



**Ruijie RG-WLAN Series Access Points**

**RGOS Command Reference, Release 11.9(4)B2**

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## Preface

Thank you for using our products. This manual matches the RGOS Release 11.9(4)B2.

## 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://caseportal.ruijienetworks.com>
- Community: <https://community.ruijienetworks.com>
- Technical Support Email: [service\\_rj@ruijienetworks.com](mailto:service_rj@ruijienetworks.com)
- Skype: [service\\_rj@ruijienetworks.com](https://www.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
<b>boldface</b> font	Commands, command options, and keywords are in <b>boldface</b> .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
[ ]	Elements in square brackets are optional.

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{ 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



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

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

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## WLAN Basic Configuration Commands

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1. WLAN Basic Configuration Commands
2. WLAN CAPWAP Commands
3. WLAN STAMG Commands
4. WBS Commands
5. DATA-PLANE Commands
6. WLOG Commands

# 1 WLAN Basic Configuration Commands

## 1.1 ap-mode

Use these commands to switch AP to fit mode or to fat mode.

```
ap-mode { fit | fat [ dhcp ] | macc }
```

Parameter	Description
<b>fit</b>	Switches the AP to fit mode.
<b>fat</b>	Switches the AP to fat mode.
<b>dhcp</b>	When this parameter is configured, the AP enables DHCP to obtain IP address by default; Otherwise the AP uses static IP addresses by default.
<b>macc</b>	Switches the AP to MACC mode.

**Defaults** N/A

**Command Mode** AP configuration mode

After switching the AP working mode, restart the device to ensure the configuration consistency. For Ruijie Networks' WALL-AP, when working as a fat AP, the default IP address of the rear end wired interface (Which is connected to the PoE switching device) is 192.168.110.1/255.255.255.0; the default IP address of the front end wired interface (the Ethernet port on the front panel) is 192.168.111.1/255.255.255.0.

When the command **ap-mode fat dhcp** is configured, once the AP is switched to fat mode, the fat AP will obtain IP address through DHCP. After AP is restarted without further related configuration, it will still obtain IP address through DHCP.

### Usage Guide

**!** When the command **ap-mode fat dhcp** is configured on the WALL-AP, DHCP is enabled only on the rear end wired interface by default; that is to say, by default, the front end interface still uses static IP address.

You cannot use commands **ap-mode fat dhcp** and **ap-mode fat** to perform direct switchover in the fat mode. You should switch to fit mode and then perform such switchover.

**Configuration Examples** The following example switches the AP to fit mode:

```
Ruijie(config)# ap-mode fit
```

Related Commands	Command	Description
	N/A	N/A

**Platform** The command is supported only on APs.

**Description**

## 1.2 hide-ssid sta-reach-limit

Use this command to hide the SSID when the number of STAs associated with the AP reaches the limit. Use the **no** form of this command to restore the default setting.

**hide-ssid sta-reach-limit**

**no hide-ssid sta-reach-limit [ radio { 2.4g | 5g } ]**

Parameter Description	Parameter	Description
	<b>radio</b>	Enables this function on the specified radio. If no radio is specified, it is enabled on both radio.
	<b>2.4g</b>	Enables this function on 2.4G radio.
	<b>5g</b>	Enables this function on 5G radio.

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example hides the SSID for 5G radio when the number of STAs associated with the AP reaches the limit.

```
Ruijie(config)# hide-ssid sta-reach-limit radio 5g
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.3 show ap-mode

Use this command to display the AP mode.

**show ap-mode**

Parameter	Parameter	Description
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<b>Description</b>		
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the AP mode.

**Examples**

```
Ruijie#show ap-mode
current mode: FIT
```

<b>Related Commands</b>	Command	Description
	N/A	N/A

**Platform Description**

## 2 WLAN CAPWAP Commands

### 2.1 ac-control disable

Use this command to configure the AP to access the AC.

**no ac-control disable**

Use this command to disable the function.

**ac-control disable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The fit AP cannot access the AC by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The wireless switch (S5750H) and wireless gateway (EG device) can serve only as the switch and gateway or ACs on the network. When they serve only as the switch and gateway, the fit AP is expected to access the actual AC but not S5750H or EG device. This command can be used to control the access of the AP.

**Configuration Example** The following example configures the fit AP to access the AC.

```
Ruijie(config-ac)# no ac-control disable
```

**Verification** N/A

### 2.2 ac-domain-name

Use this command to enable the AP to discover the AC domain name. Use the **no** form of this command to restore the default setting.

**ac-domain-name** *ac-domain-name*

**no ac-domain-name**

Parameter Description	Parameter	Description
	<i>ac-domain-name</i>	Configures the AC domain name that the AP is to be

	discovered. The maximum length of the AC domain name is 64 characters, containing no spaces.
--	--

**Defaults** By default, the AC domain name is ac.ruijie.com.cn.

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** AP is able to discover the AC through DNS. You can use this command to revise the AC domain name to be discovered by the AP, so as to allow the AP to discover different APs.

The following example enables the AP to discover the AC with the domain name as ruijie-ac.com.

```
Ruijie(config)# ap-config AP001
Ruijie(config-ap)# ac-domain-name ruijie-ac.com
```

The following example enables all APs to discover the AC with the domain name as ruijie-ac.com.

**Configuration Examples**

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# ac-domain-name ruijie-ac.com
```

The following example enables APG-1 of the designated AP group to discover the AC with the domain name as ruijie-ac.com.

```
Ruijie(config)# ap-group APG-1
Ruijie(config-ap-group)# ac-domain-name ruijie-ac.com
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.3 acip ipv4

Use this command to configure the AP to join a specified AC. Use the **no** form of this command to remove the configuration.

**acip ipv4** *ip-address* [*ip-address*]

**no acip ipv4**

Parameter Description	Parameter	Description
	<i>ip-address</i>	Indicates the static IP address. Up to six static addresses can be configured.


**Defaults** N/A

**Command** AP global configuration mode/AP configuration mode on the AC

**Mode**

In general, the fit AP has no configuration. You can find AC through broadcast, multicast, DHCP and DNS or joining AC through the AC address configured by the static address. AP sends a discovery request packet to these IP addresses to detect whether AC is valid, and then add an AC.

**Usage Guide**

 If this command is configured for the fit AP and the AC connected with it, then the final configuration is the AC configuration.

The following example configures the static IP address list for the fit AP to join AC as 192.168.1.1 and 192.168.2.1.

```
Ruijie(config)# acip ipv4 192.168.1.1 192.168.2.1
```

**Configuration Examples**

The following example configures the static IP address list for AP0001 to join AC as 192.168.1.1 and 192.168.2.1.

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# acip ipv4 192.168.1.1 192.168.2.1
```

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 2.4 acip ipv6

Use this command to configure an AP to join an AC with a specific IPv6 address. Use the **no** form of this command to remove the configuration.

**acip ipv6** *ipv6-address* [ *ipv6-address* ]

**no acip ipv6**

**Parameter Description**

Parameter	Description
<i>ipv6-address</i>	Specifies the IPv6 address of the AC to be connected with the AP. Up to six static addresses can be configured.

**Defaults**

N/A


**Command Mode**

AP global configuration mode/AP configuration mode on the AC

**Usage Guide**

An AP can find ACs through IPv6 multicast, DHCPv6, or DNSv6 packets or join an AC with a specific static IPv6 address. After this command is configured, the AP sends discovery request packets to the

static IPv6 address of the AC to detect whether the address is valid. If the address is valid, the AP will join the AC.

 If this command is configured on a fit AP and an AC connected with the AP, only the configuration on the AC takes effect.

The following example configures a fit AP to join an AC with static IPv6 address 2001:1a2b::1234.

```
Ruijie(config)# acip ipv6 2001:1a2b::1234
```

The following example configures AP0001 to join an AC with static IPv6 address 2001:1a2b::1234.

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# acip ipv6 2001:1a2b::1234
```

### Configuration Examples

### Related Commands

Command	Description
<b>acip ipv4</b>	Specifies the IPv4 address of an AC to be connected with the AP.

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

## 2.5 active-bin-file

Use this command to activate an AP software version on an AC, and only the activated AP software version can be used to upgrade. Use the **no** form of this command to remove the configuration.

**active-bin-file** *filename* [ **rgos10** ]

**no active-bin-file** *filename* [ **rgos10** ]

### Parameter Description

Parameter	Description
<i>filename</i>	Specifies software version name, including the suffix. This command can activate up to five software versions.
<b>rgos10</b>	Activates the transition version between RGOS 10 to RGOS 11. The software only applies to the AP.

**Defaults** N/A

**Command Mode** AC configuration mode

### Usage Guide

To configure an AC as the upgraded version of the specified AP product series, finish these three steps first: creating AP product series, configuring the software version corresponding to the specified AP, and activating the software version. Moreover, before the configuration, ensure this software version is available in the AC system files.



The following example activates an AP software version file ap.bin on the AC.

**Configuration Examples**

```
Ruijie(config-ac)# active-bin-file ap.bin
Ruijie(config-ac)#
```

The following example removes the activated AP software version file ap.bin from the AC.

```
Ruijie(config-ac)# no active-bin-file ap.bin
```

**Related Commands**

Command	Description
<b>ap-serial</b>	Creates an AP product series name and specify which hardware version AP product models belong to this series.
<b>ap-image</b>	Upgrades a specified AP software version with a specified activated file.

**Platform**

N/A

**Description**

## 2.6 ap-image

Use this command to configure AC upgrade to use a specified file to upgrade a specified series of APs. This command applies to all APs connected to the current AC. Use the **no** form of this command to remove the configuration.

**ap-image** { **auto-upgrade** | *filename serial-name* }

**no ap-image** { **auto-upgrade** | *filename serial-name* }

**Parameter Description**

Parameter	Description
<b>auto-upgrade</b>	Automatically matches the proper AP for upgrade.
<i>filename</i>	Indicates a software version name, including the suffix.
<i>serial-name</i>	Indicates the AP model series to be upgraded.

**Defaults**

N/A

**Command Mode**

AC configuration mode

**Usage Guide**

This command is intended to use a specified file to upgrade a specified series of APs. This command applies to all APs connected to the current AC. To configure an AC as the upgraded version of the specified AP product series, finish these three steps first: creating AP product series, configuring the software version corresponding to the specified AP, and activating the software version. Moreover, before configuration, ensure this software version exists in the AC system files.

**Configuration Examples**

The following example configures the product series name as **test-serial**, and upgrades it with the **ap.bin** file.

```
Ruijie(config-ac)# ap-serial test-serial AP210-E, AP210, AP220-E, AP220
hw-ver 1.0
Ruijie(config-ac)#
Ruijie(config-ac)# ap-image ap.bin test-serial
```

Related	Command	Description
Commands	N/A	N/A

Platform N/A

Description

## 2.7 ap-image

Use this command to upgrade a specified AP with a specified file. This command does not support the ap-config all mode. Use the **no** form of this command to remove the settings.

**ap-image** *filename*

**no ap-image**

Parameter	Description
Parameter Description	<i>filename</i> Specifies an AP software version filename for upgrade, including the suffix.

Defaults N/A

Command AP configuration mode

Mode

Usage Guide N/A

The following example upgrades AP0001 with the file **ap.bin**.

```
Ruijie(config-ac)# ap-serial test-serial 1.0 AP220-E hw-ver 1.0
Ruijie(config-ac)# active-bin-file ap.bin
Ruijie(config-ac)# exit
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# ap-image ap.bin
```

Configuration  
Examples

Related	Command	Description
Commands	N/A	N/A

Platform N/A

Description

## 2.8 apip ipv4

Use this command to configure a static IP address for a specified AP. Use the **no** form of the command to remove the configuration.

**apip ipv4** *ip-address network-mask gateway*

**no apip ipv4**


	Parameter	Description
Parameter	<i>ip-address</i>	The static IP address.
Description	<i>network-mask</i>	The subnet mask.
	<i>gateway</i>	The gateway address.

**Defaults** N/A

**Command Mode** AP global configuration mode

In general, the fit AP has no configuration. Its IP address and gateway can be dynamically obtained by DHCP. When the CAPWAP tunnel between AP and AC is established, AC delivers the static IP address for AP, so that the address of AP maintains unchanged after AP is rebooted. In special application scenario, you can configure this command in AP global configuration mode to manually set the static IP address for the fit AP.

### Usage Guide

-  1. With the AP address configured as static, the DHCP is disabled, and the AC address cannot be obtained through the OPTION of DHCP. Therefore, after this command is configured, you need to configure the AC address using the command “acip” on the AP so that the AP can find and join the AC when the AP and the AC are not in the same subnet.
2. The configuration of this command will be automatically saved after the AP configuration. No command of saving is required to be executed.
3. This command serves the same purpose as the command “ip address” on the AC in the AP configuration mode. However, when the AP joins the AC, if the command “ip address” exists in the AP configuration mode of the AC and conflicts with the command “apip”, the static address of the AP will be updated and the CAPWAP tunnel will be re-created.

### Configuration Examples

The following example configures the static IP address of the fit AP as 192.168.1.2, the subnet mask as 255.255.255.0, and the gateway as 192.168.1.1..

```
Ruijie(config)# apip ipv4 192.168.1.2 255.255.255.0 192.168.1.1
```

	Command	Description
Related Commands	<b>acip</b>	Specifies the AC address to be connected with by an AP.
	<b>ip address</b>	Configures the static address of the AP.

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

## 2.9 apip ipv6

Use this command to configure a static IPv6 address for a specified AP. Use the **no** form of the command to remove the configuration.

**apip ipv6** *ipv6-address-with-mask* *gateway*


**no apip ipv6**

Parameter Description	Parameter	Description
	<i>ipv6-address-with-mask</i>	The IPv6 address with the mask length, for example. X:X:X::X/24.
	<i>gateway</i>	Gateway address.

**Defaults** N/A

**Command Mode** AP global configuration mode

**Usage Guide** This command is used to configure a static IPv6 address for the AP.

-  1. With the AP IPv6 address configured as static, the DHCPv6 is disabled, and the AC address cannot be obtained through the OPTION of DHCPv6. Therefore, after this command is configured, you need to configure the AC IPv6 address using the **acip ipv6** command on the AP and enable IPv6 support for the AP using the **apip ipv6 enable** command so that the AP can find and join the IPv6 AC when the AP and the AC are not in the same subnet.
2. The configuration of this command will be automatically saved.
3. This command serves the same purpose as the **ipv6 address** command on the AC in the AP configuration mode. However, when the AP joins the AC, the **ipv6 address** command in the AP configuration mode on the AC will conflict with the **apip ipv6** command, the static IPv6 address of the AP will be updated and the CAPWAP tunnel will be re-created.

**Configuration Examples** The following example configures the static IPv6 address of the fit AP as 2001:1a2b:1234::5566/48, and the gateway as 2001:1a2b:1234::1.

```
Ruijie(config)# apip ipv6 address 2001:1a2b:1234::5566/48 2001:1a2b:1234::1
```

Related Commands	Command	Description
	N/A	N/A

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


## 2.10 apip ipv6 address autoconfig

Use this command to configure an AP to obtain a static IPv6 address through the automatic IPv6 address configuration mechanism. Use the **no** form of this command to remove the configuration.

**apip ipv6 address autoconfig default**

**no apip ipv6 address autoconfig default**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	AP global configuration mode	
<b>Usage Guide</b>	You can run this command to configure a static IPv6 address for the AP. The configuration is similar to static IPv4 address configuration by running the <b>apip</b> command.	

-  1. If a static IPv6 address is set for the AP, DHCPv6 will be disabled. As a result, the AP cannot obtain IPv6 addresses of ACs through DHCPv6 OPTION. Therefore, after running this command, you must run the **apip ipv6** command to specify an IPv6 address of an AC to be connected with the AP, and use the **apip ipv6 enable** command to enable IPv6 support on the AP. After this configuration, the AP can discover and join the AC even if they are not on the same sub-network.
2. When this command is run on the AP, the configuration is saved automatically instead of being saved by running the configuration saving command.
3. This command has the same function as the **ipv6 address** command used on an AC in AP configuration mode. Configuring this command does not affect configuration of the AC. When the AP joins the AC, if the **ipv6 address** command is run on the AC in AP configuration mode and conflicts with the **apip ipv6** command, the AP will update its static IPv6 address and re-establish CAPWAP tunnels.

### Configuration Examples

The following example sets static IPv6 address 2001:1a2b:1234::5566/48 for the fit AP and specifies gateway address 2001:1a2b:1234::1.

```
Ruijie(config)# apip ipv6 2001:1a2b:1234::5566/48 2001:1a2b:1234::1
```

### Related Commands

Command	Description
<b>apip ipv6</b>	Specifies the IPv6 address of the AC to be connected with the AP.
<b>apip ipv6 enable</b>	Enables IPv6 support on the AP.

<b>ipv6 address</b>	Specifies the static AP IPv6 address configured on the AC.
---------------------	--

**Platform** N/A

**Description**

## 2.11 apip ipv6 enable

Use this command to enable IPv6 support on a specific AP. Use the **no** form of this command to remove the configuration.

**apip ipv6 enable**

**no apip ipv6 enable**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A


**Defaults** IPv6 support is enabled on the AP by default.

**Command** AP global configuration mode

**Mode**

You can run this command to enable IPv6 support or run the **no** form of this command to disable IPv6 support. If an AP enabled with IPv6 support has no static IPv6 address, it will dynamically obtain an IPv6 address through DHCPv6. If IPv6 support is disabled from the AP, DHCPv6 is also disabled, but configuration about the static IPv6 address is not deleted.

**Usage Guide**

-  1. If the IPv6 support state of the AP is changed, the AP will re-establish CAPWAP tunnels.  
2. IPv6 support configuration of the AP is saved in a flash memory and remains unchanged when the AP is restarted.

The following example enables IPv6 support on the fit AP.

**Configuration** Ruijie(config)# apip ipv6 enable

**Examples** The following example disables IPv6 support from the fit AP.

Ruijie(config)# no apip ipv6 enable

Related Commands	Command	Description
	<b>apip ipv6 address</b>	Specifies the IPv6 address of the AC to be connected with the AP.
	<b>ipv6 enable</b>	Enables IPv6 support on the specific AP on the AC in AP configuration mode.

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

## 2.12 apip pppoe

Use this command to enable the AP to obtain the address through PPPoE. Use the **no** form of this command to restore the default setting.

**apip pppoe**  
**no apip pppoe**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** AP global configuration mode

**Usage Guide** After configuring this command, you should perform PPPoE and configure the default route to point to the dialer interface to enable communication between the AP and the AC.

 CAPWAP can select only dialer 1 as the source port. Therefore, PPPoE dial requires dialer 1.

**Configuration Examples** The following example enables the fit AP to obtain the address through PPPoE.

```
Ruijie(config)# apip pppoe
```

Related Commands	Command	Description
	N/A	N/A

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

## 2.13 ap-cfg erps raps-vlan

Use this command to configure ERPS single ring.

**ap-cfg erps raps-vlan** *vlan-id* **ring-port** **west** *interface-name1* **east** *interface-name2*

Use this command to configure RPL link and RPL owner node.

**ap-cfg erps raps-vlan** *vlan-id* **rpl-port** { **west** | **east** } **rpl-owner**

Use the **no** form of this command to remove the setting.

**no ap-cfg erps raps-vlan**

Parameter Description	Parameter	Description
	<i>vlan-id</i>	Indicates the R-APS VLAN ID.
	<i>interface-name1</i>	Indicates the name of the west port.
	<i>interface-name2</i>	Indicates the name of the east port.
	<b>west</b>	Specifies the west port to be the RPL owner.
	<b>east</b>	Specifies the east port to be the RPL owner.

**Defaults** No ERPS is configured by default.

**Command** AP configuration mode

**Mode**

**Usage Guide** A link needs to be disconnected or a port needs to be shut down during network planning. The ring topology can be built only after the ERPS link is configured.

Configure a Ring Protection Link (RPL) link on a device in the ERPS ring, so that traffic is balanced to dual upstream links. When one link fails or one device is faulty, the blocked RPL link is connected to prevent link failure.

The VLAN used by the ERPS will occupy the VLAN capacity of the device. Therefore, the VLAN cannot be set to VLAN 1 or VLAN 2444, both of which are default VLANs. It cannot be the same with the VLAN of an STA specified by the **Interface-mapping** command or the VLAN of a wired port specified by the **wired-VLAN** command. It cannot be the same with the VLAN specified by the **ap-vlan** command, neither.

**Configuration** The following example configures ERPS single ring.

**Examples**

```
Ruijie(config)#ap-cfg erps raps-vlan 10 ring-port west gigabitEthernet 0/26
east gigabitEthernet 0/25
```

The following example configures RPL link and RPL owner node.

```
Ruijie(config)#ap-cfg erps raps-vlan 10 rpl-port east rpl-ower
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**



## 2.14 ap-download enable

Use this command to ensure successful upgrade of AP software when the network performance is poor during the upgrade and the AP needs to be re-upgraded. Use the **no** form of this command to cancel the configuration.

**ap-download enable**

**no ap-download enable**



Parameter Description	Parameter	Description
	N/A	N/A
<b>Defaults</b>	AP upgrade optimization is disabled by default.	
<b>Command Mode</b>	AP configuration mode and all-AP configuration mode	
<b>Default Level</b>	15	
<b>Usage Guide</b>	<p>After AP upgrade optimization is enabled, upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.</p> <hr/> <p> After upgrade optimization is enabled, <b>echo-interval</b> is set to 50 seconds and the value change of <b>echo-interval</b> during an upgrade cannot take effect immediately.</p> <p> After upgrade optimization is disabled, the value of <b>echo-interval</b> is restored to the default value.</p> <hr/>	
<b>Configuration Examples</b>	<p>The following example enables upgrade optimization for AP 1.</p> <pre>Ruijie(config)# ap-config AP1 Ruijie(config-ap)# ap-download enable</pre> <p>The following example disables upgrade optimization for AP 1.</p> <pre>Ruijie(config-ap)# no ap-download enable</pre>	
<b>Verification</b>	Run the <b>show capwap detail</b> command to check whether AP upgrade optimization is enabled and check the configuration.	
<b>Prompts</b>	N/A	
<b>Common Errors</b>	N/A	
<b>Platform Description</b>	The command is supported only on ACs.	

## 2.15 ap-download retransmission

Use this command to configure the retransmission interval and count of upgrade packets after upgrade optimization is enabled. Use the **no** form of this command to restore the default configuration.

**ap-download retransmission** *num,num...*

**no ap-download retransmission**

Parameter Description	Parameter	Description
	<i>num</i>	Specifies the retransmission interval, in seconds. The value is an integral multiple of 0.5 and the maximum value is 64 seconds. The number of <i>nums</i> indicates the retransmission count. A maximum of 20 <i>nums</i> can be configured and <i>nums</i> are separated by a comma (.).
<b>Defaults</b>	0.5,0.5,1,1,1,1,2,2,2,2,4,4,4,8	
<b>Command Mode</b>	AP configuration mode and all-AP configuration mode	
<b>Default Level</b>	15	
<b>Usage Guide</b>	After AP upgrade optimization is enabled, use this command to configure retransmission interval and count. Upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.	
<b>Configuration Examples</b>	<p>The following example enables upgrade optimization for AP 1 and sets the retransmission count to 4 and the retransmission interval to 0.5s for the first retransmission, 1s for the second retransmission, 2s for the third retransmission, and 2s for the fourth retransmission.</p> <pre>Ruijie(config)# ap-config AP1 Ruijie(config-ap)# ap-download retransmission 0.5,1,2,2</pre> <p>The following example restores the values of retransmission parameters to default settings for the upgrade optimization of AP 1.</p> <pre>Ruijie(config-ap)# no ap-download retransmission</pre>	
<b>Verification</b>	Run the <b>show capwap detail</b> command to check whether AP upgrade optimization is enabled and check the configuration.	
<b>Prompts</b>	N/A	
<b>Common Errors</b>	N/A	
<b>Platform Description</b>	The command is supported only on ACs.	

