

Basic Configuration Command

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Chapter 1 System Management Command

1.1 File Management Command

1.1.1 copy

Syntas

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

Parameter

Parameter	Description
tftp <:filename>	Means to read the file from tftpserver. "filename" designates the corresponding file name, if not designated, after the command "copy" is executed, it will prompt the user to input the file name.
flash <:filename>	Means to write file into router flash. "filename" designates the corresponding file name, if not designated, after the execution of command "copy", it will prompt the user to input the file name.
<i>blksize</i>	Designated the block size of tftp transport process

default

None

Command mode

Supervisor mode

Explanation

Use command "copy" can read file to the router from tftp server.

Example

```
monitor#copy tftp:router.bin flash:router.bin 192.2.2.1
```

It will copy the file router.bin in the tftpserver to router flash.

Relevant commands

none

1.1.2 delete

Syntas

delete *file-name*

Parameter

Parameter	Description
<i>file-name</i>	File name (maximum 20 characters).

Default

If the file name is not input, delete file “startup-config” by default.

Command mode

supervisor mode

Explanation

Use command “delete” to delete a file.

Relevant commands

none

1.1.3 dir**Syntas**

dir *file-name*

Parameter

Parameter	Description
<i>file-name</i>	File name (maximum 20 characters).

Default

none

Command mode

supervisor mode

Explanation

Use command “dir” to display the file and directory name.

Relevant commands

none

1.1.4 download c0

Use this command “download c0” under supervision mode can download the files from console interface.

Syntas

download c0 filename

Parameter

Parameter	Description
<i>filename</i>	Local file name.

default

none

Command mode

supervisor mode

Explanation

Use this command to download the files by Asynchronous communication protocol ZMODEM.

Example

monitor#download c0 router.bin

Prompt : speed[9600]?115200

Then, modify the rate to 115200, after reconnection, select the send file entry in the transmit menu of super terminal (terminal imitation).

After the transmission of the file, it will prompt the following information:

ZMODEM:successfully receive 36 blocks ,18370 bytes

Relevant commands

1.1.5 more

Syntas

Use command “more” to display the file content.

more *file-name*

Parameter

Parameter	Description
<i>file-name</i>	File name (maximum 20 characters)

default

none

Command mode

supervisor mode

Explanation

If the file completely consists of displayable characters, and displayed with ASCII code mode, or it will be displayed with binary mode.

Relevant commands

none

1.1.6 upload c0

This command is used to upload to the host from the system flash by serial communication "protocolzmodem".

Syntas

upload c0 filename

Parameter

Parameter	Description
<i>filename</i>	The file name in local flash.

default

none

Command mode

supervisor mode

Explanation

none

Example

After the user inputs the command, the system will prompt the user to input the interface rate.

```
Router#upload c0 router.bin  
Prompt:speed[9600]?115200
```

Then, modify the rate to 115200, after reconnection, select the "receive file" entry in the receive menu of the super terminal (terminal imitation)

After the transmission of the file, it will prompt the following information:

Zmodem send process completed.

Relevant commands

none

1.1.7 eraserom

For the 1721 router sustaining online upgrade, this command is used to delete upgrade edition.

syntas

eraserom

Parameter

none

Default

none

Command mode

Supervisor mode

Explanation

none

Relevant command

none

1.1.8 download

This command is used to copy to the system flash from the host by serial communication"protocolzmodem".

download c0 *filename*

Parameter

Parameter	Description
<i>filename</i>	The file name in local flash.

default

none

Command mode

Supervisor mode

Example

Router#upload c0 router.bin

Prompt : speed[9600]?115200

Then, modify the rate to 115200, after reconnection, select the send file entry in the transmit menu of super terminal (terminal imitation).

After the transmission of the file, it will prompt the following information:

Zmodem send process completed.

1.1.9 Upload

This command is used to upload to the host from the system flash by serial communication "protocolzmodem".

upload c0 filename

Parameter

Parameter	Description
<i>filename</i>	The file name in local flash.

default

none

Command mode

management mode

Example

Router#upload c0 router.bin

Prompt : speed[9600]?115200

Then, modify the rate to 115200, after reconnection, select the send file entry in the transmit menu of super terminal (terminal imitation).

After the transmission of the file, it will prompt the following information:

Zmodem send process completed.

1.2 Basic System Management Command**1.2.1 bootflash**

Use this command "boot flash" under supervision mode can manually be enabled from the designated file

Syntas

boot flash filename

Parameter

Parameter	Description
<i>filename</i>	the designated file name °

default

none

Command mode

Supervision mode

Explanation

After the user joins into supervision mode, uses command “boot flash” to enable the device.

Example

monitor#boot flash router.bin

Relevant commands

dir

download c0

1.2.2 cd

Syntas

cd *directory* | ..

Parameter

Parameter	Description
directory	Directory name (maximum 20 characters) .
..	Upper directory .

default

none

Command mode

supervisor mode

Explanation

Use command “cd” can change the current directory under supervision mode.

Example

monitor#cd my_dir

Relevant commands

pwd

1.2.3 chram

Syntas

chram *mem_addr value*

Parameter

Parameter	Description
<i>mem_addr</i>	Hex memory address, ranged from 0 to 0x01FFFF00
<i>value</i>	Hex memory data

default

none

Command mode

supervisor mode

Explanation

Debug command, not recommended. Use command “chram” can modify the memory data.

Example

none

Relevant commands

none

1.2.4 date

Use command “date” can modify the system absolute time.

Syntas

date

Parameter

none

Default

none

Command mode

supervisor mode

Explanation

Use command “date” can modify the system absolute time, even after the electrical power is off, this clock will be powered by the battery, if the time is not correct, you need to change 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
```

Relevant commands

none

1.2.5 md**Syntas**

md *directory*

Parameter

Parameter	Description
<i>directory</i>	Directory name (maximum 20 characters).

default

none

Command mode

supervisor mode

Explanation

Use command “md” to create a directory.

Relevant commands

none

1.2.6 pwd

Syntas

pwd

Parameter

none

Default

none

Command mode

supervisor mode

Explanation

Use command “pwd” to display the current directory.

Relevant commands

none

1.2.7 rd

Syntas

rd *directory*

Parameter

Parameter	Description
directory	Directory name (maximum 20 characters).

default

none

Command mode

supervisor mode

Explanation

If this directory is not empty, it prompts. If this directory does not exist, it also prompts that this directory does not exist. Use command “rd” to delete a directory.

Relevant commands

none

1.2.8 rename

Syntas

rename *old_file_name new_file_name*

Parameter

Parameter	Description
<i>old_file_name</i>	The original file name.
<i>new_file_name</i>	The new file name.

default

none

Command mode

supervisor mode

Explanation

Use command “rename” to modify the file name.

Relevant commands

none

1.2.9 reboot

Syntas

reboot

parameter

none

default

none

command mode

supervisor mode

Explanation

Use command “reboot” to reboot the router

Relevant commands

none

1.2.10 Alias

Syntas

[no] alias [*alias_name command_line*]

Parameter

Parameter	Description
<i>alias_name</i>	Is a command alias, which may replace command line.
<i>command_line</i>	Is a command line which command alias replaces.

default

None

Command mode

global configuration mode

Explanation

you can use alias to appoint an alias to a command when some complex command line is frequently used.

Example

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

Relevant commands

show alias

1.2.11 Boot system flash

Use command “**boot system flash**” can designate the system image file to execute when the system starts, use command “no system flash” to delete the former configuration.

Syntas

[no]boot system flash *filename*

Parameter

Parameter	Description
<i>filename</i>	File name (maximum 20 characters).

default

None

Command mode

global configuration mode

Explanation

If the user has not configured this command, the system will execute the first system image file in the flash file system. If the user configures several commands, the system will execute the configured image file in sequence, if this file does not exist or check error, execute the next file. If all of them are not successful, the system joins into supervision mode.

Example

config#boot system flash router.bin

Relevant commands

None

1.2.12 Help**Syntas**

help

Parameter

None

Default

None

Command mode

Management mode

Explanation

Display help system of the router.

Example

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?').

Relevant commands

None.

1.2.13 History

Syntas

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

Parameter

Parameter	Description
+ <count>	Display the historical commands with number count <1-20> from the top to the bottom.
- <count>	Display the historical commands with number count <1-20> from the bottom to the top..

default

IF the historical commands number is not more than 20, display in full from top to bottom; if it is more than 20, display the 20 most recent historical commands from top to bottom.

Command mode

Any command mode

Explanation

The router can keeo 20 history command at most.

Example

Display 5 history commands from colophon to title.

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

Relevant commands

None.

1.2.14 Job

Syntas

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

Parameter

Parameter	Description
exec jobname	Executes a job immediately
jobname definaton	Definite a job.
restart jobname	Reboot a job
schedule jobname	Setting job to scheduling
at firsttime	Settion the first jobd interval execution after job starts
interval fireinterval	Configure the interval between the two execution of the job.
one-shot	Setting job to execute only once
sleep <i>sleeptime</i>	Setting sleeptime
stop <i>jobname</i>	Stop scheduling job

default

None

Command mode

global configuration mode

Explanation

Job is a segment script , it defines command group ,and can set job when to carry out or interval of execution.

Example

The following example defines to shutdown of all jobs on the port:

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

The following example defines not to shutdown all jobs on the port:

