Ruijie RG-S1920 Series Switches

RGOS Command Reference, Release 11.4(1)B70P3

Preface

Thank you for using our products. This manual matches the RGOS Release 11.4(1)B70P3.

Audience

This manual is intended for:

- Network engineers
- Technical support and servicing engineers
- Network administrators

Obtaining Technical Assistance

- Ruijie Networks Website: https://www.ruijienetworks.com/
- Technical Support Website: https://ruijienetworks.com/support
- Case Portal: https://case.ruijienetworks.com
- Community: https://community.ruijienetworks.com
- Technical Support Email: service_rj@ruijienetworks.com
- Skype: service_rj@ruijienetworks.com

Related Documents

Documents	Description
Configuration Guide	Describes network protocols and related mechanisms that supported by the product, with configuration examples.
Hardware Installation and Reference Guide	Describes the functional and physical features and provides the device installation steps, hardware troubleshooting, module technical specifications, and specifications and usage guidelines for cables and connectors.

Conventions

This manual uses the following conventions:

Convention	Description
boldface font	Commands, command options, and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{ x	y	z }	Alternative keywords are grouped in braces and separated by vertical bars.

[x	y	z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.

Symbols

ℹ️ Means reader take note. Notes contain helpful suggestions or references.

⚠️ Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

System Configuration Commands

1. Command Line Interface Commands

2. Basic Configuration Management Commands

3. Line Commands

4. File System Commands

5. SYS Commands

6. Time Range Commands

7. HTTP Service Commands

8. Syslog Commands

9. CWMP Commands

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11. PKG-MGMT Command

1 Command Line Interface Commands

1.1 alias

Use this command to configure a command alias in global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

alias *mode command-alias original-command*

no alias *mode command-alias*

default alias *mode* [*command-alias*]

Parameter Description

Parameter	Description
mode	Mode of the command represented by the alias
command-alias	Command alias
original-command	Syntax of the command represented by the alias

Defaults   Some commands in user or privileged EXEC mode have default alias.

Command Mode   Global configuration mode.

Usage Guide   The following table lists the default alias of the commands in privileged EXEC mode.

Alias	Actual Command
h	help
p	ping
s	show
u	undebug
un	undebug

The default alias cannot be removed by the **no alias exec** command.

After configuring the alias, you can use a word to replace a command. For example, you can create an alias to represent the first part of a command, and then type the rest part of the command.

The mode of the command represented by the alias is the command mode existing in the current system. In the global configuration mode, you can use the **alias ?** command to list all the modes under which you can configure alias for commands.

```
Ruijie(config)# alias ?
  aaa-gs           AAA server group mode
  acl              acl configure mode
  bgp              Configure bgp Protocol
  config           globle configure mode
```

```
......
```

The alias also has its help information that is displayed after * in the following format:

```
*command-alias=original-command
```

For example, in the privileged EXEC mode, the default alias s stands for show. You can enter s? to query the key words beginning with s and the help information of the alias.

```
Ruijie#s?
*s=show  show  start-chat  start-terminal-service
```

If an alias represents more than one word, the command will be displayed in brackets. For example, if you set sv stand for show version in the privileged EXEC mode, then:

```
Ruijie#s?
*s=show  *sv="show version" show  start-chat
start-terminal-service
```

The alias must begin with the first letter of the command. The first letter of the command cannot be a space. The space before the command cannot be used as a valid alias.

```
Ruijie# s?
show  start-chat  start-terminal-service
```

The command alias also has its help information. For example, if the alias ia represents ip address in the interface configuration mode, then:

```
Ruijie(config-if)#ia ?
 A.B.C.D  IP address
 dhcp    IP Address via DHCP
Ruijie(config-if)# ip address
```

The above help information lists the parameters of **ip address** and shows the actual command name. You must enter an entire alias; otherwise it cannot be recognized.

Use the **show aliases** command to show the aliases setting in the system.

Configuration Examples	The following example uses def-route to represent the default route setting of ip route 0.0.0.0 0.0.0.0 192.168.1.1 in the global configuration mode:

```
Ruijie# configure terminal
Ruijie(config)# alias config def-route ip route 0.0.0.0 0.0.0.0 192.168.1.1
Ruijie(config)#def-route?
*def-route="ip route 0.0.0.0 0.0.0.0 192.168.1.1"
Ruijie(config)# end
Ruijie# show aliases config
globle configure mode alias:
def-route        ip route 0.0.0.0 0.0.0.0
192.168.1.1
```

Related Commands	Command	Description
	show aliases	Displays the aliases settings.

Platform Description	N/A

1.2 privilege

Use this command to attribute the execution rights of a command to a command level in global configuration mode. Use the **no** form of this command to restore the default setting.

privilege *mode* [**all**] [**level** *level* | **reset**] *command-string*

no privilege *mode* [**all**] [**level** *level*] *command-string*

	Parameter	Description
Parameter Description	*mode*	CLI mode of the command to which the execution rights are attributed.
	all	Command alias
	level *level*	Specifies the execution right levels (0–15) of a command or sub-commands
	reset	Restores the command execution rights to its default level
	command-string:	Command string to be authorized

Defaults   N/A

Command Mode   Global configuration mode.

Usage Guide   The following table lists some key words that can be authorized by the **privilege** command in CLI mode. The number of command modes that can be authorized may vary with different devices. In the global configuration mode, you can use the **privilege ?** command to list all CLI command modes that can be authorized.

Mode	Descripton
config	Global configuration mode.
exec	Privileged EXEC mode
interface	Interface configuration mode
ip-dhcp-pool	DHCP address pool configuration mode
ip-dhcp-pool	DHCP address pool configuration mode
keychain	KeyChain configuration mode
keychain-key	KeyChain-key configuration mode

Configuration Examples   The following example sets the password of CLI level 1 as **test** and attribute the **reload** rights to reset the device:

```
Ruijie(config)#privilege exec level 1 reload
```

You can access the CLI window as level-1 user to usef the **reload** command:

```
Ruijie>reload ?
LINE    Reason for reload
```

<cr>   You can use the key word **all** to attribute all sub-commands of reload to level-1 users:

```
Ruijie(config)# privilege exec all level 1 reload
```

After the above setting, you can access the CLI window as level-1 user to use all sub commands of the **reload** command:

```
Ruijie>reload ?
LINE    Reason for reload
at                 reload at a specific time/date
cancel             cancel pending reload scheme
in                 reload after a time interval
<cr>
```

	Command	Description
Related Commands		
	enable secret	Sets the CLI-level password.

Platform Description   N/A.

```
Ruijie>reload ?
LINE    Reason for reload
at                 reload at a specific time/date
cancel             cancel pending reload scheme
in                 reload after a time interval
<cr>
```

2 Basic Configuration Management Commands

2.1 <1-99>

Use this command to restore the suspended Telnet Client session.

<1-99>

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   User EXEC mode

Usage Guide   This command is used to restore the suspended Telnet Client session. Hot keys (ctrl+shift+6 x) are used to exit the Telnet Client session creation. The **<1-99>** command is used to restore the session. If the session is created, you can use the **show session** command to display the session.

Configuration Examples The following example restores the suspended Telnet Client session.
```
Ruijie# 1
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.2 banner exec

Use this command to configure a message to welcome the user entering user EXEC mode through the line. Use the **no** form of this command to restore the default setting.

banner exec *c message c*

no banner exec

Parameter Description	Parameter	Description
	c	Separator of the message. Delimiters are not allowed in the message.

message	Contents of the message.

Defaults   N/A

Command   Global configuration mode

Mode

Usage Guide   This command is used to configure the welcome message. The system discards all the characters next to the terminating symbol.

When you are logging in to the device, the MOTD message is displayed at first, and then the banner login message. After you have logged in, the EXEC message or the incoming message is displayed. If it's a reverse Telnet session, the incoming message is displayed. Otherwise, the EXEC message is displayed.

The messages are for all lines. If you want to disable display the EXEC message on a specific line, configure the **no exec-banner** command on the line.

Configuration   The following example configures a welcome message.

Examples
```
Ruijie(config)# banner exec $ Welcome $
```

Related

Commands

Command	Description
N/A	N/A

Platform

Description   N/A

2.3   banner incoming

Use this command to configure a prompt message for reverse Telnet session. Use the **no** form of this command to remove the setting.

banner incoming *c message c*

no banner incoming

Parameter

Description

Parameter	Description
c	Separator of the message. Delimiters are not allowed in the message.
message	Contents of the message.

Defaults   N/A

Command   Global configuration mode

Mode

Usage Guide	This command is used to configure a prompt message. The system discards all the characters next to the terminating symbol. When you are logging in to the device, the MOTD message is displayed at first, and then the banner login message. After you have logged in, the welcome message or the prompt message is displayed. If it's a reverse Telnet session, the prompt message is displayed. Otherwise, the welcome message is displayed.
Configuration Examples	The following example configures a prompt message for reverse Telnet session. `Ruijie(config)# banner incoming $ Welcome $`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.4   banner login

Use this command to configure a login banner. Use **no** form of this command to r remove the setting.

banner login *c message c*

no banner login

Parameter Description	Parameter	Description
	c	Separator of the message contained in the login banner. Delimiters are not allowed in the MOTD.
	message	Contents of the login banner

Defaults	N/A

Command Mode	Global configuration mode

Usage Guide	This command sets the login banner message, which is displayed at login. The system discards all the characters next to the terminating symbol.

Configuration Examples	The following example configures a login banner. `Ruijie(config)# banner login $ enter your password $`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.5 banner motd

Use this command to set the Message-of-the-Day (MOTD) . Use the **no** form of this command to remove the setting.

banner [**motd**] *c message c*

no banner [**motd**]

Parameter Description	Parameter	Description
	c	Separator of the MOTD. Delimiters are not allowed in the MOTD.
	message	Contents of an MOTD

Defaults	N/A

Command Mode	Global configuration mode

Usage Guide	This command sets the MOTD, which is displayed at login. The letters that follow the separator will be discarded.

Configuration Examples	The following example configures the MOTD.

```
Ruijie(config)# banner motd $ hello,world $
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.6 banner prompt-timeout

Use this command to configure the prompt-timeout message to notify timeout. Use the **no** form of this command to remove the setting.

banner prompt-timeout *c message c*

no banner prompt-timeout

Parameter Description	Parameter	Description
	c	Separator of the message. Delimiters are not allowed in the

	message.
message	Contents of the message.

Defaults   N/A

Command   Global configuration mode
Mode

Usage Guide   The system discards all the characters next to the terminating symbol.

When authentication times out, the banner prompt-timeout message is displayed.

Configuration The following example configures the prompt-timeout message to notify timeout.
Examples
```
Ruijie(config)# banner exec $ authentication timeout $
```

Related
Commands

Command	Description
N/A	N/A

Platform
Description   N/A

2.7   banner slip-ppp

Use this command to configure the slip-ppp message for the SLIP/PPP session. Use the **no** form of
this command to remove the setting.

banner slip-ppp *c message c*

no banner slip-pp

Parameter
Description

Parameter	Description
c	Separator of the message. Delimiters are not allowed in the message.
message	Contents of the message.

Defaults   N/A

Command   Global configuration mode
Mode

Usage Guide   This command is used to configure the slip-ppp message for the SLIP/PPP session. The system
discards all the characters next to the terminating symbol.

When the SLIP/PPP session is created, the slip-ppp message is displayed on the corresponding
terminal.

Configuration Examples	The following example configures the banner slip-ppp message for the SLIP/PPP session.
	`Ruijie(config)# banner slip-ppp $ Welcome $`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.8   configure

Use this command to enter global configuration mode.

configure [**terminal**]

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples	The following example enters global configuration mode.
	`Ruijie# configure` `Ruijie(config)#`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.9   disable

Use this command to switch from privileged EXEC mode to user EXEC mode or lower the privilege level.

disable [*privilege-level*]

Parameter Description	Parameter	Description
	privilege-level	Privilege level

Defaults	N/A

Command Mode	User EXEC mode

Usage Guide   Use this command to switch to user EXEC mode from privileged EXEC mode. If a new privilege level is added, the current privilege level will be lowered.

ℹ️ The privilege level that follows the **disable** command must be lower than the current level.

Configuration Examples   The following example lowers the current privilege level of the device to level 10.

```
Ruijie# disable 10
```

Related Commands	Command	Description
	Enable	Moves from user EXEC mode enter to privileged EXEC mode or reaches a higher level of authority.

Platform Description	N/A

2.10 disconnect

Use this command to disconnect the Telnet Client session.

disconnect *session-id*

Parameter Description	Parameter	Description
	session-id	Telnet Client session ID.

Defaults	N/A

Command Mode	User EXEC mode

Usage Guide   This command is used to disconnect the Telnet Client session by setting the session ID.

Configuration   The following example disconnects the Telnet Client session by setting the session ID.

Examples	`Ruijie# disconnect 1`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.11 do telnet

Use this command to login to Telnet server.

do telnet *host* [*port*] [**/source** { **ip** *A.B.C.D* | **interface** *interface-name* }]

Parameter Description	Parameter	Description
	host	IPv4 or host name of Telnet server.
	port	Configures TCP port ID. The default is 23.
	/source	Specifies source IP or source port for Telnet client.
	ip *A.B.C.D*	Specifies source IPv4 address for Telnet client.
	interface *interface-name*	Specifies source port for Telnet client.

Defaults	N/A

Command Mode	User EXEC mode/Privileged EXEC mode/Interface configuration mode

Usage Guide	N/A

Configuration Examples	The following example telnets to destination IPv6 address 192.168.1.1.
	`Ruijie(config)# do telnet192.168.1.1 /source interface gigabitEthernet 0/1`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.12 enable

Use this command to enter privileged EXEC mode.

Enable [*privilege-level*]

Parameter Description	Parameter	Description
	privilege-level	Privilege level

Defaults   N/A

Command Mode   User EXEC mode

Usage Guide   Use this command to enter privileged EXEX mode from User EXEC mode. You can raise or lower the privilege level by specifying the privilege level.

Configuration Examples   The following example lowers the privilege level to 14:

```
Ruijie> enable 14

Password:
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.13 enable password

Use this command to configure passwords for different privilege levels. Use the **no** form of this command to restore the default setting.

enable password [**level** *level*] { [**0**] *password* | **7** *encrypted-password* }

no enable password [**level** *leve l*]

Parameter Description	Parameter	Description
	password	Password for the user to enter the EXEC configuration layer
	level	User's level.
	0	The password is in plain text.
	7 *encrypted-password*	The password is encrypted.

Defaults   N/A

Command Mode   Global configuration mode

Usage Guide   No encryption is required in general. The encryption type must be specified for copying and pasting a encrypted password for the device.

A valid password is defined as follows:

● Consists of 1-26 upper/lower case letters and numbers

● Leading spaces are allowed but usually ignored. Spaces in between or at the end are regarded as part of the password.

⚠ If an encryption type is specified and a plaintext password is entered, you cannot enter privileged EXEC mode. A lost password that has been encrypted using any method cannot be restored. In this case, you can only reconfigure the device password.

Configuration   The following example configures the password as **pw10**.

Examples
```
Ruijie(config)# enable password pw10
```

Related
Commands

Command	Description
enable secret	Sets the security password

Platform
Description   N/A

enable secret   Sets the security password

2.14 enable secret

Use this command to configure a security password for different privilege levels. Use the **no** form of this command to restore the default setting.

enable secret [**level** *level*] { [**0**] *password* | **5** *encrypted-secret* }

no enable secret [**level** *level*]

Parameter
Description

Parameter	Description
secret	Password for the user to enter the EXEC configuration layer
level	User's level.
0	The password is in plain text.
5 *encrypted-password*	The password is encrypted.

Defaults   N/A

Command   Global configuration mode
Mode

Usage Guide A password comes under two categories: "password" and "security". "Password" indicates a simple password, which can be set only for level 15. "Security" means a security password, which can be set for levels 0-15. If both types of passwords coexist in the system, no "password" type is allowed. If a "password" type password is set for a level other than 15, the system gives an alert and the password is automatically converted into a "security" password. If a "password" type password is set for level 15 and the same as a "security" password, an alert is given. The password must be encrypted, with simple encryption for "password" type passwords and security encryption for "security" type passwords.

Configuration Examples The following example configures the security password as **pw10**.

```
Ruijie(config)# enable secret 0 pw10
```

Related Commands

Command	Description
enable password	Sets passwords for different privilege levels.

Platform Description N/A

2.15 enable service

Use this command to enable or disable a specified service such as **SSH Server/Telnet Server/Web Server/SNMP Agent**.

enable service { **ssh-server** | **telnet-server** | **snmp-agent** }

Parameter Description

Parameter	Description
ssh-server	Enables SSH Server.
telnet-server	Enables Telnet Server.
snmp-agent	Enables SNMP Agent.

Defaults telnet-server, snmp-agent are enabled. ssh-server is disabled.

Command Mode Global configuration mode

Usage Guide Use this command to enable or disable a specified service. Use the **no enable service** command to disable the specified service.

Configuration Examples The following example enables the SSH Server.

```
Ruijie(Config)# enable service ssh-sesrver
```

Related Commands	Command	Description
	show service	Displays the service status in the current system.

Platform Description	N/A

2.16 end

Use this command to return to privileged EXEC mode.

End

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   All modes except privileged EXEC mode

Usage Guide   Use this command to return to privileged EXEC mode.

Configuration Examples   The following example returns to privileged EXEC mode.

```
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#end
*May 20 09:49:38: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.17 exec-banner

Use this command to enable display of the EXEC message on a specific line. Use the **no** form of this command to restore the default setting.

exec-banner

no exec-banner

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   The EXEC message is displayed on all lines by default.

Command Mode   LINE configuration mode

Usage Guide   After you configure the **banner exec** and the **banner motd** commands, the EXEC and the MOTD messages are displayed on all lines by default. If you want to disable display of the EXEC and the MOTD messages on a specific line, configure the **no** form of this command on the line.

> ℹ This command does not work for the banner incoming message. If you configure the **banner incoming** command, the banner incoming message is displayed on all reverse Telnet sessions and the display cannot be disabled on a specific line.

Configuration Examples   The following example disables display of the EXEC message on line VTY 1.

```
Ruijie(config)# line vty 1
Ruijie(config-line)no exec-banner
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.18 exec-timeout

Use this command to configure connection timeout for this device in LINE mode. Use the **no** form of this command to restore the default setting and the connection never expires.

exec-timeout *minutes* [**seconds**]

no exec-timeout

Parameter Description	Parameter	Description
	minutes	Timeout in minutes.
	seconds	(Optional) Timeout in minutes

Defaults   The default is 10 minutes.

Command Mode	Line configuration mode
Usage Guide	If there is no input or output for this connection within a specified time, this connection will expire, and this LINE will be restored to the free status.

Configuration Examples	The following example sets the connection timeout to 5'30''.

```
Ruijie(config-line)#exec-timeout 5 30
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

2.19 execute

Use this command to execute a command on the file.

execute { [**flash:**] *filename* }

Parameter Description	**Parameter**	**Description**
	filename	Specifies the file path.

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples	The following example executes a command to configure an IP address for the specified interface.

```
Ruijie#execute flash:mybin/config.text
executing script file mybin/config.text ......
executing done
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#ip address 192.168.21.158 24
Ruijie(config-if-GigabitEthernet 0/1)#end
*Sep 29 23:35:49: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#
```

Related Commands	Command	2-15	Description
	N/A		N/A

Platform Description	N/A

2.20 exit

Use this command to return to the upper configuration mode.

Exit

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	All configuration modes

Usage Guide	N/A

Configuration Examples

The following example returns to the upper configuration mode.

```
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#end
*May 20 09:49:38: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#exit
Ruijie(config)#exit
*May 20 09:51:48: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#exit


Press RETURN to get started
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.21 help

Use this command to display the help information.

Help

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	Any mode

Command Mode

Usage Guide   This command is used to display brief information about the help system. You can use "?" to display all commands or a specified command with its parameters.

Configuration Examples   The following example displays brief information about the help system.

```
Ruijie#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. 'show pr?'.)
```

The following example displays the parameters of a specified command.

```
Ruijie(config)#access-list 1 permit ?
 A.B.C.D  Source address
 any     Any source host
  host    A single source host
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform	N/A

Description

2.22 hostname

Use this command to specify or modify the hostname of a device**.**

hostname *name*

Parameter Description	Parameter	Description
	name	Device hostname, string, number or hyphen, up to 63 characters.

Defaults   The default is Ruijie.

Command Mode   Global configuration mode

Usage Guide   This hostname is mainly used to identify the device and is taken as the username for the local device during dialup and CHAP authentication.

Configuration Examples   The following example configures the hostname of the device as BeiJingAgenda.

```
Ruijie(config)# hostname BeiJingAgenda
BeiJingAgenda(config)#
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.23 ip telnet source-interface

Use this command to configure the IP address of an interface as the source address for Telnet connection.

ip telnet source-interface *interface-name*

Parameter Description	Parameter	Description
	interface-name	Configures the IP address of the interface, including AP port, Gi port, Loopback port, null port, Tunnel port and VLAN port, as the source address for Telnet connection.

Defaults   N/A

Command Mode	Global configuration mode

Usage Guide	This command is used to specify the IP address of an interface as the source address for global Telnet connetction. When using the telnet command to log in a Telnet server, apply the global setting if no source interface or source address is specified. Use the **no ip telnet source-interface** command to restore it to the default setting.

Configuration Examples	The following example configures the IP address of the *Loopback1* interface as the source address for global Telnet connection.

```
Ruijie(Config)# ip telnet source-interface Loopback 1
```

Related Commands	**Command**	**Description**
	telnet	Logs in a Telnet server.

Platform Description	N/A

2.24 lock

Use this command to set a temporary password for the terminal.
Lock

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A

Command Mode	User EXEC mode

Usage Guide	You can lock the terminal interface and maintain the session continuity to prevent access to the interface by setting a temporary password. Take the following steps to lock the terminal interface:

- Enter the **lock** command, and the system will prompt you for a password:
- Enter the password, which can be any character string. The system will prompt you to confirm the password, clear the screen, and display the "Locked" information.
- To access the terminal, enter the preset temporary password.
- To lock the terminal, run the **lockable** command in line configuration mode and enable terminal locking in the corresponding line.

Configuration	The following example locks a terminal interface.

Examples	Ruijie(config-line)# **lockable**

```
Ruijie(config-line)# end
Ruijie# lock
Password: <password>
Again: <password>
Locked
Password: <password>
Ruijie#
```

Related Commands	Command	Description
	Lockable	Supports terminal locking in the line.

Platform Description	N/A

2.25 lockable

Use this command to support the **lock** command at the terminal. Use the **no** form of this command to restore the default setting.

Lockable

no lockable

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	LINE configuration mode

Usage Guide	This command is used to lock a terminal interface in the corresponding line. To lock the terminal, run the lock command in EXEC mode. Run the **lockable** command before running the **lock** command.

Configuration Examples	The following example enables terminal locking at the console port and locks the console.

```
Ruijie(config)# line console 0
Ruijie(config-line)# lockable
Ruijie(config-line)# end
Ruijie# lock
Password: <password>
Again: <password>
Locked
Password: <password>
```

Related Commands	Command	Description
	Lock	Locks the terminal.

Platform Description	N/A

2.26 login

Use this command to enable simple login password authentication on the interface if AAA is disabled.

Use the **no** form of this command to restore the default setting.

Login

no login

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	Login is disabled for console and enabled for VTY by default.

Command Mode	Line configuration mode

Usage Guide	If the AAA security server is inactive, this command enables simple password authentication at login. The password is configured for a VTY or console interface.

Configuration Examples	The following example sets a login password authentication on VTY..

```
Ruijie(config)# no aaa new-model
Ruijie(config)# line vty 0
Ruijie(config-line)# password 0 normatest
Ruijie(config-line)# login
```

Related Commands	Command	Description
	Password	Configures the line login password

Platform Description	N/A

2.27 login access non-aaa

Use this command to configure non-AAA authentication on line when AAA is enabled. Use the **no**

form of this command to restore the default setting.

login access non-aaa

no login access non-aaa

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example configures VTY line authentication with AAA enabled.

```
Ruijie(config)#log access non-aaa
Ruijie(config)#aaa new-model
Ruijie(config)#line vty 0 4
Ruijie(config-line)#login local
Ruijie(config-line)#
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

2.28 login authentication

If the AAA is enabled, login authentication must be performed on the AAA server. Use this command to associate login authentication method list. Use the **no** form of this command to restore the default setting.

login authentication { **default |** *list-name* }

no login authentication { **default** | *list-name* }

Parameter Description	Parameter	Description
	default	Name of the default authentication method list
	list-name	Name of the method list

Defaults Default authentication is used when AAA is enabled.

Command Mode	Line configuration mode

Usage Guide	

Configuration Examples	The following example associates the method list on VTY and perform login authentication on a radius server.

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authentication login default radius
Ruijie(config)# line vty 0
Ruijie(config-line)# login authentication default
```

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	aaa authentication login	Configures the login authentication method list.

Platform Description	N/A

2.29 login local

Use this command to enable local user authentication on the interface if AAA is disabled. Use the **no** form of this command to restore the default setting.

login local

no login local

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	Line configuration mode

Usage Guide	If the AAA security server is inactive, this command is used for local user login authentication. The user is allowed to use the **username** command.

Configuration Examples	The following example sets local user authentication on VTY.

```
Ruijie(config)# no aaa new-model
Ruijie(config)# username test password 0 test
Ruijie(config)# line vty 0
Ruijie(config-line)# login local
```

Related Commands	Command	Description
	Username	Configures local user information.

Platform Description	N/A

2.30 login privilege log

Use this command to log privilege change. Use the **no** form of this command to restore the default setting.

login privilege log

no login privilege log

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This command is disabled by default.

Command Mode	Global configuration mode

Usage Guide	N/A

Configuration Examples

The following example enables the function of logging privilege change.

```
Ruijie(config)# login privilege log
```

The following example displays the log of privilege change failure.

```
Ruijie>enable 10

Password:
Password:
Password:

% Access denied
Ruijie>
*Sep 10 11:34:19: %SYS-5-PRIV_AUTH_FAIL: Authentication to
privilege level 10 from console failed
```

The following example displays the log of privilege change success.

```
Ruijie>enable 10

Password:
Ruijie#
```

```
*Sep 10 11:34:20: %SYS-5-PRIV_AUTH_SUCCESS: Authentication to
privilege level 10 from console success
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.31 motd-banner

Use this command to enable display of the MOTD message on a specified line. Use the **no** form of this command to restore the default setting.

motd-banner

no motd-banner

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	The MOTD message is displayed on all lines by default.

Command Mode	Line configuration mode

Usage Guide	After you configure the **banner exec** and the **banner motd** commands, the EXEC and the MOTD messages are displayed on all lines by default. If you want to disable display of the EXEC and the MOTD messages on a specific line, configure the **no** form of this command on the line.
	ⓘ This command does not work for the incoming message. If you configure the **banner incoming** command, the banner incoming message is displayed on all reverse Telnet sessions and the display cannot be disabled on a specific line.

Configuration Examples	The following example disables display of the MOTD message on VTY 1.
	`Ruijie(config)# line vty 1` `Ruijie(config-line)no motd-banner`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.32 password

Use this command to configure a password for line login, run the **password** command. Use the **no** form of this command to restore the default setting.

password { [**0**] *password* | **7** *encrypted-password* }

no password

	Parameter	Description
Parameter Description	*password*	Password for remote line login
	0	The password is in plain text.
	7 *encrypted-password*	The password is encrypted.

Defaults   N/A

Command Mode   Line configuration mode

Usage Guide

Configuration Examples   The following example configures the line login password as "red".

```
Ruijie(config)# line vty 0
Ruijie(config-line)# password red
```

	Command	Description
Related Commands	**Login**	Moves from user EXEC mode to privileged EXEC mode or enables a higher level of authority.

Platform Description   N/A

2.33 prompt

Use this command to set the **prompt** command. Use the **no** form of this command to restore the default setting.

prompt string

	Parameter	Description
Parameter Description	**string**	Character string of the **prompt** command, containing up to 32 letters.

| **Defaults** | N/A |

| **Command Mode** | Global configuration mode |

Usage Guide   If no prompt string is configured, the system name applies and varies with the system name. The **prompt** command is valid only in EXEC mode.

Configuration Examples   The following example sets the prompt string to rgnos.

```
Ruijie(config)# prompt rgnos
Ruijie(config)# end
RGOS
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

2.34 secret

Use this command to set a password encrypted by irreversible MD5 for line login. Use the **no** form of this command to restore the default setting.

secret { [**0**] *password* | **5** *encrypted-secret* }

no secret

Parameter Description

Parameter	Description
0	(Optional) sets the plaintext password text and encrypts it with irreversible MD5 after configuration.
password	Sets the password plaintext, a string ranging from 1 to 25 characters.
5 *encrypted-secret*	Sets the password text encrypted by irreversible MD5 and saves it as the encrypted password after configuration.

| **Defaults** | N/A |

| **Command mode** | Line configuration mode |

Usage Guide   This command is used to set a password encrypted by irreversible MD5 that is authenticated by a remote user through line login.

⚠   If the specified encryption type is 5, the logical length of the cipher text to be entered must be 24

and the 1st, 3rd and 8th characters of the password text must be $.

In general, the encryption type does not need to be specified as 5 except when the encrypted password is copied and pasted.

Line mode allows configuration of both "password" and "secret" types passwords at the same time. When the two passwords are the same, the system will send alert notification but the configuration will be permitted. When the system is configured with the two passwords, if the user enters a password that does not match the "secret" type password, it will not continue to match the "password" type password and login fails, enhancing security for the system password.

Configuration Examples	The following example sets the password encrypted by irreversible MD5 for line login to vty0.

```
Ruijie(config)# line vty 0
Ruijie(config-line)# secret vty0
```

The following displays the encryption outcome by running the **show** command.

```
secret 5 $1$X834$wvx6y794uAD8svzD
```

Related Commands	**Command**	**Description**
	Login	Sets simple password authentication on the interface as the login authentication mode

Platform Description	N/A

2.35 session-timeout

Use this command to configure the session timeout for a remote terminal. Use the **no** form of this command to restore the default setting and the session never expires.

session-timeout *minutes* [**output**]

no session-timeout

Parameter Description	**Parameter**	**Description**
	minutes	Timeout in minutes.
	output	Regards data output as the input to determine whether the session expires.

Defaults	The default timeout is 0.

Command Mode	LINE configuration mode

Usage Guide	If no input or output in current LINE mode is found on the remote terminal for the session within a

specified time, this connection will expire, and this LINE will be restored to the free status.

Configuration Examples	The following example specifies the timeout as 5 minutes.

```
Ruijie(config-line)#exec-timeout 5 output
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

2.36 show debugging

Use this command to display debugging state.

show debugging

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples	The following example displays debugging state.

```
Ruijie#show debugging

debug fw-group detect intf-state
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

2.37 show line

Use this command to display the configuration of a line.

show line { **console** *line-num* | **vty** *line-num* | *line-num* }

Parameter Description	Parameter	Description
	console	Displays the configuration of a console line.
	vty	Displays the configuration of a vty line.
	line-num	Number of the line.

Defaults   N/A

**Command
Mode**   Privileged EXEC mode

Usage Guide   N/A

**Configuration
Examples**

The following example displays the configuration of a console port.

```
Ruijie# show line console 0
CON     Type    speed   Overruns
* 0    CON     9600    45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape  Disconnect  Activation
             ^^x     none        ^M
Timeouts:     Idle EXEC    Idle Session
              never        never
History is enabled, history size is 10.
Total input: 53564 bytes
Total output:  395756 bytes
Data overflow:  27697 bytes
stop rx interrupt:  0 times
```

Related Commands	Command	Description
	N/A	N/A

**Platform
Description**   N/A

2.38 show reload

Use this command to display the system restart settings.

show reload

Parameter	Parameter	Description

Description		
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide

Configuration Examples   The following example displays the restart settings of the system.

```
Ruijie# show reload
Reload scheduled in 595 seconds.
At 2003-12-29 11:37:42
Reload reason: test.
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.39 show running-config

Use this command to display how the current device system is configured..

show running-config [**interface** *interface*]

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   N/A

Related Commands	Command	Description

N/A	N/A

Platform Description	N/A

2.40 show service

Use this command to display the service status.

show service

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples

The following example displays whether the service is enabled or disabled.

```
Ruijie# show service
web-server    : disabled
web-server(https): disabled
snmp-agent    : enabled
ssh-server    : enabled
telnet-server : disabled
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

2.41 show sessions

Use this command to display the Telnet Client session information.

show sessions

Parameter Description	**Parameter**	**Description**

N/A	N/A

Defaults   N/A

**Command
Mode**   User EXEC mode

Usage Guide   Telnet Client session information includes the VTY number and the server IP address.

**Configuration   The following example displays the Telnet Client session information.
Examples**
```
Ruijie#show sessions
Conn  Address
*1   127.0.0.1
*2    192.168.21.122
```

**Related
Commands**

Command	Description
N/A	N/A

**Platform
Description**   N/A

2.42 show startup-config

Use this command to display the device configuration stored in the Non Volatile Random Access
Memory (NVRAM).

show startup-config

**Parameter
Description**

Parameter	Description
N/A	N/A

Defaults   N/A

**Command
Mode**   Privileged EXEC mode

Usage Guide	The device configuration stored in the NVRAM is executed while the device is starting.
	On a device that does not support **boot config**, **startup-config** is contained in the default configuration file **/config.text** in the built-in flash memory.

Configuration Examples	N/A

Related Commands	Command	Description
	boot config	Sets the name of the boot configuration file.

Platform Description	N/A

2.43 speed

Use this command to set the speed at which the terminal transmits packets. Use the **no** form of this command to restore the default setting.

speed *speed*

no speed

Parameter Description	Parameter	Description
	speed	Transmission rate (bps) on the terminal. For serial ports, optional rates include 9600, 19200, 38400, 57600, and 115200 bps. The default rate is 9600 bps.

Defaults	The default is 9600.

Command Mode	Global configuration mode

Usage Guide	This command is used to set the speed at which the terminal transmits packets.

Configuration Examples	The following example sets the rate of the serial port to 57600 bps.

```
Ruijie(config)# line console 0
Ruijie(config-line)# speed 57600
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.44 telnet

Use this command to log in a server that supports telnet connection.

telnet *host* [*port*] [**/source** { **ip** *A.B.C.D* | **interface** *interface-name* }]

Parameter Description	Parameter	Description
	host	The IP address of the host or host name you want to log in.
	port	Selects the TCP port number for login, 23 by default.
	/source	Specifies the source IP address or source interface used by the Telnet client.
	ip *A.B.C.D*	Specifies the source IPv4 address used by the Telnet client.
	interface *interface-name*	Specifies the source interface used by the Telnet client.

Defaults	N/A

Command Mode	User EXEC mode

Usage Guide

Configuration Examples

Related Commands	Command	Description
	ip telnet source-interface	Specifies the IP address of the interface as the source address for Telnet connection.
	show sessions	Displays the currently established Telnet sessions.
	exit	Exits current connection.

Platform Description	N/A

2.45 username

Use this command to set a local username and optional authorization information.. Use the **no** form of this command to restore the default setting.

username *name* [**login mode** { **console** | **ssh** | **telnet** }] [**online amount** *number*] [**permission** *oper-mode path*] [**privilege** *privilege-level*] [**reject remote-login**] [**web-auth**] [**nopassword** | **password** [**0** | **7**] *text-string*]

no username *name*

Parameter Description	Parameter	Description
	name	Username
	login mode	Sets the login mode.
	console	Sets the login mode to console.
	ssh	Sets the login mode to ssh.
	telnet	Sets the login mode to telnet.
	online amount *number*	Sets the amount of users online simultaneously.
	permission *oper-mode path*	Sets the permission on the specified file. *op-mode* refers to the operation mode and *path* to the file or the directory path.
	privilege *privilege-level*	Sets the privilege level, in the range from 0 to 15.
	reject remote-login	Confines the account to remote login.
	web-auth	Confines the account to web authentication.
	nopassword	The account is not configured with a password.
	password [**0**	**7**] *text-string*	If the password type is 0, the password is in plain text. If the type is 7, the password is encrypted. The password is in plain text by default.

Defaults   N/A

Command Mode   Global configuration mode

Usage Guide   This command is used to establish a local user database for authentication.

ℹ️ If encryption type is 7, the cipher text you enter should contain seven characters to be valid. In general, do not set the entryption type 7.

Instead, specify the type of encryption as 7 only when the encrypted password is copied and pasted.

Configuration Examples   The following example configures a username and password and binds the user to level 15.

```
Ruijie(config)# username test privilege 15 password 0 pw15
```

The following example configures the username and password exclusive to web authentication.

```
Ruijie(config)# username user1 web-auth password 0 pw
```

The following example configures user test with read and write permissions on all files and directories.

```
Ruijie(config)# username test permission rw /
```
The following example configures user test with read, write and execute permissions on all files and directories except the confix.text file.
```
Ruijie(config)# username test permission n /config.text
Ruijie(config)# username test permission rwx /
```

	Command	Description
Related Commands	**login local**	Enables local authentication

Platform Description	N/A

2.46 username import

Use this command to import user information from the file.
username import *filename*

	Parameter	Description
Parameter Description	*filename*	The file name.

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	This command is used to import user information from the file.

Configuration Examples	The following example imports user information from the file. ```Ruijie# username import user.csv```

	Command	Description
Related Commands	N/A	N/A

Platform Description	N/A

2.47 username export

Use this command to export user information to the file.
username export *filename*

Parameter Description	Parameter	Description
	filename	The file name.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   This command is used to export user information to the file.

Configuration Examples   The following example exports user information to the file.
```
Ruijie# username export user.csv
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.48 write

Use this command to save **running-config** at a specified location.

write [**memory | terminal**]

Parameter Description	Parameter	Description
	memory	Writes the system configuration (running-config) into NVRAM, which is equivalent to **copy running-config startup-config**.
	terminal	Displays the system configuration, which is equivalent to **show running-config**.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   Despite the presence of alternative commands, these commands are widely used and accepted. Therefore, they are reserved to facilitate user operations.

The system automatically creates the specified file and writes it into system configuration if the device that stores the file exists;

The system will ask you whether to save the current configuration in default boot configuration file

/config.text and perform an action as required if the device that stores the file does not exist possibly because the boot configuration file is stored on a removable storage device, e.g., USB disk and SD card, and the device has not been loaded when you run the **write** [**memory**] command.

Configuration Examples	The following example saves **running-config** at a specified location.

```
Ruijie# write
Building configuration...
[OK]
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

3 Line Commands

3.1 absolute-timeout

Use this command to set the absolute timeout period. Use the **no** form of this command to restore the default setting.

absolute-timeout *minutes*

no absolute-timeout

Parameter Description	Parameter	Description
	minutes	Sets the absolute timeout period, in the range from 0 to 60.

Defaults   No absolute timeout period is set by default.

Command Mode   LINE configuration mode

Usage Guide   If the absolute timeout period is configured, the line is disconnected once the timeout timer expires, Before the terminal logs out, a message is displayed to prompt the remaining time.
```
Terminal will be login out after 20 second
```

Configuration Examples   The following example sets the timeout period for the line between two consoles to 2 minutes.
```
Ruijie(config)# line console 0
Ruijie(config-line)#absolute-timeout 2
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.2 accounting commands

Use this command to enable command accounting in the line. Use the **no** form of this command to restore the default setting.

accounting commands *level* { **default** | *list-name* }

no accounting commands *level*

Parameter Description	Parameter	Description

level	Command level ranging from 0 to 15. The command of this level is accounted when it is executed.
default	Default authorization list name.
list-name	Optional list name.

Defaults   This function is disabled by default.

Command Mode   Line configuration mode

Usage Guide   This function is used together with AAA authorization. Configure AAA command accounting first, and then apply it on the line.

Configuration Examples   The following example enables command accounting in line VTY 1 and sets the command level to 15.

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting commands 15 default start-stop group tacacs+
Ruijie(config)# line vty 1
Ruijie(config-line)# accounting commands 15 default
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

3.3   accounting exec

Use this command to enable user access accounting in the line. Use the **no** form of this command to restore the default setting.

accounting commands level { **default** | list-name }

no accounting commands level

Parameter Description

Parameter	Description
level	Command level ranging from 0 to 15. The command of this level is accounted when it is executed.
default	Default authorization list name.
list-name	Optional list name.

Defaults   This function is disabled by default.

Command   Line configuration mode

Mode

Usage Guide   This function is used together with AAA authorization. Configure AAA EXEC accounting
                    first, and then apply it on the line.

Configuration   The following example enables user access accounting in line VTY 1.

Examples
```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting exec default start-stop group radius
Ruijie(config)# line vty 1
Ruijie(config-line)# accounting exec default
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

3.4 activation-character

Use this command to set the ASCII value of the character for activating the terminal session. Use the
no form of this command to restore the default setting.

activation-character *ascii-value*

no activation-character

Parameter
Description

Parameter	Description
ascii-value	Sets the ASCII value of the character for activating the terminal session, in the range from 0 to 127.

Defaults   The default is CR (ASCII: 0x0D).

Command   LINE configuration mode
Mode

Usage Guide   If the current line is configured with the **autoselect** function, *ascii-value* must be set to 0x0D.

Configuration   The following example configures Ctrl+Y (ASCII: 25) for activating the terminal session.

Examples
```
Ruijie(config)#line console 0
Ruijie(config-line)#activation-character 25
Ruijie(config-line)#end
Ruijie#exit

Press CTRL+y to get started
```

```
Ruijie>
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

3.5 authorization commands

Use this command to enable authorization on commands, Use the **no** form of this command to restore the default setting.

authorization commands *level* { **default** | *list-name* }

no authorization commands *level*

Parameter Description

Parameter	Description
level	Command level ranging from 0 to 15. The command of this level is executed after authorization is performed.
default	Default authorization list name,
list-name	Optional list name.

Defaults   This function is disabled by default.

Command Mode   Line configuration mode

Usage Guide   This function is used together with AAA authorization. Configure AAA authorization first, and then apply it on the line.

Configuration Examples   The following example enables authorization on commands of level 15 in line VTY 1.

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authorization commands 15 default group tacacs+
Ruijie(config)# line vty 1
Ruijie(config-line)# authorization commands 15 default
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

3.6 authorization exec

Use this command to enable EXEC authorization for the line. Use the **no** form of this command to restore the default setting.

authorization { **default** | *list-name* }

no authorization exec

Parameter Description	Parameter	Description
	default	Default authorization list name,
	list-name	Optional list name.

Defaults   This function is disabled by default,

Command Mode   Line configuration mode

Usage Guide   This function is used together with AAA authorization. Configure AAA EXEC authorization first, and then apply it on the line.

Configuration Examples   The following example performs EXEC authorization to line VTY 1.

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authorization exec default group radius
Ruijie(config)# line vty 1
Ruijie(config-line)# authorization exec default
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.7 autocommand

Use this command to enable automatic command execution. Use the **no** form of this command to restore the default setting.

autocommand *autocommand-string*

no autocommand

Parameter Description	Parameter	Description
	autocommand-string	Enables automatic command execution.

Defaults   This function is disabled by default.

Command   LINE configuration mode
Mode

Usage Guide   This command is used to enable the dumb terminal to log in to the specified host through
                      Telnet or to obtain the specified app-based terminal service.

Configuration   The following example enables automatic command execution and connects to line vty 0.
Examples
```
Ruijie(config)# line vty 0
Ruijie(config-line)# autocommand telnet 192.168.21.100

//Initiates connection to line vty 0:
Trying 192.168.21.100, 23...

Ruijie#show users
Line             User         Host(s)              Idle      Location
---------------- ------------ -------------------- ----------
   ------------------
  0 con 0      ---          idle                 00:01:31  ---
* 1 vty 0      ---          idle                 00:00:00  192.168.21.200
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

3.8 clear line

Use this command to clear connection status of the line.

clear line { **console** *line-num* | **vty** *line-num* | *line-num* }

Parameter
Description

Parameter	Description
console	Clears connection status of the console line.
vty	Clears connection status of the virtual terminal line.
line-num	Specifies the line to be cleared.

Defaults   N/A

Command Mode	Privileged EXEC mode

Usage Guide	This command is used to clear connection status of the line and restore the line to the unoccupied status to create new connections.

Configuration Examples	The following example clears connection status of line VTY 13. The connected session on the client (such as Telnet and SSH) in the line is disconnected immediately. `Ruijie# clear line vty 13`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

3.9 databits

Use this command to set the databit number for every character on the async line in flow communication mode. Use the **no** form of this command to restore the default setting.

databits *bit*

no databits

Parameter Description	Parameter	Description
	bit	Sets the databit number of every character, in the range from 5 to 8.

Defaults	The default is 8.

Command Mode	LINE configuration mode

Usage Guide	The async line device generates 7 databits with parity check in flow communication mode. If parity check is enabled, the databit number is 7. Otherwise, the databit number is 8. The databit number may set to 5 or 6 on the earlier device.

Configuration Examples	The following example sets the databit number for every character on the async line in flow communication mode to 7.
	`Ruijie(config)# line console 0`
	`Ruijie(config-line)#databits 7`

Related Commands	Command	Description

N/A	N/A

Platform   N/A

Description

3.10 disconnect-character

Use this command to set the hot key that disconnects the terminal service connection. Use the **no** form of this command to restore the default setting.

disconnect-character *ascii-value*

no disconnect-character

Parameter	**Parameter**	**Description**
Description	*ascii-value*	ASCII decimal value of the hot key that disconnects the terminal service connection, in the range from 0 to 255.

Defaults   The default hot key is **Ctrl+D** and the ASCII decimal value is 0x04.

Command   Line configuration mode

Mode

Usage Guide   This command is used to set the hot key that disconnects the terminal service connection. The hot key cannot be the commonly used ASCII node such as characters ranging from a to z, from A to Z or numbers ranging from 0 to 9. Otherwise, the terminal service cannot operate properly.

Configuration   The following example sets the hot key that disconnects the terminal service connection on line VTY

Examples   0 5 to **Ctrl+E** (0x05).

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# disconnect-character 5
```

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A

Description

3.11 escape-character

Use this command to set the escape character for the line. Use the **no** form of this command to restore the default setting.

escape-character *escape-value*

no escape-character

Parameter Description	Parameter	Description
	escape-value	Sets the ASCII value corresponding to the escape character for the line, in the range from 0 to 255.

Defaults	The default escape character is **Ctrl+^** (**Ctrl+Shift+6**) and the ASCII decimal value is 30.

Command Mode	Line configuration mode

Usage Guide	After configuring this command, press the key combination of the escape character and then press **x**, the current session is disconnected to return to the original session.

Configuration Examples	The following example sets the escape character for the line to 23 (**Ctrl+w**).

```
Ruijie(config)# line vty 0
Ruijie(config-line)# escape-character 23
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

3.12 exec

Use this command to enable the line to enter the command line interface. Use the **no** form of this command to disable the function.

exec

no exec

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is enabled by default.

Command Mode	Line configuration mode

Usage Guide	The **no exec** command is used to ban the line from entering the command line interface. You

have to enter the command line interface through other lines,

Configuration
Examples

The following example bans line VTY 1 from entering the command line interface.

```
Ruijie(config)# line vty 1
Ruijie(config-line)# no exec
Ruijie# show users
Line            User        Host(s)              Idle      Location
--------------- ----------- -------------------- ----------
   -----------------
*  0 con 0      ---         idle                 00:00:00  ---
   1 vty 0      ---         idle                 00:01:03  20.1.1.2
    3 vty 2      ---          idle                  00:00:13   20.1.1.2
```

Related
Commands

Command	Description
N/A	N/A

Platform
Description

N/A

3.13 exec-character-bits

Use this command to configure the coded character set for the async line. Use the **no** form of this command to restore the default setting.

exec-character-bits { **7 | 8** }

no exec-character-bits

Parameter
Description

Parameter	Description
7	Configures a 7-bit coded character set.
8	Configures an 8-bit coded character set.

Defaults

The default is 8.

Command
Mode

LINE configuration mode

Usage Guide

If you want to enter Chinese characters in the command line or display Chinese characters, graphs or other international characters, configure the **exec-character-bits 8** command.

Configuration
Examples

The following example configures a 7-bit coded character set for the async line.

```
Ruijie(config)# line console 0
Ruijie(config-line)#exec-character-bits 7
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

3.14 flowcontrol

Use this command to configure the flow control mode for the async line. Use the **no** form of this command to restore the default setting.

flowcontrol { **hardware | none | software** }

no flowcontrol { **hardware | none | software** }

Parameter Description	**Parameter**	**Description**
	hardware	Configures hardware flow control.
	none	Configures no flow control.
	software	Configures software flow control.

Defaults   No flow control is configured by default.

Command Mode   LINE configuration mode

Usage Guide   This command is used to control the data sending rate to make it consistent with the receiving rate at the receiving end. The terminal cannot receive data while sending data, so this function prevent s data drop. Flow control is also configured for the communication between high speed device and low speed device (for example, printer and network interface). RGOS provides two flow control modes, namely, software flow control and hardware flow control. The stop and start characters are Ctrl+S (XOFF, ASCII: 19) and Ctrl+Q (XON, ASCII: 17) respectively.

Configuration Examples   The following example configures software flow control for the async line.

```
Ruijie(config)#line console 0
Ruijie(config-line)#flowcontrol software
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

3.15 history

Use this command to enable command history for the line or set the number of commands in the command history. Use the **no history** command to disable command history. Use the **no history size** command to restore the number of commands in the command history to the default setting.

history [**size** *size*]

no history

no history size

Parameter Description	Parameter	Description
	size *size*	The number of commands, in the range from 0 to 256.

Defaults   This function is enabled by default, The default *size* is 10.

Command Mode   Line configuration mode

Usage Guide   N/A

Configuration Examples   The following example sets the number of commands in the command history to 20 for line VTY 0 5.

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# history size 20
```

The following example disables the command history for line VTY 0 5.

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# no history
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.16 length

Use this command to set the screen length for the line. Use the **no** form of this command to restore the default setting.

length *screen-length*

no length

Parameter Description	Parameter	Description

screen-length	Sets the screen length, in the range from 0 to 512.

Defaults The default is 24.

Command Mode Line configuration mode

Usage Guide N/A

Configuration Examples The following example sets the screen length to 10.

```
Ruijie(config-line)# length 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.17 line

Use this command to enter the specified LINE mode.

line [**console** | **vty**] *first-line* [*last-line*]

Parameter Description

Parameter	Description
console	Console port
vty	Virtual terminal line, applicable for telnet/ssh connection.
first-line	Number of first-line to enter
last-line	Number of last-line to enter

Defaults N/A

Command Mode Global configuration mode

Usage Guide

Configuration Examples The following example enters the LINE mode from LINE VTY 1 to 3:

```
Ruijie(config)# line vty 1 3
```

Related Commands

Command	Description

N/A	N/A

Platform Description N/A

3.18 line vty

Use this command to increase the number of VTY connections currently available. Use the **no** form of this command to restore the default setting.

line vty *line-number*

no line vty *line-number*

Parameter Description

Parameter	Description
line-number	Number of VTY connections, in the range from 0 to 35.

Defaults

Command Mode Global configuration mode.

Usage Guide

Configuration Examples The following example increases the number of available VTY connections to 20. The available VTY connections are numbered 0 to 19.

```
Ruijie(config)# line vty 19
```

The following example decreases the number of available VTY connections to 10. The available VTY connections are numbered 0-9.

```
Ruijie(config)# line vty 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.19 location

Use this command to configure the line location description. Use the **no** form of this command to restore the default setting.

location *location*

no location

Parameter Description	Parameter	Description
	location	Line location description

Defaults	N/A

Command Mode	Line configuration mode

Usage Guide	N/A

Configuration Examples	The following example describes the line location as Swtich's Line VTY 0.

```
Ruijie(config)# line vty 0
Ruijie(config-line)# location Swtich's Line Vty 0
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

3.20 monitor

Use this command to enable log display on the terminal. Use the **no** form of this command to restore the default setting,

monitor

no monitor

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	Line configuration mode

Usage Guide	N/A

Configuration Examples	The following example enables log display on the terminal in VTY line 0 5.

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# monitor
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.21 parity

Use this command to configure the parity for the async line. Use the **no** form of this command to restore the default setting.

parity { **even | none | odd** }

no parity

Parameter Description	Parameter	Description
	even	Configures even parity,
	none	Configures no parity.
	odd	Configures odd parity,

Defaults   No parity check is configured by default.

Command Mode   LINE configuration mode

Usage Guide   Parity is required in communication through some devices (such as async serial ports and console ports).

Configuration Examples   The following example configures even parity for the async line.

```
Ruijie(config)#line console 0
Ruijie(config-line)#parity even
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.22 privilege level

Use this command to set the privilege level for the line. Use the **no** form of this command to restore

the default setting.

privilege level *level*

no privilege level

Parameter Description	Parameter	Description
	level	Privilege level, in the range from 0 to 15.

Defaults   The default is 1.

Command   Line configuration mode
Mode

Usage Guide   N/A

Configuration   The following example sets the privilege level for the line VTY 0 4 to 14.
Examples
```
Ruijie(config)# line vty 0 4
Ruijie(config-line)privilege level 14
```

Related Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

3.23 refuse-message

Use this command to set the login refusal message for the line. Use the **no** form of this command to restore the default setting.

refuse-message [*c message c*]

no refuse-message

Parameter Description	Parameter	Description
	c	Delimiter of the login refusal message, which is not allowed within the message.
	message	Login refusal message.

Defaults   N/A

Command   Line configuration mode
Mode

| Usage Guide | This command is used to set the login refusal message for the line. The characters entered after the ending delimiter are discarded directly, The login refusal message is displayed when the user has been refused to login. |

| Configuration Examples | The following example sets the login refusal message for the line to "Unauthorized user cannot login to the ruijie device". |

```
Ruijie(config-line)#vacant-message @ Unauthorized user cannot login to the
ruijie device @
```

Related Commands	Command	Description
	N/A	N/A

| Platform Description | N/A |

3.24 show history

Use this command to display the command history of the line.

show history

Parameter Description	Parameter	Description
	N/A	N/A

| Defaults | N/A |

| Command Mode | Privileged EXEC mode |

| Usage Guide | N/A |

| Configuration Examples | The following example displays the command history of the line. |

```
Ruijie# show history
exec:
sh privilege
sh run
show user
sh user all
show history
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

3.25 show line

Use this command to display line configuration.

show line { **console** *line-num* | **vty** *line-num* **|** *line-num* }

Parameter Description	Parameter	Description
	console	Displays configuration for the console line.
	vty	Displays configuration for the virtual terminal line.
	line-num	Displays the line.

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples	The following example displays configuration for the console port.

```
Ruijie# show line console 0
CON    Type    speed   Overruns
* 0    CON     9600    45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape  Disconnect  Activation
          ^^x     none       ^M
Timeouts:    Idle EXEC   Idle Session
          never       never
History is enabled, history size is 10.
Total input: 53564 bytes
Total output:  395756 bytes
Data overflow:  27697 bytes
stop rx interrupt:  0 times
```

Field	Description
CON	Terminal type. CON indicates console; 0 indicates terminal line number and * ahead of the number means that the terminal is in use.
Type	Terminal type, including CON, AUX, TTY, and VTY.
speed	Asynchronous speed.
Overruns	The number of overrun errors received by the flash.

Line 0	Terminal line number.
Location: ""	Line location configuration.
Type: "vt100"	Compatibility standard.
Special Chars	Special characters, including Escape, Disconnect, and Activation characters.
Timeouts	Timeout value; "never" indicates no timeout.
History	Whether to enable command history; the number of commands in the command history.
Total input	Data volume received from the drive.
Total output	Date volume sent to the drive.
Data overflow	Overflowing data volume.
stop rx interrupt	Data reception interruption times.

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

3.26 show privilege

Use this command to display the privilege level of the line.

show privilege

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples

The following example displays the privilege level of the line.

```
Ruijie# show privilege
Current privilege level is 10
```

Related Commands	**Command**	**Description**
	N/A	N/A

| **Platform** | N/A |
| **Description** | |

3.27 show users

Use this command to display the login user information.

show users [**all**]

Parameter	**Parameter**	**Description**
Description		
	all	Displays line user information, including users logging into the line and users not logging into the line.

| **Defaults** | N/A |

| **Command** | Privileged EXEC mode |
| **Mode** | |

| **Usage Guide** | N/A |

Configuration
Examples

The following example displays the information about users logging into the line,

```
Ruijie# show users
Line            User         Host(s)             Idle      Location
--------------- ------------ ------------------- ----------
   ------------------
  0 con 0     ---        idle               00:00:46  ---
  1 vty 0     ---        idle               00:00:29  20.1.1.2
* 2 vty 1     ---        idle               00:00:00  20.1.1.2
```

The following example displays all line user information,

```
Ruijie(config)# show users all
Line            User         Host(s)             Idle      Location
--------------- ------------ ------------------- ----------
   -----------------
  0 con 0     ---        idle               00:00:49  ---
  1 vty 0     ---        idle               00:00:32  20.1.1.2
* 2 vty 1     ---        idle               00:00:00  20.1.1.2
  3 vty 2     ---                           00:00:00  ---
  4 vty 3     ---                           00:00:00  ---
  5 vty 4     ---                           00:00:00  ---
  6 vty 5       ---                            00:00:00   ---
```

| **Related** | **Command** | **Description** |
| **Commands** | | |

N/A	N/A

Platform   N/A

Description

3.28 speed

Use this command to configure the baud rate for the specified line. Use the **no** form of this command
to restore the default setting,

speed *baudrate*

no speed

Parameter

Description

Parameter	Description
baudrate	Sets the baud rate, in the range from 9600 to 115200.

Defaults   The default is 9600.

Command   LINE configuration mode

Mode

Usage Guide   N/A

Configuration The following example sets the baud rate to 115200,

Examples

```
Ruijie(config-line)# speed 115200
```

Related

Commands

Command	Description
N/A	N/A

Platform   N/A

Description

3.29 start-character

Use this command to

on the async line. Use the **no** form of this command to restore the default setting.

start-character *ascii-value*

no start-character

Parameter

Description

Parameter	Description
ascii-value	Sets the ASCII value corresponding to the start character for software

	flow control on the async line, in the range from 0 to 255.

Defaults   The default is Ctrl+Q (ASCII: 17).

Command   LINE configuration mode
Mode

Usage Guide   The start character marks the start of the data transmission.

Configuration   The following example configures Ctrl+Y (ASCII: 25) for starting software flow control on the async
Examples   line,

```
Ruijie(config)#line console 0
Ruijie(config-line)#start-character 25
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

3.30 stop-character

Use this command to configure the stop character for software flow control on the async line. Use the
no form of this command to restore the default setting.
stop-character *ascii-value*
no stop-character

Parameter
Description

Parameter	Description
ascii-value	Sets the ASCII value corresponding to the stop character for software flow control on the async line, in the range from 0 to 255.

Defaults   The default is Ctrl+S (ASCII: 19).

Command   LINE configuration mode
Mode

Usage Guide   The stop character marks the end of the data transmission.

Configuration   The following example configures Ctrl+Z (ASCII: 26) for stopping software flow control on the async
Examples   line,

```
Ruijie(config)#line console 0
Ruijie(config-line)#stop-character 26
```

	Command	Description
Related Commands	N/A	N/A

Platform Description N/A

3.31 stopbits

Use this command to configure the stopbit number for every character for the async line. Use the **no** form of this command to restore the default setting.

stopbits { **1 | 2** }
no stopbits

	Parameter	Description
Parameter Description	1	Configures 1 stopbit.
	2	Configures 2 stopbits.

Defaults The default is 2.

Command Mode LINE configuration mode

Usage Guide The stopbit is required in communication between the async line and the async device (such as the conventional numb terminals and modems).

Configuration Examples The following example sets the stopbit number of every character for the async line to 1.

```
Ruijie(config)#line console 0
Ruijie(config-line)#stopbits 1
```

	Command	Description
Related Commands	N/A	N/A

Platform Description N/A

3.32 terminal-type

Use this command to configure the simulated terminal type string of the async line.

terminal-type *terminal-type-string*

no terminal-type

Parameter	Description
Parameter	Description
terminal-type-string	Configures the terminal type string, such as vt100 and ansi.

Defaults   The default is vt100.

Command   LINE configuration mode
Mode

Usage Guide   You can use the **terminal-type vt100** command to restore the default terminal type. If you want to enable telnet connection, you should use the simulated terminal type to perform terminal type negotiation (Telnet: 0x18). See RFC 854 for details.

Configuration   The following example sets the simulated terminal type of the async line to ansi.
Examples
```
Ruijie(config)#line console 0
Ruijie(config-line)#terminal-type ansi
```

Related Commands	Command	Description
	Command	Description
	N/A	N/A

Platform   N/A
Description

3.33 terminal databits

Use this command to configure the databit number of the character for the current terminal in flow communication mode. Use the **no** form of this command to restore the default setting.
terminal databits *bit*
terminal no databits

Parameter	Description
Parameter	Description
bit	Configures the databit number of the character, in the range from 5 to 8.

Defaults   The default is 8.

Command   Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example sets the databit number of every character for the current terminal in flow
Examples   communication mode to 7.

```
Ruijie#terminal databits 7
```

| **Related** | | |
Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

3.34 terminal escape-character

Use this command to set the escape character for the current terminal. Use the **no** form of this
command to restore the default setting.

terminal escape-character *escape-value*

terminal no escape-character

| **Parameter** | | |
Description	Parameter	Description
	escape-value	Sets the ASCII value corresponding to the escape character for the current terminal, in the range from 0 to 255.

Defaults   The default escape character is **Ctrl+^** (**Ctrl+Shift+6**) and the ASCII decimal value is 30.

Command   Privileged EXEC mode
Mode

Usage Guide   After configuring this command, press the key combination of the escape character and then
                      press **x**, the current session is disconnected to return to the original session.

Configuration   The following example sets the escape character for the current terminal to 23 (**Ctrl+w**).
Examples
```
Ruijie# terminal escape-character 23
```

| **Related** | | |
Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

3.35 terminal exec-character-bits

Use this command to configure the coded character set for the current terminal. Use the **no** form of this command to restore the default setting.

terminal exec-character-bits { **7 | 8** }

terminal no exec-character-bits

Parameter Description	Parameter	Description
	7	Configures a 7-bit coded character set.
	8	Configures an 8-bit coded character set.

Defaults   The default is 8.

Command Mode   Privileged EXEC mode

Usage Guide   If you want to enter Chinese characters in the command line or display Chinese characters, graphs or other international characters, configure the **exec-character-bits 8** command.

Configuration Examples   The following example configures a 7-bit coded character set for the current terminal.
```
Ruijie#terminal exec-character-bits 7
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.36 terminal flowcontrol

Use this command to configure the flow control mode for the current terminal. Use the **no** form of this command to restore the default setting.

terminal flowcontrol { **hardware | none | software** }

terminal no flowcontrol { hardware | none | software }

Parameter Description	Parameter	Description
	hardware	Configures hardware flow control.
	none	Configures no flow control.
	software	Configures software flow control.

Defaults   The default flow control mode is **none**.

Command   Privileged EXEC mode

Mode

Usage Guide   N/A

Configuration   The following example configures software flow control for the current terminal.

Examples
```
Ruijie#terminal flowcontrol software
```

Related

Commands

Command	Description
N/A	N/A

Platform   N/A

Description

3.37 terminal history

Use this command to enable command history for the current terminal or set the number of
commands in the command history. Use the **no history** command to disable command history. Use
the **no history size** command to restore the number of commands in the command history to the
default setting.

terminal history [**size** *size*]

terminal no history

terminal no history size

Parameter

Description

Parameter	Description
size *size*	Sets the number of commands, in the range from 0 to 256.

Defaults   This function is enabled by default, The default *size* is 10.

Command   Privileged EXEC mode

Mode

Usage Guide   N/A

Configuration   The following example sets the number of commands in the command history to 20 for the current

Examples   terminal.
```
Ruijie# terminal history size 20
```
The following example disables the command history for the current terminal.
```
Ruijie# terminal no history
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.38 terminal length

Use this command to set the screen length for the current terminal. Use the **no** form of this command to restore the default setting.

terminal length *screen-length*

terminal no length

Parameter Description	Parameter	Description
	screen-length	Sets the screen length, in the range from 0 to 512.

Defaults   The default is 24.

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example sets the screen length for the current terminal to 10.

```
Ruijie# terminal length 10
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.39 terminal location

Use this command to configure location description for the current device. Use the **no** form of this command to restore the default setting.

terminal location *location*

terminal no location

Parameter	Parameter	Description

Description		
	location	Configures location description of the current device.