## 2.16 ap-download image-check

Use this command to set the maximum interval for an AP to receive upgrade packets after upgrade optimization is enabled. Use the **no** form of this command to restore the default configuration.

**ap-download image-check** *num*

**no ap-download image-check**

Parameter Description	Parameter	Description
	<i>num</i>	Specifies the maximum interval for an AP to receive upgrade packets, in seconds.

**Defaults** The default value is 83.

**Command Mode** AP configuration mode and all-AP configuration mode

**Default Level** 15

**Usage Guide** After upgrade optimization is enabled, if an AP fails to receive upgrade packets from the AC within this period of time, it disconnects the tunnel. Upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.

**Configuration Examples** The following example enables upgrade optimization for AP 1 and sets the maximum interval for AP 1 to receive upgrade packets to 30 seconds.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# ap-download image-check 30
```

The following example restores the maximum interval for packet receiving to default settings for the upgrade optimization of AP 1.

```
Ruijie(config-ap)# no ap-download image-check
```

**Verification** Run the **show capwap detail** command to check whether AP upgrade optimization is enabled and check the configuration.

**Prompts** N/A

**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.17 ap-download distr-send

Use this command to set the interval for the root AP to forcibly send upgrade packets to sub APs in distributed upgrade after upgrade optimization is enabled. Use the **no** form of this command to restore the default configuration.

**ap-download distr-send** *num*

**no ap-download distr-send**

Parameter Description	Parameter	Description
	<i>num</i>	Specifies the interval for the root AP to forcibly send upgrade packets to sub APs in distributed upgrade. The unit is seconds.

**Defaults** The default value is 5.

**Command Mode** AP configuration mode and all-AP configuration mode

**Default Level** 15

**Usage Guide** After AP upgrade optimization is enabled, use this command to configure the interval for the root AP to forcibly send upgrade packets to sub APs in distributed upgrade. Upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.

**Configuration Examples** The following example enables upgrade optimization for AP 1 and sets the interval for the distributed root AP to forcibly send upgrade packets to sub APs to 10 seconds.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# ap-download distr-send 10
```

The following example restores the interval for the root AP to forcibly send packets to sub APs to default settings for the upgrade optimization of AP 1.

```
Ruijie(config-ap)# no ap-download distr-send
```

**Verification** Run the **show capwap detail** command to check whether AP upgrade optimization is enabled and check the configuration.

**Prompts** N/A

**Common Errors** N/A

**Platform** The command is supported only on ACs.

**Description**

## 2.18 ap-download distr-check

Use this command to set the maximum interval for sending upgrade packets between APs in distributed upgrade after upgrade optimization is enabled. Use the **no** form of this command to restore the default configuration.

**ap-download distr-check** *num*

**no ap-download distr-check**

Parameter Description	Parameter	Description
	<i>num</i>	Specifies the maximum interval for sending upgrade packets between APs in distributed upgrade. The unit is seconds.

**Defaults** The default value is 83.

**Command Mode** AP configuration mode and all-AP configuration mode

**Default Level** 15

**Usage Guide** After AP upgrade optimization is enabled, if a sub AP fails to receive upgrade packets from the parent AP within this period of time in distributed upgrade, it disconnects from the parent AP. Upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.

**Configuration Examples** The following example enables upgrade optimization for AP 1 and sets the maximum interval for sending upgrade packets between APs in distributed upgrade to 30 seconds.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# ap-download distr-check 30
```

The following example restores the maximum interval for sending upgrade packets between APs in distributed upgrade to default settings for the upgrade optimization of AP 1.

```
Ruijie(config-ap)# no ap-download distr-check
```

**Verification** Run the **show capwap detail** command to check whether AP upgrade optimization is enabled and check the configuration.

**Prompts** N/A

**Common Errors** N/A

Platform	The command is supported only on ACs.
Description	

## 2.19 ap-download distr-limit

Use this command to set the number of AP distributed upgrade attempts after upgrade optimization is enabled. Use the **no** form of this command to restore the default configuration.

**ap-download distr-limit** *num*

**no ap-download distr-limit**

Parameter Description	Parameter	Description
	<i>num</i>	Specifies the number of AP distributed upgrade attempts.

**Defaults** The default value is 20.

**Command Mode** AP configuration mode and all-AP configuration mode

**Default Level** 15

**Usage Guide** After AP upgrade optimization is enabled, use this command to configure the number of AP distributed upgrade attempts. Upgrade optimization-relevant configuration is copied for this upgrade at the beginning of the AP upgrade. Revised upgrade optimization parameters do not take effect on this upgrade.

**Configuration Examples** The following example enables upgrade optimization for AP 1 and sets the number of distributed upgrade attempts to 10.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# ap-download distr-limit 10
```

The following example restores the number of distributed upgrade attempts to the default value for the upgrade optimization of AP 1.

```
Ruijie(config-ap)# no ap-download distr-limit
```

**Verification** Run the **show capwap detail** command to check whether AP upgrade optimization is enabled and check the configuration.

**Prompts** N/A

**Common Errors** N/A

**Platform** The command is supported only on ACs.  
**Description**

## 2.20 ap-serial

Use this command to configure an AP series on an AC. Only when the AP hardware version and product model are configured to a series can its software version be upgraded through the AC. Use the **no** form of this command to remove the configuration.

**ap-serial** *serial-name hardware-version ap-pid1, ap-pid2, ..., ap-pidn [hw-ver hardware-version]*

**no ap-serial** *serial-name*

Parameter	Description
<i>serial-name</i>	Indicates an AP series name to be created. The maximum character configuration number is 64, blank space is not included. The maximum number of the AP series that can be supported at the same time: WS5708 series: 16, WS5302 series:8
<i>hardware-version</i>	Indicates the AP hardware version, the maximum configuration character is 64, blank space is not included. The hardware version name is a decimal, the mark is 'x' or 'X' which can be used to configure the following character.
<i>ap-pid1 ap-pid2 ... ap-pidn</i>	Indicates the product model list to be added into the AP series. <i>ap-pidn</i> indicates the NO. n product model. Use the comma (English form) to separate several product model numbers. One series supports 5 AP product models at most.

**Defaults** N/A

**Command Mode** AC configuration mode

**Usage Guide** To configure an AC as the upgraded version of the specified AP product series, finish these three steps first: creating AP product series, configuring the software version corresponding to the specified AP, and activating the software version. Moreover, before configuration, ensure this software version exists in the AC system files.

**Configuration Examples** The following example creates an AP series named **test-serial** of which the designate AP hardware version is 1.0 on an AC, including these AP models: AP220-SE AP220-SH, AP220-E.

```
Ruijie(config-ac)# ap-serial test-serial 1.0 AP220-SE AP220-SH, AP220-E
```

```
hw-ver 1.0
Ruijie(config-ac)# active-bin-file ap.bin
Ruijie(config-ac)# ap-image test-serial ap.bin
```

The following example removes the configuration from the AC to make the APs in the product series named **test-serial** no longer use the **ap.bin** file for upgrade.

```
Ruijie(config-ac)# no ap-image test-serial ap.bin
```

#### Related Commands

Command	Description
<b>active-bin-file</b>	Activates an AP software version file to upgrade an AP software version.

**Platform** N/A

**Description**

## 2.21 ap-subif

Use this command to enable the AP to create the sub interface of the WAN port. Use the **no** form of this command to remove the configuration.

**ap-subif enable**

**no ap-subif enable**

#### Parameter Description

Parameter	Description
N/A	N/A

**Defaults** N/A

**Command  
Mode** AP configuration mode

**Usage Guide** If the AP obtains its address through PPPoE, the sub interface of the WAN port is removed automatically. This command cannot enable the AP to create the sub interface of the WAN port in PPPoE mode.

**Configuration** The following example enables AP1 to remove the sub interface from the WAN port.

#### Examples

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# no ap-subif enable
```

#### Related Commands

Command	Description
N/A	N/A

**Platform** N/A

**Description**



## 2.22 ap-vlan

Use this command to set the Native VLAN for the AP. Use the **no** form of this command to restore the default setting.

**ap-vlan** *vlan-id*






**no ap-vlan**

Parameter Description	Parameter	Description
	<i>vlan-id</i>	Specifies the VLAN on the wired network port, in the range from 1 to 4094.

**Defaults** The default is 1.

**Command Mode** AP configuration mode

**Usage Guide** The AP untags the frame of the Native VLAN before forwarding it. In local forwarding mode, if the user VLAN is the same as the Native VLAN, the frame is forwarded untagged and the access switch determines the VLAN where the user resides.

-  This command forces the online AP to go offline and enables reconnection.
-  In WDS deployment, when ROOT-BRIDGE and NONROOT-BRIDGE devices are configured with local forwarding, they should reside in the same AP-VLAN. Otherwise, the NONROOT-BRIDGE device cannot share the address pool with the ROOT-BRIDGE device; packet forwarding on the NONROOT-BRIDGE device may even be affected.
-  This command is configured only when the STA of a WLAN wants to access the VLAN where the switch resides while another WLAN requires that its STA resides in VLAN 1, which is not the Native VLAN.
-  If the static DHCP address pool is configured, and BVI 1 port number is used as client ID, this configuration will bring changes to the BVI port. In this case, the DHCP server configuration should be modified. Otherwise, the address cannot be obtained.
-  When the AP obtains the address through PPPoE and CAPWAP selects dialer 1 as the source port, the STA traffic is forwarded untagged even if this command is configured.

**Configuration** The following example sets the Native VLAN for AP 1 to 20.

**Examples**

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# ap-vlan 20
```

Related	Command	Description
---------	---------	-------------

<b>Commands</b>		
	N/A	N/A

**Platform** N/A

**Description**

## 2.23 ap-upgrade bandwidth

Use this command to configure the upgrade bandwidth for AP devices. Use the **no** form of this command to restore the default setting.

**ap-upgrade band-width** *num*

**no ap-upgrade band-width**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>num</i>	Bandwidth for AP upgrade, namely, the push rate for the AP upgrade file. The range is from 1 to 1,024. The unit is 1 KB. The default value is 0.

**Defaults** Upgrade bandwidth is not limited by default.

**Command** AP configuration mode

**Mode**

**Usage Guide** During upgrading AP devices, the AC device occupies more transmission bandwidth to reduce upgrade time. However, in some small networks, the bandwidth for wired services should be guaranteed during AP upgrade to avoid impacting wired services. You can configure the upgrade bandwidth for AP devices to control the percentage of upgrade bandwidth.

The bandwidth limit configured

1. This command configuration controls the bandwidth for centralized upgrade of AP devices from the AC device, the distributed upgrade of AP devices is not impacted. As distributed upgrade data source is from central upgrade, the distributed upgrade is indirectly influenced.
2. The bandwidth unit is 1KB. For example, the minimum link bandwidth between AC and AP devices is 1 Mbps, the bandwidth value is 128.

**Configuration** The following example sets the upgrade bandwidth for an AP device to 1 Mbps.

**Examples** Ruijie(config-ac)# ap-upgrade band-width 128

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform** N/A

**Description**

## 2.24 ap-upgrade group

Use this command to add an AP device to the upgrade group. Use the **no** form of this command to remove the AP device from the upgrade group.

**ap-upgrade group** *group-name*

**no ap-upgrade group**

Parameter Description	Parameter	Description
	<i>group-name</i>	Upgrade group name.

**Defaults** N/A

**Command Mode** AP configuration mode

**Usage Guide** The following configuration restrictions are applied on the AP devices which are added to a upgrade group:

1. The AP devices in the same group need to be configured with the **ap-grade band-width** command, so that the upgrade bandwidth of the AP devices is identical.
2. The **capwap upgrade group** command should be configured before this command.

**Configuration Examples** The following example adds an AP device to the upgrade group UPGRADE-GROUP1.

```
Ruijie(config-ac)# ap-upgrade group UPGRADE-GROUP1
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A.

## 2.25 capwap ctrl-ip

Use this command to set the IPv4 address for the CAPWAP tunnel between the AC and the AP. Use the **no** form of this command to restore the default setting.

**capwap ctrl-ip** *ip-address*

**no capwap ctrl-ip**

Parameter Description	Parameter	Description
	<i>ip-address</i>	Specifies the IP address for the CAPWAP tunnel between the AC and





	the AP. It should be an interface IP address of the AC.
--	---

**Defaults** The default is the first IPv4 loopback IPv4 address of the AC.

**Command** AC configuration mode

**Mode**

**Usage Guide** The AC generally uses a Loopback address to create the CAPWAP tunnel. This command enables the AC to create the CAPWAP tunnel with interface addresses in other three layers.

-  This command may force the AP offline.
-  Configuring an IP address not existing on the AC causes failure to create the CAPWAP tunnel.
-  If the gateway of the AP is not on the AC, the AP address pool option should be set to the IP address in this command (if it is configured).
-  In the AC hot backup environment, if this command is used to set the CAPWAP tunnel address, use the **peer-ip A.B.C.D** command to set the same IP address on the peer-to-peer backup AC.,

**Configuration Examples** The following example sets the IP address for the CAPWAP tunnel between the AC and the AP to 10.0.0.1..

```
Ruijie(config-ac)# capwap ctrl-ip 10.0.0.1
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.26 capwap discovery-type ac-referral

Use this command to configure an AC to permit an AP to discover the AC by using discovery packets of the referral type. Use the **no** form of this command to configure an AC to forbid an AP from discovering the AC by using discovery packets of the referral type.

**capwap discovery-type ac-referral allow**

**capwap discovery-type ac-referral forbidden**

**Parameter Description**


Parameter	Description
N/A	N/A

**Defaults** An AP is permitted to discover an AC by using discovery packets of the referral type by default.

**Command** AC configuration mode

**Mode****Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. If an AC is configured to forbid an AP from discovering the AC by using discovery packets of the referral type but an AP uses discovery packets of this type, the AC does not respond to the AP and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, all APs cannot establish CAPWAP tunnels with the AC by using discovery packets of the referral type.

**Configuration Examples** The following example forbids an AP from discovering an AC by using discovery packets of the referral type.

```
Ruijie(config-ac)# capwap discovery-type ac-referral forbidden
```

**Verification** Run the **show running-config** command to check whether the configuration is successful.

**Prompts** N/A**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.27 capwap discovery-type all

Use this command to configure an AC to permit an AP to discover the AC by using any type of discovery packets. Use the **no** form of this command to configure an AC to forbid an AP from discovering the AC by using any type of discovery packets.

**capwap discovery-type all allow**

**capwap discovery-type all forbidden**


Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** An AP is permitted to discover an AC by using any type of discovery packets by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. The available types of discovery packets include referral, DHCP, DNS, static configuration, and other. If an AC is configured to forbid an AP from discovering the AC by using any type of discovery packets but the AP sends discovery packets, the AC does not respond to the AP, and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, all APs cannot establish CAPWAP tunnels with the AC by using discovery packets.

**Configuration** 1. The following example forbids an AP from discovering an AC by using any type of discovery packets.

**Examples**

```
Ruijie(config-ac)# capwap discovery-type all forbidden
```

**Verification** Run the **show running-config** command to check whether the configuration is successful.

**Prompts** N/A

**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.28 capwap discovery-type dhcp

Use this command to configure an AC to permit an AP to discover the AC by using discovery packets of the DHCP type. Use the **no** form of this command to configure an AC to forbid an AP from discovering the AC by using discovery packets of the DHCP type.

**capwap discovery-type dhcp allow**

**capwap discovery-type dhcp forbidden**

Parameter Description	Parameter	Description
	N/A	N/A


**Defaults** An AP is permitted to discover an AC by using discovery packets of the DHCP type by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. If an AC is configured to forbid an AP from discovering the AC by using discovery packets of the DHCP type but an

AP uses discovery packets of this type, the AC does not respond to the AP, and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, an AP cannot establish a CAPWAP tunnel with the AC by using the AC address obtained via DHCP.

**Configuration Examples** The following example forbids an AP from discovering an AC by using discovery packets of the DHCP type.

```
Ruijie(config-ac)# capwap discovery-type dhcp forbidden
```

**Verification** Run the **show running-config** command to check whether the configuration is successful.

**Prompts** N/A

**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.29 capwap discovery-type dns

Use this command to configure an AC to permit an AP to discover the AC by using discovery packets of the DNS type. Use the **no** form of this command to configure an AC to forbid an AP from discovering the AC by using discovery packets of the DNS type.

**capwap discovery-type dns allow**

**capwap discovery-type dns forbidden**

Parameter Description	Parameter	Description
	-	-

**Defaults** An AP is permitted to discover an AC by using discovery packets of the DNS type by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. If an AC is configured to forbid an AP from discovering the AC by using discovery packets of the DNS type but an AP uses discovery packets of this type, the AC does not respond to the AP, and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, an AP cannot establish a CAPWAP tunnel with the AC by

using the AC address obtained via DNS.

**Configuration Examples** The following example forbids an AP from discovering an AC by using discovery packets of the DNS type.

```
Ruijie(config-ac)# capwap discovery-type dns forbidden
```

**Verification** Run the **show running-config** command to check whether the configuration is successful.

**Prompts** N/A

**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.30 capwap discovery-type static-config

Use this command to configure an AC to permit an AP to discover the AC by using discovery packets containing the statically configured AC address. Use the **no** form of this command to configure an AC to forbid an AP from discovering the AC by using discovery packets containing the statically configured AC address.

**capwap discovery-type static-config allow**

**capwap discovery-type static-config forbidden**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** An AP is permitted to discover an AC by using discovery packets containing the statically configured AC address by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. Statically configured AC addresses include AC IP addresses and clusters. If an AC is configured to forbid an AP from discovering the AC by using discovery packets containing the statically configured AC address but an AP uses discovery packets of this type, the AC does not respond to the AP, and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, an AP cannot establish a CAPWAP tunnel with the AC by



using the statically configured AC address.

**Configuration** The following example forbids an AP from discovering an AC by using discovery packets containing the statically configured AC address.

**Examples**

```
Ruijie(config-ac)# capwap discovery-type static-config forbidden
```

**Verification** Run the **show running-config** command to check whether the configuration is successful.

**Prompts** N/A

**Common Errors** N/A

**Platform Description** The command is supported only on ACs.

## 2.31 capwap discovery-type unknown

Use this command to configure an AC to permit an AP to discover the AC by using other types of discovery packets. Use the **no** form of this command to configure an AC to forbid an AP from discover the AC by using other types of discovery packets.

**capwap discovery-type unknown allow**

**capwap discovery-type unknown forbidden**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** An AP is permitted to discover an AC by using other types of discovery packets by default.

**Command Mode** AC configuration mode

**Default Level** 15

**Usage Guide** The CAPWAP protocol enables an AP to discover whether an AC exists in the network. Other types refer to packet types other than the referral, DHCP, DNS, and static configuration types, such as broadcast or multicast type. If an AC is configured to forbid an AP from discovering the AC by using other types of discovery packets but an AP uses discovery packets of this type, the AC does not respond to the AP, and therefore, refuses to establish a CAPWAP tunnel with the AP.

 If "forbidden" is configured on an AC, an AP cannot establish a CAPWAP tunnel with the AC by using other types of discovery packets.

<b>Configuration</b>	The following example forbids an AP from discovering an AC by using other types of discovery packets.
<b>Examples</b>	<pre>Ruijie(config-ac)# capwap discovery-type unknown forbidden</pre>
<b>Verification</b>	Run the <b>show running-config</b> command to check whether the configuration is successful.
<b>Prompts</b>	N/A
<b>Common Errors</b>	N/A
<b>Platform Description</b>	The command is supported only on ACs.

## 2.32 capwap disc-concurrent

Use this command to configure the capacity for an AC to process CAPWAP discovery packets, in PPS.

**capwap disc-concurrent** *num*

<b>Parameter Description</b>	Parameter	Description
	<i>num</i>	Specifies the number of discovery packets that can be processed per second, which depends on the product capacity.

<b>Defaults</b>	The default value varies with the capacity of an AC.
<b>Command Mode</b>	AC configuration mode
<b>Default Level</b>	15
<b>Usage Guide</b>	There are marketed APs that send discovery packets madly. The CAPWAP module needs to control discovery packets concurrently based on the AC capacity. After this command is configured, when the number of received packets per second exceeds the configured value, the AC discards the packets directly.
<b>Configuration Examples</b>	The following example configures the number of discovery packets that can be processed by an AC.
<b>Examples</b>	<pre>Ruijie(config-ac)# capwap disc-concurrent 512</pre>
<b>Verification</b>	Run the <b>show capwap server state</b> command to display the configured packet processing concurrency capacity.
<b>Prompts</b>	N/A
<b>Common Errors</b>	N/A

**Platform**  
**Description** The command is supported only on ACs.

## 2.33 capwap data-tunnel encryption

Use this command to configure the CAPWAP tunnel encryption. Use the **no** form of this command to restore the default setting.


**capwap data-tunnel encryption { bf | des } key**  
**no capwap data-tunnel encryption { bf | des }**

Parameter Description	Parameter	Description
	<b>bf</b>	Adopts blowfish encryption.
	<b>des</b>	Adopts DES encryption (data encryption standard).
	<i>key</i>	Shared key, containing up to 255 characters and ending with the blank space.

**Defaults** N/A

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** As the CAPWAP tunnel is not encrypted by default, when the communication link between the AC and the AP is deployed on the public network, the data may be intercepted or modified. Therefore, CAPWAP tunnel encryption ensures the security of user data.

 When the encryption mode is modified, the CAPWAP tunnel is created again.

**Configuration** The following example configures des encryption for the AP with password ruijie.

**Examples** Ruijie(config-ap)# capwap data-tunnel encryption des ruijie

Related Commands	Command	Description
	N/A	N/A

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

## 2.34 capwap dtls enable

Use this command to enable DTLS encryption for the CAPWAP tunnel. Use the **no** form of this

command to disable this function.

**capwap dtls enable**

**no capwap dtls enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** AC configuration mode

**Usage Guide** This function is enabled by default to ensure security of communication between the AC and the AP. This function is disabled in some cases, for example, for test purpose.

**Configuration Examples** The following example enables DTLS encryption for the CAPWAP tunnel.

```
Ruijie(config)# ac-controller
Ruijie(config-ac)# capwap dtls enable
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.35 capwap fragment enable

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

**capwap fragment enable**

**no capwap fragment enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** After the packets are encapsulated through the CAPWAP tunnel, its length may exceed IP MTU, causing IP fragmentation. If IP MTUs of multiple nodes on a link are inconsistent, the packet may go through fragmentation and defragmentation for many times, affecting packet forwarding. This command is used to enable CAPWAP fragmentation, that is, the packet is fragmented during CAPWAP encapsulation. The length of fragmented packets can be set to the minimum MTU using the **capwap mtu** command to avoid another IP fragmentation.

**Configuration** The following example enables CAPWAP fragmentation on AP1.

**Examples**

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# capwap fragment enable
```

**Related Commands**

Command	Description
N/A	N/A

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

## 2.36 capwap max-concurrent

Use this command to set the maximum number of concurrent online APs. Use the **no** form of this command to restore the default setting.

**capwap max-concurrent** *num*  
**no capwap max-concurrent**

**Parameter Description**

Parameter	Description
<i>num</i>	The maximum number of concurrent online APs, in the range from 1 to 200.

**Defaults** The default is 50.

**Command Mode** AC configuration mode

**Usage Guide** If too many APs go online concurrently, AC CPU may increase even to 100%. This will cause the tunnel disconnection. Therefore, it is necessary to limit the number of concurrent online APs.

 If you set a small value, the total online time of all APs associated to the AC will be long.

**Configuration** The following example sets the maximum number of concurrent online APs to 100.

**Examples**

```
Ruijie(config-ac)#capwap max-concurrent 100
```

Related Commands	Command	Description
	N/A	N/A

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

## 2.37 capwap max-retransmit

Use this command to set the maximum count of CAPWAP packet retransmission. Use the **no** form of this command to restore the default setting.

