode

**Explanation**

You can run the command to remove the telnet session on the server. The displayed information includes the serial number, peer address, peer port, local address and local port.

**Example**

1. show telnet

After the previous command is run, the following information is shown:

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

**2.1.12 debug telnet**

The following command is used to debug the telnet session:

**debug telnet**

**Parameter**

None

**Default**

None

**Command mode**

EXEC

**Explanation**

You can run the command to open the debugging switch of the telnet session.

After you run the command, the negotiation processes of all the incoming telnet sessions are shown on the debugging output window. The **debug telnet** command is different from the **telnet [/debug]** command. The former is used to export the debugging information about the incoming connections on the server, while the latter is used to export the debugging information about the telnet sessions trigger by the client.

**Example**

```
debug telnet
```

The switch of the debugging server which the telnet session connects is opened.

## 2.2 Rlogin Configuration Commands

The **rlogin** command is used to create the rlogin session between remote servers. In general, the **rlogin** command is used for remote login between the local machine and the Unix system. Because the operating system of the peer is already known, the option negotiation does not need. The rlogin command is mainly used for authentication based on the IP address of the host and the username of the remote server. The major difference between **rlogin** and **telnet** lies in that the **rlogin** command prevents user from entering the password every time through proper configuration on the server.

### 2.2.1 rlogin

The command line for establishing the rlogin session is shown in the following:

```
rlogin server-ip-addr [-l Username]
```



## Parameter

Parameter	Description
<i>server-ip-addr</i>	Dotted-decimal IP address of the remote server
<i>Username</i>	User name of the remote server, which is up to 30 characters

## Default

None

## Command mode

Global configuration mode

## Explanation

You can run one of the following commands for remote login.

- **rlogin** *server-ip-addr*  
The application program queries you the remote user name and tries to create a connection with the remote terminal.
- **rlogin** *server-ip-addr -l Username*  
In this case, the application program directly tries to create a remote connection.

During the session between remote server and client, you can press one of the following composite keys.

- Ctrl-S: Preventing the client from the output of the remote terminal
- Ctrl-Q: Resuming the output of the remote terminal

**Note:**

When you press the composite key **Ctrl-S** or **Ctrl-Q**, the corresponding cooperation from the server is required.

You can enable the system to exit from a session by adding the continuous sequence “~” and “.”.

Press the composite key **ctrl+shift+6** to exit from the session.

## Example

Suppose you use the **rlogin** command to log on to the server 192.168.20.124 and the username on the server is **guest**, you can one of the following commands to perform the remote login:

```
rlogin 192.168.20.124
```

In this case, the username for logging on to the remote server is required. After the username is obtained, the connection with the remote server starts to be created. The following is an example:

```
router# rlogin 192.168.20.124
```

```
username: guest
```

```
Try to connect server .
```

```
The shadow font is entered.
```

```
rlogin 192.168.20.124 -l guest
```

In this case, the **rlogin** command is used to directly try to establish the connection with the remote server.

## 2.3 Terminal Configuration Commands

Terminal configuration commands include:

- 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

### 2.3.1 attach-port

The following command is used to bind the listening telnet port to the **line vty** number, enabling the telnet connection on a specific port to generate vty according to the specified sequence order.

[no] attach-port *PORT*

#### Parameter

Parameter	Description
<i>port</i>	Number of the listening port of the telnet server (3001-3999)

#### Default

None

#### Command mode

Line configuration mode

## Example

The following example shows that the listening port, 3001, is bound to line vty

```
23. Router_config# line vty 2 3
Router_config_line#attach-port 3001
```

### 2.3.2 autocommand

It is used to set the auto-run command when the user logs on to the terminal. After the command is run, the connection is disconnected.

```
autocommand LINE
no autocommand
```

#### Parameter

Parameter	Description
<i>LINE</i>	Command which will be run

#### Command mode

Line configuration mode

#### Example

```
Router_conf#line vty 1
Router_conf_line#autocommand pad 123456
After successful login, the system pads that the address of X.121 is host 123456.
```

### 2.3.3 clear line

It is used to remove the specified line.

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

#### Parameter

Same as the **line** command

#### Command mode

EXEC

## Example

```
Router#clear line vty 0
```

### 2.3.4 connect

It is used to connect the telnet server.

```
connect server-ip-addr/server-host-name {[/port port[/source-interface interface]  
[/local local-ip-addr] [/ts-block | /ts-discard]}
```

#### Parameter

Parameter	Description
<i>server-ip-addr/server-host-name</i>	IP address of the server or the host name of the server
<i>port</i>	Port number
<i>interface</i>	Name of the interface where the connection is triggered
<i>local-ip-addr</i>	Local IP address where the connection is triggered
/ts-block	Sets to block the local telnet connection when it is at the background.
/ts-discard	Sets the telnet message to be dropped when the local telnet connection is at the background.

#### Command mode

All configuration modes

#### Example

```
Router#connect 192.168.20.1
```

#### Explanation

For the parameters **/ts-block** and **/ts-discard**, see the **telnet** command.

### 2.3.5 disconnect

It is used to cancel the mounted telnet session.

```
disconnect N
```

#### Parameter

Parameter	Description
<i>N</i>	Number of the mounted telnet session

**Command mode**

All configuration modes

**Example**

```
Router#disconnect 1
```

**2.3.6 exec-timeout**

It is used to set the maximum free time of the terminal.

[no] exec-timeout [*time*]

**Parameter**

Parameter	Description
<i>time</i>	Free time whose unit is second

**Default**

0

**Command mode**

Line configuration mode

**Example**

The following example shows the free time of a line is set to 3600 seconds (one hour).

```
Router_config_line#exec-timeout 3600
```

**2.3.7 length**

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

terminal. [no] **length** [*value*]

**Parameter**

Parameter	Description
value	Value between 0 and 512The value <b>0</b> means there is no pause.

Default

24

Command mode

Line configuration mode

### 2.3.8 line

It is used to enter the line configuration mode.

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

Parameter

Parameter	Description
<b>aux   console   tty   vty</b>	All are the line types. <b>AUX</b> stands for the auxiliary line; <b>console</b> stands for the monitoring line; <b>tty</b> for asynchronous line and <b>vty</b> for the virtue lines such as Telnet, PAD and Rlogin.
<i>number</i>	Number of the line of the typeFor console and aux, only the number <b>0</b> is used for numbering.

Command mode

Global configuration mode

Example

The following example shows that the configuration states of No. 0 line to No.10 line after the system enters VTY.

```
Router_config#line vty 0 10
```

### 2.3.9 location

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

location [*LINE*]

no location

Parameter

Parameter	Description
<i>LINE</i>	Description about the current line

## Command mode

Line configuration mode

## 2.3.10 login authentication

It is used to set the authentication parameter about line login.

[no] line login authentication [default | *WORD*]

## Parameter

Parameter	Description
<b>default</b>	Default authentication mode
<i>WORD</i>	Name of the authentication list

## Command mode

Line configuration mode

## Example

Router\_conf\_line#login authentication test

The authentication list of the line is set to **test**.

## 2.3.11 monitor

It is used to export the log and debugging information to the line.