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example configures location description of the current device as "Swtich's Line Vty 0".
Examples
```
Ruijie# terminal location Swtich's Line Vty 0
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A
Description

3.40 terminal parity

Use this command to configure the parity for the current terminal. Use the **no** form of this command to restore the default setting.

terminal parity { **even | none | odd** }

terminal no parity

Parameter	Parameter	Description
Description	**even**	Configures even parity,
	none	Configures no parity.
	odd	Configures odd parity,

Defaults   No parity check is configured by default.

Command   Privileged EXEC mode
Mode

Usage Guide   Parity is required in communication through some devices (such as async serial ports and console ports).

Configuration   The following example configures even parity for the current terminal.
Examples
```
Ruijie#terminal parity even
```

**Related
Commands**

Command	Description
N/A	N/A

**Platform
Description** N/A

3.41 terminal speed

Use this command to configure the baud rate for the current terminal. Use the **no** form of this
command to restore the default setting,

terminal speed *baudrate*

terminal no speed

**Parameter
Description**

Parameter	Description
baudrate	Sets the baud rate, in the range from 9600 to 115200.

Defaults The default is 9600.

**Command
Mode** Privileged EXEC mode

Usage Guide N/A

**Configuration
Examples** The following example sets the baud rate for the current terminal to 115200,

```
Ruijie# terminal speed 115200
```

**Related
Commands**

Command	Description
N/A	N/A

**Platform
Description** N/A

3.42 terminal start-character

Use this command to configure the start character for software flow control on the current terminal.
Use the **no** form of this command to restore the default setting.

terminal start-character *ascii-value*

terminal no start-character

Parameter Description	Parameter	Description
	ascii-value	Sets the ASCII value corresponding to the start character for software flow control on the current terminal, in the range from 0 to 255.

Defaults   The default is Ctrl+Q (ASCII: 17).

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example configures Ctrl+Y (ASCII: 25) for starting software flow control on the current device,

```
Ruijie#terminal start-character 25
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.43 terminal stop-character

Use this command to configure the stop character for software flow control on the current terminal.
Use the **no** form of this command to restore the default setting.

terminal stop-character *ascii-value*

terminal no stop-character

Parameter Description	Parameter	Description
	ascii-value	Sets the ASCII value corresponding to the stop character for software flow control on the current terminal, in the range from 0 to 255.

Defaults   The default is Ctrl+S (ASCII: 19).

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example configures Ctrl+Z (ASCII: 26) for stopping software flow control on the current device.

```
Ruijie#terminal stop-character 26
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.44 terminal stopbits

Use this command to set the stopbit number of every character for the current terminal. Use the **no** form of this command to restore the default setting.

terminal stopbits { **1** | **2** }

terminal no stopbits

Parameter Description	Parameter	Description
	1	Configures 1 stopbit,
	2	Configures 2 stopbits.

Defaults   The default is 2.

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example configures 1 stopbit for the current terminal.

```
Ruijie#terminal stopbits 1
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.45 terminal terminal-type

Use this command to configure the simulated terminal type string for the current terminal. Use the **no** form of this command to restore the default setting.

terminal terminal-type *terminal-type-string*

terminal no terminal-type

Parameter Description	Parameter	Description
	terminal-type-string	Sets the terminal type string.

Defaults   The default is vt100.

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example sets the simulated terminal type string for the current terminal to ansi.

```
Ruijie#terminal terminal-type ansi
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.46 terminal width

Use this command to set the screen width for the terminal.

terminal width *screen-width*

terminal no width

Parameter Description	Parameter	Description
	screen-width	Sets the screen width for the terminal, in the range from 0 to 256.

Defaults   The default is 79.

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example sets the screen width for the terminal to 10.

```
Ruijie# terminal width 10
```

Related	Command	Description

Commands		
N/A	N/A	

Platform   N/A
Description

3.47 timeout login

Use this command to set the login authentication timeout for the line. Use the **no** form of this command to restore the default setting.

timeout login response *seconds*
no timeout login response

Parameter Description	Parameter	Description
	response	The time period during which the line waits for the user to enter any message.
	seconds	Timeout value, in the range from 1 to 300 in the unit of seconds.

Defaults   The default is 30.

Command   Line configuration mode
Mode

Usage Guide   N/A

Configuration   The following example sets the login authentication timeout to 300 seconds for line VTY 0 5.
Examples
```
Ruijie(config)# line vty 0 5
Ruijie(config-line)login timeout response 300
```

Related Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

3.48 transport input

Use this command to set the specified protocol under Line that can be used for communication. Use the **no** form of this command to restore the default setting.

transport input { **all** | **ssh** | **telnet** | **none** }
no transport input { **all** | **ssh** | **telnet** | **none** }

Parameter Description	Parameter	Description
	all	Allows all the protocols under Line to be used for communication
	ssh	Allows only the SSH protocol under Line to be used for communication
	telnet	Allows only the Telnet protocol under Line to be used for communication
	none	Allows none of protocols under Line to be used for communication

Defaults   **all**, **ssh** and **telnet** protocols are allowed.

Command Mode   Line configuration mode

Usage Guide   N/A

Configuration Examples   The following example specifies that only the Telnet protocol is allowed to login in line vty 0 4.

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)transport input ssh
```

Related Commands	Command	Description
	show running	Displays status information

Platform Description   N/A

3.49 vacant-message

Use this command to set the logout message. Use the **no** form of this command to restore the default setting.

vacant-message [*c message c*]

no vacant-message

Parameter Description	Parameter	Description
	c	Delimiter of the logout message, which is not allowed within the message.
	message	Logout message.

Defaults   N/A

Command   Line configuration mode
Mode

Usage Guide   This command is used to set the logout message for the line. The characters entered after the
                      ending delimiter are discarded directly, The logout message is displayed when the user logs
                      out.

Configuration   The following example sets the logout message to "Logout from the ruijie device".
Examples
```
Ruijie(config-line)#vacant-message @ Logout from the ruijie device @
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

3.50 width

Use this command to set the screen width for the line. Use the **no** form of this command to restore the
default setting,
width *screen-width*
no width

Parameter
Description

Parameter	Description
screen-width	Sets the screen width for the line, in the range from 0 to 256,

Defaults   The default is 79.

Command   Line configuration mode
Mode

Usage Guide   N/A

Configuration   The following example sets the screen width for the line to 10.
Examples
```
Ruijie(config-line)# width 10
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

4 File System Commands

4.1 cd

Use this command to set the present directory for the file system.

cd [*filesystem:*] [*directory*]

Parameter Description

Parameter	Description
filesystem:	The URL of filesystem, followed by a colon (:). The filesystem includes **flash:**, **tmp:**.
directory	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults   The default directory is the flash root directory.

Command Mode   Privileged EXEC mode.

Usage Guide

Configuration Examples

Related Commands

Command	Description
pwd	Displays the present word directory.

Platform Description   N/A.

4.2 copy

Use this command to copy a file from the specified source directory to the specified destination directory.

copy *source-url destination-url*

Parameter Description

Parameter	Description
source-url	Source file URL, which can be local or remote.
destination-url	Destination file URL, which can be local or remote.

Defaults   N/A.

Command Mode   Privileged EXEC mode.

Usage Guide	when the file to be copied exists on the target URL, the target file system determines the action, such as error report, overwrite, or offering you the choice.

The following table lists the URL:

Prefix	Description
running-config	Running configuration file.
startup-config	startup configuration file.
flash:	local FLASH file system.
tftp:	The URL of TFTP network server, in the format as follows: **tftp**:[[//location]/directory]**/filename**
oob_tftp:	The URL of TFTP network server connected with the Out-of-Band port, If there are multiple MGMT ports, you can specify one.

Configuration Examples	The following example copies the netconfig file from device 192.168.64.2 to the FLASH disk and the netconfile file exists locally.

```
Ruijie#copy tftp://192.168.64.2/netconfig flash:/netconfig

The file [flash:/netconfig] exits,override it? [Y/N]: y

Copying: !!!!!!!!


Accessing tftp://192.168.64.2/netconfig finished, 2399bytes prepared

Flushing data to flash:/netconfig...

Flush data done
```

Related Commands	Command	Description
	delete	Deletes the file.
	rename	Renames the file.
	dir	Displays the file list of the specified directory.

Platform Description	N/A

4.3 delete

Use this command to delete the files in the present directory.

delete [*filesystem*:] *file-url* [**/force** | **/recursive**]

Parameter Description	Parameter	Description
	filesystem:	The URL of file system, followed by a colon (:). The file system

	includes **flash:**, **usb:** and **tmp:**.
file-url	The file name containing the path. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.
/force	Deletes the file without the user's confirmation.
/recursive	Deletes all files in a directory recursively, including the directory itself.

Defaults   The default *filesystem*: is **flash:**.

Command   Privileged EXEC mode.
Mode

Usage Guide

Configuration   The following example deletes the fstab file on the FLASH disk.
Examples

```
Ruijie#pwd

flash:/

Ruijie#dir

Directory of flash:/

1   -rw-        336    Jan 03 2012 18:53:42   fstab

2   -rw-       4096    Jan 03 2012 12:32:09   rc.d

3   -rw-   10485760    Jan 03 2012 18:13:37   rpmdb

3 files, 0 directories

10,490,192 bytes total (13,192,656 bytes free)

Ruijie#delete flash:/fstab

Ruijie#dir

Directory of flash:/

1   -rw-       4096    Jan 03 2012 12:32:09   rc.d

2   -rw-   10485760    Jan 03 2012 18:13:37   rpmdb

2 files, 0 directories

10,489,856 bytes total (13,192,992 bytes free)
```

Related
Commands

Command	Description
copy	Copies the file.
dir	Displays the file list of the specified directory.

Platform   N/A

Description

4.4   dir

Use this command to display the files in the present directory.

dir [*filesystem*:] [*file-url*]

Parameter	Description
filesystem	The URL of file system, followed by a colon (:). The file system includes **flash:**, **usb:** and **tmp:**.
file-url	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Parameter Description

Defaults   By default, only the information under the present working path is displayed.

Command Mode   Privileged EXEC mode.

Usage Guide

Configuration Examples   The following example displays the file information of the root directory in the FLASH disk.

```
Ruijie#dir flash:/
Directory of flash:/
1   -rw-       336   Jan 03 2012 18:53:42  fstab
2   -rw-      4096   Jan 03 2012 12:32:09  rc.d
3   -rw-  10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,192 bytes total (13,192,656 bytes free)
```

Field	Description
1, 2, 3…	Index number
-rw-	Permissions on a file include: ● d: directory ● r: read ● w: write ● x: executable
10485760	File size
rpmdb	File name
files	File number
directories	Directory number
total	Total size
free	Available space

Related

Command	Description

| Commands | **pwd** | Displays the present directory. |
| | **cd** | Sets the present directory of the file system. |

Platform
Description   N/A.

4.5 mkdir

Use this command to create a directory.

mkdir [*filesystem*:] *directory*

Parameter
Description

Parameter	Description
filesystem:	The URL of file system, followed by a colon (:). The file system includes **flash:**, **usb:** and **tmp:**.
directory	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults   The default *filesystem*: is **flash**:.

The default *directory* is the root directory.

Command
Mode   Privileged EXEC mode.

Usage Guide

Configuration   The following example creates a directory named newdir:
Examples
```
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42   fstab
2   -rw-       4096   Jan 03 2012 12:32:09   rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37   rpmdb
3 files, 0 directories
10,490,132 bytes total (13,192,656 bytes free)
Ruijie#mkdir newdir
Created dir flash:/newdir
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42   fstab
2   -rw-       4096   Jan 03 2012 12:32:09   rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37   rpmdb
4   drw-       4096   Jan 03 2012 18:13:37   newdir
3 files, 1 directories
10,494,228 bytes total (13,188,560 bytes free)
```

Related Commands	Command	Description
	rmdir	Deletes the directory.
	pwd	Displays the present directory.

Platform Description	N/A

4.6   more

Use this command to display the content of a file.

more [/**ascii** | /**binary**] [*filesystem*:] *file-url*

Parameter Description	Parameter	Description
	/**ascii**	Displays the file content in the ASCII format.
	/**binary**	Displays the file content in the
	filesystem:	The URL of file system, followed by a colon (:). The file system includes **flash:**, **sd:** and **tmp:**.
	file-url	The file name containing the path. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults	The file is displayed in its own format by default.

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples	The following example displays the content of the netconfig file under root directory of FLASH disk.

```
Ruijie#more flash:/netconfig
#
# The network configuration file. This file is currently only used in
# conjunction with the TI-RPC code in the libtirpc library.
#
# Entries consist of:
#
#     <network_id> <semantics> <flags> <protofamily> <protoname> \
#            <device> <nametoaddr_libs>
#
# The <device> and <nametoaddr_libs> fields are always empty in this
# implementation.
#
udp      tpi_clts     v    inet    udp     -      -
tcp      tpi_cots_ord v    inet    tcp     -      -
udp6     tpi_clts     v    inet6   udp     -      -
```

```
tcp6     tpi_cots_ord  v    inet6   tcp    -      -
rawip    tpi_raw       -    inet    -      -      -
local    tpi_cots_ord  -    loopback -     -      -
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A
Description

4.7 pwd

Use this command to display the working path.

pwd

Parameter	Parameter	Description
Description	N/A.	N/A.

Defaults   N/A.

Usage Guide

Configuration
Examples

Related	Command	Description
Commands	**cd**	Changes the file system in the present directory.

Platform   N/A.
Description

4.8 rename

Use this command to move or rename the specified file.

rename *src-url dst-url*

Parameter	Parameter	Description
Description	*src-url*	The source file URL to move.
	dst-url	The URL of the destination file or directory.

Defaults   N/A.

Command   Privileged EXEC mode.

Mode

Usage Guide   N/A

Configuration   The following example renames the fstab file in the root directory on the FLASH disk as new-fstab.

Examples
```
Ruijie#dir
Directory of flash:/
1  -rw-       336   Jan 03 2012 18:53:42  fstab
2  -rw-      4096   Jan 03 2012 12:32:09  rc.d
3  -rw-  10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,192 bytes total (13,192,656 bytes free)
Ruijie#rename flash:/fstab flash:/new-fstab
Renamed file flash:/new-fstab
Ruijie#dir
Directory of flash:/
1  -rw-       336   Jan 03 2012 18:53:42  new-fstab
2  -rw-      4096   Jan 03 2012 12:32:09  rc.d
3  -rw-  10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,192 bytes total (13,192,656 bytes free)
```

Related
Commands

Command	Description
delete	Deletes the file.
copy	Copies the file.

Platform   N/A
Description

4.9   rmdir

Use this command to delete an empty directory.

rmdir [*filesystem*:] *directory*

Parameter
Description

Parameter	Description
filesystem:	The URL of file system, followed by a colon (:). The file system includes **flash:**, **usb:** and **tmp:**.
directory	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults   The default *filesystem*: is **flash:**.

Command   Privileged EXEC mode.
Mode

Usage Guide

Configuration The following example deletes the null test directories.
Examples

```
Ruijie#mkdir newdir
Ruijie#dir
Directory of flash:/
1   -rw-       336   Jan 03 2012 18:53:42   fstab
2   -rw-      4096   Jan 03 2012 12:32:09   rc.d
3   -rw-  10485760   Jan 03 2012 18:13:37   rpmdb
4   drw-      4096   Jan 03 2012 18:13:37   newdir
3 files, 1 directories
10,494,228 bytes total (13,188,560 bytes free)
Ruijie#rmdir newdir
removed dir flash:/newdir
Ruijie#dir
Directory of flash:/
1   -rw-       336   Jan 03 2012 18:53:42   fstab
2   -rw-      4096   Jan 03 2012 12:32:09   rc.d
3   -rw-  10485760   Jan 03 2012 18:13:37   rpmdb
3 files, 0 directories
10,490,132 bytes total (13,192,656 bytes free)
```

Related

Command	Description
Commands | N/A. | N/A. |

Platform   N/A.
Description

4.10 show file systems

Use this command to display the file system information.

show file systems

Parameter

Parameter	Description
Description | N/A. | N/A. |

Defaults   N/A.

Command   User EXEC mode/Privileged EXEC mode/Global configuration mode/Interface configuration mode
Mode

Usage Guide

Configuration Examples   The following example displays the file system information:

```
Ruijie#show file systems

  Size(KB)      Free(KB)    Type   Flags  Prefixes

      NA            NA        ram     rw  tmp:

      NA            NA    network     rw  tftp:

      NA            NA    network     rw  oob_tftp:

    8192          2416       disk     rw  flash:
```

Field	Description
Size(KB)	File system space, in the unit of KB.
Free(KB)	Available file system space, in the unit of KB.
Type	File system type
Flags	Permissions on the file system include: ● ro: read-only ● wo: write-only ● rw: read and write
Prefixes	File system prefix

Related Commands

Command	Description
N/A.	N/A.

Platform Description   N/A.

4.11 show mount

Use this command to display the mounted information.

show mount

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command Mode   User EXEC mode/Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example displays the mounted information.

```
Ruijie#show mount
```

```
/dev/sda1 on / type ext4 (rw,errors=remount-ro,commit=0)
proc on /proc type proc (rw,noexec,nosuid,nodev)
sysfs on /sys type sysfs (rw,noexec,nosuid,nodev)
fusectl on /sys/fs/fuse/connections type fusectl (rw)
none on /sys/kernel/debug type debugfs (rw)
none on /sys/kernel/security type securityfs (rw)
udev on /dev type devtmpfs (rw,mode=0755)
devpts on /dev/pts type devpts (rw,noexec,nosuid,gid=5,mode=0620)
tmpfs on /run type tmpfs (rw,noexec,nosuid,size=10%,mode=0755)
none on /run/lock type tmpfs (rw,noexec,nosuid,nodev,size=5242880)
none on /run/shm type tmpfs (rw,nosuid,nodev)
/dev/sda3 on /hao-share type ext3 (rw,commit=0)
binfmt_misc on /proc/sys/fs/binfmt_misc type binfmt_misc
(rw,noexec,nosuid,nodev)
```

Field	Description
proc	Source address of mount.
on	-
/proc	Destination address of mount.
type	-
proc	Mount type.
(rw,noexec,nosuid,nodev)	Mount property.

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A
Description

4.12 tree

Use this command to display the file tree of the current directory.

tree [*filesystem*:] [*directory*]

Parameter	**Parameter**	**Description**
Description	*filesystem*:	The URL of file system, followed by a colon (:). The file system includes **flash:**, **tmp:**.
	directory	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults   The default *filesystem*: is **flash:**.

Command   User EXEC mode/Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example displays the file tree of flash:/echo

Examples
```
Ruijie#tree flash:/echo
+-- client_module
+-- client_userspace
+-- echo_cli.c
+-- echo_client.c
+-- echo_client.h
+-- echo_client.o
+-- echo_cli.o
+-- echo_flag.h
+-- echo.h
+-- echo.ko
+-- echo_server.h
+-- exec_set_echo.h
+-- exec_show_echo.h
+-- Makefile
+-- module
¦    +-- echo.ko
¦    +-- echo.mod.c
¦    +-- echo.mod.o
¦    +-- echo_module.c
¦    +-- echo_module.o
¦    +-- echo.o
¦    +-- echo_server.c
¦    +-- echo_server.o
¦    +-- echo_sysfs.c
¦    +-- echo_sysfs.h
¦    +-- echo_sysfs.o
¦    +-- Makefile
¦    +-- modules.order
¦    +-- Module.symvers
¦    +-- msg_fd.c
¦    +-- msg_fd.o
+-- readme
+-- server_module
+-- server_userspace
+-- sys_rgos.ko
+-- user_space
   +-- echo_server.c
   +-- echo_server.o
   +-- Makefile
```

```
    +-- msg_fd.c
    +-- msg_fd.o 10,490,132 bytes total (13,192,656 bytes free)
```

Related Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

4.13 verify

Use this command to compute, display and verify Message Digest 5 (MD5).

verify [**/md5** *md5-value*] *filesystem***:** [*file-url*]

Parameter Description	Parameter	Description
	/md5	Computes and displays MD5.
	md5-value	The file MD5, which is compared with the computed MD5.
	filesystem:	The URL of file system, followed by a colon (:). The file system includes **flash:**, **tmp:**.
	file-url	The file name containing the path. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

Defaults   The default *filesystem:* is **flash:**.

Command   Privileged EXEC mode.
Mode

Usage Guide   N/A

Configuration   The following example computes MD5 of flash:/gcc.
Examples
```
Ruijie#verify flash:/gcc
8b072de7db7affd8b2ef824e7e4d716c
```
The following example computes MD5 and makes a comparison.

```
Ruijie#verify /md5 8b072de7db7affd8b2ef824e7e4d716c flash:/gcc

%SUCCESS verifying /mnt/flash/gcc = 8b072de7db7affd8b2ef824e7e4d716c

Ruijie#verify /md5 8b072de7db7affd8b2ef824e7e4d71 flash:/gcc

%Error verifying flash:/gcc

Computed signature = 8b072de7db7affd8b2ef824e7e4d716c

Submitted signature = 8b072de7db7affd8b2ef824e7e4d71
```

Related	Command	Description

Commands	N/A	N/A

Platform Description	N/A

4.14 show disk

Use this command to display USB/Flash information.

show disk *flash*

Parameter Description	Parameter	Description
	flash	Displays FLASH information.

Defaults	N/A

Command Mode	User EXEC mode/Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide	N/A

Configuration Examples	The following example displays FLASH information.

```
Ruijie#show disk flash
Nand flash size: 512MB
Nor flash size: 1MB
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

5 SYS Commands

5.1 calendar set

Use this command to set the hardware calendar.

calendar set { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]

Parameter Description

Parameter	Description
hour [:*minute* [:*second*]]	Sets hardware time in the format of hour: minute: second. Only the specified parameters (hour, minute, or second) can be reset. The unspecified parameters keep the current system values.
month	Sets month. The range is from 1 to 12.
day	Sets date. The range is from 1 to 31. If the day does not exist in the current month, the date is calculated backward.
year	Sets year. The range is from 1970 to 2069.

Defaults   -

Command Mode   Privileged EXEC mode

Default Level   1

Usage Guide

1. The time parameter is mandatory. After setting time, set month, day, and year, which can be neglected according to your needs. The parameter that is neglected keeps the current system value. For example, if the current hardware time is "2012-02-29 09:33:44" and you want to change month and hour and keep values of other parameters, use the **calendar set** *12 5* command to change the current time into "2012-05-29 12:33:44".

2. If the value of parameter *day* is between 1 and 31, but the current month does not contain that day, the value will be calculated backward. For example, February 2012 has 29 days. If you use the **calendar set** *11:30 2 31 2012* command to set the date to February 31, by default, the system adds two days backwards. Therefore, the current hardware time is "2012-03-02 11:30:23".

ⓘ The hardware time of the system is used as the UTC time, while the software time of the system refers to the local time of the device.

Configuration Examples

The following example changes the current hardware time of the system (for example, 2012-02-01 18:23:06) into 6 o'clock and keeps the values of other parameters.

```
Ruijie# calendar set 6
06:41:39 UTC Fri, Jul 6, 2012
```

The following example changes the current hardware time of the system (for example, 2012-02-01 18:23:06) into 06:42 and keeps the values of other parameters.

```
Ruijie# calendar set 6:42
06:42:27 UTC Fri, Jul 6, 2012
```

The following example changes the current hardware time of the system (for example, 2012-02-01 18:23:06) into March 2 and keeps the values of other parameters.

```
Ruijie# calendar set 18 3 2
18:43:05 UTC Fri, Mar 2, 2012
```

⚠ Because the *hour* parameter is mandatory, set it to the current time if you do not need to change its value. As shown in the last example, enter **18** (hour), and then enter **3** (month) and **2** (day).

Check Method	-
Platform Description	-

5.2 clock read-calendar

Use this command to enable the system to synchronize the software time with the hardware time.

clock read-calendar

Parameter Description	Parameter	Description
	-	-

Defaults	-
Command Mode	Privileged EXEC mode
Default Level	1
Usage Guide	After you configure this command, the system will synchronize the software time with the current hardware time according to the time zone and summer time settings of the device.
Configuration Examples	The following example enables the system to synchronize the software time with the hardware time.

```
Ruijie# clock read-calendar
Set the system clock from the hardware time.
```

Check Method	-
Platform	-

Description

5.3   clock set

Use this command to set the system software clock.

clock set { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]

Parameter Description

Parameter	Description
hour [:*minute* [:*second*]]	Sets software time in the format of hour: minute: second. Only the specified parameters (hour, minute, or second) can reset. The unspecified parameters keep the current system values.
month	Sets month. The range is from 1 to 12.
day	Sets date. The range is from 1 to 31. If the day does not exist in the current month, the date is calculated backward.
year	Sets year. The range is from 1970 to 2069.

Defaults   -

Command Mode   Privileged EXEC mode

Default Level   1

Usage Guide   1.   The time parameter is mandatory. After setting time, set month, day, and year, which can be neglected according to your needs. The parameter that is neglected keeps the current system value.

ⓘ   For example, if the current hardware time is "2012-02-29 09:33:44" and you want to change month and hour and keep values of other parameters, use the **clock set** *12 5* command to change the current time into "2012-05-29 12:33:44".

2.   If the value of parameter *day* is between 1 and 31, but the current month does not contain that day, the value will be calculated backward.

ⓘ   For example, February 2012 has 29 days. If you use the **clock set** *11:30* 2 31 2012 command to set the date to February 31, by default, the system adds two days backward. Therefore, the current hardware time is "2012-03-02 11:30:23".

Configuration Examples   The following example changes the current software time of the system (for example, 2012-02-01 18:23:06) into 6 o'clock and keeps the values of other parameters.

```
Ruijie# clock set 6
06:48:13 CST Fri, Mar 2, 2012
```

The following example changes the current software time of the system (for example, 2012-02-01

18:23:06) into 06:42 and keeps the values of other parameters.

```
Ruijie# clock set 6:42
06:42:31 CST Fri, Mar 2, 2012
```

The following example changes the current software time of the system (for example, 2012-02-01 18:23:06) into March 2 and keeps the values of other parameters.

```
Ruijie# clock set 18 3 2
18:42:48 CST Fri, Mar 2, 2012
```

⚠️ Because the *hour* parameter in this command is mandatory, set it to the current time if you do not need to change its value. As shown in the last example, enter **18** (hour), and then enter **3** (month) and **2** (day).

Check Method   -

Platform Description   -

5.4 clock summer-time

Use this command to set the summer time.
clock summer-time *zone* **start** *start-month* [*week*|**last**] *start-date hh:mm* **end** *end-month* [*week*| **last**] *end-date hh:mm* [**ahead** *hours-offset* [*minutes-offset*]

Use this command to disable the summer time.
no clock summer-time

Parameter Description	Parameter	Description
	zone	Summer time name. It can only be a letter between A and Z or between a and z, which is not case sensitive. The summer time name contains 3 to 31 characters.
	start	Indicates the start time of the summer time.
	start-month	Start month. Value range: January, February, March, April, May, June, July, August, September, October, November, and December. The value is not case sensitive and you are allowed to enter an incomplete word, for example, Febr and FebRu.
	week	Start week in the start month. The range is from 1 to 5.
	last	The last week of the specified month.
	start-date	Day in the start week of the start month. Value range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. The value is not case sensitive and you are allowed to enter an incomplete word, for example, Web and WeDne.
	hh:mm	Time, in the format of hour : minute.
	end	Indicates the end time of the summer time.
	end-month	End month. Value range: January, February, March, April, May, June, July, August, September, October, November, and December. The value is not case sensitive and you may enter an incomplete word, for example, Febr and FebRu.
	ahead	Indicates how much time for the summer time ahead of the standard time during the effective period of the summer time. By default, the summer time is one hour ahead of the standard time.
	hours-offset	Hours ahead of the standard time. The range is from 0 to 12. You are not allowed to set it to 00:00.
	minutes-offset	Minutes ahead of the standard time. The range is from 0 to 59. If *hours-offset* has been set to 0, you are not allowed to set *minutes-offset* to 0.

Defaults   -

Command Mode   Global configuration mode

Default Level   15

Usage Guide

Configuration Examples   Assume that the time zone name of your living place is ABC and the standard time is 8:15 ahead of UTC, namely, GMT+08:15. The summer time period starts from the first Saturday in February to the third Monday in May and the summer time is 01:20 ahead of the standard time. In this case, the summer time is

09:35 ahead of the UTC time, but non-summer time is still 08:15 ahead of the UTC time.

```
Ruijie(config)# clock timezone ABC 8 15
Set time zone name: ABC (GMT+08:15)
Ruijie(config)#show clock
16:39:16 ABC Wed, Feb 29, 2012
Ruijie(config)#show calendar
08:24:35 GMT Wed, Feb 29, 2012

Ruijie(config)# clock summer-time TZA start Feb 1 sat 2:00 end May 3 Monday 18:30 ahead 1 20
*May 10 03:45:58: %SYS-5-CLOCKUPDATE: Set summer-time: TZA from February the 1st Saturday at 2:00
TO May the 3rd Monday at 18:30, ahead 1 hour 20 minute
Set summer-time: TZA from February the 1st Saturday at 2:00 TO May the 3rd Monday at 18:30, ahead
1 hour 20 minute

Ruijie# show clock
18:00:08 TZA Wed, Feb 29, 2012

# If the time is set to non-summer time, the time zone name is restored to ABC.
Ruijie#clo set 18 1 1
*Jan  1 18:00:09: %SYS-5-CLOCKUPDATE: Set system clock: 18:00:09 ABC Sun, Jan  1, 2012
Set system clock: 18:00:09 ABC Sun, Jan  1, 2012
Ruijie#show clock
18:00:12 ABC Sun, Jan  1, 2012
```

If the system uses the default summer time that is one hour ahead of the standard time, ahead and the parameters behind ahead can be neglected. For example, set the summer time to start from 2:00 a.m. of the first Sunday in April to 2:00 a.m. of the last Sunday in October and set the summer time to one hour ahead of the standard time.

```
Ruijie(config)#clo summer-time PDT start April 1 sunday 2:00 end October last Sunday 2:00
*May 10 03:15:05: %SYS-5-CLOCKUPDATE: Set summer-time: PDT from April the 1st Sunday at 2:00 TO
October the last Sunday at 2:00, ahead 1 hour
Set summer-time: PDT from April the 1st Sunday at 2:00 TO October the last Sunday at 2:00, ahead
1 hour
```

The following example disables summer time.

```
Ruijie(config)#no clock summer-time
*Jan  1 18:01:09: %SYS-5-CLOCKUPDATE: Set no summer time.
Set no summer time.
```

Check Method	-
Platform Description	-

5.5 clock timezone

Use this command to set the time zone.

clock timezone [*name hours-offset* [*minutes-offset*]]

Use this command to remove the time zone settings.

no clock timezone

Parameter Description	Parameter	Description
	name	Time zone name. It can only be a letter between A and Z or between a and z, which is not case sensitive. The name contains 3 to 31 characters.
	hours-offset	Hours of time difference. It indicates whether the time is faster or smaller than the hardware UTC time. The range is from -12 to 12. The negative digit indicates that the time is slower than the hardware time, while the positive digit indicates that the time is faster than the hardware time.
		ⓘ If the time is slower than the UTC time, add "-" before *hours-offset*.
	minutes-offset	Minutes of time difference. The range is from 0 to 59.

Defaults   -

Command Mode   Global configuration mode

Default Level   15

Usage Guide   This command is supported only in vsd0.

Configuration Examples

The following example sets the time zone name to CST. The software time is 8 hours faster than the hardware time.

```
Ruijie(config)# clock timezone CST 8
Set time zone name: CST (GMT+08:00)

Ruijie# show clock
18:00:17 CST Wed, Dec 5, 2012
```

The following example sets the time zone name TZA. The software time is 06:13 slower than the hardware time.

```
Ruijie(config)# clock timezone TZA -6 13
Set time zone name: TZA (GMT-06:13)
```

The following example removes the time zone settings.

```
Ruijie(config)# no clock timezone
```

```
Set no clock timezone.
```

Check Method -

Platform Description -

5.6 clock update-calendar

Use this command to enable the system to synchronize the hardware time with the software time.

clock update-calendar

Parameter Description	Parameter	Description
	-	-

Defaults -

Command Mode Privileged EXEC mode

Default Level 1

Usage Guide This command is supported only in vsd0.

After you configure this command, the system will synchronize the hardware time with the current software time according to the time zone and summer time settings of the device.

Configuration Examples The following example enables the system to synchronize the hardware time with the software time.

```
Ruijie# clock update-calendar
Set the hardware time from the system clock.
```

The following example sets the time zone of the hardware time to GMT+5:10, which indicates that the hardware time is 5:10 slower than the software time. The summer time is not set.

```
Ruijie# show clock
09:30:21 TSZ Wed, Feb 29, 2012

Ruijie# clock update-calendar
Set the hardware time from the system clock.

Ruijie#show calendar
04:20:25 UTC Wed, Feb 29, 2012
```

The following example sets the hardware time. If it is set to GMT+5:10 and the summer time is set to be 1:15 faster from the first Monday in February 1 to the second Sunday in June 1, it indicates that the

hardware time is 6:25 slower than the software time during the effective period of the summer time.

```
Ruijie# show clock
09:30:02 TSZ Wed, Feb 29, 2012


Ruijie# clock update-calendar
Set the hardware time from the system clock.


Ruijie#show calendar
03:05:08 UTC Wed, Feb 29, 2012
```

Check Method   -

**Platform
Description**   -

5.7   cpu high-watermark set

Use this command to set the high watermark of the CPU usage of the control core and enable CPU usage monitoring.

cpu high-watermark set [[**high** *high-value*] [**range** *range-value*]]

Use this command to disable CPU usage monitoring.

no cpu high-watermark set

Use this command to restore the default settings.

default cpu high-watermark set

Parameter Description	Parameter	Description
	high *high-value*	Sets the high watermark of the CPU usage. The range is from 2 to 99.
	range *range-value*	Sets the watermark fluctuation range. The range is from 1 to 20.

Defaults
By default, the watermark of the CPU usage is 80% and the watermark fluctuation range is 5% (namely, the range of the CPU usage watermark is from 75% and 85%).

Command Mode
Global configuration mode

Default Level
15

Usage Guide
This command is supported only in vsd0.
You can use this command to set the high watermark of the CPU usage and enable CPU usage monitoring. When detecting that the CPU usage exceeds the fluctuation range of the highest watermark, the system prints prompts.

Configuration Examples
The following example sets the CPU usage watermark to the default value and enables CPU usage monitoring (if it is disabled).

```
Ruijie(config)# default cpu high-watermark set
Reset default cpu watermark monitor
set system cpu watermark high 80%(75%~85%)
```

The following example disables CPU usage monitoring.

```
Ruijie(config)# no cpu high-watermark set
Close cpu watermark monitor
```

The following example enables CPU usage monitoring. Keep the defined watermark value.

```
Ruijie(config)# cpu high-watermark set
Open cpu watermark monitor
set system cpu watermark high 80%(75%~85%)
```

The following example enables CPU usage monitoring and sets the high watermark to 88% and fluctuation range to 3%.

```
Ruijie(config)# cpu high-watermark set high 88 range 3
Open cpu watermark monitor
set system cpu watermark high 88%(85%~91%)
```

In this case, the high watermark is set to 88%. The upper limit of the high watermark is 91% (88%+3%) and the lower limit is 85% (88%-3%).

Check Method
-

Prompt Message
If the high watermark of the CPU usage is allowed to fluctuate from 85% to 91%, the system will print the following warning message when the CPU usage exceeds the upper limit of the high watermark:

```
*Jan 19 16:23:01: %RG_SYSMON-4-CPU_WATERMARK_HIGH: warning! system cpu usage above high
watermark(85%),current cpu usage 100%
```

When the CPU usage is less than the lower limit of the high watermark, the system will print the following message about warning release:

```
*Jan 20 07:02:52:  %RG_SYSMON-5- CPU_WATERMARK:withdraw warning! system cpu usage below high
watermark(85%), current cpu usage 36%
```

Platform Description	-

5.8 memory low-watermark set

Use this command to set the low watermark threshold of the memory and enable the memory low watermark detection.

memory low-watermark set *mem-value*

Use the **no** or **default** form of this command to disable the detection of memory low watermark.

no memory low-watermark set

Parameter Description	**Parameter**	**Description**
	mem-value	Memory watermark threshold. The range is from 1 % to 100%.

Defaults	By default, the detection of memory low watermark is 90%.

Command Mode	Global configuration mode

Default Level	15

Usage Guide	You can use this command to enable the detection of the memory low watermark and set the memory watermark threshold.

Configuration Examples

The following example sets the low watermark threshold of the memory to 80% and enables detection.

```
Ruijie(config)#memory low-watermark set 80
```

Check Method	-

Prompt Message	

Platform Description	-

5.9   memory history clear

Use this command to clear the history of the memory usage.

memory history clear [**one-forth | half | all**]

Parameter	**Description**
one-forth	Clears one fourth entries.
half	Clears a half of entries.
all	Clears all the entries.

Parameter Description (label for above table)

Defaults -

Command Mode Global configuration mode

Default Level 15

Usage Guide -

Configuration Examples

The following example clears a half of the history of the memory usage.

```
Ruijie# show memory history


Time Thu Jan  1 00:24:45 1970
Used(k) 148516
Maximum memory users for this period
Process Name    Holding
tcpip.elf       270028
cli-memory      60600
rg_syslogd      36640


Time Thu Jan  1 00:24:41 1970
Used(k) 148492
Maximum memory users for this period
Process Name    Holding
tcpip.elf       270028
cli-memory      52408
rg_syslogd      36640


Time Thu Jan  1 00:24:41 1970
Used(k) 148444
Maximum memory users for this period
Process Name    Holding
tcpip.elf       270028
```

```
cli-memory       44088
rg_syslogd       36640


Ruijie(config)#memory history clear half
2 out of 5 records in the history table to be cleared...
Clear done !
```

Check Method   -

Prompt
Message   -

Platform
Description   -

5.10 reload

Use this command to reload the device.

reload [**at** { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]

Parameter Description	Parameter	Description
	hour [:*minute* [:*second*]]	Sets the restart time in the format of hour : minute : second. Other neglected parameters keep the current system values.
	month	Sets the month, in the range from 1 to 12.
	day	Sets the day, in the range from 1 to 31.
	year	Sets the year, in the range from 1970 to 2069.

Defaults   -

Command
Mode   Privileged EXEC mode

Default Level   15
Usage Guide   -

Configuration   The following example reloads the device.
Examples
```
Ruijie# reload
Reload system?(Y/N) Y
Sending all processes the TERM signal...                              [  OK  ]
Sending all processes the KILL signal...                             [  OK  ]
Restarting system...
```

Check Method   -

Prompt Message	-

Platform Description	-

5.11 show calendar

Use this command to display the hardware calendar.

show calendar

Parameter Description	Parameter	Description
	-	-

Command Mode	Privileged EXEC mode/ global configuration mode

Default Level	1

Usage Guide	-

Configuration Examples	The following example displays the hardware calendar.

```
Ruijie# show calendar
21:57:48 GMT Sun, Feb 28, 2012
```

Prompt Message	-

Platform Description	-

5.12 show clock

Use this command to display the system software clock.

show clock

Parameter Description	Parameter	Description
	-	-

Command	Privileged EXEC mode / global configuration mode

Mode

Default Level   1

Usage Guide   -

Configuration   The following example displays the software clock when the time zone is disabled.
Examples
```
Ruijie# show clock
18:22:20 UTC Tue, Dec 11, 2012
```

The following example displays the software clock when the time zone is enabled.
```
Ruijie# show clock
03:07:49 TSZ Wed, Feb 29, 2012
```

Prompt
Message   -

Platform
Description   -

5.13 show memory

Use this command to display the system memory.

show memory [**sorted total | history | low-watermark |** *process-id* **|** *process-name*]

Parameter
Description

Parameter	Description
sorted total	Ranked according to the memory usage.
history	Displays the history of memory usage.
low-watermark	Displays the memory low watermark threshold of the system.
process-id	Displays the memory usage of the task specified by *process-id*.
process-name	Displays the memory usage of the task specified by *process-name*.

Command   Privileged EXEC mode/ global configuration mode
Mode

Default Level   15

Usage Guide   Every time when the **show memory history** command is used, the number of displayed entries increases
                     by one. Up to 10 entries can be displayed. You can use the **memory history clear** command to clear
                     history entries.

Configuration   The following example displays the memory usage of each task and the ranking (based on the total

Examples   memory usage).

```
Ruijie# show memory sorted
System Memory: 508324K total, 481560K used, 26764K free, 31.5% used rate
Used detail:  149112K active, 247776K inactive, 30460K mapped, 50460K slab, 3752K others


PID     Text(K) Rss(K)  Data(K)        Stack(K) Total(K)       Process
807     1568    4584    264728         84       270028         tcpip.elf
854     40      1436    246076         84       248840         cli-filesystem
1237    52      1492    123260         84       126036         cli-memory
803     56      1104    74064          84       76920          ping.elf
727     84      1276    33812          84       36640          rg_syslogd
733     84      796     33536          84       36364          rg_syslogd
776     224     1416    16896          84       19800          lsmdemo
858     40      1324    16844          84       19612          rg-tty-admin
769     40      3600    11052          84       13812          skbdemo
--More--
```

Description of some keywords in the command:

Keyword	Description
total	Total system memory
used	Used memory
free	Remaining memory
used rate	Memory usage (percentage)
Active	Active page
inactive	Inactive page
mapped	Mapped memory
slab	Memory consumed by Slab
others	Memory capacity of the used memory except the memory used by active and inactive pages, mapped memory, and slab memory.

Description of the displayed information on each task:

Field	Description
PID	Process ID
Text	Code segment size
Rss	Resident memory size
Data	Data segment size
Stack	Stack size
Total	Total used memory
Process	Task name

Prompt
Message   -

Platform Description   -

5.14 show memory vsd

Use this command to display memory information.

show memory vsd *vsd_id*

Parameter Description

Parameter	Description
vsd_id	VSD ID is a digit. You can use the **show vsd** command to display the ID of each VSD. The ID range is from 0 to 16.

Command Mode   Privileged EXEC mode/ global configuration mode

Default Level   15

Usage Guide

⊗   This command is supported only in VSD0 mode.

Configuration Examples

The following example displays the memory usage of each task in VSD 1 mode.

```
Ruijie#show memory vsd 1
PID     Text    Rss     Data    Stack   Total   Process
1408    244     1192    25400   84      32164   tty_secu_enable
1385    104     16288   648     84      18648   gvpd
1384    304     3872    17084   84      24728   wbamain
1382    376     17708   33656   84      53308   snooping.elf
1381    84      2156    16736   84      22956   password_policy
1380    72      1096    404     84      3848    dns_client.elf
1379    168     2580    472     84      5352    rg-rmond
1378    652     3504    9768    84      15964   rg-snmpd
1376    208     1452    10672   84      14872   rg-fsui
1375    116     2020    33464   84      37288   rg-telnetc
1373    24      844     220     84      2824    rg-telnetd
1372    724     2364    17016   84      24380   rg-sshd
1371    244     2996    35780   84      42544   rg-tty-admin
1365    132     2168    9004    84      13796   vrrp_plus.elf
1364    312     16944   764     84      20368   vrrp.elf
1363    124     16988   500     84      19744   lacp.elf
1358    24      1380    320     84      3536    ftpc_cli.elf
1357    124     1944    8552    84      14976   ftp_server.elf
1352    340     3032    74704   84      80768   dhcp6.elf
1351    312     1960    988     84      6116    dhcp.elf
1350    388     17808   920     84      21600   mstp.elf
```

1349	240	3876	976	84	9536	rpi.elf
1348	1316	4656	1004	84	10764	isis.elf
1347	212	4220	872	84	9368	ripng.elf
1345	460	4284	876	84	9656	rip.elf
1344	1800	5568	1572	84	12156	bgp.elf
1340	1084	4700	1024	84	10928	ldp.elf
1339	288	17684	556	84	21472	msf.elf
1338	208	3604	42712	84	47708	rg-syslogd

--More--

| Prompt Message | - |

| Platform Description | - |

5.15 show pci-bus

Use this command to display the information on the device mounted to the PCI bus.

show pci-bus

Parameter Description	Parameter	Description
	-	-

| Command Mode | Privileged EXEC mode/ global configuration mode |

| Default Level | 1 |

| Usage Guide | - |

| Configuration Examples | The following example displays the information on the device mounted to the PCI bus. |

```
Ruijie# show pci-bus
NO:0
Vendor ID             : 0x1131
Device ID             : 0x1561
Domain:bus:dev.func   : 0000:00:05.0
Status / Command      : 0x2100000
Class / Revision      : 0xc031030
Latency               : 0x0
first 64 bytes of configuration address space:
00: 31 11 61 15 00 00 10 02 30 10 03 0c 20 00 80 00
10: 00 00 00 f0 00 00 00 00 00 00 00 00 00 00 00 00
20: 00 00 00 00 00 00 00 00 00 00 00 00 31 11 61 15
30: 00 00 00 00 dc 00 00 00 00 00 00 00 29 01 01 2a

NO:1
Vendor ID             : 0x1131
Device ID             : 0x1562
Domain:bus:dev.func   : 0000:00:05.1
Status / Command      : 0x2100156
Class / Revision      : 0xc032030
Latency               : 0x30
```

```
First 64 bytes of configuration address space:
00: 31 11 62 15 56 01 10 02 30 20 03 0c 20 30 80 00
10: 00 10 00 f0 00 00 00 00 00 00 00 00 00 00 00 00
20: 00 00 00 00 00 00 00 00 00 00 00 00 00 31 11 62 15
30: 00 00 00 00 dc 00 00 00 00 00 00 00 29 01 02 10
```

Prompt Message	-

Platform Description	-

5.16 show processes cpu

Use this command to display system task information.

show processes cpu [**history** [**table**] | [**5sec | 1min | 5min | 15min**] [**nonzero**]]

Parameter Description	Parameter	Description
	**5sec	1min	5min	15min**	Displays lists of tasks in descending order of CPU usage within the last five seconds, one minute, five minutes, and 15 minutes.
	Nonzero	Does not display the task with 0 CPU usage.
	History	Displays the CPU usage of the control core within the last 60 seconds, 60 minutes, and 72 hours in histogram.
	Table	Displays the CPU usage of the control core within the last 60 seconds, 60 minutes, and 72 hours in table.

Command Mode	Privileged EXEC mode/ global configuration mode

Default Level	15

Usage Guide	This command is supported only in vsd0.

Configuration Examples	The following example displays the tasks listed in ascending order of task IDs.

```
Ruijie# show processes cpu
System Uptime: 19:08.6
CPU utilization for five seconds:1.2%; one minute:0.8%; five minutes:0.8%
set system cpu watermark (open): high 80%(85%~75%)

Tasks Statistics: 375 total, 10 running, 365 sleeping, 0 stopped, 0 zombie
  Pid Vsd S   PRI  P      5Sec       1Min       5Min      15Min Process
    1   0 S    20  0   0.0(0.0)    0.0(0.0)    0.0(0.0)    0.0(0.0) init
    2   0 S    20  1   0.0(0.0)    0.0(0.0)    0.0(0.0)    0.0(0.0) kthreadd
```

```
    3    0 S  -100  0    0.0(0.0)    0.0(0.0)    0.0(0.0)    0.0(0.0) migration/0
    4    0 S    20  0    0.0(0.0)    0.0(0.0)    0.0(0.0)    0.0(0.0) ksoftirqd/0
    5    0 S  -100  1    0.0(0.0)    0.0(0.0)    0.0(0.0)    0.0(0.0) migration/1


--More--
```

The following example displays the tasks listed in ascending order of task IDs without displaying the tasks with 0 CPU usage within 15 minutes.

```
Ruijie# show processes cpu nonzero
```

Description of the information displayed in this command:

Field	Description
System Uptime	Total running time of the device, precious to seconds.
CPU Utilization	Total CPU usage of the control core within the last five seconds, one minute, and five minutes.
Virtual CPU usage	Total CPU usage of the virtual control core within the last five seconds, one minute, and five minutes.
Tasks Statistics	Task statistics information, including the total number of statistics tasks and the task status.
set system cpu watermark	CPU watermark value and status of the control core.

The task running statuses are listed below:

Task Running Status	Description
running	Running task
sleeping	Suspended task
stopped	Stopped task
zombie	Terminated task, but not reclaimed by the system

Description of each task:

Field	Description
Pid	Task ID
Vsd	VSD ID
S	Task status. Five statuses in total: R (running), T (stopped), S (sleeping), D (waiting), and Z (zombie).
PRI	Task running priority
P	The core of the CPU on which the task runs
5sec/1min/5min/15min	CPU usage of the task within the last five seconds, one minute, five minutes, and 15 minutes. The value in the round brackets is the CPU usage that is not divided by the total number of cores where the task runs.
Process	Task name. Only the first 15 characters are displayed. The remaining characters are truncated.

The following example displays the CPU usage in ascending order of task IDs and only the processes with non-zero CPU usage within 15 minutes are displayed.

```
Ruijie #show processes cpu nonzero
```

The following example displays the CPU usage in descending order within five seconds and the tasks with zero CPU usage within one second are not displayed.

```
Ruijie #show processes cpu 5sec nonzero
```

The following example displays the CPU usage of the control core in histograms within the last 60 seconds, 60 minutes, and 72 hours.
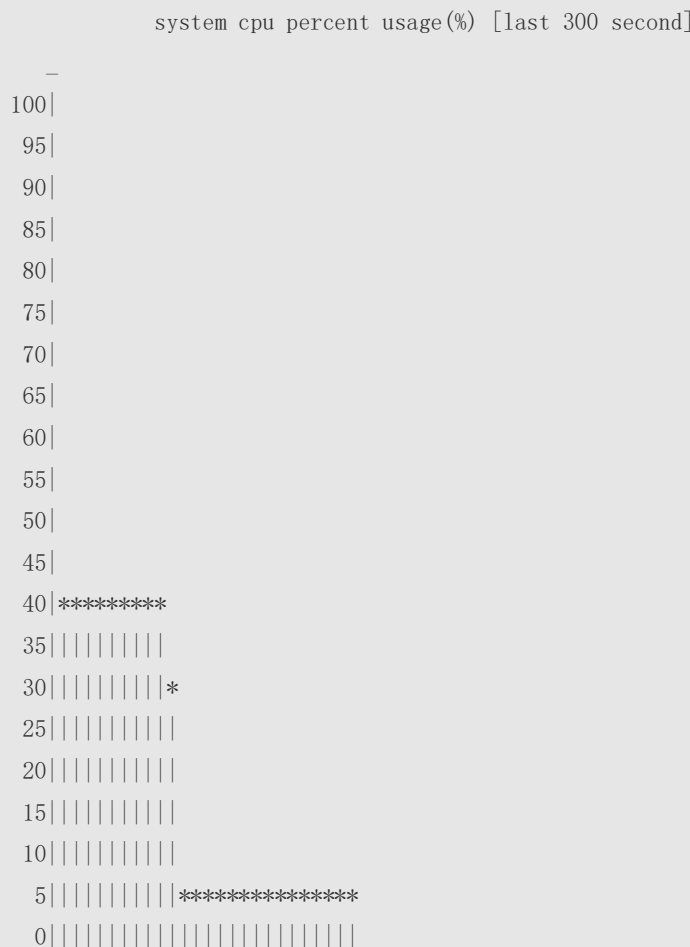
The first histogram displays the CPU usage of the control core within 300 seconds. Every segment in the x-coordinate is five seconds, and every segment in the y-coordinate is 5%. The symbol "*" indicates the CPU usage at the last specified second. In other words, the first segment on the x-coordinate nearest to 0 is the CPU usage in the last five seconds, measured in %.

The second histogram displays the CPU usage of the control core within the last 60 minutes, measured in %. Every segment on the x-coordinate is 1 minute.

The third histogram displays the CPU usage of the control core within the last 72 hours, measured in %. Every segment on the x-coordinate is 1 hour.

Example:

```
Ruijie#show processes cpu history

            system cpu percent usage(%) [last 300 second]

     _
 100|
  95|
  90|
  85|
  80|
  75|
  70|
  65|
  60|
  55|
  50|
  45|
  40|********
  35||||||||||
  30||||||||||*
  25|||||||||||
  20|||||||||||
  15|||||||||||
  10|||||||||||
   5|||||||||||*|**************
   0||||||||||||||||||||||||||||||
```

```
    #========#========#=====*==>
  0        50       100      second
       system cpu percent usage(%) per 5second (last 125 second)
------------------------------------------------------------------------------------



            system cpu percent usage(%) [last 60 minute]
     _
100|
 95|
 90|
 85|
 80|
 75|
 70|
 65|
 60|
 55|
 50|
 45|
 40|
 35|
 30|*
 25||
 20||
 15||
 10||
  5||*
  0|||
   #==*==>
   0     minute
       system cpu percent usage(%) per 1minute (last 2 minute)
------------------------------------------------------------------------------------
```

The following example displays the CPU usage of the core 0 in tables within the last 60 seconds, 60 minutes, and 72 hours.

The first table lists the CPU usage within 300 seconds. The first cell indicates the CPU usage within the last five seconds.

The second table lists the CPU usage within the last 60 minutes, measured in %. The two adjacent cells show the CPU usage measured at an interval of one minute.

The third table lists the CPU usage within the last 72 hours, measured in %. The two adjacent cells show the CPU usage measured at an interval of one hour.

Example:

```
Ruijie #show processes cpu history table
            system cpu percent usage(%) [last 300 second]
```

```
#------------------------------------------------------------------------------#
|        |    1|    2|    3|    4|    5|    6|    7|    8|    9|   10|
#------------------------------------------------------------------------------#
#------------------------------------------------------------------------------#
|     0|  2.0|  2.4|  2.3|  2.3|  2.8|  3.0|  2.7|  3.2|  2.6|  2.4|
#------------------------------------------------------------------------------#
|     1|  2.7|  2.5|  2.7|  2.2|  2.4|  2.6|  2.2|  2.7|  2.3|  2.5|
#------------------------------------------------------------------------------#
|     2|  2.9|  2.0|  2.4|  2.5|  2.7|  2.4|  2.4|  2.6|  2.6|  2.5|
#------------------------------------------------------------------------------#
|     3|  2.7|  2.8|  2.8|  3.2|  2.5|  3.2|  3.1|  4.0|  2.7|  2.7|
#------------------------------------------------------------------------------#
|     4|  4.0|  2.3|  2.1|  2.2|  2.7|  2.4|  2.5|  2.6|  2.4|  2.6|
#------------------------------------------------------------------------------#
|     5|  2.4|  3.2|  2.5|  2.3|  2.3|  3.6|  2.8|  2.5|  2.2|  2.4|
#------------------------------------------------------------------------------#

              system cpu percent usage(%) [last 60 minute]
#------------------------------------------------------------------------------#
|        |    1|    2|    3|    4|    5|    6|    7|    8|    9|   10|
#------------------------------------------------------------------------------#
#------------------------------------------------------------------------------#
|     0|  2.6|  2.5|  3.0|  2.4|  2.6|
#------------------------------------------------------------------------------#
```

Prompt Message	-

Platform Description	-

5.17 show processes cpu detailed

Use this command to display the details of the specified task.

show processes cpu detailed { *process-id* | process-*name* }

Parameter Description	Parameter	Description
	process-id	Displays the information on the task of the specified task ID.
	process-name	Displays the information on the task of the specified task name.

Command Mode	Privileged EXEC mode/ global configuration mode

Default Level   15

Usage Guide   This command is supported only in vsd0.

Configuration   The following example displays the information on the task of the specified task name.
Examples
```
Ruijie# show processes cpu detailed demo
Process Id    : 1820
Process Name  : demo
Vsdid         : 0
Process Ppid  : 1

State         : R(running)
On CPU        : 0
Priority      : 20
Age Time      : 24:06.5
Run Time      : 00:01.0
Cpu Usage     :
    Lass  5 sec    0.3% (0.6%)
    Lass  1 min    0.3% (0.6%)
    Lass  5 min    0.3% (0.6%)
    Lass 15 min    0.3% (0.6%)
Tty           : ?
```

🛈   Code Usage: 209.6 KB. If the specified task name is not unique, the system displays the following
     message:

```
Ruijie# show processes cpu detailed demo
duplicate process, choose one by id not name.
name: demo, id: 1089, state: S(sleeping)
name: demo, id: 1091, state: R(running)
process name: monitor_procps, do NOT exist, or NOT only one.
```
Description of the displayed information:

Field	Description
Process Id	Task ID
Vsdid	VSD ID of the task
Process Name	Task name
Process Ppid	Parent process task ID
State	Task running status
On CPU	CPU where the task is running
Priority	Task priority
Age Time	Duration for the task from self-startup to now
Run Time	Duration for the task from self-startup to being executed

	CPU usage of the task within the last five seconds, one minute, five minutes, and 15 minutes.
Cpu Usage	The value in the round brackets is the CPU usage that is not divided by the total number of cores where the task runs. For example, the demo task is running on No.0 core, which is the control core and the system has two control cores. In this case, the CPU usage is 0.3% (0.6%).
Tty	Tty ID, in the format of "Primary device ID, secondary device ID". If it is 0, the value is **?**.
Code Usage	Size occupied by the task code segment

The following example displays the information on the task of the specified task ID.

```
Ruijie# show process cpu detailed 1715
```

Prompt Message   -

Platform Description   -

5.18 show version

Use this command to display the system version information.

show version

Parameter Description

Parameter	Description
-	-

Command Mode   Privileged EXEC mode/ global configuration mode

Default Level   1

Usage Guide   -

Usage Guide   The following example displays the system version information.

```
Ruijie# show version
System description    : Ruijie Indoor AP320-I (802.11a/n and 802.11b/g/n) By Ruijie Networks
System start time     : 2012-12-06 00:00:00
System uptime         : 0:03:20:07
System hardware version : 1.0.0
System software version : AP_RGOS11.0(1B1)
System serial number  : 1234942570018
System boot version   : 1.0.0
```

Prompt Message	-

Platform Description	-

5.19 show cpu

Use this command to display the information on the system task running on the control core instead of the non-virtual core.

show cpu

Parameter Description	**Parameter**	**Description**
	-	-

Command Mode	Privileged EXEC mode/ global configuration mode

Default Level	15

Usage Guide	This command is supported only in vsd0. If the system is equipped with a virtual core, you can use the **show processes cpu** command to check the CPU usage of the virtual core.

Configuration Examples	The following example displays the information on the system task running on the control core instead of the non-virtual core.

```
Ruijie#show cpu
=============================================
CPU Using Rate Information
CPU utilization in five seconds:  4.80%
CPU utilization in one minute:  4.10%
CPU utilization in five minutes:  4.00%

 NO     5Sec    1Min    5Min Process
    1   0.00%   0.00%   0.00% init
    2   0.00%   0.00%   0.00% kthreadd
    3   0.00%   0.00%   0.00% ksoftirqd/0
    4   0.00%   0.00%   0.00% events/0
--More--
```

Prompt	-

Message

| **Platform** | - |
| **Description** | |

5.20 show reboot-reason

Use this command to display the reboot reason.

show reboot-reason [*all*]

Parameter	**Parameter**	**Description**
Description	*all*	Displays the reboot reason of all devices/service modules

| **Command** | Privileged EXEC mode/ global configuration mode/ User EXEC mode |
| **Mode** | |

| **Default Level** | - |

| **Usage Guide** | - |

| **Configuration** | The following example displays the reboot reason of the device. |
| **Examples** | |

```
Ruijie#show reboot-reason
time: 1970-01-01 08:03:13
reason: reload cmd
info: /sbin/rg-sysmon/3844

Ruijie#
```

| **Prompt** | - |
| **Message** | |

| **Platform** | - |
| **Description** | |

6 Time Range Commands

6.1 absolute

Use this command to configure an absolute time range.

absolute { [**star**t *time date*] [**end** *time date*] }

Use the **no** form of this command to remove the absolute time range.

no absolute

Parameter	Description
start *time date*	Indicates the start time of the range.
end *time date*	Indicates the end time of the range.

Parameter Description (label for table above)

Defaults   No absolute time range is configured by default.

Command Mode   Time range configuration mode

Default Level   14

Usage Guide   Use the **absolute** command to configure a time absolute time range between a start time and an end time to allow a certain function to take effect within the absolute time range.

Configuration Examples   The following example creates a time range and enters time range configuration mode.

```
Ruijie(config)# time-range no-http
Ruijie(config-time-range)#
```

The following example configures an absolute time range.

```
Ruijie(config-time-range)# absolute start 1:1 1 JAN 2013 end 1:1 1 JAN 2014
```

Check Method   Use the **show time-range** [*time-range-name*] command to display the time range configuration.

Prompt Message   -

Platform Description   -

6.2 periodic

Use this command to configure periodic time.

periodic *day-of-the-week time* **to** [*day-of-the-week*] *time*

Use the **no** form of this command to remove the configured periodic time.

no periodic *day-of-the-week time* **to** [*day-of-the-week*] *time*

Parameter Description	Parameter	Description
	day-of-the-week	Indicates the week day when the periodic time starts or ends.
	time	Indicates the exact time when the periodic time starts or ends.

Defaults No periodic time is configured by default.

Command Mode Time range configuration mode

Default Level 14

Usage Guide Use the **periodic** command to configure a periodic time interval to allow a certain function to take effect within the periodic time. It is recommended to disassociate time range before you change the periodic time and associate it again after you change the periodic time.

Configuration Examples The following example creates a time range and enters time range configuration mode.

```
Ruijie(config)# time-range no-http
Ruijie(config-time-range)#
```

The following example configures a periodic time interval.

```
Ruijie(config-time-range)# periodic Monday 1:1 to Tuesday 2:2
```

Check Method Use the **show time-range** [*time-range-name*] command to display the time range configuration.

Prompt Message -

Platform Description -

6.3 show time-range

Use this command to display the time range configuration.

show time-range [*time-range-name*]

Parameter Description	Parameter	Description
	time-range-name	Displays a specified time range.

Command Mode	Privileged EXEC mode

Default Level	14

Usage Guide	Use this command to check the time range configuration.

Configuration Examples	The following example displays the time range configuration.

```
Ruijie# show time-range
time-range entry: test (inactive)
  absolute end 01:02 02 February 2012
```

Prompt Message	-

Platform Description	-

6.4 time-range

Use this command to create a time range and enter time range configuration mode.

time-range *time-range-name*

Use the **no** form of this command to remove the configured time range.

no time-range *time-range-name*

Parameter Description	Parameter	Description
	time-range-name	Time range name

Defaults	No time range is configured by default.

Command Mode	Global configuration mode

Default Level	2

Usage Guide	Some applications (such as ACL) may run based on time. For example, an ACL can be effective within

certain time ranges of a week. To this end, first you must configure a time range. After the time range is created, you can configure relevant time control in time range mode.

Configuration Examples	The following example creates a time range.

```
Ruijie(config)# time-range no-http
Ruijie(config-time-range)#
```

Check Method	Use the **show time-range** [*time-range-name*] command to display the time range configuration.

Prompt Message	-

Platform Description	-

7　HTTP Service Commands

7.1　enable service web-server

Use this command to enable the HTTP service function.

Use the **no** or **default** form of this command to disable the HTTP service function.

enable service web-server [**http** | **all**]

{ no | default } enable service web-server [**http** | **all**]

Parameter Description	Parameter	Description
	http	Enables the HTTP service.
	all	Enables both the HTTP service and the HTTPS service.

Defaults　　By default, the HTTP service function is disabled.

Command mode　　Global configuration mode.

Usage Guide　　If run a command ends with the keyword **all** or without keyword, it indicates enabling both the HTTP service.

Use the command **no enable service web-server** or **default enable service web-server** to disable the corresponding HTTP service.

Configuration Examples　　The following example enables both the HTTP service:

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#enable service web-server
```

Related Commands	Command	Description
	N/A	N/A

Platform Description　　N/A

7.2　http port

Use this command to configure the HTTP port number.

Use the **no** form of this command to restore the default HTTP port number.

http port *port-number*

no http port

Parameter Description	Parameter	Description
	port-number	Configures the HTTP port number. The value includes 80, 1025 to 65,535.

Defaults   The default HTTP port number is 80.

Command mode   Global configuration mode.

Usage Guide   Use this command to configure the HTTP port number.

Configuration Examples   The following example configures the HTTP port number as 8080:

```
Ruijie(config)#http port 8080
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

7.3   show web-server status

Use this command to display the configuration and status of the Web service.

show web-server status

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example displays the configuration and status of the Web service:

```
Ruijie#show web-server status
http server status : enabled
```

```
http server port : 80
https server status: enabled
https server port: 443
```

Related
Commands

Command	Description
enable service web-server	Enables the HTTP service.
http port	Configures the HTTP port number.
http secure-port	Configures the HTTPS port number.

Platform   N/A
Description

7.4 upgrade web

Use this command to upgrade the Web package in local file system.
upgrade web *uri*

Parameter
Description

Parameter	Description
uri	The storage path of the Web package.

Defaults   N/A

Command   Privileged EXEC mode
mode

Usage Guide   Please use the **copy** command to copy the Web package into the file system before you use this
command to upgrade the Web package.

Configuration   The following example copies a Web package into the file system and upgrades the package.
Examples
```
Ruijie#copy tftp://192.168.23.24/web.upd flash:/web.upd
Ruijie#upgrade web flash:/web.upd
```

Related
Commands

Command	Description
enable service web-server	Enables the HTTP service.

Platform   N/A
Description

7.5 upgrade web download

Use this command to download the Web package from the TFTP server and upgrade the package automatically.

upgrade web download tftp: *path*

Parameter Description	Parameter	Description
	tftp: *path*	*path* indicates the storage path of the Web package on the TFTP server. **tftp** indicates the system downloads the Web package from the TFTP server through the physical port and upgrades the Web package automatically.