**capwap max-retransmit** *num*

**no capwap max-retransmit**

Parameter Description	Parameter	Description
		<i>num</i>

**Defaults** The default is 5.

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** If the CAPWAP request packet is not responded, the packet is retransmitted, the retransmission interval increases by the initial retransmission interval (the smaller value between three seconds and half echo-interval) and the maximum retransmission interval should be no greater than the smaller value between half echo-interval and 60 seconds. If the device does not receive the response packet within the maximum count, the tunnel is considered disconnected. This command is only effective when the tunnel is in the Run state.

**Configuration Examples** The following example sets the maximum retransmission count to 20.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)#capwap max-retransmit 20
```

Related Commands	Command	Description
	N/A	N/A

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

## 2.38 capwap upgrade group

Use this command to configure an AP upgrade group. Use the **no** form of this command to remove an AP upgrade group.

**capwap upgrade group** *group-name* [ **max-concurrent** *num* ]

**no capwap upgrade group** [ *group-name* **max-concurrent** ]

### Parameter Description

Parameter	Description
<i>num</i>	The number of AP devices which can be upgraded concurrently in centralized mode. The range is from 1 to 200. The default is 5.
<i>group-name</i>	Upgrade group name

**Defaults** An upgrade group contains five APs by default.

**Command Mode** AC configuration mode

**Usage Guide** The AP number should be equal to the available bandwidth divided by max bandwidth of each AP.

**Configuration Examples** The following example creates an AP upgrade group Upgrade-Group1 and sets the concurrent number to 10.

```
Ruijie(config-ac)# capwap upgrade group Upgrade-Group1 max-current 10
```

### Related Commands

Command	Description
N/A	N/A

**Platform Description** N/A

## 2.39 capwap mtu

Use this command to set the Path MTU (PMTU) for the CAPWAP tunnel. Use the **no** form of this command to restore the default setting.

**capwap mtu** *num*

**no capwap mtu**


### Parameter Description

Parameter	Description
<i>num</i>	Sets the PMTU for the CAPWAP tunnel, in the range from 68 to 1500 in the unit of bytes.

**Defaults** The default is 1500.

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** If the CAPWAP-encapsulated packet is longer than the PMTU, the packet is fragmented. Set the PMTU equal to the maximum IP MTU so as to avoid IP fragmentation and defragmentation.

 A small PMTU will produce a large quantity of packet fragments, affecting packet forwarding or even leading to transmission failure. It is recommended to set a reasonable PMTU.

**Configuration** The following example sets the PMTU for the CAPWAP tunnel to 1200 bytes.

**Examples**

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# capwap mtu 1200
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A.

## 2.40 capwap upgrade max-concurrent

Use this command to set the maximum number of concurrently upgrading APs. Use the **no** form of this command to restore the default setting.

**capwap upgrade max-concurrent** *num*

**no capwap upgrade max-concurrent**

**Parameter Description**

Parameter	Description
<i>num</i>	The maximum number of concurrently upgrading APs, in the range from 1 to 200.

**Defaults** The default is 15.

**Command Mode** AC configuration mode

**Usage Guide** If too many APs upgrade concurrently, AC CPU may increase even to 100%. This will cause tunnel disconnection. Therefore, it is necessary to limit the number of concurrently upgrading APs.

**Configuration** The following example sets the maximum number of concurrently upgrading APs to 10.



**Examples**

```
Ruijie(config-ac)#capwap upgrade max-concurrent 10
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 2.41 echo-interval

Use this command to configure the keep-alive interval for CAPWAP. Use the **no** form of this command to restore the default setting.

**echo-interval** *seconds*

**no echo-interval**

**Parameter  
Description**

Parameter	Description
<i>seconds</i>	This parameter indicates the keep-alive interval for CAPWAP, in the range from 5 to 255 in the unit of seconds.

**Defaults**

The default is 30 seconds.

**Command  
Mode**

AP configuration mode or AP group configuration mode

**Usage Guide**

In the fit AP network frame, AC and AP are connected through the CAPWAP tunnel. Echo Request and Echo Response are used to keep the validity of the link. In the case of no other request packets, AP sends the Echo Request packet to keep alive every echo interval. If AP does not receive a response, the packet will be retransmitted at the multiple original retransmission intervals (3 seconds or half the echo interval, taking the smaller value) and the longest retransmission interval cannot exceed half the echo interval or 60 seconds (taking the smaller value). It is considered that the tunnel is interrupted if the AP does not receive the response packet within the maximum retransmit times, which means the failure time of keep alive of the tunnel is the keep-alive time plus retransmission intervals. This command only takes effect in the Run status of the tunnel. By default, the echo-interval is 30 seconds, the maximum retransmit times are 5. Namely, the AP device sends a request and does not receive a response after 0 second, the request packet will be retransmitted at the interval of 3 seconds, 6 seconds, 12 seconds, 15 seconds and 15 seconds.



In the deployment of wireless networks, you can adjust the echo interval based on network size to plan the convergence capability of the network. During the adjustment, make sure that you

know the network size and the network does require the convergence capability to prevent impacts on the network environment due to too low value in the wireless network deployed by massive APs.

The following example configures a 10-second echo interval for AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# echo-interval 10
```

The following example configures a 10-second echo interval for all APs.

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# echo-interval 10
```

The following example configures a 10-second echo interval for all APs in the default AP group.

```
Ruijie(config)# ap-group default
Ruijie(config-ap-group)# echo-interval 10
```

### Configuration Examples

Related Commands	Command	Description
	N/A	N/A

Platform N/A  
Description

## 2.42 exec-cmd

Use this command to configure an AP to execute a command. Use the no form of this command to remove the setting.

**exec-cmd mode** *exec-mode* **cmd** *exec-cmd* **once**

**no exec-cmd mode** *exec-mode* **cmd** *exec-cmd*

Use this command to configure all APs in an AP group to execute a command.

**exec-cmd** *exec-cmd*

Parameter Description	Parameter	Description
	<i>exec-mode</i>	Indicates the mode in which a command is executed on the AP.
	<i>exec-cmd</i>	Indicates the command to be executed on the AP.
	<b>once</b>	Indicates that the command is executed only once and is not saved.

Defaults N/A

Command Mode Single AP configuration mode/All APs configuration mode

Usage Guide Some configuration commands are supported currently only by the AP and they are unavailable on the AC. To configure the commands for APs on the AC, run the **exec-cmd** command. To cancel or

change the configuration of the **exec-cmd** command, run the **no exec-cmd** command to remove the configuration and then run the **exec-cmd** command to cancel or change the required configuration. If **ap-config all** and **ap-config** are configured simultaneously, for online APs, the later configuration will take effect; for offline APs, **ap-config** has a higher priority than **ap-config all**. Some configuration commands are available only in AP configuration mode and they are unavailable in AP group configuration mode. To configure such a command for all APs in an AP group, run the **exec-cmd** command in the AP group. Note that the configuration is not saved in AP group configuration mode, that is, the command is executed only once on all APs in the current AP group.

**Configuration** The following example disables Eweb for an AP.

**Examples**

```
Ruijie(config)#ap-config AP1
Ruijie(config-ap)# exec-cmd mode configure cmd "no enable service web-server all"
```

The following example enables Eweb for an AP,

```
Ruijie(config-ap)# no exec-cmd mode configure cmd "no enable service web-server all"
Ruijie(config-ap)# exec-cmd mode configure cmd "enable service web-server all"
```

The following example configures Bluetooth iBeacon for all APs in the AP group.

```
Ruijie(config)#ap-group default
Ruijie(config-group)#exec-cmd ibeacon uuid ffffffff-fffffff-fffffff-fffffff-fffffff
major ffff minor ffff
```

The following example disables Eweb for all APs in the AP group.

```
Ruijie(config-group)#exec-cmd exec-cmd mode configure cmd "no enable service web-server all"
```

Related Commands	Command	Description
	N/A	N/A

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

### 2.43 install update

Use this command to update the installation status of mini AP.

**install update**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** AP configuration mode

**Usage Guide** Once a mini AP is installed to a Master AP, the mini AP is considered as Offline if it is manually removed. You can use this command to update the installation status of mini APs to Uninstalled. This configuration is not saved.

**Configuration Examples** The following example updates the installation status of all mini APs.

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# install update
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.44 ip address

Use this command to configure the static IP address of a specified AP. Use the **no** form of this command to restore the default setting.

**ip address** *ip-address network-mask gateway*


**no ip address**

Parameter Description	Parameter	Description
	<i>ip-address</i>	Interface address of the AP.
	<i>network-mask</i>	Address mask of the AP.
	<i>gateway</i>	Gateway of the AP.

**Defaults** N/A

**Command Mode** AP configuration mode

**Usage Guide** The AP can obtain its IP address through static configuration or DHCP. If the AP has not a static IP address, it will obtain an address dynamically by DHCP and join the AC. In this case, you can use this command to configure the static address of the AP so that the address keeps unchanged after the AP restarts.

-  1. With the AP address configured as static, the DHCP is disabled, and the AC address cannot be obtained through the OPTION of DHCP. Therefore, before this command is configured, you

need to configure the address of the AC connected by using the command "acip" in AP configuration mode so that the AP can find and join the AC when the AP and the AC are not in the same subnet.

2. If the current address of the AP is not the same as the one specified through this command, the static address will be updated and the CAPWAP tunnel will be re-created.

The following example configures the address of AP0001 as 1.1.1.1, its mask as 255.255.255.0, and its next hop as 1.1.1.2.

**Configuration****Examples**

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# ip address 1.1.1.1 255.255.255.0 1.1.1.2
```

**Related  
Commands**

Command	Description
<b>apip</b>	Configures the static address of an AP on the AP.
<b>acip</b>	Specifies the AC address to be connected with by an AP.

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

## 2.45 ipv6 address

Use this command to specify a static IPv6 address for an AP. Use the **no** form of this command to restore the default setting.

**ipv6 address** *ipv6-address-with-mask gateway*

**no ipv6 address**

**Parameter  
Description**


Parameter	Description
<i>ipv6-address-with-mask</i>	Specifies an interface IPv6 address of the AP, in the format similar to X:X:X:X/24.
<i>gateway</i>	Specifies an IPv6 gateway address of the AP.

**Defaults** N/A

**Command  
Mode** AP configuration mode

**Usage Guide**

An IPv6 address of an AP can be manually configured or obtained through DHCPv6. By default, the AP obtains an IPv6 address for itself through DHCPv6. If the AP has no static IPv6 address, it dynamically obtains an IPv6 address through DHCPv6 and joins an AC. You can run this command to set a static IPv6 address for the AP to ensure that the address of the AP remains unchanged after the AP is restarted.

-  1. If a static IPv6 address is set for the AP, DHCPv6 will be disabled. As a result, the AP cannot obtain IPv6 addresses of ACs through DHCPv6 OPTION. Therefore, before running this command, you must use the **acip ipv6** command to specify the IPv6 address of the AC to be connected with the AP in AP configuration mode. After this configuration, the AP can discover and join the AC even if they are not on the same sub-network.
2. If the current IPv6 address of the AP is different from the static IPv6 address set by this command, the former will be overwritten by the latter. If the AP is enabled with IPv6 support, it will re-establish CAPWAP tunnels. If not, it will not re-establish CAPWAP tunnels.
3. If both IPv4 and IPv6 addresses are specified for the AP, and IPv6 support is enabled on it, the AP will search for IPv4 and IPv6 ACs at the same time.

The following example sets IPv6 address 2001:1a2b:1234::5566/48 for AP0001 and specifies gateway address 2001:1a2b:1234::1.

**Configuration****Examples**

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# ipv6 address 2001:1a2b:1234::5566/48 2001:1a2b:1234::1
```

**Related  
Commands**

Command	Description
<b>apip ipv6</b>	Configures a static IPv6 address for the AP on itself.
<b>apip ipv6 enable</b>	Enables IPv6 support on the AP.
<b>ipv6 enable</b>	Enables IPv6 support for the AP on an AC in AP configuration mode.
<b>acip ipv6</b>	Specifies the IPv6 address of an AC connected with the AP.

**Platform**

N/A

**Description**

## 2.46 ipv6 enable

Use this command to enable IPv6 support on a specific AP on an AC. Use the **no** form of this command to restore the default setting.

**ipv6 enable**

**no ipv6 enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults**

An AP is enabled with IPv6 support by default.


**Command**

AP configuration mode/global AP configuration mode

**Mode**

An AP can search for IPv6 ACs based on IPv6 addresses only when it is enabled with IPv6 support. By default, the AP is disabled with IPv6 support. You can use this command to enable IPv6 support on the AP and use the **no** form of this command to disable IPv6 support from the AP.

**Usage Guide**

-  1. If running this command changes the IPv6 support state of the AP, the AP will re-establish CAPWAP tunnels.
2. If the AP with both static IPv4 and IPv6 addresses is enabled with IPv6 support, the AP will re-establish CAPWAP tunnels and search for IPv4 and IPv6 ACs. It is not sure that the AP will join an IPv6 AC found by the AP. To allow the AP to search for only IPv6 APs, you can delete the static IPv4 address from the AP before enabling IPv6 support on the AP.

**Configuration Examples**

The following example enables IPv6 support on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# ipv6 enable
```

**Related Commands**

Command	Description
<b>apip ipv6 enable</b>	Enables IPv6 support for the AP on the AP itself.
<b>ipv6 address</b>	Sets an IPv6 address for the AP on the AC in AP configuration mode.

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

## 2.47 link-latency

Use this command to check the link status between an AC and the APs in a specified AP group. Use the **no** form of this command to remove the configuration.

**[no] link-latency**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** AP configuration mode/AP group configuration mode

**Usage Guide** N/A

The following example enables inspection of the link status between specified AP-0001 and an AC, and check information about the corresponding link status.

**Configuration**

```
Ruijie(config)#ap-config AP-0001
```

```
Ruijie(config-ap)#link-latency
```

**Examples**

The following example enables inspection of the link status between an AC and the APs in the **default** AP group, and check the link status information about the specified AP-0001.

```
Ruijie(config)# ap-group default
```

```
Ruijie(config-ap-group)# link-latency
```

**Related Commands**

Command	Description
<b>show ap-config link-latency</b>	Checks link status between AC and AP.

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

## 2.48 location

Use this command to configure information about AC and AP location. Use the **no** form of this command to restore the default setting.

**location** *location-string*

**no location**

**Parameter Description**

Parameter	Description
<i>location-string</i>	Indicates AC location information, which can consist of up to 255 characters without any space.

**Defaults** By default, the AC location information is Ruijie\_COM, the AP location information is null.

**Command Mode** AC configuration mode/AP configuration mode

**Usage Guide** N/A

The following example configures the location of a specific AC to the second floor of the computer department building (computer-layer2).

**Configuration**

```
Ruijie(config-ac)# location computer-layer2
```

**Examples**

The following example configures AP0001 location information to AP-company.

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# location AP-company
```

**Related Commands**

Command	Description
N/A	N/A



**Platform** N/A

**Description**

## 2.49 reset slot

Use this command to reload a mini AP installed to a Master AP.

**reset slot** *slot-id*

Parameter	Parameter	Description
<b>Description</b>	<i>slot-id</i>	Slot number. The range is from 1 to 24.

**Defaults** N/A

**Command** AP configuration mode

**Mode**

**Usage Guide** This command can take effect only on the Master AP and can enable reloading for only one mini AP per execution.

This configuration is not saved.

**Configuration Examples** The following example reloads the mini AP1 which is installed on slot1 of Master AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# reset slot 1
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 2.50 set version

Use this command to set the version number.

**set-version** *string*

Parameter	Parameter	Description
<b>Description</b>	<i>string</i>	Sets the version number.

**Defaults** N/A

**Command** AC configuration mode  
**Mode**

**Usage Guide** This command is used to set the version number and push version number to APs.

**Configuration** The following example sets the version number to RGOS 10.4(2B17)-SP2.

**Examples**

```
Ruijie(config)# ac-controller
Ruijie(config-ac)# set-version RGOS 10.4 (2B17) -SP2
```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 2.51 show ac-config active-file

Use this command to display a list of activated files on the current AC. The **Used** field indicates how many APs are using this file, and the **Ready** field indicates whether this file has been activated completely.

**show ac-config active-file**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

The following example displays a list of activated files on the current AC.

**Configuration  
Examples**

```
Ruijie#show ac-config active-file
Cnt   File Name                               Image Id           Software number
Type   Used Cnt  DL Cnt  Ready
-----
1     ap220ev1.1-mid(6-3).bin                 RGOS 10.X-UPG     NA
rgos10  0        0        Init
2     ap220.bin                               1.0.0.017ed304    M09092708272014
```

```
main      0      0      Init
```

Related Commands	Command	Description
	N/A	N/A

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

## 2.52 show ac-config serial-product

Use this command to display the correspondence association between the AP product series and product models configured of the AC, and display which files should be used to upgrade the corresponding product series.

**show ac-config serial-product**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays the AP product series and product models configured for the current AC.

```
Ruijie#show ac-config serial-product

Cnt      Serial Name      Hardware Version File Name      AP Product ID
-----
1        ap-ser1.x         1.x           ap220-1.bin   AP220-E
                                     AP220-SE
                                     AP220-SH
                                     AP620-H
                                     AP220-E (M)
2        ap-ser2.x         2.x           ap220.bin     AP220-E
                                     AP220-SH
                                     AP220-E (M)
```

**Configuration Examples**

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 2.53 show ac-config upgrade-group

Use this command to display the upgrade groups and AP devices on the AC device.

**show ac-config upgrade-group** [*group-name*]

Parameter Description	Parameter	Description
	<i>group-name</i>	AP upgrade group name.

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays AP upgrade groups.

**Examples**

```
Ruijie#show ac-config upgrade-group
Cnt   Group-Name           Max-Concurrent   Token cnt   Upgrading cnt
-----
1     UPGRADE-GROUP1       10               2           1
```

The following example displays the AP devices in the upgrade group.

```
Ruijie#show ac-config upgrade-group UPGRADE-GROUP1
Group have 2 ap, online 1 offline 1
Cnt   Ap-Name           Ap-Mac           Online   Upgrade
Band-width
-----
1     ap220e           8832.0000.1111   true    true    128
2     ap330            -                false   false   128
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.54 show ap-config board-data

Use this command to display the board data information of an AP.

**show ap-config board-data** *ap-name*

	Parameter	Description
Parameter	<i>ap-name</i>	Indicates the name of the AP to be queried.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays the board data information of an AP.

```
ac#show ap-config board-data wlan-ap-0001
Ap(wlan-ap-0001)'s board data:
wtp model num      :
wtp serial num     :1234567890123
board id           :AP220E
board reversion    :AP2
base address       :0011.2233.4455
```

**Configuration**

**Examples**

	Command	Description
Related Commands	N/A	N/A

**Platform** N/A

**Description**

## 2.55 show ap-config link-latency

Use this command to check the link status between AC and AP.

**show ap-config link-latency** {all | single *ap-name*}

	Parameter	Description
Parameter	<b>all</b>	Indicates that you check the link status information of all APs associated with the AC.
Description	<b>single</b> <i>ap-name</i>	Indicates that you check the link status information of a single AP.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays the link status information of the specified AP-0001.

**Configuration Examples**

```
Ruijie(config)#show ap-config link-latency single AP-0001
AP Name      Status      Current      Maximum      Minimum
-----
AP-0001     Enabled      4           ms 22        ms 2         ms
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.56 show ap-config inventory

Use this command to display the manufacturer information about an AP.

**show ap-config inventory** *ap-name*

**Parameter Description**

Parameter	Description
<i>ap-name</i>	Indicates the name of the AP to be queried.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays the manufacturer information of an AP.

**Configuration Examples**

```
ac#show ap-config inventory wlan-ap-0001
AP Name: wlan-ap-0001
Location:
Product Id: AP220E
Vendor Id: 31762
SN: 1531991320
```

Related	Command	Description
Commands	N/A	N/A

Platform N/A  
Description

## 2.57 show ap-config reboot

Use this command to display the reboot information about an AP.

**show ap-config reboot** *ap-name*

Parameter	Parameter	Description
Description	<i>ap-name</i>	Indicates the name of the AP to be queried.

Defaults N/A

Command Privileged EXEC mode  
Mode

Usage Guide N/A

The following example displays the reboot information of an AP.

```
ac#show ap-config reboot wlan-ap-0001
Ap(wlan-ap-0001)'s reboot statistic:
Reboot Cnt          :0
AC Init Cnt         :0
Link Fail Cnt       :0
SW Fail Cnt         :0
HW Fail Cnt         :0
Other Fail Cnt      :0
Unknow Fail Cnt     :0
Last Fail Type      :0
```

Configuration  
Examples

Related	Command	Description
Commands	N/A	N/A

Platform N/A  
Description

## 2.58 show ap-config slot

Use this command to display the mini APs in a specified Master AP.

**show ap-config slot** *ap-name*

Parameter	Parameter	Description
Description	<i>ap-name</i>	Indicates the name of the Master AP.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** This command displays information of online Master APs only.

The following example displays the mini APs in Master AP AM5528.

### Configuration Examples

```
Ruijie#show ap-config slot AM5528(EP)
Radio: Radio ID
      E = enabled, D = disabled, N = Not exist
      Current Sta number
      Channel: * = Global
      Power Level = Percent

Install Slot Number: 48
Online Slot Number: 11
Offline Slot Number: 37
Slot ID Role      Slot Name                Model      Slot Mac      Radio
Radio            Up/Off time  State
-----
1      master    19#4F_wenmi                MAP552     5869.6c36.e29b 1  E
3  9   50 2  E   6 165 100   0:04:18:03 online
2      master    19#4F_fangjian_1          MAP752(ST) 5869.6c36.e22d 3
E 4 13 50 4  E   5 153 100   0:04:17:58 online
2      slave     19#4F_fangjian_2          MAP752(ST) 5869.6c36.e32c 5
E 3 6 50 6  E   3 36 100   0:04:17:52 online
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A



## 2.59 show ap-config static-ip

Use this command to display static address information on the AP.

**show ap-config static-ip { all | single *ap-name* }**

Parameter Description	Parameter	Description
	<b>all</b>	Displays all APs.
	<b>single</b>	Displays one single AP.
	<i>ap-name</i>	The AP name.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays static address information, including the AP name, IP address, network mask and gateway.

**Examples**

```
Ruijie#show ap-config static-ip single 0034.5612.78a0
AP Name      Static IP   Net Mask    Gateway
-----
0034.5612.78a0  Enabled 22.22.22.22 255.255.255.0 22.22.22.53
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 2.60 show ap-config summary location

Use this command to display location information on all APs.

**show ap-config summary location**

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 location information on all APs, including the AP name, MAC address, location, and status (online/offline).

```
Ruijie#show ap-config summary location
AP Name                               IP Address      Mac Address     Location
State
-----
ap220                                  172.18.100.4   1414.4b13.9ff3
Bangongshi_4#                          Run
ap3                                     172.18.100.16  001a.a94e.d40d teaching
building 20#3F                          Run
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 2.61 show ap-config summary slot

Use this command to display the mini APs in all Master APs.

**show ap-config summary slot**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** This command displays information of online Master APs only.

**Configuration** The following example displays the mini APs in all Master APs.

**Examples**

```

Ruijie#show ap-config summary slot
Radio: Radio ID
      E = enabled, D = disabled, N = Not exist
      Current Sta number
      Channel: * = Global
      Power Level = Percent

Total AP Number: 1
Total Install Slot Number: 48
Total Online Slot Number: 11
Total Offline Slot Number: 37

AP(AM5528EP)'s Slots Information
Install Slot Number: 48
Online Slot Number: 11
Offline Slot Number: 37
Slot ID Role   Slot Name           Model   Slot Mac   Radio
Radio          Up/Off time   State
-----
1      master   19#4F_wenmi           MAP552   5869.6c36.e29b 1  E
3  9  50 2  E  6 165 100  0:04:18:03 online
2      master   19#4F_fangjian_1     MAP752 (ST) 5869.6c36.e22d 3  E
4 13  50 4  E  5 153 100  0:04:17:58 online
2      slave    19#4F_fangjian_2     MAP752 (ST) 5869.6c36.e32c 5  E
3  6  50 6  E  3  36 100  0:04:17:52 online

```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A**Description****2.62 show ap-config summary slot interface**

Use this command to display all downlink ports of i-Share+ APs.

**show ap-config summary slot interface**

**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 all downlink ports of i-Share+ APs.

**Examples**

```
Ruijie#sh ap-config summary slot interface
AP(00d0.f822.33dc)'s information
AP mac          IP Address      Slot ID Role    Status Duplex Speed
-----
00d0.f822.33dc 102.102.102.102 1      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 2      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 3      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 4      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 5      master up    Full   1000M
00d0.f822.33dc 102.102.102.102 6      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 7      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 8      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 9      master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 10     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 11     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 12     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 13     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 14     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 15     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 16     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 17     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 18     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 19     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 20     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 21     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 22     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 23     master down   Unknown Unknown
00d0.f822.33dc 102.102.102.102 24     master down   Unknown Unknown
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A

## 2.63 show ap-config summary group

Use this command to display i-Share+ APs among the AP group.