[no] monitor

## Parameter

None

## Command mode

Line configuration mode

## Example

Router\_config\_line#monitor



### 2.3.12 no debug all

It is used to shut down all debugging output of the current VTY

line. no debug all

#### Parameter

None

#### Command mode

EXEC

#### Example

Router#no debug all

### 2.3.13 password

It is used to set the terminal password.

**password** {*password* | [encryption-type] *encrypted-password*}

no password

default password

#### Parameter

Parameter	Description
<i>Password</i>	Password configured on the line It is entered in a way of the plain text and its length can be over 30 digits.
<i>[encryption-type]</i> <i>encrypted-password</i>	<b>encryption-type</b> means the type of password encryption. Currently only two types, 0 and 7, are supported. <b>0</b> means that the data is not encrypted. The plain text of the password is directly entered for the parameter <b>encrypted-password</b> , which has the same result as the password is directly entered without adding the encryption-type. <b>7</b> means that an algorithm defined by qtech is used for encryption. For the <b>encrypted-password</b> parameter, the encrypted password text need be entered, which can be copied from the configuration file of other routers.

For any problem about the password, see the description of the commands **service password-encryption** and **enable password**.

## Command mode

Line configuration mode

## Example

```
Router_conf#line vty 1
```

```
Router_conf_line#password test
```

In this example, the login password of VTY1 is set to **test**.

## Explanation

The parameter **no password** means that the password is not required. After you configure the line authentication mode under **aaa**, directly log on to the line or enter the EXEC mode.

**Default password** means to resume the default configuration, that is, no password exists. After you configure the line authentication mode under **aaa**, you cannot log on to the line or enter the EXEC mode.

### 2.3.14 resume

It is used to resume the mounted telnet session.

```
resume N
```

## Parameter

Parameter	Description
<i>N</i>	Number of the mounted telnet session

## Command mode

All configuration modes

## Example

```
Router#resume 1
```

### 2.3.15 printer enable

Open or shut down the direct-through printer.

```
printer enable[disable]
```

**Parameter**

Parameter	Description
<b>enable</b>	Opens the direct-through printer on the line.
<i>disable</i>	Closes the direct-through printer on the line.

**Default**

disable

**Command mode**

Line configuration mode

**Example**

Open the direct-through printer on line tty 1.

```
Router_config# line vty 1
```

```
Router_config_line#printer enable
```

**2.3.16 printer start**

Configure the character sequence for starting

printing. [no] printer start *char1 char2 char3 ...*

**Parameter**

Parameter	Description
<i>char1 char2 char3 ...</i>	Character sequence in the hex system for printing, which starts with 0x and is separated with space
no	Resumes the default value of the printing character sequence, 0x1b 0x5b 0x35 0x69

**Default**

0x1b 0x5b 0x35 0x69

**Command mode**

Line configuration mode

**Example**

Configure the printing character sequence on line tty 1.

```
Router_config# line vty 1
```

```
Router_config_line#printer start 0x1b 0x5b 0x30 0x69
```

**2.3.17 printer stop**

Configure the character sequence for ending printing.

```
[no] printer stop char1 char2 char3 ...
```

**Parameter**

Parameter	Description
<i>char1 char2 char3 ...</i>	Character sequence in the hex system for ending printing, which starts with 0x and is separated with space
no	Resumes the default value of the character sequence of ending printing, 0x1b 0x5b 0x34 0x69

**Default**

```
0x1b 0x5b 0x34 0x69
```

**Command mode**

Line configuration mode

**Example**

Configure the character sequence for ending printing on line tty 1.

```
Router_config# line vty 1
```

```
Router_config_line#printer stop 0x1b 0x5b 0x31 0x69
```

**2.3.18 script activation**

Configure the activation script of the line.

```
script activation WORD
```

**Parameter**

Parameter	Description
<i>WORD</i>	Name of the script

**Command mode**

Line configuration mode

**Example**

Set the activation script of the line to **script1**.

```
Router_config_line#script activation script1
```

**2.3.19 script callback**

Configure the script for dial-back.

```
script callback WORD
```

**Parameter**

Parameter	Description
<i>WORD</i>	Name of the script

**Command mode**

Line configuration mode

**Example**

Set the activation script of the line to **script1**.

```
Router_config_line#script callback script1
```

**2.3.20 script connection**

Configure the script for creating connection.

```
script connection WORD
```

**Parameter**

Parameter	Description
<i>WORD</i>	Name of the script

**Command mode**

Line configuration mode

### Example

Configure the script for creating connection to **script1**.

```
Router_config_line#script connection script1
```

### 2.3.21 script dialer

Configure the script for dial-out.

```
script dialer WORD
```

### Parameter

Parameter	Description
<i>WORD</i>	Name of the script

### Command mode

Line configuration mode

### Example

In the following example, the script for dial-out is configured.

```
Router_config_line#script dialer script1
```

### 2.3.22 switchkey

Configure the terminal shift key.

```
switchkey key cmdalias server-name
```

### Parameter

Parameter	Description
<b>key</b>	Terminal shift key (ctrl-a—ctrl-z, except ctrl-h)
<b>cmdalias</b>	Alias of the execution command when the terminal is shifted
<i>server-name</i>	Name of the server corresponded by each terminal screen

### Command mode

Line configuration mode

## Example

In the following example, the **sco1** server is connected by the **con\_sco** command after you use **ctrl-a** for switchover.

```
Router_config_line#switchkey ctrl-a con_sco sco1
```

### 2.3.23 script reset

It is used to configure the script for port resetting.

```
script reset WORD
```

#### Parameter

Parameter	Description
<i>WORD</i>	Name of the script

#### Command mode

Line configuration mode

#### Example

In the following example, the script for port resetting is set to **script1**.

```
Router_config_line#script reset script1
```

### 2.3.24 script startup

It is used to configure the startup script.

```
script startup WORD
```

#### Parameter

Parameter	Description
<i>WORD</i>	Name of the script

#### Command mode

Line configuration mode

#### Example

In the following example, the startup script is set to **script1**.

```
Router_config_line#script startup script1
```

### 2.3.25 sequence-char

It is used to configure the character sequence for writing back to the terminal when the terminal is shifted.

```
sequence-char key char1 char2 char3 ...
```

#### Parameter

Parameter	Description
key	Terminal shift key
char1 char2 char3 ...	Write-back character sequence

#### Command mode

Line configuration mode

#### Example

In the following example, the write-back character sequence is set to **0x1b 0x21 0x38 0x51** when **ctrl-a** is used for switchover.

```
Router_config_line#sequence-char ctrl-a 0x1b 0x21 0x38 0x51
```

### 2.3.26 show debug

It is used to display all current debugging information opened by VTY.

#### show debug

#### Parameter

None

#### Command mode

EXEC or global configuration mode

#### Example

```
Router#show debug
```

```
Generic IP:
```

```
IP packet debugging is on
```



Frame Relay:

Lmi debugging is on

### 2.3.27 show line

It is used to display the currently effective line

state. show line {[console | aux | tty | vty] [*number*]}

#### Parameter

If there is no parameter followed, all currently effective line states are displayed.

The definitions of other parameters are in line with that of the **line** command.