Defaults	N/A

Command mode	Privileged EXEC mode.

Usage Guide	N/A

Configuration Examples	The following example downloads a Web package from the TFTP server and upgrades the package automatically.

```
Ruijie#upgrade web download tftp://192.168.23.24/web.upd
```

Related Commands	Command	Description
	enable service web-server	Enables the HTTP service.

Platform Description	N/A

7.6 webmaster level

Use this command to configure the username and password for Web login authentication. Use the **no** form of this command to restore the default setting.

webmaster level *privilege-level* **username** *name* **password** { *password* | [**0** | **7**] *encrypted-password* }

no webmaster level *privilege-level* [**username** name]

Parameter Description	Parameter	Description
	privilege-level	Configures the user privilege-level.

name	Username.
password	Password.
0	**7**	Password type; 0 indicates plaintext, 7 indicates ciphertext.
encrypted-password	Password text.

Defaults   By default, two users are configured.

1. User1 is configured with privilege level 1, username of admin and plaintext password of admin.

2. User2 is configured with privilege level 2, username of guest and plaintext password of guest.

Command   Global configuration mode.

mode

Usage Guide   When HTTP is enabled, users can log in to the Web interface only after being authenticated. Use this command to configure the username and password for Web login authentication.

Use the **no webmaster level** privilege-level command to delete all the usernames and passwords with a specified privilege-level.

Use the **no webmaster level** privilege-level **username** name command to delete the specified username and password.

> Usernames and passwords come with three permission levels, each of which includes at most 10 usernames and passwords.

Configuration   The following example configures the username and password for Web login authentication,

Examples

```
Ruijie(config)#webmaster level 0 username ruijie password admin
```

Related

Commands

Command	Description
enable service web-server	Enables the HTTP service.

Platform   N/A

Description

8 Syslog Commands

8. 1 clear logging

Use this command to clear the logs from the buffer in privileged EXEC mode.

clear logging

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   This command clears the log packets from the memory buffer. You cannot clear the statistics of the log packets.

Configuration Examples   The following example clears the log packets from the memory buffer.

```
Ruijie# clear logging
```

Related Commands	Command	Function
	logging on	Turns on the log switch.
	show logging	Displays the logs in the buffer.
	logging buffered	Records the logs in the memory buffer.

Platform Description   N/A

8.2 logging

Use this command to send the log message to the specified syslog server.

logging { *ip-address* } [**udp-prot** *port*]

Use this command to delete the specified syslog server.

no logging { *ip-address*] }

Use this command to restore the default port 514.

no logging { *ip-address* } **udp-prot**

Parameter Description	Parameter	Description

ip-address	Sets the IP address of the host receiving log messages.
udp-port *port*	Sets the port number of the host receiving log messages. The default is 514.

Defaults   No log message is sent to syslog server by default.

Command   Global configuration mode
Mode

Usage Guide   This command is used to configure a syslog server to receive log messages from the device. You can configure up to five syslog servers, log messages are sent to all configured syslog servers simultaneously,

Configuration   The following example configures a syslog server with IP address 202.101.11.1.
Examples
```
Ruijie(config)# logging 202.101.11.1
```
The following example configures a syslog server with IP address 10.1.1.100 and port number 8099.
```
Ruijie(config)# logging 202.101.11.1 udp-port 8099
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

8.3   logging buffered

Use this command to set the memory buffer parameters (log severity, buffer size) for logs at global configuration layer. Use the **no** form of the command to disable recording logs in the memory buffer. Use the **default** form of this command to restore the default setting.

logging buffered [*buffer-size* | *level*]

no logging buffered

default logging buffered

Parameter
Description

Parameter	Description
buffer-size	Size of the buffer is related to the specific device type: For the access switches, 4 K to 1 M Bytes.
level	Severity of logs, from 0 to 7. The name of the severity or the numeral can be used.

Defaults   The buffer size is related to the specific device type.
                    access switches: 128 K Bytes;
                    The log severity is 7.

Command Mode	Global configuration mode

Usage Guide   The memory buffer for log is used in recycled manner. That is, when the memory buffer with the specified size is full, the oldest information will be overwritten. To show the log information in the memory buffer, run the **show logging** command in privileged user mode.

The logs in the memory buffer are temporary, and will be cleared in case of device restart or the execution of the **clear logging** command in privileged user mode. To trace a problem, it is required to record logs in flash or send them to Syslog Server.

The log information is classified into the following 8 levels (Table 1):

Table-1

Keyword	Level	Description
Emergencies	0	Emergency case, system cannot run normally
Alerts	1	Problems that need immediate remedy
Critical	2	Critical conditions
Errors	3	Error message
warnings	4	Alarm information
Notifications	5	Information that is normal but needs attention
informational	6	Descriptive information
Debugging	7	Debugging messages

Lower value indicates higher level. That is, level 0 indicates the information of the highest level. When the level of log information to be displayed on devices is specified, the log information at or below the set level will be allowed to be displayed.

⚠ After running the system for a long time, modifying the log buffer size especially in condition of large buffer may fails due to the insufficent availble continuous memory. The failure message will be shown. It is recommended to modify the log buffer size as soon as the system starts.

Configuration Examples   The following example allows logs at and below severity 6 to be recorded in the memory buffer sized 10,000 bytes.

```
Ruijie(config)# logging buffered 10000 6
```

Related Commands

Command	Description
logging on	Turns on the log switch.
show logging	Displays the logs in the buffer.
clear logging	Clears the logs in the log buffer.

Platform Description	N/A

8.4 logging console

Use this command to set the severity of logs that are allowed to be displayed on the console in global configuration mode. Use the **no** form of this command to prohibit printing log messages on the console.

logging console [*level*]

no logging console

	Parameter	Description
Parameter Description	*level*	Severity of log messages, 0 to 7. The name of the severity or the numeral can be used. For the details of log severity, see table 1.

Defaults	The default is debugging (7).

Command Mode	Global configuration mode

Usage Guide	When a log severity is set, the log messages at or below that severity will be displayed on the console. The **show logging** command displays the related setting parameters and statistics of the log.

Configuration Examples	The following example sets the severity of log that is allowed to be displayed on the console as 6:

```
Ruijie(config)# logging console informational
```

	Command	Description
Related Commands	**logging on**	Turns on the log switch.
	show logging	Displays the logs and related log configuration parameters in the buffer.

Platform Description	N/A

8.5 logging count

Use this command to enable the log statistics function in global configuration mode. Use the **no** form of this command to restore the default setting.

logging count

no logging count

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   The log statistics function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   This command enables the log statistics function. The statistics begins when the function is enabled. If you run the **no logging count** command, the statistics function is disabled and the statistics data is deleted.

Configuration Examples   The following example enables the log statistics function:

```
Ruijie(config)# logging count
```

Related Commands	Command	Description
	show logging count	Displays log information about modules of the system.
	show logging	Displays basic configuration of log modules and log information in the buffer.

Platform Description   N/A

8.6 logging facility

Use this command to configure the device value of the log information in global configuration mode. Use the **no** form of the command to restore the default setting.

logging facility *facility-type*

no logging facility

Parameter Description	Parameter	Description
	facility-type	Syslog device value. For specific settings, refer to the usage guide.

Defaults   The default is 23 if the RFC5424 format is enabled (Local7, local use).
The default is 16 if the RFC5424 format is disabled (Local0, local use).

Command Mode   Global configuration mode

Usage Guide   The following table (Table-2) is the possible device values of Syslog:

Numerical Code	Facility
0 (kern)	Kernel messages
1 (user)	User-level messages
2 (mail)	Mail system
3 (daemon)	System daemons
4 (auth1)	security/authorization messages
5 (syslog)	Messages generated internally by syslogd
6 (lpr)	Line printer subsystem
7 (news)	USENET news
8 (uucp)	Unix-to-Unix copy system
9 (clock1)	Clock daemon
10 (auth2)	security/authorization messages
11 (ftp)	FTP daemon
12 (ntp)	NTP subsystem
13 (logaudit)	log audit
14 (logalert)	log alert
15 (clock2)	clock daemon
16 (local0)	Local use
17 (local1)	Local use
18 (local2)	Local use
19 (local3)	Local use
20 (local4)	Local use
21 (local5)	Local use
22 (local6)	Local use
23 (local7)	Local use

The default device value of RGOS is 23 (local 7).

Configuration Examples	The following example sets the device value of **Syslog** as **kernel**:

```
Ruijie(config)# logging facility kern
```

Related Commands	Command	Description
	logging console	Sets the severity of logs that are allowed to be displayed on the console.

Platform Description	N/A

8.7   logging file

Use this command to save log messages in the log file, which can be saved in hardware disk, expanded FLASH or USB. Use the **no** form of this command to restore the default setting,

logging file flash:*filename* [*max-file-size*] [*level*]

no logging file

<table>
<tr>
<td>Parameter
Description</td>
<td colspan="2">
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>flash</td><td>Saves the log file in expanded FLASH.</td></tr>
<tr><td>filename</td><td>Sets the file name. The file type is omitted, which is fixed as txt.</td></tr>
<tr><td>max-file-size</td><td>Sets the maximum file size, in the range from 128K to 6M bytes, The default is 128K,</td></tr>
<tr><td>level</td><td>Sets the level of the log message saved in the log file, which can be either the level name or the level number. The default is 6. See Usage Guide for details.</td></tr>
</table>
</td>
</tr>
</table>

Defaults   Log messages are not saved in expanded FLASH by default.

**Command
Mode**   Global configuration mode

Usage Guide   You can save log messages in expanded FLASH if you don't want to transmit log messages on the network or there is no syslog server,

The log file cannot be configured with the suffix, which is fixed as txt.

> ℹ️ If there is no expanded FLASH, the **logging file flash** command is hidden automatically and cannot be configured.

Keyword	Level	Description
Emergencies	0	Emergency case. The system fails to run.
Alerts	1	Problem that call for immediate solution.
Critical	2	Critical message.
Errors	3	Error message.
warnings	4	Alarm message.
Notifications	5	message that is normal but calls for attention.
informational	6	Descriptive message.
Debugging	7	Debugging message

Configuration   The following example saves the log message in expanded FLASH and sets file name, file size and

Examples	log level to syslog.txt, 128K and 6 respectively.

```
Ruijie(config)# logging file flash:syslog
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

8.8 logging file numbers

Use this command to set the number of log files written into FLASH. Use the **no** form of this command to restore the default setting.

logging file numbers *numbers*

no logging file numbers

Parameter Description	Parameter	Description
	numbers	Sets the number of log files written into FLASH, in the range from 2 to 32.

Defaults	The default is 16.

Command Mode	Global configuration mode

Usage Guide	The system does not delete previously generated log files even if you change this configuration, Therefore, you need to delete the log files manually to save FLASH size (you can send log files to the server through TFTP before that). For example, 16 log files are generated by default before you want to change the number to 2. New logs are overwritten constantly in log files indexed 0 to 1. However, log files indexed from 2 to 16 remain. You can delete these log files manually as needed.

Configuration Examples	The following example sets the number of log files written into FLASH to 8.

```
Ruijie(config)# logging file numbers 8
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

8.9   logging flash flush

Use this command to write log messages in the system buffer into the flash file immediately.

logging flash flush

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Global configuration mode

Usage Guide   In general, the log messages are cached in the log buffer. Only when the buffer is full or the timer expires are log messages written into the flash file. This command is used to write log messages in the system buffer into the flash file immediately.

> ℹ The **logging flash flush** command takes effect only once for each configuration. The log messages cached in the buffer are written into the flash file immediately after configuration.

Configuration Examples   The following example writes log messages in the system buffer into the flash file immediately.

```
Ruijie(config)# logging flash flush
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

8.10 logging flash interval

Use this command to set the interval to write log messages into the flash file, Use the **no** form of this command to restore the default setting.

logging flash interval *seconds*

no logging flash interval

Parameter Description	Parameter	Description
	interval *seconds*	The interval to write log messages into the flash file, in the range from 1 to 57840 in the unit of seconds.

Defaults   The default is 3600.

Command   Global configuration mode
Mode

Usage Guide   This command is used to set the interval to write log messages into the flash file. The timer starts after configuration, If you want to restore the interval to 3600 seconds, use the **no logging flash interval** command.

> 🛈 To avoid writing log messages into the flash file too frequently, it is not recommended to set a short interval.

Configuration The following example sets the interval to write log messages into the flash file to 300 seconds.
Examples
```
Ruijie(config)# logging flash interval 300
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

8.11 logging filter direction

Use this command to filter the log messages destined to a certain direction. Use the **no** form of this command to restore the default setting.

logging filter direction { **all** | **buffer** | **file** | **server** | **terminal** }
no logging filter direction { **all** | **buffer** | **file** | **server** | **terminal** }

Parameter
Description

Parameter	Description
all	Log messages destined to all directions are filtered, including console, VTY terminal, log buffer, log file and log server.
buffer	Log messages destined to the log buffer are filtered, including log messages displayed by running the **show logging** command.
file	Log messages destined to the log file are filtered.
server	Log messages destined to the log server are filtered.
terminal	Log messages destined to the console and the VTY terminal (including Telnet and SSH).

Defaults   Log messages destined to all directions are filtered by default.

Command   Global configuration mode
Mode

Usage Guide	In general, log messages destined to all directions are filtered, including console, VTY terminal, log buffer, log file and log server. If you want to filter log messages destined to a certain direction, the terminal for instance, configure the **terminal** parameter.

Configuration Examples	The following example filters log messages destined to the terminal (including the console and the VTY terminal).

```
Ruijie(config)# logging filter direction terminal
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

8.12 logging filter type

Use this command to configure the filter type of log messages. Use the **no** form of this command to restore the default setting.

logging filter type { **contains-only** | **filter-only** }

no logging filter type

Parameter Description	Parameter	Description
	contains-only	The log message containing the key word of the filter rule is printed.
	filter-only	The log message containing the key word of the filter rule is filtered.

Defaults	The default filter type is filter-only.

Command Mode	Global configuration mode

Usage Guide	1. When too many log messages are printed, the terminal screen keeps being refreshed. If you are not concerned with these log messages, use the "filter-only" filter type to filter the log messages,
	2. If you are concerned with certain log messages, use the "contains-only" filter type to print log messages containing the key word of the filter rule, so as to monitor whether certain events happen.

> In real operation, the contains-only and the fitler-only filter types cannot be configured at the same time.

> If you configure the filter direction and the filter type without configuring the filter rule, the log messages are not filtered.

Configuration   The following example sets the filter type to contains-only.
Examples
```
Ruijie(config)# logging filter type contains-only
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

8.13 logging filter rule

Use this command to configure the filter rule of the log message,

logging filter rule { **exact-match module** *module-name* **mnemonic** *mnemonic-name* **level** *level* | **single-match** [**level** *level* | **mnemonic** *mnemonic-name* | **module** *module-name*] }

Use this command to delete the "exact-match" filter rule.

no logging filter rule exact-match [**module** *module-name* **mnemonic** *mnemonic-name* **level** *level*]

Use this command to delete the "single-match" filter rule.

no logging filter rule single-match [**level** *level* | **mnemonic** *mnemonic-name* | **module** *module-name*]

Parameter
Description

Parameter	Description
exact-match	Exact-match filter rule. Fill in all the following three parameters.
single-match	Single-match filter rule. Fill in one of the following three parameters.
module *module-name*	Module name.
mnemonic *mnemonic-name*	Mnemonic name.
level *level*	Log level,

Defaults   No filter rule is configured by default,

Command   Global configuration mode
Mode

Usage Guide   If you want to filter a specific log message, use the "exact-match" filter rule and fill in all three parameters, namely, module name, mnemonic name and log level.

If you want to filter a specific kind of log messages, use the "single-match" filter rule and fill in one of three parameters, namely, module name, mnemonic name and log level.

When configured with the same module name, mnemonic name or log level, the "single-match" filter rule has a higher priority than the "exact-match" filter rule,

Configuration   The following example configures the "exact-match" filter rule with parameters of module name
Examples   LOGIN, log level 5 and mnemonic name LOGOUT.

```
Ruijie(config)# logging filter rule exact-match module LOGIN mnemonic LOGOUT
level 5
```

The following example configures the "single-match" filter rule with the parameter of module name
SYS.

```
Ruijie(config)# logging filter rule single-match module SYS
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

8.14 logging life-time

Use this command to configure the preservation duration of logs in expanded FLASH. Use the **no**
form of this command to restore the default setting.

logging life-time level *level days*

no logging life-time level *level*

Parameter Description	**Parameter**	**Description**
	level	Sets the log level, which can be either the level name or the level number.
	days	Sets the preservation duration of logs.

Defaults	No preservation duration is set by default.

Command Mode	Global configuration mode

Usage Guide	Due to difference in expanded FLASH size and log level, logs with different levels can be configured with different preservation durations.

> Once log preservation based on time is enabled, log preservation based on file size is disabled
> automatically. The log files are stored under the syslog/ directory of the expanded FLASH,

Configuration Examples	The following example sets the preservation duration of logs whose level is 6 to 10 days.
	`Ruijie(config)# logging life-time level 6 10`

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

8.15 logging monitor

Use this command to set the severity of logs that are allowed to be displayed on the VTY window (telnet window, SSH window, etc.) in global configuration mode. Use the **no** form of this command to disable this function.

logging monitor [*level*]

no logging monitor

Parameter Description	Parameter	Description
	level	Severity of the log message. The name of the severity or the numeral can be used. For the details of log severity, see Table-1.

Defaults	The default is debugging (7).

Command Mode	Global configuration mode

Usage Guide	To print log information on the VTY window, run the **terminal monitor** command in privileged EXEC mode. The level of logs to be displayed is defined by **logging monitor**. The log level defined with "Logging monitor" is for all VTY windows.

Configuration Examples	The following example sets the severity of log that is allowed to be printed on the VTY window as 6: `Ruijie(config)# `**`logging monitor informational`**

Related Commands	Command	Description
	logging on	Turns on the log switch.
	show logging	Displays the log messages and related log configuration parameters in the buffer.

Platform Description	N/A

8.16 logging on

Use this command globally to allow logs to be displayed on different devices. Use the **no** form of this command to disable this fucntion.

logging on

no logging on

Parameter Description	Parameter	Description
	N/A	N/A

Defaults Logs are allowed to be displayed on different devices.

Command Mode Global configuration mode

Usage Guide Log information can not only be shown in the Console window and VTY window, but also be recorded in different equipments such as the memory buffer, the expanded FLASH and the Syslog Server. This command is the total log switch. If this switch is turned off, no log will be displayed or recorded unless the severity level is greater than 1.

Configuration Examples The following example disables the log switch on the device.

```
Ruijie(config)# no logging on
```

Related Commands	Command	Description
	logging buffered	Records the logs to a memory buffer.
	logging server	Sends logs to the Syslog server.
	logging file flash:	Records logs on the expanded FLASH.
	logging console	Allows the log level to be displayed on the console.
	logging monitor	Allows the log level to be displayed on the VTY window (such as telnet window) .
	logging trap	Sets the log level to be sent to the Syslog server.

Platform Description N/A

8.17 logging rate-limit

Use this command to enable log rate limit function to limit the output logs in a second in the global configuration mode. Use the **no** form of this command to disable this function.

logging rate-limit { *number* | **all** *number* | **console** { *number* | **all** *number* } } [**except** *severity*]

no logging rate-limit

Parameter Description	Parameter	Description
	number	The number of logs that can be processed in a second in the range from 1 to 10000.
	all	Sets rate limit to all the logs with severity level 0 to 7.
	console	Sets the amount of logs that can be shown in the console in a second.
	except	By default, the severity level is error (3). The rate of the log

	whose severity level is less than or equal to error (3) is not controlled.
severity	Log severity level in the range from 0 to 7. The lower the level is, the higher the severity is.

Defaults   The log rate limit function is disabled by default.

**Command
Mode**   Global configuration mode

Usage Guide Use this command to control the syslog outpt to prevent the massive log output.

**Configuration
Examples**   The following example sets the number of the logs (including debug) that can be processed in a second as 10. However, the logs with warning or higher severity level are not controlled:

```
Ruijie(config)#logging rate-limit all 10 except warnings
```

**Related
Commands**

Command	Description
show logging count	Displays log information about modules of the system.
show logging	Displays basic configuration of log modules and log information in the buffer.

**Platform
Description**   N/A

8.18 logging server

Use this command to send the logs to the specified Syslog Sever in global configuration mode. Use the **no** form of this command to remove the setting. Use the **default** form of this command to restore the default setting.

logging server { *ip-address* } [**udp-prot** *port*]

no logging server { *ip-address* }

no logging server { *ip-address* } **udp-prot**

**Parameter
Description**

Parameter	Description
ip-address	IP address of the host that receives log information.
udp-port *port*	Specifies the port number for the specified host (The default port number is 514).

Defaults   No log is sent to any syslog server by default.

Command   Global configuration mode

Mode

Usage Guide   This command specifies a Syslog server to receive the logs of the device. Users are allowed to configure up to 5 Syslog Servers. The log information will be sent to all the configured Syslog Servers at the same time.

Configuration   The following example specifies a syslog server of the address 202.101.11.1:

Examples
```
Ruijie(config)# logging server 202.101.11.1
```

Related
Commands

Command	Description
logging on	Turns on the log switch.
show logging	Displays log messages and related log configuration parameters in the buffer.
logging trap	Sets the level of logs allowed to be sent to Syslog server.

Platform
Description   N/A

8.19 logging source interface

Use this command to configure the source interface of logs in global configuration mode. Use the **no** form of this command to restore the default setting.

logging source [**interface**] *interface-type interface-number*

no logging source [**interface**]

Parameter
Description

Parameter	Description
interface-type	Interface type.
interface-number	Interface number.

Defaults   No source interface is configured by default.

Command
Mode   Global configuration mode

Usage Guide   By default, the source address of the log messages sent to the syslog server is the address of the sending interface. For easy tracing and management, this command can be used to fix the source address of all log messages as an interface address, so that the administrator can identify which device is sending the message through the unique addresses. If the source interface is not configured on the device, or no IP address is configured for the source interface, the source address of the log messages is the address of the sending interface.

Configuration   The following example specifies loopback 0 as the source address of the syslog messages:

Examples	`Ruijie(config)# `**`logging source interface loopback `**`0`

Related Commands	Command	Description
	logging server	Sends logs to the Syslog server.

Platform Description	N/A

8.20 logging source ip

Use this command to configure the source IP address of logs in global configuration mode. Use the **no** form of this command to restore the default setting.

logging source {**ip** *ip-address* }

no logging source { **ip** }

Parameter Description	Parameter	Description
	ip-address	Specifies the source IPV4 address sending the logs to IPV4 log server.

Defaults	No source address is configured by default.

Command Mode	Global configuration mode

Usage Guide	By default, the source address of the log messages sent to the syslog server is the address of the sending interface. For easy tracing and management, this command can be used to fix the source address of all log messages as an address, so that the administrator can identify which device is sending the message through the unique addresses. If this IP address is not configured on the device, the source address of the log messages is the address of the sending interface.

Configuration Examples	The following example specifies 192.168.1.1 as the source address of the syslog messages: `Ruijie(config)# `**`logging source ip `**`192.168.1.1`

Related Commands	Command	Description
	logging server	Sends the logs to the Syslog server.

Platform Description	N/A

8.21 logging synchronous

Use this command to enable synchronization function between user input and log output in line configuration mode to prevent interruption when the user is keying in characters. Use the **no** form of this command to restore the default setting.

logging synchronous

no logging synchronous

	Parameter	Description
Parameter Description	N/A	N/A

Defaults	The synchronization function between user input and log output is disabled by default.

Command Mode	Line configuration mode

Usage Guide	This command enables synchronization function between user input and log output, preventing the user from interrupting when keying in the characters.

Configuration Examples

```
Ruijie(config)#line console 0
Ruijie(config-line)#logging synchronous
```

Print UP-DOWN logs on the port when keying in the command, the input command will be output again:

```
Ruijie# configure terminal
Oct  9 23:40:55 %LINK-5-CHANGED: Interface GigabitEthernet 0/1, changed state
to down
Oct  9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet 0/1, changed state to DOWN
Ruijie# configure terminal//----the input command by the user is output
again rather than being intererupted.
```

	Command	Description
Related Commands	**show running-config**	Displays the configuration.

Platform Description	N/A

8.22 logging trap

Use this command to set the severity of logs that are allowed to be sent to the syslog server in global configuration mode. Use the **no** form of this command to prohibit sending log messages to the Syslog server.

logging trap [*level*]

no logging trap

Parameter Description	Parameter	Description
	level	Severity of the log message. The name of the severity or the numeral can be used. For the details of log severity, see Table 1.

Defaults   The default is informational(6)

Command Mode   Global configuration mode

Usage Guide   To send logs to the Syslog Server, run the **logging** command in global configuration mode to configure the **Syslog Server**. Then, run the **logging trap** command to specify the severity level of logs to be sent.

The **show logging** command displays the configured related parameters and statistics of the log.

Configuration Examples   The following example enables logs at severity 6 to be sent to the Syslog Server with the address of 202.101.11.22:

```
Ruijie(config)# logging 202.101.11.22
Ruijie(config)# logging trap informational
```

Related Commands	Command	Description
	logging on	Turns on the log switch.
	logging	Sends logs to the Syslog server.
	show logging	Displays the log messages and related log configuration parameters in the buffer.

Platform Description   N/A

8.23 logging userinfo

Use this command to enable the logging function to record user log/exit. Use the **no** form of this command to restore the default setting.

logging userinfo

no logging userinfo

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   No log message is printed recording user log/exit by default.

Command Mode	Global configuration mode

Usage Guide	This command is used to print the log message to remind the administrator of user login. The log message is in the format as follows:

```
Mar 22 14:05:45 %LOGIN-5-LOGIN_SUCCESS: User login from vty0 (192.168.23.68)
OK.
```

Configuration Examples	The following example enables the logging function to record user log/exit.

```
Ruijie(config)# logging userinfo
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

8.24 logging userinfo command-log

Use this command to enable the logging function to record user operation. Use the **no** form of this command to restore the default setting.

logging userinfo command-log

no logging userinfo command-log

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	No log message is printed recording user operation by default.

Command Mode	Global configuration mode

Usage Guide	This command is used to print the log message to remind the administrator of configuration change. The log message is in the format as follows:

```
Mar 22 14:10:40 %CLI-5-EXEC_CMD: Configured from vty0 (192.168.23.68)
command-log: logging server 192.168.23.68.
```

Configuration Examples	The following example enables the logging function to record user operation.

```
Ruijie(config)# logging userinfo command-log
```

Related	Command	Description

Commands

N/A	N/A

Platform   N/A
Description

8.25 service log-format rfc5424

Use this command to enable the RFC5424 format. Use the **no** form of this command to restore the
default setting.

service log-format rfc5424

no service log-format rfc5424

Parameter
Description

Parameter	Description
N/A	N/A

Defaults   The RFC3164 format is used by default.

Command   Global configuration mode
Mode

Usage Guide   After the RFC5424 format is enabled, the service sequence-numbers, service sysname, **service**
timestamps, **service private-syslog** and **service standard-syslog** commands become invalid and
hidden.

After switching back to the RFC3164 format, the **logging delay-send**, **logging policy** and **logging**
statistic commands become invalid and hidden.

After switching the log format, the results of running the **show logging** and **show logging config**
commands change,

Configuration   The following example enables the RFC5424 format.
Examples

```
Ruijie(config)# service log-format rfc5424
```

Related
Commands

Command	Description
N/A	N/A

Platform
Description   N/A

8.26 service private-syslog

Use this command to set the syslog format to the private syslog format. Use the **no** form of this

command to restore the default setting.

service private-syslog

no service private-syslog

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   The syslog is displayed in the default format.

Command   Global configuration mode

Mode

Usage Guide   By default, the syslog is displayed in the format as follows:

*timestamp: %facility-severity-mnemonic: description

Here is an example:

```
*May 31 23:25:21: %SYS-5-CONFIG_I: Configured from console by console
```

With this function enabled, the syslog is displayed in the format as follows:

timestamp facility-severity-mnemonic: description

Here is an example:

```
May 31 23:31:28 SYS-5-CONFIG_I: Configured from console by console
```

The difference between the private syslog format and the default syslog format lies in the following marks:

The private syslog does not have "*" before the timestamp, ":" after the timestamp and "%" before the identifying string.

Configuration   The following example sets the private syslog format.

Examples   ```
Ruijie(config)# service private-syslog
```

| Related Commands | Command | Description |
|---|---|---|
| | N/A | N/A |

**Platform**         N/A

**Description**

## 8.27 service sequence-numbers

Use this command to attach serial numbers into the logs in global configuration mode. Use the **no** form of this command to restore the default setting.

**service sequence-numbers**

**no service sequence-numbers**

| Parameter Description | Parameter | Description |
|---|---|---|
| | N/A | N/A |

**Defaults**        No serial number is contained in the logs by default.

**Command Mode**        Global configuration mode

**Usage Guide**        In addition to the timestamp, you can add serial numbers to the logs, numbering from 1. Then, it is clearly known whether the logs are lost or not and their sequence.

**Configuration Examples**        The following example adds serial numbers to the logs.
```
Ruijie(config)# service sequence-numbers
```

| Related Commands | Command | Description |
|---|---|---|
| | **logging on** | Turns on the log switch. |
| | **service timestamps** | Attaches timestamps to the logs. |

**Platform Description**        N/A

## 8.28 service standard-syslog

Use this command to set the syslog format to the standard syslog format defined in RFC3164. Use the **no** form of this command to restore the default setting.

**service standard-syslog**

**no service standard-syslog**

| Parameter Description | Parameter | Description |
|---|---|---|
| | N/A | N/A |

**Defaults**        The syslog is displayed in the default format.

**Command Mode**        Global configuration mode

**Usage Guide**        By default, the syslog is displayed in the format as follows:

*timestamp: %facility-severity-mnemonic: description

Here is an example:
```
*May 31 23:25:21: %SYS-5-CONFIG_I: Configured from console by console
```
With this function enabled, the syslog is displayed in the format as follows:

timestamp %facility-severity-mnemonic: description

Here is an example:

```
May 31 23:31:28 %SYS-5-CONFIG_I: Configured from console by console
```

The difference between the standard syslog format and the default syslog format lies in the following marks:

The standard syslog does not have "*" before the timestamp and ":" after the timestamp.

Configuration Examples	The following example sets the standard syslog format.
	`Ruijie(config)# service standard-syslog`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

8.29 service sysname

Use this command to attach system name to logs in global configuration mode. Use the **no** form of this command to restore the default setting.

service sysname

no service sysname

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	No system name is attached to logs by default.

Command Mode	Global configuration mode

Usage Guide	This command allows you to decide whether to add system name in the log information.

Configuration Examples	The following example adds a system name in the log information:

	`Mar 22 15:28:02 %SYS-5-CONFIG: Configured from console by console`
	`Ruijie #`**`config terminal`**
	`Enter configuration commands, one per line. End with CNTL/Z.`
	`Ruijie (config)#`**`service sysname`**
	`Ruijie (config)#`**`end`**
	`Ruijie #`
	`Mar 22 15:35:57 S3250 %SYS-5-CONFIG: Configured from console by console`

	Command	Function
Related Commands	**show logging**	Displays basic configuration of log modules and log information in the buffer.

Platform Description	N/A

8.30 service timestamps

Use this command to attach timestamp into logs in global configuration mode. Use the **no** form of this command to remove the timestamp from the logs. Use the **default** form of this command to restore the default setting.

service timestamps [*message-type* [**uptime | datetime** [**msec** | **year**]]]

no service timestamps [*message-type*]

default service timestamps [*message-type*]

Parameter Description	Parameter	Description
	message-type	The log type, including **Log** and **Debug**. The **log** type indicates the log information with severity levels of 0 to 6. The **debug** type indicates that with severity level 7.
	uptime	Device start time in the format of *Day*Hour*Minute*Second, for example, 07:00:10:41.
	datetime	Current time of the device in the format of Month*Date*Hour*Minute*Second, for example, Jul 27 16:53:07.
	msec	Current time of the device in the format of Month*Date*Hour*Minute*Second*milisecond, for example, Jul 27 16:53:07.299
	year	Current time of the device in the format of Year*Month*Date*Hour*Minute*Second, for example, 2007 Jul 27 16:53:07

Defaults	The time stamp in the log information is the current time of the device. If the device has no RTC, the time stamp is automatically set to the device start time.

Command Mode	Global configuration mode

Usage Guide	When the **uptime** option is used, the time format is the running period from the last start of the device to the present time, in seconds. When the **datetime** option is used, the time format is the date of the current device, in the format of YY-MM-DD, HH:MM:SS.

Configuration
Examples

The following example enables the timestamp for **log** and **debug** information, in format of Datetime, supporting millisecond display.

```
Ruijie(config)# service timestamps debug datetime msec
Ruijie(config)# service timestamps log datetime msec
Ruijie(config)# end
Ruijie(config)# Oct 8 23:04:58.301 %SYS-5-CONFIG I: configured from console
by console
```

Related
Commands

Command	Description
logging on	Turns on the log switch.
service sequence-numbers	Enables serial numbers of logs.

Platform
Description

N/A

8. 31 **show logging**

Use this command to display configured parameters and statistics of logs and log messages in the memory buffer at privileged user layer. The log messages are sorted by the timestamp from before to now.

show logging

Parameter
Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command
Mode

Privileged EXEC mode

Usage Guide   N/A

Configuration
Examples

The following command displays the result of the **show logging** command with RFC5424 format disabled.

```
Ruijie# show logging
Syslog logging: enabled
 Console logging: level debugging, 15495 messages logged
 Monitor logging: level debugging, 0 messages logged
 Buffer logging: level debugging, 15496 messages logged
 Standard format: false
 Timestamp debug messages: datetime
```

```
 Timestamp log messages: datetime
 Sequence-number log messages: enable
 Sysname log messages: enable
 Count log messages: enable
 Trap logging: level informational, 15242 message lines logged,0 fail
   logging to  202.101.11.22
   logging to  192.168.200.112
Log Buffer (Total 131072 Bytes): have written 1336,
015487: *Sep 19 02:46:13: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24,
changed state to up.
015488: *Sep 19 02:46:13: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to up.
015489: *Sep 19 02:46:26: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24,
changed state to down.
015490: *Sep 19 02:46:26: Ruijie %LINEPROTON/A5N/AUPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to down.
015491: *Sep 19 02:46:28: Ruijie %LINKN/A3N/AUPDOWN: Interface FastEthernet
0/24, changed state to up.
015492: *Sep 19 02:46:28: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to up.
```

Log information description:

Field	Description
Syslog logging	Logging flag: enabled or disabled
Console logging	Level of the logs printed on the console, and statistics
Monitor logging	Level of the logs printed on the VTY window, and statistics
Buffer logging	Level of the logs recorded in the memory buffer, and statistics.
Standard format	Standard log format.
Timestamp debug messages	Timestamp format of the Debug messages
Timestamp log messages	Timestamp format of the Log messages
Sequence-number log messages	Serial number switch
Sequence log messages	Attaches system names to the logs.
Count log messages	Log statistics function
Trap logging	Level of the logs sent to the syslog server, and statistics
Log Buffer	Log files recorded in the memory buffer

The following example displays the result of the **show logging** command with RFC5424 format enabled.

```
Ruijie# show logging
Syslog logging: enabled
 Console logging: level debugging, 4740 messages logged
 Monitor logging: level debugging, 0 messages logged
 Buffer logging: level debugging, 4745 messages logged
 Statistic log messages: disable
 Statistic log messages to terminal: disable
 Delay-send file name:syslog_ftp_server, Current write index:3, Current send
index:3, Cycle:10 seconds
 Count log messages: enable
 Trap logging: level informational, 2641 message lines logged,4155 fail
   logging to  192.168.23.89
   logging to  2000::1
 Delay-send logging: 2641 message lines logged
   logging to  192.168.23.89  by tftp
Log Buffer (Total 4096 Bytes): have written 4096, Overwritten 3292
<135>1 2013-07-24T12:19:33.130290Z ruijie - 7 - - Please config the IP address
for capwap.
<132>1 2013-07-24T12:20:02.80313Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address
for capwap.
<135>1 2013-07-24T12:20:02.80343Z ruijie - 7 - - Please config the IP address
for capwap.
<132>1 2013-07-24T12:20:32.250265Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address
for capwap.
<134>1 2013-07-24T12:29:33.410123Z ruijie SYS 6 SHELL_LOGIN [USER@4881
name="" type="" from="console"] user login success.
<134>1 2013-07-24T12:29:34.343763Z ruijie SYS 6 SHELL_CMD
[USER@4881 name=""][CMD@4881 task="rl_con" cmd="enable"]
```

Field	Description
Syslog logging	Logging flag: enabled or disabled
Console logging	Level of the logs printed on the console, and statistics
Monitor logging	Level of the logs printed on the VTY window, and statistics
Buffer logging	Level of the logs recorded in the memory buffer, and statistics.
Count log messages	Log statistics function
Statistic log messages	Enables/disables log sending periodically
Statistic log messages to terminal	Enables/ disables log sending to console and remote terminal
Delay-send file name	Local filename of log delay-sending cache, index of write file and delay interval
Trap logging	Level of the logs sent to the syslog server and statistics

Delay-send logging	The server address, log sending mode and statistics
Log Buffer	Log files recorded in the memory buffer

Related	**Command**	**Function**
Commands	**logging on**	Turns on the log switch.
	clear logging	Clears the log messages in the buffer.

Platform
Description   N/A

8.32 show logging config

Use this command to display log configuration and statistics.

show logging config

Parameter **Description**	**Parameter**	**Description**
	N/A	N/A

Defaults   N/A

Command
Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration   The following example displays the outcome of running the **show logging config** command with
Examples   RFC5424 disabled.

```
Ruijie# show logging config
Syslog logging: enabled
 Console logging: level debugging, 15495 messages logged
 Monitor logging: level debugging, 0 messages logged
 Buffer logging: level debugging, 15496 messages logged
 Standard format: false
 Timestamp debug messages: datetime
 Timestamp log messages: datetime
 Sequence-number log messages: enable
 Sysname log messages: enable
 Count log messages: enable
 Trap logging: level informational, 15242 message lines logged,0 fail
   logging to  202.101.11.22
    logging to  192.168.200.112
```

Field	**Description**

Syslog logging	Whether the logging function is enabled or disabled.
Console logging	The level and statistics of the log message printed on the console.
Monitor logging	The level and statistics of the log message printed on the VTY window.
Buffer logging	The level and statistics of the log message recorded in the memory buffer.
Standard format	Standard log format.
Timestamp debug messages	Timestamp format of debugging message.
Timestamp log messages	Timestamp format of log message.
Sequence-number log messages	Whether the sequence number function is enabled or disabled.
Sysname log messages	Adds the system name to the log message.
Count log messages	Log-counting function
Trap logging	The level and statistics of the log message sent to the syslog server.

The following example displays the outcome of running the **show logging config** command with RFC5424 enabled.

```
Ruijie# show logging
Syslog logging: enabled
 Console logging: level debugging, 4740 messages logged
 Monitor logging: level debugging, 0 messages logged
 Buffer logging: level debugging, 4745 messages logged
 Statistic log messages: disable
 Statistic log messages to terminal: disable
 Delay-send file name:syslog_ftp_server, Current write index:3, Current send
index:3, Cycle:10 seconds
 Count log messages: enable
 Trap logging: level informational, 2641 message lines logged,4155 fail
   logging to  192.168.23.89
   logging to  2000::1
 Delay-send logging: 2641 message lines logged
    logging to  192.168.23.89  by tftp
```

Field	Description
Syslog logging	Logging flag: enabled or disabled
Console logging	Level of the logs printed on the console, and statistics
Monitor logging	Level of the logs printed on the VTY window, and statistics
Buffer logging	Level of the logs recorded in the memory buffer, and statistics.
Count log messages	Log statistics function
Statistic log messages	Enables/disables log sending periodically

Statistic log messages to terminal	Enables/ disables log sending to output console and remove terminal
Delay-send file name	Local filename of log delay-sending cache, index of write file and delay interval
Trap logging	Level of the logs sent to the syslog server and statistics
Delay-send logging	The server address, log sending way and statistics

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

8.33 show logging count

Use this command to display the statistics about occurrence times, and the last occurrence time of each module log in the system in privileged mode.

show logging count

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   To use the log packet statistics function, run the **logging count** command in global configuration mode. The **show logging count** command can show the information of a specific log, occurrence times, and the last occurrence time.

You can use the **show logging** command to check whether the log statistics function is enabled.

Configuration Examples   The following example displays the result of the **show logging count** command:

```
Ruijie# show logging count
Module Name    Message Name Sev Occur    Last Time
SYS           CONFIG_I      5   1        Jul 6 10:29:57
SYS TOTAL                       1
```

Related Commands

Command	Function
logging count	Enables the log statistics function.

show logging	Displays basic configuration of log modules and log information in the buffer.
clear logging	Clears the logs in the buffer.

Platform
Description   N/A

8.34 show logging reverse

Use this command to display configured parameters and statistics of logs and log messages in the memory buffer at privileged user layer. The log messages are sorted by the timestamp from now to before.

show logging reverse

Parameter
Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide

Configuration   The following command displays the result of the **show logging reverse** command with RFC5424
Examples   format disabled.

```
Ruijie# show logging reverse
Syslog logging: enabled
 Console logging: level debugging, 15495 messages logged
 Monitor logging: level debugging, 0 messages logged
 Buffer logging: level debugging, 15496 messages logged
 Standard format: false
 Timestamp debug messages: datetime
 Timestamp log messages: datetime
 Sequence-number log messages: enable
 Sysname log messages: enable
 Count log messages: enable
 Trap logging: level informational, 15242 message lines logged,0 fail
   logging to  202.101.11.22
   logging to  192.168.200.112
Log Buffer (Total 131072 Bytes): have written 1336,
015492: *Sep 19 02:46:28: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to up.
```

```
015491: *Sep 19 02:46:28: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24,
changed state to up.
015490: *Sep 19 02:46:26: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to down.
015489: *Sep 19 02:46:26: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24,
changed state to down.
015488: *Sep 19 02:46:13: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on
Interface FastEthernet 0/24, changed state to up.
015487: *Sep 19 02:46:13: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24,
changed state to up.
```

Field	Description
Syslog logging	Logging flag: enabled or disabled
Console logging	Level of the logs printed on the console, and statistics
Monitor logging	Level of the logs printed on the VTY window, and statistics
Buffer logging	Level of the logs recorded in the memory buffer, and statistics.
Standard format	Standard log format.
Timestamp debug messages	Timestamp format of the Debug messages
Timestamp log messages	Timestamp format of the Log messages
Sequence-number log messages	Serial number switch
Sequence log messages	Attaches system names to the logs.
Count log messages	Log statistics function
Trap logging	Level of the logs sent to the syslog server, and statistics
Log Buffer	Log files recorded in the memory buffer

The following example displays the result of the **show logging reverse** command with RFC5424 format enabled.

```
Ruijie# show logging reverse
Syslog logging: enabled
  Console logging: level debugging, 4740 messages logged
  Monitor logging: level debugging, 0 messages logged
  Buffer logging: level debugging, 4745 messages logged
  Statistic log messages: disable
  Statistic log messages to terminal: disable
  Delay-send file name:syslog_ftp_server, Current write index:3, Current send
index:3, Cycle:10 seconds
```

```
  Count log messages: enable
 Trap logging: level informational, 2641 message lines logged,4155 fail
   logging to  192.168.23.89
   logging to  2000::1
 Delay-send logging: 2641 message lines logged
   logging to  192.168.23.89  by tftp
Log Buffer (Total 4096 Bytes): have written 4096, Overwritten 3292
<134>1 2013-07-24T12:29:34.343763Z ruijie SYS 6 SHELL_CMD [USER@4881
name=""][CMD@4881 task="rl_con" cmd="enable"]
<134>1 2013-07-24T12:29:33.410123Z ruijie SYS 6 SHELL_LOGIN [USER@4881 name=""
type="" from="console"] user login success.
<132>1 2013-07-24T12:20:32.250265Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address
for capwap.
<135>1 2013-07-24T12:20:02.80343Z ruijie - 7 - - Please config the IP address
for capwap.
<132>1 2013-07-24T12:20:02.80313Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address
for capwap.
<135>1 2013-07-24T12:19:33.130290Z ruijie - 7 - - Please config the
IP address for capwap.
```

Field	Description
Syslog logging	Logging flag: enabled or disabled
Console logging	Level of the logs printed on the console, and statistics
Monitor logging	Level of the logs printed on the VTY window, and statistics
Buffer logging	Level of the logs recorded in the memory buffer, and statistics.
Count log messages	Log statistics function
Statistic log messages	Enables/disables log sending periodically
Statistic log messages to terminal	Enables/ disables log sending to console and remote terminal
Delay-send file name	Local filename of log delay-sending cache, index of write file and delay interval
Trap logging	Level of the logs sent to the syslog server and statistics
Delay-send logging	The server address, log sending mode and statistics
Log Buffer	Log files recorded in the memory buffer

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

8.35 terminal monitor

Use this command to show logs on the current VTY window. Use the **no** form of this command to restore the default setting.

terminal monitor

terminal no monitor

Parameter Description	Parameter	Description
	N/A	N/A

Defaults
Log information is not allowed to be displayed on the VTY window by default.

Command Mode
Privileged EXEC mode

Usage Guide
This command only sets the temporary attributes of the current VTY. As the temporary attribute, it is not stored permanently. At the end of the VTY terminal session, the system will use the default setting, and the temporary setting is invalid. This command can be also executed on the console, but it does not take effect.

Configuration Examples
The following example allows log information to be printed on the current VTY window:

```
Ruijie# terminal monitor
```

Related Commands	Command	Description
	N/A	N/A

Platform Description
N/A

Command History	Version	Description
	N/A	N/A

9 CWMP Commands

9.1 acs password

Use this command to configure the ACS password to be authenticated for the CPE to connect to the ACS. Use the **no** form of this command to cancel the configuration.

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

no acs password

Parameter Description	Parameter	Description
	password	Configures the ACS user password to be authenticated for the CPE to connect to the ACS.
	encryption-type	Specifies the encryption type, which can be set to 0 (indicating that no encryption is used) or 7 (indicating that simple encryption is used).
	encrypted-password	Specifies the password in encrypted form.

Defaults   encryption-type: 0

encrypted-password: N/A

Command Mode   CWMP configuration mode

Usage Guide   Use this command to configure the ACS user password to be authenticated for the CPE to connect to the ACS. In general, the encryption type does not need to be specified. The encryption type needs to be specified only when copying and pasting the encrypted password of this command. A valid password should meet the following format requirements:

🛈 The command contains English letters in upper or lower case and numeric characters.

🛈 Blanks are allowed at the beginning of the password but will be ignored. Intermediate and ending blanks, however, are regarded as a part of the password.

Configuration Examples   The following example configures the ACS password to be authenticated for the CPE to connect to the ACS to 123.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs password 123
Ruijie(config-cwmp)#
```

Related Commands	Command	Description

show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.
acs username	Configures the ACS username to be authenticated for the CPE to connect to the ACS.

Platform Description   N/A

9.2 acs url

Use this command to configure the URL of the ACS to which the CPE will connect.

Use the **no** form of this command to restore the default setting.

acs url *url*

no acs url

Parameter Description

Parameter	Description
url	Specifies the URL of the ACS.

Defaults   N/A

Command Mode   CWMP configuration mode

Usage Guide   Use this command to configure the URL of the ACS to which the CPE will connect. If no ACS URL is manually specified but a dynamic ACS URL is obtained through DHCP, the CPE initiates a connection to the ACS using the dynamically obtained ACS URL. The URL of the ACS should meet the following format requirements:

● The URL of the ACS is formatted as http://ip [: port]/ path.

● The URL of the ACS consists of at most 256 characters.

Configuration Examples   The following example specifies the URL of the ACS to http://10.10.10.1:7547/acs.

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs url http://10.10.10.1:7547/acs
Ruijie(config-cwmp)#
```

The following example specifies the URL of the ACS to http://www.test.com/service/tr069servlet.

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs url http://www.test.com/service/tr069servlet
```

```
Ruijie(config-cwmp)#
```

	Command	Description
Related Commands	**show cwmp configuration**	Displays the current configuration of CWMP.
	show cwmp status	Displays the running status of CWMP.

Platform Description   N/A

9.3   acs username

Use this command to configure the ACS username to be authenticated for the CPE to connect to the ACS. Use the **no** form of this command to restore the default setting.

acs username *username*

no acs username

	Parameter	Description
Parameter Description	**no acs username**	Configures the ACS username to be authenticated for the CPE to connect to the ACS.

Defaults   N/A

Command Mode   CWMP configuration mode

Usage Guide   Configures the ACS username to be authenticated for the CPE to connect to the ACS.

Configuration Examples   The following example configures the ACS username to be authenticated for the CPE to connect to the ACS to admin.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs username admin
Ruijie(config-cwmp)#
```

	Command	Description
Related Commands	**show cwmp configuration**	Displays the current configuration of CWMP.
	show cwmp status	Displays the running status of CWMP.
	acs password	Configures the ACS password to be authenticated for the CPE to connect to the

	ACS.

Platform   N/A
Description

9.4   cpe back-up

Use this command to configure the backup and restoration of the main program and configuration file
of the CPE.

Use the **no** form of this command to disable this function.

cpe back-up [**delay-time** *seconds*]

no cpe back-up

Parameter
Description

Parameter	Description
seconds	Specifies the delay for backup and restoration of the main program and configuration file of the CPE.

Defaults   The default is 60 seconds.

Command   CWMP configuration mode
Mode

Usage Guide   You can configure the restoration function on a CPE, so that the CPE can restore itself from
exceptions of its main program or configuration file. Then when the CPE fails to connect to the ACS
and breaks away from the NMS after its main program or configuration file is upgraded, the previous
main program or configuration file of the CPE can be restored in time for the ACS to manage the
CPE. This kind of exception is generally caused by delivery of a wrong main program or configuration
file.

Configuration   The following example disables the backup and restoration of the main program and configuration file
Examples   of the CPE.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#no cpe back-up
Ruijie(config-cwmp)#
```

Related
Commands

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.

Platform   N/A
Description

9.5 cpe inform

Use this command to configure the periodic notification function of the CPE.

Use the **no** form of this command to restore the default setting

cpe inform [**interval** *seconds*] [**start-time** *time*]

no cpe inform

Parameter **Description**	Parameter	Description
	seconds	Specifies the periodical notification interval of the CPE in the range from 30 to 3,600 in the unit of seconds.
	time	Specifies the date and time for starting periodical notification in yyyy-mm-ddThh:mm:ss format.

Defaults   The default is 600 seconds.

Command   CWMP configuration mode
Mode

Usage Guide   Use this command to configure the periodic notification function of the CPE.

● If the time for starting periodical notification is not specified, periodical notification starts after the periodical notification function is enabled. The notification is performed once within every notification interval.

● If the time for starting periodical notification is specified, periodical notification starts at the specified start time. For instance, if the periodical notification interval is set to 60 seconds and the start time is 12:00 am next day, periodical notification will start at 12:00 am next day and once every 60 seconds.

🛈 The narrower periodical notification interval allows the ACS to track the latest CPE status more accurately. However, narrower periodical notification interval brings about more sessions between the CPE and the ACS, consuming more resources of them. So the user should specify the periodical notification interval of the CPE to a reasonable value according to the network performance and the ACS performance.

Configuration   The following example specifies the periodical notification interval of the CPE to 60 seconds.
Examples
```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe inform interval 60
Ruijie(config-cwmp)#
```

Related Commands	Command	Description
	show cwmp configuration	Displays the current configuration of CWMP.
	show cwmp status	Displays the running status of CWMP.

Platform Description N/A

9.6 cpe password

Use this command to configure the CPE password to be authenticated for the ACS to connect to the CPE. Use the **no** form of this command to cancel the configuration.

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

no cpe password

Parameter Description	Parameter	Description
	password	Configures the CPE user password to be authenticated for the ACS to connect to the CPE.
	encryption-type	Specifies the encryption type, which can be set to 0 (indicating that no encryption is used) or 7 (indicating that simple encryption is used).
	encrypted-password	Specifies the password in encrypted form.

Defaults encryption-type: 0
encrypted-password: N/A

Command Mode CWMP configuration mode

Usage Guide Use this command to configure the CPE user password to be authenticated for the ACS to connect to the CPE. In general, the encryption type does not need to be specified. The encryption type needs to be specified only when copying and pasting the encrypted password of this command. A valid password should meet the following format requirements:

ⓘ The command contains English letters in upper or lower case and numeric characters.

ⓘ Blanks are allowed at the beginning of the password but will be ignored. Intermediate and ending blanks, however, are regarded as a part of the password.

Configuration Examples The following example configures the CPE password to be authenticated for the ACS to connect to the CPE to 123.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

```
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe password 123
Ruijie(config-cwmp)#
```

Related Commands	Command	Description
	show cwmp configuration	Displays the current configuration of CWMP.
	show cwmp status	Displays the running status of CWMP.
	acs username	Configures the CPE username to be authenticated for the ACS to connect to the CPE.

Platform Description N/A

9.7 cpe url

Use this command to configure the URL of the CPE to which the ACS will connect.

Use the **no** form of this command to restore default setting.

cpe url *url*

no cpe url

Parameter Description	Parameter	Description
	url	Specifies the URL of the CPE.

Defaults N/A

Command Mode CWMP configuration mode

Usage Guide Use this command to configure the URL of the CPE to which the ACS will connect. If no CPE URL is manually specified but a dynamic CPE URL is obtained through DHCP, the ACS initiates a connection to the CPE using the dynamically obtained CPE URL. The URL of the CPE should meet the following format requirements:

● The URL of the CPE is formatted as http://ip [: port]/ path.

● The URL of the CPE consists of at most 256 characters.

Configuration Examples The following example specifies the URL of the CPE to http://10.10.10.1:7547/acs.

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe url Hhttp://10.10.10.1:7547/
Ruijie(config-cwmp)#
```

**Related
Commands**

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.

**Platform
Description**   N/A

9.8 cpe username

Use this command to configure the ACS username to be authenticated for the CPE to connect to the
ACS.

Use the **no** form of this command to restore the default setting.

acs username *username*

No acs username

**Parameter
Description**

Parameter	Description
username	Configures the CPE username to be authenticated for the ACS to connect to the CPE.

Defaults   N/A

**Command
Mode**   cwmp config mode

Usage Guide   Configures the CPE username to be authenticated for the ACS to connect to the CPE.

**Configuration
Examples**   The following example configures the CPE username to be authenticated for the ACS to connect to
the CPE to admin.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe username admin
Ruijie(config-cwmp)#
```

**Related
Commands**

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.
cpe password	Configures the CPE password to be authenticated for the ACS to connect to the

	CPE.

Platform   N/A

Description

9.9 cwmp

Use this command to enable the CWMP function.

Use the **no** form of this command to disable this function.

cwmp

no cwmp

Parameter

Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command   Global configuration mode

Mode

Usage Guide   Use this command to enable or disable the CWMP function.

Configuration   The following example disables the CWMP function.

Examples

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#no cwmp
Ruijie(config)#
```

Related

Commands

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.

Platform   N/A

Description

9.10 disable download

Use this command to disable the function of downloading main program and configuration files from

the ACS. Use the **no** form of this command to restore the default setting.

disable download

no disable download

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   By default, the CPE can download main program and configuration files from the ACS.

Command Mode   CWMP configuration mode

Usage Guide   N/A

Configuration Examples The following example disables the function of downloading main program and configuration files from the ACS.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#disable download
Ruijie(config-cwmp)#
```

Related Commands

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.

Platform Description   N/A

9.11 disable upload

Use this command to disable the function of uploading configuration and log files to the ACS.

Use the **no** form of this command to restore the default setting.

disable upload

no disable upload

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   By default, the CPE can upload its configuration and log files to the ACS.

Command Mode   CWMP configuration mode

Usage Guide	Disables the function of uploading configuration and log files to the ACS.

Configuration Examples	The following example disables the function of uploading configuration and log file to the ACS.

```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#disable upload
Ruijie(config-cwmp)#
```

Related Commands	Command	Description
	show cwmp configuration	Displays the current configuration of CWMP.
	show cwmp status	Displays the running status of CWMP.

Platform Description	N/A

9.12 show cwmp configuration

Use this command to display the current configuration of CWMP.

show cwmp configuration

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	Privilege EXEC mode

Usage Guide	

Configuration Examples	The following example displays the current configuration of CWMP.

```
Ruijie(config-cwmp)#show cwmp configuration
CWMP Status                 : enable
ACS URL                     : http://www.ruijie.com.cn/acs
ACS username                : admin
ACS password                : ******
CPE URL                     : http://10.10.10.2:7547/
CPE username                : ruijie
CPE password                : ******
CPE inform status           : disable
CPE inform interval         : 60s
```

```
CPE inform start time         : 0:0:0 0 0 0
CPE wait timeout              : 50s
CPE download status           : enable
CPE upload status             : enable
CPE back up status            : enable
CPE back up delay time        : 60s
```

The descriptions to the fields shown after executing the command **show cwmp configuration**.

Field	Description
CWMP Status	Running status of CWMP.
ACS URL	URL of the ACS.
ACS username	ACS username to be authenticated for the CPE to connect to the ACS.
ACS password	ACS password to be authenticated for the CPE to connect to the ACS.
CPE URL	URL of the CPE.
CPE username	CPE username to be authenticated for the ACS to connect to the CPE.
CPE pass ord	CPE password to be authenticated for the ACS to connect to the CPE.
CPE inform status	Status of CPE periodical notification function.
CPE inform interval	CPE periodical notification interval.
CPE wait timeout	Timeout period of CPE sessions.
CPE inform start time	The start time of periodical notification.
CPE download status	Indicates whether to download main program and configuration files from the ACS.
CPE upload status	Indicates whether to upload configuration files and log files to the ACS.
CPE back up status	Indicates whether backup and restoration of the main program and configuration file is enabled.
CPE back up delay time	Delay time of the backup and restoration of the main program and configuration files.

Related Commands	**Command**	**Description**
	show cwmp status	Displays the running status of CWMP.

Platform Description   N/A

9.13 show cwmp status

Uses this command to display the running status of CWMP

show cwmp status

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example displays the running status of CWMP.

```
Ruijie#show cwmp status
CWMP Status               : enable
Session status            : Close
Last success session       : Unknown
Last success session time   : Thu Jan  1 00:00:00 1970
Last fail session         : Unknown
Last fail session time     : Thu Jan  1 00:00:00 1970
Session retry times        : 0
```

The descriptions to the fields shown after executing the command **show cwmp configuration**.

Field	Description
CWMP Status	The running status of CWMP
Session status	The current status of the session between the CPE and the ACS
Last success session	The last success session type
Last success session time	The last success session time
Last fail session	The last failed session type
Last fail session time	The last failed session time
Session retry times	The number of session retransmission attempts

Related Commands

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.

Platform Description   N/A

9.14 timer cpe-timeout

Uses this command to configure the session timeout period of the CPE.

timer cpe- timeout *seconds*

no timer cpe-timeout

Parameter	Description
seconds	Sets the session timeout, in the range from 10 to 600 in the unit of seconds.

Parameter Description

Defaults   By default, the session timeout period is 30 seconds.

Command Mode   CWMP configuration mode

Usage Guide   Use this command to configure the session timeout period of the CPE.
The maximum waiting period that the CPE has when the CPE failed to receive the ACS reply.

Configuration Examples   The following example configures the session timeout period of the CPE to 50 seconds.
```
Ruijie#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#timer cpe-timeout 50
Ruijie(config-cwmp)#
```

Related Commands

Command	Description
show cwmp configuration	Displays the current configuration of CWMP.
show cwmp status	Displays the running status of CWMP.

Platform Description   N/A

10 PoE Management Commands

10.1 poe class-lldp enable

Use this command to configure LLDP two-event classification. Use the **no** or **default** form of this command to restore the default setting.

poe class-lldp enable

no poe class-lldp enable

default poe class-lldp enable

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example enables LLDP two-event classification.
```
Ruijie(config)# poe class-lldp enable
Ruijie(config)# end
Ruijie#write
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

10.2 poe enable

Use this command to enable the power over Ethernet (PoE) function on the interface. Use the **no** form of this command to disable this function.

poe enable

no poe enable

Parameter	Parameter	Description

Description		
N/A	N/A	

Defaults   This function is enabled by default,

Command Mode   Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example disables the PoE function on port GigabitEthernet 0/1,

```
Ruijie(config)# interface GigabitEthernet  0/1
Ruijie(config-if-GigabitEthernet 0/1)# no poe enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

10.3 poe legacy

Use this command to enable non-standard PD compatibility. Use the **no** or **default** form of this command to restore the default setting.

poe legacy

no poe legacy

default poe legacy

Parameter Description

Parameter	Description
N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example enables non-standard compatibility for port GigabitEthernet 0/1.

```
Ruijie(config)# interface GigabitEthernet  0/1
Ruijie(config-if-GigabitEthernet 0/1)#  poe legacy
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

10.4 poe max-power

Use this command to set the maximum power for the port. Use the **no** or **default** form of this command to restore the default setting,

poe max-power *int*

no poe max-power

default poe max-power

Parameter Description	Parameter	Description
	int	The maximum power, in the range from 0 to 30W. Note that this parameter is in the range from 0 to 15.4W on the system supporting 802.3af only. HPoE port ID is in the range from 0 to 90.

Defaults   The maximum power is not set by default.

Command Mode   Interface configuration mode

Usage Guide   N/A.

Configuration Examples   The following example sets the maximum power for port GigabitEthernet 0/1 to 20W.

```
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#  poe max-power 20
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

10.5 poe mode

Use this command to set the PoE management mode. Use the **no** or **default** form of this command to restore the default setting.

poe mode { **auto** | **energy-saving** }

no poe mode

default poe mode

Parameter Description

Parameter	Description
auto	Sets the power management mode to auto mode, the default mode.
energy-saving	Sets the power management mode to energy-saving mode, the optional mode,

Defaults   The default mode is auto.

Command Mode   Global configuration mode

Usage Guide   N/A

Configuration Examples   The following example sets the PoE management mode to energy-saving mode.

```
Ruijie# configure
Ruijie(config)# poe mode energy-saving
Ruijie(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

10.6 poe notification-control enable

Use this command to enable Trap notification in PoE MIB(RFC3621). Use the **no** or **default** form of this command to restore the default setting.

poe notification-control enable

no poe notification-control enable

default poe notification-control enable

Parameter Description

Parameter	Description

N/A	N/A

Defaults   This function is disabled by default.

Command   Global configuration mode
Mode

Usage Guide   N/A

Configuration   The following example enables Trap notification in PoE MIB(RFC3621).
Examples
```
Ruijie(config)# poe notification-control enable
Ruijie(config)# end
Ruijie#write
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

10.7 poe pd-description

Use this command to set the PD descriptor for the port. Use the **no** or **default** form of this command
to restore the default setting.
poe pd-description *pd-name*
no poe pd-description
default poe pd-description

Parameter
Description

Parameter	Description
pd-name	PD descriptor name, a string no more than 32 characters.

Defaults   N/A

Command   Interface configuration mode
Mode

Usage Guide   N/A

Configuration   The following example sets the PD descriptor for port GigabitEthernet 0/1.
Examples
```
Ruijie# configure
Ruijie(config)# interface GigabitEthernet  0/1
Ruijie(config-if-GigabitEthernet 0/1)# poe pd-description ap220
```

```
Ruijie(config-if-GigabitEthernet 0/1)# end
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

10.8 poe power-off time-range name

Use this command to configure scheduled power-on for the port. Use the **no** or **default** form of this command to restore the default setting.

poe power-off time-range *name*

no poe power-off time-range

default poe power-off time-range

Parameter Description	Parameter	Description
	name	Time-range name.

Defaults   N/A

Command Mode   Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example sets the port GigabitEthernet 0/1 to be disabled from 8:30 to 17:30 every day.

```
Ruijie# configure
Ruijie(config)# time-range poe-time
Ruijie(config-time-range)# periodic weekdays 8:30 to 17:30
Ruijie(config-time-range)# exit
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# poe power-off time-range poe-time
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

10.9 poe priority

Use this command to set the PoE priority for the port. Use the **no** or **default** form of this command to restore the default setting.

poe priority { **low** | **high** | **critical** }

no poe priority

default poe priority

Parameter Description	Parameter	Description
	{ **low**	**high**	**critical** }	Priority level.

Defaults   The default is low.

Command Mode   Interface configuration mode

Usage Guide   N/A

Configuration Examples

The following example sets the PoE priority for port GigabitEthernet 0/1 to critical.

```
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# poe priority critical
Ruijie(config-if-GigabitEthernet 0/1)# end
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

10.10 poe reserve-power

Use this command to set the reserve power for the system in energy-saving mode. Use the **no** or **default** form of this command to restore the default setting,

poe reserve-power *int*

no poe reserve-power

default poe reserve-power

Parameter Description	Parameter	Description
	int	Reserve power percentage, in the range from 0 to 50.

Defaults	The default reserve power is 0%.