```
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 defines to periodically execute shutdown and no shutdown operation on all ports:

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

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

(then, after the jobd starts for 100 seconds, shutall this job starts, restarts every 60 seconds; after the router starts for 130 seconds, noshutall shutall this job starts, restarts every 60 seconds.)

If you want to execute the sequence of shutall and noshutall, you can define and schedule as follows:

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

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

If shutall error during execution, execute the next command(pause by default)

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

if executes noshutall:(no recursion of the job)

```
job shutall on-error exec noshutall
```

The following example, pause a job

job stop shutall

The following example, restart a paused job:

job restart shutall

Relevant command

Jobd

show job

job

1.2.15 Jobd

This command is used to startup and perform the watch process of job. And input "no" can stop the process.

[no] jobd

Parameter

none

Default

none

Command mode

global configuration

Explanation

The perform of job need jobd attemper, the standard of time is jobd start-up time. Input Q, q, or Ctrl+Shift+6 can stop jobd,

Example

the following example shows how to startup jobd.

Router_config# jobd

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

Relevant command

debug job

job

show job

1.2.16 Debug job

run after the attemper and perform of **job**.

Parameter

none

Command mode

management mode

Explanation

Open the debug information switch of job, output its attemper and perform.

Example

```
config#debug job
JOB : <showver> fired
JOB : job <showver>, cmd "show ver" is parsing
```

Relevant command

job
jobd
show job

1.2.17 Show alias

This command is used to show all alias or designed alias.

Show alias [*<alias name>*]

Parameter

Parameter	Description
<i>alias name</i>	Command alias

Default

According to the format "alias name=command line" to show all alias.

Command mode

Management mode or global configuration.

Explanation

None

Example

The following example is used to show all alias of the current system.

```
Router_config# show alias
hualab=date
router=snmp
```

Relevant command

alias

1.2.18 Show tech-support

This command is used to show the important information of system.

show tech – support

Parameter

none

Default

none

Command mode

management mode or global configuration

Explanation

show the important information of system, usually it is need to collect the information after carrying out the command when instructor.

1.3 HTTP Command

1.3.1 ip http access-class

To ensure specified HTTP request is applied, use command “ip http access-class”.

Syntas

ip http access-class *string*

no ip http access

Parameter

Parameter	Description
<i>string</i>	Specified standard access list name.

command mode

global configuration mode

Explanation

Before using this command, configure Specified standard access list.

Use “no” format of this command to cancel the access list to limit HTTP service 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
```

Relevant command

ip http server

ip http port

1.3.2 ip http port

User command “ip http port” to specify the Service port of http service.

Syntas

ip http port *number*

Parameter

Parameter	Description
<i>number</i>	Service port of http service.

default

Browser default HTTP service port nuber is 80.

Command mode

global configuration mode

Explanation

After executing “http port” command, if http service is enabled, close source detection port first,and then use specified port (if not in used) to receive http service request. If http service is disabled, this command does not make any difference (temporarily).

Example

The following example changes http service port from default number 80 to 90.

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

Relevant command:

ip http access-class

ip http server

1.3.3 ip http server

To enable HTTP service, use “ip http server” command.

Syntas

ip http server
no ip http server

Parameter

none

Command mode

global configuration mode

Explanation

Use this command to make router receive HTTP service request in specified port. It will process the request and return the result to browser.

Example

```
router_config# ip http server
```

Relevant command

ip http access-class
ip http port

Chapter 2 Terminal Service Command

2.1 Telnet Configuration Command

This chapter will introduce telnet and its configurations and management commands. "telnet" is used to setup "telnet" session with a remote server. "telnet" is usually used to telnet Unix system.

It needs negotiation about optional items. "telnet" can not provide authorization to itself. So, it is mostly different from Rlogin in which it can not provide password verification to itself.

2.1.1 telnet

Syntax

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

Parameter

Parameter	Description
<i>server-ip-addr</i>	Remote server's IP address is expressed by decimal system.
<i>server-host-name</i> :	The host name of the remote server, it need use command "ip host" to configure.
<i>port</i>	The port providing telnet service of the remote server.
<i>interface</i> :	Local interface to launch telnet connection
<i>local-ip-addr</i>	Local IP address to launch telnet connection.
/debug	Open debug switch of client, print negotiation course when connection.
echo/noecho	Open/turnoff local echo, default is noecho.
<i>scriptname</i>	The script name used to automatically login.

Default

port default is 23, interface does not have default.

Command mode

supervisor mode

Explanation

User can use one of following commands to telnet

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

In this condition, application program will transmit telnet request to 23 interface of the remote server, the used IP address is the nearest IP address according to route table.

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

At this time, application program transmit telnet request to the peer port.

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

At this time, application use interface's IP address as local address.

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

At this time, application program opens debug switch of client, and will output link negotiation course.

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

At this time , application program opens/closes local echo. Usually, Local echo is closed ,echo is finished by the server. Only when the server is not responsible for echo, local echo switch will open.

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

Before execute automatically login command of this script , use command "ip telnet script" to configure.

Above command parameters can be used united.

When in the course of session with the remote server ,user can use "q" key to quit .If do not exit by hand, it will exit after 10 seconds waiting.

Example

If user want to telnet to the server " 192.168.20.124", and the server has two telnet ports: 23 and 2323, and local has two ports: e1/1(192.168.20.240) and s1/0 (202.96.124.240).User can use following commands to telnet.

telnet 192.168.20.124 /port 2323

In such a condition , telnet will connect to peer 2323 port .The local IP address seen by the peer is 192.168.20.240.

telnet 192.168.20.124 /source-interface s1/0

In such a condition, telnet will connect to peer 23 port .The local IP address seen by the peer is 202.96.124.240.

telnet 192.168.20.124 /local 192.168.20.240

In such a condition , telnet will connect to peer 23 port .The local IP address seen by the peer is 192.168.20.240.

telnet 192.168.20.124 /debug

In such a condition, telnet will print negotiation course to setup telnet connection to peer 23 port.

telnet 192.168.20.124 /echo

In such a condition, telnet will open local echo switch. At his time, if the sever runs echo also, all input will be echoed for two times.

telnet 192.168.20.124 /script s1

Use login script named "s1" to automatically login.

2.1.2 ip telnet

configuration commands' format about telnet session are following:

Syntas