#### Command mode

All modes except the user mode

### 2.3.28 show tty-status

It is used to display the configuration state of the port corresponded by

TTY. show tty-status *N*

#### Parameter

Parameter	Description
<i>N</i>	Sequence number of the line TTY

#### Default

None

#### Command mode

### Example

All modes except the user mode

The configuration state of the port corresponded by TTY1 is displayed in the following example.

```
Router_config# show tty-status 1
```

### 2.3.29 switchmsg

It is used to configure whether the prompt information is displayed at terminal switchover.

switchmsg *enable*

switchmsg *disable*

#### Parameter

Parameter	Description
<i>enable</i>	Displays the prompt information at the switchover of the terminal.
<i>disable</i>	Forbids to display the prompt information at the switchover of the terminal.

#### Default

disable

#### Command mode

Line configuration mode

#### Example

The prompt information is displayed at the switchover of the terminal.

Router\_config\_line#switchmsg enable

### 2.3.30 terminal length

It is used to modify the number of lines displayed on the current terminal, which can be obtained by the remote host. The **rlogin** protocol uses the parameter to notify the UNIX host. You can run **no terminal length** to resume the default value.

terminal length *length*

**no terminal length**

#### Parameter

Parameter	Description
<i>length</i>	Number of lines displayed on each screen

## Default

The lines pauses to be displayed after 24 lines are displayed.

## Command mode

Global configuration mode

## Explanation

It is valid for the current terminal. After the session triggered by the command is complete, the terminal attributes are gone.

## Example

```
router#terminal length 40
```

## Related command

**line**

### 2.3.31 terminal monitor

To display the debugging output information or systematic error information on the current terminal, run **terminal monitor**. You can run **no terminal monitor** to shut down the monitoring function.

terminal monitor

**no terminal monitor**

## Parameter

None

## Default

The console port is opened by default, while other terminals are shut down by default.

## Command mode

Global configuration mode

## Explanation

It is valid for the current terminal. After the session triggered by the command is complete, the terminal attributes are gone.

## Example

```
router#terminal monitor
```

## Related command

line

debug

### 2.3.32 terminal width

The router exports 80 characters each line by default. If the terminal width cannot satisfy the demands of the terminal, you can reset it. The parameter can be obtained by the remote host. You can run **terminal width** to set the number of characters of each line. You can run **no terminal length** to resume the default value.

```
terminal width number
```

**no terminal width**

## Parameter

Parameter	Description
<i>number</i>	Number of characters in each line

## Default

80 characters each line

## Command mode

Global configuration mode

## Explanation

It is valid for the current terminal. After the session triggered by the command is complete, the terminal attributes are gone.

## Example

```
router#terminal width 40
```

**Related command****line****2.3.33 terminal-type**

It is used to set the terminal type.

[no] terminal-type [*name*]

**Parameter**

Parameter	Description
<i>name</i>	Terminal name The terminal types supported currently include VT100, ANSI and VT100J.

**Default**

ANSI

**Command mode**

Line configuration mode

**2.3.34 where**

It is used to check the currently mounted outgoing telnet session at the client.

**where****Parameter**

None

**Command mode**

All configuration modes

**Example**

Router#where

**2.3.35 width**

It is used to set the terminal width of the line.

**[no] width** [*value*]

#### Parameter

Parameter	Description
<i>value</i>	Value between 0 and 5120 表示不折行。

#### Default

80

#### Command mode

Line configuration mode

### 2.3.36 debug line

It is used to export the debugging information about the line.

**[no] debug line** *line* [*lineno*]

#### Parameter

Parameter	Description
<i>line</i>	Line type: aux/console/tty/vty/tty2console
<i>lineno</i>	Sequence number of the line

#### Default

The debugging is shut down.

#### Command mode

EXEC

#### Explanation

If you run **debug line aux/console/vty/tty2console**, the debugging information of the corresponding line is printed on the console port. If you run **debug line tty *lineno***, the **ty *lineno*** debugging information is printed on VTY.

## Chapter 3 Network Management Configuration Commands

### 3.1 HTTP Configuration Commands

Telnet configuration commands include:

- snmp-server community
- snmp-server contact
- snmp-server host
- snmp-server location
- snmp-server packetsize
- snmp-server queue-length
- snmp-server trap-source
- snmp-server trap-timeout
- snmp-server view
- show snmp
- debug snmp

#### 3.1.1 snmp-server community

It is used to set the character string of the community SNMP access. You can run the “no” form of the command to delete the specified group character string.

**snmp-server community** *string* [**view** *view-name*] [**ro** | **rw**] [*word*]

no snmp-server community *string*

#### Parameter

Parameter	Description
<i>string</i>	Character string of the community SNMP access, similar to the password
<b>view</b> <i>view-name</i>	Name of the view previously defined, which is an optional parameter The view defines the MIB object which is valid to the community.
<b>ro</b>	An optional parameter, which specifies the read-only permission The authorized management workstation can only read the MIB object.

<b>rw</b>	An optional parameter, which specifies the read-write permission. The authorized management workstation can read and modify the MIB object.
<i>word</i>	An optional parameter, which specifies the IP ACL name for accessing the SNMP agent using the community character string.

### Default

The character string of SNMP community has the read-only permission to all objects by default.

### Command mode

Global configuration mode

### Explanation

If no parameter follows, the configuration information about the community character string is listed.

### Example

The following example shows that the `comaccess` character string is distributed to the SNMP, the read-only permission is allowed and the community character string of the IP ACL is specified.

```
snmp-server community comaccess ro allowed
```

The following example shows the `mgr` character string is distributed to the SNMP and the objects in the `restricted` view are allowed.

```
snmp-server community mgr view restricted rw
```

The following example shows the `comaccess` community is deleted.

```
no snmp-server community comaccess
```

### Related command

```
access-list
```

```
snmp-server view
```

### 3.1.2 snmp-server contact

It is used in global configuration mode to set the contact (**sysContact**) about the management node. You can use the "no" form of the command to delete the **sysContact** parameter configuration.

```
snmp-server contact text
```



**no snmp-server contact****Parameter**

Parameter	Description
<i>text</i>	Character string about the contact

**Default**

The contact information about the node is not set.

**Command mode**

Global configuration mode

**Explanation**

It corresponds to the **sysContact** value of the MIB variable in the **system** group.

**Example**

The following example shows the information about the contact of the node.

```
snmp-server contact Dial_System_Operator_at_beeper_#_27345
```

**Related command**

You can use the main index or the online information of the index to look up related documents.

**3.1.3 snmp-server host**

It is used in global configuration mode to specify the receiver of the SNMP trap operation. You can run the “no” form of the command to delete the specified host.

```
snmp-server host host community-string [trap-type]
```

```
no snmp-server host host
```

**Parameter**

Parameter	Description
<i>host</i>	Host name or Internet address
<i>community-string</i>	Community character string sent together with the trap operation, which is similar to the password
trap-type	An optional parameter

	If no trap is specified, all traps are sent to the host.
authentication	Allows to send the trap about the authentication error.
configure	Allows to send the <b>SNMP-configure</b> trap.
snmp	Allows to send all SNMP traps.

## Default

The command is invalid by default. No trap will be sent. If a command without any keyword is run, all types of traps will be sent by default.