Command Mode	Global configuration mode

Usage Guide	N/A

Configuration Examples	The following example sets the reserve power for the system to 10%.
	```Ruijie(config)# poe reserve-power 10```
	```Ruijie(config)# end```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

10.11 poe uninterruptible-power

Use this command to configure uninterruptible warm start, Use the **no** or **default** form of this command to restore the default setting.

poe uninterruptible-power

no poe uninterruptible-power

default no poe uninterruptible-power

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	This function takes effect when the device is started after the configuration is saved.

Configuration Examples	The following example enables uninterruptible PoE for warm start and saves configuration.
	```Ruijie(config)# poe uninterruptible-power```
	```Ruijie(config)# end```
	```Ruijie#write```

Related Commands	Command	Description

N/A	N/A

Platform Description	N/A

10.12 poe warning-power

Use this command to set the power alarm threshold for the system. Use the **no** or **default** form of this command to restore the default setting,

poe warning-power *int*

no poe warning-power

default poe warning-power

Parameter Description	**Parameter**	**Description**
	int	Power alarm threshold (percentage), in the range from 0 to 99.

Defaults	The default is 99.

Command Mode	Global configuration mode

Usage Guide	N/A

Configuration Examples	The following example sets the power alarm threshold for the system to 80%.

```
Ruijie(config)# poe waring-power 80
Ruijie(config)# end
Ruijie#write
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

10.13 show poe interface

Use this command to display PoE configuration and status of the specified port.

show poe interface *interface-name*

Parameter Description	**Parameter**	**Description**

interface-name	Interface name

Defaults   N/A

Command   Privileged EXEC mode.
Mode

Usage Guide   N/A

Configuration The following example displays the PoE configuration and status in interface GigabitEthernet 0/1.
Examples
```
Ruijie#show poe interface GigabitEthernet 0/1
Interface           : Gi0/1
Power enabled       : enable
Power status        : on
Max power           : N/A
Allocate power      : N/A
Current power       : 14.8 W
Average power       : 14.8 W
Peak power          : 14.8 W
Voltage             : 53.5 V
Current             : 278 mA
PD class            : 4
Trouble cause       : None
Priority            : critical
Legacy              : off
Power-off time-range : N/A
Power management    : auto
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

10.14 show poe interfaces

Use this command to display PoE status or configuration of all ports.

show poe interfaces status

show poe interfaces configuration

Parameter
Description

Parameter	Description
status	Displays PoE status of all ports.

configuration	Displays PoE configuration of all ports.

Defaults   N/A

**Command
Mode**   Privileged EXEC mode

Usage Guide   This command is used to display PoE status or configuration of all ports.

**Configuration
Examples**

The following example displays PoE status of all ports.

```
Ruijie#show poe interfaces status
Interface Power  Power Curr Avg  Peak Curr   Trouble PD   Port
          Control Status Power Power Power Current Cause  Class Voltage
-------------------------------------------------------------------------
Gi0/1    enable  on    14.8W 14.8W 14.8W 278mA  0      4    53.5V
Gi0/2    enable  on    28.4W 28.4W 28.4W 531mA  0      4    53.5V
Gi0/3    enable  on    14.9W 14.9W 14.9W 279mA  0      4    53.5V
Gi0/4    enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/5    enable  on    14.8W 14.8W 14.8W 278mA  0      4    53.5V
Gi0/6    enable  on    15.0W 15.0W 15.0W 281mA  0      4    53.5V
Gi0/7    enable  on    6.1W  6.1W  6.1W  115mA  0      4    53.5V
Gi0/8    enable  on    14.8W 14.8W 14.8W 277mA  0      4    53.5V
Gi0/9    enable  on    14.7W 14.7W 14.7W 276mA  0      4    53.5V
Gi0/10   enable  on    14.8W 14.8W 14.8W 278mA  0      4    53.5V
Gi0/11   enable  on    14.7W 14.7W 14.7W 275mA  0      4    53.5V
Gi0/12   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/13   enable  on    14.8W 14.8W 14.8W 278mA  0      4    53.5V
Gi0/14   enable  on    0.3W  0.3W  0.3W  7mA    0      4    53.5V
Gi0/15   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/16   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/17   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/18   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/19   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/20   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/21   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/22   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/23   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A  0.0V
Gi0/24   enable  off   0.0W  0.0W  0.0W  0mA    6      N/A
0.0V
```

The following example displays PoE configuration of all ports.

```
Ruijie#show poe interfaces configuration
Interface Power   Power  Max   Alloc Port     Port    Power-off
          Control Status Power Power Priority Legacy Time-range
-------------------------------------------------------------------------
```

```
Gi0/1    enable   on    N/A    N/A    critical  off     N/A
Gi0/2    enable   on    N/A    N/A    critical  off     N/A
Gi0/3    enable   on    N/A    N/A    critical  off     N/A
Gi0/4    enable   off   N/A    N/A    critical  off     N/A
Gi0/5    enable   on    N/A    N/A    critical  off     N/A
Gi0/6    enable   on    N/A    N/A    high      off    N/A
Gi0/7    enable   on    N/A    N/A    high      off    N/A
Gi0/8    enable   on    N/A    N/A    high      off    N/A
Gi0/9    enable   on    N/A    N/A    high      off    N/A
Gi0/10   enable   on    N/A    N/A    high      off    N/A
Gi0/11   enable   on    N/A    N/A    high      off    N/A
Gi0/12   enable   off   N/A    N/A    high      off    N/A
Gi0/13   enable   on    N/A    N/A    low       off    N/A
Gi0/14   enable   on    N/A    N/A    low       off    N/A
Gi0/15   enable   off   N/A    N/A    low       off    N/A
Gi0/16   enable   off   N/A    N/A    low       off    N/A
Gi0/17   enable   off   N/A    N/A    low       off    N/A
Gi0/18   enable   off   N/A    N/A    low       off    N/A
Gi0/19   enable   off   N/A    N/A    low       off    N/A
Gi0/20   enable   off   N/A    N/A    low       off    N/A
Gi0/21   enable   off   N/A    N/A    low       off    N/A
Gi0/22   enable   off   N/A    N/A    low       off    N/A
Gi0/23   enable   off   N/A    N/A    low       off    N/A
Gi0/24   enable   off   N/A    N/A    low       off    N/A
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

10.15 show poe powersupply

Use this command to display the PoE power supply status.

show poe powersupply

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command	Privileged EXEC mode

Mode

Usage Guide   N/A

Configuration   The following example displays the PoE power supply status.

Examples

```
Ruijie#show poe powersupply
Device member                 : 1
Power management              : auto
PSE total power               : 1000W
PSE total power consumption   : 300W
PSE total remain power        : 700W
PSE total powered port        : 0
PSE disconnect mode           : dc
PSE reserve power             : 0%
PSE warning power             : 99%
PSE class lldp                : disable
PSE uninterruptible-power     : disable
        PSE member                   : 1
        PSE Power status             : normal
        PSE Power Enabled            : enable
        PSE max power                : 300W
        PSE priority                 : low
        PSE alloc power              : 300W
        PSE available power          : 300W
        PSE total power consumption  : 0 W
        PSE total remain power       : 300W
        PSE peak power               : 0 W
        PSE average power            : 0 W
    PSE powered port             : 0
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

11 PKG_MGMT Commands

11.1 show component

Use this command to display all components already installed on current device and their information.

show component [*component _name*]

	Parameter	Description
Parameter Description	*component _name*	Name of the components When this parameter value is N/A, the command is used to display all components already installed on the device and basic information of these components. When this parameter value is not N/A, the command is used to display detailed information of the corresponding component, check whether the component isintact, and check whether this component works properly.

Command Mode   Privileged EXEC mode

Default Level   2

Usage Guide   This command includes one with *component_name* and one without *component_name*. During upgrade, it requires users to understand all components installed on current device and their version information before components deletion. This needs to use the **show component** command without *component_name*. The **show component** command with *component_name* is used to obtain details of the corresponding component. The detailed information enables users to easily realize components' operation and damage. It is significant to insure their troubleshooting, security and reliability.

> ⓘ Some components in use will change their defaults files. Though this is more possibly normal than malicious, the **show component** command is used only to judge whether component files change in use. It is unable to distinguish natural damage from malicious one. It depends on users to make a further judgment.

Configuration Examples   The following example displays all components already installed on the box device and their information.

```
Ruijie# show component
Package :sysmonit
    Version:1.0.1.23cd34aa     Build time: Wed Dec  7 00:58:56 2013
    Size:12877  Install time :Wed  Mar 5 14:23:12 2012
```

```
    Description: this is a system monit package
    Required packages: None
----------------------------------------------------------------
Package:bridge
    Version:2.0.1.37cd5cda     Build time: Wed Dec  7 00:54:56 2013
    Size:23245  Install time :Wed  Mar 5 14:30:12 2012
    Description: this is a bridge package
    Required packages: None
----------------------------------------------------------------
```

This command is used to obtain all components already installed on the device and theirbasic information. The information offers a basis for users to decide whether to upgrade or delete components.

Field	Description
Package	Name of the component
Version	Version number of the component
Build time	Compilation time of the component on the server
Size	Content size of the component
Install time	Installation time of the component
Description	Simple functional description of the component
Required packages	Name of required packages

The following example displays the information of specified components already installed on the box device.

```
Ruijie# show componentbridge
package:bridge
    Version: 2.3.1.1252ea     Build time: Wed Dec  7 00:54:56 2013
    Size:26945  Install time : Wed Mar 19:23:15 2012
    Description:this is a bridge package
    Required packages: None
    Package files:
       /lib64
       /lib64/libbridge.so
       /sbin
     /sbin/bridge

    Package file validate: [OK]
    Required relationship verify: [OK]
```

The other information except the basic information of components is listed as follows.

Field	Description

Package file validate		Checks whether the component filesare intact. "OK" is displayed when all component files work properly; "ERR" is displayed together with their names when some component files are lost or revised.
Required package		Lists all required packages of the component. "OK" is labeled if required components are already installed; "ERR" is labeled if not together with detailed description about their names and versions.
Package files		Lists all files contained in the package.

Prompt Messages   The execution is successful with all components information displayed.

```
Package :sysmonit
    Version:1.0.1.23cd34aa      Build time: Wed Dec  7 00:58:56 2013
    Size:12877  Install time :Wed  Mar 5 14:23:12 2012
    Description: this is a system monit package
    Required packages: None
------------------------------------------------------------------
Package:bridge
    Version:2.0.1.37cd5cda      Build time: Wed Dec  7 00:54:56 2013
    Size:23245  Install time :Wed  Mar 5 14:30:12 2012
    Description: this is a bridge package
    Required packages: None
------------------------------------------------------------------
```

11.2 upgrade

Use this command to install and upgrade an installation package in the local file system.

upgrade *url*[**force**]

Parameter Description

Parameter	Description
url	The local path indicates where an installation package is stored. This command is used to upgrade an installation package on the device.
force	Mandatory upgrade

Command Mode   Privileged EXEC mode

Default Level   2

Usage Guide   This command is applicable to installation packages of all subsystem components, chassis devices,

and feature components. Before its use, run the **copy** command to copy feature packages into the file system in the device.

When there is no specified range of parameters, the command is used to upgrade the matched system components according to the auto-sync configuration.

Configuration Examples	The following example upgrades the main package.

```
Ruijie#upgrade usb0:/eg1000m_main_1.0.0.0f328e91.bin
 Upgrade processing is 10%
Upgrade processing is 60%
 Upgrade processing is 90%
 Upgrade info [OK]
    Kernel version[2.6.32.91f9d21->2.6.32.9f8b56f]
    Rootfs version[1.0.0.2ad02537->1.0.0.1bcc12e8]
 Upgrade processing is 100%
 Reload system to take effect!
```

Verification	Run the **show version detail** command to check whether the upgrade of a subsystem component is successful. Run the **show component** command to check whether the upgrade of a feature component is successful. upgrading a feature component

Prompt Messages	The prompt message of successful running is displayed.

```
Upgrade info [OK]
```

The installation package is invalid or damaged and needs to be regained for upgrade command.

```
Invalid package file
```

The installation package is not available on the device and needs to be regained for upgrade command.

```
Device don't support
```

There is no need to upgrade the device.

```
The version in device is newer or the same
```

When there is insufficient space for upgrade, check USB flash disk attached on the device.

```
No enough space for decompress
```

Contact the service center to solve the system problem.

```
No enough space,rootfs been destroyed. Please upgrade in uboot
```

11.3 upgrade download tftp

Use this command to download, install and upgrade installation packages from the tftp server.

upgrade download tftp:/*path* [**force**]

Parameter Description	Parameter	Description
	path	The path of installation packages on the tftp server
		This command is downloaded and upgraded automatically from the server.
	force	Enforces upgrade.

Command Mode   Privileged EXEC mode

Default Level   2

Usage Guide   This command is applicable to installation packages of all subsystem components, chassis devices, and feature components. This command is used to perform automatic installation, copy and upgrade of files.

Configuration Examples   The following example upgrades the main package.

```
Ruijie# upgrade download
tftp://192.168.201.98/eg1000m_main_1.0.0.0f328e91.bin
Accessing tftp://192.168.201.98/eg1000m_main_1.0.0.0f328e91.bin...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!
Transmission finished, file length 21525888 bytes.
 Upgrade processing is 10%
 Upgrade processing is 60%
 Upgrade processing is 90%
 Upgrade info [OK]
        Kernel version[2.6.32.91f9d21->2.6.32.9f8b56f]
        Rootfs version[1.0.0.2ad02537->1.0.0.1bcc12e8]
 Upgrade processing is 100%
Reload to take effect!
```

Verification   Run the **show version detail** command to check whether the upgrade of a subsystem component is successful.

Run the **show component** command to check whether the upgrade of a feature component is successful.

Prompt Messages   The prompt message of successful running is displayed.

```
Upgrade info [OK];
```

The installation package is invalid or damaged and needs to be regained for upgrade command.

```
Invalid package file
```

The installation package is not available on the device and needs to be regained for upgrade command.

```
Device don't support
```

There is no need to upgrade the device.

```
The version in device is newer or the same
```

When there is insufficient space for upgrade, check USB flash disk attached on the device.

```
No enough space for decompress
```

Contact the service center to solve the system problem.

```
No enough space,rootfs been destroyed. Please upgrade in uboot
```

11.4 clear storage

Use this command to remove an installation package on the local device.

clearstorage[*url*]

Parameter Description	Parameter	Description
	url	A local *url* directory or full path name indicates where the installation package is stored

Command Mode	Privileged EXEC mode
Default Level	2
Usage Guide	This command is used to remove an installation package or all packages in a directory and all installation packages on the local device.
| **Configuration Examples** | ```
Ruijie#clear storage
Remove the whole storage directory?[y/n]y
Ruijie#clear storage usb0
Remove the file or directory usb0 from the storage?[y/n]y
Ruijie#
``` |
| **Verification** | Check specified *url* |
| **Platforms** | N/A |

Ethernet Configuration Commands

1. Interface Commands

2. MAC Address Commands

3. Aggregate Port Commands

4. VLAN Commands

5. MSTP Commands

6. LLDP Commands

1 Interface Commands

1.1 bandwidth

Use this command to set the bandwidth on the interface. Use the **no** form of this command to restore the default setting.

bandwidth *kilobits*

no bandwidth

Parameter Description	1.2 Parameter	Description
	kilobits	Bandwidth per second, in the unit of Kbps.

Defaults   If this command is not configured on the interface, use the **show interface** command to display the default setting in privileged EXEC mode.

Command Mode   Interface configuration mode

Usage Guide   This command does not affect the actual bandwidth on the interface. Instead, it is used to display the system the bandwidth specification. By default, the bandwidth is determined by the actual link rate on the interface. It can be set by the user as well.

Configuration Examples   The following example sets the bandwidth on the interface to 64 Kbps.

```
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# bandwidth 64
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

1.3 carrier-delay

Use this command to set the carrier delay on the interface. Use the no form of this command to restore the default value.

carrier-delay {[**milliseconds**] *num* | **up** [**milliseconds**] *num* }

no carrier-delay

Parameter Description	Parameter	Description
	num	(Optional) in the range from 0 to 60 in the unit of seconds.
	milliseconds	(Optional) in the range from 0 to 60000 in the unit of milliseconds.
	up	(Optional) Configures the delay after which DCD changes from Down to Up in status.

Defaults   The default is 2 seconds.

**Command
Mode**   Interface configuration mode

Usage Guide   This parameter refers to the delay after which the carrier detection signal DCD of the interface link changes from the Down status to the Up status. If the DCD changes within the delay, the system will ignore such changes without disconnecting the upper data link layer for renegotiation.

If the DCD carrier is disconnected for a long time, the parameter should be set longer to accelerate route aggregation so that the routing table can be converged more quickly. On the contrary, if the DCD carrier interruption period is shorter than the time used for route aggregation, you should set the parameter to a higher value to avoid unnecessary route vibration.

**Configuration
Examples**   The following example sets the carrier delay of serial interface to 5 seconds.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config)# carrier-delay 5
```

The following example sets the carrier delay of serial interface to 100 milliseconds.

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)#carrier-delay milliseconds
100
```

The following example sets the DCD delay from Down to Up in status to 100 milliseconds.

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# carrier-delay up
milliseconds 100
```

Related Commands	Command	Description
	N/A	N/A

**Platform
Description**   N/A

1.4 clear counters

Use this command to clear the counters on the specified interface.

clear counters [*interface-type interface-number*]

Parameter Description	Parameter	Description
	interface-type interface-number	Interface type and interface ID

Defaults   N/A

Command Mode   Privileged EXEC mode.

Usage Guide   In the privileged EXEC mode, use the **show interfaces** command to display the counters or the **clear counters** command to clear the counters. If the interface is not specified, the counters on all interfaces will be cleared.

Configuration Examples   The following example clears the counters on interface gigabitethernet 1/1.

```
Ruijie# clear counters gigabitethernet 1/1
```

Related Commands	Command	Description
	show interfaces	Displays the interface information.

Platform Description   N/A

1.5   clear interface

Use this command to reset the interface.

clear interface *interface-type interface-number*

Parameter Description	Parameter	Description
	interface-type interface-number	Interface type and interface ID

Defaults   N/A

Command Mode   Privileged EXEC mode.

Usage Guide   This command is only used on the switch port, member port of the L2 Aggregate port, routing port, and member port of the L3 aggregate port. This command is equal to the **shutdown** and **no shutdown** commands.

Configuration	The following example resets the interface gigabitethernet 1/1.
| Examples | ```
Ruijie# clear interface gigabitethernet 1/1
``` |

Related Commands	Command	Description
	shutdown	Disables the interface.

Platform Description	N/A

1.6 description

Use this command to configure the alias of interface. Use the **no** form of this command to restore the default setting.

description *string*
no description

Parameter Description	Parameter	Description
	string	Interface alias

Defaults	No alias is configured by default.

Command Mode	Interface configuration mode.

Usage Guide	Use **show interfaces** to display the interface information, including the alias.

Configuration	The following example configures the alias of interface.
| Examples | ```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# description GBIC-1
``` |

Related Commands	Command	Description
	show interfaces **show interfaces description**	Displays the interface alias.

Platform Description	N/A

1.7 duplex

Use this command to specify the duplex mode for the interface. Use the **no** form of this command to

restore the default setting.

duplex { **auto** | **full** | **half** }

no duplex

Parameter	**Parameter**	**Description**
Description	**auto**	Self-adaptive full duplex and half duplex
	full	Full duplex
	half	Half duplex

Defaults   The default is **auto**,

Command   Interface configuration mode.

Mode

Usage Guide   The duplex mode is associated with the interface type. Use **show interfaces** to display the duplex

mode of the interface

Configuration   The following example specifies the duplex mode for the interface.

Examples
```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# duplex full
```

Related	**Command**	**Description**
Commands	**show interfaces**	Displays the interface information.

Platform   N/A

Description

1.8   eee enable

Use this command to enable Energy Efficient Ethernet (EEE) on the interface.

eee enable

Parameter	**Parameter**	**Description**
Description	N/A	N/A

Defaults   This function is disabled by default.

Command   Interface configuration mode

Mode

Usage Guide   Use this command to achieve EEE on the interface in Low Power Idle(LPI) mode,

Configuration Examples	The following example enables EEE on GigabitEthernet 0/1.

```
Ruijie(config)#interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# eee enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.9 errdisable recovery

Use this command to recover the interface in violation.

errdisable recovery [**interval** *time*]

Parameter Description

Parameter	Description
interval *time*	Time for the command to take effect. The range is from 30 to 86,400 seconds.

Defaults   By default, it is disabled.

Command Mode   Global configuration mode.

Usage Guide   Use the **show interfaces status err-disable** command to recover the port that triggers violation after being configured with the **violation shutdown** command.

Configuration Examples   The following example recovers the violation interface.

```
Ruijie(config)# errdisable recovery
Ruijie(config)# end
```

Related Commands

Command	Description
show interfaces status err-disable	Displays the interface violation information.

Platform Description   N/A.

1.10 flowcontrol

Use this command to enable or disable the flow control. Use the **no** form of this command to restore the default setting.

flowcontrol { **auto** | **off** | **on**}

no flowcontrol

Parameter Description	Parameter	Description
	auto	Self-negotiates the flow control.
	off	Disables the flow control.
	on	Enables the flow control.

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode.

Usage Guide   NA

Configuration Examples   The following example enables flow control on fastEthernet port 1/1.

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# flowcontrol on
```

Related Commands	Command	Description
	show interfaces	Displays the interface information.

Platform Description   N/A

1.11 interface

Use this command to enter the interface configuration mode.

interface *interface-type interface-number*

Parameter Description	Parameter	Description
	interface-type	The interface type.
	interface-number	The interface ID.

Defaults   N/A

| **Command Mode** | Global configuration mode |

| **Usage Guide** | This command is used to enter interface configuration mode. The user can modify the interface configuration next, |

| **Configuration Examples** | The following example enters configuration mode on Aggregateport 1. |

```
Ruijie(config)# interface Aggregateport 1
Ruijie(config-if-Aggregateport 1)#
```
The following example enters configuration mode on GigabitEthernet 1/2.
```
Ruijie(config)# interface GigabitEthernet 1/2
Ruijie(config-if-GigabitEthernet 1/2)#
```
The following example configuration mode on VLAN 1.
```
Ruijie(config)# interface vlan 1
Ruijie(config-if-VLAN 1)#
```

Related Commands	Command	Description
	N/A	N/A

| **Platform Description** | N/A |

1.12 interface range

Use this command to enter interface configuration mode on multiple interfaces.

interface range { *port-range* | **macro** *macro_name* }

Use this command to define the macro name of the **interface range** command.

define interface-range *macro_name*

Parameter Description	Parameter	Description
	port-range	The interface type and ID range, entered in the form of *interface-type slot-number/interface-number*. The interface can be either an Ethernet physical interface or a loopback interface.
	macro *macro_name*	The macro name which represents the interface range.

| **Defaults** | The **interface range** command is disabled by default. |

| **Command Mode** | Global configuration mode |

| **Usage Guide** | Use the define interface-range command to define a range of interfaces as the macro name and then use the **interface** range macro macro_name command to enter interface configuration mode on |

multiple interfaces.

Configuration Examples	The following example enters interface configuration mode on multiple interfaces by setting the interface range.

```
Ruijie(config)# interface range gigabitEthernet 0/0, 0/2
Ruijie(config-if-range)# bandwidth 100
```

The following example enters interface configuration mode on multiple interfaces by defining the macro name.

```
Ruijie(config)# define interface-range route1 gigabitEthernet 0/0-2
Ruijie(config)# interface range macro route1
Ruijie(config-if-range)# bandwidth 100
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

1.13 line-detect

Use this command to detect the cable connection status.

line-detect

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A

Command Mode	Interface configuration mode.

Usage Guide	This command is used to detect the line status and locate the problem in case of a line failure, for example, the line is torn down.

Configuration Examples	The following example detects the cable connection status on gigabitEthernet 0/1.

```
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
This operation may force the port down and up once, continue?[Y/N]:y
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs, length +/- 10 meters
pair state     length(meters)
---- ---------- --------------
A    OK         4
```

```
B    OK          9
C    Short       4
D    Short       4
```

Field	Description
pairs	Number of line pairs included. For example, the twisted pair includes four pairs of lines.
state	Status of the current line pair: OK, Short or Open. In general, the 100M twisted pairs A and B are OK, C and D are Short. The 1000M twisted pairs A, B, C and D are all OK.
length	Length of the line in meter. Only the length of the line pair whose status is OK takes effect. Since the length is calculated based on the transmission time of signal, there may have a certain difference. The length of the line pair whose status is Short or Open is the length from the port to the faulty point.

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.14 load-interval

Use this command to set the interval for calculating load on the interface. Use the **no** form of this command to restore the default setting.

load-interval *seconds*

no load-interval

Parameter Description

Parameter	Description
seconds	In the range from 5 to 600 in the unit of seconds.

Defaults   The default is 10.

Command Mode   Interface configuration mode

Usage Guide   This command is used to set the interval for calculating load on the interface. In general, the numbers of incoming and outgoing packets and bytes are calculated every 10 seconds. For example, if the parameter is set to 180 seconds, the following outcome is displayed when the **show interface gigabitEthernet 0/1** command is run.

```
3 minutes input rate 15 bits/sec, 0 packets/sec
```

```
3 minutes output rate 14 bits/sec, 0 packets/sec
```

Configuration Examples   The following example sets the interval for calculating load on interface GigabitEthernet 0/1 to 180 seconds.

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# load-interval 180
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.15 logging

Use this command to print information on the interface.

logging [**link-updown** | **error-frame** | **link-dither**]

Parameter Description

Parameter	Description
link-updown	Prints the status change information.
error-frame	Prints the error frame information.
link-dither	Prints the oscillation information.

Defaults   This function is enabled by default.

Command Mode   Global configuration mode

Usage Guide   N/A

Configuration Examples   The following example prints information on the interface..

```
Ruijie(config)# logging link-updown
Ruijie(config)# logging error-frame
Ruijie(config)# logging link-dither
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.16 medium-type

Use this command to specify the medium type for an interface. Use the **no** form of this command to restore the default setting.

medium-type { **auto-select** [**prefer** [**fiber** | **copper**]] | **fiber** | **copper** }

no medium-type

Parameter Description

Parameter	Description
fiber	Optical interface.
prefer [**fiber**	**copper**]	The preferred medium type for the interface is selected.
auto-select	Auto-selects the medium type for the interface.
copper	Copper interface.

Defaults   The default is **copper**.

Command Mode   Interface configuration (physical interface, except for AP and SVI)

Usage Guide   Select either fiber or copper as the medium type of a port when both medium types are available. Once the medium type is selected, all interface attributes, including the status, duplex mode, and speed, are configured for the interface of the selected medium type. If the interface type is changed, the attributes of the new interface type are the default attributes. You can reconfigure these attributes as required.

If you enable automatic selection of the medium type, the device uses the current medium if only one medium is available. If both media are available, the device uses the preferred medium as configured. By default, the preferred medium is copper. You can run the **medium-type auto-select prefer fiber** command to configure fiber as the preferred media. In automatic medium selection mode, the interface adopts the default settings of attributes, such as the speed, duplex mode, and flow control mode.

Configuration Examples   The following example specifies the medium type for interface gigabitethernet 1/1.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# medium-type copeer
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description

1.17 mtu

Use this command to set the MTU supported on the interface.

mtu *num*

Parameter		
Parameter	**Description**	
num	64 to ? (depend on chips)	

Defaults   The default is 1500.

Command Mode   Interface configuration mode.

Usage Guide   This command is used to set the maximum transmission unit (MTU) supported on the interface.

Configuration Examples   The following example sets the MTU supported on interface gigabitethernet 1/1 to 9000.

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet)# mtu 9000
```

Related Commands		
Command	**Description**	
show interfaces	Displays the interface information.	

Platform Description   N/A

1.18 negotiation mode

Use this command to enable or disable auto-negotiation mode. Use the **no** form of this command to restore the default setting.

negotiation mode { **on** | **off** }

no negotiation mode

Parameter		
Parameter	**Description**	
on	Enables auto-negotiation.	
off	Disables auto-negotiation.	

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode

Usage Guide	In general, the auto-negotiation status is determined by interface speed, duplex, flow control and auto-negotiation factor mode.

Configuration Examples	The following example enables auto-negotiation mode on interface GigabitEthernet 1/1.

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# negotiation mode on
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

1.19 physical-port dither protect

Use this command to enable oscillation protection on the port.

physical-port dither protect

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	This function is enabled by default.

Command Mode	Global configuration mode

Usage Guide	After you configure the **physical-port dither protect** command, the port will be shut down when the oscillation occurs for certain times.

> ⓘ If oscillation occurs on the port for 6 times within 2 seconds, a syslog will be printed. If syslog is printed for 10 consecutive times, the port will be shut down, If oscillation occurs on the port for over 10 times within 10 seconds, a syslog will be printed but the port will not be shut down.

Configuration Examples	The following example enables oscillation protection on the port.

```
Ruijie(config)# physical-port dither protect
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform	N/A

Description

1.20 shutdown

Use this command to disable an interface. Use the **no** form of this command to enable a disabled port.

shutdown

no shutdown

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   By default, the administrative status of an interface is Up.

Command Mode   Interface configuration mode

Usage Guide   Use this command to stop the forwarding on the interface (Gigabit Ethernet interface, Aggregate port or SVI). You can enable the port with the **no shutdown** command. If you shut down the interface, the configuration of the interface exists, but does not take effect. You can view the interface status by using the **show interfaces** command.

> ⓘ   If you use the script to run no shutdown frequently and rapidly, the system may prompt the interface status reversal.

Configuration Examples   The following example disables an interface.

```
Ruijie(config)# interface aggregateport 1
Ruijie(config-if)# shutdown
```

The following example enables an interface.

```
Ruijie(config)# interface aggregateport 1
Ruijie(config-if)# no shutdown
```

Related Commands	Command	Description
	clear interface	Resets the hardware.
	show interfaces	Displays the interface information.

Platform Description   N/A

1.21 snmp trap link-status

Use this command to send LinkTrap on a port. Use the **no** form of this command to disable this function.

snmp trap link-status

no snmp trap link-status

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is enabled by default

Command Mode Interface configuration mode.

Usage Guide For an interface (for instance, Ethernet interface, AP interface, and SVI interface), this command sets whether to send LinkTrap on the interface. If the function is enabled, the SNMP sends the LinkTrap when the link status of the interface changes.

Configuration Examples The following example disables the interface from sending LinkTrap on the interface.

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# no snmp trap link-status
```

The following example enables the interface to forward Link trap.

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# snmp trap link-status
```

Related Commands	Command	Description
	snmp trap link-status	Enables the interface to send LinkTrap on the interface.
	no snmp trap link-status	Disables the interface from sending LinkTrap on the interface.

Platform Description N/A

1.22 snmp-server if-index persist

Use this command to set the interface index persistence. The interface index remains the same after the device is restarted.

snmp-server if-index persist

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   After this command is configured, all interface indexes are saved in the configuration file. After the device is restarted, interface indexes remain the same as before.

Configuration Examples   The following example enables the interface index persistence.
```
Ruijie(config)# snmp-server if-index persist
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

1.23 speed

Use this command to configure the speed on the port. Use the **no** form of this command to restore the default setting.

speed [**10 | 100 | 1000 | auto**]

no speed

Parameter Description	Parameter	Description
	10	The transmission rate of the interface is 10Mbps.
	100	The transmission rate of the interface is 100Mbps.
	1000	The transmission rate of the interface is 1000Mbps.
	auto	Self-adaptive

Defaults   The default is **auto**.

Command Mode   Interface configuration mode.

Usage Guide   If an interface is the member of an aggregate port, the rate of the interface depends on the rate of the aggregate port. You can set the rate of the interface, but it does not take effect until the interface exits

the aggregate port. Use **show interfaces** to display configuration. The rate varies by interface types. For example, you cannot set the rate of a SFP interface to 10M or 100M.

Configuration Examples	The following example sets the speed on interface gigabitethernet 1/1 to 100Mbps.
	`Ruijie(config)# interface GigabitEthernet 1/1` `Ruijie(config-if-GigabitEthernet 1/1)# speed 100`

Related Commands	Command	Description
	show interfaces	Displays the interface information.

Platform Description	N/A

1.24 switchport

Use this command to configure a Layer 2 interface. Use the **no** form of this command to configure a Layer 3 interface.

switchport

no switchport

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	All the interfaces are in Layer 2 mode by default.

Command Mode	Interface configuration mode.

Usage Guide	This command is valid only for physical interfaces. The **switchport** command is used to disable the interface and re-enable it. In this status, the device will send the information to indicate the connect status. If the interface is changed to Layer 3 mode from Layer 2, all the attributes in Layer 2 mode will be cleared.

Configuration Examples	The following example configures a Layer 2 interface.
	`Ruijie(config-if)# switchport`

Related Commands	Command	Description
	show interfaces	Displays the interface information.

Platform Description	N/A

1.25 switchport access

Use this command to configure an interface as a statics access port and add it to a VLAN. Use the **no** form of this command to restore the default setting.

switchport access vlan *vlan-id*

no switchport access vlan

Parameter Description	Parameter	Description
	vlan-id	The VLAN ID at which the port to be added.

Defaults   By default, the switch port is an access port and the VLAN is VLAN 1.

Command Mode   Interface configuration mode.

Usage Guide   Enter one VLAN ID. The system will create a new one and add the interface to the VLAN if you enter a new VLAN ID. If the VLAN ID already exists, the command adds the interface to the VLAN.

If the port is a trunk port, the operation does not take effect.

Configuration Examples   The following example configures interface gigabitethernet 1/1 as a statistic access port and adds it to VLAN 2.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```

Related Commands	Command	Description
	switchport mode	Configures the interface as Layer 2 mode (switch port mode).
	switchport trunk	Configures a native VLAN and the allowed-VLAN list for the trunkport.

Platform Description   N/A

1.26 switchport mode

Use this command to specify a L2 interface (switch port) mode. You can specify this interface to be an access port or a trunk port or an 802.1Q tunnel. Use the **no** form of this command to restore the default setting.

switchport mode { **access** | **trunk** }

no switchport mode

Parameter Description	Parameter	Description
	access	Configures the switch port as an access port.
	trunk	Configures the switch port as a trunk port.

Defaults   The default is **Access**.

Command   Interface configuration mode.
Mode

Usage Guide   If a switch port mode is access port, it can be the member port of only one VLAN. Use **switchport access vlan** to specify the member of the VLAN.

A trunk port can be the member port of various VLANs defined by the allowed-VLAN list. The allowed VLAN list of the interface determines the VLANs to which the interface may belong. The trunk port is the member of all the VLANs in the allowed VLAN list. Use **switchport trunk** to define the allowed-VLANs list.

Configuration   The following example specifies a L2 interface (switch port) mode.
Examples
```
Ruijie(config-if)# switchport mode trunk
```

Related Commands	Command	Description
	switchport access	Configures an interface as a statics access port and assigns it to a VLAN.
	switchport trunk	Configures a native VLAN and the allowed-VLAN list for the trunk port.

Platform   N/A
Description

1.27 switchport trunk

Use this command to specify a native VLAN and the allowed-VLAN list for the trunk port. Use the **no** form of this command to restore the default setting.

switchport trunk { **allowed vlan** { **all |** [**add** | **remove** | **except**] *vlan-list*   } | **native vlan** *vlan-id* }

no switchport trunk { **allowed vlan** | **native vlan** }

Parameter Description	Parameter	Description
	allowed vlan *vlan-list*	Configures the list of VLANs allowed on the trunk port. *vlan-list* can be a VLAN or a range of VLANs starting with the smaller VLAN ID and ending with the larger VLAN ID and being separated by hyphen, for example, 10 to 20. The segments can be separated with a comma (,), for example, 1 to 10, 20 to 25, 30, 33.

		all means that the allowed VLAN list contains all the supported VLANs; add means to add the specified VLAN list to the allowed VLAN list; remove means to remove the specified VLAN list from the allowed VLAN list; except means to add all the VLANs other than those in the specified VLAN list to the allowed VLAN list;
	native vlan *vlan-id*	Configures the native VLAN.

Defaults   The allowed VLAN list is all, the Native VLAN is VLAN1.

Command Mode   Interface configuration mode.

Usage Guide   Native VLAN:

A trunk port belongs to one native VLAN. A native VLAN means that the untagged packets received/sent on the trunk port belong to the VLAN. Obviously, the default VLAN ID of the interface (that is, the PVID in the IEEE 802.1Q) is the VLAN ID of the native VLAN. In addition, when frames belonging to the native VLAN are sent over the trunk port, they are untagged.

Allowed-VLAN List:

By default, a trunk port sends traffic to and received traffic from all VLANs (ID 1 to 4094). However, you can prevent the traffic from passing over the trunk by configuring allowed VLAN lists on a trunk. Use show interfaces switchport to display configuration.

Configuration Examples   The following example configures the native VLAN of GigabitEthernet 1/1 as VLAN 2 .

Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# switchport trunk native vlan 2

Related Commands

Command	Description
show interfaces	Displays the interface information.
Switchport access	Configures an interface as a statics access port and assigns it to a VLAN.

Platform Description   N/A

1.28 show eee interfaces status

Use this command to display interface EEE status.

Show eee interfaces { *interface-type interface-number* | *status* }

Parameter

Parameter	Description

Description		
	interface-type *interface-number*	Interface type and ID.
	Status	All interface EEE status.

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   If the interface is specified, the EEE status of the specified interface is displayed; otherwise, the EEE
status of all interfaces is displayed.

Configuration   The following example displays EEE status of interface GigabitEthernet 0/1.
Examples

```
Ruijie#show eee interface gigabitEthernet 0/1
Interface           : Gi0/1
EEE Support         : Yes
Admin Status        : Enable
Oper Status         : Disable
Remote Status       : Disable
Trouble Cause       : Remote Disable
```

Field	Description
EEE Support	Whether EEE is supported
Admin Status	Configuration status
Oper Status	Operation status
Trouble Cause	Trouble cause

The following example displays EEE status of all interfaces.

```
Ruijie#show eee interface status
Interface EEE      Admin    Oper     Remote   Trouble
          Support Status   Status   Status   Cause
--------- ------- -------- -------- -------- --------------------
Gi0/1    Yes     Enable   Disable  Disable   Remote Disable
Gi0/2    Yes     Enable   Disable  Unknown   None
Gi0/3    Yes     Enable   Enable   Enable    None
Gi0/4    Yes     Enable   Enable   Enable    None
Gi0/5    Yes     Enable   Enable   Enable    None
Gi0/6    Yes     Enable   Enable   Enable    None
Gi0/7    Yes     Enable   Enable   Enable    None
Gi0/8    Yes     Enable   Enable   Enable    None
Gi0/9    Yes     Enable   Enable   Enable    None
Gi0/10   Yes     Enable   Enable   Enable    None
Gi0/11   Yes     Enable   Enable   Enable    None
Gi0/12   Yes     Enable   Enable   Enable    None
```

```
Gi0/13    Yes    Enable    Enable    Enable    None
Gi0/14    Yes    Enable    Enable    Enable    None
Gi0/15    Yes    Enable    Enable    Enable    None
Gi0/16    Yes    Enable    Enable    Enable    None
Gi0/17    Yes    Enable    Enable    Enable    None
Gi0/18    Yes    Enable    Enable    Enable    None
Gi0/19    Yes    Enable    Enable    Enable    None
Gi0/20    Yes    Enable    Enable    Enable    None
Gi0/21    Yes    Enable    Enable    Enable    None
Gi0/22    Yes    Enable    Enable    Enable    None
Gi0/23    Yes    Enable    Enable    Enable    None
Gi0/24    Yes    Enable    Enable    Enable    None
Gi0/25    No     -         -         -         -
Gi0/26    No     -         -         -         -
Gi0/27    No     -         -         -         -
Gi0/28    No     -         -         -         -
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.29 show interfaces

Use this command to display the interface information and optical module information.

show interfaces [*interface-type interface-number*] [**description | switchport**]

Parameter Description

Parameter	Description
interface-id *interface-number*	Interface (including Ethernet interface, aggregate port, SVI or loopback interface).
description	The description of the interface, including the link status.
switchport	Layer 2 interface information.

Defaults

Command Mode   Privileged EXEC mode.

Usage Guide   This command is used to show all basic information if no parameter is specified.

Configuration   The following example displays the interface information when the Gi0/1 is a Trunk port.

Examples
```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
flow receive control admin status is OFF,flow send control admin status is OFF,flow
receive control oper status is Unknown,flow send control oper status is Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm Control
is OFF
 Port-type: trunk
   Native vlan:1
Allowed vlan lists:1-4094
Active vlan lists:1, 3-4
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the interface information when the Gi0/1 is an Access port.
```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
```

```
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
    flow receive control admin status is OFF,flow send control admin status is
OFF,flow receive control oper status is Unknown,flow send control oper status is
Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm Control
is OFF
Port-type: access
Vlan id : 2
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the layer-2 interface information when the Gi0/1 is a Hybrid port.

```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
```

```
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
    flow receive control admin status is OFF,flow send control admin status is
OFF,flow receive control oper status is Unknown,flow send control oper status is
Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm Control
is OFF
Port-type: hybrid
Tagged vlan id:2
Untagged vlan id:none
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the layer-2 information of the Gi0/1.

```
Ruijie# show interfacesgigabitEthernet 0/1 switchport
Interface Switchport ModeAccess Native Protected VLAN lists
--------- ---------- --------- ------ ------ ---------
GigabitEthernet 0/1 enabled Access 11  Disabled  ALL
```

	Command	Description
Related Commands	**duplex**	Duplex
	flowcontrol	Flow control status.
	interface gigabitEthernet	Selects the interface and enter the interface configuration mode.
	interface aggregateport	Creates or accesses the aggregate port, and enters the interface configuration mode.
	interface vlan	Creates or accesses the switch virtual interface (SVI), and enters the interface configuration mode.
	shutdown	Disables the interface.
	speed	Configures the speed on the port.
	switchport priority	Configures the default 802.1q interface priority.
	switchport protected	Configures the interface as a protected port.

Platform Description	N/A

1.30 show interfaces counters

Use this command to display the received and transmitted packet statistics.

show interfaces [*interface-type interface-number*] **counters** [**increment** | **error** | **rate** | **summary**]

Parameter Description

Parameter	Description
interface-type interface-number	(Optional) The interface type and ID.
increment	Displays the packet statistics increased during the last sample interval.
error	Displays error packet statistics.
rate	Displays packet receiving and transmitting rate.
summary	Displays packet statistics summary.

Defaults   N/A

Command Mode   Any CLI mode

Usage Guide   If you do not specify an interface, the packet statistics on all interfaces are displayed.

Configuration Examples   The following example displays packet statistics on interface GigabitEthernet 0/1.

```
Ruijie#show interfaces GigabitEthernet 0/1 counters
Interface : GigabitEthernet 0/1
5 minute input rate  : 9144 bits/sec, 9 packets/sec
5 minute output rate : 1280 bits/sec, 1 packets/sec
Rxload            : 1%
InOctets          : 17310045
InPkts            : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
InUcastPkts       : 100
InMulticastPkts   : 100
InBroadcastPkts   : 800
Txload            : 1%
OutOctets         : 1282535
OutPkts           : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
OutUcastPkts      : 100
OutMulticastPkts  : 100
OutBroadcastPkts  : 800
Undersize packets : 0
Oversize packets  : 0
collisions        : 0
Fragments         : 0
Jabbers           : 0
```

```
CRC alignment errors : 0
AlignmentErrors      : 0
FCSErrors            : 0
dropped packet events (due to lack of resources): 0
packets received of length (in octets):
  64:46264
  65-127: 47427
  128-255: 3478
  256-511: 658
  512-1023: 18016
  1024-1518: 125
Packet increment in last sampling interval(5 seconds):
  InOctets           : 10000
  InPkts             : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
  InUcastPkts        : 100
  InMulticastPkts    : 100
  InBroadcastPkts    : 800
  OutOctets          : 10000
  OutPkts            : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
  OutUcastPkts       : 100
  OutMulticastPkts   : 100
```

> **ℹ** Rxload refers to the receive bandwidth usage and Txload refers to the Tx bandwidth usage.
> InPkts is the total number of receive unicast, multicast and broadcast packets. OutPkts is the
> total number of transmit unicast, multicast and broadcast packets.
> Packet increment in last sampling interval (5 seconds) represents the packet statistics increased
> during the last sample interval (5 seconds).

The following example displays the packet statistics on interface GigabitEthernet 0/1 increased during
the last sample interval.

```
Ruijie#show interfaces GigabitEthernet 0/1 counters increment
Interface : GigabitEthernet 0/1
Packet increment in last sampling interval(5 seconds):
  InOctets           : 10000
  InPkts             : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
  InUcastPkts        : 100
  InMulticastPkts    : 100
  InBroadcastPkts    : 800
  OutOctets          : 10000
  OutPkts            : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
  OutUcastPkts       : 100
  OutMulticastPkts   : 100
```

The following example displays error packet statistics on interface GigabitEthernet 0/1.

```
Ruijie#show interfaces GigabitEthernet 0/1 counters increment
Interface   UnderSize         OverSize          Collisions
Fragments
```

```
------------ ------------------- ------------------- --------------------
-------------------
Gi0/1        0                   0                   0                    0
Interface   Jabbers             CRC-Align-Err       Align-Err
FCS-Err
------------ ------------------- ------------------- --------------------
-------------------
Gi0/1        0                   0                   0                    0
```

UnderSize is the number of valid packets smaller than 64 bytes.

OverSize is the number of valid packets smaller than 1518 bytes.

Collisions is the number of colliding transmit packets.

Fragments is the number of packets with CRC error or frame alignment error which are smaller than 64 bytes.

Jabbers is the number of packets with CRC error or frame alignment error which are smaller than 1518 bytes.

CRC-Align-Err is the number of receive packets with CRC error.

Align_Err is the number of receive packets with frame alignment error.

FCS-Err is the number of receive packets with FCS error.

The following example displays packet receiving and transmitting rate on interface GigabitEthernet 0/1.

```
Ruijie#show interface gigabitEthernet 0/1 counters rate
Interface   Sampling Time        Input Rate          Input Rate
Output Rate          Output Rate
                        (bits/sec)          (packets/sec)
(bits/sec)           (packets/sec)
------------ -------------------- ------------------- --------------------
-------------------- -------------------
Gi0/1        5 seconds            23391               23
124              0
```

Sampling Time is the time when packets are sampled. Input rate is packet receiving rate and Output rate is packet transmitting rate.

The following example displays packet statistics summary on interface GigabitEthernet 0/1.

```
Ruijie#show interface gigabitEthernet 0/1 counters summary
Interface   InOctets            InUcastPkts         InMulticastPkts
InBroadcastPkts
------------ ------------------- ------------------- --------------------
-------------------
Gi0/1        1475788005          1389                45880503
11886621
Interface   OutOctets           OutUcastPkts        OutMulticastPkts
OutBroadcastPkts
------------ ------------------- ------------------- --------------------
-------------------
```

```
Gi0/1            6667915               6382                  31629
13410
```

> ⓘ InOctets is the total number of packets received on the interface. InUcastPkts is the number of unicast packets received on the interface. InMulticastPkts is the number of multicast packets received on the interface. InBroadcastPkts is the number of broadcast packets received on the interface.
>
> OutOctets is the total number of packets transmitted on the interface. OutUcastPkts is the number of unicast packets transmitted on the interface. OutMulticastPkts is the number of multicast packets transmitted on the interface. OutBroadcastPkts is the number of broadcast packets transmitted on the interface.

	Command	Description
Related Commands	N/A	N/A

Platform Description   N/A

1.31 show interfaces link-state-change statistics

Use this command to display the link state change statistics, including the time and count.

show interfaces [*interface-type interface-number*] **link-state-change statistics**

	Parameter	Description
Parameter Description	*interface-type interface-number*	The interface type and ID.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   If you do not specify an interface, the link state statistics of all interfaces are displayed.

Configuration Examples   The following example displays the link state statistics of interface GigabitEthernet 0/1.

```
Ruijie# show interfaces GigabitEthernet 0/1 link-state-change statistics
Interface     Link state     Link state change times     Last change time
-----------   ---------      -----------------------
------------------
Gi 0/1        down           100                         2012-12-24
15:00:00
```

Interface	Description
Link state	Current link state.
Link state change times	The count of link state change.
Last change time	The time when the last link state change occurs.

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.32 show interfaces status

Use this command to display interface status information.

show interfaces [*interface-type interface-number*] **status**

Parameter Description

Parameter	Description
interface-type interface-number	The interface type and ID.
status	Displays interface status information, including speed and duplex.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   If you do not specify an interface, the status information of all interfaces is displayed.

Configuration Examples   The following example displays the status information of interface GigabitEthernet 0/1.

```
Ruijie#show interfaces GigabitEthernet 0/1 status
Interface           Status      Vlan    Duplex  Speed   Type
--------------------  ----------  ------  ------  ------  ------
GigabitEthernet 0/1    up            1        Full    1000M   copper
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.33 show interfaces status err-disable

Use this command to display the interface violation status.

show interfaces [*interface-type interface-number*] **status err-disable**

Parameter Description	Parameter	Description
	interface-type interface-number	(Optional) The interface type and ID.

Defaults

Command Mode   Any CLI mode

Usage Guide   If you do not specify an interface, violation status of all interfaces is displayed.

Configuration Examples   The following example displays the violation status of interface GigabitEthernet 0/1.

```
Ruijie#show interface gigabitEthernet 0/1 status err-disabled
Interface                      Status          Reason
------------------------------ --------------- ----------------
GigabitEthernet 0/1            err-disabled    BPDU Guard
```

ⓘ   The violation status is displayed as **err-disabled**.

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

1.34 show interfaces usage

Use this command to display bandwidth usage of the interface.

show interfaces [*interface-type interface-number*] **usage**

Parameter Description	Parameter	Description
	interface-type interface-number	(Optional) The interface type and ID.

Defaults   N/A

Command Mode	Any CLI mode

Usage Guide	If you do not specify an interface, the bandwidth usage of all interfaces is displayed. Bandwidth refers to the actual link bandwidth rather than the *bandwidth* parameter configured on the interface.

Configuration Examples	The following example displays bandwidth usage of interface GigabitEthernet 0/1.

```
Interface              Bandwidth    Average Usage     Output Usage
Input Usage
--------------------------- ------------- ------------------
----------------- ----------------
GigabitEthernet 0/0      1000 Mbit    0.002822759%     0.001183280%
0.004462237%
```

> 🛈 Bandwidth refers to the interface link bandwidth, the maximum speed of link. Average Usage refers to the current usage.

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

1.35 switchport protected

Use this command to configure the interface as the protected port. Use the **no** form of this command to restore the default setting.

switchport protected

no switchport protected

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Interface configuration mode.

Usage Guide	The ports that are set as the protected ports cannot switch on L2, but can route on L3. A protected port can communicate with an unprotected port. Use the **show interfaces** command to display configuration.

Configuration Examples

The following example configures interface gigabitethernet 1/1 as a protected port.

```
Ruijie(config)#interface gigabitethernet 1/1
Ruijie(config-if)# switchport protected
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description

N/A

2 MAC Address Commands

2.1 clear mac-address-table dynamic

Use this command to clear the dynamic MAC address.

clear mac-address-table dynamic [**address** *mac-addr* [**interface** *interface-id*] [**vlan** *vlan-id*] | { [**interface** *interface-id*] [**vlan** *vlan-id*] }]

Parameter Description	Parameter	Description
	dynamic	Clears all the dynamic MAC addresses.
	address *mac-addr*	Clears the specified dynamic MAC address.
	interface *interface-id*	Clears all the dynamic MAC addresses of the specified interface.
	vlan *vlan-id*	Clears all the dynamic MAC addresses of the specified VLAN, in the range from 1 to 4094.

Defaults   N/A

Command Mode   Privileged EXEC mode.

Usage Guide   Use the **show mac-address-table dynamic** command to display all the dynamic MAC addresses.

Configuration Examples   The following command clears all the dynamic MAC addresses.

```
Ruijie# clear mac-address-table dynamic
```

Related Commands	Command	Description
	show mac-address-table dynamic	Displays dynamic MAC address.

Platform Description   N/A

2.2 mac-address-learning (global)

Use this command to enable MAC address learning globally. Use the **no** or **default** form of this command to restore the default setting.

mac-address-learning enable

Use this command to disable MAC address learning globally.

mac-address-learning disable

Use this command to restore MAC address learning globally.

default mac-address-learning

Parameter Description	Parameter	Description
	enable	Enables MAC address learning globally.
	disable	Disables MAC address learning globally.

Defaults   The **mac-address-learning enable** command is enabled by default.

Command Mode   Global configuration mode

Usage Guide   When this function is enabled, the MAC address is learned in global configuration mode the same as learned in interface configuration mode.

Configuration Examples   The following example disables MAC address learning globally.

```
Ruijie(config)# mac-address-learning disable
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.3   mac-address-learning

Use this command to enable the port address learning. Use the **no** or **default** form of this command to restore the default setting.
mac-address-learning
no mac-address-learning
default mac-address-learning

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   The address learning function is enabled.

Command Mode   Interface configuration mode.

Usage Guide   MAC address learning cannot be disabled on the port where the security function is enabled. The security function cannot be configured on the port where address learning is disabled.

Configuration   The following example disables the port address learning function.

Examples	`Ruijie(config-if)# no mac-address-learning`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.4   mac-address-table aging-time

Use this command to specify the aging time of the dynamic MAC address. Use the **no** or **default** form of the command to restore the default setting.

mac-address-table aging-time *seconds*

no mac-address-table aging-time

default mac-address-table aging-time

Parameter Description	Parameter	Description
	seconds	Aging time of the dynamic MAC address (in seconds). The time range depends on the switch.

Defaults	The default is 300.

Command Mode	Global configuration mode.

Usage Guide	Use **show mac-address-table aging-time** to display configuration.

Configuration Examples	The following example sets the aging time of the dynamic MAC address to 500 seconds.
	`Ruijie(config)# mac-address-table aging-time 500`

Related Commands	Command	Description
	show mac-address-table aging-time	Displays the aging time of the dynamic MAC address.
	show mac-address-table dynamic	Displays dynamic MAC address.

Platform Description	N/A

2.5   mac-address-table filtering

Use this command to configure the filtering MAC address. Use the **no** or **default** form of the command to restore the default setting.

mac-address-table filtering *mac-address* **vlan** *vlan-id*

no mac-address-table filtering *mac-address* **vlan** *vlan-id*

default mac-address-table filtering *mac-address* **vlan** *vlan-id*

Parameter	Parameter	Description
Description	*mac-address*	Filtering Address
	vlan-id	VLAN ID, in the range from 1 to 4094.

Defaults   No filtering address is configured by default.

Command   Global configuration mode.
Mode

Usage Guide   The filtering MAC address shall not be a multicast address.

Configuration   The following example configures the filtering MAC address for VLAN 3.
Examples
```
Ruijie(config)#mac-address-table filtering 0000.0202.0303  vlan 3
```

Related	Command	Description
Commands	**clear mac-address-table filtering**	Clears the filtering MAC address.

Platform   N/A
Description

2.6 mac-address-table notification

Use this command to enable the MAC address notification function. Use The **no** or **default** form of
the command to restore the default setting.

mac-address-table notification [**interval** *value* | **history-size** *value*]

no mac-address-table notification [**interval** | **history-size**]

default mac-address-table notification [interval | history-size]

Parameter	Parameter	Description
Description	**interval** *value*	Sets the interval of sending the MAC address trap message, 1 second by default.
	history-size *value*	Sets the maximum number of the entries in the MAC address notification table, 50 entries by default.

Defaults   By default, the interval is 1 and the maximum number of the entries in the MAC address notification
table is 50.

Command   Global configuration mode.
Mode

Usage Guide   The MAC address notification function is specific for only dynamic MAC address and secure MAC

address. No MAC address trap message is generated for static MAC addresses. In the global configuration mode, you can use the **snmp-server enable traps mac-notification** command to enable or disable the switch to send the MAC address trap message.

Configuration Examples	The following example enables the MAC address notification function.

```
Ruijie(config)# mac-address-table notification
Ruijie(config)# mac-address-table notification interval 40
Ruijie(config)# mac-address-table notification history-size 100
```

Related Commands

Command	Description
snmp-server enable traps	Sets the method of handling the MAC address trap message..
show mac-address-table notification	Displays the MAC address notification configuration and the MAC address trap notification table.
snmp trap mac-notification	Enables the MAC address trap notification function on the specified interface.

Platform Description	N/A

2.7 mac-address-table static

Use this command to configure a static MAC address. Use the **no** or **default** form of the command to restore the default setting.

mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*
no mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*
default mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the specified entry
vlan-id	VLAN ID of the specified entry, in the range from 1 to 4094.
interface-id	Interface (physical interface or aggregate port) that packets are forwarded to

Defaults	No static MAC address is configured by default.

Command Mode	Global configuration mode.

Usage Guide	A static MAC address has the same function as the dynamic MAC address that the switch learns. Compared with the dynamic MAC address, the static MAC address will not be aged out. It can only be configured and removed by manual. Even if the switch is reset, the static MAC address will not be lost. A static MAC address shall not be configured as a multicast address. Use **show mac-address-table static** to display the static MAC address.

Configuration	N/A

Examples

Related	Command	Description
Commands	**show mac-address-table static**	Displays the static MAC address.

Platform	N/A
Description	

2.8   show mac-address-learning

Use this command to display the MAC address learning.

show mac-address-learning

Parameter	Parameter	Description
Description	N/A	N/A

Defaults	N/A

Command	All modes.
Mode	

Usage Guide	N/A

Configuration	The following example displays the MAC address learning.
Examples	

```
Ruijie# show mac-address-learning
GigabitEthernet 0/0    learning ability: disable
GigabitEthernet 0/1    learning ability: enable
GigabitEthernet 0/2    learning ability: enable
GigabitEthernet 0/3    learning ability: enable
```

Related	Command	Description
Commands	N/A	N/A

Platform	N/A
Description	

2.9   show mac-address-table

Use this command to display all types of MAC addresses (including dynamic address, static address and filter address).

show mac-address-table [**address** *mac-addr*] [**interface** *interface-id*] [**vlan** *vlan-id*]

Parameter	Parameter	Description

Description	address *mac-addr*	The MAC address.
	interface *interface-id*	The Interface ID.
	vlan *vlan-id*	The VLAN ID, in the range from 1 to 4094.

Defaults   N/A

**Command
Mode**   All modes

Usage Guide   STATIC indicates static addresses, DYNAMIC indicates dynamic addresses, FILTER indicates
filtering addresses, and OTHER indicates user addresses successfully authenticated.

**Configuration
Examples**   The following example displays the MAC address.

```
Ruijie# show mac-address-table address 00d0.f800.1001
Vlan      MAC Address      Type     Interface
-------   ------------     --------  --------
1         00d0.f800.1001   STATIC GigabitEthernet 1/1
Ruijie# show mac-address-table
Vlan      MAC Address      Type     Interface
-------   ------------     --------  --------
1         00d0.f800.1001   STATIC GigabitEthernet 1/1
1         00d0.f800.1002   DYNAMIC GigabitEthernet 1/1
1         00d0.f800.1003   OTHER  GigabitEthernet 1/1
1         00d0.f800.1004   FILTER
```

Field	Description
Vlan	The interface address.
MAC Address	The MAC address.
Type	The MAC address type.
Interface	The interface corresponding to the MAC address.

Related	Command	Description
Commands	N/A	N/A

**Platform
Description**   N/A

2.10 show mac-address-table aging-time

Use this command to display the aging time of the dynamic MAC address.
show mac-address-table aging-time

Parameter	Parameter	Description

Description	N/A	N/A

Defaults	N/A

Command Mode	All modes.

Usage Guide	N/A

Configuration Examples	The following example displays the aging time of the dynamic MAC address.

```
Ruijie# show mac-address-table aging-time
Aging time  : 300
```

Related Commands	**Command**	**Description**
	mac-address-table aging-time	Sets the aging time of the dynamic MAC address.

Platform Description	N/A

2.11 show mac-address-table count

Use this command to display the number of address entries in the address table.

show mac-address-table count [**interface** *interface-id* | **vlan** *vlan-id*]

Parameter Description	**Parameter**	**Description**
	interface *interface-id*	Interface ID
	vlan *vlan-id*	VLAN ID, in the range from 1 to 4094.

Defaults	N/A

Command Mode	Privileged EXEC mode.

Usage Guide	The **show mac-address-table count** command is used to display the number of entries based on the type of MAC address entry.
	The **show mac-address-table count interface** command is used to display the number of entries based on the interface associated with the MAC address entry.
	The **show mac-address-table count vlan** command is used to display the number of entries based on the VLAN of MAC address entries.

Configuration Examples	The following example displays the number of MAC address entries.

```
Ruijie# show mac-address-table count
Dynamic Address Count : 51
Static Address Count : 0
```

```
Filter Address Count : 0
Total Mac Addresses  : 51
Total Mac Address Space Available: 8139
```

The following example displays the number of MAC address in VLAN 1.

```
Ruijie# show mac-address-table count vlan 1
Dynamic Address Count : 7
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses  : 7
```

The following example displays the number of MAC addresses on interface g0/1.

```
Ruijie# show mac-address-table interface g0/1
Dynamic Address Count : 10
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses  : 10
```

	Command	Description
Related Commands	**show mac-address-table static**	Displays the static address.
	show mac-address-table filtering	Displays the filtering address.
	show mac-address-table dynamic	Displays the dynamic address.
	show mac-address-table address	Displays all the address information of the specified address.
	show mac-address-table interface	Displays all the address information of the specified interface.
	show mac-address-table vlan	Displays all the address information of the specified vlan.

Platform Description   N/A

2.12 show mac-address-table dynamic

Use this command to display the dynamic MAC address.

show mac-address-table dynamic [**address** *mac-add r*] [**interface** *interface-id*] [**vlan** *vlan-id*]

	Parameter	Description
Parameter Description	*mac-addr*	Destination MAC address of the entry
	vlan-id	VLAN of the entry, in the range from 1 to 4094.
	interface-id	Interface that the packet is forwarded to. It may be a physical port or an aggregate port

Defaults

Command Mode	All modes.
Usage Guide	N/A

Configuration Examples

The following example displays the dynamic MAC address.

```
Ruijie# show mac-address-table dynamic
Vlan   MAC Address    Type   Interface
------------------------ -------- ------------------
1   0000.0000.0001   DYNAMIC gigabitethernet 1/1
1   0001.960c.a740   DYNAMIC gigabitethernet 1/1
1   0007.95c7.dff9   DYNAMIC gigabitethernet 1/1
1   0007.95cf.eee0   DYNAMIC gigabitethernet 1/1
1   0007.95cf.f41f   DYNAMIC gigabitethernet 1/1
1   0009.b715.d400   DYNAMIC gigabitethernet 1/1
1   0050.bade.63c4   DYNAMIC gigabitethernet 1/1
```

Related Commands

Command	Description
clear mac-address-table dynamic	Clears the dynamic MAC address.

Platform Description	N/A

2.13 show mac-address-table filtering

Use this command to display the filtering MAC address.

show mac-address-table filtering [**addr** *mac-addr*] [**vlan** *vlan-Id*]

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the entry
vlan-id	VLAN ID of the entry, in the range from 1 to 4094.

Defaults	N/A
Command Mode	Privileged EXEC mode.
Usage Guide	N/A

Configuration Examples

The following example displays the filtering MAC address.

```
Ruijie# show mac-address-table filtering
Vlan   MAC Address    Type   Interface
------- ----------------- ------- -----------
 1    0000.2222.2222   FILTER Not available
```

Related Commands	Command	Description
	mac-address-table filtering	Configures the filtering MAC address.

Platform Description	N/A

2.14 show mac-address-table interface

Use this command to display all the MAC addresses on the specified interface including static and dynamic MAC address

show mac-address-table interface [*interface-id*] [**vlan** *vlan-id*]

Parameter Description	Parameter	Description
	interface-id	Displays the MAC address information of the specified Interface (physical interface or aggregate port).
	vlan-id	VLAN ID of the entry, in the range from 1 to 4094..

Defaults	N/A

Command Mode	Privileged EXEC mode.

Usage Guide	N/A

Configuration Examples   The following example displays all the MAC addresses on interface gigabitethernet 1/1.

```
Ruijie# show mac-address-table interface
gigabitethernet 1/1
Vlan  MAC Address  Type   Interface
----- ------------- -------- ----------------
1   00d0.f800.1001 STATIC  gigabitethernet 1/1
1   00d0.f800.1002 STATIC  gigabitethernet 1/1
1   00d0.f800.1003 STATIC  gigabitethernet 1/1
1   00d0.f800.1004 STATIC  gigabitethernet 1/1
```

Related Commands	Command	Description
	show mac-address-table static	Displays the static MAC address.
	show mac-address-table filtering	Displays the filtering MAC address.
	show mac-address-table dynamic	Displays the dynamic MAC address.
	show mac-address-table address	Displays all types of MAC addresses.
	show mac-address-table vlan	Displays all types of MAC addresses of the specified VLAN.
	show mac-address-table count	Displays the address counts in the MAC address table.