**show ap-config summary group**

Parameter Description	Parameter	Description
	<i>apg-name</i>	AP group name.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays i-Share+ APs among AP group 1.

```

Examples Ruijie#sh ap-c summary group group-1
Radio: Radio ID
E = enabled, D = disabled, N = Not exist
Current Sta number
Channel: * = Global
Power Level = Percent

Total AP Number: 1
Total Install Slot Number: 16
Total Online Slot Number: 1
Total Offline Slot Number: 15

AP(5528ep)'s Slots Information
Install Slot Number: 16
Online Slot Number: 1
Offline Slot Number: 15

AP mac Slot ID Role Slot Name Model Slot Mac Radio Radio Up/Off time State
-----
00d0.f822.3434 1 master - MAP752(S) 0000.0006.0000 1 N - - - 2 N - - - 0:00:08:37 offline
00d0.f822.3434 4 master 00d0.f812.354a MAP752(T) 00d0.f812.354a 7 E 0 11* 100 8 E 0 149* 100
0:00:08:37 online
00d0.f822.3434 5 master - MAP752(T) 00d0.f812.354a 9 N - - - 10 N - - - 0:00:08:37 offline
00d0.f822.3434 8 master - MAP752(T) 00d0.f812.354a 15 N - - - 16 N - - - 0:00:08:37 offline
00d0.f822.3434 11 master - MAP752(ST) 00d0.f855.661c 21 N - - - 22 N - - - 0:00:08:37 offline
00d0.f822.3434 12 master - MAP752(ST) 00d0.f855.661c 23 N - - - 24 N - - - 0:00:08:37 offline
00d0.f822.3434 13 master - MAP752(ST) 00d0.f855.661c 25 N - - - 26 N - - - 0:00:08:37 offline
    
```

```

00d0.f822.3434 14 master - MAP752(T) 00d0.f812.354a 27 N - - - 28 N - - - 0:00:08:37 offline
00d0.f822.3434 15 master - MAP752(T) 00d0.f812.354a 29 N - - - 30 N - - - 0:00:08:37 offline
00d0.f822.3434 16 master - MAP752(T) 00d0.f812.354a 31 N - - - 32 N - - - 0:00:08:37 offline
00d0.f822.3434 17 master - MAP752(ST) 00d0.f855.661c 33 N - - - 34 N - - - 0:00:08:37 offline
00d0.f822.3434 18 master - MAP752(T) 00d0.f812.354a 35 N - - - 36 N - - - 0:00:08:37 offline
00d0.f822.3434 21 master - MAP752(T) 00d0.f812.354a 41 N - - - 42 N - - - 0:00:08:37 offline
00d0.f822.3434 22 master - MAP752(ST) 00d0.f855.661c 43 N - - - 44 N - - - 0:00:08:37 offline
00d0.f822.3434 23 master - MAP752(T) 00d0.f812.354a 45 N - - - 46 N - - - 0:00:08:37 offline
00d0.f822.3434 24 master - MAP752(T) 00d0.f812.354a 47 N - - - 48 N - - -
0:00:08:37 offline

```

Field	Description
Total Install Number	The number of installed mini APs associated with all APs.
Total Online Number	The number of online mini APs associated with all APs.
Total Offline Number	The number of offline mini APs associated with all APs.
Install Number	The number of installed mini APs associated with current AP.
Online Number	The number of online mini APs associated with current AP.
Offline Number	The number of offline mini APs associated with current AP.
Slot ID	Mini AP slot number
Role	Mini AP role, including master and slave.
Slot Name	Mini AP name
Model	Mini AP model
MAC Address	Mini AP MAC address
Radio	Radio ID, status, clients, channel and power of mini AP.
Up/Off time	Up/Off time
State	Online/Offline Status

#### Related Commands

Command	Description
N/A	N/A

#### Platform

N/A

#### Description

## 2.64 show ap-config updating-list

Use this command to display upgrade information on the AP.

**show ap-config updating-list**

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 upgrade information on the AP.

**Examples**

```
Ruijie#show ap-config updating-list
```

AP NAME	AP PID	File Tx	Time	AP Reset
Ready				
-----				
AP220-I	AP220-I	100	00:00:45	Y
00d0.1414.3f67	AP220-E	98	00:00:48	N

Field	Description
AP NAME	AP name.
AP PID	AP ID.
File Tx	File transfer process.
Time	Upgrade duration.
AP Reset Ready	Resets after upgrade is complete.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 2.65 show ap-config wtp-descriptor

Use this command to display the status description of an AP.

**show ap-config wtp-descriptor** *ap-name*

Parameter Description	Parameter	Description
	<i>ap-name</i>	Indicates the name of the AP to be queried.

<b>Defaults</b>	N/A
<b>Command Mode</b>	Privileged EXEC mode
<b>Usage Guide</b>	N/A

The following example displays the status description of an AP.

```
ac#show ap-config wtp-descriptor wlan-ap-0001
Ap(wlan-ap-0001)'s wtp descriptor:
max radio          :2
radio in used      :2

encrypt num        :2
Cnt  WBID  Encry Cap
1   0x1    0xc

sub descriptor num :3
Cnt  vnder id version type  version len  version
1   0x7c12  BOOT Ver    28          MainVer10.SubVer4.SvnVer3634
2   0x7c12  ACT SW Ver   30          RGOS 10.4 (1t7) (1T7),
Release(73413)
3   0x7c12  HW Ver       3           1.0
```

**Configuration Examples**

Related Commands	Command	Description
	N/A	N/A

<b>Platform Description</b>	N/A
-----------------------------	-----

## 2.66 show ap-config wtp-info

Use this command to display the AP device status.

**show ap-config wtp-info** *ap-name*

Parameter Description	Parameter	Description
	<i>ap-name</i>	AP device name

<b>Defaults</b>	N/A
<b>Command Mode</b>	Privileged EXEC mode



**Usage Guide** N/A

**Configuration** The following example displays the AP device status.

**Examples**

```
Ruijie#show ap-config wtp-info ap220e
Ap(ap220e)'s status:
AC IP(status):      :101.101.101.101
AC IPV6(status):    :
AP IP(status):      :10.10.10.8 255.255.255.0 10.10.10.2
AP IPV6(status):    :::/0 ::
AP IPV4 ENABLE:     :enable
AP IPV6 ENABLE:     :disable
IPV6 AUTOCONFIG:    :disable
Location Data:      :
Session ID:         :88320000,111163fb,5c3b3cb3,2cac585a
mac type            :full support
WTP Name:           :ap220e
AP Domain Name:     :ac.ruijie.com.cn
wired vlan          :0 port id 1
wired vlan          :0 port id 2
wired vlan          :0 port id 3
wired vlan          :0 port id 4
Cw_interface_name   :BVI 1
Cw_wan_interface_ifx::1
Cw_wan_interface_ifx::0
Upgrading State     :Init
AP Image file       :NA
Real version        :1.0.0.641d31e6
Custom version      :AP_RGOS 11.1(2)B1
Upgrade version     :NA
Upgrade from AP     :FALSE
Upgrade for other AP:FALSE
Upgrade from AC     :FALSE
Wait for upgrade    :FALSE
Support distr-upg   :TRUE
Upgrade-banfwidth   :128
Upgrade group       :Upgrade-group1
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A

## 2.67 show capwap detail

Use this command to display details about the CAPWAP tunnel.

**show capwap** [ *index* | [ *ip-address* [ *port* ] ] ] **detail**

Parameter Description	Parameter	Description
	<i>index</i>	Tunnel index.
	<i>ip-address</i>	Tunnel IP address.
	<i>port</i>	Tunnel port number.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays details about the CAPWAP tunnel whose address is 1.1.1.1.

### Examples

```
Ruijie#show capwap 1.1.1.1 detail
CAPWAP process "capwap 1" with state Run
  Process uptime is 3 days 0 hour 41 minutes
  Echo interval is 30 secs, Dead interval is 81 secs
  Current timers echo-interval
  Peer address is 172.18.59.5
  Peer control port is 10000, data port is 10001
  My address is 55.55.55.60
  The MAC of AP is 001a.a94e.d773
  The Session ID of AP is 001a.a94e.d773.53e1.0801.53e1.0801.53e1
  The Path MTU is 1500
  Recent received request's sequence number 39
  Recent received response's sequence number 11
  Recent send request's sequence number 11
  Retransmit Count 0, Discovery Count 0, Failed DTLS Session Count 0
  Sending queue length 0, Receive queue length 0
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.68 show capwap state

Use this command to display the CAPWAP tunnel state.

**show capwap state**

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 CAPWAP tunnel state.

**Examples**

```
Ruijie#show capwap state
CAPWAP tunnel state, 3 peers, 2 is run:
Index Peer IP Peer Port State Mac Address
1 192.168.0.1 10000 Run 001a.a900.0001
2 192.168.0.2 10000 Run 001a.a900.0002
3 192.168.0.3 10000 DTLS Teardown 001a.a900.0003
```

Field	Description
Index	Tunnel index.
Peer IP	Peer IP address.
Peer Port	Peer port number.
State	Tunnel state.
Mac Address	AP MAC address, only displayed on ACs.

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.69 show capwap statistics

Use this command to display statistics about the CAPWAP tunnel packets.

**show capwap [ *index* | [ *ip-address* [ *port* ] ] ] statistics**

Parameter Description	Parameter	Description
	<i>index</i>	Tunnel index.
	<i>ip-address</i>	Tunnel IP address.
	<i>port</i>	Tunnel port number.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays packet statistics about the CAPWAP tunnel whose IP address is 1.1.1.1.

```
Ruijie#show capwap 1.1.1.1 statistics
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.70 show version

Use this command to display the AP version.

**show version { *all* | *ap-name* }**

Parameter Description	Parameter	Description
	<b>all</b>	All APs.
	<i>ap-name</i>	Specifies an AP.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the version information on all APs.

**Examples**

```
Ruijie#show version all
AP(AP220E-0)'s version:
  Product ID       : AP220-E
  System uptime    : 0:3:9:32
  Hardware version : 2.00
  Software version : AP_RGOS 11.1(2)B1
  Patch number     : SP2
  Software number  : M05563609152014
  Serial number    : 1234942570005
  MAC address      : 00d0.f822.33b0

AP(AP220E-2)'s version:
  Product ID       : AP220-E
  System uptime    : 0:6:11:53
  Hardware version : 2.00
  Software version : AP_RGOS 11.1(2)B1
  Patch number     : SP2
  Software number  : M05563609152014
  Serial number    : 1234942570018
  MAC address      : 001a.a9bd.0c1b
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 2.71 slot

Use this command to name a mini AP. Use the **no** form of this command to delete the mini AP name.

**slot** *slot-id slot-name*

**no slot** *slot-id* { *slot-name* [ **secondary** ] | **mac** *mac-address slot-name* }

**no slot** *slot-id* [ { *slot-name* [ **secondary** ] | **mac** *mac-address* } ]

**Parameter  
Description**

Parameter	Description
<i>slot-id</i>	Slot number. The range is from 1 to 24.
<i>ap-name</i>	mini AP name, containing up to 63 characters without spaces.
<i>secondary</i>	Secondary mini AP.

<i>mac-address</i>	MAC address of mini AP.
--------------------	-------------------------

**Defaults** By default, a mini AP is not named.

**Command** AP configuration mode

**Mode**

**Usage Guide** This command can take effect only on the Master AP and can configure the name for only one mini AP per execution.

This configuration is not saved.

If you want to name the secondary mini AP, please add the **secondary** parameter.

**Configuration** The following example sets the name of mini AP1 as 1#101.

**Examples** Ruijie(config)# ap-config AP0001

```
Ruijie(config-ap)# slot 1 1#101
```

The following example sets the name of secondary mini AP to 1#102.

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# slot 1 1#102 secondary
```

The following example sets the name of mini AP with MAC address 0001.0001.0001 of slot 1 to 1#101

The following example sets the name of mini AP with MAC address 0001.0001.0002 to 1#102

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# slot 1 mac 0001.0001.0001 1#101
```

```
Ruijie(config-ap)# slot 1 mac 0001.0001.0002 1#102
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.72 timestamp

Use this command to configure a specified AP or all APs in a specified AP group to synchronize with the AC in time.

**timestamp**

**Parameter**

Parameter	Description
N/A	N/A

**Description**

**Defaults** N/A

**Command** AP configuration mode/AP group configuration mode

**Mode**

**Usage Guide** N/A

The following example configures AP0001 to synchronize with the AC in time.

```
Ruijie(config)# ap-config AP0001
```

```
Ruijie(config-ap)# timestamp
```

**Configuration Examples**

The following example configures all APs in the AP group (Default) to synchronize with the AC in time.

```
Ruijie(config)# ap-group default
```

```
Ruijie(config-ap-group)# timestamp
```

**Related**

**Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.73 tran-data-show

Use this command to display log information transmitted recently from a specified AP to the AC.

**tran-data-show** *ap-name* { **exception** | **cpuinfo** | **memory** | **syslog** | **tech-support** }

**Parameter**

**Description**

Parameter	Description
<i>ap-name</i>	Indicates the name of the specified AP.
<b>exception</b>	Indicates the crash log information of the specified AP.
<b>cpuinfo</b>	Indicates the CPU information of the specified AP.
<b>memory</b>	Indicates the memory information of the specified AP.
<b>syslog</b>	Indicates the general log information of the specified AP.
<b>tech-support</b>	Indicates the console information of the specified AP.

**Defaults** N/A

**Command** AC configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays the crash log of AP0001.

**Examples**

```
Ruijie(config-ac)# tran-data-show AP0001 exception
```

The following example displays the CPU information of AP0001.

```
Ruijie(config-ac)# tran-data-show AP0001 cpuinfo
```

The following example displays the memory information of AP0001.

```
Ruijie(config-ac)# tran-data-show AP0001 memory
```

The following example displays the general log information of AP0001.

```
Ruijie(config-ac)# tran-data-show AP0001 syslog
```

The following example displays the console information of AP0001.

```
Ruijie(config-ac)# tran-data-show AP0001 tech-support
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.74 tran-data-start

Use this command to obtain log information about a specified AP.

**tran-data-start** *ap-name* { **exception** | **memory** | **tech-support** | **tech-package** }

**Parameter  
Description**

Parameter	Description
<i>ap-name</i>	Indicates the name of the specified AP.
<b>exception</b>	Indicates the crash log information sent by the specified AP.
<b>memory</b>	Indicates the device status information sent by the specified AP, including CPU information, memory information, and general log information (including port UP/DOWN information).
<b>tech-support</b>	Indicates the console information.
<b>tech-package</b>	Indicates the package information.

**Defaults** N/A

**Command** AC configuration mode

**Mode**

**Usage Guide** N/A

**Configuration  
Examples**

The following example obtains the crash log information from AP0001, and saves it as ap\_AP0001\_exception.log in the AC file system.

```
Ruijie(config-ac)# tran-data-start AP0001 exception
```



The following example obtains the general log information from AP0001, and saves it as ap\_AP0001\_syslog.log, ap\_AP0001\_memory.log, and ap\_AP0001\_cpuinfo.log in the AC file system.

```
Ruijie(config-ac)# tran-data-start AP0001 memory
```

The following example obtains the console information from AP0001, and saves it as ap\_AP0001\_8832.0000.1111\_tech-console.log in the AC file system.

```
Ruijie(config-ac)# tran-data-start AP0001 tech-support
```

The following example obtains the package information from AP0001, and saves it as ap\_AP0001\_8832.0000.1111\_tech-package.tar.gz in the AC file system.

```
Ruijie(config-ac)# tran-data-start AP0001 tech-package
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform</b>	N/A	
<b>Description</b>		

## 2.75 uninstall

Use this command to remove the mini AP installation information.

```
uninstall slot-id [ secondary ]
```

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>slot-id</i>	Slot number, The range is from 1 to 24.
	<b>secondary</b>	Secondary mini AP.

**Defaults** N/A

**Command Mode** AP configuration mode

Once a mini AP is installed to a Master AP, the mini AP is considered as **Offline** if it is manually removed. You can use this command to remove the installation information of the mini AP.

This command takes no effect on an online mini AP.

### Usage Guide

This configuration is not saved and can remove the installation information for only one mini AP per execution.

If you want to remove the secondary mini AP, please add the **secondary** parameter.

The following example removes the mini AP installation information of slot 1 on Master AP1.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# uninstall 1
```

**Configuration Examples**

The following example removes the secondary mini AP installation information of slot 1 on Master AP1.

```
Ruijie(config)# ap-config AP1
Ruijie(config-ap)# uninstall 1 secondary
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description**

N/A

### 3 WLAN STAMG Commands

#### 3.1 ap

Use this command to configure the AP information in the association control zone. Use the **no** form of this command to delete the specified AP from the association control zone.

**ap** *WORD*  
**no ap** [*WORD*]

Parameter Description	Parameter	Description
	<i>WORD</i>	AP name. The name length range is from 1 to 64.

**Defaults** No AP information in the association control zone is configured by default.

**Command mode** Association control zone configuration mode

**Usage Guide** Up to five APs can be configured in an association control zone. The system will prompt an error message if the number of the configured APs exceeds five. In addition, when configuring AP information for an association control zone, we do not require that APs are online.

**Configuration Examples** The following example configures a set of AP information with MAC address of 00d0.f800.1001 for an association control zone named "Class (1) Grade 1".

```
Ruijie(config)#control-zone Class (1) Grade 1
Ruijie(config-cznoe)# ap 00d0.f800.1001
```

Related Commands	Command	Description
	<b>show control-zone</b>	Displays the association control zone.

**Platform Description** N/A

#### 3.2 assoc-control

Use this command to enable the association control function. Use **no** form of this command to restore the default setting.

**assoc-control**  
**no assoc-control**

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

N/A	N/A
-----	-----

**Defaults** This function is disabled by default.

**Command mode** Global configuration mode

**Usage Guide** When the association control function is disabled, the association control related commands can still be configured with the ineffective association control function.

**Configuration** The following example enables the association control function.

**Examples** Ruijie (config) #**assoc-control**

The following example disables the association control function.

Ruijie (config) #no assoc-control

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

### 3.3 control-zone

Use this command to create an association control zone and enter association control zone configuration mode. Use the **no** form of this command to restore the default setting.

**control-zone** *czone-name*

**no control-zone** *czone-name*

**Parameter Description**

Parameter	Description
<i>czone-name</i>	Association control zone name. The name length range is 1 to 64.

**Defaults** No association control zone is configured by default.

**Command mode** Global configuration mode

**Usage Guide** Only one association control zone is allowed to be configured on a fat AP. The system will prompt an error message if the upper limit is exceeded.

**Configuration** The following example configures an association control zone named "Class (1) Grade 1".

**Examples** Ruijie (config) #**control-zone** *Class (1) Grade 1*

Ruijie (config- czone) #

The following example deletes an association control zone named "Class (1) Grade 1".

```
Ruijie(config)# no control-zone Class (1) Grade 1
The operation will clear the control zone configuration, which may cause
corresponding STAs offline. Continue? [no] y
Ruijie(config)#
```

Related Commands	Command	Description
		<b>show control-zone summary</b>

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

### 3.4 inter-radio-balance flow-balance dual-band

Use this command to configure the enabling threshold and balancing threshold for the traffic balancing between the different radios (2.4G and 5.0G) of AP devices or AP groups. Use the **no** form of this command to restore the default settings.

**inter-radio-balance flow-balance dual-band enable-load** *en-num* **threshold** *thrs-num*  
**no inter-radio-balance flow-balance dual-band**

Parameter Description	Parameter	Description
		<i>en-num</i>
	<i>thrs-num</i>	The balancing threshold value. The STA will be disassociated with the radio when the traffic difference between the associated radio and lowest load radio. The unit is 100 Kbps. The range is from 1 to 1000.

**Defaults** By default, the enabling threshold is 1 Mbps and the balancing threshold is 1 Mbps.

**Command mode** AP /AP group configuration mode

**Usage Guide** When the load balancing between radios is enabled, if the traffic of associated radio exceeds the enabling threshold and the traffic difference between the associated radio and lowest load radio exceeds the balancing threshold, the STA will be disassociated with the radio and the traffic will be balanced to radio of lower load. This configuration takes effect only when the radio of lowest load is on the different radio to be associated. The **inter-radio-balance flow-balance same-band** takes effect if the two radios are on the same radio.

**Configuration Examples** The following example configures the enabling threshold and balancing threshold to 800 Kbps and 800 Kbps respectively for the different radios on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# inter-radio-balance flow-balance same-band enable-load 8
threshold 8
```

The following example restores the default load balancing settings for different radios on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# no inter-radio-balance flow-balance dual-band
```

The following example configures the enabling threshold and balancing threshold to 300 Kbps and 500 Kbps respectively for different radios of AP devices in the AP group.

```
Ruijie(config)# ap-group default
Ruijie(config-group)# inter-radio-balance flow-balance dual-band enable-load
3 threshold 5
```

The following example configures the enabling threshold and balancing threshold to 3 Mbps and 3 Mbps respectively for different radios on all AP devices.

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# inter-radio-balance flow-balance dual-band enable-load 30
threshold 30
```

#### Related Commands

Command	Description
N/A	N/A

#### Platform Description

This command is supported only on ACs.

## 3.5 inter-radio-balance flow-balance enable

Use this command to enable load balancing for traffic between different radios (2.4G and 5.0G) on the AP device or AP group. Use the **no** form of this command to disable load balancing between radios on the AP device or AP group.

**inter-radio-balance flow-balance enable**  
**no inter-radio-balance flow-balance enable**

#### Parameter Description

Parameter	Description
N/A	N/A

#### Defaults

By default, load balancing between radios is disabled.

#### Command mode

AP /AP group configuration mode

#### Usage Guide

After load balancing between radios is enabled on an AP device, the AC device will make the traffic difference between radios on the AP device not exceed the threshold value.

#### Configuration

The following example enables load balancing for traffic between radios on AP0001.

#### Examples

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# inter-radio-balance flow-balance enable
```

The following example disables load balancing for traffic between radios on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# no inter-radio-balance flow-balance enable
```

The following example enables load balancing for traffic between radios on the AP devices in the

default group.

```
Ruijie(config)# ap-group default
Ruijie(config-group)# inter-radio-balance flow-balance enable
```

The following example enables load balancing for traffic between radios on all AP devices.

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# inter-radio-balance flow-balance enable
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description**

This command is supported only on ACs.

### 3.6 inter-radio-balance flow-balance same-band

Use this command to configure the enabling threshold and balancing threshold for the traffic balancing between the same radios (both 2.4G or 5.0G) of AP devices or AP groups. Use the **no** form of this command to restore the default settings.

**inter-radio-balance flow-balance same-band enable-load *en-num* threshold *thrs-num***  
**no inter-radio-balance flow-balance same-band**

**Parameter Description**

Parameter	Description
<i>en-num</i>	The enabling threshold value. Load balancing is enabled only when the traffic on the associated radio exceeds the threshold. The unit is 100 Kbps. The range is from 1 to 1000.
<i>thrs-num</i>	The balancing threshold value. The STA will be disassociated with the radio when the traffic difference between the associated radio and lowest load radio. The unit is 100 Kbps. The range is from 1 to 1000.