## Command mode

Global configuration mode

## Explanation

If the **snmp-server host** command is not run, the trap will not be sent. To configure the router to send the SNMP trap, you must run the **snmp-server host** command. If the command without the **trap-type** keyword is entered, all trap types about the host are activated. If the command with the **trap-type** keyword is entered, the trap type relative with the keyword is activated. You can specify many trap types for each host.

If you specify multiple **snmp-server host** commands for a same host, the router will filter the SNMP trap information according to the community character string and the trap type. You can only configure one trap type for a same host and a community character string.

The usability of the **trap -type** option depends on the router type and the characteristics of the routing software.

## Example

The following example shows that the SNMP trap defined by RFC1157 is sent to the host whose IP address is 10.20.30.40. The community character string is defined as **comaccess**.

```
snmp-server host 10.20.30.40 comaccess snmp
```

The following example shows how to enable the router to send all types of traps to host 10.20.30.40 using the community character string **public**.

```
snmp-server host 10.20.30.40 public
```

The following example shows that the effective **authentication** trap will be sent to host **bob**.

```
snmp-server host bob public authentication
```

**Related command**

snmp-server queue-length

snmp-server trap-source

**snmp-server trap-timeout**

**3.1.4 snmp-server location**

It is used in global configuration mode to set the character string for the location of the node. You can run the “no” form of the command to delete the location character string.

snmp-server location *text*

no snmp-server location

**Parameter**

Parameter	Description
<i>text</i>	Character string describing the node's location

**Default**

The character string of the node's location is not set.

**Command mode**

Global configuration mode

**Explanation**

It corresponds to **sysLocation** of the MIB variable in the **system** group.

**Example**

In the following command, the actual location of the router is defined.

```
snmp-server location Building_3/Room_214
```

**Related command**

snmp-server contact

### 3.1.5 snmp-server packetsize

It is used in global configuration mode to define the maximum size of the SNMP packet when the SNMP server receives requests or generates response. **snmp-server packetsize** *byte-count*.

no snmp-server packetsize

#### Parameter

Parameter	Description
<i>byte-count</i>	Integer byte from 484 to 17940Its default value is 3000 bytes.

#### Default

3000 bytes

#### Command mode

Global configuration mode

#### Explanation

It corresponds to **sysLocation** of the MIB variable in the **system** group.

#### Example

The following example shows that a filter with a maximum packet of 1024 bytes is created.

```
snmp-server location Building_3/Room_214
```

#### Related command

**snmp-server queue-length**

### 3.1.6 snmp-server queue-length

It is used in global configuration mode to set the length for the message queue of each trap host.

snmp-server queue-length *length*

#### Parameter

Parameter	Description
-----------	-------------

<i>length</i>	Number of trap events that can be saved in the queue
---------------	--

**Default**

Ten events

**Command mode**

Global configuration mode

**Explanation**

The command is used to define the length of each message queue for each trap host. Once the trap message is successfully transmitted, the router will clear all queues.

**Example**

The following example shows that a message queue which can capture four events is established.

```
snmp-server queue-length 4
```

**Related command**

**snmp-server packetsize**

**3.1.7 snmp-server trap-source**

It is used in global configuration mode to specify an interface as the source address of all traps. You can run the “no” form of the command to cancel such an interface.

```
snmp-server trap-source interface
```

```
no snmp-server trap-source
```

**Parameter**

Parameter	Description
interface	An interface where the SNMP trap generatesParameters include the interface type and serial number of the syntax mode for a specific platform.

**Default**

Do not specify the interface.

**Command mode**

Global configuration mode

**Explanation**

After the SNMP server sends the SNMP trap out, it has a trap address no matter from which interface it is sent out. If you want to use the trap address for tracking, run the command.

**Example**

The following example shows that the address of interface 1/0 is specified as the source address of all traps.

```
snmp-server trap-source ethernet 1/0
```

The following example shows that the IP address of interface 1/0 is specified as the source address of all traps.

```
snmp-server trap-source ethernet 1/0
```

**Related command**

```
snmp-server queue-length
```

```
snmp-server host
```

**3.1.8 snmp-server trap-timeout**

It is used in global configuration mode to define the timeout value for resending the trap information.

```
snmp-server trap-timeout seconds
```

**Parameter**

Parameter	Description
<i>seconds</i>	An interval for message resending, which is an integer between 1 and 1000 Its unit is second.

**Default**

30 seconds

## Command mode

Global configuration mode

## Explanation

Before the router tries to send the trap, it can be used to find the route of the destination address. If there is no route, the trap will be saved in the re-sent queue. This command decides the interval of message resending.

## Example

The following example shows an interval of 20 seconds is set and the trap message will be resent from the re-sent queue.

```
snmp-server trap-timeout 20
```

## Related command

```
snmp-server host
```

```
snmp-server queue-length
```

### 3.1.9 snmp-server view

It is used in global configuration mode to create or update the MIB view. You can run the “no” form of the command to cancel a view of the SNMP server.

```
snmp-server view view-name oid-tree {included | excluded}
```

```
no snmp-server view view-name
```

## Parameter

Parameter	Description
<i>view-name</i>	Tag of the view that is updated or created
<i>oid-tree</i>	Object identifier of the <b>ASN.1</b> sub-tree which is included or rejected in the viewIdentifier sub-tree can specify a character string including numbers, for example, 1.3.6.2.4 or a sub-tree name <b>system</b> . Sub-tree names are names that can be found in all MIB trees.
<b>included excluded</b>	Type of the viewIt must be set to <b>included</b> or <b>excluded</b> .

## Default

None

**Command mode**

Global configuration mode

**Explanation**

If other SNMP commands need a view to be their parameter, you can use the command to create a view for these SNMP commands. By default, the view need not be defined. You can see all the objects (similar to the **everything** view predefined by Cisco). You can use the command to define all objects that can be seen from the view.

**Example**

The following example shows how to create a view in the MIB-II sub-tree where all objects can be seen.

```
snmp-server view mib2 mib-2 included
```

The following example shows how to create a view in the **system** group where all objects can be seen.

```
snmp-server view phred system included
```

The following example shows a view where all objects in the **system** group can be seen is created. The view, however, excludes all objects in system 7 (sysService.7) and interface 1.

```
snmp-server view agon system included
```

```
snmp-server view agon system.7 excluded
```

**Related command**

```
snmp-server community
```

**3.1.10 show snmp**

The **show snmp** command is used to monitor the input and output SNMP statistics, including the character string items of the illegal community, error and number of the request variables.

Run **show snmp host** to display the information about the SNMP trap host.

Run **show snmp view** to display the information about the SNMP view.

```
show snmp [ host | view ]
```

**Parameter**

Parameter	Description
-----------	-------------



<i>host</i>	Displays the information about the SNMP trap host.
<i>view</i>	Displays the information about the SNMP view.

### Default

None

### Command mode

EXEC or global configuration mode

### Explanation

To list out the output/input SNMP statistics, run the **show snmp** command. To display the information about the SNMP trap host, run **show snmp host**. To display the information about the SNMP view, run **show snmp view**.