```
ip telnet[ [source-interface interface]][ [access-class accesslist]] [listen-port start-
port end-port]][ [script [scriptname user_prompt] user_answer
pwd_prompt'pwd_answer]]]
```

Parameter

Parameter	Description
<i>interface</i>	The local interface launching telnet.
<i>accesslist</i>	When local is receiving connection, accessing list name to limit source address.
<i>start-port</i>	user appoint the start-port number of interception field.
<i>end-por</i>	user appoint the end-port number of interception field.
<i>scriptname</i>	login script name.
<i>user_prompt</i>	user name prompt information sent back by the telnet server.
<i>user_answer</i>	user answer information submitted by client.
<i>pwd_prompt</i>	user password prompt information sent back by the telnet server.
<i>pwd_answer</i>	password answer information submitted by client.

default

none

Command mode

global configuration mode

Explanation

User can use following commands to configure local source interface to launch telnet.

ip telnet source-interface *interface*

In such a condition, all subsequent telnet use this interface. This configuration command is similar to “telnet source-interface interface”, but it does not need to add parameter when using command ‘telnet’. If not only configure a interface ,but also add interface parameter in command “telnet”, it should be determined by the latter.

User can use following commands to configure access list names limited by local telnet connection.

ip telnet access-class *accesslist*

In such a condition, after that, when the server accepts all telnet connections, it needs to check access list.

User can use following commands to configure other interfaces except default (23) to receive telnet connection.

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

Explanation: if not appoint end-port number, it will intercept on a special port. The numbers of appointed interception ports can not be more than 16,and ports can be limited between 3001 and 3999.

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

Explanation: when configuring script , user name prompt, answer, password prompt , answer must fully match. And user must pay attention to prompt information, it differs whether capitalization or not, and prompt information must add (“). If any item is not configured properly, it can not automatically login successfully .

Note:

above four commands can add prefix “no” to cancel setting.

Example

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

In such a condition, all coming launching telnet connections use s1/0 interface.

```
ip telnet access-class abc
```

In such a condition, all coming accepting telnet connections will be checked by access-list "abc".

```
ip telnet listen-port 3001 3010
```

Besides 23,user can use all port between 3001 and 3010 to accept telnet connections.

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

configure a login script named s1,user name prompt is 'login:', answer is router, password prompt is 'Password:', answer is test.

2.1.3 ctrl-shift-6+x

suspend telnet connection on client.

Syntas

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

Parameter

none

Default

none

Command mode

any time on current telnet session

Explanation

user can use this short key to suspend current telnet connection from client.

Example

```
RouterA>telnet 192.168.20.1
```

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

```
RouterB>ena
```

```
RouterB#(按 ctrl-shift-6+x)
```

```
RouterA>
```

If user press "ctrl-shift-6+x"on current telnet session connection to RouterB , it will suspend connection to RouterB, and go back to RouterA's current state

2.1.4 where

check current suspend telnet session on client.

Syntas**where****Parameter**

none

Default

none

Command mode

global configuration mode

Explanation

User can use this command to check current suspend out telnet connection on client . Displayed information include number, peer address, peer port ,local address, local port.

Notes:

command "where" is different from command "show telnet". The former is used on client to show out telnet connection, while the latter is used on server client to show in telnet connection.

Example

```
RouterA>telnet 192.168.20.1
Welcome to Multi-Protocol xxxx Series Router
RouterB>ena
RouterB#(按 ctrl-shift-6+x)
RouterA> telnet 192.168.20.2
Welcome to Multi-Protocol 1700 Series Router
RouterC>ena
RouterC#(按 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

User input command "where" on RouterA to show out and suspend information on RouterA.

2.1.5 resume

Resume current out and suspend telnet session on client.

Syntas**resume** *no*

Parameter

Parameter	Description
<i>no</i>	current suspend telnet session number seen through command "where".

default

none

Command mode

global configuration mode

Explanation

User can use this command to resume current out and suspend telnet connection on client.

Example

```
RouterA>telnet 192.168.20.1
Welcome to Multi-Protocol xxxx Series Router
RouterB>ena
RouterB#(按 ctrl-shift-6+x)
RouterA> telnet 192.168.20.2
Welcome to Multi-Protocol 1700 Series Router
RouterC>ena
RouterC#(按 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 . . . ]
(enter)
RouterB#
User input command "where"on RouterA, after displaying out and suspend information on RouterA, input "Resume 1",displayed information will prompt user " resume to connection 1", after enter, it will appear: "RouterB#"
```

2.1.6 disconnect

clear current suspend out telnet session on client:

Syntas

disconnect *no*

Parameter

Parameter	Description
<i>no</i>	Current suspend telnet session number through command "where".

default

none

Command mode

global configuration state

Expanation

User can use this command to clear current suspend out telnet connection on client.

Notes:

Command "disconnect" is different from command "clear telnet". The former is used on client to clear out telnet connection, while the latter is used on server client to clear in telnet connection.

Example

```
RouterA>telnet 192.168.20.1
Welcome to Multi-Protocol xxxx Series Router
RouterB>ena
RouterB#(按 ctrl-shift-6+x)
RouterA> telnet 192.168.20.2
Welcome to Multi-Protocol 1700 Series Router
RouterC>ena
RouterC#(按 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>

User inputs command "where"on RouterA, after displaying out and suspend information on RouterA, input "disconnect 1",displayed information will prompt user "whether close connection to RouterB", after enter"Y", connection closes.

2.2 terminal switch function

It adds terminal switch function in this version telnet. Perform following steps to use this function:

- (1) Configure alias (alias command) for command "connect" in global configuration mode.
- (2) Configure terminal switch key in line configuration mode (switchkey command)
- (3) Configure terminal character sequence in line configuration mode(sequence-char command)(optional, if without this step, screen information can not be saved.)
- (4) Configure asynchronous interface to interactive mode(async command) in interface configuration mode.
- (5) Connect real terminal to asynchronous interface and open the terminal

Now ,user can switch terminal free by pressing random configured short keys when operation and can display switch menu by “ctrl+\”keys.

2.2.1 switchkey

the commands to configure terminal switch keys on line are following:

Syntas

switchkey key cmdalias server-name

Parameter

	明
key	can use “ctrl-a-ctrl-z”, do not use “ctrl-h”.
cmdalias	alias of co mmand “connect”.
server-name	the remote server’s name, it will appear in switch prompt information and switch menu.

default

none

Command mode

line configuration mode

Explanation

User can configure terminal switch keys and their correspond alias and remote host name through using this command.

Note:

- 1) Cmdalias parameter must appoint to a correct “connect”command .
- 2) “key” parameter can not be “ctrl-h”.
- 3) “server-name” parameter will appear in switch prompt information and switch menu.
- 4) Do not configure “autocommand” on this line ,or terminal switch function will not work .

Example

RouterA>switchkey ctrl-a cona ServerA

configure switch-key “ctrl-a”, use command alias “cona”, switch to the server “ServerA”.

2.2.2 switchmsg

the command determining whether to output terminal switch prompt information on line are following:

Syntas**switchmsg [enable|disable]****Parameter**

Parameter	Description
enable	Output terminal switch prompt information.
disable	Forbid to output terminal switch prompt information.

default

disable

Command mode

line configuration mode

Explanation

User can use this command to configure on line whether to output switch prompt information when terminal switch.

Example

```
RouterA>switchmsg enable
output switch prompt information when terminal switch
```

2.2.3 sequence-char

The commands to configure switch keys on line are following:

Syntas**sequence-char key char1 char2 char3 ...****Parameter**

Parameter	Description
key	can use "ctrl-a-ctrl-z", can not configure "ctrl-h".
char1 char2 char3 ...	screen sequence-char associated special terminal.

default

none

Command mode

line configuration mode

Explanation

User can use this command to configure terminal switch keys and sequence-char on line.

Notes:

- 5) Key parameter can not be "ctrl-h".
- 6) Sequence-char parameter is associated with specific terminal ,user can search terminal manual to obtain usually.
- 7) Sequence-char parameter must be hex number, begins with 0x,
- 8) and distinguish each character with space key.

Example

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

sequence-char to configure switch key "ctrl-a" is "0x1b 0x21 0x38 0x5"

Example

The router's configurations are following:

```
...
...
...
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 finish all configurations and connection, open terminal, switch menu will automatically appear in the screen. The system will switch to ServerA automatically after entering "CTRL-U"(and output prompt information of current host ServerA).