**Defaults**

By default, the enabling threshold is 500 Kbps and the balancing threshold is 500 Kbps.

**Command mode**

AP /AP group configuration mode

**Usage Guide**

When the load balancing between radios is enabled, if the traffic of associated radio exceeds the enabling threshold and the traffic difference between the associated radio and lowest load radio exceeds the balancing threshold, the STA will be disassociated with the radio and the traffic will be balanced to the radio of lower load. This configuration takes effect only when the radio of lowest load is on the different the radio to be associated. The **inter-radio-balance flow-balance dual-band** takes effect If the two radios are on the different radio.

**Configuration Examples**

The following example configures the enabling threshold and balancing threshold to 800 Kbps and 800 Kbps respectively for the same radios on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# inter-radio-balance flow-balance same-band enable-load 8
threshold 8
```

The following example restores the default load balancing settings for the same radios on AP0001.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# no inter-radio-balance flow-balance same-band
```

The following example configures the enabling threshold and balancing threshold to 300 Kbps and 500 Kbps respectively for the same radios of AP devices in the AP group.

```
Ruijie(config)# ap-group default
Ruijie(config-group)# inter-radio-balance flow-balance same-band enable-load
3 threshold 5
```

The following example configures the enabling threshold and balancing threshold to 3 Mbps and 3 Mbps respectively for the same radios on all AP devices.

```
Ruijie(config)# ap-config all
Ruijie(config-ap)# inter-radio-balance flow-balance same-band enable-load 30
threshold 30
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description**

This command is supported only on ACs.

### 3.7 inter-radio-balance radio weight

Use this command to configure the weight for load balancing among radio. Use the **no** form of this command to restore the default setting.

**inter-radio-balance radio** *radio-id* **weight** *weight-num*  
**no inter-radio-balance radio** *radio-id* **weight**

**Parameter Description**

Parameter	Description
<i>radio-id</i>	Specifies a radio.
<i>weight-num</i>	Configures the weight, in the range from 1 to 100.

**Defaults**

The default weight is 100, that is, radio 1: radio 2=100:100 (1:1).

**Command mode**

Global configuration mode

**Usage Guide**

If you want to configure radio 1: radio 2= 50:100 (1:2). please set the weight of radio 1 to 50,

**Configuration Examples**

The following example sets the weight of radio 1 to 50, that is, radio 1: radio 2=50:100 (1:2).

```
Ruijie(config)# inter-radio-balance radio 1 weight 50
```

**Related Commands**

Command	Description
---------	-------------



N/A	N/A
-----	-----

**Platform** N/A

**Description**

### 3.8 package

Use this command to create a terminal package and enter terminal package configuration mode. Use the **no** form of this command to restore the default setting.

**package** *pkg-name*

**no package** [ *pkg-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>pkg-name</i>	Terminal package name. The name length range is from 1 to 32.

**Defaults** No terminal packets are configured by default.

**Command mode** Global configuration mode

**Usage Guide** Only 50 terminal packages are allowed to be configured on a fat AP. The system will prompt an error message if the upper limit is exceeded.

**Configuration** The following example configures a terminal package named "Cart"1.

**Examples**

```
Ruijie(config)#package Cart 1
Ruijie(config-package)#
```

The following example configures the package named "Cart"1.

```
Ruijie(config)# no package Cart 1
The operation will clear package(s) configuration, which may cause
corresponding STAs offline. Continue? [no] y
Ruijie(config)#
```

Related Commands	Command	Description
	<b>show package</b>	Displays the terminal package configuration.

**Platform** N/A

**Description**

### 3.9 primary-sta

Use this command to configure a primary STA in a terminal package. Use the **no** form of this

command to remove the configuration.

**primary-sta** *mac-address*

**no primary-sta**

**Parameter  
Description**

Parameter	Description
<i>mac-address</i>	The MAC address of the primary STA, in the format of H.H.H.

**Defaults** N/A

**Command mode** Terminal package configuration mode

**Usage Guide** A terminal package can be configured up to one primary STA. Therefore the newly configured primary STA will cover the one which has been configured in a terminal packet.

**Configuration Examples** The following example configures a primary STA with MAC address of 00d0.f800.0001 for the terminal package "Cart 1".

```
Ruijie(config)#package Cart 1
Ruijie(config- package)#primary-sta 00d0.f800.0001
```

**Related  
Commands**

Command	Description
<b>show package</b>	Displays the terminal package configuration.

**Platform** N/A

**Description**

### 3.10 secondary-sta

Use this command to configure secondary STAs in a terminal package. Use the **no** form of this command to remove the configuration.

**secondary-sta** *mac-address*

**no secondary-sta** [*mac-address*]

**Parameter  
Description**

Parameter	Description
<i>mac-address</i>	The MAC address of the secondary STA, in the format of H.H.H.

**Defaults** N/A

**Command mode** Terminal package configuration mode

**Usage Guide** Up to 100 secondary STAs can be configured in one terminal package. The system will prompt the error message in the following conditions if you use this command to configure the secondary STA:

The secondary STA configured has existed in the terminal package.

The number of STAs in a terminal package exceeds 100.

**Configuration Examples** The following example configures a secondary STA with MAC address of 00d0.f800.0002 for the package "Cart 1".

```
Ruijie(config)#package Cart 1
Ruijie(config- package)#secondary-sta 00d0.f800.0002
```

**Related Commands**

Command	Description
<b>show package</b>	Displays the terminal package configuration.

**Platform** N/A

**Description**

### 3.11 show assoc-control

Use this command to display the state of the association control.

**show assoc-control**

**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 state of the association control.

```
Ruijie# show assoc-control
Association control is enabled.
```

The following example displays the state of the association control.

```
Ruijie# show assoc-control
Association control is disabled.
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 3.12 show control-zone

Use this command to display the association control-zone configuration.

**show control-zone** [ **summary** | *czone-name* ]

Parameter Description	Parameter	Description
	<b>summary</b>	Displays summary information.
	<i>czone-name</i>	The name of the association control-zone to be displayed. The name length range is from 1 to 64.

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** Use the **show control-zone summary** command to display the configured association control zone. Use the **show control-zone** or the **show control-zone czone-name** command to display not only the association control zone information but also the AP information in the control zone.

**Configuration** The following example displays all association control zones.

```
Ruijie# show control-zone summary
control zone num : 4
Class 1 Grade 1
Class 2 Grade 1
Class 3 Grade 1
Class 1 Grade 2
```

The following example displays all association control zones.

```
Ruijie# show control-zone summary
No control zone configuration.
```

The following example displays the detailed configuration information of all the association control zones.

```
Ruijie# show control-zone
control zone num : 3
control-znoe      AP
-----
Class 1 Grade 1      AP1(1)-1 00d0.f800.889f
                    AP1(1)-2 00d0.f800.7869
Class 2 Grade 2      AP2(2)-1 00d0.f800.889f
Class 3 Grade 3      AP2(3)-1 offline
Class 3 Grade 2      n/a
```

The following example displays the detailed configuration information of all association control zone.

```
Ruijie# show control-zone
No control zone configuration.
```

The following example displays the detailed configuration information of the association control zone

named "Class 1 Grade 1".

```
Ruijie# show control-zone Class 1 Grade 1
control-zone      AP
-----
Class 1 Grade 1  AP1(1)-1 00d0.f800.889f
                  AP1(1)-2 00d0.f800.7869
Class 2 Grade 2  AP2(2)-1 00d0.f800.889f
Class 3 Grade 3  AP2(3)-1 offline
Class 3 Grade 2  n/a
```

The following example displays the detailed configuration information of the association control zone named "Class 1 Grade 5".

```
Ruijie# show control-zone Class 1 Grade 5
No such control zone configuration.
```

#### Related Commands

Command	Description
<b>control-zone</b>	Configures an association control zone and enter association control zone configuration mode.
<b>ap</b>	Configures AP information in the association control zone.

**Platform** N/A

**Description**

### 3.13 show package

Use this command to display the terminal package configuration.

**show package** [ *pkg-name* ]

#### Parameter Description

Parameter	Description
<i>pkg-name</i>	The name of the terminal package to be displayed. The name length range is from 1 to 32.

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the configuration of all terminal packages.

```
Ruijie# show package
```

```
total package num : 2
===== package_1 =====
primary STA : none
secondary STA num : 0
===== package_2 =====
primary STA : 00d0.f809.0092
secondary STA num : 4
00d0.f809.0096
00d0.f809.0097
00d0.f809.0098
00d0.f809.0099
```

The following example displays the configuration of all terminal packages.

```
Ruijie# show package
No package configuration
```

**Related  
Commands**

Command	Description
<b>package</b>	Enters terminal package configuration mode
<b>primary-sta</b>	Configures a primary STA.
<b>secondary-sta</b>	Configures a secondary STA.

**Platform  
Description**

N/A

## 4 WBS Commands

### 4.1 11ax-gi

Use this command to configure 11ax-gi for the specified radio. Use the **no** form of this command to restore the default settings.

**11ax-gi** { **0.8** | **1.6** | **3.2** | **auto** } **radio** *radio-id*

**no 11ax-gi radio** *radio-id*

Parameter Description	Parameter	Description
	<i>radio-id</i>	Radio ID. The range is from 1 to 96.
	<b>0.8</b>	Sets 11ax-gi to 0.8us.
	<b>1.6</b>	Sets 11ax-gi to 1.6us.
	<b>3.2</b>	Sets 11ax-gi to 3.2us.
	<b>auto</b>	Sets 11ax-gi to auto.

**Defaults** The default 11ax-gi is auto.

**Command mode** AP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enters AP0001 mode and sets 11ax-gi to 0.8us for radio 1.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# 11ax-gi 0.8 radio 1
```

The following example enters AP0001 mode and restores default settings.

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# no 11ax-gi radio 1
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 4.2 ap-band-mode

Use this command to configure the radio of the AP. Use the **no** form of this command to restore the

default setting.

**ap-band-mode** { **802.11a** | **802.11b** } **radio** [ *radio-id* ]

**Parameter Description**

Parameter	Description
<b>802.11a</b>	Specifies the 5GHz radio.
<b>802.11b</b>	Specifies the 2GHz radio.
<i>radio-id</i>	Configures the radio ID, in the range from 1 to 96.

**Defaults** The default value varies with the device model.

**Command mode** AP configuration mode

**Usage Guide**

1. This command is run at startup and cannot be saved.
2. Running this command will restart the AP automatically.

**Configuration Examples** The following example enters ap680 configuration mode and sets Radio3 to 802.11a.

```
Ruijie(config)# ap-config ap680
Ruijie(config-ap)#ap-band-mode 802.11a radio 3
Switch the band mode will auto reload system, continue?(Y/N) Y
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 4.3 fragment-burst

Use this command to configure the frame bursting mechanism. Use the **no** form of this command to restore the default settings.

**fragment-burst** { **enable** | **disable** | **dynamic** } **radio** *radio-id*

**no fragment-burst** **radio** *radio-id*

**Parameter Description**

Parameter	Description
<i>enable</i>	Enables the frame bursting mechanism.
<i>disable</i>	Disables the frame bursting mechanism.
<i>dynamic</i>	Dynamc frame bursting mechanism.
<i>radio-id</i>	Configures the radio ID, in the range from 1 to 96.



**Defaults** The frame bursting mechanism is disabled by default.

**Command mode** AP configuration mode

**Usage Guide** N/A

**Configuration** The following example enables frame bursting mechanism for radio 1. .

**Examples**

```
Ruijie(config)# ap-config AP0001
Ruijie(config-ap)# fragment-burst enable radio 1
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 4.4 link-check

Use this command to enable/disable link check. Use the **no** form of this command to restore the default setting.

**link-check { enable | disable }**

**no link-check { enable | disable }**

**Parameter Description**

Parameter	Description
<b>enable</b>	Enables link check.
<b>disable</b>	Disables link check.

**Defaults** Link check is disabled by default.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example enables link check.

**Examples**

```
Ruijie(config)# link-check enable
```

The following example disables link check.

```
Ruijie(config)# link-check disable
```

or

```
Ruijie(config)# no link-check enable
```

#### Related Commands

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 4.5 poeout

Use this command to enable the PoE power supply function of an AP.

**poeout { enable | disable | default }**

#### Parameter Description

Parameter	Description
<b>enable</b>	Enables the PoE power supply function of an AP.
<b>disable</b>	Disables the PoE power supply function of an AP.
<b>default</b>	Uses the default PoE power supply function settings of the device.

**Defaults** The default PoE power supply function settings of the device are used by default.

**Command** Global configuration mode

**Mode**

**Default Level** N/A

**Usage Guide** This command automatically saves the configuration, without the aid of the **write** command. This command does not support the **no** and **default** forms. After **poeout default** is configured, the default PoE power supply function configuration of the device is adopted. The default settings for different APs may vary with AP models. Run the **poeout default** command to enable different APs in a group to apply respective default PoE out settings.

**Configuration** The following example enables the PoE power supply function of an AP.

#### Examples

```
Ruijie#config
Ruijie(config)#poeout enable
```

**Verification** Run the **show poeout** command to display the configurations.

**Platform**

**Description** Only some models of fat APs support this function.

## 4.6 pdpoe-force

Use this command to configure the forced power supply mode and save the configuration.

**pdpoe-force** { **af** | **at25w** | **at36w** | **bt** } [ **save** ]

Parameter	Parameter	Description
Description	<b>af</b>	Sets the forced power supply mode to AP, consumption: 13.0W.
	<b>at25w</b>	Sets the forced power supply mode to AT, consumption: 25.5W.
	<b>at36w</b>	Sets the forced power supply mode to AT36, consumption: 36.0W.
	<b>bt</b>	Sets the forced power supply mode to BT, consumption: 62.0W.
	<b>save</b>	Saves the configuration.
Defaults	N/A	
Command Mode	Global configuration mode	
Default Level	14	
Usage Guide	N/A	
Configuration Examples	<p>The following example sets the forced power supply mode to BT.</p> <pre>Ruijie(config)# pdpoe-force bt</pre> <p>The following example sets the forced power supply mode to BT and saves the configuration.</p> <pre>Ruijie(config)# pdpoe-force bt save</pre> <p>The following example cancels the forced power supply mode.</p> <pre>Ruijie(config)# no pdpoe-force</pre> <p>The following example cancels the forced power supply mode and does not save the configuration.</p> <pre>Ruijie(config)# no pdpoe-force save</pre>	
Verification	Run the <b>show running-config</b> command to display the configuration.	
Prompts	N/A	
Common Errors	N/A	
Platform Description	N/A	

## 4.7 show dot11 associations

Use this command to display the session information.

**show dot11 associations** *H.H.H interface-name*

Parameter Description	Parameter	Description
	<i>H.H.H</i>	Specifies the STA MAC address in the format of H.H.H
	<i>Interface-name</i>	Specifies a radio

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays session information of STA 0025.9c9b.aeb5.

**Examples**

```
Ruijie# show dot11 associations 0025.9c9b.aeb5 1/0
The details of client 0cd6.bd11.7f9d.
  RSSI..... 38
  SNR..... -57
  AID..... 1
  RX Data..... 357
  RX Management..... 42
  RX Control..... 0
  RX Unicast..... 89
  RX Multicast..... 17
  RX Bytes..... 18681
  TX Data..... 9
  TX Management..... 4
  TX Unicast..... 9
  TX Multicast..... 0
  TX Bytes..... 990
  TX Probe..... 0
  TX Assoc..... 1
  TX Assoc Fail..... 0
  TX Auth..... 3
  TX Auth Fail..... 0
  TX Deauth..... 0
  TX Disassoc..... 0
  Packet Load..... 0
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.8 show dot11 associations all-client

Use this command to display the information of all wireless clients.

**show dot11 associations all-client**

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 information of all wireless clients.

**Examples**

```
Ruijie# show dot11 associations all-client
RADIO-ID WLAN-ID ADDR          AID  CHAN RATE_DOWN RATE_UP RSSI ASSOC_TIME IDLE TXSEQ
RXSEQ  ERP  STATE  CAPS HTCAPS VHT_MU_CAP HECAPS
1      7    00:25:9c:9b:ae:b5 1    1    52.0M    6.0M 39    0:00:18 0    7
544   0x0  0x3   ESs    SU
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.9 show dot11 channels active

Use this command to display active channels supported by a radio.

**show dot11 channel active** *interface-name*

Parameter Description	Parameter	Description
	<i>interface-name</i>	Specifies a radio in the format of radioid/0.

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays active channels supported by radio1.

**Examples**

```
Ruijie# show dot11 channel active 1/0
Channel 1 : 2412 Mhz 11ng C CU      Channel 8 : 2447 Mhz 11ng C CU CL
Channel 2 : 2417 Mhz 11ng C CU      Channel 9 : 2452 Mhz 11ng C CU CL
Channel 3 : 2422 Mhz 11ng C CU      Channel 10 : 2457 Mhz 11ng C CL
Channel 4 : 2427 Mhz 11ng C CU      Channel 11 : 2462 Mhz 11ng C CL
Channel 5 : 2432 Mhz 11ng C CU CL   Channel 12 : 2467 Mhz 11ng C CL
Channel 6 : 2437 Mhz 11ng C CU CL   Channel 13 : 2472 Mhz 11ng C CL
Channel 7 : 2442 Mhz 11ng C CU CL
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 4.10 show dot11 channels all

Use this command to all channels supported by a radio.

**show dot11 channels all** *interface-name*

**Parameter Description**

Parameter	Description
<i>interface-name</i>	Specifies a radio in the format of radioid/0.

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays all channels supported by radio1.

**Examples**

```
Ruijie# show dot11 channels all 1/0
```

The Details of Client 0025.9c9b.aeb5:

```
Channel 1 : 2412 Mhz 11ng C CU      Channel 8 : 2447 Mhz 11ng C CU CL
Channel 2 : 2417 Mhz 11ng C CU      Channel 9 : 2452 Mhz 11ng C CU CL
Channel 3 : 2422 Mhz 11ng C CU      Channel 10 : 2457 Mhz 11ng C CL
Channel 4 : 2427 Mhz 11ng C CU      Channel 11 : 2462 Mhz 11ng C CL
Channel 5 : 2432 Mhz 11ng C CU CL   Channel 12 : 2467 Mhz 11ng C CL
Channel 6 : 2437 Mhz 11ng C CU CL   Channel 13 : 2472 Mhz 11ng C CL
Channel 7 : 2442 Mhz 11ng C CU CL
```

#### Related Commands

Command	Description
N/A	N/A

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

## 4.11 show dot11 radio-status

Use this command to display status and capacity of all RF ports.

**show dot11 radio-status**

#### 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 status and capacity of all RF ports.

#### Examples

```
Ruijie#show dot11 radio-status
radio status      capability
-----
1   online        b/g/n
2   online        a/n/ac/ax
```

#### Related Commands

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 4.12 show dot11 rate-set

Use this command to display speed set of all RF ports.

**show dot11 rate-set**

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 speed set of all RF ports.

```

Examples Ruijie# show dot11 rate-set
LLCB(1) RATE SET
Mandatory rate: 11M,
Support rate: 6M, 9M, 12M, 18M, 24M, 36M, 48M, 54M,
Mandatory 11n MCS index:
Support 11n MCS index: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,
LLCB(2) RATE SET
Mandatory rate: 6M, 12M, 24M,
Support rate: 9M, 18M, 36M, 48M, 54M,
Mandatory 11n MCS index:
Support 11n MCS index: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,
    
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.13 show dot11 mbssid

Use this command to display the BSS list.

**show dot11 mbssid**



<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Parameter	Description	N/A	N/A
Parameter	Description				
N/A	N/A				
<b>Defaults</b>	N/A				
<b>Command mode</b>	Privileged EXEC mode				
<b>Usage Guide</b>	N/A				
<b>Configuration Examples</b>	<p>The following example displays the BSS list.</p> <pre>Ruijie# show dot11 mbssid   name: Dot11radio 47/0.1 wlan id: 1   ssid: ssid-wlan-2   bssid: 0a0c.3067.fbbf</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Command	Description	N/A	N/A
Command	Description				
N/A	N/A				
<b>Platform Description</b>	N/A				

## 4.14 show dot11 wireless

Use this command to display the information and configuration of a radio.

**show dot11 wireless** *interface-num*

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>interface-num</i></td> <td>Specifies a radio in the format of radioid/0.</td> </tr> </tbody> </table>	Parameter	Description	<i>interface-num</i>	Specifies a radio in the format of radioid/0.
Parameter	Description				
<i>interface-num</i>	Specifies a radio in the format of radioid/0.				
<b>Defaults</b>	N/A				
<b>Command mode</b>	Privileged EXEC mode				
<b>Usage Guide</b>	N/A				
<b>Configuration Examples</b>	<p>The following example displays the information and configuration of radio1.</p> <pre>Ruijie# show dot11 wireless 1/0 Network Name (SSID): NULL</pre>				

```

Interface..... Dot11radio 1/0
Vlan (group) id..... 0
MAC Address..... 000c.3067.fbbf
Beacon Period..... 100
RTS Threshold..... 2347
Fragment Threshold..... 2346
Radio Mode..... 11ng_ht20
Channel..... 2412(1)
Noise Floor..... -103 dBm
Channel width..... 20Mhz
Current Tx Power Level..... 100%
Current CCA ..... 28

Tx/Rx Chain:
Antenna Gain..... 3
Tx Chain Mask..... 0x3
Num of Antenna Tx..... 2
Rx Chain Mask..... 0x3
Num of Antenna Rx..... 2

Power Save:
DTIM Period..... 1
DTIM Count..... 0
Stations In Power Save..... 0
Stations Total..... 0

11n Aggregation:
A-mpdu Status..... Enable

Tx Retries:
Tx short   retries..... 7
Tx long   retries..... 4

Total Stations:
Total..... 0
Non-ERP..... 0
Non-HT..... 0
HT20..... 0
    
```

**Related Commands**

Command	Description
N/A	N/A

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

### 4.15 show dot11 wlan

Use this command to display WLAN information and configuration.

**show dot11 wlan *wlan-id***

Parameter Description	Parameter	Description
	<i>wlan-id</i>	Specifies a WLAN

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the information and configuration of WLAN2.

```

Examples Ruijie# show dot11 wlan 2
Network Name (SSID): ssid-wlan-2
  Interface..... Dot11radio 2/0.2
  Vlan (group) id..... 0
  MAC Address..... 0e14.5876.675b
  Beacon Period..... 100
  RTS Threshold..... 2347
  Fragment Threshold..... 2346
  Radio Mode..... 11ac_vht20_5g
  Channel..... 5825(165)
  Noise Floor..... -107 dBm
  Channel width..... 20Mhz
  Current Tx Power Level..... 100%
  Mcast rate ..... 24
  Current CCA ..... 28
Tx/Rx Chain:
  Antenna Gain..... 3
  Tx Chain Mask..... 0x3
  Num of Antenna Tx..... 2
  Rx Chain Mask..... 0x3
  Num of Antenna Rx..... 2
Power Save:
  DTIM Period..... 1
  DTIM Count..... 0
  Stations In Power Save..... 0
  Stations Total..... 0
11n Aggregation:
  A-mpdu Status..... Enable
Tx Retries:
  Tx short  retries..... 7
    
```

```

Tx long    retries..... 4
Total Stations:
Total..... 0
Non-ERP..... 0
Non-HT..... 0
HT20..... 0
    
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.16 show ebag

Use this command to display Ebag information and configuration.

**show ebag**

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 Ebag information and configuration.

```

Ruijie# show ebag
auto ebag status: disable
    
```

Related Commands	Command	Description
	N/A	N/A

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

## 5 DATA-PLANE Commands

### 5.1 data-plane

Use this command to configure the forwarding weights of different packets.

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

**data-plane queue-weight** *unicast-packet-weight multicast-packet-weight broadcast-packet-weight unknown-multicast-packet-weight unknown-unicast-packet-weight*

**no data-plane queue-weight**

Use this command to configure the update interval and token rate of token bucket.