### Example

The input/output SNMP statistics is listed in the following:

```
#show snmp
37 SNMP packets input
0 Bad SNMP version errors
4 Unknown community name
0 Illegal operation for community name supplied
0 Snmp encoding errors
24 Number of requested variables
0 Number of altered variables
0 Get-request PDUs
28 Get-next PDUs
0 Set-request PDUs
78 SNMP packets output
0 Too big errors (Maximum packet size 1500)
0 No such name errors
0 Bad values errors
```

0 General errors

24 Get-response PDUs PDUs

13 SNMP trap PDUs

The domains of the statistics information received or transmitted by the SNMP agent are shown in the following table:

Domain	Meaning
Unknown community name	Community name that cannot be identified
Illegal operation for community name supplied	Incorrect operation
Encoding errors	Incorrect encoding
Get-request PDUs	Get-request message
Get-next PDUs	Get-next message
Set-request PDUs	Set-request message
Too big errors	The response message is too big to be generated.
No such name errors	The specified instance does not exist.
Bad values errors	The value is incorrectly set.
General errors	Common errors
Get-response PDUs	Get-response message
Trap PDUs	SNMP trap message

In the following example, the information about the SNMP trap host is shown.

```
#show snmp host
```

```
Notification host: 192.2.2.1    udp-port: 162  type: trap
```

```
user: public    security model: v1
```

The following example shows that the SNMP view is displayed:

```
#show snmp view
```

```
mib2    mib-2    -    included    permanent    active
```

### Related command

```
snmp-server host
```

```
snmp-server view
```

### 3.1.11 debug snmp

It is used to display the SNMP event, message reception and transmission and error information.

**debug snmp** [ error | event | packet ]

Run **no debug snmp** to stop displaying relative information.

### Parameter

Parameter	Description
<i>error</i>	Enables the debugging switch of the incorrect SNMP information.
<i>event</i>	Enables the debugging switch of the SNMP event.
<i>packet</i>	Enables the debugging switch of the input/output SNMP message.

### Command mode

EXEC

### Explanation

After the SNMP debugging switch is enabled, the SNMP event, message transmission and reception and error information are exported, which helps you to check the SNMP fault.

### Example

The following example shows the procedure of receiving and transmitting the SNMP message:

```
Router#debug snmp packet
```

```
Received 49 bytes from 192.168.0.29:1433
```

```
0000: 30 82 00 2D 02 01 00 04 06 70 75 62 6C 69 63 A0 0..-..... public.
```

```
0016: 82 00 1E 02 02 7D 01 02 01 00 02 01 00 30 82 00 .....}..... 0..
```

```
0032: 10 30 82 00 0C 06 08 2B 06 01 02 01 01 03 00 05 .0.....+.....
```

```
0048: 00
```

```
Sending 52 bytes to 192.168.0.29:1433
```

```
0000: 30 82 00 30 02 01 00 04 06 70 75 62 6C 69 63 A2 0..0..... public.
```

```
0016: 82 00 21 02 02 7D 01 02 01 00 02 01 00 30 82 00 ..!}..... 0..
```

```
0032: 13 30 82 00 0F 06 08 2B 06 01 02 01 01 03 00 43 .0....._ C
```

```
0048: 03 00 F4 36 ...6
```

```
Received 51 bytes from 1192.168.0.29:1434
```

```
0000: 30 82 00 2F 02 01 00 04 06 70 75 62 6C 69 63 A0 0./.....public.
```

```
0016: 82 00 20 02 02 6B 84 02 01 00 02 01 00 30 82 00 .. .k.....0..
```

```
0032: 12 30 82 00 0E 06 0A 2B 06 01 02 01 02 02 01 02 .0.....+.....
```

```
0048: 01 05 00 ...
```

Sending 62 bytes to 192.168.0.29:1434

```
0000: 30 82 00 3A 02 01 00 04 06 70 75 62 6C 69 63 A2 0.:.....public.
```

```
0016: 82 00 2B 02 02 6B 84 02 01 00 02 01 00 30 82 00 ..+.k.....0..
```

```
0032: 1D 30 82 00 19 06 0A 2B 06 01 02 01 02 02 01 02 .0.....+.....
```

```
0048: 01 04 0B 45 74 68 65 72 6E 65 74 30 2F 31 ...Ethernet0/1
```

Domain	Description
Received	SNMP receiving the message.
192.168.0.29	Source IP address
1433	Port number of the source address
51 bytes	Length for receiving the message
30 82 00 2D 02 01 00 04 06 70 75 62 6C 69 63 A0 82 00 1E 02 02 7D 01 02 01 00 02 01 00 30 82 00 10 30 82 00 0C 06 08 2B 06 01 02 01 01 03 00 05 00	Message encoded by SNMP ASN
0.-.....public. .....}.....0.. .0.....+..... .	ASCII code presentation of message receiving The content which is not in the range of the ASCII code is presented with dots.
sending	SNMP transmitting message
192.168.0.29	Destination IP address
1433	Port number of the destination address
52 bytes	Length for transmitting the message
30 82 00 30 02 01 00 04 06 70 75 62 6C 69 63 A2 82 00 21 02 02 7D 01 02 01 00 02 01 00 30 82 00 13 30 82 00 0F 06 08 2B 06 01 02 01 01 03 00 43 03 00 F4 36	Message encoded by SNMP ASN
0..0.....public. ..!..}.....0.. .0.....+.....C ...6	ASCII code presentation of message transmitting The content which is not in the range of the ASCII code is presented with dots.

The following is an example of the debugging of the SNMP event:

```
Router#debug snmp event
```

Received SNMP packet(s) from 192.2.2.51

SNMP: GETNEXT request

-- ip.ipReasmFails.0

SNMP: Response

>> ip.ipFragOKs.0 = 1

Received SNMP packet(s) from 192.2.2.51

SNMP: GETNEXT request

-- ip.ipFragOKs.0

SNMP: Response

>> ip.ipFragFails.0 = 0

Received SNMP packet(s) from 192.2.2.51

SNMP: GETNEXT request

-- ip.ipFragFails.0

SNMP: Response

>> ip.ipFragCreates.0 = 2

Domain	Description
SNMP	The currently debugged protocol is the SNMP protocol.
GETNEXT request	SNMP getnext request
RESPONSE	SNMP response
--	Receiving message
>>	Transmitting message
ip.ipReasmFails.0	MIB OID which is required to be accessed
ip.ipFragOKs.0 = 1	Accessed MIB OID and the response value

## 3.2 RMON Configuration Commands

HTTP configuration commands include:

- rmon alarm
- rmon event
- rmon collection stat
- rmon collection history
- show rmon

### 3.2.1 rmon alarm

#### Description

**rmon alarm** *index variable interval* {absolute | delta} rising-threshold *value* [*eventnumber*] falling-threshold *value* [*eventnumber*] [*owner string*]

It is used to configure an **rmon** alarm item.

#### Parameter

Parameter	Description	Value Range
<i>variable</i>	Object which will be monitored	OID of the detected object
<i>interval</i>	Sampling interval	1~4294967295 seconds
<i>value</i>	Alarm threshold	-2147483648~2147483647
<i>eventnumber</i>	Index of the event which is triggered after the threshold is reached	1~65535
<i>string</i>	Description about the owner	Length of the character string:1~127

#### Default

The **eventnumber** parameter is not set.