The system will switch to ServerB automatically after entering "CTRL-V"(and output prompt information of current host ServerB).

The system will switch to ServerC automatically after entering "CTRL-W"(and output prompt information of current host ServerC).

At any time, after entering"CTRL-\",switch menu will appear in current screen, and add "*"behind current server.

The following is display content after input "CTRL-\":

```
=====
Terminal Switch Menu
```

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

Note:

- 9) In the operation of several connections, if exiting from one of the connections (not switch), system will take the first connection as current connection, screen will restore to the first host's interface, if the first connection is exiting, system will take the second connection as current connection, screen will restore to the second host's interface.
- 10) After finish all tasks, the suggested way to exit the system is to close terminal directly regardless how many connections are open currently.
- 11) Do not exit the first connection before exiting other connections
- 12) User had better not exit some connection in the operation, and only switch. To close the terminal after finish all operations.
- 13) In the operation of terminal switch, the functions of connections suspending and restoring through ctrl-shift-6+x will be forbidden.

2.2.4 clear telnet

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

Syntas

clear telnet *no*

Parameter

Parameter	Description
<i>no</i>	the telnet session number displayed by show telnet

default

none

Command mode

supervisor mode

Explanation

User can use this command to clear telnet session on the server.

Example

clear telnet 1

clear telnet 1 seesion (192.168.20.220:1097) on the server

2.2.5 show telnet

The command format to show telnet session of the server is following:

Syntas

show telnet

Parameter

none

Default

none

Command mode

other modes except user mode

Explanation

User can use this command to show telnet session of the server. The displayed information include number, peer address, peer port, local address, local port.

Example

show telnet

Display connect-in telnet session information of the server.

perform results are following:

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

2.2.6 debug telnet

Command"debug"s format of telnet session is following:

Syntas

debug telnet

Parameter

none

Default

none

Command mode

supervisor mode

Explanation

User can use this command to open telnet's debug switch.

Now, all connect-in telnet session's negotiation course print in debug output windows.

This command is different from telnet command with debug parameter in: the former is output connect-in telnet session's debug information of the server, the latter is output launching telnet session's debug information of the client.

Example

debug telnet

User open connect-in telnet session's debug of the server.

2.3 Rlogin Configuration Command

This chapter concerns about command rlogin. Rlogin is used to establish the session with the remote server. Rlogin is usually used to log in the remote Unix system. Knowing the type of the recipient's operation system in advance, the option protocol is unnecessary. Its registration is mainly based on the user's mainframe IP address and its user name for logging in to the remote server. Therefore, the biggest difference between rlogin and TELNET is that depending on the proper setup on the terminal server, rlogin helps the user avoid entering the code each time he logs in.

2.3.1 rlogin

The command format to establish rlogin dialogue is as follows:

Syntas

rlogin server-ip-addr [-I Username]

Parameter

Parameter	Description
<i>server-ip-addr</i>	Remote server's ip address in dotted in decimal format.
<i>Username</i>	username in remote server. Max length is 30 characters.

default

none

Command mode

global configuration mode

Explanation

User can choose one of the following two command formats to accomplish remote login.

1. **rlogin** server-ip-addr

In this situation, the application will first request username of the remote user and then try to establish remote connection.

2. **rlogin** server-ip-addr -I Username

In this case, the application tries to establish the connection to the remote terminal directly.

During the session with the remote server, the user can use the following special

commands.

- Ctrl-S : stop the output from remote host to Client host
- Ctrl-Q : resume the output from the remote host to client host

Note :

Ctrl-S and Ctrl-Q need corresponding coordination from the server)

- Use serials of “~” and “.” at line head to quit the session.
- Use ctrl+shift+6 to quit the session.

Example

Suppose the user wants to use rlogin to remote logon to the server with IP address of 192.168.20.124, and the user name of the user on the server is guest, the user can use either of these two command formats to complete the remote logon.

rlogin 192.168.20.124

In this situation, rlogin will enquire the user name to logon to the remote server. After obtaining the user name, it begins trying to set up the connection with the remote server. The command sequence is as follows:

```
router# rlogin 192.168.20.124
username: guest
```

Try to connect server .

The user input is highlighted with shadow font.

```
rlogin 192.168.20.124 -l guest
```

In this situation, rlogin will try to set up the connection with the remote server directly.

2.4 Ternimal Configuration Command

2.4.1 attach-port

Binding telnet interception ports and line vty number, make telnet connection ,which logon a special port ,produce vty according to appointed numbers.

Syntas

[no] attach-port *port*

Parameter

Parameter	Description
<i>port</i>	Telnet server's interception port number (3001-3999).

default

none

Command mode

line configuration mode

Example

Bind 3001 interception port to line vty 2 3.

```
Router_config# line vty 2 3
```

```
Router_config_line#attach-port 3001
```

2.4.2 autocommand

Set auto-commands when user logon to the terminal, the connection will cut after performing this command.

Syntas

autocommand *line*

no autocommand

Parameter

Parameter	Description
<i>line</i>	Performing commands.

command mode

line configuration mode

Example

```
Router_conf#line vty 1
```

```
Router_conf_line#autocommand pad 123456
```

After successfully login, it will automatically PAD to the host whose X.121 address is 123456.

2.4.3 clear line

Clear appointed lines.

Syntas

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

Parameter

correspond to command "line"

Command mode

supervisor mode

Example

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

2.4.4 connect

Connect a telnet server.

Syntas

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

Parameter

Parameter	Description
<i>server-ip-addr</i> / <i>server-host-name</i>	IP address or host name of the server
<i>port</i>	port number
<i>interface</i>	launching connection's interface name
<i>local-ip-addr</i>	launching connection's local IP address.

command mode

all configuration mode

Example

Router#telnet 192.168.20.1

2.4.5 disconnect

Delete suspended telnet session.

Syntas

disconnect *number*

Parameter

Parameter	Description
<i>number</i>	Suspended telnet session number

command mode

all configuration mode

Example

Router#disconnect 1

2.4.6 exec-timeout

Set the maximum vacancy time of the teminal.

Syntas

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

Parameter

Parameter	Description
<i>time</i>	Vacancy time counted by second.

default

0 (without time-out limit)

Command mode

line configuration mode

Example

Set line's vacancy time to 1 hour

Router_config_line#exec-timeout 3600

2.4.7 length

Set one screen's lines of the line terminal.

Syntas

[no] **length** *value*

Parameter

Parameter	Description
<i>value</i>	Values from 0-512, 0 shows no pause.

Default

24

Command mode

line configuration mode

2.4.8 line

Enter into line configuration mode.

Syntas

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

Parameter

Aux, console ,tty and vty are all line types. Aux is corresponding to auxiliary lines, console is corresponding to monitor lines, tty is corresponding to asynchronous line, vty is corresponding to Telnet,PAD,Rlogin etc. virtual lines.

“Number” is the number of the line type. There is only a number “0” to Console and Aux.

Command mode

global configuration mode

Example

entering VTY configurations mode from 0 to 10.

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

2.4.9 location

Record descriptions of current lines

Syntas

location *line*

no location

Parameter

Parameter	Description
<i>line</i>	Descriptions text of Current lines.

command mode

line configuration mode

2.4.10 login authentication

Set line login authentication parameter

Syntas

[no] line login authentication [default | word]

Parameter

Parameter	Description
default	Set to default authentication.
word	The name of authentication list.

command mode

line configuration mode

Example

Router_conf_line#login authentication test
Set the line's authentication list to "test"

2.4.11 monitor

Make log and debug information output to this line.