Platform	N/A
Description	

2.15 show mac-address-table notification

Use this command to display the MAC address notification configuration and the MAC address notification table.

show mac-address-table notification [**interface** [*interface-id*] | **history**]

Parameter	**Parameter**	**Description**
Description	**interface**	Displays the MAC address notification configuration on all interfaces.
	interface *interface-id*	Displays the MAC address notification configuration on a specific interface.
	history	Displays the MAC address notification history.

Defaults	

Command	Privileged EXEC mode.
Mode	

Usage Guide	N/A

Configuration The following example displays the MAC address notification configuration globally.

Examples
```
Ruijie#show mac-address-table notification
MAC Notification Feature : Enabled
Interval(Sec): 300
Maximum History Size : 50
Current History Size : 0
```
The following example displays the MAC address notification status.
```
Ruijie#show mac-address-table notification
MAC Notification Feature : Enabled
Interval(Sec): 300
Maximum History Size : 50
Current History Size : 0
Ruijie#show mac-address-table notification interface GigabitEthernet 0/2
Interface           MAC Added Trap    MAC Removed Trap
-----------         -------------     --------------
GigabitEthernet 0/2   Enabled         Enabled
```

Related	**Command**	**Description**
Commands	**mac-address-table notification**	Enables MAC address notification.
	snmp trap mac-notification	Enables the MAC address trap notification function on the specified interface.

Platform   N/A
Description

2.16 show mac-address-table static

Use this command to display the static MAC address.

show mac-address-table static [**addr** *mac-add r*] [**interface** *interface-Id*] [**vlan** *vlan-id*]

Parameter	Description
mac-addr	Destination MAC address of the entry
vlan-id	VLAN ID of the entry, within the range from 1 to 4094.
interface-id	Interface of the entry physical interface or aggregate port

Parameter
Description

Defaults   N/A

Command   Privileged EXEC mode.
Mode

Usage Guide   N/A

Configuration   The following example displays the static MAC addresses
Examples

```
Ruijie# show mac-address-table static
Vlan   MAC Address     Type   Interface
---------- -------------------- -------- ---------
1  00d0.f800.1001  STATIC  gigabitethernet 1/1
1  00d0.f800.1002  STATIC  gigabitethernet 1/1
1  00d0.f800.1003  STATIC  gigabitethernet 1/1
```

Command	Description
mac-address-table static	Configures the static MAC address.

Related
Commands

Platform   N/A
Description

2.17 show mac-address-table vlan

Use this command to display all addresses of the specified VLAN.

show mac-address-table vlan [*vlan-id*]

Parameter	Description
vlan-id	VLAN ID of the entry, within the range from 1 to 4094.

Parameter
Description

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example displays all addresses of the specified VLAN.
Examples
```
Ruijie# show mac-address-table vlan 1
Vlan  MAC Address   Type    Interface
----- ------------- ------- -----------------
1   00d0.f800.1001  STATIC  gigabitethernet 1/1
1   00d0.f800.1002  STATIC  gigabitethernet 1/1
1   00d0.f800.1003  STATIC  gigabitethernet 1/1
```

Related
Commands

Command	Description
show mac-address-table static	Displays static addresses.
show mac-address-table filtering	Displays filtered addresses.
show mac-address-table dynamic	Displays dynamic addresses.
show mac-address-table address	Displays all address information about the specified address.
show mac-address-table interface	Displays all address information about the specified interface.
show mac-address-table count	Displays the number of addresses in the address table.

Platform   N/A
Description

2.18 snmp trap mac-notification

Use this command to enable the MAC address trap notification on the specified interface. Use The **no** or **default** form of the command to restore the default setting.
snmp trap mac-notification { **added** | **removed** }
no snmp trap mac-notification { **added** | **removed** }
default snmp trap mac-notification { added | removed }

Parameter
Description

Parameter	Description
added	Notifies when a MAC address is added.
removed	Notifies when a MAC address is removed

Defaults

Command   Interface configuration mode.

Mode

Usage Guide   Use **show mac-address-table notification interface** to display configuration.

Configuration   The following example enables the MAC address trap notification on interface gigabitethernet 1/1
Examples   when a MAC address is added.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification added
```

The following example enables the MAC address trap notification on interface gigabitethernet 1/1
when a MAC address is deleted.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification removed
```

Related
Commands

Command	Description
mac-address-table notification	Enables MAC address notification.
show mac-address-table notification	Displays the MAC address notification configuration and the MAC address notification table.

Platform   N/A
Description

3 Aggregate Port Commands

3.1 aggregateport capacity mode

Use this command to configure the AP capacity mode. Use the **no** form of this command to restore
the default setting, Use the **no** form of this command to restore the default setting,

aggregateport capacity mode *capacity-mode*

no aggregateport capacity mode

Parameter
Description

Parameter	Description
capacity-mode	Configures the capacity mode.

Defaults   The default *capacity-mode* varies with the device.

Command   Global configuration mode
Mode

Usage Guide   The system provides several capacity modes for devices that support capacity mode configuration.
To select a capacity mode, run the **aggregateport capacity mode** *capacity-mode* command in the
global configuration mode.
To restore the default settings, run **no aggregateport capacity mode** in global configuration mode.

Configuration   The following example configures the the capacity mode.

Examples
```
Ruijie# configure terminal
Ruijie(config)# aggregateport capacity mode 256*8
```

Related

Commands

Command	Description
show running	Displays the configuration
show aggregateport capacity	Displays the current AP capacity mode and use.

Platform   N/A

Description

3.2   aggregateport load-balance

Use this command to configure a global load-balance algorithm for aggregate ports or a load-balance algorithm for an aggregate port . Use the **no** form of this command to return the default setting.

aggregateport load-balance { **dst-mac | src-mac | src-dst-mac | dst-ip | src-ip | src-dst-ip** / **src-l4port | dst-l4port | src-dst-l4port** }

no aggregateport load-balance

Parameter

Description

Parameter	Description
dst-mac	Load balance based on the destination MAC addresses of the incoming packets. For all the links of an aggregate port, the messages with the same destination MAC addresses are sent to the same port, and those with different destination MAC addresses are sent to different ports.
src-mac	Load balance based on the source MAC addresses of the incoming packets. For all the links of an aggregate port, the messages from different addresses are distributed to different ports, and those from the same addresses are distributed to the same port.
src-dst-ip	Load balance based on the source IP address and destination IP address. Packets with different source and destination IP address pairs are forwarded through different ports. The packets with the same source and destination IP address pairs are forwarded through the same links. At layer 3, this load balancing style is recommended.
dst-ip	Load balance based on the destination IP addresses of the incoming packets. For all the links of an aggregate port, the messages with the same destination IP addresses are sent to the same port, and those with different destination IP addresses are sent to different ports.
src-ip	Load balance based on the source IP addresses of the incoming packets. For all the links of an aggregate port, the messages from different addresses are distributed to different ports, and those from the same addresses are distributed to the same port.
src-dst-mac	Load balance based on the source and destination MAC addresses. Packets with

		different source and destination MAC address pairs are forwarded through different ports. The packets with the same source and destination MAC address pairs are forwarded through the same port.
	src- l4port	Load balance based on the L4 source port number. Packets with different L4 source port numbers are allocated among member links in a balanced way. Packets with the same L4 source port numbers are allocated to the specific member links.
	dst- l4port	Load balance based on the L4 destination port number. Packets with different L4 destination port numbers are allocated among member links in a balanced way. Packets with the same L4 destination port numbers are allocated to the specific member links.
	src-dst-l4port	Load balance based on the L4 source port number and L4 destination port number. Packets with different L4 source+destination port numbers are allocated among member links in a balanced way. Packets with the same L4 source+destination port numbers are allocated to the specific member links.

Defaults   Load balancing can be based on source and destination MAC addresses, source and destination IP addresses (applicable to gateways), or the profile of enhanced load balancing (applicable to switches with CB line cards).

Command Mode   Global configuration mode/Interface configuration mode

Usage Guide   You can run aggregateport load-balance in interface configuration mode of an AP port on devices that support load balancing configuration on a specific AP port. The configuration in interface configuration mode prevails. To disable the load balancing algorithm, run no aggregateport load-balance in interface configuration mode of the AP port. After that, the load balancing algorithm configured in global configuration mode takes effect.

Configuration Examples   The following example configures a load-balance algorithm globally based on the destination MAC address.

```
Ruijie(config)# aggregateport load-balance dst-mac
```

The following example configures a load-balance algorithm on port 1 based on the destination MAC address.

```
Ruijie(config)# interface aggregateport 1
Ruijie(config-if-AggregatePort 1)# aggregateport load-balance dst-mac
```

Related Commands	Command	Description
	show aggregateport load-balance	Displays aggregate port configuration.

Platform Description   N/A

3.3   aggregateport member linktrap

Use this command to send LinkTrap to aggregate port members. Use the **no** form of this command to restore the default setting.

aggregateport member linktrap

no aggregateport member linktrap

Parameter	Parameter	Description
Description	N/A	N/A

Defaults   This function is disabled by default.

Command   Global configuration mode

Mode

Usage Guide   This function cannot be enabled by running the **snmp trap link-status** command in interface configuration mode. However, it can be enabled by running the **aggregateport member linktrap** command in global configuration mode.

Configuration   The following example enables the LinkTrap function on the aggregate port members.

Examples
```
Ruijie# configure terminal
Ruijie(config)# aggregateport member linktrap
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A

Description

3.4   interface aggregateport

Use this command to create the aggregate port or enter interface configuration mode of the aggregate port. Use the **no** form of this command to restore the default setting.

interface aggregateport *ap-number*

no interface aggregateport *ap-number*

Parameter	Parameter	Description
Description	*ap-number*	Aggregate port number.

Defaults   The aggregate port is not created by default.

Command   Global configuration mode

Mode

Usage Guide   If the aggregate port is created, this command is used to enter the interface configuration mode.
Otherwise, this command is used to create the aggregate port and then enter its interface
configuration mode.

Configuration   The following example creates AP 5 and enters its interface configuration mode.
Examples
```
Ruijie# configure terminal
Ruijie(config)# interfaces aggregateport 5
Ruijie(config-if-Aggregateport 5)# end
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

3.5   lacp port-priority

Use this command to set the priority of the LACP AP member port. Use the **no** form of this command
to restore the default setting.

lacp port-priority *port-priority*

no lacp port-priority

Parameter
Description

Parameter	Description
port-priority	The LACP port priority, in the range from 0 to 65535.

Defaults   The default is 32768.

Command   Interface configuration mode
Mode

Usage Guide   N/A

Configuration   This example sets the LACP port priority of interface Gi0/1 to 4096.
Examples
```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# lacp port-priority 4096
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A

Description

3.6 lacp short-timeout

Use this command to configure the short-timeout mode for the LACP AP member port. Use the no form of this command to restore the default setting.

lacp short-timeout

no lacp short-timeout

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults   The default is long-timeout mode.

Command   Interface configuration mode
Mode

Usage Guide   In long-timeout mode, the port sends an LACP packet every 30 seconds. If the packet is not received in 90 seconds, the connection times out.
In short-timeout mode, the port sends an LACP packet every 1 second. If the packet is not received in 3 seconds, the connection times out.

Configuration   The following example configures the short-timeout mode for the LACP AP member port.
Examples
```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# lacp short-timeout
```

Related Commands	**Command**	**Description**
	show lacp summary **show run**	Displays the current configuration.

Platform   N/A
Description

3.7 lacp system-priority

Use this command to set the LACP system priority. Use the **no** form of this command to restore the default setting.

lacp system-priority *system-priority*

no lacp system-priority

Parameter	**Parameter**	**Description**

Description

system-priority	The LACP system priority, in the range from 0 to 65535.

Defaults   The default is 32768.

Command   Global configuration mode.

Mode

Usage Guide

Configuration   The following example sets the LACP system priority to 4096.

Examples   `Ruijie(config)# lacp system-priority 4096`

Related

Commands

Command	Description
show lacp summary	Displays the current configuration.

Platform   N/A

Description

3.8 port-group

Use this command to assign a physical interface to be a member port of a static aggregate port or an LACP aggregate port. Use the **no** form of this command to restore the default setting.

port-group *port-group-number*

port-group *key-number* **mode** { **active** | **passive** }

no port-group

Parameter

Description

Parameter	Description
port-group-number	Member group ID of an aggregate port, the interface number of the aggregate port.
key-number	Member group ID of an LACP aggregate port, the interface number of the LACP aggregate port.
active	Places a port into an active negotiating state, in which the port initiates negotiations with remote ports by sending LACP packets.
passive	Places a port into a passive negotiating state, in which the port responds to LACP packets it receives but does not initiate LACP negotiation.

Defaults   By default, the physical port does not belong to any aggregate port.

Command   Interface configuration mode.

Mode

Usage Guide   All the members of an aggregate port belong to a VLAN or configured to be trunk ports. The ports belonging to different native VLANs cannot form an aggregate port.

Configuration   The following example specifies the Ethernet interface 1/3 as a member of the static AP 3.

Examples
```
Ruijie(config)# interface gigabitethernet 1/3
Ruijie(config-if-GigabitEthernet 1/3)# port-group 3
```
The following example specifies the Ethernet interface 2/3 as a member of the LACP AP4 and set the aggregation mode to active.
```
Ruijie(config)# interface gigabitethernet 2/3
Ruijie(config-if-GigabitEthernet 2/3)# port-group 4 mode active
```

Related

Commands

Command	Description
show interface aggregateport	Displays the configuration.

Platform   N/A

Description

3.9   show aggregateport

Use this command to display the aggregate port configuration.

show aggregateport *aggregate-port-number* [**load-balance | summary**]

Parameter

Description

Parameter	Description
aggregate-port-number	Number of the aggregate port.
load-balance	Displays the load-balance algorithm on the aggregate port.
summary	Displays the summary of the aggregate port.

Defaults   N/A

Command   Any mode

Mode

Usage Guide   If the aggregate port number is not specified, all the aggregate port information will be displayed.

Configuration   The following example displays the aggregate port configuration of switches and wireless ACs.

Examples
```
Ruijie# show aggregateport 1 summary
AggregatePort  MaxPorts        SwitchPort Mode    Load balance                    Ports
_____   _____  _____ _____  _____
_____
Ag1            8               Enabled    ACCESS  dst-mac                         Gi0/2
```

Related

Commands

Command	Description
aggregateport load-balance	Configures a load-balance algorithm of AP.

Platform   N/A
Description

3.10 show lacp summary

Use this command to display the LACP aggregation information.

show lacp summary [*key-number*]

	Parameter	Description
Parameter Description	key-name	LACP AP port number

Defaults   N/A

Command Mode   Any mode.

Usage Guide   If key-number is not specified, all link aggregation information is displayed.

Configuration Examples   The following example displays the LACP aggregation information.

```
Ruijie(config)# show lacp summary 3
System Id:32768, 00d0.f8fb.0002
Flags:  S - Device is requesting Slow LACPDUs
F - Device is requesting Fast LACPDUs.
A - Device is in active mode.        P - Device is in passive mode.
Aggregate port 3:
Local information:
LACP port        Oper    Port     Port
Port      Flags     State    Priority        Key      Number  State
----------------------------------------------------------------------
Gi0/1     SA        bndl     4096            0x3      0x1     0x3d
Gi0/2     SA        bndl     4096            0x3      0x2     0x3d
Gi0/3     SA        bndl     4096            0x3      0x3     0x3d
Partner information:
                 LACP port                  Oper    Port    Port
Port      Flags     Priority     Dev ID      Key     Number   State
----------------------------------------------------------------------
Gi0/1     SA        61440        00d0.f800.0002   0x3      0x1     0x3d
Gi0/2     SA        61440        00d0.f800.0002   0x3      0x2     0x3d
Gi0/3     SA        61440        00d0.f800.0002   0x3      0x3     0x3d
```

Field	Description
Local information	Displays the local LACP information.

Port	Displays the system port ID.
Flags	Displays the port state flag: "S" indicates that the LACP is stable and in the state of periodically sending the LACPPDU; "A" indicates that the port is in the active mode.
State	Show the port aggregation information: "bndl" indicates that the port is aggregated; "Down" represents the disconnection port state; "susp" indicates that the port is not aggregated.
LACP Port Priority	Displays the LACP port priority.
Oper Key	Displays the port operation key.
Port Number	Displays the port number.
Port State	Displays the flag bit for the LACP port state.
Partner information	Partly Displays the LACP information of the peer port.
Dev ID	Partly Displays the system MAC information of the peer device.

Related Commands

Command	Description
port-group *key* **mode**	Enables the LACP on the port and specifies the aggregation group ID and operation mode.

Platform Description   N/A

4 VLAN Commands

4.1 add

Use this command to add one or a group Access interface into current VLAN. Use the **no** or **default** form of the command to remove the Access interface.

add interface { *interface-id* | **range** *interface-range* }

no add interface { *interface-id* | **range** *interface-range* }

default add interface { *interface-id* | **range** *interface-range* }

Parameter Description	Parameter	Description
	interface-id	Layer-2 Ethernet interface or layer-2 AP port.
	range *interface-range*	Range of the Layer-2 Ethernet interface or layer-2 AP port.

Defaults   All layer-2 Ethernet interfaces are in the VLAN1.

Command mode   VLAN configuration mode.

Usage Guide   This command is only valid for the access port.

The configuration of this command is the same as specifying the VLAN to which interface belongs in the interface configuration mode (that is the **switchport access vlan** *vlan-id* command). For the two commands of adding the interface to the VLAN, the command configured later will overwrite the one configured before and take effect.

The configuration of adding the layer-2 AP into current VLAN through this command will only take effect for the layer-2 AP port, but not for the member port of the layer-2 AP port.

Configuration Examples   The following example adds the interface GigabitEthernet 0/10 to VLAN20.

```
Ruijie# configure terminal
SwitchA(config)#vlan 20
SwitchA(config-vlan)#add interface GigabitEthernet 0/10
Ruijie# show interface GigabitEthernet 0/10 switchport
Interface  Switchport  Mode  Access  Native  Protected  VLAN lists
----------  --------   -----  -----  ----  ----------  -------
GigabitEthernet 0/10 enabled  ACCESS  20   1   Disabled  ALL
```

The following example adds the interface range GigabitEthernet 0/1-10 to VLAN200.

```
Ruijie# configure terminal
SwitchA(config)#vlan 200
SwitchA(config-vlan)#add interface range GigabitEthernet 0/1-10
Ruijie# show vlan
```

```
SwitchA#show vlan
VLAN Name          Status                    Ports
---- -------     -----------     ---------------------------
1 VLAN0001    STATIC   Gi0/11,Gi0/12,Gi0/13,Gi0/14,Gi0/15,
Gi0/16,Gi0/17,Gi0/18,Gi0/19,Gi0/20,Gi0/21, Gi0/22, Gi0/23, Gi0/24
200 VLAN0200 STATIC  Gi0/1,Gi0/2,Gi0/3,Gi0/4,Gi0/5,
Gi0/6,Gi0/7,Gi0/8,Gi0/9,Gi0/10
```

The following example adds the AggregatePort10 to VLAN20.

```
Ruijie# configure terminal
SwitchA(config)#vlan 20
SwitchA(config-vlan)#add interface aggregateport 10
Ruijie# show interface aggregateport 10 switchport
Interface  Switchport   Mode  Access  Native Protected  VLAN lists
----------  --------       -----  -----  ---- ----------  -------
AggregatePort 10 enabled  ACCESS  20   1   Disabled  ALL
```

Related Commands	Command	Description
	show interface *interface-id* **switchport**	Displays the layer-2 interfaces.

Platform Description	N/A

4.2   name

Use this command to specify the name of a VLAN. Use the **no** or **default** form of this command to restore the default setting.

name *vlan-name*

no name

default name

Parameter Description	Parameter	Description
	vlan-name	VLAN name

Defaults   The default name of a VLAN is the combination of "VLAN" and VLAN ID, for example, the default name of the VLAN 2 is "VLAN0002".

Command mode   VLAN configuration Mode.

Usage Guide   N/A

Configuration Examples	The following example sets the name of VLAN to 10.

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)# name vlan10
```

Related Commands

Command	Description
show vlan	Displays member ports of the VLAN.

Platform Description   N/A

4.3 show vlan

Use this command to display member ports of the VLAN.

show vlan [**id** *vlan-id*]

Parameter Description

Parameter	Description
vlan-id	VLAN ID

Defaults   N/A

Command mode   All modes

Usage Guide   N/A

Configuration Examples   The following command displays the status of VLAN 1.

```
Ruijie(config-vlan)#show vlan id 20
VLAN Name                        Status    Ports
---- -------------------------------- ---------
----------------------------------
  20 VLAN0020                      STATIC   Gi0/1
```

The following command displays the status of all VLANs.

```
Ruijie(config-vlan)#show vlan
VLAN Name                       Status    Ports
---- ------------------------------ --------- --------------------------------
   1 VLAN0001                      STATIC   Gi0/1, Gi0/2, Gi0/4, Gi0/5
                                            Gi0/6, Gi0/7, Gi0/8, Gi0/9
                                            Gi0/10, Gi0/11, Gi0/12, Gi0/13
                                            Gi0/14, Gi0/15, Gi0/16, Gi0/17
                                            Gi0/18, Gi0/19, Gi0/20, Gi0/21
                                            Gi0/22, Gi0/23, Gi0/24
```

```
 2 VLAN0002                          STATIC   Gi0/1
20 VLAN0020                           STATIC   Gi0/1
```

Related Commands	Command	Description
	name	VLAN name.
	switchport access	Adds the interface to a VLAN.

Platform Description   N/A

4.4   switchport access

Use this command to configure an interface as a static access port and assign it to a VLAN. Use the **no** or **default** form of the command to assign the port to the default VLAN.

switchport access vlan *vlan-id*

no switchport access vlan

default switchport access vlan

Parameter Description	Parameter	Description
	vlan-id	The VLAN ID at which the port to be added.

Defaults   By default, the switch port is an access port and the VLAN is VLAN 1.

Command mode   Interface configuration mode.

Usage Guide   The system will create a new one and add the interface to the VLAN if you enter a new VLAN ID. If the VLAN ID already exists, the command adds the port to the VLAN.

If the port is a trunk port, the operation does not take effect.

Configuration Examples

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```

Related Commands	Command	Description
	switchport mode	Specifies the interface as Layer 2 mode (switch port mode).
	switchport trunk	Specifies a native VLAN and the allowed-VLAN list for the trunkport.

Platform   N/A

Description

4.5   switchport mode

Use this command to specify a L2 interface (switch port) mode. You can specify this interface to be an access port or a trunk port or a servicechain port. Use the **no** or **default** form of this command to restore the default setting.

switchport mode { **access** | **trunk** | **hybrid** | **uplink** }

no switchport mode

default switchport mode

Parameter Description

Parameter	Description
access	Configures the switch port as an access port.
trunk	Configures the switch port as a trunk port.
hybrid	Configures the switch port as a hybrid port.
uplink	Configures the switch port as an uplink port.

Defaults   By default, the switch port is an access port.

Command mode   Interface configuration mode.

Usage Guide   If a switch port is an access port, the port can be added only to one VLAN. You can run the **switchport access vlan** command to specify the VLAN to which the port belongs.

If a switch port is a trunk port, the port is added to all VLANs by default. You can also run the **switchport trunk allowed** command to add the port to or remove the port from a specified VLAN.

If a switch port is an uplink port, the port is added to all VLANs by default. Different from the trunk port, the uplink port sends packets with a tag carried, that is, the tag of packets from default VLANs will not be deleted. You can run the **switchport trunk allowed** command to add the port to or remove the port from a specified VLAN.

If a switch port is a hybrid port, the port is added to all VLANs by default. Different from a trunk port, a hybrid port can be added to a VLAN in tag or untag mode by running the **switchport hybrid allowed** command.

Configuration   The following example configures port 1 as an access port.

Examples
```
Ruijie(config)#int g 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode access
```
The following example configures port 1 as a trunk port.
```
Ruijie(config)#int g 0/1
Ruijie(config-if-GigabitEthernet 0/1)# switchport mode trunk
```
The following example configures port 1 as an uplink port.
```
Ruijie(config)#int g 0/1
```

```
Ruijie(config-if-GigabitEthernet 0/1)# switchport mode uplink
```
The following example configures port 1 as a hybrid port.
```
Ruijie(config)#int g 0/1
```
```
Ruijie(config-if-GigabitEthernet 0/1)# switchport mode hybrid
```

Related Commands

Command	Description
switchport access	Configures an interface as a statics access port and assigns it to a VLAN.
switchport trunk	Specifies a native VLAN and the allowed-VLAN list for the trunkport.

Platform Description   N/A

4.6 switchport hybrid allowed

Use this command to add the port to the VLAN or remove the port from the VLAN, Use the **no** or **default** form of this command to restore the default setting.

switchport hybrid allowed vlan { { [**add** | **only**] **tagged** *vlist* | [**add**] **untagged** *vlist* } | **remove** *vlist* }

no switchport hybrid allowed vlan

default switchport hybrid allowed vlan

Parameter Description

Parameter	Description
add	Adds the port to the VLAN.
only	Adds the port to the VLAN and removes the port from the VLANs not on the VLAN list.
tagged	Adds the port to the VLAN and the VLAN packets going out on the port are tagged with VLAN ID.
untagged	Adds the port to the VLAN and the VLAN packets going out on the port are not tagged with VLAN ID.
remove	Removes the port from the VLAN.
vlist	Specifies the VLAN.

Defaults   By default, the hybrid port is in all VLANs. All VLAN packets (except native VLAN packets) going out on the port are tagged with VLAN ID. Native VLAN packets are not tagged with VLAN ID.

Command mode   Interface configuration mode

Usage Guide   N/A

Configuration Examples

The following example adds the hybrid port to VLAN 20 and VLAN 30 and the VLAN packets going out on the port are not tagged with VLAN ID.

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed vlan untagged
20
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed vlan add
untagged 30
```

The following example adds the hybrid port to VLAN 40 and VLAN 50 and the VLAN packets going out on the port are tagged with VLAN ID,

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed vlan tagged
40
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed vlan tagged
50
```

The following example removes the hybrid port from VLAN 20.

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan remove 20
```

The following example adds the hybrid port to VLAN 20 and deletes all the other VLANs. The VLAN packets going out on the port are tagged with VLAN ID.

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan only tagged 20
```

Related Commands

Command	Description
show interface [*intf-id*]	Displays the configuration.

Platform Description

N/A

4.7 switchport hybrid native

Use this command to configure the native VLAN for the hybrid port. Use the **no** or **default** form of this command to restore the default setting.

switchport hybrid native vlan *vlan-id*

no switchport hybrid native vlan

default switchport hybrid native vlan

Parameter Description	**Parameter**	**Description**
	vlan-id	Configures the native VLAN for the hybrid port.

Defaults   The default is VLAN 1.

Command mode   Interface configuration mode

Usage Guide   Native VLAN packets going out on the hybrid port are not tagged with VLAN ID. Packets not tagged with VLAN ID coming in on the hybrid port are taken as native VLAN packets.

Configuration Examples   The following example configures VLAN 20 as the native VLAN for hybrid port GigabitEthernet 0/1.

```
Ruijie(config-if-GigabitEthernet 0/1)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid native
vlan 20
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

4.8   switchport trunk allowed vlan

Use this command to add the trunk/uplink port to the VLAN or remove a trunk/uplink port from the VLAN. Use the **no** or **default** form of the command to restore the default setting.

switchport trunk allowed vlan { **all** | { **add** *vlan-list* | **remove** *vlan-list* | **except** *vlan-list* | **only** *vlan-list* } }

no switchport trunk allowed vlan

default switchport trunk allowed vlan

Parameter Description	**Parameter**	**Description**
	all	Adds the trunk/uplink port to all VLANs.
	add	Adds the trunk/uplink port to the VLAN.
	remove	Removes the trunk/uplink port from the VLAN port.

except	Removes the trunk/uplink port from the VLAN and adds the port to all the other VLANs.
only	Adds the trunk/uplink port to the specified VLAN and removes the port from the VLANs not on the VLAN list.
vlan-list	Specifies the VLAN.

Defaults   The trunk/unlink port is in all VLANs by default.

Command mode   Interface configuration mode.

Usage Guide   A trunk/uplink port transmits all VLAN (1-4094) data by default. You can block some VLAN data by configuring this command. Use the **show interfaces** command to display configuration.

Configuration Examples   The following example removes the trunk port GigabitEthernet 0/10 from VLAN 2.

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode trunk
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan remove
2
```

The following example adds the trunk port GigabitEthernet 0/10 to all VLANs except VLAN 10.

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan except
10
```

The following example adds the trunk port GigabitEthernet 0/10 to VLAN 10 and removes other VLANs.

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan except
10
```

The following example removes uplink port GigabitEthernet 0/10 from VLAN 10.

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode uplink
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan remove
10
```

The following example adds uplink port GigabitEthernet 0/10 to all VLANs except VLAN10.

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed
vlan except 10
```

The following example adds the uplink port GigabitEthernet 0/10 to VLAN 10 and removes other VLANs.

```
Ruijie(config)# interface gigabitEthernet 0/10
```

```
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan only 10
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

4.9   switchport trunk native vlan

Use this command to configure the native VLAN for the trunk/uplink port. Use the **no** or **default** form of this command to restore the default setting.

switchport trunk native vlan *vlan-id*
no switchport trunk native vlan
default switchport trunk native vlan

Parameter Description	Parameter	Description
	vlan-id	Native VLAN ID.

Defaults   By default, the native VLAN for the trunk/uplink port is VLAN 1.

Command mode   Interface configuration mode

Usage Guide   After this function is enabled, packets not tagged with VLAN ID are taken as native VLAN packets. Tags are removed from native VLAN packets going out on the trunk port.

Configuration Examples   The following example configures VLAN 10 as the native VLAN for trunk port GigabitEthernet 0/10.
```
Ruijie(config)#interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode trunk
Ruijie(config-if-GigabitEthernet 0/10)# switch trunk native vlan 10
```
The following example configures VLAN 10 as the native VLAN for unlink port GigabitEthernet 0/10.
```
Ruijie(config)#interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode uplink
Ruijie(config-if-GigabitEthernet 0/10)# switch trunk native vlan
10
```

Related Commands	Command	Description
	N/A	N/A

Platform   N/A
Description

4.10 vlan

Use this command to enter the VLAN configuration mode. Use the **no** or **default** form of this command to restore the default setting.

vlan { *vlan-id* | **range** *vlan-range* }

no vlan { *vlan-id* | **range** *vlan-range* }

default vlan { *vlan-id* | **range** *vlan-range* }

Parameter
Description

Parameter	Description
vlan-id	VLAN ID Default VLAN (VLAN 1) cannot be removed.
vlan-range	VLAN ID range.

Defaults   The default is static VLAN.

Command   Global configuration mode.
mode

Usage Guide   N/A

Configuration   The following example creates VLAN 10.
Examples
```
Ruijie(config)# vlan 10
Ruijie(config-vlan)#
```

Related
Commands

Command	Description
show vlan	Displays member ports of the VLAN.

Platform   N/A
Description

5 MSTP Commands

5.1 bpdu src-mac-check

Use this command to enable the BPDU source MAC address check function on the interface. Use the **no** form of this command to restore the default setting.

bpdu src-mac-check *H.H.H*

no bpdu src-mac-check

Parameter	**Parameter**	**Description**
Description	*H.H.H*	Indicates that only the BPDU messages from this MAC address are received.

Defaults   This function is disabled by default.

Command   Interface configuration mode.
Mode

Usage Guide   BPDU source MAC address check prevents BPDU packets from maliciously attacking switches and causing MSTP abnormal. When the switch connected to a port on a point-to-point link is determined, you can enable BPDU source MAC address check to receive BPDU packets sent only by the peer switch and discard all other BPDU packets, thereby preventing malicious attacks. You can enable the BPDU source MAC address check in interface configuration mode for a specific port. One port can only filter one MAC address.

Configuration   The following example indicates only the BPDU with 00d0.f800.1e2f as the source MAC address will
Examples   be received by interface Gi 1/1 .

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id-interface-id)# bpdu src-mac-check
00d0.f800.1e2f
```

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A
Description

5.2   bridge-frame forwarding protocol bpdu

Use this command to enable BPDU transparent transmission. Use the **no** form of this command to restore the default setting.

bridge-frame forwarding protocol bpdu
no bridge-frame forwarding protocol bpdu

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   In the IEEE 802.1Q standard, 01-80-C2-00-00-00, the destination MAC address of BPDU frames, is reserved. Devices following the IEEE 802.1Q standard don't forward BPDU frames. In real network deployment, devices may be required to support BPDU transparent transmission. For example, when a device is not enabled with STP, BPDU transparent transmission can help implement STP calculation.
BPDU transparent transmission works only when STP is disabled.

Configuration Examples   The following example enables BPDU transparent transmission.
```
Ruijie(config)# bridge-frame forwarding protocol bpdu
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

5.3   clear spanning-tree counters

Use this command to clear the statistics of the sent and received STP packets.
clear spanning-tree detected-protocols [**interface** *interface-id*]

Parameter Description	Parameter	Description
	interface-id	ID of the interface

| **Defaults** | N/A |

| **Command Mode** | Privileged EXEC mode |

| **Usage Guide** | It is used to clear the statistics of the sent and received STP packets. |

| **Configuration Examples** | The following example clears the statistics of the sent and received STP packets. |

```
Ruijie# clear spanning-tree counters
```

The following example clears the statistics of the sent and received packets on interface Gi 0/1.

```
Ruijie# clear spanning-tree counters interface gigabitethernet 0/1
```

Related Commands

Command	Description
show spanning-tree counters	Displays the statistics of STP transceived packets.

| **Platform Description** | N/A |

5.4 clear spanning-tree detected-protocols

Use this command to force the interface to send the RSTP BPDU message and check the BPDU messages.

clear spanning-tree detected-protocols [**interface** *interface-id*]

Parameter Description

Parameter	Description
interface-id	ID of the interface

| **Defaults** | N/A |

| **Command Mode** | Privileged EXEC mode |

| **Usage Guide** | Use this command to force the interface to send the RSTP BPDU message. |

| **Configuration Examples** | Forces to check the version of all interfaces. |

```
Ruijie# clear spanning-tree detected-protocols
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform   N/A
Description

5.5   clear spanning-tree mst topochange record

Use this command to clear STP topology change record.

clear spanning-tree mst *instance-id* **topochange record**

Parameter
Description

Parameter	Description
instance-id	Instance ID. For STP and RSTP protocols, only instance 0 is valid.

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example clears STP topology change record.
Examples

```
Ruijie# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time               Interface            Old status   New status   Type
------------------- -------------------- ------------ ------------
----------------
 2013.5.1 4:18:46   GI0/6                Learning    Forwarding   Normal
Ruijie# clear spanning-tree mst 0 topochange record
Ruijie# show spanning-tree mst 0 topochange record
%There's no topology change information has been record on mst 0.
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

5.6   show spanning-tree

Use this command to display the global spanning-tree configuration.

show spanning-tree [summary | forward-time | hello-time | max-age | inconsistentports|
tx-hold-count | pathcost method | max_hops | counters]

Parameter
Description

Parameter	Description
summary	Displays the information of MSTP instances and forwarding status of the interfaces.
inconsistentports	Displays the block port due to root guard or loop guard.
forward-time	Displays BridgeForwardDelay.
hello-time	Displays BridgeHelloTime.
max-age	Displays BridgeMaxAge.
max-hops	Displays the maximum hops of an instance.
tx-hold-count	Displays TxHoldCount.
pathcost method	Displays the method used for calculating path cost.
counters	Displays the statistics of STP transceived packets.

Defaults   N/A

Command   Privileged EXEC mode, global configuration mode and interface configuration mode.
Mode

Usage Guide   N/A

Configuration   The following example displays the global spanning-tree configuration.
Examples
```
Ruijie# show spanning-tree hello-time
```

The following example displays the sent and received STP packets.
```
Ruijie# show spanning-tree counters
-------------------- STP BPDU count ---------------------
Port                          Receive      Send
GigabitEthernet 0/3           0            122594


------------------------ STP TC or TCN count ------------------------
MSTID    Port                          Receive      Send
0        GigabitEthernet 0/3           0            0
```

Related
Commands

Command	Description
spanning-tree pathcost method	Sets the pathcost method.
spanning-tree forward-time	Sets BridgeForwardDelay.
spanning-tree hello-time	Sets BridgeHelloTime.
spanning-tree max-age	Sets BridgeMaxAge.
spanning-tree max-hops	Sets the maximum hops of an instance.
spanning-tree tx-hold-count	Displays TxHoldCount.

Platform   N/A

Description

5.7   show spanning-tree interface

Use this command to display the STP configuration of the interface, including the optional spanning tree.

show spanning-tree interface *interface-id* [{ **bpdufilter** | **portfast** | **bpduguard** | **link-type** }]

Parameter	Description
Parameter Description	
interface-id	Interface ID
bpdufilter	Displays the status of BPDU filter.
portfast	Displays the status of portfast.
bpduguard	Displays the status of BPDU guard.
link-type	Displays the link type of an interface.

Defaults   N/A

Command Mode   Privileged EXEC mode, global configuration mode and interface configuration mode.

Usage Guide   N/A

Configuration Examples   The following example displays the STP configuration on interface Gi 0/1.

```
Ruijie# show spanning-tree int gi 0/1

PortAdminPortFast : Disabled
PortOperPortFast : Disabled
PortAdminAutoEdge : Enabled
PortOperAutoEdge : Disabled
PortAdminLinkType : auto
PortOperLinkType : point-to-point
PortBPDUGuard : Disabled
PortBPDUFilter : Disabled
PortGuardmode  : None

###### MST 0 vlans mapped :ALL
PortState : forwarding
PortPriority : 128
PortDesignatedRoot : 32768.001a.a979.00ea
PortDesignatedCost : 0
PortDesignatedBridge :32768.001a.a979.00ea
PortDesignatedPortPriority : 128
PortDesignatedPort : 1
```

```
PortForwardTransitions : 1
PortAdminPathCost : 200000
PortOperPathCost : 200000
Inconsistent states : normal
PortRole : rootPort
```

Related Commands

Command	Description
spanning-tree bpdufilter	Enables the BPDU filter feature someone the interface.
spanning-tree portfast	Enables the portfast on the interface.
spanning-tree bpduguard	Enables the BPDU guard on the interface.
spanning-tree link-type	Sets the link type of the interface to point-to-point.

Platform Description   N/A

5.8   show spanning-tree mst

Use this command to display the information of MST and instances.

show spanning-tree mst { **configuration** | *instance-id* [**interface** *interface-id*] }

Parameter Description

Parameter	Description
configuration	The MST configuration of the equipment.
instance-id	Instance number
interface-id	Interface number

Defaults

Command Mode   Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example displays the information of MST and instances.

```
Ruijie# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name    : test
Revision : 0
Instance  Vlans Mapped
--------  ------------------------------------------
0       : 2-4094
```

```
1       : 1
```

Field Description

Field	Description
Multi spanning tree protocol	Enables MSTP protocol.
Name	Name of the MST region
Revision	Revision of the MST region
Instance Vlans Mapped	Mapping relation between the instance and VLAN

Related Commands

Command	Description
spanning-tree mst configuration	Configures the MST region.
spanning-tree mst cost	Displays the path cost of the instance.
spanning-tree mst max-hops	Displays the maximum hops of the instance.
spanning-tree mst priority	Displays the equipment priority of the instance.
spanning-tree mst port-priority	Displays the port priority of the instance.

Platform Description   N/A

5.9 show spanning-tree mst topochange record

Use this command to display the STP topology change record.

show spanning-tree mst *instance-id* **topochange record**

Parameter Description

Parameter	Description
instance-id	Instance ID.

Defaults   N/A

Command Mode   Privileged EXEC mode / Global configuration mode / Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example displays the STP topology change record of instance 0.

```
Ruijie# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time               Interface            Old status   New status   Type
------------------- -------------------- ------------ ------------
----------------
 2013.5.1 4:18:46   GI0/6                Learning     Forwarding   Normal
```

Field	Description
Time	The time when the topology changes.
Interface	The interface whose topology changes.
Old status	Old STP status on the interface.
New status	New STP status on the interface.
Type	Topology change may be caused by the following causes: Normal: UP/DOWN state change on the interface, LoopGuard Block: Loop-inconsistence causes the interface to be blocked. RootGuard Block: Root-inconsistence causes the interface to be blocked. Inferior Block: Receiving inferior BPDU frames causes the interface to be blocked. LoopGuard Unblock: The interface returns to Forward status from loop-inconsistence. RootGuard Unblock: The interface returns to Forward status from root-inconsistence. Inferior Unblock-The interface returns to Forward status after not receiving inferior BPDU frames.

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

5.10 spanning-tree

Use this command to enable MSTP and configure its basic settings globally. The **no** form of the command disables the spanning-tree function. The **no** form of the command with parameters only restores the corresponding parameters to the default values, but does not disable the spanning-tree function.

spanning-tree [**forward-time** *seconds* | **hello-time** *seconds* | **max-age** *seconds*]
no spanning-tree [**forward-time** | **hello-time** | **max-age**]

Parameter Description

Parameter	Description
forward-time *seconds*	Interval at which the port status changes, in the range from 4 to 30 in the unit of seconds. The default is 15.

hello-time *seconds*	Interval at which the switch sends the BPDU message, in the range from 1 to 10 in the unit of seconds. The default is 2.
max-age *seconds*	Maximum aging time of the BPDU message, in the range from 6 to 40 in the unit of seconds. The default is 20.

Defaults   This function is disabled by default.

Command   Global configuration mode.
Mode

Usage Guide   The values of **forward-time, hello time** and **max-age** are interrelated. Modifying one of these three parameters will affect the others. There is a restricted relationship among the above three values.
2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay–1.0snd)
If the values do not according with the condition, the settings do not work.

Configuration   The following example enables the spanning-tree function.
Examples
```
Ruijie(config)# spanning-tree
```
The following example configures the BridgeForwardDelay.
```
Ruijie(config)# spanning-tree  forward-time 10
```

Related
Commands

Command	Description
show spanning-tree	Displays the global STP configuration.
spanning-tree mst cost	Sets the PathCost of an STP interface.
spanning-tree tx-hold-count	Sets the global TxHoldCount of STP.

Platform   N/A
Description

5.11 spanning-tree autoedge

Use this command to enable Autoedge on the interface. Use the **disabled** form of this command to disable this function.
spanning-tree autoedge [**disabled**]

Parameter
Description

Parameter	Description
disabled	Disabled Autoedge on the interface.

Defaults   This function is enabled by default.

Command   Interface configuration mode.
Mode

| **Usage Guide** | If the designated port of a device does not receive a BPDU from the downlink port within a specific period (3 seconds), the device regards a network device connected to the designated port, configures the port as an edge port, and switches the port directly into the forwarding state. The edge port will be automatically identified as a non-edge port after receiving a BPDU.
You can run the spanning-tree autoedge disabled command to disable Auto Edge. |

Configuration Examples   The following example disables Autoedge on the interface.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id-interface-id)# spanning-tree autoedge disabled
```

Related Commands	Command	Description
	show spanning-tree interface	Displays the STP configuration information of the interface.

Platform Description   N/A

5.12 spanning-tree bpdufilter

Use this command to enable BPDU filter on the interface. You can use the **enabled** or **disabled** option of the command to enable or disable the BPDU filter function on the interface.

spanning-tree bpdufilter [**enabled** | **disabled**]

Parameter Description	Parameter	Description
	enabled	Enables BPDU filter on the interface.
	disabled	Disables BPDU filter on the interface.

Defaults   This function is disabled by default,

Command Mode   Interface configuration mode.

Usage Guide   If BPDU filter is enabled on a port, the port neither sends nor receives BPDUs.

Configuration Examples   The following example enables BPDU filter on interface Gi 1/1.

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id-interface-id)# spanning-tree bpdufilter enable
```

Related Commands	Command	Description
	show spanning-tree interface	Displays the STP configuration of the interface.

Platform   N/A
Description

5.13 spanning-tree bpduguard

Use this command to enable the BPDU guard function on the interface. You can use the **enabled** or **disabled** option of the command to enable or disable the BPDU guard function on the interface.

spanning-tree bpduguard [**enabled** | **disabled**]

Parameter Description	**Parameter**	**Description**
	enabled	Enables BPDU guard on the interface.
	disabled	Disables BPDU guard on the interface.

Parameter Description

Parameter	**Description**
enabled	Enables BPDU guard on the interface.
disabled	Disables BPDU guard on the interface.

Defaults   This function is disabled by default.

Command   Interface configuration mode.
Mode

Usage Guide   1. If BPDU guard is enabled on a port, the port enters the error-disabled state after receiving a BPDU.
                   2. Run command **errdisable recovery** [**interval** *seconds*] to recover the interface in Error-disabled state.

Configuration The following example enables the BPDU guard function on the interface.
Examples
```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id-interface-id)# spanning-tree bpduguard enable
```

Related
Commands

Command	**Description**
show spanning-tree interface	Displays the STP configuration of the interface.

Platform   N/A
Description

5.14 spanning-tree compatible enable

Use this command to send the message selectively carried with MSTI according to the interface attribute of current port to realize interconnection with other vendors. Use the **no** form of this command to restore the default setting.

spanning-tree compatible enable
no spanning-tree compatible enable

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default. .

Command Mode   Interface configuration mode.

Usage Guide   1. If the compatibility mode is enabled on a port, this port will add different MSTI information into the to-be-sent BPDU based on the current port to realize interconnection between Ruijie devices and other SPs' devices. For example:

spanning-tree mst configuration

instance 1 vlan 1

instance 2 vlan 2

If the interface 1 only belongs to VLAN 1 and STP compatibility mode is enabled, the BPDU packet sent by the interface 1 only carrys instance 0 and instance 1.

2. If the compatibility mode is enabled on a port, STP will calculate whether the interface takes part in the specific instance calculation according to interface's VLAN and the mapping between VLAN and instance.

3. Instance 0 (CIST) takes part in calculation by default.

Configuration Examples   The following example enables the compatibility mode on interface Gi 0/1.

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if-interface-id-interface-id)#spanning-tree compatible enable
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

5.15 spanning-tree guard loop

Use this command to enable **loop guard** on the interface to prevent the root port or backup port from generating loop since they cannot receive bpdu. Use the **no** form of this command to disable **loop guard**.

spanning-tree guard loop

no spanning-tree guard loop

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Interface configuration mode

Usage Guide	1. Enabling loop guard on a root port or backup port will prevent possible loops caused by BPDU receipt failure. 2. The loop guard function and root guard function cannot be enabled at the same time.

Configuration Examples	The following example enables **loop guard** on interface Gi 0/1.

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if-interface-id)# spanning-tree guard loop
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

5.16 spanning-tree guard none

Use this command to disable **guard** on the interface. Use the **no** form of this command to enable this function

spanning-tree guard none
no spanning-tree guard none

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Interface configuration mode

Usage Guide	N/A

Configuration Examples	The following example disables **guard** on interface Gi 0/1.

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if-interface-id)# spanning-tree guard none
```

Related	Command	Description

Commands		
N/A	N/A	

Platform   N/A
Description

5.17 spanning-tree guard root

Use this command to enable **root guard** on the interface to prevent the change of current root bridge position because of error configuration and illegal packet attack. Use the **no** form of this command to restore the default setting.

spanning-tree guard root

no spanning-tree guard root

Parameter	Parameter	Description
Description	N/A	N/A

Defaults   This function is disabled by default.

Command   Interface configuration mode
Mode

Usage Guide   3.   If root guard is enabled, the current root bridge will not change due to incorrect configuration or illegal packet attacks.
4.   The loop guard function and root guard function cannot be enabled at the same time.

Configuration   The following example enables **root guard** on the interface.
Examples
```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if-interface-id)# spanning-tree guard root
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A
Description

5.18 spanning-tree ignore tc

Use this command to enable the tc filtering on the interface. Use the **no** form of this command to restore the default setting. With tc filtering enabled, the TC packets received on the interface will not be processed.

spanning-tree ignore tc

no spanning-tree ignore tc

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode.

Usage Guide   If TC filter is enabled on a port, the port does not process received TC packets.

Configuration Examples   The following example enables the tc filtering on the interface.

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if-interface-id)# spanning-tree ignore tc
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

5.19 spanning-tree link-type

Use this command to configure the link type of the interface. Use the **no** form of this command to restore the default setting.

spanning-tree link-type [**point-to-point** | **shared**]

no spanning-tree link-type

Parameter Description	Parameter	Description
	point-to-point	Sets the link type of the interface to point-to-point.
	shared	Forcibly sets the link type of the interface to shared.

Defaults   For a full-duplex interface, its link type is set to point-to-point; for a half-duplex interface, its link type is set to shared.

Command Mode   Interface configuration mode.

Usage Guide   If the link type of a port is point-to-point connection, RSTP can rapidly converge. If the link type is not

configured, the device automatically sets the link type based on the duplex mode of the port.

Configuration   The following example configures the link type of the interface.
Examples
```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id)# spanning-tree link-type point-to-point
```

Related
Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform   N/A
Description

5.20 spanning-tree loopguard default

Use this command to enable **loop guard** globally to prevent the root port or backup port from generating loop since they cannot receive bpdu. Use the **no** form of this command to restore the default setting.

spanning-tree loopguard default

no spanning-tree loopguard default

Parameter
Description

Parameter	Description
N/A	N/A

Defaults   This function is disabled by default.

Command   Global configuration mode.
Mode

Usage Guide   Enabling loop guard on a root port or backup port will prevent possible loops caused by BPDU receipt failure.

Configuration The following example enables **loop guard** globally to prevent the root port or backup port from
Examples   generating loop since they cannot receive bpdu.
```
Ruijie(config)# spanning-tree loopguard default
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

5.21 spanning-tree max-hops

Use this command to set the maximum number of hops(Max-hopsCount) of the BPDU message in the global configuration mode, the number of hops in a region that the BPDU message passes before being dropped. This parameter takes effect for all instances. Use the **no** form of this command to restore the default setting.

spanning-tree max-hops *hop-count*

no spanning-tree max-hops

Parameter Description	Parameter	Description
	hop-count	Number of hops in a region that the BPDU message passes before being dropped. The range is 1 to 40 hops.

Defaults   The default is 20 hops.

Command Mode   Global configuration mode.

Usage Guide   In the region, the BPDU message sent by the root bridge includes a Hot Count field. When the BPDU message passes a device, the Hop Count is decreased by 1 until it reaches 0, which indicates the BPDU message times out. The device will drop the BPDU message whose Hop Count is 0. Changing the max-hops command affects all instances.

Configuration Examples   This example sets the max-hops of the spanning tree to 10 for all instances.

```
Ruijie(config)# spanning-tree  max-hops 10
```

Related Commands	Command	Description
	show spanning-tree	Displays the MSTP information.

Platform Description   N/A

5.22 spanning-tree mode

Use this command to set the STP version. Use the **no** form of the command to restore the default setting.

spanning-tree mode [**stp** | **rstp** | **mstp**]

no spanning-tree mode

Parameter Description	Parameter	Description

stp	Spanning tree protocol(IEEE 802.1d)
rstp	Rapid spanning tree protocol(IEEE 802.1w)
mstp	Multiple spanning tree protocol(IEEE 802.1s)

Defaults   The default is **mstp**.

**Command
Mode**   Global configuration mode.

Usage Guide   However, some vendors' devices do not work according to 802.1 protocol standards, possibly causing incompatibility. If other vendors' devices are incompatible with Ruijie devices, run this command to switch the STP mode to a lower version.

**Configuration
Examples**   The following example sets the STP version.

```
Ruijie(config)# spanning-tree mode stp
```

**Related
Commands**

Command	Description
show spanning-tree	Displays the spanning-tree configuration.

**Platform
Description**   N/A

5.23 spanning-tree mst configuration

Use this command to enter the MST configuration mode in the global configuration mode and configure the MSTP region. Use the **no** form of the command to restore the default setting.
spanning-tree mst configuration
no spanning-tree mst configuration

**Parameter
Description**

Parameter	Description
N/A	N/A

Defaults   All VLANs are in instance 0 by default.
Name is a null string.
Revision is 0.

**Command
Mode**   Global configuration mode

Usage Guide   To return to the privileged EXEC mode, enter end or Ctrl+C.
To return to the global configuration mode, enter exit.

After entering the MST configuration mode, you can configure parameters by these commands:

instance *instance-id* **vlan** *vlan-range:* Add VLAN to MST instance. Instance-ID is in the range from 0 to 64 and VLAN is in the range from 1 to 4094. Use commas to separate VLAN IDs and use hyphen to indicate VLAN range, e.g., instance 10 vlan 2,3,6-9, which adds VLAN 2, 3, 4, 5, 6, 7, 8, 9 to instance 10. By default, all VLANs are in instance 0. Use the **no** form of this command to remove VLAN from instance 1-64..

If you create 64 instances by stacking on a Ruijie device with a small memory (e.g., 64M), the memory may be undersized. It is recommended to limit stacking instance number.

name name: MST name, up to 32 characters are allowed. Run the **no name** command to restore the default settings.

revision version: MST version number, ranging from 0 to 65535. Run the **no revision** command to restore the default settings.

show spanning-tree mst configuration: Displays the current MST region information.

Configuration Examples	This example enters the MST configuration mode and maps VLAN 3, 5-10 to MST instance 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3, 5-10
Ruijie(config-mst)# name region1
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show spanning-tree mst configuration
MST configuration
Name [region1]
Revision 1
Instance  Vlans Mapped
----------  ---------------------
0        1-2,4,11-4094
1        3,5-10
--------------------------------
Ruijie(config-mst)# exit
Ruijie(config)#
```

The following example deletes VLAN 3 from instance 1.

```
Ruijie(config-mst)# no instance 1 vlan 3
```

The following example deletes instance 1.

```
Ruijie(config-mst)# no instance 1
```

Related Commands	Command	Description
	show spanning-tree mst	Displays the MST region configuration.
	instance *instance-id* **vlan** *vlan-range*	Adds VLANs to the MST instance.

| name | Configures the name of MST. |
| revision | Configures the version of MST. |

Platform   N/A
Description

5.24 instance instance-id vlan vlan-range

Use this command to set instance and VLAN mapping relations. Use the **no** form of the command to restore the default setting.

instance *instance-id* **vlan** *vlan-range*

no instance *instance-id* { **vlan** *vlan-range* }

Parameter
Description

Parameter	Description
instance-id	Instance ID, in the range from 0 to 64
vlan-range	VLAN range, in the range from 1 to 4094.

Defaults

The default is instance 0.

Command   MST configuration mode
Mode

Usage Guide   **instance** *instance-id* **vlan** *vlan-range*: Add VLAN to MST instance. Instance-ID is in the range from 0 to 64 and VLAN is in the range from 1 to 4094. Use commas to separate VLAN IDs and use hyphen to indicate VLAN range, e.g., instance 10 vlan 2,3,6-9, which adds VLAN 2, 3, 4, 5, 6, 7, 8, 9 to instance 10. By default, all VLANs are in instance 0. Use the **no** form of this command to remove VLAN from instance 1-64.

If you create 64 instances by stacking on a Ruijie device with a small memory (e.g., 64M), the memory may be undersized. It is recommended to limit stacking instance number.

Configuration   This example enters MST mode and maps VLAN 3 and 5-10 to MST instance1.

Examples
```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3, 5-10
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name    :
Revision : 0
Instance  Vlans Mapped
----------  --------------------
0       1-2,4,11-4094
1       3,5-10
--------------------------------
```

```
Ruijie(config-mst)# exit
Ruijie(config)#
```

The following example removes VLAN3 from instance 1.

```
Ruijie(config-mst)# no instance 1 vlan 3
```

The following example removes instance 1.

```
Ruijie(config-mst)# no instance 1
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

5.25 revision

Use this command to set revision number of MSTP region. Use the **no** form of the command to restore the default setting.

revision *version*

no revision

Parameter Description	Parameter	Description
	version	MST revision number, in the range from 0 to 65535.

Defaults The default is 0.

Command Mode MST configuration mode

Usage Guide **revision** *version*: Sets the MST version, in the range from 0 to 65535.

show spanning-tree mst configuration: Displays MST region information.

Configuration Examples This example sets revision number to1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name    :
Revision : 1
Instance  Vlans Mapped
--------  ----------------------------------------
0       : ALL
Ruijie(config-mst)# exit
```

```
Ruijie(config)#
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

5.26 name

Use this command to set MST name. Use the **no** form of the command to restore the default setting.

name *name*

no name

Parameter Description	**Parameter**	**Description**
	name	MST name, up to 32 characters.

Defaults	The default is NULL.

Command Mode	MST configuration mode

Usage Guide	**name** *name*: Sets the MST name, up to 32 characters.
	show spanning-tree mst configuration: Displays MST region information.

Configuration Examples

This example sets MST name to region1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# name region1
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name    : region1
Revision : 0
Instance  Vlans Mapped
--------  ----------------------------------------
0        : ALL
Ruijie(config-mst)# exit
Ruijie(config)#
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform   N/A

Description

5.27 anning-tree mst cost

Use this command to set the path cost of an instance in the interface configuration mode. Use the **no** form of the command to restore the default setting.

spanning-tree [**mst** *instance-id*] **cost** *cost*

no spanning-tree [**mst** *instance-id*] *cost*

Parameter	Description
instance-id	Instance ID in the range from 0 to 64.
cost	Path cost in the range from 1 to 200,000,000.

Parameter

Description

Defaults   The default instance-id is 0.

The default value is calculated by the link rate of the interface automatically.

1000 Mbps—20000

100 Mbps—200000

10 Mbps—2000000

Command   Interface configuration mode.

Mode

Usage Guide   A higher cost value means a higher path cost.

Configuration   This example sets the path cost to 400 on the interface associated with instances 3.

Examples

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 3 cost 400
```

Related

Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst port-priority	Configures the priority of an interface.
spanning-tree mst priority	Configures the priority of an instance.

Platform   N/A

Description

5.28 spanning-tree mst port-priority

Use this command to configure the interface priority for different instances in the interface

configuration mode. It will determine which interface of a loop in a region is in charge of forwarding.

Use the **no** form of this command to restore the default setting.

spanning-tree [**mst** *instance-id*] **port-priority** *priority*

no spanning-tree [**mst** *instance-id*] **port-priority**

Parameter Description

Parameter	Description
Instance-id	Instance ID, in the range of 0 to 64
priority	Interface priority. Sixteen integers are available: 0, 16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 192, 208, 224, 240, which are the multiples of 16.

Defaults
The default instance-id is 0.
The default priority is 128.

Command Mode
Interface configuration mode.

Usage Guide
When a loop occurs in the region, the interface of the higher priority will be in charge of forwarding. If all interfaces have the same priority value, the interface of the smaller number will be in charge of the forwarding.
Run this command to determine which port in the loop of a region enters the forwarding state.

Configuration Examples
This example sets the priority of **gigabitethernet 1/1** to 10 in instance 20.
```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id)# spanning-tree mst 20 port-priority 0
```

Related Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst cost	Sets the path cost.
spanning-tree mst priority	Sets the device priority for different instances.

Platform Description
N/A

5.29 spanning-tree mst priority

Use this command to set the device priority for different instances in the global configuration mode.

Use the **no** form of this command to restore the default setting.

spanning-tree [**mst** *instance-id*] **priority** *priority*

no spanning-tree [**mst** *instance-id*] **priority**

Parameter

Parameter	Description

Description

instance-id	Instance ID, in the range of 0 to 64
priority	Device priority. Sixteen integers are available: 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152,53248, 57344 and 61440, which are all multiples of 4096.

Defaults   The default instance ID is 0.
                      The default device priority is 32768.

Command   Global configuration mode.
Mode

Usage Guide   Configure the switch priority to determine a device as the root of the entire network and to determine
                      the topology of the entire network.

Configuration   The following example sets the device priority of the Instance to 8192.
Examples
```
Ruijie(config)# spanning-tree mst 20 priority 8192
```

Related
Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst cost	Sets path cost.
spanning-tree mst port-priority	Sets the port priority of an instance.

Platform   N/A
Description

5.30 spanning-tree pathcost method

Use this command to configure the path cost of the port. Use the **no** form of this command to restore
the default setting.
spanning-tree pathcost method { { **long** [**standard** } | **short** }
no spanning-tree pathcost method

Parameter
Description

Parameter	Description
Long [**standard**]	Adopts the 802.1t standard to configure path cost. The standard indicates that use the expression recommended by the standard to calculate the cost value.
short	Adopts the 802.1d standard to configure path cost.

Defaults   802.1T standard is adopted to set path cost by default.

Command Mode	Global configuration mode.
Usage Guide	If the port path cost uses the default value, the device automatically calculates the port path cost based on the port rate.
Configuration Examples	The following example configures the path cost of the port. `Ruijie(config-if)# spanning-tree pathcost method long`

Related Commands	Command	Description
	show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description	N/A

5.31 spanning-tree portfast

Use this command to enable the portfast on the interface. Use the disabled form of this command to restore the default setting,

spanning-tree portfast [**disabled**]

Parameter Description	Parameter	Description
	disabled	Disables the portfast on the interface.

Defaults	This function is disabled by default.
Command Mode	Interface configuration mode.
Usage Guide	After PortFast is enabled on a port, the port directly enters the forwarding state. However, since the Port Fast Operational State becomes disabled due to receipt of BPDUs, the port can properly run the STP algorithm and enter the forwarding state.

Configuration Examples	The following example enables the portfast on the interface.
	`Ruijie(config)# interface gigabitethernet 1/1`
	`Ruijie(config-if-interface-id)# spanning-tree portfast`

Related Commands	Command	Description
	show spanning-tree interface	Displays the STP configuration of the interface.

Platform	N/A

Description

5.32 spanning-tree portfast bpdufilter default

Use this command to enable the BPDU filter function globally. You can use the **no** form of the
command to restore the default setting.

spanning-tree portfast bpdufilter default

no spanning-tree portfast bpdufilter default

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default,

Command   Global configuration mode.
Mode

Usage Guide   The global BPDU filter function takes effect only when working with the PortFast function on the
interface.
Once the BPDU filter is enabled, the BPDU message is neither received nor sent on the Port Fast
interface. Use the **show spanning-tree** command to display the configuration.

Configuration   The following example enables the BPDU filter function globally.
Examples
```
Ruijie(config)# spanning-tree portfast bpdufilter default
```

Related Commands	Command	Description
	show spanning-tree interface	Displays the global STP configuration.

Platform   N/A
Description

5.33 spanning-tree portfast bpduguard default

Use this command to enable the BPDU guard globally. Use the **no** form of this command to restore
the default setting,

spanning-tree portfast bpduguard default

no spanning-tree portfast bpduguard default

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.
Command Mode	Global configuration mode.
Usage Guide	Once the BPDU guard is enabled on the interface, it will enter the error-disabled status if the BPDU message arrives at the interface. Use the **show spanning-tree** command to display the configuration.

⚠ The global BPDU guard takes effect only when PortFast is enabled on a port.

Configuration Examples	The following example enables the GPDU guard globally.

```
Ruijie(config)# spanning-tree portfast bpduguard
default
```

Related Commands	Command	Description
	show spanning-tree interface	Displays the global STP configuration.

Platform Description	N/A

5.34 spanning-tree portfast default

Use this command to enable the portfast feature on all interfaces globally. Use the **no** form of this command to restore the default setting.

spanning-tree portfast default
no spanning-tree portfast default

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.
Command Mode	Global configuration mode.
Usage Guide	N/A
Configuration Examples	The following example enables the portfast feature on all interfaces globally.

```
Ruijie(config)# spanning-tree portfast default
```

Related	Command	Description

Commands		
	show spanning-tree interface	Displays the global STP configuration.

Platform   N/A
Description

5.35 spanning-tree reset

Use this command to restore the **spanning-tree** configuration to the default setting.

spanning-tree reset

Parameter		
Description	**Parameter**	**Description**
	N/A	N/A

Defaults   N/A

Command   Global configuration mode
Mode

Usage Guide   The function do not have a **no** command.

Configuration The following example resets STP.
Examples   `Ruijie(config)# spanning-tree reset`

Related		
Commands	**Command**	**Description**
	show spanning-tree	Displays the global STP configuration.
	show spanning-tree interface	Displays the STP configuration of the interface.

Platform   N/A
Description

5.36 spanning-tree tc-guard

Use this command to enable **tc-guard** on the interface to prevent the spread of TC messages. Use the **no** form of this command to disable this function on the interface.

spanning-tree tc-guard

no spanning-tree tc-guard

Parameter		
Description	**Parameter**	**Description**
	N/A	N/A

Defaults   This function is disabled by default.

Command   Global configuration mode.

Mode

Usage Guide   Enable TC guard to prevent TC packets from spreading

Configuration   The following example enables **tc-guard** on the interface Gi 1/1.

Examples
```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-interface-id)# spanning-tree tc-guard
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A

Description

5.37 spanning-tree tc-protection

Use this command to enable **tc-protection** globally. Use The **no** form of this command to disable this function.

spanning-tree tc- protection

no spanning-tree tc- protection

Parameter
Description

Parameter	Description
N/A	N/A

Defaults   This function is enabled by default.

Command   Global configuration mode.

Mode

Usage Guide   N/A

Configuration   The following example enables **tc-protection** globally.