#### Note:

The command is configured in global configuration mode, used to monitor the value of the specified object and triggers the specified event when the value reaches the threshold.

#### Example

In the following example, an rmon alarm item is configured and the monitored object is set to **ifInOctets.2**. The sampling interval is set to 10. If the value **15** is exceeded, event 1 is triggered. If the threshold is falling by 25, event 2 is triggered.

```
rmon alarm 1 1.3.6.1.2.1.2.2.1.10.2 10 absolute rising-threshold 15 1 falling-threshold
25 2 owner qtech
```

### 3.2.2 rmon event

#### Description

**rmon event** *index* [**description** *des-string*] [**log**] [**owner** *owner-string*] [**trap** *community*]

It is used to configure an **rmon** event.

## Parameter

Parameter	Description	Value Range
<i>index</i>	Index of the event list	1-65535
<i>des-string</i>	Character string of event description	1~127
<i>owner-string</i>	Character string of the owner	1~127
<i>community</i>	Community name when the trap is generated	1~127

## Default

None

## Note:

The command is used to configure an **rmon** event for alarm.

## Example

In the following example, an **rmon** event is set; the index is set to **6** and the description string is set to **example**. If the event is triggered, items will be added to the log and the trap is generated with the community name **public**.

```
rmon event 6 log trap public description example owner qtech
```

## 3.2.3 rmon collection stat

## Description

```
rmon collection stat index [owner string]
```

It is used to configure the rmon statistics function.

## Parameter

Parameter	Description	Value Range
<i>index</i>	Index of the event list	1~65535
<i>string</i>	Character string of the owner	1~127

## Default

None

**Note:**

It is configured in interface configuration mode and used to enable the statistics function of the interface.

**Example**

The following example shows that the command is used to enable the statistics function of interface 8.

```
int f 0/8
rmon collection stats 2 owner qtech
```

**3.2.4 rmon collection history****Description**

`rmon collection history index [buckets bucket-number] [interval second] [owner owner-name]`

It is used to configure an history control list

**Parameter**

Parameter	Description	Value Range
<i>index</i>	Index	1-65535
<i>bucket-number</i>	Among all data collected in the history control list, the recent <b>bucket-number</b> items need be saved.	1~65535
<i>second</i>	Interval	1~3600
<i>owner-name</i>	Character string of the owner	1~127

**Default**

The value of the **bucket-number** parameter is 50 and the value of the **second** parameter is 1800.

**Note:**

The command is configured in interface configuration mode and used to add an item to the history control list.

**Example**

In the following example, a history control list is added to interface 8 of fast Ethernet; the statistics data during recent 20 intervals are saved and each interval is 20 seconds.



```
int f 0/8
```

```
rmon collection history 2 buckets 20 interval 10 owner qtech
```

### 3.2.5 show rmon

#### Description

show rmon [alarm] [event] [statistics] [history] It is used to configure the rmon configuration.

#### Parameter

None

#### Default

None

#### Note:

The rmon configuration is displayed.

## 3.3 HTTP Configuration Commands

- pdp enable
- pdp holdtime
- pdp timer
- pdp run
- show pdp traffic
- Show pdp neighbor

### 3.3.1 pdp enable

#### **Description**

**pdp enable**

no pdp enable

It is used to start up PDP on the interface.

*Parameter*

None

*Default*

The PDP is not started on the interface.

*Note:*

PDP is not started in global configuration mode or interface configuration mode. The command is valid only when PDP is started in global configuration mode.

*Example*

The following example shows how to start up PDP on the interface.

```
int e1/1
pdp enable
```

## 3.3.2 pdp holdtime

## Description

pdp holdtime *second*

**no pdp holdtimes**

It is used to configure the time for PDP saving the neighbor information.

*Parameter*

Parameter	Description	Value Range
<i>seconds</i>	Preservation time	10-255

*Default*

180

*Note:*

None

*Example*

The value of **holdtime** is set to **90s**.

```
pdp holdtime 90
```

## 3.3.3 pdp run

## Description

It is used to start up the PDP function on the router. `pdp run`

**no pdp run**

*Parameter*

None

*Default*

None

*Example*

You can run the following commands to start up or shut down the PDP

```
function. pdp run
```

```
no pdp run
```

## 3.3.4 pdp timer

## Description

It is used to configure the transmission frequency of the PDP message.

```
pdp timer seconds
```

**no pdp timer**

*Parameter*

Parameter	Description	Value Range
<i>seconds</i>	Interval for data transmission	5-254

**Default**

60 seconds

**Note:**

The shorter the time is, the higher the update frequency of the neighbor information.

**Example**

The following example shows how to set the interval of data transmission to 30 seconds.

```
pdp 30
```

### 3.3.5 show pdp traffic

**Description**

It is used to display the statistics information about transmission and reception of the PDP data.

```
show pdp traffic
```

**Parameter**

None

**Default**

None

**Note:**

None

**Example**

```
router#sho pdp traffic  
  
Packets output: 0, Input: 0  
Hdr syntax: 0, Chksum error: 0  
No memory: 0, Invalid packet: 0
```

### 3.3.6 show pdp neighbor

#### Description

It is used to display the information about the neighbor.

```
show pdp neighbor [detail]
```

#### Parameter

None

#### Default

None

#### Note:

None

#### Example

```
show pdp neighbor
```

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater

Device-ID	Local-Intf	Hldtme	Port-ID	Platform	Capability
2610	Fas0/0	154	Eth0/0	cisco 2610	R T
c25	Fas0/0	149	Eth0	cisco 2509	R
GK-C36	Fas0/0	123	Fas1/0	cisco 3640	R T
cMR	Fas0/0	167	Fas0/0	cisco 2621	R T

```
show pdp neighbor detail
```

Device ID: 2610

Entry address(es): IP address: 192.168.20.204

Platform: cisco 2610, Capabilities: Router Trans-Bridge

Interface: FastEthernet0/0, Port ID(outgoing port): Ethernet0/0

Holdtime : 123 sec

Version :

Cisco Internetwork Operating System Software

IOS (tm) C2600 Software (C2600-IS-M), Version 12.2(7), RELEASE SOFTWARE

(fc1) Copyright (c) 1986-2002 by cisco Systems, Inc.

Compiled Tue 15-Jan-02 23:58 by pwade

advertisement version:2

Duplex: half(00)

Device ID: c25

Entry address(es): IP address: 192.168.20.115

Platform: cisco 2509, Capabilities: Router

Interface: FastEthernet0/0, Port ID(outgoing port): Ethernet0

Holdtime : 178 sec

Version :

Cisco Internetwork Operating System Software

IOS (tm) 2500 Software (C2500-I-L), Version 11.2(4), RELEASE SOFTWARE

(fc1) Copyright (c) 1986-1997 by cisco Systems, Inc.

Compiled Mon 10-Feb-97 12:28 by ajchopra

Device ID: GK-C36

Entry address(es): IP address: 192.168.20.156 Platform:

cisco 3640, Capabilities: Router Trans-Bridge

Interface: FastEthernet0/0, Port ID(outgoing port): FastEthernet1/0

Holdtime : 152 sec

Version :

Cisco Internetwork Operating System Software

IOS (tm) 3600 Software (C3640-A3JS56I-M), Version 12.1(3a)T1, RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2000 by cisco Systems, Inc.