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

**data-plane token** *token-interval token-base-rate*

**no data-plane token**

Use this command to enable or disable the wireless broadcast function.

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

**data-plane wireless-broadcast** { **enable** | **disable** }

**no data-plane wireless-broadcast**

Parameter Description	Parameter	Description
	<b>queue-weight</b>	Configures the forwarding weights for different packets.
	<b>wireless-broadcast</b>	Configures the wireless broadcast function.
	<i>unicast-packet-weight</i>	Sets the forwarding weight of unicast packets. The range is from 1 to 100. The default value is 16.
	<i>multicast-packet-weight</i>	Sets the forwarding weight of multicast packets. The range is from 1 to 50. The default value is 4.
	<i>broadcast-packet-weight</i>	Sets the forwarding weight of broadcast packets. The range is from 1 to 50. The default value is 2.
	<i>unknown-multicast-packet-weight</i>	Sets the forwarding weight of unknown multicast packets. The range is from 1 to 25. The default value is 1.
	<i>unknown-unicast-packet-weight</i>	Sets the forwarding weight of unknown unicast packets. The range is from 1 to 25. The default value is 1.
	<b>token</b>	Configures the update interval and token rate of token bucket.
	<i>token-interval</i>	Sets the update interval of the token bucket. The default value is 1 in the unit of 10 milliseconds.
	<i>token-base-rate</i>	Sets the token rate of the token bucket. The default value is 64 for AC and 5 for AP.

#### Defaults

The forwarding weight configuration for different types of packets is enabled by default.

The wireless broadcast function is disabled by default.

**Command** Global configuration mode

**Modes**

**Usage Guide** N/A

**Configuration Examples** The following example configures the forwarding weights of different packet types and enables the wireless broadcast function.

```
Ruijie(config)#data-plane queue-weight 100 50 50 25 25
Ruijie(config)#data-plane token 10 10
Ruijie(config)#data-plane wireless-broadcast enable
```

**Platform Description** N/A.

## 6 WLOG Commands

### 6.1 show wlan diag sta

Use the following command to display STA statistics on an AP:

**show wlan diag sta** [ *sta-mac* *STA\_MAC* ] [ *number* *NUMBER* ]

Parameter Description	Parameter	Description
	<i>STA_MAC</i>	Specifies the MAC address of an STA.
	<i>NUMBER</i>	Specifies the maximum number of records to be displayed.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** The memory pre-allocation is performed when the WLAN-WLOG function is enabled. If the memory is insufficient, the WLAN-WLOG function cannot be enabled. Memories of all saved information and pre-allocated memories are set free when the WLOG function is disabled.

**Configuration Examples** This example displays STA statistics on an AP:

```
Ruijie# show wlan diag sta
sta mac: c83a.35c6.0c72
=====
=====
2012-05-28 19:31:08
wlan id state rssi_rt rs_rate_mcs tx_frm_cnts rx_frm_cnts tx_frm_flow
rx_frm_flow tx_cnts_error tx_flow_error mgmt_cnts mgmt_flow
-----
1 3 23 80 18 59 4384 5967
0 0 3 381
tx/rxmcs mcs0, mcs1 mcs2, mcs3 mcs4, mcs5 mcs6, mcs7 mcs8, mcs9
mcs10, mcs11 mcs12, mcs13 mcs14, mcs15
-----
txmcspercent : 0 0 0 0 0 0 0 0
rxmcspercent : 0 0 0 0 0 0 0 0
```

tx/rxrate	1, 2	5.5, 11	6, 9	12, 18	24, 36	48, 54	--	--
txratepercent:	16	0	0	7	50	27	0	0
rxratepercent:	57	3	0	5	13	22	0	0

Field	Description
sta_record	Specifies STA records.
TIME	Specifies the time when STA records are collected.
IP Address	Specifies the IP address of an STA whose statistics are collected.
Rssi	Specifies signal strength.
Link Rate	Specifies a connection rate.
AP MAC	Specifies the MAC address of an AP associated with the STA.
SSID	Specifies the SSID of the WLAN associated with the STA.
RADIO	Specifies the ID of the radio associated with the STA.
Action	Specifies the type of STA action records.
Result	Specifies the result of STA action records.
Reason	Specifies the reason for STA action records.

**Related Commands**

Command	Description
N/A	N/A

**Platform Description**

N/A

## 6.2 wlan diag enable

Use this command to enable the WLAN log (WLOG) . Use the **no** form of this command to disable WLOG.

**wlan diag enable**

**no wlan diag enable**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults**

The WLOG function is disabled on APs by default.

**Command Mode**

Global configuration mode



**Usage Guide** The memory pre-allocation is performed when the WLAN-WLOG function is enabled. If the memory is insufficient, the Memories of all saved information and pre-allocated memories are set free when the WLOG function is disabled.

**Configuration** The following example enables and disables the WLOG function:

**Examples**

```
Ruijie# configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Ruijie(config)#wlan diag enable  
Ruijie(config)#no wlan diag enable
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A



## WLAN RF Commands

---

1. WLAN RF Commands
2. Band Select Commands

# 1 WLAN RF Commands

## 1.1 schedule session

Use this command to configure a scheduling session for a WLAN. Use the **no** form of this command to remove the configuration.

**schedule session** *sid*


**no schedule session** *sid*

Parameter Description	Parameter	Description
	<i>sid</i>	Specifies the ID of the scheduling session to be created or to be applied to a WLAN. The range is from 1 to 64 for an AC and from 1 to 8 for a fat AP.

**Defaults** No scheduling session is configured by default.  
No scheduling session is applied to a WLAN or a radio by default.

**Command mode** Global configuration mode/WLAN configuration mode/Fat AP interface configuration mode

**Usage Guide** In global configuration mode, you can use this command to create a scheduling session and configure parameters for it. If the scheduling session has been created, the configuration is invalid. On fit AP networking topology, the scheduling session created in WLAN configuration mode will be applied to a WLAN.

 If you delete the scheduling session in the global configuration mode, the scheduling session on WLAN or Radio is deleted automatically.

**Configuration Examples** The following example creates or configures scheduling session 1.

```
Ruijie(config)# schedule session 1
```

The following example applies scheduling session 1 to WLAN 1

```
Ruijie(config)# wlan-config 1
```

```
Ruijie(config-wlan)# schedule session 1
```

Related Commands	Command	Description
	<b>show schedule session</b>	Displays configuration about the scheduling session.
	<b>show running-config</b>	Displays current configuration.

**Platform** N/A

## Description

## 1.2 schedule session time-range

Use this command to set scheduling time for a scheduling session. Use the **no** form of this command to delete the configuration.

**schedule session** *sid* **time-range** *n* **period** *day1* [ **to** *day2* ] **time** *hh1:mm1* **to** *hh2:mm2*

**no schedule session** *sid* **time-range** *n*

### Parameter Description

Parameter	Description
<i>sid</i>	Specifies the ID of the scheduling session to be created or to be applied to a WLAN. The range is from 1 to 8 for a fat AP.
<i>n</i>	Specifies the scheduling session time-range ID, in the range from 1 to 8.
<i>day1</i>	Specifies the start day of the scheduling session time range. Select a value from { sun   mon   tue   wed   thu   fri   sat }.
<b>to</b> <i>day2</i>	Specifies the end day of the scheduling session time range. The default scheduling session time range is one day.
<b>time</b> <i>hh1:mm1</i> <b>to</b> <i>hh2:mm2</i>	Specifies the start and end time. <i>hh1:mm1</i> indicate the start hour and minute; <i>hh2:mm2</i> indicate the end hour and minute. The hour value is in the range from 0 to 23 and the minute value is in the range from 0 to 59.

### Defaults

No scheduling time is set for a scheduling session by default.

### Command mode

Global configuration mode

### Usage Guide

A scheduling session has only one period of scheduling time. If you run this command for many times, only the configuration at the last time takes effect.

If *hh2:mm2* is not set, the scheduling time lasts to 23:59 by default.

If *hh2:mm2* is earlier than *hh1:mm1*, *hh2:mm2* is the time on the next day.

### Configuration Examples

The following example sets the scheduling time of scheduling session 1 to the range from 2:30 am to 9:30 am.

```
Ruijie(config)#schedule session 1 time 2:30 to 9:30
```

The following example sets the scheduling time of scheduling session 1 to the range from 10:45 pm to 9:00 am on the next day.

```
Ruijie(config)# schedule session 1 time 22:45 to 9:00
```

### Related Commands

Command	Description
<b>show schedule session</b>	Displays configuration about the scheduling

	session.
--	----------

**Platform** N/A

**Description**

### 1.3 show schedule session

Use this command to display configuration about scheduling sessions.

**show schedule session** [ *sid* ]

Parameter	Parameter	Description
Description	<i>sid</i>	Specifies a scheduling session ID in the range from 1 to 64.

**Defaults**

**Command mode** Privileged EXEC mode

**Usage Guide** If no scheduling session ID is specified, configuration about all scheduling sessions will be displayed.

**Configuration** The following example displays configuration about all scheduling sessions.

**Examples**

```
Ruijie(config)#show schedule session
Schedule session [1]:
  Schedule period ..... Sun, Wed to Fri
  Schedule time ..... 0:00 to 9:30
Schedule session [3]:
  Schedule period ..... Mon to Fri
  Schedule time ..... 2:00 to 9:00
```

Related Commands	Command	Description
	<b>schedule session</b>	Configures a scheduling session.

**Platform** N/A

**Description**

## 2 Band Select Commands

### 2.1 band-select acceptable-rssi

Use this command to configure an acceptable STA RSSI lower limit. Use the **no** form of this command to restore the default setting.

**band-select acceptable-rssi** *value*

**no band-select acceptable-rssi**

Parameter Description	Parameter	Description
	<i>value</i>	Indicates acceptable STA RSSI lower limits, in the range from -100 to -50 in the unit of dBm.

**Defaults** The default is -80 dBm.

**Command Mode** Global configuration mode

**Usage Guide** This lower limit value is used to differentiate associable STAs from non-associable STAs. If the RSSI value is greater than this value, such STAs are associable and their information will be paid attention to. If the RSSI value is less than this value, the information of such STAs will be ignored. It is not recommended that users modify the default value.

**Configuration Examples** The following example sets the acceptable STA RSSI low limit to -70 dBm.

```
Ruijie(config)#band-select acceptable-rssi -70
```

Related Commands	Command	Description
	<b>show band-select configuration</b>	Displays the Band Select configuration.

**Platform Description** N/A


### 2.2 band-select access-denial

Use this command to set the access-denial count. Use the **no** form of this command to restore the default setting.

**band-select access-denial** *value*

**no band-select access-denial**

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

<b>Description</b>		
	<i>value</i>	Sets the access-denial count, in the range from 0 to 10.
<b>Defaults</b>	The default is 2.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	The value <b>n</b> indicates that the AP does not respond until it receives n consecutive link authentication requests from the dual-band STA on 2.4-GHz band.	
	 This parameter can increase the navigation rate for high frequency spectrum, but it may cause difficulty in access to some dual-band STAs.	
<b>Configuration Examples</b>	The following example sets the access-denial count to 4.	
	<pre>Ruijie(config)# band-select access-denial 4</pre>	
<b>Related Commands</b>	Command	Description
	N/A	N/A
<b>Platform Description</b>	N/A	

## 2.3 band-select age-out

Use this command to configure the aging cycle of STA information. Use the **no** form of this command to restore the default setting.

**band-select age-out** { **dual-band** *value* | **suppression** *value* }


**no band-select age-out** { **dual-band** | **suppression** }

<b>Parameter Description</b>	Parameter	Description
	<b>dual-band</b> <i>value</i>	The aging cycle of dual-band STA information, in the range from 20 to 120 in the unit of seconds.
	<b>suppression</b> <i>value</i>	The aging cycle of suppressed STA information, in the range from 10 to 60 in the unit of seconds.

**Defaults**  
The default aging cycle of dual-band STA information is 60 seconds.  
The default aging cycle of suppressed STA information is 20 seconds.

**Command Mode**  
Global configuration mode

**Usage Guide** The AP is less sensitive to the STA band switching as the life cycle of the dual-band STA information increases. If the wireless users' network cards often switch between 2.4-GHz and 5-GHz bands, a smaller value can be configured; otherwise, a bigger value can be configured.

 It is recommended to configure the aging cycle of dual-band STA information as two or three times as that of the suppressed STAs.

**Configuration** The following example sets the aging cycle of dual-band STA information to 120 seconds.

**Examples**

```
Ruijie(config)#band-select age-out dual-band 120
```

The following example sets the aging cycle of suppressed STA information to 60 seconds.

```
Ruijie(config)# band-select age-out suppression 60
```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 2.4 band-select enable

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

**band-select enable**

**no band-select enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A


**Defaults** This function is disabled by default.

**Command** WLAN configuration mode  
**Mode**

**Usage Guide** Enabling the spectrum navigation requires that:

1. WLAN is mapped to a dual-band AP.
2. WLAN is mapped to two radios of the dual-band AP.

If the scenario cannot meet the above requirements, it is recommended not to enable the spectrum navigation.

 If the WLAN with the spectrum navigation enabled is mapped to a single-band 2.4GHz AP, the dual-band STA within AP signal coverage cannot navigate to the 5GHz band.



**Configuration** The following example enables the spectrum navigation for WLAN1.

**Examples**

```
Ruijie(config)# wlan-config 1
Ruijie(config-wlan)# band-select enable
```

The following example disables the spectrum navigation for WLAN1.

```
Ruijie(config)# wlan-config 1
Ruijie(config-wlan)# no band-select enable
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.5 band-select probe-count

Use this command to configure the probe count of the suppressed STAs. Use the **no** form of this command to restore the default setting.

**band-select probe-count** *value*

**no band-select probe-count**

**Parameter  
Description**

Parameter	Description
<i>value</i>	Indicates the probe-count of the suppressed STAs, in the range is from 1 to 10.

**Defaults** The default is 2.

**Command  
Mode** Global configuration mode

**Usage Guide** This item indicates the extent of suppression to a suppressed STA: The value **n** indicates that the AP respond once after a STA transmits **n** probe requests.

**Configuration** The following example sets the probe count of the suppressed STAs to 1.

**Examples**

```
Ruijie(config)#band-select probe-count 1
```

**Related  
Commands**

Command	Description
<b>show band-select configuration</b>	Displays the Band Select configuration.

**Platform** N/A

**Description**

## 2.6 band-select scan-cycle

Use this command to configure the aging scanning cycle of STA information. Use the **no** form of this command to restore the default setting.

**band-select scan-cycle** *period*

**no band-select scan-cycle**

Parameter Description	Parameter	Description
	<i>period</i>	Indicates the aging scanning cycle, in the range from 1 to 1000 in the unit of milliseconds.

**Defaults** The default is 200 milliseconds.

**Command Mode** Global configuration mode

**Usage Guide** A bigger aging scanning cycle value degrades the Band Select performance, but it can save the system resources.

**Configuration Examples** The following example sets the aging scanning cycle to 1 millisecond.

```
Ruijie(config)#band-select scan-cycle 1
```

Related Commands	Command	Description
	<b>show band-select configuration</b>	Displays the Band Select configuration.

**Platform Description** N/A

## 2.7 show band-select configuration

Use this command to display the Band Select configuration.

**show band-select configuration**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to show all configurations of the Band Select function.

**Configuration** The following example displays the Band Select configuration.

```

Examples
Ruijie# show band-select configuration
Band Select Configuration
  Band Select Enable..... Disable
  Probe Cycle Count..... 2
  Scan Cycle Period Threshold (milliseconds)..... 200
  Age Out Suppression (seconds)..... 20
  Age Out Dual Band (seconds)..... 60
  Acceptable Client RSSI (dBm)..... -80
    
```

Related Commands	Command	Description
		<b>show band-select statistics</b>

**Platform** N/A

**Description**

## 2.8 show band-select statistics

Use this command to display the Band Select statistics.

**show band-select statistics**

Parameter Description	Parameter	Description
		N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to display the Band Select statistics.

**Configuration** The following example displays the Band Select statistics.

```

Examples
Ruijie# show band-select statistics
Band Select Statistics
  Number of dual band client..... 4
  Number of dual band client added..... 132
  Number of dual band client expired..... 128
  Number of suppressed client..... 6
  Number of suppressed client added..... 234
    
```

```
Number of suppressed client expired..... 228
```

**Related  
Commands**

Command	Description
<b>show band-select configuration</b>	Displays the Band Select configuration.

**Platform  
Description**

N/A



## WLAN Security Commands

---

1. Wireless Security Commands
2. CPU Protection Commands
3. NFPP Commands

# 1 Wireless Security Commands

## 1.1 authtimeout forbidcount

Use this command to configure the forbidcount after a four-way handshake fails to accomplish key exchange. Use the **no** or **default** form of this command to restore the default setting.

**authtimeout forbidcount** *count*

**no authtimeout forbidcount**

**default authtimeout forbidcount**

Parameter Description	Parameter	Description
	<i>count</i>	Sets the forbidcount after a four-way handshake fails to accomplish key exchange.

**Defaults** The default is 10.

**Command mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the forbidcount to 5 after a four-way handshake fails to accomplish key exchange.

```
Ruijie(config-wlansec)#authtimeout forbidcount 5
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.2 authtimeout forbidtime

Use this command to set the forbidtime after a four-way handshake fails to accomplish key exchange. Use the **no** or **default** form of this command to restore the default setting.

**authtimeout forbidtime** *time*

**no authtimeout forbidtime**

**default authtimeout forbidtime**

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

<b>Description</b>		
	<i>time</i>	Sets the forbidtime after a four-way handshake fails to accomplish key exchange, in the unit of seconds.
<b>Defaults</b>	The default is 5.	
<b>Command mode</b>	WLAN security configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example sets the forbidtime to 6 seconds after a four-way handshake fails to accomplish key exchange,	
	<pre>Ruijie(config-wlansec)#authtimeout forbidtime 6</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

### 1.3 authtimeout groupcount

Use this command to set the retransmission count for the multicast key agreement packet. Use the **no** or **default** form of this command to restore the default setting.

**authtimeout groupcount** *count*

**no authtimeout groupcount**

**default authtimeout groupcount**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>count</i>	Sets the retransmission count for the multicast key negotiation packet.
<b>Defaults</b>	The default is 7.	
<b>Command mode</b>	WLAN security configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example set the retransmission count for the multicast key negotiation packet to 5.	
	<pre>Ruijie(config-wlansec)#authtimeout groupcount 5</pre>	

Related Commands	Command	Description
	N/A	N/A

Platform N/A  
Description

## 1.4 authtimeout grouptime

Use this command to set the timeout period for the multicast key negotiation packet. Use the **no** or **default** form of this command to restore the default setting.

**authtimeout grouptime** *timeout*

**no authtimeout grouptime**

**default authtimeout grouptime**

Parameter Description	Parameter	Description
	<i>timeout</i>	Sets the timeout period for the multicast key negotiation packet, in the unit of milliseconds.

**Defaults** The default is 1200 milliseconds.

**Command mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the timeout period for the multicast key negotiation packet to 100 milliseconds.

```
Ruijie(config-wlansec)#authtimeout grouptime 100
```

Related Commands	Command	Description
	N/A	N/A

Platform N/A  
Description

## 1.5 authtimeout paircount

Use this command to set the retransmission count for the unicast key negotiation packet. Use the **no** or **default** form of this command to restore the default setting.



**authtimeout paircount** *count*  
**no authtimeout paircount**  
**default authtimeout paircount**

Parameter Description	Parameter	Description
	<i>count</i>	Sets the retransmission count for the unicast key negotiation packet.

**Defaults** The default is 7.

**Command mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the retransmission count for the unicast key negotiation packet to 5.

```
Ruijie(config-wlansec)#authtimeout paircount 5
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.6 authtimeout pairtime

Use this command to set the timeout period for the unicast key negotiation packet. Use the **no** or **default** form of this command to restore the default setting.

**authtimeout pairtime** *timeout*  
**no authtimeout pairtime**  
**default authtimeout pairtime**

Parameter Description	Parameter	Description
	<i>timeout</i>	Sets the timeout period for the unicast key negotiation packet, in the unit of milliseconds.

**Defaults** The default is 1200 milliseconds.

**Command mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the timeout period for the unicast key negotiation packet to 100 milliseconds.

**Examples**

```
Ruijie(config-wlansec)#authtimeout pairtime 100
```

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 1.7 dot1x-mab

Use this command to configure MAB authentication for the specified WLAN. Use the **no** form of this command to restore the default setting.

**dot1x-mab**

**no dot1x-mab**

**Parameter Description**

Parameter	Description
<b>no</b>	Clears the MAB authentication configuration.

**Defaults**

MAB authentication is disabled by default.

**Command mode**

WLAN security configuration mode

**Usage Guide**

This command is used to enable MAB authentication. It can be used in combination with PSK access authentication but not with 802.1X access authentication.

**Configuration** The following example enables MAB authentication for WLAN 1.

**Examples**

```
Ruijie(config)#wlansec 1
```

```
Ruijie(config-wlansec)# dot1x-mab
```

The following example disables MAB authentication for WLAN 1.

```
Ruijie(config)#wlansec 1
```

```
Ruijie(config-wlansec)# no dot1x-mab
```

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 1.8 security rsn

Use this command to configure RSN authentication for a WLAN.

**security rsn { enable | disable }**

Parameter Description	Parameter	Description
	<b>enable</b>	Enables the RSN authentication mode.
	<b>disable</b>	Disables the RSN authentication mode.

**Defaults** This function is disabled by default.

**Command mode** WLAN security configuration mode

**Usage Guide** The command is used to enable the RSN authentication mode. Only after the RSN authentication mode is enabled can encryption and authentication methods be configured in the RSN mode. Otherwise, any configuration is invalid. When you use the RSN authentication, you need to configure an encryption method and an authentication method. If only an encryption or authentication method is configured, or neither is configured, the wireless client cannot be associated with the wireless network. The RSN authentication mode is what is usually called WPA2 authentication mode. If both WPA and RSN authentication modes are configured simultaneously for a WLAN, the encryption and authentication methods in these two authentication modes are identical, and the newly configured encryption and authentication methods will override the previous ones.

**Configuration Examples** The following example sets the authentication mode of WLAN1 to RSN.

```
Ruijie(config)#wlansec 1
Ruijie(wlansec)# security rsn enable
```

Related Commands	Command	Description
	<b>security rsn akm { psk   802.1x } { enable   disable }</b>	Configures an authentication method in the RSN authentication mode.
	<b>security rsn ciphers { aes   tkip } { enable   disable }</b>	Configures an encryption method in the RSN authentication mode.
	<b>security rsn akm psk set-key ascii</b>	Configures a shared password for RSNs.

**Platform Description** N/A

## 1.9 security rsn akm

Use this command to configure RSN authentication for a WLAN.

```
security rsn akm { psk | 802.1x } { enable | disable }
```

Parameter Description	Parameter	Description
	<b>psk</b>	Configures the authentication method to pre-shared key identity verification.
	<b>802.1x</b>	Configures the authentication method to IEEE802.1x authentication.
	<b>enable</b>	Enables an authentication method in the RSN authentication mode.
	<b>disable</b>	Disables an authentication method in the RSN authentication mode.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** The command is used to enable an authentication method in the RSN authentication mode. Only after the RSN authentication mode is enabled can an authentication method be configured. There are two authentication methods: PSK and 802.1x.

**Configuration Examples** The following example configures the authentication method for WLAN1 in the RSN authentication mode to PSK.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn akm psk enable
```

The following example sets the authentication method for WLAN1 in the RSN authentication mode to 802.1x authentication.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn akm 802.1x enable
```

Related Commands	Command	Description
	<b>security rsn { enable   disable }</b>	Configures the WLAN configuration mode.
	<b>security rsn ciphers { aes   tkip } { enable   disable }</b>	Configures an encryption method in the RSN authentication mode.
	<b>security rsn akm psk set-key ascii</b>	Configures a shared password for RSNs.