Syntas

[no] monitor

Parameter

none

Command mode

line configuration mode

Example

Router_config_line#monitor

2.4.12 no debug all

Close all debug output of current VTY

Syntas

no debug all

Parameter

none

Command mode

supervisor mode

Example

Router#no debug all

2.4.13 password

Set terminal's password

Syntas

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

no password

Parameter

Parameter	Description
<i>password</i>	Configured password for this line, type in plaintext, the maximum password length is 30 digits.
encryption-type <i>encrypted-password</i>	encryption-type means the types of encryption, now, Bdcorn only supports two types: 0 and 7, 0 means no encryption, the latter "encrypted-password" will be covered by password's plaintext, this has the same effect as typing password directly without adding encryption-type; 7 means that encryption with Bdcorn's own arithmetic, the latter "encrypted-password" will be covered by encryption password cryptograph, this cryptograph can be copied from other routers' configurations files.

More details about password encryption ,please refer to "service *password-encryption*"command and "enable password"command.

Command mode

line configuration mode

Example

```
Router_conf#line vty 1
Router_conf_line#password test
Set password of VTY 1 to "test".
```

2.4.14 resume

Resume suspended telnet session.

Syntas

resume *number*

Parameter

Parameter	Description
<i>number</i>	Number of suspended telnet session.

command mode

all configurations mode

Example

```
Router#resume 1
```

2.4.15 printer enable

open/close the function of connecting to printer.

Syntas

printer [enable|disable]

Parameter

Parameter	Description
enable	Open the function of connecting printer on line.
disable	Close the function of connecting printer on line.

default

disable

Command mode

line configuration mode

Example

Open the function of connecting printer on line tty 1.

```
Router_config# line vty 1
```

```
Router_config_line#printer enable
```

2.4.16 printer start

configure character sequence to begin printing.

Syntas

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

Parameter

Parameter	Description
<i>char1 char2 char3 ...</i>	Character sequence to begin printing, must be 16 scale digit, begins with "Ox", separation with space among characters.
<i>no</i>	Restore character sequence to begin printing to default: 0x1b 0x5b 0x35 0x69.

Default

0x1b 0x5b 0x35 0x69

Command mode

line configuration mode

Example

configure character sequence to begin printing on line tty1

Router_config# line vty 1

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

2.4.17 printer stop

configure character sequence to stop printing

Syntas

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

Parameter

Parameter	Description
<i>char1 char2 char3 ...</i>	Character sequence to stop printing, must be 16 scale digit, begins with "Ox", separation with space among characters.
<i>no</i>	Restore character sequence to begin printing to default: 0x1b 0x5b 0x35 0x69.

default

0x1b 0x5b 0x34 0x69

Command mode

line configuration mode

Example

configure character sequence to stop printing on line tty1

Router_config# line vty 1

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

2.4.18 script activation

configure the script of line activation

Syntas

script activation *word*

Parameter

Parameter	Description
<i>word</i>	Script name.

command mode

line configuration mode

Example

configure script name of line activation to script1.

Router_config_line#script activation script1

2.4.19 script callback

configure callback script.

Syntas

script callback *word*

Parameter

Parameter	Description
<i>word</i>	script name.

command name

line configuration mode

Example

configure system callback's script name to "script1"

Router_config_line#script callback script1

2.4.20 script connection

configure script of creating connection

Syntas

script connection *word*

Parameter

Parameter	Description
<i>word</i>	script name.

command mode

line configuration mode

Example

configure script name of creating connection to script1.

Router_config_line#script connection script1

2.4.21 script dialer

configure dialer script.

Syntas

script dialer *word*

Parameter

Parameter	Description
word	Script name.

command mode

line configuration mode

Example

configure dialer script to "script1".

Router_config_line#script dialer script1

2.4.22 switchkey

Configure terminal switchkey .

Syntas

switchkey key cmdalias *server-name*

Parameter

Parameter	Description
key	Terminal switch key (CTRL-A—CTRL-Z except CTRL-H)
cmdalias	Command alias when performing terminal switch °
<i>server-name</i>	The corresponding server name to each terminal screen °

command mode

line configuration mode

Example

configure connect to sco1 server through “con-sco” command when switching by “ctrl-a”.

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

2.4.23 script reset

configure script when interface reset.

Syntas

script reset *word*

Parameter

Parameter	Description
<i>word</i>	Script name.

command mode

line configuration mode

Example

configure script to “script1” when interface reset.

```
Router_config_line#script reset script1
```

2.4.24 script startup

configure script when system startup.

Syntas

script startup *word*

Parameter

Parameter	Description
<i>word</i>	Script name

command mode

line configuration mode

Example

configure script's name to “script1” when system startup.

```
Router_config_line#script startup script1
```

2.4.25 sequence-char

configure character sequence writing back to terminal when terminal switch.

Syntas

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

Parameter

Parameter	Description
key	terminal switch key.
<i>char1 char2 char3 ...</i>	character sequence writing back.

command mode

line configuration mode

Example

configure character sequence writing back to terminal to "0x1b 0x21 0x38 0x51" when switching by "ctrl-a"

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

2.4.26 show debug

Show all current debug information opened by VTY.

Syntas

show debug

Parameter

none

Command mode

supervisor mode or global configuration mode

Example

```
Router#show debug
Generic IP:
  IP packet debugging is on
Frame Relay:
  Lmi debugging is on
```

2.4.27 show line

Show current effective line state.

Syntas

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

Parameter

If without parameters , it will show all current effective lines state.

Other parameters' defines are correspond to "line"

Command mode

no-user state

2.4.28 show tty-status

show interface settings status corresponding to tty .

Syntas

show tty-status *number*

Parameter

Parameter	Description
<i>number</i>	Number of line tty.

Default

none

Command mode

Other configurations modes except user configurations mode

Example

show interface settings status corresponding to tty 1.

Router_config# show tty-status 1

2.4.29 switchmsg

Configure whether to show prompt information when terminal is switching.

Syntas

switchmsg [enable |disable]

Parameter

Parameter	Description
enable	Show prompt information when terminal switching.
disable	Forbid showing prompt information when terminal switching.

default

disable

Command mode

line configuration mode

Example

configure to show prompt information when terminal switching
 Router_config_line#switchmsg enable

2.4.30 terminal length

Use command “terminal length” to change displayed lines per screen of current terminal, this parameter can be obtained by the remote host.

“rlogin” protocol uses this parameter to note the remote UNIX host. While use “no” format of this command to restore its default.

Syntas

terminal length *length*

no terminal length

Parameter

Parameter	Description
<i>length</i>	Displayed lines per screen.

default

pause after display 24 lines per screen

Command mode

global configuration mode

Explanation

This command is only effective to current terminal, after finishing session, terminal attribute will lose.

Example

```
router#terminal length 40
```

Relevant commands

```
line
```

2.4.31 terminal monitor

Use command "terminal monitor" to show debug output and system error information on current terminal , while using "no" format of this command will close monitor.

Syntas

```
terminal monitor
```

```
no terminal monitor
```

Parameter

```
none
```

Default

the default of System console is open, the default of other terminals are closed.

Command mode

```
global configuration mode
```

Explanation

This command is only effective to current terminal, after finishing session, terminal attribute will lose.

Example

```
router#terminal monitor
```

Relevant commands

```
line
```

```
debug
```

2.4.32 terminal width

When default, the router's output is 80 characters per line. If it can not meet your terminal request, you can configure again. This parameter can be obtained by the remote host. Using command "terminal width" can set characters per line. Using no format of this command can restore its default.

Syntas

```
terminal width number
```

no terminal width**Parameter**

Parameter	Description
<i>number</i>	characters number per line

default

display 80 characters per line

Command mode

global configuration mode

Explanation

This command is only effective to current terminal, after finishing session, terminal attribute will lose.

Example

```
router#terminal width 40
```

Relevant commands

line

2.4.33 terminal-type

set terminal type.

Syntas

[no] **terminal-type** *name*

Parameter

Parameter	Description
<i>name</i>	Terminal's name. terminal types supported include: VT100 `ANSI `VT100J currently.