Compiled Sat 29-Jul-00 03:21 by ccai

advertisement version:2

Duplex: half(00)

Device ID: cMR

Entry address(es): IP address: 192.168.20.22 Platform:

cisco 2621, Capabilities: Router Trans-Bridge

Interface: FastEthernet0/0, Port ID(outgoing port):

FastEthernet0/0 Holdtime: 136 sec

Version :

Cisco Internetwork Operating System Software

IOS (tm) C2600 Software (C2600-A3JK9S-M), Version 12.2(10a), RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2002 by cisco Systems, Inc.

Compiled Tue 21-May-02 12:50 by pwade

advertisement version:2

Duplex: half(00)

## Chapter 4 Maintenance and Debugging Commands

### 4.1 Network Testing Command

Network testing command includes:

- ping

#### 4.1.1 ping

It is used in monitoring mode to test whether the host can be reached and whether the network can be connected, by transmitting the ICMP request message to the to-be-tested peer and then waiting for the ICMP response message from the peer.

**ping ip-address**

Parameter

Parameter	Description
<i>ip-address</i>	Destination IP address

Default

None

Command mode

Monitoring mode

Explanation

After the command is run, four pieces of 48-byte message will be sent to the destination host. Two seconds later, timeout occurs if no response message is received.

Example

```
monitor#ping 192.168.0.100
```

```
Reply from 192.168.0.100 : data=48, time=10ms, ttl=128
```

```
Reply from 192.168.0.100 : data=48, time=10ms, ttl=128
```



Reply from 192.168.0.100 : data=48, time=10ms, ttl=128

Reply from 192.168.0.100 : data=48, time=10ms, ttl=128

4 packets sent, 4 packets received

round-trip min/avg/max = 0/2/10 ms

Related command

**ip address**

## 4.2 Trouble Diagnosis Commands

Trouble diagnosis commands include:

- 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

### 4.2.1 logging

It is used to record the log information on the **syslog**

server. **logging** *A.B.C.D* [ vrf *vrfname*]

**no logging** *A.B.C.D* [ vrf *vrfname*]

## Parameter

Parameter	Description
<i>A.B.C.D</i>	IP address of the <b>syslog</b> server
<i>Vrfname</i>	Name of Vrf

## Default

It is not recorded on the server.

## Command mode

Global configuration mode

## Explanation

It is used to record the log information on the **syslog** server. The command can be used many times to specify multiple syslog servers.

## Example

```
logging 192.168.1.1
logging 192.168.1.1 vrf aaa
```

## Related command

**logging trap**

## 4.2.2 logging buffered

It is used to record the log information to the memory of the router.

**logging buffered** [size | level | dump ]

no logging buffered

## Parameter

Parameter	Description
<i>size</i>	Size of the memory cache, ranging from 4096 bytes to 2147483647 bytes
<i>level</i>	Log information level recorded to the memory cache
<i>dump</i>	When systematic trouble occurs, the information in the current memory will be temporarily saved to the flash. The system will be resumed after re-startup.

## Default

It is not recorded to the memory cache.

## Command mode

Global configuration mode

## Explanation

The command is used to record the log information to the memory cache of the router. Because the memory cache is used in recycle, new information will replace old information after the memory cache is fully filled.

To display the log information recorded in the memory cache of the router, run **show logging**.

Do not use too much memory because the memory is insufficient.

Table 4-1 Level of the log record

	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

### 4.2.3 logging console

To control the information volume displayed in the console port, run **logging console**.

To forbid displaying the log information on the console port, run **no logging console**.

logging console *level*

**no logging console**

#### Parameter

Parameter	Description
<i>level</i>	Level of log information displayed on the console port

#### Default

None

#### Command mode

Global configuration mode

#### Explanation

After a level is specified, the log information of this level or under the level will be displayed on the console port. You can run **show logging** to display the current level and statistics of the log.

Table 4-2 Level of log record

	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**

#### 4.2.4 logging facility

To configure which kind of error information will be recorded, run **logging facility**. To resume **local7**, run **no logging facility**.

logging facility *facility-type*

**no logging facility**

Parameter

Parameter	Description
<i>facility-type</i>	Type of the facility

Default

local7

Command mode

Global configuration mode

Explanation

Table 4-3 Type of facility

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

## 4.2.5 logging monitor

To control the information volume displayed on the terminal line, run **logging monitor**. To forbid displaying the log information on the terminal line, run **no logging monitor**.

**logging monitor** *level*

**no logging monitor**

### Parameter

Parameter	Description
<i>level</i>	Level of log information displayed on the terminal line

### Default

debugging

### Command mode

Global configuration mode

### Explanation

Table 4-4 Level of log record

	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 monitor errors

### Related command

**terminal monitor**

## 4.2.6 logging on

To control the record of error information, run **logging on**.

To disable all records, run **no logging on**.

**logging on**

no logging on

### Parameter

None

### Default

logging on

### Command mode

Global configuration mode

### Example

Router\_config# **logging on**

Router\_config# ^Z

```
Router#
Configured from console 0 by
DEFAULT Router# ping 192.167.1.1
Router#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
Router#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

Router_config# no logging on

Router_config# ^Z

Router#
Router# 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
```

#### 4.2.7 logging trap

To control the information volume recorded to the syslog server, run **logging trap**. To forbid recording information to the syslog server, run **no logging trap**.

```
logging trap level
```

```
no logging trap
```

#### Parameter

Parameter	Description
<i>level</i>	Level of log information displayed on the terminal line

#### Default

```
Informational
```

#### Command mode

```
Global configuration mode
```

#### Explanation

Table 4-5 Level of log record

	Level	Description	Syslog Definition
emergencies	0	System unusable	LOG_EMERG
alerts	1	Immediate	LOG_ALERT

		action needed	
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**

#### 4.2.8 service timestamps

To configure the time stamp which is added during debugging or log recording, run **service timestamps**.

To disable the time stamp which is added during debugging or log recording, run **service timestamps**.

```
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 debugging information.
uptime	Format of the time stamp: from startup time to current time
datetime	Real-time clock in the time stamp format

### Default

```
service timestamps log date
```

service timestamps debug date

#### Command mode

Global configuration mode

#### Explanation

The time stamp in the uptime format is displayed as HHHH:MM:SS, indicating the period from the startup to the current time.

The time stamp in the uptime format is displayed as YEAR-MON-DAY HH:MM:SS, indicating the real time.

#### Example

service timestamps debug uptime

### 4.2.9 clear logging

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

#### **clear logging**

#### Parameter

None

#### Command mode

EXEC

#### Related command

logging buffered

show logging

### 4.2.10 show break

It is used to display the information about the abnormal interruption of the router.

#### **show break** [*map-filename*]

## Parameter

Parameter	Description
<i>map-filename</i>	Specifies the file name for the function mapping table.

## Default

None

## Command mode

EXEC

## Explanation

The **show break** command is used to display the captured information about abnormal interruption of the router. The reason of the fault, hence, will be found.

## Example

```
Router#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-
fefeff-01dbcca1-r7 r8 r9 r10 r11 r12 r13 00000000-00009032-00000000-
7fffff0-00008588-44444444-0054c190-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 displayed content is formed of six parts:

ERROR:file function.map not found

The previous error shows that the **function.map** software is not installed, which does not affect the function of the system.