**Platform Description** N/A

## 1.10 security rsn akm psk set-key

Use this command to configure a shared password for RSNs in the PSK authentication mode.

**security rsn akm psk set-key** { **ascii** *ascii-key* | **hex** *hex-key* }

Parameter Description	Parameter	Description
	<b>ascii</b>	Specifies the ASCII password.
	<i>ascii-key</i>	The ASCII password, containing 8-63 characters.
	<b>hex</b>	Specifies the hexadecimal password.
	<i>hex-key</i>	The hexadecimal password, containing 64 characters.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** This shared password is of use only when the PSK authentication mode is enabled.

**Configuration** The following example sets the shared password for WLAN 1 RSN to 12345678.

### Examples

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn enable
Ruijie(wlansec)# security rsn akm psk enable
Ruijie(wlansec)# security rsn akm psk set-key ascii 12345678
```

Related Commands	Command	Description
	<b>security rsn</b> { <b>enable</b>   <b>disable</b> }	Configures the RSN authentication mode.
	<b>security rsn ciphers</b> { <b>aes</b>   <b>tkip</b> } { <b>enable</b>   <b>disable</b> }	Configures an encryption method in the RSN authentication mode.
	<b>security rsn akm</b> { <b>psk</b>   <b>802.1x</b> } { <b>enable</b>   <b>disable</b> }	Configures an authentication method in the RSN authentication mode.

**Platform** N/A

**Description**

## 1.11 security rsn ciphers

Use this command to configure an encryption method for a WLAN in the RSN authentication mode.

**security rsn ciphers** { **aes** | **tkip** } { **enable** | **disable** }

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

<b>aes</b>	Configures the encryption method to AES.
<b>tkip</b>	Configures the encryption method to TKIP.
<b>enable</b>	Enables an encryption method in the RSN authentication mode.
<b>disable</b>	Disables an encryption method in the RSN authentication mode.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** The command is used to enable an encryption method in the RSN authentication mode. There are two encryption methods: AES and TKIP.

**Configuration Examples** The following example configures the encryption method for WLAN1 in the RSN authentication mode to AES.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn ciphers aes enable
```

The following example disables the AES encryption method for WLAN1 in the RSN authentication mode.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security wpa ciphers aes disable
```

The following example sets the encryption method for WLAN1 in the RSN authentication mode to TKIP.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn ciphers tkip enable
```

The following example disables the TKIP encryption method for WLAN1 in the RSN authentication mode.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security rsn ciphers tkip disable
```

**Related Commands**

Command	Description
<b>security rsn { enable   disable }</b>	Configures the RSN authentication mode.
<b>security rsn akm { psk   802.1x } { enable   disable }</b>	Configures an authentication method in the RSN authentication mode.
<b>security rsn akm psk set-key ascii</b>	Configures a shared password for RSNs.

**Platform** N/A

**Description**

## 1.12 security static-wep-key authentication

Use this command to configure an authentication method for a WLAN in the static WEP mode.

**security static-wep-key authentication { open | share-key }**

Parameter Description	Parameter	Description
	<b>open</b>	The open system authentication mode.
	<b>share-key</b>	The shared key authentication mode.

**Defaults** The default is **open**.

**Command mode** WLAN security configuration mode

**Usage Guide** This command must be used with the **security static-wep-key encryption** command. Usually, the static WEP key must be configured before the shared key authentication method can be configured. In any security mode other than the static WEP security mode, it is of no use to configure the link authentication mode.

**Configuration** The following example sets the authentication mode of WLAN1 to shared key authentication.

**Examples**

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security static-wep-key authentication share-key
```

Related Commands	Command	Description
	<b>security static-wep-key encryption</b>	Configures the static WEP key, and enables the static WEP security mode.

**Platform** N/A

**Description**

## 1.13 security static-wep-key encryption

Use this command to configure the static WEP key for a WLAN and configure the security mode of this WLAN to static WEP.

**security static-wep-key encryption** *key-length* { **ascii** | **hex** } *key-index* *key*

Parameter Description	Parameter	Description
	<i>key-length</i>	The key length is measured by bit, which can be 40, 104, and 128 bits.
	<i>key-index</i>	The parameter indicates a key index number, ranging from 1 to 4.
	<i>key</i>	The parameter indicates key data. In the ascii mode, 5-byte, 13-byte, and 16-byte data can serve as a key depending on the <b>key-length</b> parameter. In the hex mode, 10-byte, 26-byte, and 32-byte data can serve as a key depending on the <b>key-length</b> parameter.

<b>ascii</b>	The parameter indicates that the password takes the form of ASCII code.
<b>hex</b>	The parameter indicates that the password is hexadecimal.

**Defaults** The static WEP mode is disabled by default.

**Command mode** WLAN security configuration mode

**Usage Guide** The prerequisite of configuring security mode for a WLAN is that this WLAN has been created. Attention should be paid to the following points:

1. This command can be used repeatedly for configuration, and the last configuration will take effect.
2. This command configures the static WEP key as well as the static-WEP security mode.

**Configuration** The following example sets the static WEP key of WLAN 1 to 12345.

**Examples**

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security static-wep-key encryption 40 ascii 1 12345
```

**Related Commands**

Command	Description
<b>security static-wep-key authentication { open   share-key }</b>	Configures the authentication method in the static WEP security mode to open system authentication or shared key authentication.

**Platform Description** The client cannot support a 128-bit WEP password if you use the Windows XP operating system in the wireless client management software. If the client software does not support a 128-bit WEP password, as Ruijie devices are configured with 128-bit encryption, the consequence is either the client software cannot be associated with the wireless network or the data channel is unavailable, depending on the authentication mode.

## 1.14 security wpa

Use this command to configure WPA authentication for a WLAN.

**security wpa { enable | disable }**

**Parameter Description**

Parameter	Description
<b>enable</b>	Enables WPA authentication.
<b>disable</b>	Disables WPA authentication.

**Defaults** WPA authentication is disabled by default.

**Command** WLAN security configuration mode



**mode**

**Usage Guide** The command is used to enable the WPA authentication mode. Only after the WPA authentication mode is enabled can encryption and authentication methods be configured in the WPA mode. Otherwise, configuration is impossible. When you use the WPA authentication, you need to configure an encryption method and an authentication method. If only an encryption or authentication method is configured, or neither is configured, the wireless client cannot be associated with the wireless network.

**Configuration** The following example sets the authentication mode of WLAN1 to WPA.

**Examples**

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security wpa enable
```

**Related Commands**

Command	Description
<b>security wpa akm { psk   802.1x } { enable   disable }</b>	Configures an authentication method in the WPA authentication mode.
<b>security wpa ciphers { aes   tkip } { enable   disable }</b>	Configures an encryption method in the WPA authentication mode.
<b>security wpa akm psk set-key ascii</b>	Configures the shared password in the WPA authentication mode.

**Platform** N/A

**Description**

## 1.15 security wpa akm

Use this command to configure an authentication method for a WLAN in the WPA authentication mode.

**security wpa akm { psk | 802.1x } { enable | disable }**

**Parameter Description**

Parameter	Description
<b>psk</b>	Configures the authentication method to pre-shared key identity verification.
<b>802.1x</b>	Configures the authentication method to IEEE802.1x authentication.
<b>enable</b>	Enables an authentication method in the WPA authentication mode.
<b>disable</b>	Disables an authentication method in the WPA authentication mode.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** The command is used to enable an authentication method in the WPA authentication mode. Only after the WPA authentication mode is enabled can an authentication method be configured. There are two authentication methods: PSK and 802.1x. When you use the WPA authentication, you need to configure an encryption method and an authentication method. If only an encryption or authentication method is configured, or neither is configured, the wireless client cannot be associated with the wireless network.

**Configuration Examples** The following example sets the authentication method for WLAN1 in the WPA authentication mode to pre-shared key identity authentication.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security wpa akm psk enable
```

The following example sets the authentication method for WLAN1 in the WPA authentication mode to 802.1x authentication.

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security wpa akm 802.1x enable
```

**Related Commands**

Command	Description
<b>security wpa { enable   disable }</b>	Configures the WLAN configuration mode.
<b>security wpa ciphers { aes   tkip } { enable   disable }</b>	Configures an encryption method in the WPA authentication mode.

**Platform** N/A

**Description**

## 1.16 security wpa akm psk set-key ascii

Use this command to configure a WPA shared password for a WLAN.

**security wpa akm psk set-key { ascii *ascii-key* | hex *hex-key* }**

**Parameter Description**

Parameter	Description
<b>ascii</b>	Specifies the ASCII password.
<i>ascii-key</i>	The ASCII password, containing 8-63 characters.
<b>hex</b>	Specifies the hexadecimal password.
<i>hex-key</i>	The hexadecimal password, containing 64 characters.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** This shared password is of use only when the PSK authentication mode is enabled.

**Configuration** The following example sets the shared password for WLAN 1 WPA to 12345678.

**Examples**

```
Ruijie (config)#wlansec 1
Ruijie(wlansec)# security wpa enable
Ruijie(wlansec)# security wpa akm psk enable
Ruijie(wlansec)# security wpa akm psk set-key ascii 12345678
```

**Related  
Commands**

Command	Description
<b>security wpa { enable   disable }</b>	Configures the WLAN configuration mode.
<b>security wpa ciphers { aes   tkip } { enable   disable }</b>	Configures an encryption method in the WPA authentication mode.
<b>security wpa akm { psk   802.1x } { enable   disable }</b>	Configures an authentication method in the WPA authentication mode.

**Platform** N/A

**Description**

## 1.17 security wpa ciphers

Use this command to configure an encryption method for a WLAN in the WPA authentication mode.

**security wpa ciphers { aes | tkip } { enable | disable }**

**Parameter  
Description**

Parameter	Description
<b>aes</b>	Configures the encryption method to AES.
<b>tkip</b>	Configures the encryption method to TKIP.
<b>enable</b>	Enables an encryption method in the WPA authentication mode.
<b>disable</b>	Disables an encryption method in the WPA authentication mode.

**Defaults** N/A

**Command mode** WLAN security configuration mode

**Usage Guide** The command is used to enable an encryption method in the WPA authentication mode. Only after the WPA authentication mode is enabled can an encryption method be configured. There are two encryption methods: AES and TKIP. When you use the WPA authentication, you need to configure an encryption method and an authentication method. If only an encryption or authentication method is configured, or neither is configured, the wireless client cannot be associated with the wireless network.

**Configuration Examples** The following example sets the encryption method for WLAN1 in the WPA authentication mode to AES.

```
Ruijie (config)#wlansec 1
```

```
Ruijie(wlansec)# security wpa ciphers aes enable
```

The following example disables the AES encryption method for WLAN1 in the WPA authentication mode.

```
Ruijie (config)#wlansec 1
```

```
Ruijie(wlansec)# security wpa ciphers aes disable
```

The following example sets the encryption method for WLAN1 in the WPA authentication mode to TKIP.

```
Ruijie (config)#wlansec 1
```

```
Ruijie(wlansec)# security wpa ciphers tkip enable
```

The following example disables the TKIP encryption method for WLAN1 in the WPA authentication mode.

```
Ruijie (config)#wlansec 1
```

```
Ruijie(wlansec)# security wpa ciphers tkip disable
```

#### Related Commands

Command	Description
<b>security wpa { enable   disable }</b>	Configures the WLAN configuration mode.
<b>security wpa akm { psk   802.1x } { enable   disable }</b>	Configures an authentication method in the WPA authentication mode.
<b>security wpa akm psk set-key ascii</b>	Configures a shared password in the WPA authentication mode.

**Platform** N/A

**Description**

## 1.18 show wclient security

Use this command to display security configuration of STAs.

```
show wclient security mac-address
```

#### Parameter Description

Parameter	Description
<i>mac-address</i>	The MAC address of the STA to be displayed.

**Defaults** N/A

**Command mode** Privileged EXEC mode/Global configuration mode/WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the security configuration of wireless client 1 with a MAC address of 3848.4c48.d953.

```
Ruijie# show wclient security 3848.4c48.d953
```

```
Security policy finished      :TRUE
Security policy type         :PSK
Security WPA version         :WPA2
Security Ucast cipher        :CCMP
Security EAP type            :NONE
```

Field	Description
Security policy finished	Whether the authentication is complete.
Security policy type	Security policy type.
Security WPA version	WPA version.
Security Ucast cipher	Unicast cipher suite
Security EAP type	EAP Type

#### Related Commands

Command	Description
N/A	N/A

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

## 1.19 show wlan security

Use this command to display security configuration of a WLAN.

**show wlan security** *wlan-id*

#### Parameter Description

Parameter	Description
<i>wlan-id</i>	The ID of the WLAN to be checked, in the range from 1 to 512.

**Defaults** N/A

**Command mode** Privileged EXEC mode/Global configuration mode/WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the security configuration of WLAN1.

```
Ruijie#show wlan security 1
WLAN SSID          : ruijie-psk
Security Policy    : PSK
WPA version        : RSN(WPA2)
AKM type           : preshare key
pairwise cipher type: AES
```

```
group cipher type : AES
wpa_passphrase_len : 8
wpa_passphrase   : 31 32 33 34 35 36 37 38
group key        : 39 de c7 57 5c 58 9a af 84 84 cf 18 3e ce ff 5c
```

Field	Description
WLAN SSID	WLAN SSID
Security Policy	Security Policy.
WPA version	WPA version.
AKM type	AKM suite, indicating the authentication mode.
pairwise cipher type	Unicast cipher suite.
group cipher type	Multicast cipher suite.
wpa_passphrase_len	Password length.
wpa_passphrase	PSK password.
group key	Multicast key.

#### Related Commands

Command	Description
N/A	N/A

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

## 1.20 webauth prevent-jitter

Use this command to set the timeout for jitter prevention during Web authentication of a particular WLAN. Use the **no** or **default** form of this command to restore the default setting.

**webauth prevent-jitter** *timeout*

**no webauth prevent-jitter**

**default webauth prevent-jitter**

#### Parameter Description

Parameter	Description
<i>timeout</i>	Sets the timeout for jitter prevention during Web authentication, in the range from 0 to 86400 in the unit of seconds.

**Defaults** The default is 300 seconds.

**Command mode** WLAN security configuration mode

**Usage Guide** The jitter prevention time in Web authentication can be configured only after Web authentication is enabled.

**Configuration** The following example sets the timeout for jitter prevention during Web authentication of WLAN 1 to 900 seconds.

**Examples**

```
Ruijie(config)#wlansec 1
Ruijie(config-wlansec)#webauth
Ruijie(config-wlansec)#webauth prevent-jitter 900
```

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 1.21 wlansec

Use this command to configure security configuration mode for the specified WLAN. Use the **no** or **default** form of this command to restore the default setting.

**wlansec** *wlan-id*

**no wlansec** *wlan-id*

**default wlansec** *wlan-id*

**Parameter Description**

Parameter	Description
<i>wlan-id</i>	Sets WLAN ID.

**Defaults**

No WLAN security configuration mode is configured by default.

**Command mode**

Global configuration mode

**Usage Guide**

Create a WLAN before entering its security configuration mode. You can use the **no wlansec** *wlan-id* command to clear the WLAN security configuration.

**Configuration** The following example configures security configuration mode for WLAN 1.

**Examples**

```
Ruijie(config)#wlansec 1
```

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 2 CPU Protection Commands

### 2.1 cpu-protect type pps

Use this command to set the bandwidth for receiving packets of a specified type for on the CPU port. Use the **no** form of this command to restore the default setting.

```
cpu-protect type { arp | bpdu | capwap-disc | d1x | dhcp-option82 | dhcp-relay-client |
dhcp-relay-server | dhcps | igmp | ipmc | ipv6-nans | isis | lldp | ospf | ospfv3 | pim | pppoe | rip
| ripng | tcp80 | tcp443 | vrrp } pps value
no cpu-protect type { arp | bpdu | capwap-disc | d1x | dhcp-option82 | dhcp-relay-client |
dhcp-relay-server | dhcps | igmp | ipmc | ipv6-nans | isis | lldp | ospf | ospfv3 | pim | pppoe | rip
| ripng | tcp80 | tcp443 | vrrp } pps
```

Parameter	Parameter	Description
Description	arp	ARP packets.
	bpdu	IEEE BPDU packets.
	capwap-disc	CAPWAP Discover packets.
	d1x	802.1x EAPOL packets.
	dhcp-option82	DHCP option82 packets.
	dhcp-relay-client	DHCP relay client packets.
	dhcp-relay-server	DHCP relay server packets.
	dhcps	DHCP Snooping packets.
	igmp	IGMP packets.
	ipmc	IPv4 multicast packets.
	ipv6-nans	IPv6 neighbor discovery packets.
	isis	ISIS packets.
	lldp	LLDP packets.
	ospf	OSPF packets.
	ospfv3	OSPF version 3 packets.
	pim	PIM packets.
	pppoe	PPPOE packets.
	rip	IPv4 RIP packets.
	ripng	IPv6 RIP packets.
	tcp80	Web authentication redirection packets.
tcp443	HTTPS packets.	
vrrp	VRRP packets.	
<i>value</i>	Number of received packets per second, in the range from 0 to 148810 in the unit of pps.	

**Defaults** The default value varies with the product model.

**Command Mode** Global configuration mode



**Usage Guide** N/A

**Configuration** The following example sets the CPU's bandwidth for receiving ARP packets to 200pps.

**Examples**

```
Ruijie(config)# cpu-protect type arp pps 200
```

**Related  
Commands**

Command	Description
<b>cpu-protect type packet-type pri</b> <i>pri_num</i>	Sets the priority of the packets of a specified type received by the CPU port.

**Platform  
Description** N/A

## 2.2 show cpu-protect summary

Use this command to display bandwidth of packets of each type received on the CPU port.

`show cpu-protect summary`

**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 bandwidth of packets of each type received on the CPU port.

```
Ruijie# show cpu-protect summary
```

**Related Command**

Command	Description
N/A	N/A

**Platform Description** N/A

## 2.3 show cpu-protect type

Use this command to display statistics about the packets of a specified type.

```
show cpu-protect type { arp | bpdu | capwap-disc | d1x | dhcp-option82 | dhcp-relay-client |  
dhcp-relay-server | dhcps | igmp | ipmc | ipv6-nans | isis | lldp | ospf | ospfv3 | pim | pppoe | rip  
| ripng | tcp80 | tcp443 | vrrp }
```

**Parameter**

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

<b>Description</b>	<b>arp</b>	ARP packets.
	<b>bpdu</b>	IEEE BPDU packets.
	<b>capwap-disc</b>	CAPWAP Discover packets.
	<b>d1x</b>	802.1x EAPOL packets.
	<b>dhcp-option82</b>	DHCP Option82 packets.
	<b>dhcp-relay-client</b>	DHCP relay client packets.
	<b>dhcp-relay-server</b>	DHCP relay server packets.
	<b>dhcps</b>	DHCP Snooping packets.
	<b>igmp</b>	IGMP packets.
	<b>ipmc</b>	IPv4 multicast packets.
	<b>ipv6-nans</b>	IPv6 neighbor discovery packets.
	<b>isis</b>	ISIS packets.
	<b>lldp</b>	LLDP packets.
	<b>ospf</b>	OSPF packets.
	<b>ospfv3</b>	OSPF version 3 packets.
	<b>pim</b>	PIM packets.
	<b>pppoe</b>	PPPOE packets.
	<b>rip</b>	IPv4 RIP packets.
	<b>ripng</b>	IPv6 RIP packets.
	<b>tcp80</b>	Web authentication redirection packets.
<b>tcp443</b>	HTTPS packets.	
<b>vrrp</b>	VRRP packets.	

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays statistics about received BPDU packets.

**Configuration Examples**

```
Ruijie(config)# show cpu-protect type arp
Slot      Type      Pps      Total     Drop
-----
MainBoard bpdu      100      30        0
Slot-2    bpdu      100      30        0
```

**Related Command**

Command	Description
<b>show cpu-protect type <i>packet-type</i></b>	Displays statistics of packets of a specified type protected by the CPU.

**Platform Description** N/A

## 3 NFPP Commands

### 3.1 arp-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

**arp-guard attack-threshold** { **per-src-ip** | **per-src-mac** | **per-port** } *pps*

**no arp-guard attack-threshold** { **per-src-ip** | **per-src-mac** | **per-port** }

**default arp-guard attack-threshold** { **per-src-ip** | **per-src-mac** | **per-port** }

Parameter Description	Parameter	Description
	<b>per-src-ip</b>	Sets the attack threshold for each source IP address.
	<b>per-src-mac</b>	Sets the attack threshold for each source MAC address.
	<b>per-port</b>	Sets the attack threshold for each port.
	<i>pps</i>	Sets the attack threshold, in the range from 1 to 9999 in unit of pps.

**Defaults** By default, the attack threshold for each source IP address and source MAC address is 16pps; and the attack threshold for each port is 200pps.

**Command Mode** NFPP configuration mode

**Usage Guide** The attack threshold shall be equal to or greater than the rate-limit threshold.

**Configuration Examples** The following example sets the global attack threshold.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-mac 3
Ruijie(config-nfpp)# arp-guard attack-threshold per-port 50
```

Related Commands	Command	Description
	<b>nfpp arp-guard policy</b>	Displays the rate-limit threshold and attack threshold.
	<b>show nfpp arp-guard summary</b>	Displays the configuration.
	<b>show nfpp arp-guard hosts</b>	Displays the monitored host.
	<b>clear nfpp arp-guard hosts</b>	Clears the isolate host.

**Platform Description** N/A

## 3.2 arp-guard enable

Use this command to enable anti-ARP guard function globally. Use the **no** form of this command to disable anti-ARP guard. Use the **default** form of this command to restore the default setting.

**arp-guard enable**

**no arp-guard enable**

**default arp-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enables anti-ARP guard function globally.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard enable
```

Related Commands	Command	Description
	<b>nfpp arp-guard enable</b>	Enables ARP anti-attack on the interface.
	<b>show nfpp arp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

## 3.3 arp-guard isolate-period

Use this command to set the arp-guard isolate time globally. Use the **no** or **default** form of this command to restore the default setting.

**arp-guard isolate-period** { *seconds* | **permanent** }

**no arp-guard isolate-period**

**default arp-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate time. The value is 0, or in the range from 30 to 86400 in the unit of seconds.

<b>permanent</b>	Permanent isolation.
------------------	----------------------

**Defaults** The default is 0 second, which means no isolation.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the arp-guard isolate time globally to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard isolate-period 180
```

**Related Commands**

Command	Description
<b>nfpp arp-guard isolate-period</b>	Sets the isolate time on the interface.
<b>show nfpp arp-guard summary</b>	Displays the configuration.

**Platform Description** N/A

### 3.4 arp-guard monitored-host-limit

Use this command to set the maximum number of monitored hosts. Use the **no** or **default** form of this command to restore the default setting.

**arp-guard monitored-host-limit** *number*

**no arp-guard monitored-host-limit**

**default arp-guard monitored-host-limit**

**Parameter Description**

Parameter	Description
<i>number</i>	The maximum number of monitored hosts, in the range from 1 to 4294967295.

**Defaults** The default is 1000.

**Command Mode** NFPP configuration mode

**Usage Guide** If the monitored host number has reached the default 1000, the administrator shall set the max-number smaller than 1000 and it will prompt the message that %ERROR: The value that you configured is smaller than current monitored hosts 1000, please clear a part of monitored hosts. to remind the administrator of the invalid configuration and removing the monitored hosts. When the maximum monitored host number has been exceeded, it prompts the message that %

NFPP\_ARP\_GUARD-4-SESSION\_LIMIT: Attempt to exceed limit of 1000 monitored hosts.to remind the administrator.

**Configuration** The following example sets the maximum number of monitored hosts to 200.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitored-host-limit 200
```

**Related Commands**

Command	Description
<b>show nfpp arp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.5 arp-guard monitor-period

Use this command to configure the arp guard monitor time. Use the **no** or **default** form of this command to restore the default setting.