Examples
```
Ruijie(config)# spanning-tree tc-protection
```

Related
Commands

Command	Description
N/A	N/A

| **Platform** | N/A |
| **Description** | |

5.38 spanning-tree tc-protection tc-guard

Use this command to enable tc-guard to prevent TC packets from being flooded. Use the **no** form of this command to restore the default setting.

spanning-tree tc-protection tc-guard

no spanning-tree tc-protection tc-guard

Parameter **Description**	**Parameter**	**Description**
	N/A	N/A

| **Defaults** | This function is disabled by default. |

| **Command**
Mode | Global configuration mode. |

| **Usage Guide** | Enable TC guard to prevent TC packets from spreading. |

| **Configuration**
Examples | The following example enables tc-guard to prevent TC packets from being flooded. |

```
Ruijie(config)# spanning-tree tc-protection tc-guard
```

Related **Commands**	**Command**	**Description**
	N/A	N/A

| **Platform** | N/A |
| **Description** | |

5.39 spanning-tree tx-hold-count

Use this command to configure the TxHoldCount of the STP, the maximum number of the BPDU messages sent in one second. Use the **no** form of this command to restore the default setting.

spanning-tree tx-hold-count *tx-hold-count*

no spanning-tree tx-hold-count

Parameter **Description**	**Parameter**	**Description**
	tx-hold-count	Indicates the maximum number of BPDUs sent per second. The value ranges from 1 to 10. The default value is 3.

Defaults	The default is 3.
Command Mode	Global configuration mode.
Usage Guide	N/A

Configuration Examples

The following example sets the maximum number of the BPDU messages sent in one second.

```
Ruijie(config)# spanning-tree tx-hold-count 5
```

Related Commands

Command	Description
show spanning-tree	Displays the global MSTP configuration.

Platform Description	N/A

6 LLDP Commands

6.1 civic-location

Use this command to configure a common LLDP address. Use the **no** form of this command to delete the address.

civic-location { **country** | **state** | **county** | **city** | **division** | **neighborhood** | **street-group** | **leading-street-dir** | **trailing-street-suffix** | **street-suffix** | **number** | **street-number-suffix** | **landmark** | **additional-location-information** | **name** | **postal-code** | **building** | **unit** | **floor** | **room** | **type-of-place** | **postal-community-name** | **post-office-box** | **additional-code** } *ca-word*

no civic-location { **country** | **state** | **county** | **city** | **division** | **neighborhood** | **street-group** | **leading-street-dir** | **trailing-street-suffix** | **street-suffix** | **number** | **street-number-suffix** | **landmark** | **additional-location-information** | **name** | **postal-code** | **building** | **unit** | **floor** | **room** | **type-of-place** | **postal-community-name** | **post-office-box** | **additional-code** } *ca-word*

Parameter Description

Parameter	Description
country	Country code, two bytes. For example, the country code of China is CH.
state	Address information, CA type 1
county	CA type 2
city	CA type 3
division	CA type 4
neighborhood	CA type 5
street-group	CA type 6
leading-street-dir	CA type 16
trailing-street-suffix	CA type 17
street-suffix	CA type 18
number	CA type 19
street-number-suffix	CA type 20
landmark	CA type 21
additional-location-information	CA type 22
name	CA type 23
postal-code	CA type 24
building	CA type 25
unit	CA type 26
floor	CA type 27
room	CA type 28
type-of-place	CA type 29
postal-community-name	CA type 30
post-office-box	CA type 31

additional-code	CA type 32
ca-word	Address information

Defaults   N/A

Command   LLDP Civic address configuration mode

Mode

Usage Guide   This command is used to configure a common LLDP address in LLDP Civic address configuration

mode.

Configuration   The following example configures an LLDP Civic Address (ID: 1).

Examples
```
Ruijie#config
Ruijie(config)# lldp location civic-location identifier 1
Ruijie(config-lldp-civic)# country CH
Ruijie(config-lldp-civic)# city Fuzhou
```

Related | **Command** | **Description** |
|---|---|
| **Commands** | **show lldp location civic-location** { **identifier** | Displays the information about an LLDP Civic |
| | *id* \| **interface** *interface-name* \| **static** } | address. |

Platform   N/A

Description

6.2   clear lldp statistics

Use this command to clear LLDP statistics.

clear lldp statistics [**interface** *interface-name*]

Parameter | **Parameter** | **Description** |
|---|---|
| **Description** | *interface-name* | Interface name |

Defaults   N/A

Command   Privileged EXEC mode

Mode

Usage Guide   **interface** parameter: clear the LLDP statistics of the specified interface

Configuration   The following example clears LLDP statistics of interface 1.

Examples
```
Ruijie# clear lldp statistics interface GigabitEthernet 0/1
Ruijie# show lldp statistics interface GigabitEthernet 0/1
Lldp statistics information of port [GigabitEthernet 0/1]
-------------------------------------------------------------
```

```
The number of lldp frames transmitted  : 0
The number of frames discarded    : 0
The number of error frames      : 0
The number of lldp frames received   : 0
The number of TLVs discarded    : 0
The number of TLVs unrecognized    : 0
The number of neighbor information aged out : 0
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

6.3 clear lldp table

Use this command to clear LLDP neighbor information.

clear lldp table [**interface** *interface-name*]

Parameter Description	Parameter	Description
	interface-name	Interface name

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   If the **interface** parameter is specified, the LLDP neighbor information on the specified interface is cleared.

If the **interface** parameter is not specified, the LLDP neighbor information on all interfaces is cleared.

Configuration Examples   The following example clears the LLDP neighbor information on interface 1.

```
Ruijie# show lldp neighbors interface GigabitEthernet 0/1
Capability codes:
    (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
    (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other
System Name           Local Intf      Port ID             Capability
Aging-time

Total entries displayed: 0
Ruijie# clear lldp table interface GigabitEthernet 0/1
Ruijie# show lldp neighbors interface GigabitEthernet 0/1
```

Related	Command	Description

Commands	N/A	N/A

Platform Description	N/A

6.4 device-type

Use this command to configure the device type. Use the **no** form of this command to restore the default setting.

device-type *device-type*

no device-type

Parameter Description	Parameter	Description
	device-type	Device type. The value ranges from 0 to 2. 0: The device type is DHCP Server. 1: The device type is switch. 2: The device type is LLDP MED terminal.

Defaults	

Command Mode	LLDP Civic address configuration mode

Usage Guide	This command is used to configure the device type in a common LLDP address in LLDP Civic address configuration mode.

Configuration Examples	The following example sets the device type to switch.

```
Ruijie#config
Ruijie(config)# lldp location civic-location identifier 1
Ruijie(config-lldp-civic)# device-type 1
```

Related Commands	Command	Description
	show lldp location civic-location { **identifier** *id* | **interface** *interface-name* | **static** }	Displays LLDP Civic Address information.

Platform Description	N/A

6.5 lldp enable

Use this command to enable the LLDP globally or on the interface. Use **no** form of this command to disable this function.

lldp enable

no lldp enable

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is enabled by default.

Command Mode Global (or interface) configuration mode

Usage Guide LLDP takes effect on an interface only when LLDP is enabled globally.

Configuration Examples The following example disables LLDP globally and on the interface.

```
Ruijie#config
Ruijie(config)#no lldp enable
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)# no lldp enable
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description N/A

6.6 lldp encapsulation snap

Use this command to configure the encapsulation format of LLDP packets. Use the **no** form of this command to restore the default setting.

lldp encapsulation snap

no lldp encapsulation snap

Parameter Description	Parameter	Description
	N/A	N/A

Defaults By default, Ethernet II encapsulation format is used.

Command Mode Interface configuration mode.

Usage Guide ⚠ To guarantee the normal communication between local device and neighbor device, the same LLDP packet encapsulation format must be used.

Configuration Examples	The following example sets LLDP packet encapsulation format to SNAP
| | ```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp encapsulation snap
``` |

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description	N/A

6.7 lldp error-detect

Use this command to configure the LLDP error detection, including the detection of VLAN configurations on both sides of the link, port state detection, port aggregation configuration detection, MTU configuration detection and loop detection. If any error is detected by LLDP, warning message will be printed to notify the administrator. Use the **no** form of this command to disable this function.

lldp error-detect

no lldp error-detect

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is enabled by default.

Command Mode	Interface configuration mode.

Usage Guide	LLDP error detection relies on the specific TLV in the LLDP packets exchanged between devices on both sides of the link. To ensure normal functioning of the detection feature, correct TLVs must be advertised.

Configuration Examples	The following example configures LLDP error detection.
| | ```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp error-detect
``` |

Related Commands	Command	Description
	show interface status	Displays LLDP status information.

Platform Description	N/A

6.8   lldp fast-count

When a new neighbor is detected or when LLDP operating mode changes from shutdown or Rx to TxRx or Tx, to allow the neighbor device to quickly study the information about this device, the fast sending mechanism will be initiated. The fast sending mechanism shortens the LLDPDU sending interval to 1 second and continuously transmits a certain number of LLDPDUs before restoring to the normal transmit interval. Use the **no** form of this command to restore the default setting.

lldp fast-count *value*

no lldp fast-count

Parameter Description	Parameter	Description
	value	The number of fast sent LLDP packets, in the range from 1 to 10.

Defaults	The default is 3.

Command Mode	Global configuration mode.

Usage Guide	N/A

Configuration Examples	The following example sets the number of fast sent LLDP packets to 5.

```
Ruijie#config
Ruijie(config)#lldp fast-count 5
```

Related Commands	Command	Description
	show interface status	Displays LLDP status information.

Platform Description	N/A

6.9   lldp hold-multiplier

Use this command to set the TTL multiplier. Use the **no** form of this command to restore to default setting.

lldp hold-multiplier *value*

no lldp hold-multiplier

Parameter Description	Parameter	Description
	value	TTL multiplier, in the range from 2 to 10.

Defaults	The default is 4.

Command	Global configuration mode.

Mode

Usage Guide   The value of Time To Live (TLV) in LLDP packet = TTL multiplier × LLDP packet transmit interval + 1.
Therefore, the TTL of local device information on the neighbor device can be controlled by adjusting
TTL multiplier.

Configuration   The following example sets TTL multiplier to 5.

Examples
```
Ruijie#config
Ruijie(config)#lldp hold-multiplier 5
```

Related	**Command**	**Description**
Commands	**show lldp status**	Displays LLDP status information.

Platform   N/A
Description

6.10 lldp location civic-location identifier

Use this command to create a common address of a device connected to the network in LLDP Civic
Address configuration mode. Use the **no** form of this command to delete the address.

lldp location civic-location identifier *id*

no lldp location civic-location identifier *id*

Parameter	**Parameter**	**Description**
Description	*id*	ID of a common address of a network device, in the range from 1 to 1024.

Defaults   N/A

Command   Global configuration mode
Mode

Usage Guide   This command can be used to enter the LLDP Civic Address configuration mode.

Configuration   The following example creates the Civic Address information in LLDP MED-TLV as follows: set *id* to
Examples   **1**.
```
Ruijie#config
Ruijie(config)#lldp location civic-location identifier 1
Ruijie(config-lldp-civic)#
```

Related	**Command**	**Description**
Commands	**show lldp location civic-location** { **identifier** *id*	**interface** *interface-name*	**static** }	Displays the LLDP Civic Address information.

Platform   N/A

Description

6.11 lldp location elin identifier

Use this command to set an emergency number encapsulated in a Location Identification TLV. Use the **no** form of this command to delete the number.

lldp location elin identifier *id* **elin-location** *tel-number*

no lldp location elin identifier *id*

Parameter	Parameter	Description
Description	*id*	ID of an emergency number, in the range from 1 to 1024.
	tel-number	Emergency number, in the range from 10 to 25 bytes.

Defaults   N/A

Command Mode   Global configuration mode

Usage Guide   This command is used to configure an emergency number.

Configuration Examples

The following example sets an emergency number.

```
Ruijie#config
Ruijie(config)#lldp location elin identifier 1 elin-location 085283671111
```

Related Commands	Command	Description
	show lldp location elin-location { **identifier** *id* | **interface** *interface-name* | **static** }	Displays an LLDP emergency number.

Platform Description   N/A

6.12 lldp management-address-tlv

Use this command to configure the management address advertised in LLDP packets. Use the **no** form of this command to disable the advertisement of management address.

lldp management-address-tlv [*ip-address*]

no lldp management-address-tlv

Parameter	Parameter	Description
Description	*ip-address*	The management address advertised in LLDP packets.

Defaults   N/A

Command Mode	Interface configuration mode.

Usage Guide	By default, the management address is advertised in LLDP packets, and is the IPv4 address of the lowest-ID VLAN carried on the port. If IPv4 address is not configured for this VLAN, the next lowest-ID VLAN carried on the port will be tried until the IPv4 address is obtained.

Configuration Examples	The following example configures the management address advertised in LLDP packets to 192.168.1.1.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp management-address-tlv 192.168.1.1
```

Related Commands	Command	Description
	show lldp local-information	Displays LLDP local information

Platform Description	N/A

6.13 lldp mode

Use this command to configure the LLDP operating mode. Use **no** form of this command to restore the default setting.

lldp mode { **rx** | **tx** | **txrx** }

no lldp mode

Parameter Description	Parameter	Description
	rx	Only sends LLDPDUs.
	tx	Only receives LLDPDUs.
	txrx	Sends and receives LLDPDUs.

Defaults	The default is **txrx**.

Command Mode	Interface configuration mode

Usage Guide	Disable LLDP operating mode on the interface. The interface won't send and receive LLDP packets. The precondition for enabling LLDP on the interface is that LLDP has been enabled globally and LLDP operates in tx, rx or txrx mode.

Configuration Examples	The following example sets LLDP operating mode to tx on the interface.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
```

```
Ruijie(config-if)#lldp mode tx
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information

Platform Description N/A

6.14 lldp network-policy profile

Use this command to create an LLDP network policy and enter the LLDP network policy configuration mode. Use the no form of this command to delete the policy.

lldp network-policy profile *profile-num*

no lldp network-policy profile *profile-num*

Parameter Description	Parameter	Description
	profile-num	ID of an LLDP network policy, in the range from 1 to 1024.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command is used to enter the LLDP network policy configuration mode. When this command is run, the policy ID must be specified.

In LLDP network-policy mode, the { **voice** | **voice-signaling** } **vlan** command can be used to configure the specific network policy.

Configuration Examples The following example creates an LLDP network policy whose ID is 1.

```
Ruijie#config
Ruijie(config)#lldp network-policy profile 1
Ruijie(config-lldp-network-policy)#
```

Related Commands	Command	Description
	show lldp network-policy profile [*profile-num*]	Displays an LLDP network policy.

Platform Description N/A

6.15 lldp notification remote-change enable

Use this command to configure LLDP Trap. Use the **no** form of this command to restore the default

setting.

lldp notification remote-change enable

no lldp notification remote-change enable

Parameter	Parameter	Description
Description	N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide By configuring LLDP Trap, the LLDP information of local device (such as information about the detection of new neighbor or the fault on the communication link) can be sent to the network management server. The administrator can monitor the network operation status according to such information.

Configuration Examples The following example configures LLDP Trap.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp notification remote-change enable
```

Related	Command	Description
Commands	**show lldp status**	Displays LLDP status information.

Platform Description N/A

6.16 lldp timer notification-interval

Use this command to set an interval of sending LLDP Traps. Use the **no** form of this command to restore the default setting.

lldp timer notification-interval *seconds*

no lldp timer notification-interval

Parameter	Parameter	Description
Description	*seconds*	Interval of sending LLDP Traps, in the range from 5 to 3600 in the unit of seconds.

Defaults The default is 5s.

Command Mode Global configuration mode.

Usage Guide	To prevent excessive LLDP traps from being sent, you can set an interval of sending LLDP Traps. If LLDP information change is detected during this interval, traps will be sent to the network management server.
Configuration Examples	The following example sets the interval of sending LLDP Traps to 10 seconds.

```
Ruijie#config
Ruijie(config)#lldp timer notification-interval 10
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description	N/A

6.17 lldp timer reinit-delay

Use this command to set port initialization delay. Use the **no** form of this command to restore he default setting.

lldp timer reinit-delay *seconds*

no lldp timer reinit-delay

Parameter Description	Parameter	Description
	seconds	Port initialization delay, in the range from 1 to 10 in the unit of seconds.

Defaults	The default is 2s.
Command Mode	Global configuration mode
Usage Guide	To prevent LLDP from being initialized too frequently due to the frequent operating mode change, you can configure port initialization delay.
Configuration Examples	The following example sets LLDP port initialization delay to 3 seconds.

```
Ruijie#config
Ruijie(config)#lldp timer reinit-delay 3
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description	N/A

6.18 lldp timer tx-delay

Use this command to set LLDP packet transmission delay. Use the **no** form of this command to restore the default setting.

lldp timer tx-delay *seconds*

no lldp timer tx-delay

Parameter	Parameter	Description
Description	*seconds*	LLDP packet transmission delay, in the range from 1 to 8192 in the unit of seconds.

Defaults   The default is 2.

Command Mode   Global configuration mode.

Usage Guide   An LLDP-enabled port will send LLDP packets when the local device information changes. To avoid frequently sending LLDP packets due to the frequent local device information change, configure the LLDP packet transmission delay to control the frequent transmission of LLDP packets.

Configuration Examples

The following example sets LLDPDU transmission delay to 3 seconds.

```
Ruijie#config
Ruijie(config)#lldp timer tx-delay 3
```

Related	Command	Description
Commands	**show lldp status**	Displays LLDP status information.

Platform Description   N/A

6.19 lldp timer tx-interval

Use this command to set the interval of sending the LLDP packets. Use **no** form of this command to restore the default setting.

lldp timer tx-interval *seconds*

no lldp timer tx-interval

Parameter	Parameter	Description
Description	*seconds*	Interval of sending the LLDP packets, in the range from 5 to 32768 in the unit of seconds.

Defaults   The default is 30.

Command Mode	Global configuration mode.

Usage Guide	N/A

Configuration Examples	The following example sets the interval of sending the LLDP packets to 10 seconds.

```
Ruijie#config
Ruijie(config)#lldp timer tx-interval 10
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description	N/A

6.20 lldp tlv-enable

Use this command to configure the types of advertisable TLVs. Use the **no** form of this command to restore the default setting.

lldp tlv-enable { **basic-tlv** { **all** | **port-description** | **system-capability** | **system-description** | **system-name** } | **dot1-tlv** { **all** | **port-vlan-id** | **protocol-vlan-id** [*vlan-id*] | **vlan-name** [*vlan-id*] } | **dot3-tlv** { **all** | **link-aggregation** | **mac-physic** | **max-frame-size** | **power** } | **med-tlv** { **all** | **capability** | **inventory** | **location** { **civic-location** | **elin** } **identifier** *id* | **network-policy profile** [*profile-num*] | **power-over-ethernet** } }

no lldp tlv-enable { **basic-tlv** { **all** | **port-description** | **system-capability** | **system-description** | **system-name** } | **dot1-tlv** { **all** | **port-vlan-id** | **protocol-vlan-id** | **vlan-name** } | **dot3-tlv** { **all** | **link-aggregation** | **mac-physic** | **max-frame-size** | **power** } | **med-tlv** { **all** | **capability** | **inventory** | **location** { **civic-location** | **elin** } **identifier** *id* | **network-policy profile** [*profile-num*] | **power-over-ethernet** } }

Parameter Description	Parameter	Description
	basic-tlv	Basic management TLV
	port-description	Port Description TLV
	system-capability	System Capabilities TLV
	system-description	System Description TLV
	system-name	System Name TLV
	dot1-tlv	802.1 organizationally specific TLV
	port-vlan-id	Port VLAN ID TLV
	protocol-vlan-id	Port And Protocol VLAN ID TLV
	vlan-id	VLAN ID

vlan-name	VLAN Name TLV	
vlan-id	VLAN ID corresponding to the specified VLAN name	
dot3-tlv	802.3 organizationally specific TLV	
link-aggregation	Link Aggregation TLV	
mac-physic	MAC/PHY Configuration/Status TLV	
max-frame-size	Maximum Frame Size TLV	
power	Power Via MDI TLV	
med-tlv	LLDP MED TLV	
capability	LLDP-MED Capabilities TLV	
inventory	Inventory management TLVs, including hardware revision TLVs, firmware revision TLVs, software revision TLVs, serial number TLVs, manufacturer name TLVs, model name TLVs, and asset ID TLVs.	
location	Location Identification TLV	
civic-location	Common address information about the network device in location identification TLVs.	
elin	Encapsulated emergency number	
id	Policy ID	
network-policy	Network Policy TLV	
profile-num	ID of network policy	
power-over-ethernet	Extended Power-via-MDI TLV	

Defaults By default, all TLVs other than Location Identification TLV can be advertised on the interface for products other than S12000. For the S12000 product series, only basic TLVs and IEEE 802.1 TLVs are advertised. To advertise IEEE 802.3 TLVs and LLDP-MED TLVs, run the **lldp tlv-enable** command.

Command Mode Interface configuration mode

Usage Guide During configuration of basic management TLVs, IEEE 802.1 TLVs, and IEEE 802.3 TLVs, if the **all** parameter is specified, all optional TLVs of the types are advertised.
During configuration of LLDP-MED TLVs, if the **all** parameter is specified, all LLDP-MED TLVs except Location Identification TLVs are advertised.
When configuring LLDP-MED Capability TLVs, configure LLDP-MED MAC/PHY TLVs first. When canceling LLDP-MED MAC/PHY TLVs, cancel LLDP-MED Capability TLVs first.
When configuring LLDP-MED TLVs, configure LLDP-MED Capability TLVs first so that LLDP-MED TLVs of other types can be configured.
To cancel LLDP-MED TLVs, cancel LLDP-MED TLVs of other types first so that LLDP-MED Capability TLVs can be canceled.

Configuration Examples The following example configures all IEEE 802.1 TLVs to be advertised.
```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp tlv-enable dot1-tlv all
```

The following example applies LLDP network policy 1 on the 0/1 interface.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp tlv-enable med-tlv network-policy
profile 1
```

The following example applies the LLDP Civic Address (ID: 1) configuration on the 0/1 interface.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp tlv-enable med-tlv location
civic-location identifier 1
```

The following example applies the emergency number (ID: 1) on the 0/1 interface.

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp location elin identifier 1
```

Related Commands	Command	Description
	show lldp tlv-config interface	Displays the attributes of advertisable TLVs

Platform Description	N/A

6.21 show lldp local-information

Use this command to display the LLDP information of local device. The information will be encapsulated in the TLVs and sent to the neighbor device.

show lldp local-information [**global** | **interface** *interface-name*]

Parameter Description	Parameter	Description
	interface-name	Interface name

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide

● **global** parameter: display the global LLDP information to be sent.

● **Interface** parameter: displays the LLDP information to be sent out the interface specified.

● No parameter: display all LLDP information, including global and interface-based LLDP information.

Configuration The following example displays the device information to be sent to neighbor device.

Examples

```
Ruijie# show lldp local-information
Global LLDP local-information:
 Chassis ID type    : MAC address
 Chassis id     : 00d0.f822.33aa
 System name      : System name
 System description   : System description
 System capabilities supported : Repeater, Bridge, Router
 System capabilities enabled : Repeater, Bridge, Router


 LLDP-MED capabilities   : LLDP-MED Capabilities, Network Policy, Location
Identification, Extended Power via MDI-PD, Inventory
 Device class     : Network Connectivity
 HardwareRev     : 1.0
 FirmwareRev     :
 SoftwareRev     : RGOS 10.4(3) Release(94786)
 SerialNum      : 1234942570001
 Manufacturer name    : Manufacturer name
 Asset tracking identifier  :
---------------------------------------------------------
Lldp local-information of port [GigabitEthernet 0/1]
---------------------------------------------------------
 Port ID type     : Interface name
 Port id      : GigabitEthernet 0/1
 Port description    :

 Management address subtype  : 802 mac address
 Management address    : 00d0.f822.33aa
 Interface numbering subtype :
 Interface number    : 0
 Object identifier    :



 802.1 organizationally information
 Port VLAN ID     : 1
 Port and protocol VLAN ID(PPVID) : 1
 PPVID Supported    : YES
 PPVID Enabled     : NO
 VLAN name of VLAN 1   : VLAN0001
 Protocol Identity    :



 802.3 organizationally information
```

```
Auto-negotiation supported  : YES
Auto-negotiation enabled   : YES
PMD auto-negotiation advertised : 100BASE-TX full duplex mode, 100BASE-TX half
duplex mode
Operational MAU type    :
PoE support       : NO
Link aggregation supported  : YES
Link aggregation enabled   : NO
Aggregation port ID    : 0
Maximum frame Size    : 1500

LLDP-MED organizationally information
Power-via-MDI device type   : PD
Power-via-MDI power source  : Local
Power-via-MDI power priority  :
Power-via-MDI power value   :
Model name      : Model name
```

show lldp local-information command output description:

Field	Description
Chassis ID type	Chassis ID type for identifying the Chassis ID field
Chassis ID	Used to identify the device, and is generally represented with MAC address
System name	Name of the sending device
System description	Description of the sending device, including hardware/software version, operating system and etc.
System capabilities supported	Capabilities supported by the system
System capabilities enabled	Capabilities currently enabled by the system
LLDP-MED capabilities	LLDP-MED capabilities supported by the system
Device class	MED device class, which is divided into 2 categories: network connectivity device and terminal device. Network connectivity device Class I: normal terminal device Class II: media terminal device; besides Class I capabilities, it also supports media streams. Class III: communication terminal device; it supports all the capabilities of Class I and Class II and IP communication.
HardwareRev	Hardware version
FirmwareRev	Firmware version
SoftwareRev	Software version
SerialNum	Serial number
Manufacturer name	Device manufacturer
Asset tracking identifier	Asset tracking ID

Port ID type	Port ID type
Port ID	Port ID
Port description	Port description
Management address subtype	Management address type
Management address	Management address
Interface numbering subtype	Type of the interface identified by the management address
Interface number	ID of the interface identified by the management address
Object identifier	ID of the object identified by the management address
Port VLAN ID	Port VLAN ID
Port and protocol VLAN ID	Port and Protocol VLAN ID
PPVID Supported	Indicates whether port and protocol VLAN is supported
PPVID Enabled	Indicates whether port and protocol VLAN is enabled
VLAN name of VLAN 1	Name of VLAN 1
Protocol Identity	Protocol identifier
Auto-negotiation supported	Indicates whether auto-negotiation is supported
Auto-negotiation enabled	Indicates whether auto-negotiation is enabled
PMD auto-negotiation advertised	Auto-negotiation advertising capability of the port
Operational MAU type	Speed and duplex state of the port
PoE support	Indicates whether POE is supported
Link aggregation supported	Indicates whether link aggregation is supported
Link aggregation enabled	Indicates whether link aggregation is enabled
Aggregation port ID	ID of the link aggregation port
Maximum frame Size	Maximum frame size supported by the port
Power-via-MDI device type	Device type, including: PSE (power sourcing equipment) PD (powered device)
Power-via-MDI power source	Power source type
Power-via-MDI power priority	Power supply priority
Power-via-MDI power value	Available power on port
Model name	Name of model

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

6.22 show lldp location

Use this command to display the common LLDP address or emergency number of the local device.

show lldp location { **civic-location | elin** } { **identifier** *id* **| interface** *interface-name* **| static** }

	Parameter	Description
Parameter Description	**civic-location**	Encapsulates a common address of a network device.
	elin	Encapsulates an emergency number.
	identifier	Displays one address or emergency number configured.
	id	Policy ID of configured information
	interface	Displays the address or emergency number on an interface.
	interface-name	Interface name
	static	Displays all addresses or emergency numbers configured.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   If the policy ID is specified, the specified address or emergency number is displayed.

If the interface name is specified, the address or emergency number configured on the interface is displayed.

If no parameter is specified, all addresses or emergency numbers are displayed.

Configuration Examples

The following example displays all addresses.

```
Ruijie# show lldp location civic-location static
LLDP Civic location information
--------------------------
Identifier    : testt
County      : china
City Division   : 22
Leading street direction : 44
Street number   : 68
Landmark     : 233
Name      : liuy
Building     : 19bui
Floor      : 1
Room      : 33
City      : fuzhou
Country     : 86
Additional location  : aaa
Ports      : Gi0/1
--------------------------
Identifier    : tee
--------------------------
```

The following example displays all emergency numbers.

```
Ruijie# show lldp location elin-location static
Elin location information
```

```
------------------------
Identifier : t
Elin : iiiiiiiiii
Ports     : Gi1/0/3
------------------------
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A
Description

6.23 show lldp neighbors

Use this command to display the LLDP information about a neighboring device.

show lldp neighbors [**interface** *interface-name*] [**detail**]

Parameter	Parameter	Description
Description	*interface-name*	Interface name
	detail	All information about a neighboring device

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide If the **detail** parameter is not specified, the brief information about a neighboring device is displayed.
If the **detail** parameter is specified, the detailed information about a neighboring device is displayed.
If the **interface** parameter is specified, the neighboring device information received on the specified interface is displayed.

Configuration   The following example displays the neighboring device information received on all ports.
Examples

```
Ruijie# show lldp neighbors detail
Lldp neighbor-information of port [GigabitEthernet 0/1]
 Neighbor index    : 1
 Device type     : LLDP Device
 Update time     : 1hour 53minutes 30seconds
Aging time      : 5seconds

 Chassis ID type    : MAC address
 Chassis id      : 00d0.f822.33cd
 System name     : System name
 System description   : System description
```

```
System capabilities supported  : Repeater, Bridge, Router
System capabilities enabled  : Repeater, Bridge, Router


Management address subtype  : 802 mac address
Management address    : 00d0.f822.33cd
Interface numbering subtype  :
Interface number    : 0
Object identifier    :



LLDP-MED capabilities    :
Device class     :
HardwareRev      :
FirmwareRev      :
SoftwareRev      :
SerialNum      :
Manufacturer name     :
Asset tracking identifier   :


Port ID type     : Interface name
Port id      : GigabitEthernet 0/1
Port description     :


802.1 organizationally information
Port VLAN ID     : 1
Port and protocol VLAN ID(PPVID) : 1
 PPVID Supported    : YES
 PPVID Enabled    : NO
VLAN name of VLAN 1    : VLAN0001
Protocol Identity    :
802.3 organizationally information
Auto-negotiation supported  : YES
Auto-negotiation enabled   : YES
PMD auto-negotiation advertised : 1000BASE-T full duplex mode, 100BASE-TX full
duplex mode, 100BASE-TX half duplex mode, 10BASE-T full duplex mode, 10BASE-T
half duplex mode
Operational MAU type    : speed(1000)/duplex(Full)
PoE support     : NO
Link aggregation supported  : YES
Link aggregation enabled   : NO
Aggregation port ID    : 0
Maximum frame Size    : 1500
LLDP-MED organizationally information
Power-via-MDI device type   :
Power-via-MDI power source  :
```

```
Power-via-MDI power priority  :
Power-via-MDI power value     :
```

Description of fields:

Field	Description
Neighbor index	Neighbor index
Device type	Type of neighboring device
Update time	Latest update time of neighbor information
Aging time	Aging time of a neighbor, namely the time after which a neighbor is aged and deleted
Chassis ID type	Chassis ID type
Chassis ID	Used to identify a device. Usually, a MAC address is used.
System name	Device name
System description	Device description, including hardware/software version and operating system
System capabilities supported	Functions supported by the system
System capabilities enabled	Functions enabled by the system
Management address subtype	Type of management address
Management address	Management address
Interface numbering subtype	Interface type of management address
Interface number	Interface ID of management address
Object identifier	Object ID of management address
Device class	MED device type: network connectivity device and terminal device Network connectivity device: Class I: general terminal device Class II: media terminal device, including capabilities of Class I and supporting media stream Class III: communication terminal device, including capabilities of Class I and Class II and supporting IP communication
HardwareRev	Hardware version
FirmwareRev	Firmware version
SoftwareRev	Software version
SerialNum	Serial number
Manufacturer name	Manufacturer name
Asset tracking identifier	Asset ID
Port ID type	Port ID type
Port ID	Port ID
Port description	Port description
Port VLAN ID	VLAN ID of a port
Port and protocol VLAN ID	Port and protocol VLAN ID
PPVID Supported	Whether port and protocol VLAN is supported

PPVID Enabled	Whether port and protocol VLAN is enabled
VLAN name of VLAN 1	VLAN 1 name
Protocol Identity	Protocol ID
Auto-negotiation supported	Whether auto-negotiation is supported
Auto-negotiation enabled	Whether auto-negotiation is enabled
PMD auto-negotiation advertised	Port auto-negotiation advertisement capability
Operational MAU type	Rate and duplex status of port auto-negotiation
PoE support	Whether POE is supported
Link aggregation supported	Whether link aggregation is supported
Link aggregation enabled	Whether link aggregation is enabled
Aggregation port ID	ID of link aggregation port
Maximum frame Size	Maximum frame length supported by a port
Power-via-MDI device type	Device type, including: ● PSE ● PD
Power-via-MDI power source	Power type
Power-via-MDI power priority	Power supply priority
Power-via-MDI power value	Power value of a port where power is supplied

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

6.24 show lldp network-policy profile

Use this command to display the information about an LLDP network policy.

show lldp network-policy { **profile** [*profile-num*] | **interface** *interface-name* }

Parameter Description	Parameter	Description
	profile-num	ID of a network policy, in the range from 1 to 1024.
	interface-name	Interface name

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   If *profile-num* is specified, the information about the specified network policy is displayed.

If no parameter is specified, the information about all network policies is displayed.

Configuration	The following example displays the information about a network policy.Ruijie#
Examples	show lldp network-policy profile
	network-policy information:

	Network Policy Profile 1
	voice vlan 2 cos 4 dscp 6
	voice-signaling vlan 2000 cos 4 dscp 6

Related	**Command**	**Description**
Commands	N/A	N/A

Platform	N/A
Description	

6.25 show lldp statistics

The following example displays LLDP statistics.

show lldp statistics [**global** | **interface** *interface-name*]

Parameter	**Parameter**	**Description**
Description	*interface-name*	Interface name

Defaults	N/A

Command	Privileged EXEC mode
Mode	

Usage Guide	**Global** parameter: displays the global LLDP statistics.
	Interface parameter: displays the LLDP statistics of the specified interface.

Configuration	The following example displays all LLDP statistics.
Examples	

```
Ruijie# show lldp statistics
lldp statistics global Information:
Neighbor information last changed time  : 1hour 52minute 22second
The number of neighbor information inserted : 2
The number of neighbor information deleted : 0
The number of neighbor information dropped : 0
The number of neighbor information age out : 1


--------------------------------------------------------------
Lldp statistics information of port [GigabitEthernet 0/1]
--------------------------------------------------------------
```

```
The number of lldp frames transmitted : 26
The number of frames discarded    : 0
The number of error frames    : 0
The number of lldp frames received  : 12
The number of TLVs discarded   : 0
The number of TLVs unrecognized   : 0
The number of neighbor information aged out : 0
```

show lldp statistics command output description:

Field	Description
Neighbor information last change time	Time the neighbor information is latest updated
The number of neighbor information inserted	Number of times of adding neighbor information
The number of neighbor information deleted	Number of times of removing neighbor information
The number of neighbor information dropped	Number of times of dropping neighbor information
The number of neighbor information aged out	Number of the neighbor information entries that have aged out
The number of lldp frames transmitted	Total number of the LLDPDUs transmitted
The number of frames discarded	Total number of the LLDPDUs discarded
The number of error frames	Total number of the LLDP error frames received
The number of lldp frames received	Total number of the LLDPDUs received
The number of TLVs discarded	Total number of the LLDP TLVs dropped
The number of TLVs unrecognized	Total number of the LLDP TLVs that cannot be recognized
The number of neighbor information aged out	Number of the neighbor information entries that have aged out

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

6.26 show lldp status

Use this command to display LLDP status information.

show lldp status [**interface** *interface-name*]

Parameter Description	Parameter	Description
	interface-name	Interface name

Defaults	N/A
Command Mode	Privileged EXEC mode
Usage Guide	**interface** parameter: display the LLDP status information of the specified interface.
Configuration Examples	The following example displays LLDP status information of all ports.

```
Ruijie# show lldp status
Global status of LLDP    : Enable
Neighbor information last changed time : 1hour 52minute 22second
Transmit interval     : 30s
Hold multiplier      : 4
Reinit delay       : 2s
Transmit delay       : 2s
Notification interval    : 5s
Fast start counts     : 3
-------------------------------------------------------------
Port [GigabitEthernet 0/1]
-------------------------------------------------------------
Port status of LLDP   : Enable
Port state      : UP
Port encapsulation    : Ethernet II
Operational mode    : RxAndTx
Notification enable   : NO
Error detect enable   : YES
Number of neighbors    : 1
Number of MED neighbors  : 0
```

show lldp status command output description:

Field	Description
Global status of LLDP	Whether LLDP is globally enabled
Neighbor information last changed time	Time the neighbor information is latest updated
Transmit interval	LLDPDU transmit interval
Hold multiplier	TTL multiplier
Reinit delay	Port re-initialization delay
Transmit delay	LLDPDU transmit delay
Notification interval	Interval for sending LLDP Traps
Fast start counts	The number of fast sent LLDPDUs
Port status of LLDP	Whether LLDP is enabled on the port
Port state	Link status of port: UP or DOWN

Port encapsulation	LLDPDU encapsulation format
Operational mode	Operating mode of LLDP
Notification enable	Whether LLDP Trap is enabled on the port
Error detect enable	Whether error detection is enabled on the port
Number of neighbors	Number of neighbors
Number of MED neighbors	Number of MED neighbors

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

6.27 show lldp tlv-config

Use this command to display the advertisable TLV configuration of a port.

show lldp tlv-config [**interface** *interface-name*]

Parameter Description	Parameter	Description
	interface-name	Interface name

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   **Interface** parameter: display the LLDP TLV configuration of the specified interface.

Configuration Examples   The following example displays TLV information of port 1.

```
Ruijie# show lldp tlv-config interface GigabitEthernet 0/1
LLDP tlv-config of port [GigabitEthernet 0/1]
--------------------------------------------------
   NAME    STATUS DEFAULT
------------------------------- ------ -----------
Basic optional TLV:
Port Description TLV    YES YES
System Name TLV     YES YES
System Description TLV   YES YES
System Capabilities TLV   YES YES
Management Address TLV   YES YES


IEEE 802.1 extend TLV:
```

```
Port VLAN ID TLV    YES YES
Port And Protocol VLAN ID TLV  YES YES
VLAN Name TLV      YES YES


IEEE 802.3 extend TLV:
MAC-Physic TLV     YES YES
Power via MDI TLV     YES YES
Link Aggregation TLV    YES YES
Maximum Frame Size TLV   YES YES


LLDP-MED extend TLV:
Capabilities TLV    YES YES
Network Policy TLV    YES YES
Location Identification TLV  NO  NO
Extended Power via MDI TLV  YES YES
Inventory TLV      YES YES
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

6.28 { voice | voice-signaling } vlan

Use this command to configure the LLDP network policy. Use the **no** form of this command to delete the policy.

{ **voice** | **voice-signaling** } **vlan** { { *vlan-id* [**cos** *cvalue* | **dscp** *dvalue*] } | { **dot1p** [**cos** *cvalue* | **dscp** *dvalue*] } | **none** | **untagged** }

no { **voice** | **voice-signaling** } **vlan**

Parameter Description	Parameter	Description
	voice	Voice application
	voice-signaling	Voice-signaling application
	vlan-id	(Optional) VLAN ID of voice flow. The value ranges from 1 to 4094.
	cos	(Optional) Class of service
	cvalue	(Optional) CoS of the configured voice flow. The value ranges from 0 to 7, and the default value is **5**.
	dscp	(Optional) Differentiated services code point
	dvalue	(Optional) DSCP value of the configured voice flow. The value ranges from 0 to 63. The default value is 46.
	dot1p	(Optional) 802.1p priority tagging. The tag frame includes

	user_priority and vlan id is 0.	
none	(Optional) The network policy is not advertised. VoIP determines the network policy based on its configuration.	
untagged	(Optional) The untag frame is sent in the voice vlan in VoIP. In this case, the value of vlan id and cos are ignored.	

Defaults   N/A

**Command
Mode**   LLDP network policy configuration mode

Usage Guide   In the LLDP network policy configuration mode, configure the LLDP network policy.

Voice indicates the voice data type, and voice-signaling indicates the voice signal type.

If a device connects to an IP phone and the IP phone supports LLDP-MED, the network policy TLV can be configured to deliver policies to the IP phone, so that the IP phone changes the voice stream tag and QoS.Excluding the preceding policy, the following operations need to be performed on the device:

1. Enable the voice VLAN function and add the port connected to the IP phone to the voice VLAN in static mode.

2. Configure the port connected to the IP phone to a QoS trusted port. (It is recommended to use the trusted DSCP mode.)

3. If 802.1X authentication is enabled on the port at the same time, a security channel needs to be configured to transmit packets from the voice VLAN.

If the IP phone does not support LLDP-MED, the voice VLAN function must be enabled. In addition, the MAC address of the IP phone needs to be added to the voice VLAN OUI list manually.

For details about how to configure the QoS trusted mode, see chapter "IP QoS." For details about how to configure the voice VLAN, see chapter "Voice VLAN." For details about how to configure the security channel, see chapter "ACL."

**Configuration
Examples**   The following example configures the LLDP network policy (profile-num is 1).

```
Ruijie#config
Ruijie(config)#lldp network-policy profile 1
Ruijie(config-lldp-network-policy)# voice vlan untagged
Ruijie(config-lldp-network-policy)# voice-signaling vlan 3 cos 4
Ruijie(config-lldp-network-policy)# voice-signaling vlan 3 dscp 6
```

**Related
Commands**

Command	Description
show lldp network-policy profile [*profile-num*]	Displays the LLDP network policy.

**Platform
Description**   N/A

IP Address & Application Commands

1. IP Address/Service Commands

2. ARP Commands

3. DHCP Commands

4. DNS Commands

5. Network Connectivity Test Tool Commands

6. TCP Commands

7. IPv4 REF Commands

1 IP Address/Service Commands

1.1 ip-address

Use this command to configure the IP address of an interface. Use the **no** form of this command to restore the default setting.

ip address *ip-address network-mask* [**secondary**]

no ip address [*ip-address network-mask* [**secondary**]]]

Parameter Description

Parameter	Description
ip-address	32-bit IP address, with 8 bits in one group in decimal format. Groups are separated by dots.
network-mask	32-bit network mask. 1 stands for the mask bit, 0 stands for the host bit, with 8 bits in one group in decimal format. Groups are separated by dots.
secondary	Secondary IP address

Defaults   No IP address is configured for the interface by default.

Command Mode   Interface configuration mode

Usage Guide   The equipment cannot receive and send IP packets before it is configured with an IP address. After an IP address is configured for the interface, the interface is allowed to run the Internet Protocol (IP).

The network mask is also a 32-bit value that identifies which bits among the IP address is the network portion. Among the network mask, the IP address bits that correspond to value "1" are the network address. The IP address bits that correspond to value "0" are the host address. For example, the network mask of Class A IP address is "255.0.0.0". You can divide a network into different subnets using the network mask. Subnet division means to use the bits in the host address part as the network address part, so as to reduce the capacity of a host and increase the number of networks. In this case, the network mask is called subnet mask.

The RGOS software supports multiple IP address for an interface, in which one is the primary IP address and others are the secondary IP addresses. Theoretically, there is no limit for the number of secondary IP addresses. The primary IP address must be configured before the secondary IP addresses. The secondary IP address and the primary IP address must belong to the same network or different networks. Secondary IP addresses are often used in network construction. Typically, you can try to use secondary IP addresses in the following situations:

A network hasn't enough host addresses. At present, the LAN should be a class C network where

254 hosts can be configured. However, when there are more than 254 hosts in the LAN, another class C network address is necessary since one class C network is not enough. Therefore, the device should be connected to two networks and multiple IP addresses should be configured.

Many older networks are layer 2-based bridge networks that have not been divided into different subnets. Use of secondary IP addresses will make it very easy to upgrade this network to an IP layer-based routing network. The equipment configures an IP address for each subnet.

Two subnets of a network are separated by another network. You can create a subnet for the separated network, and connect the separated subnet by configuring a secondary IP address. One subnet cannot appear on two or more interfaces of a device.

Configuration Examples	The following example configures the primary IP address and the network mask as 10.10.10.1 and 255.255.255.0 respectively .

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 10.10.10.1 255.255.255.0
```

Related Commands

Command	Description
show interface	Displays detailed information of the interface.

Platform Description   N/A

1.2   ip broadcast-addresss

Use this command to define a broadcast address for an interface in the interface configuration mode. Use the **no** form of this command to restore the default setting.
ip broadcast-addresss *ip-address*
no ip broadcast-addresss

Parameter Description

Parameter	Description
ip-address	Broadcast address of IP network

Defaults   The default IP broadcast address is 255.255.255.255.

Command Mode   Interface configuration mode.

Usage Guide   At present, the destination address of IP broadcast packet is all "1", represented as 255.255.255.255. The RGOS software can generate broadcast packets with other IP addresses through definition, and can receive both all "1" and the broadcast packets defined by itself.

Configuration Examples	The following example sets the destination address of IP broadcast packets generated by this interface to 0.0.0.0.

```
Ruijie(config)# interface gigabitEthernet 0/1
```

```
Ruijie(config-if-GigabitEthernet 0/1)# ip broadcast-address  0.0.0.0
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A
Description

1.3   ip icmp error-interval

Use this command to set the rate to send the ICMP destination unreachable packets triggered by DF in the IP header. Use the **no** form of this command to restore the default setting.

ip icmp error-interval DF milliseconds [*bucket-size*]

no ip icmp error-interval DF *milliseconds* [*bucket-size*]

Use this command to set the rate to send other ICMP error packets. Use the **no** form of this command to restore the default setting.

ip icmp error-interval milliseconds [bucket-size]

no ip icmp error-interval *milliseconds* [*bucket-siz*]

Parameter	Parameter	Description
Description	*milliseconds*	The refresh period of the token bucket, in the range from 0 to 2147483647 in the unit of milliseconds. 0 indicates no limit on the rate to send ICMP error packets. The default is 100.
	bucket-size	The number of tokens in the bucket, in the range is from 1 to 200. The default is 10.

Defaults   The default rate is 10 packets per 100 millisecond.

Command Mode   Global configuration mode.

Usage Guide   To prevent DoS attack, the token bucket algorithm is adopted to limit the rate to send ICMP error packets.

It is recommended to set the refresh period to an integral multiple of 10 milliseconds. If the refresh period is not an integral multiple of 10 milliseconds, it is adjusted automatically. For example, 1 per 5 milliseconds is adjusted to 2 per 10 milliseconds; 3 per 15 milliseconds is adjusted to 2 per 10 milliseconds.

If IP packets need to be fragmented while the DF is set to 1, the device sends ICMP destination unreachable packets numbered 4 to the source IP address for path MTU discovery. Rate limits on ICMP destination unreachable packets and other error packets are needed to prevent path MTU discovery failure.

It is recommended to set the refresh period to an integral multiple of 10 milliseconds. If the refresh period is not an integral multiple of 10 milliseconds, it is adjusted automatically. For example, 1 per 5 milliseconds is adjusted to 2 per 10 milliseconds; 3 per 15 milliseconds is adjusted to 2 per 10 milliseconds.

Configuration Examples	The following example sets the rate to send the ICMP destination unreachable packets triggered by DF in the IP header to 100 per second.

```
Ruijie(config)# ip icmp error-interval DF 1000 100
```

The following example sets the rate to send other ICMP error packets to 10 per second.

```
Ruijie(config)# ip icmp error-interval 1000 10
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.4 ip directed-broadcast

Use this command to enable the conversion from IP directed broadcast to physical broadcast in the interface configuration mode. Use the **no** form of this command to restore the default setting.

ip directed-broadcast [*access-list-number*]

no ip directed-broadcast

Parameter Description	Parameter	Description
	access-list-number	(Optional) Access list number, in the range from 1 to 199 and from 1300 to 2699. After an access list number has been defined, only the IP directed broadcast packets that match this access list are converted.

Defaults	This function is disabled by default.

Command Mode	Interface configuration mode.

Usage Guide	IP directed broadcast packet is an IP packet whose destination address is an IP subnet broadcast address. For example, the packet with the destination address 172.16.16.255 is called a directed broadcast packet. However, the node that generates this packet is not a member of the destination subnet.

The device that is not directly connected to the destination subnet receives an IP directed broadcast packet and handles this packet in the same way as forwarding a unicast packet. After the directed broadcast packet reaches a device that is directly connected to this subnet, the device converts the directed broadcast packet into a flooding broadcast packet (typically the broadcast packet whose destination IP address is all "1"), and then sends the packet to all the hosts in the destination subnet in the manner of link layer broadcast.

You can enable conversion from directed broadcast into physical broadcast on a specified

interface, so that this interface can forward a direct broadcast packet to a directly connected network. This command affects only the final transmission of directed broadcast packets that have reached the destination subnet instead of normal forwarding of other directed broadcast packets.

You can also define an access list on an interface to control which directed broadcast packets to forward. After an access list is defined, only the packets that conform to the conditions defined in the access list undergo conversion from directed broadcast into physical broadcast.

If the **no ip directed-broadcast** command is configured on an interface, RGOS will discard the directed broadcast packets received from the directly connected network.

Configuration Examples	The following example enables forwarding of directed broadcast packet on the fastEthernet 0/1 port of a device.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip directed-broadcast
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

1.5 ip source-route

Use this command to allow the RGOS software to process an IP packet with source route information in global configuration mode. Use the **no** form of this command to disable this function.

ip source-route

no ip source-route

Parameter Description

Parameter	Description
N/A	N/A

Defaults   This function is enabled by default.

Command Mode   Global configuration mode.

Usage Guide   RGOS supports IP source route. When the device receives an IP packet, it will check the options of the IP packet, such as strict source route, loose source route and record route. Details about these options can be found in RFC 791. If an option is found to be enabled in this packet, a response will be made. If an invalid option is detected, an ICMP parameter problem message will be sent to the data source, and then this packet is discarded.

Configuration Examples	The following example disables the IP source route.
	`Ruijie(config)# no ip source-route`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.6 ip ttl

Use this command to set the TTL value of the unicast packet. Use the **no** form of this command to restore the default setting.

ip ttl *value*

no ip ttl

Parameter Description	Parameter	Description
	value	Sets the TTL value of the unicast packet, in the range from 0 to 255.

Defaults	The default is 64.

Command Mode	Global configuration mode

Usage Guide	N/A

Configuration Examples	The following example sets the TTL value of the unicast packet to 100.
	`Ruijie(config)# ip ttl 100`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.7 show ip interface

Use this command to display the IP status information of an interface.

show ip interface [*interface-type interface-number* | **brief**]

Parameter Description	Parameter	Description
	interface-type	Specifies interface type.

| interface-number | Specifies interface number. |
| brief | Displays the brief configurations about the IP of the layer-3 interface (including the interface primary ip, secondary ip and interface status) |

Defaults   N/A.

Command   Privileged EXEC mode.
Mode

Usage Guide   When an interface is available, RGOS will create a direct route in the routing table. The interface is available in that the RGOS software can receive and send packets through this interface. If the interface changes from available status to unavailable status, the RGOS software removes the appropriate direct route from the routing table.

If the interface is unavailable, for example, two-way communication is allowed, the line protocol status will be shown as "UP". If only the physical line is available, the interface status will be shown as "UP".

The results shown may vary with the interface type, because some contents are the interface-specific options

Configuration   The following exmaple displays the output of the **show ip interface brirf command**.
Examples
```
Ruijie#show ip interface brief
Interface IP-Address(Pri) IP-Address(Sec) Status Protocol
GigabitEthernet 0/10 2.2.2.2/24 3.3.3.3/24 down down
GigabitEthernet 0/11 no address no address down down
VLAN 1 1.1.1.1/24 no address down down
```
Description of fields:

Field	Description
Status	Link status of an interface. The value can be **up**, **down**, or **administratively down**.
Protocol	IPv4 protocol status of an interface.

The following example displays the output of the **show ip interface vlan** command.
```
SwitchA#show ip interface vlan 1
VLAN 1
 IP interface state is: DOWN
 IP interface type is: BROADCAST
 IP interface MTU is: 1500
 IP address is:
 1.1.1.1/24 (primary)
 IP address negotiate is: OFF
 Forward direct-broadcast is: OFF
 ICMP mask reply is: ON
 Send ICMP redirect is: ON
```

```
Send ICMP unreachabled is: ON
DHCP relay is: OFF
Fast switch is: ON
Help address is:
Proxy ARP is: OFF
ARP packet input number: 0
Request packet:  0
Reply packet:  0
Unknown packet: 0
TTL invalid packet number: 0
ICMP packet input number: 0
Echo request:  0
Echo reply:  0
Unreachable:  0
Source quench:  0
Routing redirect:  0
```

Description of fields in the results:

Field	Description
IP interface state is:	The network interface is available, and both its interface hardware status and line protocol status are "UP".
IP interface type is:	Show the interface type, such as broadcast, point-to-point, etc.
IP interface MTU is:	Show the MTU value of the interface.
IP address is:	Show the IP address and mask of the interface.
IP address negotiate is:	Show whether the IP address is obtained through negotiation.
Forward direct-broadcast is:	Show whether the directed broadcast is forwarded.
ICMP mask reply is:	Show whether an ICMP mask response message is sent.
Send ICMP redirect is:	Show whether an ICMP redirection message is sent.
Send ICMP unreachabled is:	Show whether an ICMP unreachable message is sent.
DHCP relay is:	Show whether the DHCP relay is enabled.
Fast switch is:	Show whether the IP fash switching function is enabled.
Route horizontal-split is:	Show whether horizontal split is enabled, which will affect the route update behavior of the distance vector protocol.
Help address is:	Show the helper IP address.
Proxy ARP is:	Show whether the agent ARP is enabled.

ARP packet input number: 0
  Request packet: 0
  Reply packet: 0
  Unknown packet: 0
	Show the total number of ARP packets received on the interface, including:
	ARP request packet
	ARP reply packet

	Unknown packet
TTL invalid packet number:	Show the TTL invalid packet number

ICMP packet input number: 0
  Echo request: 0
Echo reply: 0
  Unreachable: 0
  Source quench: 0
  Routing redirect: 0
	Show the total number of ICMP packets received on the interface, including:
	Echo request packet
	Echo reply packet
	Unreachable packet
	Source quench packet
	Routing redirection packet

Related Commands

Command	Description
N/A.	N/A.

Platform Description   N/A.

1.8   show ip packet statistics

Use this command to display the statistics of IP packets.

show ip packet statistics [**total** | *interface-name*]

Parameter Description

Parameter	Description
interface-name	Interface name
total	Displays the total statistics of all interfaces.

Defaults   N/A.

Command Mode   Privileged EXEC mode.

Usage Guide   N/A.

Configuration Examples   The following example displays the output of this command.

```
R1#show ip packet statistics
Total
  Received 113962 packets, 11948991 bytes
    Unicast:90962,Multicast:5232,Broadcast:17768
    Discards:0
      HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 34917 packets, 1863146 bytes
    Unicast:30678,Multicast:4239,Broadcast:0
GigabitEthernet 0/1
```

```
 Received 6715 packets, 416587 bytes
   Unicast:2482,Multicast:4233,Broadcast:0
   Discards:0
     HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
     NoRoutes:0
     Others:0
 Sent 6720 packets, 417096 bytes
   Unicast:2481,Multicast:4239,Broadcast:0
Loopback 0
 Received 0 packets, 0 bytes
   Unicast:0,Multicast:0,Broadcast:0
   Discards:0
     HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
     NoRoutes:0
     Others:0
 Sent 0 packets, 0 bytes
   Unicast:0,Multicast:0,Broadcast:0
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.9 show ip raw-socket

Use this command to display IPv4 raw sockets.

show ip raw-socket [*num*]

Parameter Description	Parameter	Description
	num	Protocol.

Defaults	N/A.

Command Mode	Priviledged EXEC mode.

Usage Guide	N/A.

Configuration Examples

The following example displays all IPv4 raw sockets.

```
Ruijie# show ip raw-socket
Number Protocol Process name
1     ICMP    dhcp.elf
2     ICMP    vrrp.elf
3     IGMP    igmp.elf
```

```
4      VRRP      vrrp.elf
Total: 4
```

Field Description

Field	Description
Number	Number
Protocol	Protocol
Process name	Process name
Total	Total number

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

1.10 show ip sockets

Use this command to display all IPv4 sockets.

show ip sockets

Parameter Description	Parameter	Description
	N/A.	N/A.

Defaults N/A.

Command Mode Privileged EXEC mode.

Usage Guide N/A.

Configuration Examples

The following displays all IPv4 sockets.

```
Ruijie# show ip sockets
Number Process name     Type       Protocol LocalIP:Port    ForeignIP:Port
State
1      dhcp.elf         RAW        ICMP      0.0.0.0:1        0.0.0.0:0
*
2      vrrp.elf         RAW        ICMP      0.0.0.0:1        0.0.0.0:0
*
3      igmp.elf         RAW        IGMP      0.0.0.0:2        0.0.0.0:0
*
4      vrrp.elf         RAW        VRRP      0.0.0.0:112      0.0.0.0:0
*
5      dhcpc.elf        DGRAM      UDP       0.0.0.0:68       0.0.0.0:0
```

```
*
6       rg-snmpd            DGRAM     UDP       0.0.0.0:161    0.0.0.0:0
*
7       wbav2               DGRAM     UDP       0.0.0.0:2000   0.0.0.0:0
*
8       vrrp_plus.elf       DGRAM     UDP       0.0.0.0:3333   0.0.0.0:0
*
9       mpls.elf            DGRAM     UDP       0.0.0.0:3503   0.0.0.0:0
*
10      rds_other_th        DGRAM     UDP       0.0.0.0:3799   0.0.0.0:0
*
11      rg-snmpd            DGRAM     UDP       0.0.0.0:14800  0.0.0.0:0
*
12      rg-sshd             STREAM    TCP       0.0.0.0:22     0.0.0.0:0
LISTEN
13      rg-telnetd          STREAM    TCP       0.0.0.0:23     0.0.0.0:0
LISTEN
14      wbard               STREAM    TCP       0.0.0.0:4389   0.0.0.0:0
LISTEN
15      wbard               STREAM    TCP       0.0.0.0:7165   0.0.0.0:0
LISTEN
Total: 15
```

Field Description

Field	Description
Number	Serial number.
Process name	Process name.
Type	Socket type, including the following types: RAW: raw sockets DGRAM: datagram type STREAM: stream type.
Protocol	Protocol.
LocalIP:Port	Local IP address and port.
ForeignIP:Port	Peer IP address and port.
State	State. This field is for only TCP sockets.
Total	The total number of sockets.

	Command	Description
Related Commands	N/A	N/A

Platform Description	N/A

1.11 show ip udp

Use this command to display IPv4 UDP sockets.

show ip udp [**local-port** *num*]

Use this command to display IPv4 UDP socket statistics.

show ip udp statistics

Parameter Description	Parameter	Description
	local-port *num*	Local port number

Defaults   N/A.

Command Mode   Privileged EXEC mode.

Usage Guide   N/A.

Configuration Examples

The following example displays all IPv4 UDP sockets.

```
Ruijie# show ip udp
Number Local Address        Peer Address          Process name
1      0.0.0.0:68           0.0.0.0:0             dhcpc.elf
2      0.0.0.0:161          0.0.0.0:0             rg-snmpd
3      0.0.0.0:2000         0.0.0.0:0             wbav2
4      0.0.0.0:3333         0.0.0.0:0             vrrp_plus.elf
5      0.0.0.0:3503         0.0.0.0:0             mpls.elf
6      0.0.0.0:3799         0.0.0.0:0             rds_other_th
7      0.0.0.0:14800        0.0.0.0:0              rg-snmpd
```

Field Description

Field	Description
Number	Number.
Local Address	Local IP address and port.
Peer Address	Peer IP address and port.
Process name	Process name.

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2   ARP Commands

2.1   arp

Use this command to add a permanent IP address and MAC address mapping to the ARP cache table. Use the **no** form of this command to restore the default setting.

arp *ip-address MAC-address type*

no arp *ip-address MAC-address type*

	Parameter	Description
Parameter Description	*ip-address*	The IP address that corresponds to the MAC address. It includes four parts of numeric values in decimal format separated by dots.
	MAC-address	48-bit data link layer address
	type	ARP encapsulation type. The keyword is arpa for the Ethernet interface.

Defaults   There is no static mapping record in the ARP cache table by default.

Command Mode   Global configuration mode.

Usage Guide   RGOS finds the 48-bit MAC address according to the 32-bit IP address using the ARP cache table. Since most hosts support dynamic ARP resolution, usually static ARP mapping is not necessary. The **clear arp-cache** command can be used to delete the ARP mapping that is learned dynamically.

Configuration Examples   The following example sets an ARP static mapping record for a host in the Ethernet.
```
Ruijie(config)# arp 1.1.1.1 4e54.3800.0002 arpa
```

	Command	Description
Related Commands	clear arp-cache	Clears the ARP cache table

Platform Description   N/A

2.2   arp anti-ip-attack

For the messages corresponds to the directly-connected route, if the switch does not learn the ARP that corresponds to the destination IP address, it is not able to forward the message in hardware, and it needs to send the message to the CPU to resolve the address(that is the ARP learning). Sending large number of this message to the CPU will influence the other tasks of the switch. To prevent the IP messages from attacking the CPU, a discarded entry is set to the hardware during the address resolution, so that all sequential messages with that destination

IP address are not sent to the CPU. After the address resolution, the entry is updated to the forwarding status, so that the switch could forward the message with that destination IP address in hardware.

In general, during the ARP request ,if the switch CPU receives three destination IP address messages corresponding to the ARP entry, it is considered to be possible to attack the CPU and the switch sets the discarded entry to prevent the unknown unicast message from attacking the CPU. User could set the *num* parameter of this command to decide whether it attacks the CPU in specific network environment or disable this function. Use the **arp anti-ip-attack** command to set the parameter or disable this function. Use the **no** form of this command to restore the default setting.

arp anti-ip-attack *num*

no arp anti-ip-attack

Parameter	**Parameter**	**Description**
Description	*num*	The number of the IP message to trigger the ARP to discarded entry in the range from 0 to 100. 0 stands for disabling the arp anti-ip-attack function.

Defaults   By default, set the discarded entry after 3 unknown unicast messages are sent to the CPU.

Command Mode   Global configuration mode.

Usage Guide   The arp anti-ip-attack function needs to occupy the switch hardware routing resources when attacked by the unknown unicast message. If there are enough resources, the **arp anti-ip-attack** *num* could be smaller. If not, in order to preferential ensure the use of the normal routing, the *num* could be larger or disable this function.

Configuration   The following example sets the IP message number that triggers ARP to discarding entry as 5.
Examples
```
Ruijie(config)# arp anti-ip-attack 5
```

The following example disables the ARP anti-ip-attack function.
```
Ruijie(config)# arp anti-ip-attack 0
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform   N/A
Description

2.3   arp cache interface-limit

Use this command to set the maximum number of ARP learned on the interface.

Use the **no** form of this command to restore the default setting.

arp cache interface-limit *limit*

no arp cache interface-limit

Parameter	Description
Parameter Description	*limit*	Sets the maximum number of ARP learned on the interface, including static and dynamic ARPs, in the range from 0 to the number supported on the interface. 0 indicates that the number is not limited.

Defaults   The default is 0.

Command Mode   Interface configuration mode

Usage Guide   This function can prevent ARP attacks from generating ARP entries to consume memory. *limit* must be no smaller than the number of ARPs learned on the interface. Otherwise, the configuration does not take effect.

Configuration Examples   The following example sets the maximum number of ARP learned on the interface to 300.
```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# arp cache interface-limit 300
```

The following example restores the default setting.
```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# no arp any-ip
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.4   arp gratuitous-send interval

Use this command to set the interval of sending the free ARP request message on the interface. Use the **no** form of this command to restore the default setting.
arp gratuitous-send interval *seconds*
no arp gratuitous-send

Parameter	Description
Parameter Description	*seconds*	The time interval to send the free ARP request message in the range from 1 to 3600 in the unit of seconds.

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode.

Usage Guide   If an interface of the switch is used as the gateway of its downlink devices and counterfeit gateway behavior occurs in the downlink devices, you can configure to send the free ARP request message regularly on this interface to notify that the switch is the real gateway.

Configuration   The following example sets to send one free ARP request to SVI 1 per second.
Examples
```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# arp gratuitous-send interval 1
```

The following example stops sending the free ARP request to SVI 1.
```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp gratuitous-send
```

Related Commands
Command	Description
N/A	N/A

Platform   N/A
Description

2.5   arp retry interval

Use this command to set the frequency for sending the arp request message locally, namely, the time interval between two continuous ARP requests sent for resolving one IP address. Use the **no** form of this command   to restore the default setting.

arp retry interval *seconds*

no arp retry interval

Parameter
Description
Parameter	Description
seconds	Time for retransmitting the ARP request message in the range from 1 to 3600 in the unit of seconds.

Defaults   The default is 1.

Command   Global configuration mode.
Mode

Usage Guide   The switch sends the ARP request message frequently, and thus causing problems like network busy. In this case, you can set the retry interval of the ARP request message longer. In general, it should not exceed the aging time of the dynamic ARP entry.