If the version the **function.map** software is different from that on the router, the system shows that the version is not the same.

Exception type—abnormal hex encoding + abnormal name

BreakNum

**BreakNum** means the number of the current abnormality. It shows the number of the abnormalities occurred after the system is started. It is followed by the time when the abnormality occurred.

Content of the register

The content of the register is listed in the following:

Variable area

The content in the stack is

listed. Number invocation

If the **map** file is not loaded on the system, only the address of the function is displayed. If the **map** file is loaded, the corresponding function name such as the **.o** file or the **.a** file will also be displayed.

The invocation of the number is from bottom to top.

#### 4.2.11 show controller

To display the information about the controller of the router's interface, run the **show controller** command.

```
show controller [interface]
```

Parameter

Parameter	Description
-----------	-------------

<i>interface</i>	Specifies the name of the interface.
------------------	--------------------------------------

**Default**

None

**Command mode**

EXEC

**Explanation**

The show controller command is used to the state and its configuration information of the controller on the specified interface. When trouble occurs, you can find the reason of the trouble by analyzing relative data.

**Example**

```
Router#show controller s1/0

Interface Serial1/0

Hardware is PowerQUICC MPC860T

SCC Registers:

  General [GSMR]=0x68034:0x22, Protocol-specific [PSMR]=0x3000
  Events [SCCE]=0, Mask [SCCM]=0xcf, Status [SCCS]=0x3
  Transmit on Demand [TODR]=0, Data Async [DSR]=0x7e7e

Interrupt Registers:

  [CICR]=00e49f80 [CIPR]=4000c006 [CIMR]=48000000, [CISR]=00000000

Command register [CR]=0x6c0

SICR=0900002c, BRG=00000000:00010288:00000000:00000000 (aux=0)

Statistics: scc4, port3

  int 751229 bad_first 0 too_long 0 drop 0
  tx_count 1 bk_count 0 h_Q 81 s_Q 0

Port A [PADIR]=0000 [PAPAR]=53c3 [PAODR]=0000 [PADAT]=fefe
Port B [PBDIR]=00021001 [PBPAR]=00001020 [PBODR]=0000 [PBDAT]=0001e3be
Port C [PCDIR]=0000 [PCPAR]=0008 [PCSO]=0438 [PCDAT]=0fe7 [PCINT]=0008
```

## Receive Ring

rmd(fff02320): status=9000 length=0000 address=01155f58  
rmd(fff02328): status=9000 length=0000 address=01156c90  
rmd(fff02330): status=9000 length=0000 address=01156b18  
rmd(fff02338): status=9000 length=0000 address=011569a0  
rmd(fff02340): status=9000 length=0000 address=01156828  
rmd(fff02348): status=9000 length=0000 address=011566b0  
rmd(fff02350): status=9000 length=0000 address=01156538  
rmd(fff02358): status=b000 length=0000 address=01156f80

## Transmit Ring

tmd(fff02360): status=0000 length=0000 address=00000000  
tmd(fff02368): status=0000 length=0000 address=00000000  
tmd(fff02370): status=0000 length=0000 address=00000000  
tmd(fff02378): status=0000 length=0000 address=00000000  
tmd(fff02380): status=0000 length=0000 address=00000000  
tmd(fff02388): status=9000 length=0051 address=01156df4  
tmd(fff02390): status=0000 length=0000 address=00000000  
tmd(fff02398): status=2000 length=0000 address=00000000

## SCC GENERAL PARAMETER RAM (at 0xfff03f00)

Rx BD Base [RBASE]=0x2320, Fn Code [RFCR]=0x15

Tx BD Base [TBASE]=0x2360, Fn Code [TFCR]=0x15

Max Rx Buff Len [MRBLR]=252

Current Rx(2) State [RSTATE]=0x9000, BD Ptr [RBPTR]=0x1156b18

Current Tx(5) State [TSTATE]=0x9000, BD Ptr [TBPTR]=0x1156df4

## SCC UART PARAMETER RAM (at 0xfff03f30)

Maximum idle characters 1

Break Character 1

Received Parity Error 58445

Received Frame Error 65261

```

Received Noise Error 39256

Number of break conditions 22595

Last Received Break length 1524

uart1 63220 uart2 1

Transmit Out of sequence 0

cc[0] = 4011 cc[1] = 4013 cc[2] = 8000 cc[3] = 4011
cc[4] = 4013 cc[5] = 8000 cc[6] = 9c80 cc[7] = 7051

rccm = c0ff rccr = bf28 rlbc = a6fe

RxBufSiz 254 flow 1

flag=00000120, size=00000008, X=11, Xoff=13

```

#### DCR\_B3#

The displayed content is formed of the following parts:

Name and type of the controller

The name is MPC860 and the type is SCC.

Running state of the controller

Information about interruption, error and reset

Length of the queue

Configuration parameters of the controller:

Parameter of the register's content

Partial parameters of the controller

Parameter about the physical protocol

State of receiving and transmitting BD

The length, state and index of the BD are listed.

Location and state of the currently-received or -transmitted BD

#### 4.2.12 show debug

To display all opened invocation options of the router, run **show debug**.

**show debug**

Parameter

None



**Command mode**

EXEC

**Example**

Router# show debug

Crypto Subsystem:

Crypto Ipsec debugging is on

Crypto Isakmp debugging is on

Crypto Packet debugging is on

**Related command****debug****4.2.13 show logging**To display the state of logging (syslog), run **show logging**.**show logging****Parameter**

None

**Command mode**

EXEC

**Explanation**After you run **show logging**, the state of logging is displayed, including the logging information about the console port, monitor and syslog.**Example**

Router# 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 5 SSH Configuration Commands

### 5.1.1 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
```

### 5.1.2 ip sshd timeout

#### Command description

ip sshd timeout *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
```

## 5.1.3 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.

## Instruction

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
```

### 5.1.4 ip sshd access-class

## Command description

```
ip sshd access-class access-list
```

```
no ip sshd access-class
```

## Parameter

Parameter	Description
<i>access-list</i>	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
```

### 5.1.5 ip sshd auth-retries

#### Command description

```
ip sshd auth-retries times
```

```
no ip sshd auth-retries
```

#### Parameter

Parameter	Description
<i>times</i>	Maximum re-authentication times Value range: 0-65535

#### Default

3 times

#### Instruction

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
```

### 5.1.6 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
```

**5.1.7 ssh****Command description**

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

**Parameter**

Parameter	Description
<b>-l</b> <i>userid</i>	User account on the server
<b>-d</b> <i>destl</i>	Destination IP address in the dotted decimal system
<b>-o</b> <i>numberofpasswdprompts</i>	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
<b>-p</b> <i>port</i>	Port number that the server monitors Its default value is 22. Value range: 0-65535
<b>-c</b> {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
```

**5.1.8 show ssh****Command description**

show ssh

**Parameter**

None

**Default**

N/A

**Instruction**

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

### 5.1.9 show ip sshd

#### Command description

show ip sshd

#### Parameter

None

#### Default

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
```