Default

ANSI

Command mode

line configuration mode

2.4.34 where

Check current suspended connection-out telnet sessions on the client.

Syntas

where

Parameter

none

Command mode

all configuration mode

Example

Router#where

2.4.35 width

Set width of line terminal.

Syntas

[no] width *value*

Parameter

Parameter	Description
<i>value</i>	Values from 0—512, 0 means no enter.

Default

80

Command mode

line configuration mode

Chapter 3 Network Management Command

3.1 SNMP Configuration Command

3.1.1 snmp-server community

Use command "snmp-server community" to set community strings permitted to visit on SNMP protocol. While use " **no snmp-server community**" to delete appointed community string.

Syntas

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

no snmp-server community *string*

Parameter

Parameter	Description
<i>string</i>	community strings ,which are similar to password, permitted to visit on SNMP protocol
view <i>view-name</i>	(optional) view name defined before. This view defines effective MIB objects to community.
ro	(optional) appoint read-only authority. The authorization administer workstation can only read MIB objects.
rw	(optional) appoint read/write authority. The authorization administer workstation can read and modify MIB objects.
<i>word</i>	(optional), appoint visiting list name permitted to visit on SNMP agent's IP address through community string..

default

If default, SNMP community string permit all objects "read-only".

Command mode

global configuration mode

Explanation

If without any parameter, it will list configuration information of all community strings .

Example

The following example will introduce how to allocate string "comaccess" to SNMP, which permits read-only accessing and appoint "allowed"-IP accessing list can use community string.

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


The following example will allocate “mgr” to SNMP, which permits to read and write objects in view named “restricted”.

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

The following example will delete community string “conaccess”.

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

Relevant command

access-list

snmp-server view

3.1.2 snmp-server contact

Use command “snmp-server contact”to set contact information (sysContact)of administrate node. While use “no snmp-server contact”to delete contact information.

Syntas

snmp-server contact *text*

no snmp-server contact

Parameter

Parameter	Description
<i>text</i>	String expresses node contact information .

default

do not set node contact information

Command mode

global configuration mode

Explanation

It is corresponding to value of sysContact in MIB variables in system group.

Example

The following is an example of node contact information:

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

Relevant command:

use index or search information online to look for related documents.

3.1.3 snmp-server host

Use ‘snmp-serve host’ to appoint receiver of SNMP traps. While use “no snmp-server host “ to delete appointed host.

Syntas

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

no snmp-server host *host*

Parameter

Parameter	Description
<i>host</i>	Host's name or Internet address.
<i>community-string</i>	Community string, similar to password, transmitting with trap together.
<i>trap-type</i>	(optional) If did not appoint any trap, it will transmit all producing traps to the host. <ul style="list-style-type: none"> • permit to transmit traps of authentication error • permit to transmit SNMP-configure traps • permit to transmit all SNMP traps

default

This command will ineffective when default. It will not transmit any trap. If do not input any command with keyword ,it will transmit all traps,

Command mode

global configuration mode

Explanation

It will not transmit any trap if without inputting snmp-server host command. To configure the router to transmit SNMP traps, use command"snmp-server host.

If input the command without keyword "trap-type", it will activate all traps of this host.

If input the command with "trap-type", it will only activate traps related to this keyword. User can appoint multiple trap types for each host.

If appoint multiple "snmp-server host" commands for a host, it will filter snmp trap message to this host by community string and trap type in the command. (it can only set a kind of trap for a host and community string.)

Usabilities of trap-type's items depend on the types of the router and features of route software supported by the router.

Example

The following example will transmit snmp defined by RFC 1157 to the host whose address is "10.20.30.40". Community string is defined as "comaccess".

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

The following example will make the router transmit all traps to the host"10.20.30.40" through community string "public".

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

Only the trap called "authentication" is effective in the following example, which can be transmitted to the host"bob".

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

Relevant command**snmp-server queue-length****snmp-server trap-source****snmp-server trap-timeout****3.1.4 snmp-server location**

Use global configuration mode command “snmp-server location” to set location string of the node. While using “**no snmp-server location**” can delete location string.

Syntas**snmp-server location** *text***no snmp-server location****Parameter**

Parameter	Description
<i>text</i>	Describe location string of the node.

default

do not set location string of the node

Command mode

global configuration mode

Explanation

Correspond to syslocation in MIB of system group .

Example

The following example will define real location of the router:

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

Relevant commands**snmp-server contact****3.1.5 snmp-server packetsize**

Use global configuration mode command “snmp-server packetsize” to define the maximum size of SNMP packet when SNMP server is receiving request or producing response.

Syntas**snmp-server packetsize** *byte-count***no snmp-server packetsize**

Parameter

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

default

3000 bytes

Command mode

global configuration mode

Explanation

Correspond to syslocation in MIB in system group

Example

The following example will setup packet filter with the maximum length of 1024 bytes.

snmp-server location Building_3/Room_214

Relevant command

snmp-server queue-length

3.1.6 snmp-server queue-length

Use global configuration mode command “snmp-server queue-length” to set message queue length for each trap host.

Syntas

snmp-server queue-length *length*

Parameter

Parameter	Description
<i>length</i>	The trap events numbers can be kept in queue(1-1000).

Default

10 events

Command mode

global configuration mode

Explanation

This command defines message queue length for each trap host. The router will clear queue once successfully transport trap message.

Example

The following example will setup a message queue which can capture four events.

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

Relevant command

snmp-server packet-size

3.1.7 snmp-server trap-source

Use global configuration mode command “snmp-server trap-source” to appoint a interface as all traps source address. While using “no snmp-server trap-source” can delete such an interface.

Syntas

snmp-server trap-source *interface*

no snmp-server trap-source

Parameter

Parameter	Description
interface	SNMP trap interface. Parameters include interface type and number of special platform, grammar mode.

default

without any interface

Command mode

global configuration mode

Explanation

When transmit SNMP trap from SNMP server, it will have its address regardless of which interface. If want to trail by this trap address, use this command.

Example

The following example will appoint Ethernet 1/0 interface address as all traps source address.

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

The following example will appoint IP address of Ethernet 1/0 interface as all traps source address.

snmp-server trap-source ethernet 1/0

Relevant command:

snmp-server queue-length

snmp-server host

3.1.8 snmp-server trap-timeout

Use global configuration mode command “snmp-server trap-timeout” to define the time-out value of re-transmitting trap .

Syntas

snmp-server trap-timeout *seconds*

Parameter

Parameter	Description
<i>seconds</i>	Time slot integer with the unit of second for re-transmitting message.

default

30 seconds

Command mode

global configuration mode

Explanation

Before the router's software tries to transmit trap, it will look for destination address's route. If without route, traps will saved to re-transmitting queue. Command “server trap-timeout” determines re-transmitting time intervals.

Example

The following example will set 20 seconds time intervals, and try to re-transmit trap in re-transmitting queue.

snmp-server trap-timeout 20

Relevant commands

snmp-server host

snmp-server queue-length

3.1.9 snmp-server view

Use global configuration mode command “snmp-server view” to create or update MIB view. While using “no snmp-server view” can delete a view of SNMP server.

Syntas

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

no snmp-server view *view-name*

Parameter

Parameter	Description
<i>view-name</i>	Update or create view name.
<i>oid-tree</i>	Must include or exclude objects identifier of ASN.1 sub-tree from view. Identify sub-tree, appoint a string including digit, like 1.3.6.2.4 or a sub-tree name like system. All names can be found in MIB tree.
included excluded	The type of view. Must appoint included or excluded.

default

none

Command mode

global configuration mode

Explanation

If other SNMP commands need a view as parameter, use this command to create a view to be parameters of theses SNMP commands.

When default, do not need to define a view, user can read all objects(which is like “everything” view pre-defined by Cisco.). Use this command to define all objects which can be seen by the view.

Example

The following example will create all objects’ view in MIB-II sub-tree.

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

The following example will create all objects’ view including system group.