Configuration   The following example sets the retry interval of the ARP request as 30 seconds.
Examples
```
Ruijie(config)# arp retry interval 30
```

Related Commands	Command	Description
	arp retry times	Number of times for retransmitting an ARP request message.

Platform Description	N/A

2.6 arp retry times

Use this command to set the local retry times of the ARP request message, namely, the times of sending the ARP request message to resolve one IP address. Use the **no** form of this command to restore the default setting.

arp retry times *number*

no arp retry times

Parameter Description	Parameter	Description
	number	The times of sending the same ARP request in the range from 1 to100.When it is set as 1, it indicates that the ARP request is not retransmitted, only 1 ARP request message is sent.

Defaults	The default is 5.

Command Mode	Global configuration mode.

Usage Guide	The switch sends the ARP request message frequently, and thus causing problems like network busy. In this case, you can set the retry times of the ARP request smaller. In general, the retry times should not be set too large.

Configuration Examples	The following example sets the local ARP request not to be retried.

```
Ruijie(config)# arp retry times 1
```

The following example sets the local ARP request to be retried for one time.

```
Ruijie(config)# arp retry times 2
```

Related Commands	Command	Description
	arp retry interval	Interval for retransmitting an ARP request message

Platform Description	N/A

2.7 arp timeout

Use this command to configure the timeout for the ARP static mapping record in the ARP cache.

Use the **no** form of this command to restore the default setting.

arp timeout *seconds*

no arp timeout

Parameter	Description
secondsv	The timeout is in the range from 0 to 2147483 in the unit of seconds.

Parameter Description

Defaults   The default is 3600.

Command Mode   Interface configuration mode/Global configuration mode

Usage Guide   The ARP timeout setting is only applicable to the IP address and the MAC address mapping that are learned dynamically. The shorter the timeout, the truer the mapping table saved in the ARP cache, but the more network bandwidth occupied by the ARP. Hence the advantages and disadvantages should be weighted. Generally it is not necessary to configure the ARP timeout unless there is a special requirement.

Configuration Examples   The following example sets the timeout for the dynamic ARP mapping record that is learned dynamically from FastEthernet port 0/1 to 120 seconds.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# arp timeout 120
```

Related Commands

Command	Description
clear arp-cache	Clears the ARP cache list.
show interface	Displays the interface information.

Platform Description   N/A

2.8   arp trust-monitor enable

Use this command to enable egress gateway trusted ARP. Use the **no** form of this command to restore the default setting.

arp trust-monitor enable

no arp trust-monitor enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode

Usage Guide   The egress gateway trusted ARP is different from GSN trusted ARP. With this function enabled, the device sends a unicast request for confirmation when learning an ARP table entry. The device learns the ARP table entry after receiving the response. When the device receives the ARP packet, only if the ARP table entry is aged or incomplete and the ARP packet is a response packet will the packet be handled. After egress gateway trusted ARP is enabled, the aging time of the ARP table entry turns to 60 seconds. After this function is disabled, the aging time restores to 3600 seconds.

Configuration   The following example enables egress gateway trusted ARP.

Examples
```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# arp trust-monitor enable
```
The following example disables engress gateway trusted ARP.
```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# no arp trust-monitor enable
```

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A

Description

2.9   clear arp-cache

Use this command to remove a dynamic ARP mapping record from the ARP cache table and clear an IP route cache table.

clear arp-cache [**trusted**] [*ip* [*mask*]] | **interface** *interface-name*]

Parameter

Description

Parameter	**Description**
ip	Deletes ARP entries of the specified IP address. If *trusted* value is specified, trusted ARP entries are deleted; otherwise, all dynamic ARP entries are deleted which is the default.
mask	Deletes ARP entries in a subnet mask. If *trusted* value is specified, trusted ARP entries in the subnet mask are deleted; otherwise, all dynamic ARP entries are deleted. The dynamic ARP entry specified by the IP address is deleted by default.
interface *interface-name*	Deletes dynamic ARP entries on the specified interface. Dynamic ARP entries are deleted on all interfaces by default.

Command   Privileged EXEC mode

Mode

Usage Guide   This command can be used to refresh an ARP cache table.

On a NFPP-based (Network Foundation Protection Policy) device, it receives one ARP packet for every mac/ip address per second by default. If the interval of two **clear arp** times is within 1s, the second response packet will be filtered and the ARP packet will not be resolved for a short time.

Configuration Examples	The following example deletes all dynamic ARP mapping records.

```
Ruijie# clear arp-cache
```
The following deletes the dynamic ARP entry 1.1.1.1.
```
Ruijie# clear arp-cache 1.1.1.1
```
The following example deletes the dynamic ARP entry on interface SVI1.
```
Ruijie# clear arp-cache interface Vlan 1
```

Related Commands	**Command**	**Description**
	arp	Adds a static mapping record to the ARP cache table.

Platform Description	N/A

2.10 show arp

Use this command to display the Address Resolution Protocol (ARP) cache table

show arp [*interface-type interface-number* | **trusted** [*ip* [*mask*]] | [*ip* [*mask*] | *mac-address* | **static** | **complete** | **incomplete**]]

Parameter Description	**Parameter**	**Description**
	interface-type interface-number	Displays the ARP entry of a specified Layer-2 or Layer-3 port.
	ip	Displays the ARP entry of the specified IP address. If **trusted** is configured, only trusted ARP entries are displayed. Otherwise, untrusted ARP entries are displayed.
	mask	Displays the ARP entries of the network segment included within the mask. If **trusted** is configured, only trusted ARP entries are displayed. Otherwise, untrusted ARP entries are displayed.
	static	Displays all the static ARP entries.
	complete	Displays all the resolved dynamic ARP entries.
	incomplete	Displays all the unresolved dynamic ARP entries.
	mac-address	Displays the ARP entry with the specified mac address.

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide   N/A

Configuration Examples

The following example displays the output result of the **show arp** command:

```
Ruijie# show arp
Total Numbers of Arp: 7
Protocol Address Age(min) Hardware Type Interface
Internet 192.168.195.68 0 0013.20a5.7a5f arpa VLAN 1
Internet 192.168.195.67 0 001a.a0b5.378d arpa VLAN 1
Internet 192.168.195.65 0 0018.8b7b.713e arpa VLAN 1
Internet 192.168.195.64 0 0018.8b7b.9106 arpa VLAN 1
Internet 192.168.195.63 0 001a.a0b5.3990 arpa VLAN 1
Internet 192.168.195.62 0 001a.a0b5.0b25 arpa VLAN 1
Internet 192.168.195.5 -- 00d0.f822.33b1 arpa VLAN 1
```

The meaning of each field in the ARP cache table is described as below:

Table 1 Fields in the ARP cache table

Field	Description
Protocol	Protocol of the network address, always to be Internet
Address	IP address corresponding to the hardware address
Age (min)	Age of the ARP cache record, in minutes; If it is not locally or statically configured, the value of the field is represented with "-".
Hardware	Hardware address corresponding to the IP address
Type	Hardware address type, ARPA for all Ethernet addresses
Interface	Interface associated with the IP addresses

The following example displays the output result of show arp 192.168.195.68

```
Ruijie# show arp 192.168.195.68
Protocol Address Age(min) Hardware Type Interface
Internet 192.168.195.68 1 0013.20a5.7a5f arpa VLAN 1
```

The following example displays the output result of **show arp** 192.168.195.0 255.255.255.0

```
Ruijie# show arp 192.168.195.0 255.255.255.0
Protocol Address Age(min) Hardware Type Interface
Internet 192.168.195.64 0 0018.8b7b.9106 arpa VLAN 1
Internet 192.168.195.2 1 00d0.f8ff.f00e arpa VLAN 1
Internet 192.168.195.5 -- 00d0.f822.33b1 arpa VLAN 1
Internet 192.168.195.1 0 00d0.f8a6.5af7 arpa VLAN 1
Internet 192.168.195.51 1 0018.8b82.8691 arpa VLAN 1
```

The following example displays the output result of **show arp** 001a.a0b5.378d

```
Ruijie# show arp 001a.a0b5.378d
Protocol Address Age(min) Hardware Type Interface
```

```
Internet 192.168.195.67 4 001a.a0b5.378d arpa VLAN 1
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.11 show arp counter

Use this command to display the number of ARP entries in the ARP cache table.

show arp counter

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example displays the output result of the **show arp counter** command:

```
Ruijie#sho arp counter
ARP Limit:               75000
Count of static entries:  0
Count of dynamic entries: 1 (complete: 1  incomplete: 0)
Total:                   1
```

The following example displays the output result of the **show arp counter** command. The values following "overlayer" and "underlayer" indicate the number of ARP entries in the VxLAN and non-VxLAN respectively:

```
Ruijie#sho arp counter
ARP Limit:               75000
Count of static entries:  0
Count of dynamic entries: 1 (complete: 1  incomplete: 0)
Total:                   1 (overlayer: 0  underlayer: 1)
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.12 show arp detail

Use this command to display the details of the Address Resolution Protocol (ARP) cache table.

show arp detail [*interface-type interface-number*] | [*ip* [*mask*] | *mac-address* | **static** | **complete** | **incomplete**]

Parameter Description	Parameter	Description
	interface-type interface-number	Displays the ARP of the layer 2 port or the layer 3 interface.
	ip	Displays the ARP entry of the specified IP address.
	ip mask	Displays the ARP entries of the network segment included within the mask.
	mac-address	Displays the ARP entry of the specified MAC address.
	static	Displays all the static ARP entries.
	complete	Displays all the resolved dynamic ARP entries.
	incomplete	Displays all the unresolved dynamic ARP entries.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   Use this command to display the ARP details, such as the ARP type (Dynamic, Static, Local, Trust), the information on the layer2 port.

If you enter a *min_value* greater than *max_value*, no error message is prompted. Instead, ARP entries corresponding to the subvlan are displayed.

Configuration Examples   The following example displays the output result of the **show arp detail** command:

```
IP Address      MAC Address     Type     Age(min) Interface  Port
192.168.183.65  0074.9c14.6e96  Dynamic  29       Vl1        Gi0/1
192.168.183.70  0074.9c4b.0c0f  Local    --       Vl1        --
Total number of ARP entries: 2
```

The meaning of each field in the ARP cache table is described as below:

Table 1 Fields in the ARP cache table

Field	Description
IP Address	IP address corresponding to the hardware address
MAC Address	hardware address corresponding to the IP address
Type	ARP type, includes the Static, Dynamic, Trust,Local
Age	Age of the ARP learning, in minutes
Interface	Layer 3 interface associated with the IP addresses
Port	Layer2 port associated with the ARP

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.13 show arp packet statistics

Use this command to display the statistics of ARP packets.

show arp packet statistics [*interface-name*]

Parameter Description	Parameter	Description
	interface-name	Displays the statistics of ARP packets on the specified interface.

Defaults	N/A.

Command Mode	Privileged EXEC mode.

Usage Guide	N/A.

Configuration Examples

The following example displays the output information of the command.

```
Ruijie# show arp packet statistics
Interface Received Received Received Sent Sent
Name Requests Replies Others Requests Replies
--------- -------- -------- -------- -------- -------
VLAN 1 10 20 1 50 10
VLAN 2 5 8 0 10 10
VLAN 3 20 5 0 15 12
VLAN 4 5 8 0 10 10
VLAN 5 20 5 0 15 12
VLAN 6 20 5 0 15 12
VLAN 7 20 5 0 15 12
VLAN 8 5 8 0 10 10
VLAN 9 20 5 0 15 12
VLAN 10 20 5 0 15 12
VLAN 11 20 5 0 15 12
VLAN 12 20 5 0 15 12
```

Description of fields:

Field	description
Received Requests	Number of received ARP requests
Received Replies	Number of received ARP response messages
Received Others	Number of other received ARP packets

Sent Requests	Number of sent ARP requests
Sent Replies	Number of sent ARP requests

Related	Command	Description
Commands	N/A.	N/A.

Platform   N/A
Description

2.14 show arp timeout

Use this command to display the aging time of a dynamic ARP entry on the interface.

show arp timeout

Parameter	Parameter	Description
Description	N/A.	N/A.

Defaults   N/A.

Command   Privileged EXEC mode
Mode

Usage Guide   N/A.

Configuration   The following example displays the output of the **show arp timeout** command:

Examples
```
Ruijie# show arp timeout
Interface arp timeout(sec)
--------------------- ----------------
VLAN 1  3600
```
The meaning of each field in the ARP cache table is described in Table 1.

Related	Command	Description
Commands	N/A.	N/A.

Platform   N/A
Description

2.15 show ip arp

Use this command to display the Address Resolution Protocol (ARP) cache table.

show ip arp

Parameter	Parameter	Description

Description	N/A.	N/A.

Defaults   N/A.

Command Mode   Privileged EXEC mode.

Usage Guide   N/A.

Configuration Examples   The following example displays the output of **show ip arp**:

```
Ruijie# show ip arp
Protocol Address Age(min)Hardware Type Interface
Internet 192.168.7.233 23 0007.e9d9.0488 ARPA FastEthernet 0/0
Internet 192.168.7.112 10 0050.eb08.6617 ARPA FastEthernet 0/0
Internet 192.168.7.79 12 00d0.f808.3d5c ARPA FastEthernet 0/0
Internet 192.168.7.1 50 00d0.f84e.1c7f ARPA FastEthernet 0/0
Internet 192.168.7.215 36 00d0.f80d.1090 ARPA FastEthernet 0/0
Internet 192.168.7.127 0 0060.97bd.ebee ARPA FastEthernet 0/0
Internet 192.168.7.195 57 0060.97bd.ef2d ARPA FastEthernet 0/0
Internet 192.168.7.183 -- 00d0.f8fb.108b ARPA FastEthernet 0/0
```

Each field in the ARP cache table has the following meanings:

Field	Description
Protocol	Network address protocol, always Internet.
Address	The IP address corresponding to the hardware address.
Age (min)	Age of the ARP cache record, in minutes; If it is not locally or statically configured, the value of the field is represented with "-".
Hardware	Hardware address corresponding to the IP address
Type	The type of hardware address. The value is ARPA for all Ethernet addresses.
Interface	Interface associated with the IP address.

Related Commands	Command	Description
	N/A.	N/A.

Platform Description   N/A

3   DHCP Commands

3.1   ip address dhcp

Use this command to make the Ethernet interface or the PPP, HDLC and FR encapsulated interface obtain the IP address information by the DHCP in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

ip address dhcp

no ip address dhcp

defaut ip address dhcp

Parameter Description	Parameter	Description
	N/A	N/A

Defaults The interface cannot obtain the ID address by the DHCP by default.

Command Mode Interface configuration mode.

Usage Guide When requesting the IP address, the DHCP client of the RGOS software also requires the DHCP server provide 5 configuration parameter information: 1) DHCP option 1, client subnet mask, 2) DHCP option 3, it is the same as the gateway information of the same subnet, 3) DHCP option 6, the DNS server information, 4) DHCP option 15, the host suffix domain name, and 5) DHCP option 44, the WINS server information (optional).

The client of the RGOS software is allowed to obtain the address on the PPP, FR or HDL link by the DHCP, which should be supported by the server. At present, our server can support this function.

Configuration Examples The following example makes the FastEthernet 0 port obtain the IP address automatically.

```
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1) ip address dhcp
```

Related Commands	Command	Description
	dns-server	Defines the DNS server of DHCP client.
	ip dhcp pool	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

Platform Description N/A

3.2   show dhcp lease

Use this command to display the lease information of the IP address obtained by the DHCP client.

show dhcp lease

Parameter	Parameter	Description
Description	N/A	N/A

Defaults   N/A

Command   Privileged EXEC mode.

Mode

Usage Guide   If the IP address is not defined, display the binding condition of all addresses. If the IP address is
defined, display the binding condition of this IP address.

Configuration   The following example displays the result of the show dhcp lease.

Examples
```
Ruijie# show dhcp lease
Temp IP addr: 192.168.5.71 for peer on Interface: FastEthernet0/0
Temp sub net mask: 255.255.255.0
 DHCP Lease server: 192.168.5.70, state: 3 Bound
 DHCP transaction id: 168F
 Lease: 600 secs, Renewal: 300 secs, Rebind: 525 secs
Temp default-gateway addr: 192.168.5.1
 Next timer fires after: 00:04:29
 Retry count: 0 Client-ID: redgaint-00d0.f8fb.5740-Fa0/0
```

Related	Command	Description
Commands	N/A	N/A

Platform   N/A

Description

4 DNS Commands

4.1 clear host

Use this command to clear the dynamically learned host name.

clear host [* | *host-name*]

Parameter Description	Parameter	Description
	host-name	Deletes the specified dynamic domain name buffer.
	*	Deletes all dynamic domain name buffer.

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide You can obtain the mapping record of the host name buffer table in two ways: 1) the **ip host** static configuration, 2) the DNS dynamic learning. Execute this command to delete the host name records learned by the DNS dynamically.

Configuration Examples The following configuration deletes the dynamically learned mapping records from the host name-IP address buffer table.

```
Ruijie(config)#clear host *
```

Related Commands	Command	Description
	show hosts	Displays the host name buffer table.

Platform Description N/A

4.2 ip domain-lookup

Use this command to enable DNS domain name resolution. Use the **no** form of this command to disable the DNS domain name resolution function.

ip domain-lookup

no ip domain-lookup

Parameter Description	Parameter	Description

N/A	N/A

Defaults	This function is enabled by default.

Command Mode	Global configuration mode.

Usage Guide	This command enables the domain name resolution function.

Configuration Examples

The following example disables the DNS domain name resolution function.

```
Ruijie(config)# no ip domain-lookup
```

Related Commands

Command	Description
show hosts	Displays the DNS related configuration information.

Platform Description	N/A

4.3 ip host

Use this command to configure the mapping of the host name and the IP address. Use the **no** form of the command to remove the host list.

ip host *host-name ip-address*

no ip host *host*-name *ip-address*

Parameter Description

Parameter	Description
host-name	The host name of the equipment
ip-address	The IP address of the equipment

Defaults	N/A

Command Mode	Global configuration mode.

Usage Guide	N/A

Configuration Examples

The following example configures IPv4 address 192.168.5.243 for domain name www .test.com.

```
Ruijie(config)# ip host www.test.com 192.168.5.243
```

Related Commands

Command	Description

show hosts	Show the DNS related configuration information.

Platform Description   N/A

4.4   ip name-server

Use this command to configure the IP address of the domain name server. Use the **no** form of this command to delete the configured domain name server.

ip name-server { *ip-address* }

no ip name-server [*ip-address*]

Parameter Description	**Parameter**	**Description**
	ip-address	The IP address of the domain name server.

Defaults   No domain name server is configured by default.

Command Mode   Global configuration mode.

Usage Guide   Add the IP address of the DNS server. Once this command is executed, the equipment will add a DNS server. When the device cannot obtain the domain name from a DNS server, it will attempt to send the DNS request to subsequent servers until it receives a response.

Up to 6 DNS servers are supported. You can delete a DNS server with the *ip-address* option or all the DNS servers.

Configuration Examples   The following example sets the IP address of the domain name server to 192.168.5.134.

```
Ruijie(config)# ip name-server 192.168.5.134
```

Related Commands	**Command**	**Description**
	show hosts	Displays the DNS related configuration information.

Platform Description   N/A

4.5   show hosts

Use this command to display DNS configuration.

show hosts [*hostname*]

Parameter Description

Parameter	Description
hostname	Displays the specified domain name information,

Defaults

All domain name information is displayed by default.

Command Mode

Privileged EXEC mode.

Usage Guide

This command is used to display the DNS related configuration information.

Configuration Examples

```
Ruijie# show hosts
Name servers are:
192.168.5.134 static


Host             type        Address              TTL(sec)
switch           static      192.168.5.243           ---
www.ruijie.com   dynamic     192.168.5.123           126
```

Field	Description
Name servers	Domain name server
Host	Domain name
type	Resolution type: Static resolution and dynamic resolution.
Address	IP address corresponding to the domain name
TTL	TTL of entries corresponding to the domain name/IP address.

Related Commands

Command	Description
ip host	Configures the host name and IP address mapping by manual.
ipv6 host	Configures the host name and IPv6 address mapping by manual.
ip name-server	Configures the DNS server.

Platform Description

N/A

5 Network Connectivity Test Tool Commands

5.1 ping

Use this command to test the connectivity of a network to locate the network connectivity problem. The command format is as follows:

ping [**ip**] [*address* [**length** *length*] [**ntimes** *times*] [**timeout** *seconds*] [**data** *data*] [**source** *source*] [**df-bit**] [**validate**] [**detail**] [**out-interface** interface]]

<table>
<tr><td>Parameter Description</td><td>Parameter</td><td>Description</td></tr>
<tr><td></td><td><i>address</i></td><td>Specifies an IPv4 address.</td></tr>
<tr><td></td><td><i>length</i></td><td>Specifies the length of the packet to be sent (range: 36-18024, default: 100).</td></tr>
<tr><td></td><td><i>times</i></td><td>Specifies the number of packets to be sent (range:1-4294967295).</td></tr>
<tr><td></td><td><i>seconds</i></td><td>Specifies the timeout time (range: 1-10 seconds).</td></tr>
<tr><td></td><td><i>data</i></td><td>Specifies the data to fill in.</td></tr>
<tr><td></td><td><i>source</i></td><td>Specifies the source IPv4 address or the source interface. The loopback interface address (for example: 127.0.0.1) is not allowed to be the source address.</td></tr>
<tr><td></td><td>df-bit</td><td>Sets the DF bit for the IP address. DF bit=1 indicates not to segment the datagrams. By default, the DF bit is 0.</td></tr>
<tr><td></td><td>validate</td><td>Sets whether to validate the reply packets or not.</td></tr>
<tr><td></td><td>detail</td><td>Sets whether to contain details in the echoed message. By default, only "!" and "." are displayed.</td></tr>
<tr><td></td><td><i>interface</i></td><td>Specifies the outbound interface</td></tr>
</table>

Defaults   Five packets with 100Byte in length are sent to the specified IP address within specified time (2s by default).

Command Mode   Privileged EXEC mode.

Usage Guide   If the device can be pinged, the response information is displayed, and the statistics is listed at the end. For the extension functions of ping, the number, quantity and timeout time of the packets to be sent can be specified, and the statistics is also displayed in the end. To use the domain name function, configure the domain name server firstly. For the concrete configuration, refer to the DNS Configuration section.

Configurat   The following example tests the connectivity of a network to locate the network connectivity problem.

ion

Examples

   🛈 (RG-S29 series products do not support the VRF parameter. The following example is for reference purpose. Please take the actual device as the standard.)

```
(regular ping).Ruijie# ping 192.168.21.26
Sending 5, 100-byte ICMP Echoes to 192.168.21.26, timeout is 2 seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following example displays details.

```
Ruijie#ping 192.168.21.26 detail
*Apr 16 09:16:08: %PING-7-DEBUG: Ping vrf index -1.
Sending 5, 100-byte ICMP Echoes to 192.168.21.26, timeout is 2 seconds:
  < press Ctrl+C to break >
Reply from 192.168.21.26: bytes=100 time=4ms TTL=64
Reply from 192.168.21.26: bytes=100 time=3ms TTL=64
Reply from 192.168.21.26: bytes=100 time=1ms TTL=64
Reply from 192.168.21.26: bytes=100 time=1ms TTL=64
Reply from 192.168.21.26: bytes=100 time=1ms TTL=64
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms.2
```

The following example tests the connectivity of a network to locate the network connectivity problem (extension ping).

```
Ruijie# ping 192.168.21.26 length 1500 ntimes 100 data ffff source 192.168.21.99
timeout 3
Sending 100, 1500-byte ICMP Echoes to 192.168.21.26, timeout is 3 seconds:
  < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 2/2/3 ms
```
The following example displays the details.
```
ping 192.168.21.26 length 1500 ntimes 20 data ffff source 192.168.21.99 timeout
3 detail
Sending 20, 1500-byte ICMP Echoes to 192.168.21.26, timeout is 3 seconds:
  < press Ctrl+C to break >
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=2ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
```

```
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=3ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64

Success rate is 100 percent (20/20), round-trip min/avg/max = 1/1/3 ms
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

5.2 traceroute

Use this command to display all gateways passed by the test packets from the source address to the destination address.

traceroute [**ip**] [*adress* [**probe** *number*] [**source** *source*] [**timeout** *seconds*] [**ttl** *minimum maximum*] [**out-interface** interface]]

Parameter Description	**Parameter**	**Description**
	address	Specifies an IPv4 address.
	number	Specifies the number of probe packets to be sent (range: 1-255).
	source	Specifies the source IPv4 address or the source interface. The loopback interface address (for example: 127.0.0.1) is not allowed to be the source address.
	seconds	Specifies the timeout time (range: 1-10 seconds).
	minimum maximum	Specifies the minimum and maximum TTL values (range:1-255).
	interface	Specifies the outbound interface

Defaults   By default, *seconds* is 3 seconds, *number* is 3, *minimum* and *maximum* are 1 and 255.

Command Mode   Privileged EXEC mode: enables extended functions.
User EXEC mode: enables basic functions.

Usage Guide   Use the **traceroute** command to test the connectivity of a network to exactly locate the network
                    connectivity problem when the network failure occurs. To use the function domain name, configure
                    the domain name server. For the concrete configuration, refer to the DNS Configuration part.

Configuration   The following is two examples of the application bout traceroute, the one is of the smooth network,
Examples   and the other is the network in which some gateways aren't connected successfully.

                    1. When the network is connected smoothly:

```
Ruijie# traceroute 61.154.22.36
 < press Ctrl+C to break >
Tracing the route to 61.154.22.36

1    192.168.12.1      0 msec   0 msec   0 msec
2    192.168.9.2       4 msec   4 msec   4 msec
3    192.168.9.1       8 msec   8 msec   4 msec
4     192.168.0.10     4 msec   28 msec  12 msec
5     192.168.9.2      4 msec   4 msec   4 msec
6     202.101.143.154    12 msec  8 msec   24 msec
7     61.154.22.36    12 msec  8 msec   22 msec
```

                    From above result, it's clear to know that the gateways passed by the packets sent to the host with an
                    IP address of 61.154.22.36 (gateways 1~6) and the spent time are displayed. Such information is
                    helpful for network analysis.

                    2. When some gateways in the network fail:

```
Ruijie# traceroute 202.108.37.42
 < press Ctrl+C to break >
Tracing the route to 202.108.37.42

1     192.168.12.1     0 msec    0 msec  0 msec
2     192.168.9.2      0 msec    4 msec  4 msec
3     192.168.110.1    16 msec  12 msec  16 msec
4     *   *   *
5     61.154.8.129     12 msec   28 msec  12 msec
6     61.154.8.17      8 msec    12 msec  16 msec
7     61.154.8.250     12 msec   12 msec  12 msec
8     218.85.157.222   12 msec   12 msec  12 msec
9      218.85.157.130  16 msec   16 msec  16 msec
10    218.85.157.77    16 msec   48 msec  16 msec
11     202.97.40.65    76 msec   24 msec  24 msec
12     202.97.37.65    32 msec   24 msec  24 msec
13     202.97.38.162   52 msec   52 msec  224 msec
14     202.96.12.38    84 msec   52 msec  52 msec
15     202.106.192.226 88 msec   52 msec  52 msec
16     202.106.192.174    52 msec   52 msec  88 msec
17     210.74.176.158  100 msec  52 msec  84 msec
```

```
18      202.108.37.42    48 msec   48 msec  52 msec
```

The above result clearly shown that the gateways passed by the packets sent to the host with an IP address of 202.108.37.42 (gateways 1~17) and the spent time are displayed, and gateway 4 fails.

3. The following example enables bout traceroute by entering a domain name.

```
Ruijie# traceroute www.ietf.org


Translating "www.ietf.org"...[OK]
 < press Ctrl+C to break >
Tracing the route to 64.170.98.32


1     192.168.217.1    0 msec  0 msec  0 msec
2     10.10.25.1       0 msec  0 msec  0 msec
3     10.10.24.1       0 msec  0 msec  0 msec
4     10.10.30.1       10 msec 0 msec  0 msec
5     218.5.3.254      0 msec  0 msec  0 msec
6     61.154.8.49      10 msec 0 msec  0 msec
7     202.109.204.210  0 msec  0 msec  0 msec
8     202.97.41.69     20 msec 10 msec 20 msec
9     202.97.34.65     40 msec 40 msec 50 msec
10    202.97.57.222    50 msec 40 msec 40 msec
11    219.141.130.122  40 msec 50 msec 40 msec
12    219.142.11.10    40 msec 50 msec 30 msec
13    211.157.37.14    50 msec 40 msec 50 msec
14    222.35.65.1      40 msec 50 msec 40 msec
15    222.35.65.18     40 msec 40 msec 40 msec
16    222.35.15.109    50 msec 50 msec 50 msec
17    *       *       *
18    64.170.98.32     40 msec 40 msec 40 msec
```

	Command	Description
Related Commands	N/A	N/A

Platform Description	N/A

6 TCP Commands

6.1 ip tcp keepalive

Use this command to enable the TCP keepalive function. Use the **no** form of this command to restore the default setting.

ip tcp keepalive [**interval** *num1*] [**times** *num2*] [**idle-period** *num3*]

no ip tcp keepalive

Parameter Description	

Parameter	Description
interval *num1*	The interval of sending the keepalive packet, in the range from1 to 120 in the unit of seconds, The default is 75.
times *num2*	Keepalive packet sending times, in the range from 1 to 10. The default is 6.
idle-period *num3*	Idle time, the time period during which the peer end does not send any packet to the local end, in the range from 60 to 1800 in the unit of seconds. The default is 900.

Defaults   The function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   The keepalive function enables TCP to detect whether the peer end is operating properly.

Suppose the keepalive function is enabled together with default **interval**, **times** and **idle-period** settings. TCP begins to send the keepalive packet at an interval of 75 seconds if it does not receive any packet from the peer end in 900 seconds. The TCP connection is considered invalid and then disconnected automatically if the device sends the keepalive packet for six consecutive times without receiving any TCP packet from the peer end. This command applies to both IPv4 and IPv6 TCP.

Configuration Examples   The following example enables the TCP keepalive function on the device and sets the **idle-period** and **interval** to180 and 60 respectively. If the device sends the keepalive packet for four consecutive times without receiving any TCP packet from the peer end, the TCP connection is considered invalid.

```
Ruijie(config)# ip tcp keepalive interval 60 times 4 idle-period 180
```

Related Commands	

Command	Description
N/A	N/A

Platform Description   Introduced in the 11.0 version, this command replaces the **service tcp-keepalives-in** and **service tcp-keepalives-out** commands in 10.x versions.

6.2 ip tcp mss

Use this command to set the upper limit of the MSS value. Use the **no** form of this command to restore the default setting.

ip tcp mss *max-segment-size*

no ip tcp mss

Parameter Description	Parameter	Description
	max-segment-size	Upper limit of the MSS value in the range from 68 to 10000 bytes

Defaults   The default MSS = Outgoing IPv4/v6 MTU- IPv4/v6 header-TCP header.

Command Mode   Global configuration mode

Usage Guide   This command is used to limit the maximum value of MSS for the TCP connection to be created. The negotiated MSS cannot exceed the configured value. You can use this command to reduce the maximum value of MSS. However, this configuration is not needed in general.

Configuration Examples   The following example sets the upper limit of the MSS value to 1300 bytes.

```
Ruijie(config)# ip tcp mss 1300
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

6.3 ip tcp path-mtu-discovery

Use this command to enable Path Maximum Transmission Unit (PMTU) discovery function for TCP in global configuration mode. Use the **no** form of this command to restore the default setting.

ip tcp path-mtu-discovery [**age-timer** *minutes* | **age-timer infinite**]

no ip tcp path-mtu-discovery

Parameter Description	Parameter	Description
	age-timer *minutes*	The time interval for further discovery after discovering PMTU. Its value ranges from 10 to 30 minutes. The default value is 10.
	age-timer infinite	No further discovery after discovering PMTU

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	Based on RFC1191, the TCP path MTU function improves the network bandwidth utilization and data transmission when the user uses TCP to transmit the data in batch.
	Enabling or disabling this function takes no effect for existent TCP connections and is only effective for TCP connections to be created. This command applies to only IPv4 TCP. This function is enabled for IPv6 TCP constantly and cannot be disabled.
	According to RFC1191, after discovering the PMTU, the TCP uses a greater MSS to detect the new PMTU at a certain interval, which is specified by the parameter **age-timer**. If the PMTU discovered is smaller than the MSS negotiated between two ends of the TCP connection, the device will be trying to discover the greater PMTU at the specified interval untill the PMTU value reaches the MSS or the user stops this timer. Use the parameter **age-timer infinite** to stop this timer.

Configuration Examples	The following example enables PMTU discovery.
	`Ruijie(config)# ip tcp path-mtu-discovery`

Related Commands	

Command	Description
show tcp pmtu	Shows the PMTU value for the TCP connection.

Platform Description	N/A

6.4   ip tcp send-reset

Use this command to enable the device to send the reset packet when receiving the TCP port unreachable packet. Use the **no** form of this command to disable this function,

ip tcp send-reset

no ip tcp send-reset

Parameter Description	

Parameter	Description
N/A	N/A

Defaults	This function is enabled by default.

Command Mode	Global configuration mode

Usage Guide	In general, when dispatching the TCP packet, the TCP module replies a reset packet automatically to

disconnect the TCP connection with the peer end if the TCP connection that this packet belongs to is not found, However, flooding TCP port unreachable packets pose an attack threat to the device, This command can be used to disable the device from sending the reset packet when receiving the TCP port unreachable packet. This command applies to both IPv4 and IPv6 TCP.

Configuration Examples

The following example disables the device from sending the reset packet when receiving the TCP port unreachable packet.

```
Ruijie(config)# no ip tcp send-reset
```

Related Commands

Command	Description
N/A	N/A

Platform Description

The **ip tcp not-send-rst** command in version 10.x is disused but compatible in version 11.0. If this command is executed, it will be converted to the **no ip tcp send-reset** command.

6.5   ip tcp synwait-time

Use this command to set the timeout value for SYN packets (the maximum time from SYN transmission to successful three-way handshake). Use the **no** form of this command to restore the default setting.

ip tcp synwait-time *seconds*

no ip tcp synwait-time *seconds*

Parameter Description

Parameter	Description
seconds	Timeout value for SYN packets in the range from 5 to 300 in the unit of seconds.

Defaults

The default is 20.

Command Mode

Global configuration mode

Usage Guide

If there is an SYN attack in the network, reducing the SYN timeout value can prevent resource consumption, but it takes no effect for successive SYN attacks. When the device actively requests a connection with an external device, reducing the SYN timeout value can shorten the time for the user to wait, such as telnet login. For poor network conditions, the timeout value can be increased properly. This command applies to both IPv4 and IPv6 TCP.

Configuration Examples

The following example set the timeout value for SYN packets to 10 seconds.

```
Ruijie(config)# ip tcp syntime-out 10
```

Related

Command	Description

Commands		
N/A	N/A	

Platform Description When run on the 11.0 vresion, the **ip tcp syntime-out** 10.x version command, which is no longer valid on the 11.0 version, is automatically transferred to the **ip tcp synwait-time** command.

6.6   ip tcp window-size

Use this command to change the size of receiving buffer and sending buffer for TCP connections. Use the **no** form of this command to restore the default setting.

ip tcp window-size *size*

no ip tcp window-size

Parameter Description

Parameter	Description
size	Size of receiving buffer and sending buffer for TCP connections in the range from 128 to 65535 << 14 bytes.

Defaults The default is 65535.

Command Mode Global configuration mode

Usage Guide The TCP receiving buffer is used to buffer the data received from the peer end. These data will be subsequently read by application programs. Generally, the window size of TCP packets implies the size of free space in the receiving buffer. For connections involving a large bandwidth and mass data, increasing the size of receiving buffer will remarkably improve TCP transmission performance.

The sending buffer is used to buffer the data of application programs. Each byte in the sending buffer has a sequence number, and bytes with sequence numbers acknowledged will be removed from the sending buffer. Increasing the sending buffer will improve the interaction between TCP and application programs, thus enhancing the performance. However, increasing the receiving buffer and sending buffer will result in more memory consumption of TCP.

This command is used to change the size of receiving buffer and sending buffer for TCP connections. This command changes both the receiving buffer and sending buffer, and only applies to subsequent connections. This command applies to both IPv4 and IPv6 TCP.

Configuration Examples The following example sets the TCP window size to 16386 bytes.

```
Ruijie(config)# ip tcp window-size 16386
```

Related Commands

Command	Description
N/A	N/A

Platform   N/A

Description

6.7   service tcp-keepalives-in

Use this command to enable the keepalive function for the TCP server. Use the no form of this command to restore the default setting.

service tcp-keepalives-in [*interval*] [**garbage**]

no service tcp-keepalives-in

**Parameter
Description**

Parameter	Description
interval	The interval of sending keepalive packets, in the range from 1 to 65535 in the unit of seconds. The default is 60.
garbage	The keepalive packet contains one-byte invalid data. The invalid data is not contained by default.

Defaults   This function is disabled by default.

**Command
Mode**   Global configuration mode

Usage Guide   The keepalive function enables the TCP server to detect whether the client is operating properly.
If the TCP server sends the keepalive packet for four consecutive times without receiving any TCP packet from the client, the TCP connection is considered invalid and then is disconnected automatically.

**Configuration
Examples**   The following example enables the keepalive function for the TCP server and sets the interval of sending the keepalive packet to 10 seconds. The keepalive packet contains one-byte invalid data.

```
Ruijie(config)# service tcp-keepalives-in 10 garbage
```

**Related
Commands**

Command	Description
N/A	N/A

**Platform
Description**   When run on the 11.0 vresion, the **service tcp-keepalives-in** 10.x version command, which is no longer valid on the 11.0 version, is automatically transferred to the **ip tcp keepalive** command.

6.8   service tcp-keepalives-out

Use this command to enable the keepalive function for the TCP client. Use the **no** form of this command to restore the default setting,

service tcp-keepalives-out [*interval*] [**garbage**]

no service tcp-keepalives-out [*interval*] [**garbage**]

Parameter Description	Parameter	Description
	interval	The interval of sending keepalive packets, in the range from 1 to 65535 in the unit of seconds. The default is 60.
	garbage	The keepalive packet contains one-byte invalid data. The invalid data is not contained by default.

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   The keepalive function enables the TCP client to detect whether the server is operating properly. If the TCP client sends the keepalive packet for four consecutive times without receiving any TCP packet from the server, the TCP connection is considered invalid and then is disconnected automatically.

Configuration Examples   The following example enables the keepalive function for the TCP client and sets the interval of sending the keepalive packet to 10 seconds. The keepalive packet contains one-byte invalid data

```
Ruijie(config)# service tcp-keepalives-out 10 garbage
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   When run on the 11.0 vresion, the **service tcp-keepalives-out** 10.x version command, which is no longer valid on the 11.0 version, is automatically transferred to the **ip tcp keepalive** command.

6.9   show tcp connect

Use this command to display basic information about the current TCP connections.
show tcp connect [**local-ip** *a.b.c.d*] [**local-port** *num*] [**peer-ip** *a.b.c.d*] [**peer-port** *num*]

Use this command to display the current IPv4 TCP connection statistics.
show tcp connect statistics

Parameter Description	Parameter	Description
	local-ip *a.b.c.d*	Local IP address.
	local-port *num*	Local port.
	peer-ip *a.b.c.d*	Peer IP address.

peer-port *num*	Peer port.
statistics	Displays IPv4 TCP connection statistics.

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   N/A

Configuration   The following example displays the current IPv4 TCP connection information.
Examples
```
Ruijie#show tcp connect
Number Local Address    Foreign Address          State       Process name
1     0.0.0.0:22       0.0.0.0:0                LISTEN      rg-sshd
2     0.0.0.0:23       0.0.0.0:0                LISTEN      rg-telnetd
3     1.1.1.1:23       1.1.1.2:64201            ESTABLISHED rg-telnetd
```

Field	Description
Number	Sequence number.
Local Address	The Local address and port number. The number after the last ".". is the port number. For example, in "2002::2.23" and "192.168.195.212.23" , "23" is the port number.
Foreign Address	The remote address and port number. The number after the last ".". is the port number. For example, in "2002::2.23" and "192.168.195.212.23" , "23" is the port number.
State	Current status of the TCP connection. There are eleven possible states: CLOSED: The connection has been closed. LISTEN: Listening state SYNSENT: In the three-way handshake phase when the SYN packet has been sent out. SYNRCVD: In the three-way handshake phase when the SYN packet has been received. ESTABLISHED: The connection has been established. FINWAIT1: The local end has sent the FIN packet. FINWAIT2: The FIN packet sent by the local end has been acknowledged. CLOSEWAIT: The local end has received the FIN packet from the peer end. LASTACK: The local end has received the FIN packet from the peer end, and then sent its own FIN packet. CLOSING: The local end has sent the FIN packet from the peer end, and received the FIN packet from the peer end before the ACK packet for the peer end to respond with this FIN packet is received.

	TIMEWAIT: The FIN packet sent by the local end has been acknowledged, and the local end has also acknowledged the FIN packet.
Process name	Process name.

The following example displays the current IPv4 TCP connection statistics.

```
Ruijie#show tcp connect statistics
State       Count
-----       -----
ESTABLISHED 1
SYN_SENT    0
SYN_RECV    0
FIN_WAIT1   0
FIN_WAIT2   0
TIME_WAIT   0
CLOSED      0
CLOSE_WAIT  0
LAST_ACK    0
LISTEN      1
CLOSING     0
Total: 2
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description	N/A

6.10 show tcp parameter

Use this command to show TCP parameters.

show tcp parameter

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration   The following example shows TCP parameters.

Examples
```
Ruijie#show tcp parameter
Hash table information:
  Established hash bucket size: 16384
  Bind hash bucket size: 16384
Memory information:
  Global memory limit: low=92160, pressure=122880, high=184320 (unit: pages)
  Per-socket receive buffer size: min=4096, default=87380, max=3932160 (unit:
bytes)
  Per-socket send buffer size: min=4096, default=16384, max=3932160 (unit:
bytes)
  Current allocated memory: 0
  Current memory pressure flag: 0
SYN specific information:
  Max SYN_RECV sockets per LISTEN socket: 65535
  Max SYN retries: 5
  Max SYN ACK retries: 5
Timewait specific information:
  Max timewait sockets: 180000
  Current timewait sockets: 0
  Timewait recycle: 0
  Reuse timewait port: 0
Keepalive information:
  Keepalive on: 0
  Idle period: 900 seconds
  Interval: 75 seconds
  Max probes: 6
MTU probing:
  Enable mtu probing: 0
FIN specific information:
  FIN_WAIT_2 timeout: 60 seconds
Orphan socket information:
  Max orphans: 16384
  Max orphan retries: 0
Current orphans: 0
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

6.11 show tcp pmtu

Use this command to display information about TCP PMTU.

show tcp pmtu [**local-ip** *a.b.c.d*] [**local-port** *num*] [**peer-ip** *a.b.c.d*] [**peer-port** *num*]

Parameter Description

Parameter	Description
local-ip *a.b.c.d*	Local IP address.
local-port *num*	Local port.
peer-ip *a.b.c.d*	Peer IP address.
peer-port *num*	Peer port.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example displays PMTU of IPv4 TCP connection.

```
Ruijie# show tcp pmtu
Number  Local Address          Foreign Address      PMTU
1       192.168.195.212.23     192.168.195.112.13560  1440
```

Field	Description
Number	Sequence number.
Local Address	The local address and the port number. The number after the last "." is the port number. For example, in "2002::2.23" and "192.168.195.212.23" , "23" is the port number.
Foreign Address	The remote address and the port number. The number after the last "." is the port number. For example, in "2002::2.23" and "192.168.195.212.23" , "23" is the port number.
PMTU	PMTU value.

Related Commands

Command	Description
ip tcp path-mtu-discovery	Enables the TCP PMTU discovery function.

Platform Description   N/A

6.12 show tcp port

Use this command to display information about the current TCP port.

show tcp port [*num*]

Parameter Description	**Parameter**	**Description**
	num	Port number

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example displays the current IPv4 TCP port status.

```
Ruijie#sh tcp port
tcp port status:
Tcpv4 listen on 2650 have connections:
TCB      Foreign Address                       Port    State
Tcpv4 listen on 2650 have total 0 connections.
Tcpv4 listen on 23 have connections:
TCB      Foreign Address                       Port    State
c340800   1.1.1.2                             64571   ESTABLISHED
Tcpv4 listen on 23 have total 1 connections.
Tcpv6 listen on 23 have connections:
TCB       Foreign Address                      Port    State
c429980   3000::2                             64572   ESTABLISHED
```

Tcpv6 listen on 23 have total 1 connections.

Field	**Description**
TCB	The control block's location in the current memory
Foreign Address	Remote address
Port	Remote port number
State	Status of the current TCP connection. There are eleven possible states:
	CLOSED: The connection has been closed.
	LISTEN: Listening state
	SYNSENT: In the three-way handshake phase when the SYN packet has been sent.
	SYNRCVD: In the three-way handshake phase when the SYN packet has been received.
	ESTABLISHED: The connection has been established.

	FINWAIT1: The local end has sent the FIN packet.
	FINWAIT2: The FIN packet sent by the local end has been acknowledged.
	CLOSEWAIT: The local end has received the FIN packet from the peer end.
	LASTACK: The local end has received the FIN packet from the peer end, and then sent its own FIN packet.
	CLOSING: The local end has sent the FIN packet from the peer end, and received the FIN packet from the peer end before the ACK packet for the peer end to respond with this FIN packet is received.
	TIMEWAIT: The FIN packet sent by the local end has been acknowledged, and the local end has also acknowledged the FIN packet.

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

6.13 show tcp statistics

Use this command to show TCP statistics on received packets, three way handshake and time-wait.

show tcp parameter

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example shows TCP parameters.

```
Ruijie#show tcp statistics
TCP Packets
  Received: 1103
  Errors  : 0(checksum: 0)
Three way handshake
```

```
   Request queue overflow: 0
   Accept backlog full: 0
   Web authentication limit per user: 0
   Failed to alloc memory for request sock: 0
   Failed to create open request child: 0
   SYN ACK retransmits: 0
   Timeouted requests: 0
Time-wait
  Time-wait bucket table overflow: 0
```

Field Description

Field	Description
TCP Packets	Normal packets and error packets
Three way handshake	Three way handshake information, including session request count, server-client connection count, three way handshake failure count caused by Web authentication limit, TCP socket failure count caused by memory shortage, sub-session failure count, packet retransmission count and session failure count caused by retransmission timeout.
Time-wait	Session in TIMEWAIT state

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

7 IPv4 REF Commands

7.1 show ip ref adjacency

Use this command to display the information about the specified adjacent node or all adjacent nodes.

show ip ref adjacency [**glean** | **local** | *ip-address* | **interface** *interface_type interface_number* | **discard** | **statistics**]

Parameter	Description
glean	Aggregate adjacent node, which is used for a direct route
local	Local adjacent node, which is used by the local host
ip	Next-hop IP address
interface_type	Interface type
interface_number	Interface number
discard	Displays discarded adjacent nodes.
statistics	Statistics

Parameter Description (label for the table above)

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   This command can be used to display the information about the adjacent node table in the current REF module. By specifying parameters, the information about the aggregate adjacent node, local adjacent node, adjacent node of the specified IP address, adjacent node associated with the specified interface, and all adjacent nodes can be displayed.

Configuration Examples   The following example displays the information about all adjacent nodes in the adjacent node table.

```
Ruijie#show ip ref adjacency
id state     type   rfct chg  ip            interface        linklayer(header
data)
1  unresolved mcast  1    0   224.0.0.0
9  resolved   forward 1   0   192.168.50.78  GigabitEthernet 0/0  00 25 64 C5
9D 6A 00 D0 F8 98 76 54 08 00
7  resolved   forward 1   0   192.168.50.200  GigabitEthernet 0/0  00 04 5F 87
69 66 00 D0 F8 98 76 54 08 00
6  unresolved glean  1    0   0.0.0.0          GigabitEthernet 0/0
4  unresolved local  3    0   0.0.0.0          Local 1
```

Description of fields:

Field	Description

id	Adjacent node ID
state	Adjacent node state: Unresolved Resolved
type	Adjacent node type Local: local adjacency Forward: forward adjacency Discard: discard adjacency Glean: glean adjacency Mcast: multicast adjacency
rfct	Reference count of the adjacent node
chg	Whether the adjacent node is on the changing link.
ip	IP address of the adjacent node
interface	Interface
linklayer	Layer 2 head

Related Commands	Command	Description
	show ip ref route	Displays all route information in the current REF module.

Platform   N/A
Description

7.2 show ip ref exact-route

This command is used to display the IPv4 REF exact route.

show ip ref exact-route *source_ipaddress dest_ipaddress*

Parameter Description	Parameter	Description
	source_ipaddress	Source IP address of the packet
	dest_ipaddress	Destination IP address of the packet

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   This command is used to specify the source and the destination IP address of the IP packets, and to display the path of forwarding the current packet with REF

Configuration   The following example displays the IPv4 REF exact route from 192.168.217.74 to 192.168.13.1.
Examples
```
Ruijie# show ip ref exact-route 192.168.217.74 192.168.13.1
192.168.217.74  --> 192.168.13.1(vrf global):
```

```
id state    type   rfct chg  ip            interface        linklayer(header
data)
9  resolved forward 1    0   192.168.17.1  GigabitEthernet 0/0 00 25 64 C5 9D
6A 00 D0 F8 98 76 54 08 00
```

Description of fields:

Field	Description
id	Adjacency ID
state	Adjacency state: Unresolved Resolved
type	Adjacency type Local: local adjacency Forward: forward adjacency Discard: discard adjacency Glean: glean adjacency Mcast: multicast adjacency
rfct	Reference count of the adjacency
chg	Whether the adjacency is on the changing link.
ip	Adjacency IP address
interface	Interface
linklayer	Layer 2 head

Related Commands	**Command**	**Description**
	show ip ref route	Displays all routing information in the current REF module.

Platform Description   N/A

7.3 show ip ref packet statistics

Use this command to display IPv4 REF packet statistics.

show ip ref packet statistics

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults   N/A

Command   Privileged EXEC mode

Mode

Usage Guide   N/A

Configuration   The following example displays IPv4 REF packet statistics.

Examples
```
Ruijie #show ip ref pkt-statistic
ref packet statistic:
   bad head      : 0
   lookup fib fail : 0
   local adj     : 0
   glean adj     : 0
   forward       : 0
   redirect      : 0
   punt adj      : 0
   outif not in ef : 0
   ttl expiration  : 0
   no ip routing   : 0
```

Field	Description
total recved	Number of total packets received by REF
bad head	Number of the packets with false header
lookup fib fail	Number of the packets with failed REF routing
drop adj	Number of the packets matching the dropped adjacency
local adj	Number of the packets matching the local adjacency
glean adj	Number of the packets matching the gleaned adjacency
forward	Number of the packets matching the forwarded adjacency
no ip routing	Number of the packets not allowed to be forwarded and sent to local.

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

7.4   show ip ref resolve-list

Use this command to display the IPv4 REF resolution information.

show ip ref resolve-list

Parameter	Parameter	Description
Description	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	N/A

Configuration Examples	The following example displays IPv4 REF resolution information.

```
Ruijie#show ip ref resolve-list
IP              res_state flags interface
1.1.1.1          unres    1     GigabitEthernet 0/0
```

Field	Description
IP	IP address
res_state	unres: unresolved res: resolved
flags	0: related to adjacency 1: unrelated to adjacency
interface	Interface

Related	Command	Description
Commands	N/A	N/A

Platform Description	N/A

7.5 show ip ref route

Use this command to display all the routing information in the IPv4 REF table.

show ip ref route [**default** | *ip mask* | **statistics**]

Parameter Description	Parameter	Description
	default	Specifies the default route.
	ip	Specifies the destination IP address of the route
	mask	Specifies the mask of the route.
	statistics	Statistics

Defaults	N/A

Command Mode	Privileged EXEC mode

Usage Guide	This command is used to display the related routing information on the current REF table, and specify the default route and all the routing information matching IP/MASK.

Configuration Examples

The following example displays all the routing information in the IPv4 REF table.

```
Ruijie#show ip ref route
Codes: * - default route
       # - zero route
 ip     mask    weight path-id    next-hop      interface
255.255.255.255 255.255.255.255 1  4   0.0.0.0    Local 0
224.0.0.0       240.0.0.0       1  1   224.0.0.0
224.0.0.0     255.255.255.0   1  4   0.0.0.0    Local 0
192.168.50.0  255.255.255.0    1  6   0.0.0.0 FastEthernet 0/0
192.168.50.255  255.255.255.255 1  2     0.0.0.0
192.168.50.200 255.255.255.255 1 7 192.168.50.200 FastEthernet 0/0
192.168.50.122  255.255.255.255 1 4 0.0.0.0       Local 0
192.168.50.78  255.255.255.255 1 9 192.168.50.78  FastEthernet 0/0
```

Field	Description
ip	Destination IP address
mask	Mask
path-id	Adjacent identity
next-hop	Address of next hop
weight	Routing weight
interface	Egress

Related Commands

Command	Description
show ip ref exact-route	Displays the accurate REF forwarding path of an IP packet.

Platform Description	N/A

Security Configuration Commands

1. AAA Commands

2. Storm Control Commands

3. Password-Policy Commands

4. CPU Protection Commands

5. DHCP Snooping Commands

1 AAA Commands

1.1 aaa accounting commands

Use this command to configure NAS command accounting.

Use the **no** form of this command to restore the default setting.

aaa accounting commands *level* **{ default |** *list-name* **} start-stop** *method1* [*method2*…]

no aaa accounting commands *level* { **default |** *list-name* }

	Parameter	Description
Parameter Description	*level*	The accounting command level, 0-15. The message shall be recorded before which command level is executed is determined.
	default	When this parameter is used, the following defined method list is used as the default method for command accounting.
	list-name	Name of the command accounting method list, which could be any character strings.
	method	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
	none	Does not perform accounting.
	group	Uses the server group for accounting, the TACACS+ server group is supported.

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   RGOS enables the accounting command function after enabling the login authentication. After enabling the accounting function, it sends the command information to the security service. The configured accounting command method must be applied to the terminal line that needs accounting command; otherwise it is ineffective.

Configuration Examples   The following example enables NAS command accounting.

```
Ruijie(config)# aaa accounting commands 15 default start-stop group tacacs+
```

	Command	Description
Related Commands	**aaa new-model**	Enables the AAA security service.
	aaa authentication	Defines AAA authentication.
	accounting commands	Applies the accounting commands to the terminal line.

Platform   N/A

Description

1.2   aaa accounting exec

Use this command to enable NAS access accounting.

Use the **no** form of this command to restore the default setting.

aaa accounting exec { **default |** *list-name* } **start-stop** *method1* [*method2...*]

no aaa accounting exec { **default** | *list-name* }

	Parameter	Description
Parameter Description	**default**	When this parameter is used, the following defined method list is used as the default method for Exec accounting.
	list-name	Name of the Exec accounting method list, which could be any character strings
	method	It must be one of the keywords: **none** and **group**. One method list can contain up to four methods.
	none	Does not perform accounting.
	group	Uses the server group for accounting, the RADIUS and TACACS+ server group is supported.

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   RGOS enables the exec accounting function after enabling the login authentication.

After enabling the accounting function, it sends the account start information to the security server when the users log in the NAS CLI, and sends the account stop information to the security server when the users log out. If it does not send the account start information to the security server when a user logs in, it does not send the account stop information to the security server when a user logs out, either.

The configured exec accounting method must be applied to the terminal line that needs accounting command; otherwise it is ineffective.

Configuration Examples   The following example enables NAS access accounting.

```
Ruijie(config)# aaa accounting network start-stop group radius
```

	Command	Description
Related Commands	**aaa new-model**	Enables the AAA security service.
	aaa authentication	Defines AAA authentication.
	accounting commands	Applies the Exec accounting to the terminal line.

Platform	N/A
Description	

1.3   aaa accounting update

Use this command to enable the accounting update function.

Use the **no** form of this command to restore the default setting.

aaa accounting update

no aaa accounting update

Parameter	N/A
Description	

Defaults	This function is disabled by default.

Command	Global configuration mode
Mode	

Usage Guide	If the AAA security service is not enabled, the accounting update function cannot be used. This command is used to set the accounting interval if the AAA security service has been enabled.

Configuration	The following example enables the accounting update function.
| **Examples** | ```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
``` |

Related	**Command**	**Description**
Commands	**aaa new-model**	Enables the AAA security service.
	aaa accounting network	Defines a network accounting method list.

Platform	N/A
Description	

1.4   aaa accounting update periodic

Use this command to set the interval of sending the accounting update message.

Use the **no** form of this command to restore the default setting.

aaa accounting update periodic *interval*

no aaa accounting update periodic

Parameter	**Parameter**	**Description**
Description	*interval*	Interval of sending the accounting update message, in the unit of minutes. The shortest interval is 1 minute.

Defaults	The default is 5 minutes.

Command Mode	Global configuration mode

Usage Guide	If the AAA security service is not enabled, the accounting update function cannot be used. This command is used to set the accounting interval if the AAA security service has been enabled.

Configuration Examples	The following example sets the interval of accounting update to 1 minute.

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
Ruijie(config)# aaa accounting update periodic 1
```

Related Commands	

Command	Description
aaa new-model	Enables the AAA security service.
aaa accounting network	Defines a network accounting method list.

Platform Description	N/A

1.5 aaa authentication enable

Use this command to enable AAA Enable authentication and configure the Enable authentication method list.

Use the **no** form of this command to delete the user authentication method list.

aaa authentication enable default *method1* [*method2*...]

no aaa authentication enable default

Parameter Description	

Parameter	Description
default	When this parameter is used, the following defined authentication method list is used as the default method for Enable authentication.
method	It must be one of the keywords: **local, none** and **group**. One method list can contain up to four methods.
local	Uses the local user name database for authentication.
none	Does not perform authentication.
group	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.
enable	Enables AAA Enable authentication.

Defaults	N/A

Command Mode	Global configuration mode

Usage Guide	If the AAA Enable authentication service is enabled on the device, users must use AAA for Enable authentication negotiation. You must use the **aaa authentication enable** command to configure a default or optional method list for Enable authentication. The next method can be used for authentication only when the current method does not work. The Enable authentication function automatically takes effect after configuring the Enable authentication method list.

Configuration Examples	The following example defines an AAA Enable authentication method list. In the authentication method list, first the RADIUS security server is used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication.

```
Ruijie(config)# aaa authentication enable default group radius local
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
enable	Switchover the user level.
username	Defines a local user database.

Platform Description	N/A

1.6   aaa authentication login

Use this command to enable AAA Login authentication and configure the Login authentication method list.

Use the **no** form of this command to delete the authentication method list.

aaa authentication login { **default** | *list-name* } *method1* [*method2*..]

no aaa authentication login { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined authentication method list is used as the default method for Login authentication.
list-name	Name of the user authentication method list, which could be any character strings
method	It must be one of the keywords: **local**, **none**, **group**. One method list can contain up to four methods.
local	Uses the local user name database for authentication.
none	Does not perform authentication.
group	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.

Defaults	N/A

Command Mode	Global configuration mode

Usage Guide	If the AAA Login authentication security service is enabled on the device, users must use AAA for Login authentication negotiation. You must use the **aaa authentication login** command to configure a default or optional method list for Login authentication. The next method can be used for authentication only when the current method does not work. You need to apply the configured Login authentication method to the terminal line which needs Login authentication. Otherwise, the configured Login authentication method is invalid.

Configuration Examples	The following example defines an AAA Login authentication method list named list-1. In the authentication method list, first the RADIUS security server is used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication. `Ruijie(config)# aaa authentication login list-1 group radius local`

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	login authentication	Applies the Login authentication method to the terminal lines.
	username	Defines a local user database.

Platform Description	N/A

1.7 aaa authorization commands

Use this command to authorize the command executed by the user who has logged in the NAS CLI.
Use the **no** form of this command to restore the default setting.

aaa authorization commands *level* { **default** | *list-name* } *method1* [*method2*...]

no aaa authorization commands *level* { **default** | *list-name* }

Parameter Description	Parameter	Description
	level	Command level to be authorized in the range from 0 to 15
	default	When this parameter is used, the following defined method list is used as the default method for command authorization.
	list-name	Name of the user authorization method list, which could be any character strings
	method	It must be one of the keywords: **none** and **group**. One method list can contain up to four methods.
	none	Do not perform authorization.
	group	Uses the server group for authorization. At present, the TACACS+ server group is supported.

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	RGOS supports authorization of the commands executed by the users. When the users input and attempt to execute a command, AAA sends this command to the security server. This command is to be executed if the security server allows to. Otherwise, it will prompt command deny. It is necessary to specify the command level when configuring the command authorization, and this specified command level is the default command level. The configured command authorization method must be applied to terminal line which requires the command authorization. Otherwise, the configured command authorization method is ineffective.

Configuration Examples	The following example uses the TACACS+ server to authorize the level 15 command. `Ruijie(config)# aaa authorization commands 15 default group tacacs+`

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	authorization commands	Applies the command authorization for the terminal line.

Platform Description	N/A

1.8   aaa authorization config-commands

Use this command to authorize the configuration commands (including in the global configuration mode and its sub-mode).

Use the **no** form of this command to restore the default setting.

aaa authorization config-commands

no aaa authorization config-commands

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	If you only authorize the commands in the non-configuration mode (for example, privileged EXEC mode), you can use the **no** form of this command to disable the authorization function in the configuration mode, and execute the commands in the configuration mode and its sub-mode without command authorization.

Configuration	The following example enables the configuration command authorization function.

Examples	`Ruijie(config)# aaa authorization config-commands`

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	aaa authorization commands	Defines the AAA command authorization.

Platform Description	N/A

1.9 aaa authorization console

Use this command to authorize the commands of the users who have logged in the console.

Use the **no** form of this command to restore the default setting.

aaa authorization console

no aaa authorization console

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	RGOS supports to identify the users logged in from the console and from other terminals, configure whether to authorize the users logged in from the console or not. If the command authorization function is disabled on the console, the authorization method list applied to the console line is ineffective.

Configuration Examples	The following example enables the aaa authorization console function.
	`Ruijie(config)# aaa authorization console`

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	aaa authorization commands	Defines the AAA command authorization.
	authorization commands	Applies the command authorization to the terminal line.

Platform Description	N/A

1.10 aaa authorization exec

Use this command to authorize the users logged in the NAS CLI and assign the authority level.

Use the **no** form of this command to restore the default setting.

aaa authorization exec { **default** | *list-name* } *method1* [*method2*...]

no aaa authorization exec { **default** | *list-name* }

Parameter Description	Parameter	Description
	default	When this parameter is used, the following defined method list is used as the default method for Exec authorization.
	list-name	Name of the user authorization method list, which could be any character strings
	method	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
	local	Uses the local user name database for authorization.
	none	Does not perform authorization.
	group	Uses the server group for authorization. At present, the RADIUS server group is supported.

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   RGOS supports authorization of users logged in the NAS CLI and assignment of CLI authority level (0-15). The **aaa authorization exec** function is effective on condition that Login authentication function has been enabled. It cannot enter the CLI if it fails to enable the **aaa authorization exec**. You must apply the exec authorization method to the terminal line; otherwise the configured method is ineffective.

Configuration Examples   The following example uses the RADIUS server to authorize Exec.

```
Ruijie(config)# aaa authorization exec default group radius
```

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	authorization exec	Applies the command authorization to the terminal line.
	username	Defines a local user database.

Platform Description   N/A

1.11 aaa authorization network

Use this command to authorize the service requests (including such protocols as PPP and SLIP) from the users that access the network.

Use the **no** form of this command to restore the default setting.

aaa authorization network { **default** | *list-name* } *method1* [*method2*...]

no aaa authorization network { **default** | *list-name* }

Parameter	Description
default	When this parameter is used, the following defined method list is used as the default method for Network authorization.
method	It must be one of the keywords: none and group. One method list can contain up to four methods.
none	Does not perform authorization.
group	Uses the server group for authorization. At present, the RADIUS server group is supported.

Parameter Description

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   RGOS supports authorization of all the service requests related to the network, such as PPP and SLIP. If authorization is configured, all the authenticated users or interfaces will be authorized automatically.

Three different authorization methods can be specified. Like authorization, the next method can be used for authorization only when the current authorization method does not work. If the current authorization method fails, other subsequent authorization method is not used.

The RADIUS server authorizes authenticated users by returning a series of attributes. Therefore, RADIUS authorization is based on RADIUS authorization. RADIUS authorization is performed only when the user passes the RADIUS authorization.

Configuration Examples   The following example uses the RADIUS server to authorize network services.

```
Ruijie(config)# aaa authorization network default group radius
```

Command	Description
aaa new-model	Enables the AAA security service.
aaa accounting	Defines AAA accounting.
aaa authentication	Defines AAA authentication.
username	Defines a local user database.

Related Commands

Platform Description   N/A

1.12 aaa local authentication attempts

Use this command to set login attempt times.

aaa local authentication attempts *max-attempts*

Parameter Description	Parameter	Description
	max-attempts	In the range from 1 to 2,147,483,647

Defaults   The default is 3.

Command Mode   Global configuration mode

Usage Guide   Use this command to configure login attempt times.

Configuration Examples   The following example sets login attempt times to 6.

```
Ruijie #configure terminal
Ruijie(config)#aaa local authentication attempts 6
```

Related Commands	Command	Description
	show running-config	Displays the current configuration of the switch.
	show aaa lockout	Displays the lockout configuration parameter of current login.

Platform Description   N/A

1.13 aaa local authentication lockout-time

Use this command to configure the lockout-time period when the login user has attempted for more than the limited times.

aaa local authentication lockout-time *lockout-time*

Parameter Description	Parameter	Description
	lockout-time	In the range from 1 to 2,147,483,647 in the unit of minutes

Defaults   The default is 15 minutes.

Command Mode   Global configuration mode

Usage Guide   Use this command to configure the length of lockout-time when the login user has attempted for more than the limited times.

Configuration Examples   The following example sets the lockout-time period to 5 minutes.

```
Ruijie#configure terminal
Ruijie(config)#aaa local authentication lockout-time 5
```

Related Commands	Command	Description
	show running-config	Displays the current configuration of the switch.
	show aaa lockout	Displays the lockout configuration parameter of current login.

Platform Description	N/A

1.14 aaa log enable

Use this command to enable the system to print the syslog informing AAA authentication success.

Use the **no** form of this command to restore the default setting.

aaa log enable

no aaa log enable

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	Use this command to enable the system to print the syslog informing aaa authentication success.

Configuration Examples	The following example disables the system to print the syslog informing aaa authentication success.
	`Ruijie(config)# no aaa log enable`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.15 aaa log rate-limit

Use this command to set the rate of printing the syslog informing AAA authentication success.

Use the **no** form of this command to restore the default printing rate.

aaa log rate-limit *num*

no aaa log rate-limit

Parameter Description	Parameter	Description
	num	The number of syslog entries printed per second. The range is from 0 to 65,535.

	0 indicates the printing rate is not limited.

Defaults	The default is 5.

Command Mode	Global configuration mode

Usage Guide	Too much printing may flood the screen or even reduce device performance. In this case, use this command to adjust the printing rate.

Configuration Examples	The following example sets the rate of printing the syslog informing AAA authentication success to 10.

```
Ruijie(config)# aaa log rate-limit 10
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.16 aaa new-model

Use this command to enable the RGOS AAA security service.

Use the **no** form of this command to restore the default setting.

aaa new-model

no aaa new-model

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	Use this command to enable AAA. If AAA is not enabled, none of the AAA commands can be configured.

Configuration Examples	The following example enables the AAA security service.

```
Ruijie(config)# aaa new-model
```

Related Commands	Command	Description
	aaa authentication	Defines a user authentication method list.

aaa authorization	Defines a user authorization method list.
aaa accounting	Defines a user accounting method list.

Platform   N/A
Description

1.17 clear aaa local user lockout

Use this command to clear the lockout user list.

clear aaa local user lockout { **all | user-name** *word* }

Parameter	Description
all	Indicates all locked users.
user-name *word*	Indicates the ID of the locked User.

Parameter
Description

Defaults   N/A

Command   Privileged EXEC mode
Mode

Usage Guide   Use this command to clear all the user lists or a specified user list.

Configuration   The following example clears the lockout user list.
Examples   `Ruijie(config)# clear aaa local user lockout all`

Command	Description
show running-config	Displays the current configuration of the switch.
show aaa lockout	Displays the lockout configuration parameter of current login.

Related
Commands

Platform   N/A
Description

1.18 show aaa accounting update

Use this command to display the accounting update information.

show aaa accounting update

Parameter	Description
N/A	N/A

Parameter
Description

Defaults   N/A

Command Mode	Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide	Use this command to display the accounting update interval and whether the accounting update is enabled.

Configuration Examples	The following example displays the accounting update information.

```
Ruijie# show aaa accounting update
```

Related Commands	Command	Description
	aaa new-model	Enables the AAA security service.
	aaa domain enable	Enables the domain-name-based AAA service.

Platform Description	N/A

1.19 show aaa lockout

Use this command to display the lockout configuration.

show aaa lockout

Parameter Description	Parameter	Description
	N/A	N/A

Defaults	N/A

Command Mode	Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide	Use this command to display the lockout configuration.

Configuration Examples	The following example displays the lockout configuration.

```
Ruijie# show aaa lockout
Lock tries:    3
Lock timeout:  15 minutes
```

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

1.20 show aaa group

Use this command to display all the server groups configured for AAA.

show aaa group

Parameter	Parameter	Description
Description	N/A	N/A

Defaults   N/A

Command   Privileged EXEC mode/Global configuration mode/Interface configuration mode
Mode

Usage Guide   N/A

Configuration   The following command displays all the server groups.
Examples

```
Ruijie# show aaa group
Type      Reference  Name
---------- ---------- ----------
radius    1          radius
tacacs+   1          tacacs+
radius    1          dot1x_group
radius    1          login_group
radius    1          enable_group
```

Related	Command	Description
Commands	**aaa group server**	Configures the AAA server group.

Platform   N/A
Description

1.21 show aaa method-list

Use this command to display all AAA method lists.

show aaa method-list

Parameter	Parameter	Description
Description	N/A	N/A

Defaults   N/A

Command   Privileged EXEC mode/Global configuration mode/Interface configuration mode
Mode

Usage Guide   Use this command to display all AAA method lists.

Configuration   The following example displays the AAA method list.
Examples
```
Ruijie# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local  group angel group rain none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorization network default group radius
```

Related
Commands

Command	Description
aaa authentication	Defines a user authentication method list
aaa authorization	Defines a user authorization method list
aaa accounting	Defines a user accounting method list

Platform   N/A
Description

1.22 show aaa user

Use this command to display AAA user information.

show aaa user { all | lockout | by-id *session-id* **| by-name** *user-name* **}**

Parameter
Description

Parameter	Description
all	Displays all AAA user information.
lockout	Displays the locked AAA user information.
by-id *session-id*	Displays the information of the AAA user that with a specified session ID.
by-name *user-name*	Displays the information of the AAA user with a specified user name.

Defaults   N/A

Command   Privileged EXEC mode/Global configuration mode/Interface configuration mode
Mode

Usage Guide   Use this command to display AAA user information.

Configuration Examples The following example displays AAA user information.

```
Ruijie#show aaa user all

----------------------------

     Id ----- Name

 2345687901    wwxy

----------------------------

Ruijie# show aaa user by-id 2345687901

----------------------------

     Id ----- Name

 2345687901    wwxy

Ruijie# show aaa user by-name wwxy

----------------------------

     Id ----- Name

 2345687901    wwxy

----------------------------


Ruijie# show aaa user lockout


Name                          Tries     Lock      Timeout(min)

------------------------------ ---------- ---------- ------------

Ruijie#
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description N/A

2 Storm Control Commands

2.1 show storm-control

Use this command to display storm suppression information.

show storm-control [*interface-type interface-number*]

Parameter Description	Parameter	Description
	interface-type *interface-number*	Specifies an interface.

Defaults   N/A

Command Mode   Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide   N/A

Configuration Examples   The following example displays storm control configuration on FastEthernet 0/1.

```
Ruijie# show storm-control fastEthernet 0/1
Interface              Broadcast Control Multicast Control Unicast Control
Action
------------------------ ----------------- -----------------
--------------- --------
FastEthernet 0/1         1%              50%            1%    none
```

Related Commands	Command	Description
	storm-control	Enables storm suppression.

Platform Description   N/A

2.2 storm-control

Use this command to enable the storm suppression for unknown unicast packets.

Use the **no** or **default** form of this command to restore the default setting.

storm-control unicast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]

no storm-control unicast

default storm-control unicast

Use this command to enable the storm suppression for multicast packets.

Use the **no** or **default** form of this command to restore the default setting.

storm-control multicast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]

no storm-control multicast

default storm-control multicast

Use this command to enable the storm suppression for broadcast packets.

Use the **no** or **default** form of this command to restore the default setting.

storm-control broadcast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]

no storm-control broadcast

default storm-control broadcast

Parameter Description	

Parameter	Description
level *percent*	Sets the bandwidth percentage, for example, 20 means 20%.
pps *packets*	Sets the pps, which means packets per second.
rate-bps	Rate allowed

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode

Usage Guide   Too many broadcast, multicast or unicast packets received on a port may cause storm and thus slow network and increase timeout. Protocol stack implementation errors or wrong network configuration may also lead to such storms.

A device can implement the storm suppression to a broadcast, a multicast, or a unicast storm respectively. When excessive broadcast, multicast or unknown unicast packets are received, the switch temporarily prohibits forwarding of relevant types of packets till data streams are recovered to the normal state (then packets will be forwarded normally).

Configuration Examples   The following example enables the multicast storm suppression on FastEthernet 0/1 and sets the allowed rate to 4M.

```
Ruijie(config)# int fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# storm-control multicast 4096
```

Related Commands	

Command	Description
show storm-control	Displays storm suppression information.

Platform Description   N/A

3 Password-Policy Commands

3.1 password policy life-cycle

Use this command to set the password lifecycle. Use the **no** form of this command to restore the default setting.

password policy life-cycle days

no password policy life-cycle

Parameter Description	Parameter	Description
	days	Sets the password lifecycle, in the range from 1 to 65535 in the unit of days.

Defaults   No password lifecycle is set by default.

Command Mode   Global configuration mode

Usage Guide   This command is used to set the password lifecycle. After the password lifecycle expires, the system reminds you to change the password when you login next time.

> This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples   The following example sets the password lifecycle to 90 days.

```
Ruijie(config)# password policy life-cycle 90
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.2 password policy min-size

Use this command to set the minimum length of the password. Use the **no** form of this command to restore the default setting.

password policy min-size *length*

no password policy min-size

Parameter Description	Parameter	Description
	length	Sets the minimum length of the password, in the range from 1 to 31.

Defaults   No minimum length of the password is set by default.

Command Mode   Privileged EXEC mode

Usage Guide   This command is used to set the minimum length of the password,

> ⓘ This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples   The following example sets the minimum length of the password to 8.

```
Ruijie(config)# password policy min-size 8
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.3 password policy no-repeat-times

Use this command to ban the use of passwords used in the past several times. Use the no form of this command to restore the default setting.

password policy no-repeat-times *times*

no password policy no-repeat-times

Parameter Description	Parameter	Description
	times	The past several times when passwords are configured, in the range from 1 to 31.

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   After this function is enabled, passwords used in the past several times are recorded. If the

new password has been used, the alarm message is displayed and password configuration fails.

This command is used to set the maximum number of password entries. When the actual number of password entries exceeds the configured number, the new password overwrites the oldest password.

> ℹ This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples	The following example bans the use of passwords used in the past five times. `Ruijie(config)# password policy no-repeat-times 5`

Related Commands	**Command**	**Description**
	N/A	N/A

3.4 password policy strong

Use this command to enable strong password check.

password policy strong

no password policy strong

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	This function is disabled by default.

Command Mode	Global configuration mode

Usage Guide	If the following two kinds of passwords are set not matching the strength policy, the alarm message is displayed. 1. The password the same as the username. 2. The simple password containing only characters or numbers.

> ℹ This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples	The following example configures the strong password check. `Ruijie(config)# password policy strong`

<table>
<tr><td rowspan="2">Related Commands</td><td>Command</td><td>Description</td></tr>
<tr><td>N/A</td><td>N/A</td></tr>
</table>

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

3.5   service password-encryption

Use this command to encrypt a password. Use the **no** form of this command to restore default setting.
service password-encryption

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   This command is disabled by default. Various passwords are displayed in plain text, unless they are encrypted. After you run the **service password-encryption** and **show running** or **write** command to save your configuration, the password changes into cipher text. If you disable the command, the password in cipher text cannot be restored to plain text.

Configuration Examples   The following example encrypts the password:

```
Ruijie(config)# service password-encryption
```

Related Commands	Command	Description
	enable password	Sets passwords of different privileges.

Platform Description   N/A

3.6   show password policy

Use this command to display the password security policy set by the user.
show password policy

Parameter	Parameter	Description

Description		
	N/A	N/A

Defaults   N/A

**Command
Mode**   Privileged EXEC mode

Usage Guide   This command is used to display the password security policy set by the user.

**Configuration
Examples**   The following example displays the password security policy set by the user.

```
Ruijie#show password policy
Global password policy configurations:
Password encryption:            Enabled
Password strong-check:          Enabled
Password min-size:              Enabled (6 characters)
Password life-cycle:            Enabled (90 days)
Password no-repeat-times:       Enabled (max history record: 5)
```

Field	Description
Password encryption	Whether to encrypt the password.
Password strong-check	Whether to enable password strong-check.
Password min-size	Whether to set the minimum length of the password.
Password life-cycle	Whether to set the password lifecycle.
Password no-repeat-times	Whether to ban recently-used passwords.

**Related
Commands**

Command	Description
N/A	N/A

**Platform
Description**   N/A

4 CPU Protection Commands

4.1 clear cpu-protect-counters

Use this command to clear the CPP statistics.

clear cpu-protect counters [**device** *device_num*]

Parameter	Description
device_num	As a single physical device, there is no device parameter; As a VSU, the device parameter indicates the chassis or the box-type device. If no device parameter is specified, that indicates this command takes effect to the master chassis or the master box-type device.

Parameter Description

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples   The following example clears the CPP statistics.

```
Ruijie(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total    Total
Drop
_____    _____   _____   _____   _____  _____
_____
bpdu                6              200             0          0          600      50
Ruijie#clear cpu-protect counters
Ruijie(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total    Total
Drop
_____    _____   _____   _____   _____  _____
_____
bpdu                6              200             0          0          0        0
```

Command	Description
N/A	N/A

Related Commands

Platform Description   N/A

4.2 show cpu-protect

Use this command to display all CPP configuration and statistics.

show cpu-protect [**device** *device_num*]

Parameter Description

Parameter	Description
device_num	As a single physical device, there is no device parameter; As a VSU, the device parameter indicates the chassis or the box-type device. If no device parameter is specified, that indicates this command takes effect to the master chassis or the master box-type device.

Defaults   N/A

Command Mode   All configuraiton mode

Usage Guide   N/A

Configuration Examples   N/A

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

5 DHCP Snooping Commands

5.1 clear ip dhcp snooping binding

Use this command to delete the dynamic user information from the DHCP Snooping binding database.

clear ip dhcp snooping binding [*ip*] [*mac*] [**vlan** *vlan-id*] [**interface** *interface-id*]

Parameter Description

Parameter	Description
mac	Specifies the user MAC address to be cleared.
vlan-id	Specifies the ID of the VLAN to be cleared.
ip	Specifies the IP address to be cleared.
interface-id	Specifies the ID of the interface to be cleared.

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   Use this command to clear the current dynamic user information from the DHCP Snooping binding database.

> 🛈 After this command is used, all the DHCP clients connecting interfaces with IP Source Guard function enabled should request IP addresses again, or they cannot access network.

Configuration Examples   The following example clears the dynamic database information from the DHCP Snooping binding database.

```
Ruijie# clear ip dhcp snooping binding
Ruijie# show ip dhcp snooping binding
Total number of bindings: 0
MacAddress IpAddress Lease(sec) Type VLAN Interface
---------- ---------- ---------- -------- ---- ---------
```

Related Commands

Command	Description
show ip dhcp snooping binding	Displays the information of the DHCP Snooping binding database.

Platform Description   N/A

5.2   ip dhcp snooping

Use this command to enable the DHCP Snooping function globally.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping

no ip dhcp snooping

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults

This function is disabled by default.

Command Mode

Global configuration mode

Usage Guide

The **show ip dhcp snooping** command is used to display whether the DHCP Snooping function is enabled.

Configuration Examples

The following example enables the DHCP Snooping function.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping
Ruijie(config)# end
```

Related Commands	**Command**	**Description**
	show ip dhcp snooping	Displays the configuration information of DHCP Snooping.
	ip dhcp snooping vlan	Configures DHCP Snooping enabled VLAN.

Platform Description

N/A

5.3   ip dhcp snooping bootp-bind

Use this command to enable DHCP Snooping BOOTP-bind function.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping bootp-bind

no ip dhcp snooping bootp-bind

Parameter Description	**Parameter**	**Description**
	N/A	N/A

| **Defaults** | This function is disabled by default. |

| **Command Mode** | Global configuration mode |

Usage Guide   By default, the DHCP Snooping only forwards BOOTP packets. With this function enabled, it can Snoop BOOTP packets. After the BOOTP client requests an address successfully, the DHCP Snooping adds the BOOTP user to the static binding database.

Configuration Examples   The following example enables the DHCP Snooping BOOTP-bind function.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping bootp-bind
Ruijie(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

| **Platform Description** | N/A |

5.4   ip dhcp snooping check-giaddr

Use this command to enable DHCP Snooping to support the function of processing Relay requests. Use the **no** form of this command to restore the default setting.

ip dhcp snooping check-giaddr

no ip dhcp snooping check-giaddr

Parameter Description

Parameter	Description
N/A	N/A

| **Defaults** | This function is disabled by default. |

| **Command Mode** | Global configuration mode |

Usage Guide   After the feature is enabled, services using DHCP Snooping binding entries generated based on Relay requests, such as IP Source Guard/802.1x authentication, cannot be deployed. Otherwise, users fail to access the Internet.

After the feature is enabled, the **ip dhcp snooping verify mac-address** command cannot be used. Otherwise, DHCP Relay requests will be discarded and as a result, users fail to obtain addresses.

| Configuration Examples | The following example enables DHCP Snooping to support the function of processing Relay requests. |

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping check-giaddr
Ruijie(config)# end
```

Related Commands	Command	Description
	show ip dhcp snooping	Displays the configuration information of the DHCP Snooping.

| Platform Description | N/A |

5.5 ip dhcp snooping database write-delay

Use this command to configure the switch to write the dynamic user information of the DHCP Snooping binding database into the flash periodically.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping database write-delay *time*

no ip dhcp snooping database write-delay

Parameter Description	Parameter	Description
	time	The interval at which the system writes the dynamic user information of the DHCP Snooping database into the flash, in the range from 600 to 86,400 in the unit of seconds

| Defaults | This function is disabled by default. |

| Command Mode | Global configuration mode |

| Usage Guide | This function writes user information into flash in case of loss after restart. In that case, users need to obtain IP addresses again for normal communication. |

> ℹ Too fast writing will reduce flash durability.

| Configuration Examples | The following example sets the interval at which the switch writes the user information into the flash to 3,600 seconds. |

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-delay 3600
```

```
Ruijie(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the configuration information of the DHCP Snooping.

Platform Description   N/A

5.6 ip dhcp snooping database write-to-flash

Use this command to write the dynamic user information of the DHCP binding database into flash in real time.

ip dhcp snooping database write-to-flash

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command Mode   Global configuration mode

Usage Guide   This command is used to write the dynamic user information of the DHCP binding database into flash in real time. Wireless user information is not written into flash.

Configuration Examples   The following example writes the dynamic user information of the DHCP binding database into flash.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-to-flash
Ruijie(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

5.7   ip dhcp snooping information option

Use this command to add option82 to the DHCP request message.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping information option [**standard-format**]

no ip dhcp snooping information option [**standard-format**]

Parameter Description	Parameter	Description
	standard-format	The option82 uses the standard format.

Defaults   This function is disabled by default,

Command Mode   Global configuration mode

Usage Guide   This command adds option82 to the DHCP request messages based on which the DHCP server assigns IP addresses.

By default, this function is in extended mode.

> ⓘ DHCP Relay function adds option82 by default. Therefore, it is unnecessary to enable functions of DHCP Snooping option82 and DHCP Relay at the same time.

Configuration Examples   The following example adds option82 to the DHCP request message.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping information option
Ruijie(config)# end
```

Related Commands	Command	Description
	show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description   N/A

5.8   ip dhcp snooping information option format remote-id

Use this command to set the option82 sub-option remote-id as the customized character string.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping information option format remote-id { **string** *ascii-string* **| hostname** }

no ip dhcp snooping information option format remote-id { **string** *ascii-string* **| hostname** }

Parameter	Parameter	Description

Description		
	string *ascii-string*	The content of the option82 remote-id extension format is customized character string.
	hostname	The content of the option82 remote-id extension format hostname

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   This command sets the remote-id in the option82 to be added to the DHCP request message as the customized character string. The DHCP server will assign the IP address according to the option82 information.

Configuration Examples   The following example adds the option82 into the DHCP request packets with the content of remote-id as hostname.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping information option format remote-id hostname
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

5.9   ip dhcp snooping suppression

Use this command to set the port to be the suppression status.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping suppression
no ip dhcp snooping suppression

Parameter Description

Parameter	Description
N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Interface configuration mode or wireless security configuration mode

Usage Guide   This command denies all DHCP request messages under the port, that is, all the users under the port are prohibited to request IP addresses through DHCP.

This command is only supported on Layer 2 switch interfaces and aggregate ports (APs).

Configuration The following example sets **fastethernet** 0/2 to be in the suppression status.

Examples
```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/2
Ruijie(config-if-GigabitEthernet 0/2)# ip dhcp snooping suppression
Ruijie(config-if-GigabitEthernet 0/2)# end
Ruijie# configure terminal
Ruijie(config)# wlansec 1
Ruijie(config-wlansec)# ip dhcp snooping suppression
Ruijie(config-if-wlansec)# end
```

Related

Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform N/A

Description

5.10 ip dhcp snooping trust

Use this command to set the trusted ports for DHCP Snooping.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping trust

no ip dhcp snooping trust

Parameter

Description

Parameter	Description
N/A	N/A

Defaults All ports are untrusted by default.

Command Interface configuration mode

Mode

Usage Guide Use this command to set a port as a trusted port. The DHCP response messages received under the trust port are forwarded normally, but the response messages received under the untrusted port will be discarded. This command is only supported on Layer 2 switch interfaces and aggregate ports (APs).

Configuration The following example sets fastEthernet 0/1 as a trusted port:

Examples
```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping trust
```

```
Ruijie(config-if)# end
```

Related Commands	**Command**	**Description**
	show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description   N/A

5.11 ip dhcp snooping verify mac-address

Use this command to check whether the source MAC address of the DHCP request message matches against the **client addr** field of the DHCP message.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping verify mac-address
no ip dhcp snooping verify mac-address

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults   This function is disabled by default.

Command Mode   Global configuration mode

Usage Guide   Use this command to check the source MAC address of the DHCP request message. If the MAC address in the link-layer header is different from the CHADDR (Client MAC Address), the check fails ,and the packets will be discarded.

Configuration Examples   The following example enables the check of the source MAC address of the DHCP request message.
```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping verify mac-address
Ruijie(config)# end
```

Related Commands	**Command**	**Description**
	show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description   N/A

5.12 ip dhcp snooping vlan

Use this command to enable DHCP Snooping for the specific VLAN.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping vlan {*vlan-rng* | { *vlan-min* [*vlan-max*] } }

no ip dhcp snooping vlan {*vlan-rng* | { *vlan-min* [*vlan-max*] } }

Parameter Description	Parameter	Description
	vlan-rng	VLAN range of effective DHCP Snooping
	vlan-min	Minimum VLAN of effective DHCP Snooping
	vlan-max	Maximum VLAN of effective DHCP Snooping

Defaults	By default, once the DHCP Snooping is enabled globally, it takes effect for all VLANs.
Command Mode	Global configuration mode
Usage Guide	Use this command to enable DHCP Snooping for specified VLANs globally.
Configuration Examples	The following example enables the DHCP Snooping function in VLAN 1000.

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping vlan 1000
Ruijie(config)# end
```

Related Commands	Command	Description
	ip dhcp snooping	Enables DHCP Snooping globally.

Platform Description	N/A

5.13 ip dhcp snooping vlan information option change-vlan-to vlan

Use this command to enable the option82 sub-option circuit-id and change the VLAN in the circuit-id into the specified VLAN.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

no ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

Parameter Description	Parameter	Description
	vlan-id	The ID of the VLAN to be replaced

Defaults   This function is disabled by default.

Command   Interface configuration mode
Mode

Usage Guide   With this command configured, the option82 is added to the DHCP request packets, the circuit-id in
                      the option82 information is the specified VLAN and the DHCP server will assign the addresses
                      according to the option82 information.

Configuration   The following adds the option82 to the DHCP request packets and changes the VLAN 4094 in the
Examples   option82 sub-option circuit-id to VLAN93:

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping vlan 4094 information option
change-vlan-to vlan 4093
Ruijie(config-if)# end
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

5.14 ip dhcp snooping vlan information option format-type circuit-id string

Use this command to configure the option82 sub-option circuit-id as user-defined (the storage format
is ASCII) and to perform the packet forwarding.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*
no ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*

Parameter
Description

Parameter	Description
vlan-id	The VLAN where the DHCP request packets are
ascii-string	The user-defined content to fill to the Circuit ID

Defaults   This function is disabled by default.

Command   Interface configuration mode
Mode

Usage Guide   This command is used to add the option82 to the DHCP request packets. The content of the sub-option circuit-id is customized with 3 to 63 bytes, and the DHCP server will assign the addresses according the option82 information.

Configuration   The following example adds the option82 to the DHCP request packets with the content of the
Examples   sub-option circuit-id as *port-name*.

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping vlan 4094 information option format-type
circuit-id string port-name
Ruijie(config-if)# end
```

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

5.15 ip dhcp snooping vlan max-user

Use this command to set the maximum number of users bound with the VLAN.

Use the **no** form of this command to restore the default setting.

ip dhcp snooping vlan *vlan-word* **max-user** *user-number*

no ip dhcp snooping vlan *vlan-word* **max-user** *user-number*

Parameter
Description

Parameter	Description
vlan-word	The VLAN range
user-number	The maximum number of users bound with the VLAN

Defaults   This function is disabled by default.

Command   Interface configuration mode
Mode

Usage Guide   Use this command to set the maximum number of users bound with the VLAN. This function combined with the corresponding topology can prevent illegal DHCP packet attacks.

Configuration   The following example sets the maximum number of users bound with VLAN 1 to 10 and VLAN 20 to
Examples   30 respectively.

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
```

```
Ruijie(config-if-GigabitEthernet 0/1)# ip dhcp snooping vlan 1-10,20 max-user
30
Ruijie(config-if-GigabitEthernet 0/1)# end
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

5.16 renew ip dhcp snooping database

Use this command to import the information in current flash to the DHCP Snooping binding database manually as needed.

renew ip dhcp snooping database

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   This command is used to import the flash file information to the DHCP Snooping database in real time.

     🛈   Records out of lease time and repeated will be neglected.

Configuration Examples   The following example imports the flash file information to the DHCP Snooping database.

```
Ruijie# renew ip dhcp snooping database
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A

5.17 show ip dhcp snooping

Use this command to display the DHCP Snooping configuration.

show ip dhcp snooping

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   N/A

Configuration Examples

```
The following example displays the DHCP Snooping configuration.
Ruijie# show ip dhcp snooping
Switch DHCP snooping status :ENABLE
Verification of hwaddr field status :DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                                  Trusted          Rate
limit(pps)
-----------------------                    ----------------
----------------
GigabitEthernet 0/4                            YES              unlimited
Default                                        No
```

Related Commands

Command	**Description**
ip dhcp snooping	Enables the DHCP Snooping globally.
ip dhcp snooping verify mac-address	Enables the check of source MAC address of DHCP Snooping packets.
ip dhcp snooping write-delay	Sets the interval of writing user information to FLASH periodically.
ip dhcp snooping information option	Adds option82 to the DHCP request message.
ip dhcp snooping bootp-bind	Enables the DHCP Snooping bootp bind function.
ip dhcp snooping trust	Sets the port as a trust port.

Platform Description   N/A

5.18 show ip dhcp snooping binding

Use this command to display the information of the DHCP Snooping binding database.

show ip dhcp snooping binding

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command Mode   Privileged EXEC mode

Usage Guide   This command is used to display all the information of the DHCP Snooping binding database.

Configuration Examples   1: The following example displays the information of the DHCP Snooping binding database.

```
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1
NO.   MACADDRESS          IPADDRESS       LEASE(SEC)   TYPE          VLAN
INTERFACE
----- ------------------ --------------- ------------ ------------- -----
-------------------
1    0000.0000.0001    1.1.1.1         78128       DHCP-Snooping 1
GigabitEthernet 0/1
2    0000.0000.0002    2.2.2.2         78111       DHCP-Snooping 1    WLAN 1
```

Parameter	Description
Total number of bindings	The total number of bindings in the DHCP Snooping database.
NO.	The record order.
MacAddress	The MAC address of the user.
IpAddress	The IP address of the user.
Lease(sec)	The lease time of the record.
Type	The record type.
VLAN	The VLAN where the user belongs.
Interface	The user's connection interface. It can be a either a wired access interface or wireless access WLAN.

Related	Command	Description

Commands

ip dhcp snooping binding	Adds the static user information to the DHCP Snooping database.
clear ip dhcp snooping binding	Clears the dynamic user information from the DHCP Snooping binding database.

Platform Description   N/A

Reliability Configuration Commands

1   RLDP Commands

1.1   rldp detect-interval

Use this command to configure the interval at which the RLDP sends the detection message on the port. Use the **no** form of this command to restore the default value.

rldp detect-interval *interval*

no rldp detect-interval

Parameter		
Description	**Parameter**	**Description**
	interval	Detection interval in the range 2 to 15 seconds

Defaults   3 seconds.

Command Mode   Global configuration mode.

Usage Guide   In the environment where STP is enabled, it is recommended that the product of interval multiplying the maximum number of detections is less than the topology convergence time of STP.

Configuration Examples   The following example shows how to set the detection interval as 5s:

```
Ruijie(config)# rldp detect-interval 5
```

Related Commands		
	Command	**Description**
	rldp detect-max	Sets the maximum number of detections.

Platform Description   N/A.

1.2   rldp detect-max

Use this command to set the maximum number of sending detection packets on the port. If the neighboring port does not respond when this detection number is exceeded, the link is considered faulty. Use the **no** form of this command to restore it to the default value.

rldp detect-max *num*

no rldp detect-max

Parameter	**Parameter**	**Description**

Description		
	num	Maximum number of detections in the range 2 to 10

Defaults   2.

**Command
Mode**   Global configuration mode.

Usage Guide   This command is used together with the detection interval to specify the maximum number of
detections.

Configuration   The following example shows how to set the maximum number of detections as 5:
Examples   `Ruijie(config)# rldp detect-max 5`

Related Commands	Command	Description
	rldp detect-interval	Sets the detection interval.

**Platform
Description**   N/A.

1.3   rldp enable

Use this command to enable RLDP globally. Use the **no** form of this command to disable the function.
rldp enable
no rldp enable

Parameter Description	Parameter	Description
	N/A.	N/A.

Defaults   Disabled.

**Command
Mode**   Global configuration mode.

Usage Guide   You can enable RLDP on the interface only when the global RLDP is enabled.

Configuration   The following example shows how to enable RLDP:
Examples   `Ruijie(config)# rldp enable`

Related Commands	Command	Description

| rldp port | Enables the RLDP function on the port. |

Platform N/A.
Description

1.4   rldp neighbor-negotiation

Use this command to enable RLDP neighbor negotiation. Use the **no** form or **default** form of this command to restore the default setting.

rldp neighbor-negotiation

no rldp neighbor-negotiation

default rldp neighbor-negotiation

Parameter **Description**	**Parameter**	**Description**
	N/A.	N/A.

Defaults RLDP neighbor negotiation is disabled by default.

Command Global configuration mode.
Mode

Usage Guide With neighbor negotiation enabled, RLDP unidirectional-/bidirectional-link detection starts only after the neighbor negotiation is successful. (Receiving the Prob message from the neighbor indicates the neighbor negotiation is successful.)

Configuration The following example shows how to enable RLDP neighbor negotiation:
Examples
```
Ruijie#config
Ruijie(config)#rldp neighbor-negotiation
```

Related **Commands**	**Command**	**Description**
	rldp port	Enables the RLDP function on the port.

Platform N/A.
Description

1.5   rldp port

Use this command to enable RLDP on the port and specify detection type and troubleshooting method. Use the **no** form of this command to disable the function.

rldp port { **unidirection-detect** | **bidirection-detect** | **loop-detect** } { **warning** | **shutdown-svi** | **shutdown-port** | **block** }

no rldp port { **unidirection-detect** | **bidirection-detect** | **loop-detect** }

Parameter	Description
unidirection-detect	Sets unidirectional link detection.
bidirection-detect	Sets bidirectional link detection.
loop-detect	Sets loop detection type.
warning	Warns the user.
shutdown-svi	Shutdowns the SVI the port belongs to.
shutdown-port	Shutdowns the port.

Parameter Description

Defaults   N/A

Command Mode   Interface configuration mode.

Usage Guide   The RLDP detection on the port takes effect only when the global RLDP is enabled.

Configuration Examples   The following example shows how to configure RLDP detection on fas 0/1, specify the detection type as loop detection, and troubleshooting method as block.

```
Ruijie(config)# interface fas 0/1
Ruijie(config-if)# rldp port loop-detect block
```

Related Commands

Command	Description
rldp enable	Enables RLDP globally.

Platform Description   N/A.

1.6   rldp reset

Use this command to make all the ports that have been handled using rldp shutdown or disable to perform RLDP detection again.

rldp reset

Parameter Description

Parameter	Description
N/A.	N/A.

Defaults   N/A.

Command   Privileged EXEC mode.

Mode

Usage Guide   N/A.

Configuration   The example below demonstrates how to use this command:
Examples
```
Ruijie# rldp reset
```

Related
Commands

Command	Description
rldp enable	Enables RLDP globally.

Platform   N/A.
Description

1.7   show rldp

Use this command to display the RLDP information.

show rldp [**interface** *interface-id*]

Parameter
Description

Parameter	Description
interface-id	Interface ID

Defaults   N/A.

Command   Privileged EXEC mode.
Mode

Usage Guide   N/A.

Configuration   N/A.
Examples

Related
Commands

Command	Description
N/A.	N/A.

Platform   N/A.
Description

Network Monitoring Configuration Commands

1. SNMP Commands

2. NTP Commands

3. SPAN-RSPAN Commands

1 SNMP Commands

1.1 no snmp-server

Use this command to disable the SNMP agent function.

no snmp-server

Parameter	**Parameter**	**Description**
Description	N/A	N/A

Defaults   SNMP agent is enabled by default.

Command   Global configuration mode.

mode

Usage Guide   This command disables the SNMP agent services of all versions supported on the device.

Configuration   The following example disables the SNMP agent.

Examples   `Ruijie(config)# ` **`no snmp-server`**

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A

Description

1.2 show snmp

Use this command to display the SNMP configuration.

show snmp [**mib** | **user** | **view** | **group** | **host | process-mib-time**]

Parameter	**Parameter**	**Description**
Description	**mib**	Displays the SNMP MIBs supported.
	user	Displays the SNMP user information.
	view	Displays the SNMP view information.
	group	Displays the SNMP user group information.
	host	Displays the explicit host configuration.
	process-mib-time	Displays the MIB node requiring the longest processing time.

Defaults   N/A

Command   Privileged EXEC mode.

mode

Usage Guide   N/A

Configuration   The example below displays the SNMP configuration:

Examples
```
Ruijie# show snmp
Chassis: 60FF60
0 SNMP packets input
      0 Bad SNMP version errors
      0 Unknown community name
      0 Illegal operation for community name supplied
      0 Encoding errors
      0 Number of requested variables
      0 Number of altered variables
      0 Get-request PDUs
      0 Get-next PDUs
      0 Set-request PDUs
0 SNMP packets output
      0 Too big errors (Maximum packet size 1472)
      0 No such name errors
      0 Bad values errors
      0 General errors
      0 Response PDUs
      0 Trap PDUs
SNMP global trap: disabled
SNMP logging: disabled
SNMP agent: enabled
```

Related

Commands

Command	Description
snmp-server chassis-id	Specifies the SNMP system sequence number.

Platform   N/A

Description

1.3 snmp trap link-status

Use this command to enable the interface to send link traps. Use the **no** form of this command to
disable the interface to send link traps.

snmp trap link-status

no snmp trap link-status

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   Sending link traps on the interface is enabled by default. If the interface link status changes, SNMP link traps will be sent.

Command mode   Interface configuration mode

Usage Guide   This command can be configured on the Ethernet interface, aggregate ports and SVI interfaces.

Configuration Examples   The following example disables the interface to send link traps.

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# no snmp trap link-status
```

The following example enables the interface to send link traps.

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# snmp trap link-status
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

1.4   snmp-server chassis-id

Use this command to specify the SNMP chassis ID. Use the **no** form of this command to restore the default chassis ID.

snmp-server chassis-id *text*

no snmp-server chassis-id

Parameter Description	Parameter	Description
	text	SNMP chassis ID: numerals or characters.

Defaults   The default is 60FF60.

Command mode	Global configuration mode.
Usage Guide	The SNMP chassis ID is generally the serial number of the device to facilitate identification. The SNMP chassis ID can be displayed through the **show snmp** command.
Configuration Examples	The following example specifies the SNMP chassis ID as 123456: `Ruijie(config)# `**`snmp-server chassis-id`**` 123456`

Related Commands	Command	Description
	show snmp	Displays the SNMP configuration.

Platform Description	N/A

1.5   snmp-server community

Use this command to specify the SNMP community access string. Use the **no** form of this command to remove the SNMP community access string.

snmp-server community [0 | 7] *string* [**view** *view-name*] [[**ro** | **rw**] [**host** *ipaddr*]] [*aclnum* | *aclname*]

no snmp-server community [0 | 7] *string*

Parameter Description	Parameter	Description
	0	Indicates that the community string is in plaintext.
	7	Indicates that the community string is in ciphertext.
	string	Community string, which is the communication password between the NMS and the SNMP agent
	view-name	View name
	ro	Indicates that the NMS can only read the variables of the MIB.
	rw	Indicates that the NMS can read and write the variables of the MIB.
	aclnum	Access list number (1 to 199, and 1300 to 2699), which specifies the IPV4 addresses that are permitted to access the MIB.
	aclname	Access list name, which specifies the IPV4 addresses that are permitted to access the MIB.
	ipaddr	Specifies the IP address of the NMS to access the MIB.

Defaults	All communities are read only by default.
Command mode	Global configuration mode.

Usage Guide   This command is an essential command to enable the SNMP agent function, such as specifying the community attribute and IP addresses of NMS to access the MIB.

To disable the SNMP agent function, use the **no snmp-server** command.

Configuration Examples   The following example defines a SNMP community access string named public, which can be read-only.

```
Ruijie(config)# snmp-server community public ro
```

Related Commands

Command	Description
access-list	Defines an access list.

Platform Description   N/A

1.6 snmp-server contact

Use this command to specify the system contact string. Use the **no** form of this command to remove the system contact string.

snmp-server contact *text*
no snmp-server contact

Parameter Description

Parameter	Description
text	Defines a system contact string.

Defaults   No system contact string is set by default.

Command mode   Global configuration mode.

Usage Guide   N/A

Configuration Examples   The following example specifies the SNMP system contract i-net800@i-net.com.cn:

```
Ruijie(config)# snmp-server contact i-net800@i-net.com.cn
```

Related Commands

Command	Description
show snmp-server	Displays the SNMP configuration.
no snmp-server	Disables the SNMP agent function.

Platform Description   N/A

1.7   snmp-server enable secret-dictionary-check

Use this command to enable the secret dictionary check for the **community** and **user** fields. Use the **no** form of this command to disable the secret dictionary check.

snmp-server enable secret-dictionary-check

no snmp-server enable secret-dictionary-check

Parameter		
Description	**Parameter**	**Description**
	N/A	N/A

Defaults   Secret dictionary check for the **community** and **user** fields is disabled by default.

Command   Global configuration mode.

mode

Usage Guide   This command must be used together with the **password policy** command.

Configuration   The following example enables the secret dictionary check for the **community** field.

Examples
```
Ruijie(config)# password policy min-size 6
Ruijie(config)# snmp-server enable secret-dictionary-check
Ruijie(config)#snmp-server community abc12
% The community(abc12) is a weak community!
```

Related		
Commands	**Command**	**Description**
	snmp-server host	Specifies the SNMP host to send the SNMP trap message.

Platform   N/A

Description

1.8   snmp-server enable traps

Use this command to enable the SNMP agent to send the SNMP trap massage to NMS. Use the **no** form of this command to disable the SNMP agent to send the SNMP trap massage to NMS.

snmp-server enable traps [*notification-type*]

no snmp-server enable traps

Parameter		
Description	**Parameter**	**Description**
	notification-type	Specifies the type of trap messages. snmp: SNMP trap message

	bridge: Bridge trap message.
	mac-notification: MAC trap message.
	urpf: uRPF trap message.
	vrrp: VRRP trap message.
	web-auth: Web authentication trap message.

Defaults   Sending trap message to the NMS is disabled by default.

Command   Global configuration mode.

mode

Usage Guide   This command must be used together with the **snmp-server host** command to send the trap
                        message. Specifying no trap type indicates all trap messages are sent.

Configuration   The following example enables the SNMP agent to send the SNMP trap message.

Examples
```
Ruijie(config)# snmp-server enable traps snmp
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
```

Related

Commands

Command	Description
snmp-server host	Specifies the SNMP host to send the SNMP trap message.

Platform   N/A

Description

1.9   snmp-server flow-control

Use this command to configure the SNMP flow control. Use the **no** form of this command to restore
the default setting.

snmp-server flow-control pps [*count*]

no snmp-server flow-control pps

Parameter

Description

Parameter	Description
count	Indicates the number of SNMP requests processed per second, ranging from 50 to 65,535.

Defaults   The default count is 300.

Command   Global configuration mode.

mode

Usage Guide   N/A

Configuration   The following example configures the number of SNMP requests processed per second to 200.
Examples   `Ruijie(config)# snmp-server flow-control pps 200`

Related
Commands

Command	Description
N/A	N/A

Platform   N/A
Description

1.10 snmp-server group

Use this command to configure a new SNMP group**.** Use the **no** form of this command to remove a specified SNMP group.

snmp-server group *groupname* { **v1** | **v2c** | **v3** { **auth** | **noauth** | **priv** } } [**read** *readview*] [**write** *writeview*] [**access** { *aclnum* | *aclname* }]

no snmp-server group *groupname* {**v1** | **v2c** | **v3** { **auth** | **noauth** | **priv** } }

Parameter
Description

Parameter	Description
v1 | **v2c** | **v3**	Specifies the SNMP version
auth	Specifies authentication of a packet without encrypting it. This applies to SNMPv3 only.
noauth	Specifies no authentication a packet. This applies to SNMPv3 only.
priv	Specifies authentication of a packet with encryption. This applies to SNMPv3 only.
readview	Specifies a read-only view for the SNMP group. This view enables you to view only the contents of the agent.
writeview	Specifies a write view for the SNMP group. This view enables you to enter data and configure the contents of the agent.
aclnum	Access list number, which specifies the IPV4 addresses that are permitted to access the MIB.
aclname	Name of the access list, which specifies the IPV4 addresses that are permitted to access the MIB.

Defaults   No SNMP groups are configured by default.

Command   Global configuration mode.
mode

Usage Guide   N/A

Configuration   The following example configures a new SNMP group.

Examples   `Ruijie(config)# snmp-server group mib2user v3 priv read mib2`

Related
Commands

Command	Description
show snmp group	Displays the SNMP group configuration.

Platform   N/A
Description

1.11 snmp-server host

Use this command to specify the SNMP host (NMS) to send the trap message. Use the **no** form of
this command to remove the specified SNMP host.

snmp-server host { *host-addr* } [**traps | informs**] [**version** { **1** | **2c** | **3** { **auth** | **noauth** | **priv** }]
community-string [**udp-port** *port-num*] [*notification-type*]

no snmp-server host { *host-addr* }   [**traps | informs**] [**version** { **1** | **2c** | **3** { **auth** | **noauth** | **priv** }]
community-string [**udp-port** *port-num*]

Parameter
Description

Parameter	Description
host-addr	SNMP host address
**trap	informs**	Enables the host to send the SNMP notification as traps or informs.
version	SNMP version: V1, V2C or V3
auth	**noauth**	**priv**	Security level of SNMPv3 users
community-string	Community string or username (SNMPv3 version)
port-num	Port of the SNMP host
notification-type	The type of the SNMP trap message, such as **snmp**. If no type of the SNMP trap message is specified, all types of the SNMP trap message will be included.

Defaults   No SNMP host is specified by default.

Command   Global configuration mode.
mode

Usage Guide   This command must be used together with the **snmp-server enable traps** command to send the
SNMP trap messages to NMS.

Multiple SNMP hosts can be configured to receive the SNMP trap messages. One host can use
different combinations of the types of the SNMP trap message, but the last configuration for the same
host will overwrite the previous configurations. In other words, to send different SNMP trap messages
to the same host, different combination of SNMP trap messages can be configured.

Configuration   The following example specifies an SNMP host to receive the SNMP event trap:

Examples   `Ruijie(config)# ` **`snmp-server host`** *`192.168.12.219`* **`public snmp`**

Related

Commands

Command	Description
snmp-server enable traps	Enables the SNMP agent to send the SNMP trap message.

Platform   N/A

Description

1.12 snmp-server inform

Use this command to configure the resend times for inform requests and the inform request timeout**.**

Use the **no** form of this command to restore the default settings.

snmp-server inform [**retries** *retry-time* | **timeout** *time*]

no snmp-server inform

Parameter

Description

Parameter	Description
retry-num	Specifies the resend times for inform requests, ranging from 0 to 255.
time	Specifies the inform request timeout, ranging from 0 to 21,474,836.

Defaults   The default *retry-num* is 3, and the default **timeout** *time* is 15 seconds.

Command   Global configuration mode.

mode

Usage Guide   N/A

Configuration   The following example configures the resend times of inform requests to 5.

Examples   `Ruijie(config)# snmp-server inform retries 5`

The following example configures the inform request timeout to 20 seconds.

`Ruijie(config)# snmp-server inform timeout 20`

Related

Commands

Command	Description
N/A	N/A

Platform   N/A

Description

1.13 snmp-server location

Use this command to set the system location string. Use the **no** form of this command to remove the system location string.

snmp-server location *text*

no snmp-server location

| Parameter | | |
Parameter	Description
text	String that describes the system location information.

Defaults   No system location string is set by default.

Command mode   Global configuration mode.

Usage Guide   N/A

Configuration Examples   The following example sets the system location information:

```
Ruijie(config)# snmp-server location start-technology-city 4F of A Buliding
```

Related Commands

Command	Description
snmp-server contact	Sets the system contact information.

Platform Description   N/A

1.14 packetsize

Use this command to specify the largest size of the SNMP packet. Use the **no** form of this command to restore the default value.

snmp-server packetsize *byte-count*

no snmp-server packetsize

Parameter Description

Parameter	Description
byte-count	Packet size. The range is from 484 to 17,876 bytes

Defaults   The default is 1,472 bytes.

Command mode   Global configuration mode.

Usage Guide   The following example specifies the largest size of SNMP packet as 1,492 bytes:

```
Ruijie(config)# snmp-server packetsize 1492
```

Configuration   N/A
Examples

Related
Commands

Command	Description
snmp-server queue-length	Specifies the length of the message queue for each SNMP trap host.

Platform   N/A
Description

1.15 snmp-server queue-length

Use this command to specify the length of the message queue for each SNMP trap host. Use the **no** form of this command to restore the default value.

snmp-server queue-length *length*

no snmp-server queue-length

Parameter
Description

Parameter	Description
length	Queue length. The range is from 1 to 1000.

Defaults   The default is 10.

Command   Global configuration mode.
mode

Usage Guide   Use this command to adjust the length of message queue for each SNMP trap host for the purposes of controlling the speed of sending the SNMP trap messages.

Configuration   The following example specifies the length of message queue as 100.
Examples

```
Ruijie(config)# snmp-server queue-length 100
```

Related
Commands

Command	Description
snmp-server packetsize	Specifies the largest size of the SNMP packet.

Platform   N/A
Description

1.16 snmp-server system-shutdown

Use this command to enable the SNMP message reload function. Use the **no** form of this command to disable the SNMP message reload function.

snmp-server system-shutdown

no snmp-server system-shutdown

Parameter	**Parameter**	**Description**
Description	N/A	N/A

Defaults   The SNMP message reload function is disabled by default.

Command   Global configuration mode.

mode

Usage Guide   Use this command to enable the SNMP message reload function which may enable the system to send the device reload traps to the NMS before the device is reloaded or rebooted.

Configuration   The following example enables the SNMP message reload function:

Examples
```
Ruijie(config)# snmp-server system-shutdown
```

Related	**Command**	**Description**
Commands	N/A	N/A

Platform   N/A

Description

1.17 snmp-server trap-source

Use this command to specify the source interface of the SNMP trap message. Use the **no** form of this command to restore the default value.

snmp-server trap-source *interface*

no snmp-server trap-source

Parameter	**Parameter**	**Description**
Description	*interface*	Specifies the source interface of the SNMP trap messages.

Defaults   By default, the IP address of the interface from which the SNMP packet is sent is just the source address.

Command mode	Global configuration mode.
Usage Guide	For easy management and identification, you can use this command to fix a local IP address as the SNMP source address.
Configuration Examples	The following example specifies the IP address of Ethernet interface 0/1 as the source address of the SNMP trap message: `Ruijie(config)# snmp-server trap-source fastethernet 0/1`

Related Commands	Command	Description
	snmp-server enable traps	Enables t the SNMP agent to send the SNMP trap massage to NMS.
	snmp-server host	Specifies the NMS host to send the SNMP trap message.

Platform Description	N/A

1.18 snmp-server trap-timeout

Use this command to define the retransmission timeout time of the SNMP trap message. Use the **no** form of this command to restore the default value.

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

Parameter Description	Parameter	Description
	seconds	Timeout (in seconds) of retransmit the SNMP trap message. The range is from 1 to 1,000.

Defaults	The default is 30 seconds.
Command mode	Global configuration mode.
Usage Guide	N/A
Configuration Examples	The following example specifies the timeout period as 60 seconds. `Ruijie(config)# snmp-server trap-timeout 60`

	Command	Description
Related Commands	**snmp-server queue-length**	Specifies the length of message queue for the SNMP trap host.
	snmp-server host	Specifies the NMS host to send the SNMP trap message.
	snmp-server trap-source	Specifies the source address of the SNMP trap message.

Platform Description   N/A

1.19 snmp-server udp-port

Use this command to specify a port to receive SNMP packets**.** Use the **no** form of this command to restore the default setting.

snmp-server udp port *port-number*

no snmp-server udp port

	Parameter	Description
Parameter Description	*port-number*	Specifies a port to receive the SNMP packets.

Defaults   The default is 161.

Command mode   Global configuration mode.

Usage Guide   N/A

Configuration Examples   The following example specifies port 15000 to receive the SNMP packets.

```
Ruijie(config)# snmp-server udp-port 15000
```

	Command	Description
Related Commands		

N/A	N/A

Platform Description N/A

1.20 snmp-server user

Use this command to configure a new user to an SNMP group**.** Use the **no** form of this command to remove a user from an SNMP group.

snmp-server user *username groupname* {**v1** | **v2c** | **v3** [**encrypted**] [**auth** {**md5** | **sha**} *auth-password*] [**priv des56** *priv-password*]} [**access** { *aclnum* | *aclname*}]

no snmp-server user *username groupname* { **v1** | **v2c** | **v3** }

Parameter Description

Parameter	Description
username	Name of the user on the host that connects to the agent.
groupname	Name of the group to which the user belongs.
**v1	v2c	v3**	Specifies the SNMP version. But only SNMPv3 supports the following security parameters.
encrypted	Specifies whether the password appears in cipher text. In cipher text format, you need to enter continuous hexadecimal numeric characters. Note that the authentication password of MD5 has a length of 16 bytes, while that of SHA has a length of 20 bytes. Two characters make a byte. The encrypted key can be used only by the local SNMP engine on the switch.
auth	Specifies which authentication level should be used.
auth-password	Password string (no more than 32 characters) used by the authentication protocol. The system will change the password to the corresponding authentication key.
priv	Encryption mode. des56 refers to 56-bit DES encryption protocol. *priv-password*: password string (no more than 32 characters) used for encryption. The system will change the password to the corresponding encryption key.
md5	Enables the MD5 authentication protocol. While the **sha** enables the SHA authentication protocol.
aclnumber	Access list number, which specifies the IPV4 addresses that are permitted to access the MIB.
aclname	Name of the access list, which specifies the IPV4 addresses that are permitted to access the MIB.

Defaults   N/A

Command   Global configuration mode.

mode

Usage Guide   N/A

Configuration   The following example configures an SNMPv3 user with MD5 authentication and DES encryption:

Examples   ```
Ruijie(config)# snmp-server user user-2 mib2user v3 auth md5 authpassstr priv
des56 despassstr
```

Related

Commands

Command	Description
show snmp user	Displays the SNMP user configuration.

Platform   N/A

Description

1.21 snmp-server view

Use this command to configure an SNMP view**.** Use the **no** form of this command to remove an
SNMP view.
snmp-server view *view-name oid-tree* { **include** | **exclude** }
no snmp-server view *view-name* [*oid-tree*]

Parameter

Description

Parameter	Description
view-name	View name
oid-tree	Specifies the MIB object to associate with the view.
include	Includes the sub trees of the MIB object in the view.
exclude	Excludes the sub trees of the MIB object from the view.

Defaults   By default, a view is set to access all MIB objects.

Command   Global configuration mode.

mode

Usage Guide   N/A

Configuration   The following example sets a view that includes all MIB-2 sub-trees (oid is 1.3.6.1).

Examples   ```
Ruijie(config)# snmp-server view mib2 1.3.6.1 include
```

**Related**

| Command | Description |
|---------|-------------|

**Commands**

|  |  |
|---|---|
| **show snmp view** | Displays the SNMP view configuration. |

**Platform**     N/A
**Description**

# 2 NTP Commands

## 2.1 no ntp

Use this command to disable Network Time Protocol (NTP), and clear all NTP configuration.
**no ntp**

| Parameter Description | Parameter | Description |
|---|---|---|
| | N/A | N/A |

**Defaults**         NTP is disabled by default.

**Command mode**     Global configuration mode.

**Usage Guide**      By default, NTP is disabled. However, once the NTP server or the NTP authentication is configured, the NTP service will be enabled.

**Configuration Examples**    The following example disables NTP.
```
Ruijie(config)#no ntp
```

| Related Commands | Command | Description |
|---|---|---|
| | **ntp server** | Specifies an NTP server. |

**Platform Description**    N/A

## 2.2 ntp authenticate

Use this command to enable NTP authentication. Use the **no** form of this command to disable NTP authentication.
**ntp authenticate**
**no ntp authenticate**

| Parameter Description | Parameter | Description |
|---|---|---|
| | N/A | N/A |

**Defaults**         Disabled.

| **Command mode** | Global configuration mode. |
|---|---|

| **Usage Guide** | If NTP authentication is disabled, the synchronization communication is not encrypted. To enable encrypted communication on the server, enable the NTP authentication and configure other keys globally.<br>NTP authentication is implemented through the trusted key specified by the **ntp authentication-key** and **ntp trusted-key** commands. |
|---|---|

**Configuration Examples**   After an authentication key is configured and specified as the global trusted key, enable NTP authentication.

```
Ruijie(config)#ntp authentication-key 6 md5 wooooop
Ruijie(config)#ntp trusted-key 6
Ruijie(config)#ntp authenticate
```

Related Commands

Command	Description
ntp authentication-key	Sets the global authentication key.
ntp trusted-key	Configures the global trusted key.

Platform Description	N/A

2.3   ntp authentication-key

Use this command to configure an NTP authentication key. Use the **no** form of this command to remove the NTP authentication key.

ntp authentication-key *key-id* **md5** *key-string* [*enc-type*]

no ntp authentication-key *key-id*

Parameter Description

Parameter	Description
key-id	Key ID, ranging from 1 to 4294967295.
key-string	Key string
enc-type	(Optional) Whether this key is encrypted, where, 0 indicates the key is not encrypted, 7 indicates the key is encrypted simply. The key is not encrypted by default.

Defaults	NTP authentication key is not configured by default.

Command mode	Global configuration mode.

Usage Guide	Use this command to configure an NTP authentication key and enables the **md5** algorithm for authentication. Each key presents a unique key ID, which can be configured as a trusted key using the **ntp trusted-key** command.. You can configure up to 1024 NTP authentication keys. However, each server can support only one key.

Configuration Examples	The following example configures an NTP authentication key. `Ruijie(config)ntp authentication-key 6 md5 wooooop`

Related Commands		
	Command	**Description**
	ntp authenticate	Enables NTP authentication.
	ntp trusted-key	Configures an NTP trusted key.
	ntp server	Specifies an NTP server.

Platform Description	N/A

2.4   ntp disable

Use this command to disable the device to receive NTP packets on the specified interface.

ntp disable

Parameter Description		
	Parameter	**Description**
	N/A	N/A

Defaults	All NTP packets can be received by default.

Command mode	Interface configuration mode.

Usage Guide	The NTP message received on any interface can be provided to the client to carry out the clock adjustment. The function can be set to shield the NTP message received from the corresponding interface. By default, the device receives NTP packets on all interfaces, and adjust clock for the client. You can use this command to disable the device to receive NTP packets on the specified interface. ⚠️ This command is configured only the interface that can receive and send IP packets.

Configuration Examples	The following example disables the device to receive the NTP packets. `Ruijie(config-if)# no ntp disable`

Related Commands	Command	Description
	N/A	N/A

Platform Description	N/A

2.5 ntp server

Use this command to specify a NTP server for the NTP client. Use the **no** form of this command to delete the specified NTP server.

ntp server { *ip-addr* | *domain* | **ip** *domain* } [**version** *version*] [**source** *if-name*] [**key** *keyid*] [**prefer**]

no ntp server *ip-addr*

Parameter Description	Parameter	Description
	ip-addr	Sets the IP address of the NTP server. The address can be in IPv4 format.
	domain	Sets the domain name of the NTP server, supporting IPv4.
	version	(Optional) Specifies the NTP version (1-3). The default is NTPv3.
	if-name	(Optional) Specifies the source interface from which the NTP message is sent (L3 interface).
	keyid	(Optional) Specifies the encryption key adopted when communication with the corresponding server. The key ID range is from 1 to 4,294,967,295.
	prefer	(Optional) Specifies the given NTP server as the preferred one.

Defaults   No NTP server is configured by default.

Command mode   Global configuration mode.

Usage Guide   At present, RGOS system only supports clients other than servers. Up to 20 servers can be synchronized.

To carry out the encrypted communication with the server, set the global encryption key and global trusted key firstly, and then specify the corresponding key as the trusted key of the server to launch the encrypted communication of the server. It requires the server presents identical global encryption key and global trust key to complete the encrypted communication with the server.

In the same condition (for instance, precision), the prefer clock is used for synchronization.

⚠ The source interface of NTP packets must be configured with the IP address and can be

communicated with the peer.

Configuration Examples	The following example configures an NTP server.
	For IPv4: `Ruijie(config)# ntp server 192.168.210.222`

Related Commands	**Command**	**Description**
	no ntp	Disables NTP.

Platform Description	N/A

2.6 ntp trusted-key

Use this command to set a global trusted key. Use the **no** form of this command to remove the global trusted key.

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

Parameter Description	**Parameter**	**Description**
	key-id	Global trusted key ID, ranging from 1 to 4294967295.

Defaults	N/A

Command mode	Global configuration mode.

Usage Guide	The NTP communication parties must use the same trusted key. The key is identified by ID and is not transmitted to improve security.

Configuration Examples	The following example configures an authentication key and sets it as a trusted key.
	`Ruijie(config)#ntp authentication-key 6 md5 wooooop`
	`Ruijie(config)#ntp trusted-key 6`
	`Ruijie(config)#ntp server 192.168.210.222 key 6`

Related Commands	**Command**	**Description**
	ntp authenticate	Enables NTP authentication.
	ntp authentication-key	Configures an NTP authentication key.
	ntp server	Configures an NTP server.

Platform	N/A

Description

2.7   ntp update-calendar

Use this command to enable the NTP client to periodically update the device clock with the time synchronized from the external source clock. Use the **no** form of this command to remove this function.

ntp update-calendar

no ntp update-calendar

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   By default, update the calendar periodically is not configured.

Command mode   Global configuration mode.

Usage Guide   By default, the NTP update-calendar is not configured. After configuration, the NTP client updates the calendar at the same time when the time synchronization of external time source is successful. It is recommended to enable this function for keeping the accurate calendar.

Configuration Examples   The following example configures the NTP update calendar periodically.

```
Ruijie(config)# ntp update-calendar
```

Related Commands	Command	Description
	N/A	N/A

Platform Description   N/A

2.8   show ntp server

Use this command to display the NTP server configuration.

show ntp server

Parameter Description	Parameter	Description
	N/A	N/A

Defaults   N/A

Command mode	Privileged EXEC mode, global configuration mode, interface configuration mode, VLAN configuration mode

Usage Guide   N/A

Configuration Examples

The following example displays the NTP server.

```
Ruijie# show ntp server
ntp-server                              source    keyid       prefer  version
------------------------------------- --------  -----------  ------
-------
10::2                                   None      None        FALSE   3
192.168.210.222                         None      None        FALSE   3
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

2.9 show ntp status

Use this command to display the NTP configuration.

show ntp status

Parameter Description

Parameter	Description
N/A	N/A

Defaults   N/A

Command mode	Privileged EXEC mode, global configuration mode, interface configuration mode, VLAN configuration mode

Usage Guide   Use this command to display the NTP configuration. No configuration is displayed before the synchronization server is configured for the first time.

Configuration Examples

The following example displays the NTP configuration.

```
Ruijie# show ntp status
Clock is synchronized, stratum 8, reference is 127.127.1.1
nominal freq is 250.0000 Hz, actual freq is 250.0000 Hz, precision is 2**24
```

```
reference time is D4BD819B.433892EE (01:27:55.000 UTC )
clock offset is 0.00000 sec, root delay is 0.00000 sec
root dispersion is 0.00002 msec, peer dispersion is 0.00002 msec
```

Related Commands

Command	Description
N/A	N/A

Platform Description   N/A

3 SPAN-RSPAN Commands

3.1 monitor session

Use this command to configure the SPAN session and specify the source port (monitored port).

monitor session *session-num* **source interface** *interface-id* [**both** | **rx** | **tx**]

Use this command to configure the SPAN session and specify the destination port (monitoring port).

monitor session *session-num* **destination interface** *interface-id* [**switch**]

Use this command to remove the specified SPAN session, or remove the source port or destination port of the specified SPAN session.

no monitor session *session-num* [**source interface** *interface-id* | **destination interface** *interface-id*]

Use this command to remove the specified SPAN session, or remove the source port or destination port of the SPAN session.

default monitor session *session-num* { **source interface** *interface-id* | **destination interface** *interface-id* }

Parameter Description

Parameter	Description
session_number	SPAN session number
interface-id	Interface name
rx	Monitors the only received traffic.
tx	Monitors the only transmitted traffic.
both	Monitors both received and transmitted traffic. This is the default.
switch	Enables switching on the destination port. Switching function is disabled by default.

Defaults   Port monitoring is disabled by default.

Command mode   Global configuration mode.

Usage Guide   Use this command to configure SPAN or remote SPAN, and specify the source port or destination port.

If the **both**, **rx** or **tx** is not specified for the source port, the **both** parameter is the default.

The **switch** feature is disabled on the destination port.

Configuration
Examples

The following example configures the source port and destination port of the SPAN session.

```
Ruijie(config)# monitor session 1 source interface gigabitEthernet 0/1
Ruijie(config)# monitor session 1 destination interface gigabitEthernet 0/2
```

The following example removes the SPAN session.

```
Ruijie(config)# no monitor session 1
```

The following example removes the source port and destination port of the SPAN session.

```
Ruijie(config)# no monitor session  1 source interface gigabitEthernet 0/18
Ruijie(config)# no monitor session  1 destination interface gigabitEthernet
0/18
```

Related
Commands

Command	Description
N/A	N/A

Platform
Description

N/A

3.2 show monitor

Use this command to display the SPAN configurations.

show monitor [**session** *session_number*]

Parameter
Description

Parameter	Description
session_number	Displays the specified SPAN session.

Defaults   N/A

Command
mode

Privileged EXEC mode, global configuration mode and interface configuration mode

Usage Guide   N/A

Configuration
Examples

This following example displays all SPAN sessions.

```
Ruijie(config)# show monitor
sess-num: 2
span-type: LOCAL_SPAN
src-intf:
TenGigabitEthernet 0/5      frame-type Both
dest-intf:
```

```
TenGigabitEthernet 0/6
sess-num: 1
span-type: LOCAL_SPAN
src-intf:
TenGigabitEthernet 0/3     frame-type Both
dest-intf:
```

The following example displays SPAN session 1.

```
Ruijie(config)# show monitor session 1
sess-num: 1
span-type: LOCAL_SPAN
src-intf:
TenGigabitEthernet 0/3     frame-type Both
dest-intf:
TenGigabitEthernet 0/4
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description   N/A