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

The following example will create a view including all objects in system group except all objects in sysServices.7 and NO. 1 interface.

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

Relevant command

snmp-server community

3.1.10 show snmp

Use command “show snmp” to monitor SNMP input and output statistic, including illegal community string items, errors and request variables number.

Use command “show snmp host” to display SNMP trap host information.

Use command “show snmp view” to display SNMP view information.

Syntas

show snmp [host | view]

Parameter

Parameter	Description
host	Display SNMP trap host information.
view	Display SNMP view information.

Default

none

Command mode

supervisor mode, global configuration mode

Explanation

Use command “show snmp”, it will list SNMP input and output statistic .

Use command “show snmp host”, it will display SNMP trap host information.

Use command “show snmp view”, it will display SNMP view information.

Example

The following example will list SNMP input and output statistic.

```
#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
```

SNMP Agent receive /transmit message statistic information's meaning:

Display information	Meaning
Unknown community name	community name can not be known
Illegal operation for community name supplied	illegal operation
Encoding errors	encoding errors
Get-request PDUs	Get-request message
Get-next PDUs	Get-next message
Set-request PDUs	Set-request message
Too big errors	too big response message, can not produce response message
No such name errors	no appoint example
Bad values errors	bad values error
General errors	general errors
Get-response PDUs	Get-response message
Trap PDUs	SNMP trap message

The following example will show SNMP trap host information.

```
#show snmp host
```

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

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

The following example will display SNMP view information.

```
#show snmp view
```

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

Relevant commands

snmp-server host

snmp-server view

3.1.11 debug snmp

Show SNMP event, message transmitting, receiving course and error information.

Syntas

debug snmp [error | event | packet]

no debug snmp

This command will stop showing information.

Parameter

Parameter	Description
error	open SNMP error information's debug switch.
event	open SNMP event's debug switch.
packet	open SNMP input/output message's debug switch.

command mode

supervisor mode

Explanation

After opening SNMP information debug switch, output SNMP event, message transmitting, receiving course and error information , which can help users to shoot SNMP trouble.

Example

The following example will describe conditions of debugging SNMP receiving/transmitting 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 192.168.0.29:1434
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/transmitting message
192.168.0.29	source IP address
1433	interface number of source address
51 bytes	length of receiving 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	SNMP ASN after-coding Message
0..-.....public.}.....0.. .0.....+..... .	receiving message 's ASCII expressing, if beyond ASC II , express by “.”
sending	SNMP transmitting message
192.168.0.29	destination IP address
1433	interface number of destination address
52 bytes	length of transmitting 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	SNMP ASN after-coding message
0..0.....public. ..!.}.....0.. ..0.....+.....C ...6	Transmitting message 's ASCII expressing, if beyond ASCII, express by “.”

The following example will describe conditions of debugging SNMP events:

```
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	current debugging is SNMP
GETNEXT request	SNMP getnext request
RESPONSE	SNMP response
--	receive message
>>	transmit message
ip.ipReasmFails.0	request visit MIB OID
ip.ipFragOKs.0 = 1	visited MIB OID and its back value

3.2 Rmon Configuration Command

3.2.1 rmon alarm index

Syntas

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

To Configure an rmon Alarm item.

Parameter

Parameter	Description	Range
variable	object that is needed to be inspected	oid that is needed to be inspected.
<i>interval</i>	Sampling interval	1~ 4294967295 seconds .
<i>value</i>	Alarm threshold	-2147483648~ 2147483647.
<i>eventnumber</i>	When threshold is reached, the event index will be launched.	1~65535 .
<i>string</i>	Owner description	Character string, string length: 1~127 .

default

The default value do not configure event number.

Explanation

Configure this command under global configuration mode to inspect the value of specified object. When the value is over the threshold, the specified event will be launched.

Example:

Configure a Alarm item to inspect whether an object is in Octets.2. Sample interval is 10. When the interval rises over 15, event1 will be launched. When the interval lowers 25, event2 will be launched.

```
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 bdcorn
```

3.2.2 rmon event

Syntas

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

Parameter

Parameter	Description	Range
<i>index</i>	The event item index.	1-65535 .
<i>des-string</i>	Event description character string.	Length: 1-127 .
<i>owner-string</i>	Owner character string.	none
<i>community</i>	Group name when trap is established.	none

default

none

Explanation

Configure a rmon event item for Alarm

Example

Configure a rmon event item. Index is 6. describe character string is example. Add an item in log item when event is launched and establish trap with group name as public.

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

3.2.3 rmon collection stat

Syntas

rmon collection stat index [*owner string*]

Configure rmon statistic function.

Parameter

Parameter	Description	Range
<i>index</i>	The statistics item index.	1~65535
<i>string</i>	Owner character string.	character string

default

none

Explanation

Configure it under interface mode to enable the interface statistic.

example

To enable statistic on fast Ethernet interface 0/8

```
int f 0/8
```

```
rmon collection stats 2 owner bdcorn
```

3.2.4 rmon collection history

Syntas

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

Configure a history control item.

Parameter

Parameter	Description	Range
<i>index</i>	index	1-65535
<i>bucket-number</i>	Among all the data collected from the history control item, reserve the latest bucket-number item.	1~65535

<i>second</i>	interval	1~3600
<i>owner-name</i>	owner character string	character string

default

bucket-number default is 50, second default is 1800

Explanation

Configure this under interface configuration mode to add one item to history control list

Example

Add history control item on fast Ethernet interface 0/8. Reserve the latest 20 interval statistics. Each interval is 20 seconds.

```
int f 0/8
```

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

3.2.5 show rmon**Syntas**

show rmon [alarm|event|statistics|history]

Display rmon configuration.

Parameter

none

Default

none

Example**3.3 PDP Configuration Command****3.3.1 pdp enable****Syntas**

pdp enable

no pdp enable

Enable PDP on the interface

Parameter

none

Default

PDP disable on the interface

Explanation

PDP is disable under global configuration mode and interface configuration mode, only when the global configuration mode enables PDP, does this command becomes effective.

Example

Enable PDP on the interface

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

3.3.2 pdp holdtime**Syntas**

pdp holdtime *second*

no pdp holdtime

Configure the time PDP keeps neighbor information.

Parameter

Parameter	Description	Range
<i>seconds</i>	Holdtime	10-255

Default

180

Explanation

none

Example

Configure the holdtime to be 90s.

```
pdp holdtime 90
```

3.3.3 pdp run**Syntas**

pdp run

no pdp run

Parameter

none

Default

none

Explanation

Enable the PDP function on the router.

Example

Enable and diable PDP function

```
pdp run
no pdp run
```

3.3.4 pdp timer**Syntas**

pdp timer *seconds*

no pdp timer

Configure the frequency of PDP's sending of PDP packets.

Parameter

Parameter	Description	Range
<i>seconds</i>	The interval of TXD.	5-254.

Default

60 seconds

Explanation

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

Example

Configure the interval of TXD to 30 seconds

```
pdp 30
```

3.3.5 show pdp traffic**Syntas**

show pdp traffic

Parameter

none

Default

none

Explanation

Display the statistical situation of PDP data receiving and sending.

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**Syntas**

show pdp neighbor [detail]

Parameter

Parameter	Description
detail	none

Default

none

Explanation

Display the neighbor information.

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
```

Chapter 4 Maintenance & Debugging aids Command

4.1 Network Testting Command

4.1.1 Ping

Syntas

ping *ip-address*

Parameter

Parameter	Description
<i>ip-address</i>	Aim IP address.

default

None

Command mode

supervisor mode

Explanation

You can send 4 48 bytes data messages by use this command,If you haven't answering message then timeout after you wait 2s.

You can test the mainframe accessibility and the network connectivity.request message to other by sending ICMP responses,and then waiting for other ICMP to respond message

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
```

Relevant command

ip address

4.2 Problem Diagnosis Command

The chapter describes the commands of problem diagnosis. Users can use these commands to find the reasons of problems, and can use other commands(such as

debug) to solve problems.

This chapter only introduces the common commands .more details,please refer to the reference book.

4.2.1 logging

use the command"logging " to record the log to the syslog server .

Syntas

logging *A.B.C.D*

no logging *A.B.C.D*

Parameter

Parameter	Description
<i>A.B.C.D</i>	Syslog ip address of server.

Default

Do not record to the server.

Command mode

global configuration mode

Explanation

Command "logging" can record the log to appointed syslog server. Users can

Use the command several times to appoint several syslog server.

Example

logging 192.168.1.1

Relevant command

logging trap

4.2.2 logging buffered

User can register the log to the memory of router by using command "logging buffered".

Syntas

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

no logging buffered

Parameter

Parameter	Description
<i>size</i>	size of buffer memory, from 4096 bytes to 2147483647 bytes.
<i>level</i>	level of the log registered to the buffer memory.
<i>dump</i>	When there's something wrong in the system, user can save information in the current memory to FLASH, Resetting system will resume them.

default

Do not save to buffer memory.

Command mode

global configuration mode

Explanation

This command register the log to the buffer memory of the router. The buffer is used circlely , so new information will cover the olds when the buffer is full.

To use “show logging”command to show the log registered in buffer memory in router.

Do not use too much memory, or that will cause the lack of memory.

Table 4-1 level of the logs

	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

relevant command

clear logging

show loggin

4.2.3 logging console

“logging console” command can be used to control information capacity displayed in console interface.

“no logging console” command can be used to forbid to display information in console interface.

Syntas

logging console *level*

no logging console

Parameters

Parameter	Description
<i>level</i>	Information level that display the log on the console interface,please refer to table-2.

default

none

Command mode

global configuration mode

Explanation

After appointed level, information whose level is equal to or less than it will be displayed on console interface.

Command “show logging” can be used to display current level configuration and stat.information of the log.

Table 4-2 levels of log

	level	Discreption	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

Relevant command

logging facility

show logging

4.2.4 logging facility

Users can use command“logging facility” to configure what kind of error information will be logged. resume to “local 7”, use command“ no logging facility”.

Syntas

logging facility *facility-type*

no logging facility

Parameter

Parameter	Description
<i>facility-type</i>	Facility types

default

local7

Command mode

global configuration mode

Explanation

Table 4-3 facility types

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

Relevant command

logging console

4.2.5 logging monitor

Command “logging monitor” can be used to control information quantity displayed on terminal line.

Command “no logging monitor” forbid to display log information on terminal line .

Syntas

logging monitor *level*

no logging monitor

Parameter

Parameter	Description
<i>level</i>	Information levels to display log information on terminal line. Refer to table-4.

default

debugging

Command mode

global configuration mode

Explanation

Table 4-4 levels of log

	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

Relevant command

terminal monitor

4.2.6 logging on

Command “logging on” is used to control record of error information.

Command “no logging on ” can forbid all logs.

Syntas

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

Relevant command

logging

logging buffered

logging monitor

logging console

4.2.7 logging trap

Command "logging trap" is used to control information quantity recorded to syslog server.

Command "logging on" forbids to record information to syslog server.

Syntas

logging trap *level*

no logging trap

Parameter

Parameter	Description
<i>level</i>	Information levels to display log on terminal line. Refer to table-5.

default

Informational

Command mode

global configuration mode

Explanation

Table 4-5 levels of log

	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 192.168.1.1
logging trap notifications
```

Relevant command

logging

4.2.8 service timestamps

Command “service timestamps” is used to add timestamps when system debug or register logs.

Command “no service timestamps” is used to cancel timestamps when system debug or register logs.

Syntas

service timestamps [log|debug] [uptime| datetime]

no service timestamps [log|debug]

Parameter

Parameter	Description
log	add timestamps in front of log information
debug	add timestamps in front of debug information
uptime	timestamps format is the time from starting router to now
datetime	timestamps format is real clock time

default

service timestamps log date

service timestamps debug date

Command mode

global configuration mode

Explanation

Uptime Timestamps format is HHHH:MM:SS, it means time from starting a router to now.

Date Timestamps format is YEAR-MON-DAY HH:MM:SS, it means real clock time.

Example

service timestamps debug uptime.

4.2.9 clear logging

This command is used to clear log in buffer memory.

Syntas

clear logging

Parameter

none

Command mode

supervisor mode

Relevant command

logging buffered

show logging

4.2.10 show break

Command “show break” is used to display unexpected interrupt information of a router.

Syntas

show break [*map-filename*]

Parameter

Parameter	Description
<i>map-filename</i>	appoint the filename of the function map.

default

none

Command mode

supervisor mode

Explanation

Command “show break” is used to display captured information about abnormal interrupt of a router. So users can know failure reasons.

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-fefefeff-01dbcca1-
r7   r8   r9   r10  r11  r12  r13
00000000-00009032-00000000-7ffffff0-00008588-44444444-0054c190-
r14  r15  r16  r17  r18  r19  r20
000083f4-000083f4-00000000-00000000-00000000-00000000-00000000-
r21  r22  r23  r24  r25  r26  r27
00000000-0000000a-00000001-00000000-00000000-004d6ce8-01dbd15c-
r28  r29  r30  r31  spr8  spr9  ip
00000002-00467078-00010300-00000300-00000310-00008588-00000370-
Variables :
00008538-44444444-01dbd15c-01dbcaac-00000002-00000000-004d6ce8-
01dbca18-
00008538 --- do_chram_mem_sys_addr---bspcfg.o
0001060c --- subcmd---cmdparse.o---libcmd.a
000083e4 --- do_chram_mem_sys---bspcfg.o
0000fb24 --- lookupcmd---cmdparse.o---libcmd.a
0000f05c --- cmdparse---cmdparse.o---libcmd.a
003e220c --- vty---vty.o---libvty.a
00499820 --- pSOS_qcv_broadcast---ksppc.o---oslibs.a
```

There are six parts of all display content.

1.ERROR:file function.map not found

This information shows that system does not load function.map, but it will not affect system running. If the version of “function.map” is different from the running version of a router, it will prompt “version is incompatible”.

2.Exception Type—abnormal hexadecimal code + abnormal name

3.BreakNum

It means the current abnormal number. it is the number that abnormal have happened in system from last powered to now, following is the time the abnormal happened.

4.register content

Here lists the contents of common registers.

5.Variable area

Here lists the contents in stacks

6.invocation relationship between functions

If a system does not load a map file, it will only display address of function. If it does, it will also display corresponding names of functions, ".o" file name and ".a" file name.

Their invocation relationship is from bottom to top.

4.2.11 show controller

Comman "show controller" is used to display information of a interface controller of a router.

Syntas

show controller [*interface*]

Parameter

Parameter	Description
<i>interface</i>	Name of the appointed interface.

default

none

Command mode

supervisor mode

Explanation

Command "show controller" is used to display the controller status and configuration information of the appointed interface. Users can know the failure reasons through analyzing these information.

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 [TFRCR]=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#

All displayed contents can be divided to following parts:

1.name and kind of interface controller

Here is MPC860 , SCC.

2.controller running status

statistic data of interrupt,error and reset

the length of queue

3.configuration parameters of controller

contents of parameter register

local parameters of controller

parameters of physical protocols

4.status of receiving and transmitting BD

listing length, status and pointer of BD

location and status of receiving and transmitting BD currently

4.2.12 show debug

Command “show debug” is used to display all opened debugging items of a router.

Syntas

show debug

Parameter

none

Command mode

supervisor mode

Example

```
Router# show debug
```

Crypto Subsystem:

Crypto Ipsec debugging is on

Crypto Isakmp debugging is on

Crypto Packet debugging is on

Relevant command:

debug

4.2.13 show logging

command “show logging” is used to display status of logging(syslog).

Syntas

show logging

Parameter

none

Command mode

supervisor mode

Explanation

Command “show logging” is used to display logging status of console, monitor , syslog and etc.

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
```

Relevant command

clear logging