**arp guard monitor-period** *seconds*

**no arp-guard monitor-period**

**default arp-guard monitor-period**

**Parameter Description**

Parameter	Description
<i>seconds</i>	Sets the monitor time, in the range from 180 to 86400 in the unit of seconds.

**Defaults** The default is 600 seconds.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** When the attacker is detected, if the isolate period is 0, the attacker will be monitored by the software and the timeout time will be the monitor period. During the software monitoring, if the isolate period is not 0, the software-monitored attacker will be auto-isolated by the hardware and the timeout time will be the isolate period. The monitor period is valid with the isolate period 0.

If the isolate period has changed to be 0, the attackers on the interface will be removed rather than being monitored by the software.

**Configuration** The following example sets the arp-guard monitor time to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitor-period 180
```

**Related**

Command	Description
---------	-------------

Commands	
<b>show nfpp arp-guard summary</b>	Displays the configuration.
<b>show nfpp arp-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp arp-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.6 arp-guard rate-limit

Use this command to set the arp-guard rate limit. Use the **no** or **default** form of this command to restore the default setting.

**arp-guard rate-limit** { **per-src-ip** | **per-src-mac** | **per-port** } *pps*

**no arp-guard rate-limit** { **per-src-ip** | **per-src-mac** | **per-port** }

**default arp-guard rate-limit** { **per-src-ip** | **per-src-mac** | **per-port** }

Parameter Description	Parameter	Description
	<b>per-src-ip</b>	Sets the rate limit for each source IP address.
	<b>per-src-mac</b>	Sets the rate limit for each source MAC address.
	<b>per-port</b>	Sets the rate limit for each port.
	<i>pps</i>	Sets the rate limit, in the range of 1 to 9999.

**Defaults** The default rate limit for each source IP address and MAC address is 8pps; the default rate limit for each port is 100pps.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the arp guard rate limit.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# arp-guard rate-limit per-src-mac 3
Ruijie(config-nfpp)# arp-guard rate-limit per-port 50
```

Related Commands	Command	Description
	<b>nfpp arp-guard policy</b>	Sets the rate limit and the attack threshold.
	<b>show nfpp arp-guard summary</b>	Displays the configuration.

**Platform** N/A

## Description

### 3.7 arp-guard scan-threshold

Use this command to set the global scan threshold. Use the **no** or **default** form of this command to restore the default setting.

**arp-guard scan-threshold** *pkt-cnt*

**no arp-guard scan-threshold**

**default arp-guard scan-threshold**

Parameter Description	Parameter	Description
	<i>pkt-cnt</i>	Sets the scan threshold, in the range from 1 to 9999.

**Defaults** The default scan threshold is 15, in 10 seconds.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** The scanning may occur on the condition that:  
 more than 15 packets are received within 10 seconds;  
 the source MAC address for the link layer is constant while the source IP address is uncertain;  
 The source MAC and IP address for the link layer is constant while the destination IP address is uncertain.

**Configuration** The following example sets the global scan threshold to 20pps.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard scan-threshold 20
```

Related Commands	Command	Description
	<b>nfpp arp-guard scan-threshold</b>	Sets the scan threshold on the port.
	<b>show nfpp arp-guard summary</b>	Displays the configuration.
	<b>show nfpp arp-guard scan</b>	Displays the ARP guard scan table.
	<b>clear nfpp arp-guard scan</b>	Clears the ARP guard scan table.

**Platform** N/A

**Description**

### 3.8 arp-guard trusted-host

Use this command to set the trusted host. Use the **no** or **default** form of this command to restore the default setting.



```
arp-guard trusted-host ip mac
no arp-guard trusted-host { all | ip mac }
default arp-guard trusted-host
```

Parameter Description	Parameter	Description
	<i>ip</i>	Sets the IP address.
	<i>mac</i>	Sets the MAC address.
	<b>all</b>	Deletes all trusted hosts.

**Defaults** N/A

**Command Mode** NFPP configuration mode

**Usage Guide** After this function is enabled, the ARP packets are sent from the trusted host to CPU without rate limit or alarm notification.  
Up to 500 hosts are supported.

**Configuration Examples** The following example sets the host whose IP address and MAC address are 1.1.1.1 and 0000.0000.1111 respectively as the trusted host.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#arp-guard trusted-host 1.1.1.1 0000.0000.1111
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.9 clear nfpp arp-guard hosts

Use this command to clear the monitored host isolation.

```
clear nfpp arp-guard hosts [ vlan vid ] [ interface interface-id ] [ ip-address | mac-address ]
```

Parameter Description	Parameter	Description
	<i>vid</i>	Sets the VLAN ID.
	<i>interface-id</i>	Sets the interface name and number.
	<i>ip-address</i>	Sets the IP address.
	<i>mac-address</i>	Sets the MAC address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide**

**Configuration** The following example clears the monitored host isolation.

**Examples** Ruijie# clear nfpp arp-guard hosts vlan 1 interface g0/1

**Related Commands**

Command	Description
<b>arp-guard attack-threshold</b>	Sets the global attack threshold.
<b>nfpp arp-guard policy</b>	Sets the limit threshold and attack threshold.
<b>show nfpp arp-guard hosts</b>	Displays the monitored host.

**Platform** N/A

**Description**

### 3.10 clear nfpp arp-guard scan

Use this command to clear ARP scanning table.

**clear nfpp arp-guard scan**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example clears ARP scanning table.

**Examples** Ruijie# clear nfpp arp-guard scan

**Related Commands**

Command	Description
<b>arp-guard attack-threshold</b>	Sets the global attack threshold.
<b>nfpp arp-guard policy</b>	Sets the attack threshold.
<b>show nfpp arp-guard scan</b>	Displays the ARP scanning table.

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

### 3.11 clear nfpp dhcp-guard hosts

Use this command to clear the monitored host isolation.

**clear nfpp dhcp-guard hosts** [ *vlan vid* ] [ interface *interface-id* ] [ *mac-address* ]

Parameter Description	Parameter	Description
	<i>vid</i>	Sets the VLAN ID.
	<i>interface-id</i>	Sets the interface name and number.
	<i>mac-address</i>	Sets the MAC address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command without the parameter to clear all monitored hosts.

**Configuration** The following example clears the monitored host isolation.

**Examples** Ruijie# clear nfpp dhcp-guard hosts vlan 1 interface g0/1

Related Commands	Command	Description
	<b>dhcp-guard attack-threshold</b>	Sets the global attack threshold.
	<b>nfpp dhcp-guard policy</b>	Sets the limit threshold and attack threshold.
	<b>show nfpp dhcp-guard hosts</b>	Displays the monitored host.

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

### 3.12 clear nfpp dhcpv6-guard hosts

Use this command to clear the monitored host isolation.

**clear nfpp dhcpv6-guard hosts** [ *vlan vid* ] [ interface *interface-id* ] [ *mac-address* ]

Parameter Description	Parameter	Description
	<i>vid</i>	Sets the VLAN ID.
	<i>interface-id</i>	Sets the interface name and number.

<i>mac-address</i>	Sets the MAC address.
--------------------	-----------------------

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command without the parameter to clear all monitored hosts

**Configuration** The following example clears the monitored host isolation.

**Examples** Ruijie# `clear nfpp dhcpv6-guard hosts vlan 1 interface g0/1`

Related Commands	Command	Description
	<b>dhcpv6-guard attack-threshold</b>	Sets the global attack threshold.
	<b>nfpp dhcpv6-guard policy</b>	Sets the limit threshold and attack threshold.
	<b>show nfpp dhcpv6-guard hosts</b>	Displays the monitored host.

**Platform** N/A

**Description**

### 3.13 clear nfpp icmp-guard hosts

Use this command to clear the monitored host isolation.

**clear nfpp icmp-guard hosts** [ **vlan** *vid* ] [ **interface** *interface-id* ] [ *ip-address* ]

Parameter Description	Parameter	Description
	<i>vid</i>	Sets the VLAN ID.
	<i>interface-id</i>	Sets the interface name and number.
	<i>ip-address</i>	Sets the IP address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command without the parameter to clear all monitored hosts.

**Configuration** The following example clears the monitored host isolation.

**Examples** Ruijie# `clear nfpp icmp-guard hosts vlan 1 interface g0/1`

Related	Command	Description

Commands		
<b>icmp-guard attack-threshold</b>		Sets the global attack threshold.
<b>nfpp icmp-guard policy</b>		Sets the limit threshold and attack threshold.
<b>show nfpp icmp-guard hosts</b>		Displays the monitored host.

**Platform** N/A

**Description**

### 3.14 clear nfpp ip-guard hosts

Use this command to clear the monitored host isolation.

**clear nfpp ip-guard hosts** [ **vlan** *vid* ] [ **interface** *interface-id* ] [ *ip-address* ]

Parameter Description	Parameter	Description
	<i>vid</i>	Sets the VLAN ID.
	<i>interface-id</i>	Sets the interface name and number.
	<i>ip-address</i>	Sets the IP address.

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** Use this command without the parameter to clear all monitored hosts.

**Configuration** The following example clears the monitored host isolation.

**Examples**

```
Ruijie# clear nfpp ip-guard hosts vlan 1 interface g0/1
```

Related Commands	Command	Description
	<b>ip-guard attack-threshold</b>	Sets the global attack threshold.
	<b>nfpp ip-guard policy</b>	Sets the limit threshold and attack threshold.
	<b>show nfpp ip-guard hosts</b>	Displays the monitored host.

**Platform** N/A

**Description**

### 3.15 clear nfpp log

Use this command to clear the NFPP log buffer.

**clear nfpp log**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example clears the NFPP log buffer.	
	<pre>Ruijie# clear nfpp log 32 log-buffer entries were cleared.</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show nfpp log</b>	Displays the NFPP log configuration or the log buffer.
<b>Platform Description</b>	N/A	

### 3.16 cpu-protect sub-interface percent

Use this command to configure the percentage of packets of each type in the buffer. Use the **no** or **default** form of this command to restore the default setting.

**cpu-protect sub-interface** { *manage* | **protocol** | **route** } **percent** *percent\_value*

**no cpu-protect sub-interface** {*manage|protocol|route*} **percent**

**default cpu-protect sub-interface** {*manage|protocol|route*} **percent**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>manage</b>	Specifies the management packets.
	<b>protocol</b>	Specifies the protocol packets.
	<b>route</b>	Specifies the route packets.
	<i>percent_value</i>	The percent value, in the range from 1 to 100.

**Defaults** The default percentage of packets of different types in the buffer are:

- manage** packets: 30;
- route** packets: 20;
- protocol** packets: 45.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the percentage of management packets in the buffer to 60.

```
Ruijie(config)# cpu-protect sub-interface manage
percent 60
```

Related Commands	Command	Description
		<b>cpu-protect sub-interface</b> { <i>manage</i>   <b>protocol</b>   <i>route</i> } pps

**Platform** N/A

**Description**

### 3.17 cpu-protect sub-interface pps

Use this command to configure traffic bandwidth for packets of each type. Use the **no** or **default** form of this command to restore the default setting.

**cpu-protect sub-interface** { *manage* | **protocol** | *route* } pps *pps\_value*

**no cpu-protect sub-interface** { *manage* | *protocol* | *route* } pps

**default cpu-protect sub-interface** { *manage* | *protocol* | *route* } pps

Parameter Description	Parameter	Description
		<b>manage</b>
	<b>protocol</b>	Specifies the protocol packets.
	<b>route</b>	Specifies the route packets.
	<i>pps_value</i>	The rate limit threshold, in the range from 1 to 100000.

**Defaults** The default traffic bandwidths for packets of different types are:

**manage** packets: 3000pps;

**route** packets: 3000pps;

**protocol** packets: 3000pps.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the traffic bandwidth for management packets to 2000 pps.

```
Ruijie(config)# cpu-protect sub-interface manage pps 2000
```

Related Commands	Command	Description
	<code>cpu-protect sub-interface { manage   protocol   route } percent</code>	Configures the percent value of each type of packets occupied in the buffer.

Platform N/A

Description

### 3.18 dhcp-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard attack-threshold { per-src-mac | per-port } pps**

**no dhcp-guard attack-threshold { per-src-mac | per-port }**

**default dhcp-guard attack-threshold { per-src-mac | per-port }**

Parameter Description	Parameter	Description
	<code>per-src-mac</code>	Sets the attack threshold for each source MAC address.
<code>per-port</code>	Sets the attack threshold for each port.	
<code>pps</code>	Sets the attack threshold in the range from 1 to 9999 in the unit of pps.	

**Defaults** By default, the attack threshold for each source MAC address is 10pps; and the attack threshold for each port is 300pps.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the global attack threshold.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-port 200
```

Related Commands	Command	Description
	<code>nfpp dhcp-guard policy</code>	Displays the rate-limit threshold and attack threshold.
<code>show nfpp dhcp-guard summary</code>	Displays the configuration.	



<b>show nfpp dhcp-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp dhcp-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.19 dhcp-guard enable

Use this command to enable the DHCP anti-attack function. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard enable**

**no dhcp-guard enable**

**default dhcp-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example enables the DHCP anti-attack function.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard enable
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.20 dhcp-guard isolate-period

Use this command to set the isolate time globally. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard isolate-period** { *seconds* | **permanent** }

**no dhcp-guard isolate-period**

**default dhcp-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate time. The value is 0 or in the range from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.

**Defaults** The default is 0 second, which means no isolation.

**Command Mode** NFPP configuration mode

**Usage Guide** The isolate period can be configured globally or based on the interface. For one interface, if the isolate period is not set based on the interface, the global value shall be adopted; or the interface-based isolate period shall be adopted.

**Configuration Examples** The following example sets the isolate time globally to 180 seconds.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard isolate-period 180
```

Related Commands	Command	Description
	<b>nfpp dhcp-guard isolate-period</b>	Sets the isolate time on the interface.
	<b>show nfpp dhcp-guard summary</b>	Displays the configuration.

**Platform Description** N/A

### 3.21 dhcp-guard monitored-host-limit

Use this command to set the maximum number of monitored hosts. Use the **no** or **default** form of this command to restore the default setting.

```
dhcp-guard monitored-host-limit number
no dhcp-guard monitored-host-limit
default dhcp-guard monitored-host-limit
```

Parameter Description	Parameter	Description
	<i>number</i>	The maximum number of monitored hosts, in the range from 1 to 4294967295.

**Defaults** The default is 1000.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** If the number of monitored hosts has reached the default 1000, the administrator shall set the max-number smaller than 1000 and it will prompt the message that %ERROR: The value that you configured is smaller than current monitored hosts 1000, please clear a part of monitored hosts. to remind the administrator of the invalid configuration and removing the monitored hosts.

When the maximum number of monitored hosts has been exceeded, it prompts the message that %NFPP\_ARP\_GUARD-4-SESSION\_LIMIT: Attempt to exceed limit of 1000 monitored hosts.to remind the administrator.

**Configuration** The following example sets the maximum number of monitored hosts to 200.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200
```

**Related  
Commands**

Command	Description
<b>show nfpp dhcp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

## 3.22 dhcp-guard monitor-period

Use this command to configure the monitor time. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard monitor-period** *seconds*

**no dhcp-guard monitor-period**

**default dhcp-guard monitor-period**

**Parameter  
Description**

Parameter	Description
<i>seconds</i>	Sets the monitor time, in the range from 180 to 86400 in the unit of seconds.

**Defaults** The default is 600 seconds.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** When the attacker is detected, if the isolate period is 0, the attacker will be monitored by the software and the timeout time will be the monitor period. During the software monitoring, if the isolate period is not 0, the software-monitored attacker will be auto-isolated by the hardware and the timeout time will be the isolate period. The monitor period is valid with the isolate period 0.

If the isolate period has changed to be 0, the attackers on the interface will be removed rather than

being monitored by the software.

**Configuration** The following example sets the monitor time to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitor-period 180
```

**Related  
Commands**

Command	Description
<b>show nfpp dhcp-guard summary</b>	Displays the configuration.
<b>show nfpp dhcp-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp dhcp-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.23 dhcp-guard rate-limit

Use this command to set the rate-limit threshold globally. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard rate-limit { per-src-mac | per-port } pps**

**no dhcp-guard rate-limit { per-src-mac | per-port }**

**default dhcp-guard rate-limit { per-src-mac | per-port }**

**Parameter  
Description**

Parameter	Description
<b>per-src-mac</b>	Sets the rate limit for each source MAC address.
<b>per-port</b>	Sets the rate limit for each port.
<i>pps</i>	Sets the rate limit, in the range of 1 to 9999.

**Defaults** The default rate limit for each source MAC address is 5pps; the default rate limit for each port is 150pps.

**Command  
Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the rate-limit threshold globally.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcp-guard rate-limit per-port 100
```

**Related**

Command	Description
---------	-------------

Commands	
<code>nfpp dhcp-guard policy</code>	Sets the rate limit and the attack threshold.
<code>show nfpp dhcp-guard summary</code>	Displays the configuration.

Platform N/A

Description

## 3.24 dhcp-guard trusted-host

Use this command to set the trusted host. Use the **no** or **default** form of this command to restore the default setting.

**dhcp-guard trusted-host** *mac*

**no dhcp-guard trusted-host** { **all** | *mac* }

**default dhcp-guard trusted-host**

Parameter Description	Parameter	Description
	<i>mac</i>	Sets the MAC address.
	<b>all</b>	Deletes all trusted hosts.

Defaults N/A

Command NFPP configuration mode

Mode

**Usage Guide** After this function is enabled, the DHCP packets are sent from the trusted host to CPU without rate limit or alarm notification.

Up to 500 trusted hosts are supported.

**Configuration Examples** The following example sets the host whose MAC address is 0000.0000.1111 as the trusted host.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#dhcp-guard trusted-host 0000.0000.1111
```

Related Commands	Command	Description
	N/A	N/A

Platform N/A

Description

## 3.25 dhcpv6-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack

threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard attack-threshold { per-src-mac | per-port } pps**

**no dhcpv6-guard attack-threshold {per-src-mac | per-port}**

**default dhcpv6-guard attack-threshold { per-src-mac | per-port}**

Parameter Description	Parameter	Description
	<b>per-src-mac</b>	Sets the attack threshold for each source MAC address.
	<b>per-port</b>	Sets the attack threshold for each port.
	<i>pps</i>	Sets the attack threshold, in the range is from 1 to 9999 pps.

**Defaults** By default, the attack threshold for each source MAC address is 10pps; and the attack threshold for each port is 300pps

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the global attack threshold.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-port 200
```

Related Commands	Command	Description
	<b>nfpp dhcpv6-guard policy</b>	Displays the rate-limit threshold and attack threshold.
	<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.
	<b>show nfpp dhcpv6-guard hosts</b>	Displays the monitored host list.
	<b>clear nfpp dhcpv6-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.26 dhcpv6-guard enable

Use this command to enable the DHCPv6 anti-attack function. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard enable**

**no dhcpv6-guard enable**

**default dhcpv6-guard enable**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Parameter	Description	N/A	N/A
Parameter	Description				
N/A	N/A				
<b>Defaults</b>	This function is disabled by default.				
<b>Command Mode</b>	NFPP configuration mode				
<b>Usage Guide</b>	N/A				
<b>Configuration Examples</b>	<p>The following example enables the DHCPv6 anti-attack function globally.</p> <pre>Ruijie(config)# nfpp Ruijie(config-nfpp)# dhcpv6-guard enable</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Command	Description	N/A	N/A
Command	Description				
N/A	N/A				
<b>Platform Description</b>	N/A				

### 3.27 dhcpv6-guard isolate-period

Use this command to set the isolate time globally. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard isolate-period** { *seconds* | **permanent** }

**no dhcpv6-guard isolate-period**

**default dhcpv6-guard isolate-period**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>seconds</i></td> <td>Sets the isolate time. The value is 0 or in the range is from 30 to 86400 in the unit of seconds.</td> </tr> <tr> <td><b>permanent</b></td> <td>Permanent isolation.</td> </tr> </tbody> </table>	Parameter	Description	<i>seconds</i>	Sets the isolate time. The value is 0 or in the range is from 30 to 86400 in the unit of seconds.	<b>permanent</b>	Permanent isolation.
Parameter	Description						
<i>seconds</i>	Sets the isolate time. The value is 0 or in the range is from 30 to 86400 in the unit of seconds.						
<b>permanent</b>	Permanent isolation.						

**Defaults** The default is 0 second, which means no isolation.

**Command Mode** NFPP configuration mode

**Usage Guide** The isolate period can be configured globally or based on the interface. For one interface, if the isolate period is not set based on the interface, the global value shall be adopted; or the

interface-based isolate period shall be adopted.

**Configuration** The following example sets the isolate time globally to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard isolate-period 180
```

**Related Commands**

Command	Description
<b>nfpp dhcpv6-guard isolate-period</b>	Sets the isolate time on the interface.
<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.28 dhcpv6-guard monitored-host-limit

Use this command to set the maximum monitored host number. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard monitored-host-limit** *number*

**no dhcpv6-guard monitored-host-limit**

**default dhcpv6-guard monitored-host-limit**

**Parameter Description**

Parameter	Description
<i>number</i>	The maximum monitored host number, in the range from 1 to 4294967295.

**Defaults** The default is 1000.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** If the monitored host number has reached the default 1000, the administrator shall set the max-number smaller than 1000 and it will prompt the message that %ERROR: The value that you configured is smaller than current monitored hosts 1000, please clear a part of monitored hosts. to remind the administrator of the invalid configuration and removing the monitored hosts.

When the maximum monitored host number has been exceeded, it prompts the message that %NFPP\_ARP\_GUARD-4-SESSION\_LIMIT: Attempt to exceed limit of 1000 monitored hosts.to remind the administrator.

**Configuration** The following example sets the maximum monitored host number to 200.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard monitored-host-limit 200
```



Related Commands	Command	Description
		<b>show nfpp dhcpv6-guard summary</b>

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

### 3.29 dhcpv6-guard monitor-period

Use this command to configure the monitor time. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard monitor-period** *seconds*

**no dhcpv6-guard monitor-period**

**default dhcpv6-guard monitor-period**

Parameter Description	Parameter	Description
		<i>seconds</i>

**Defaults** The default is 600 seconds.

**Command Mode** NFPP configuration mode

**Usage Guide** When the attacker is detected, if the isolate period is 0, the attacker will be monitored by the software and the timeout time will be the monitor period. During the software monitoring, if the isolate period is not 0, the software-monitored attacker will be auto-isolated by the hardware and the timeout time will be the isolate period. The monitor period is valid with the isolate period 0.  
 If the isolate period has changed to be 0, the attackers on the interface will be removed rather than being monitored by the software.

**Configuration** The following example sets the monitor time to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard monitor-period 180
```

Related Commands	Command	Description
		<b>show nfpp dhcpv6-guard summary</b>
	<b>show nfpp dhcpv6-guard hosts</b>	Displays the monitored host list.
	<b>clear nfpp dhcpv6-guard hosts</b>	Clears the isolate host.

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

### 3.30 dhcpv6-guard rate-limit

Use this command to set the rate-limit threshold globally. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard rate-limit** { **per-src-mac** | **per-port** } *pps*

**no dhcpv6-guard rate-limit** { **per-src-mac** | **per-port** }

**default dhcpv6-guard rate-limit** { **per-src-mac** | **per-port** }

Parameter Description	Parameter	Description
	<b>per-src-mac</b>	Sets the rate limit for each source MAC address.
	<b>per-port</b>	Sets the rate limit for each port.
	<i>pps</i>	Sets the rate limit, in the range from 1 to 9999.

**Defaults** The default rate limit for each source MAC address is 5pps; the default rate limit for each port is 150pps.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the rate-limit threshold globally.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-port 100
```

Related Commands	Command	Description
	<b>nfpp dhcpv6-guard policy</b>	Sets the rate limit and the attack threshold.
	<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.

**Platform Description** N/A

### 3.31 dhcpv6-guard trusted-host

Use this command to set the trusted host. Use the **no** or **default** form of this command to restore the default setting.

**dhcpv6-guard trusted-host** *mac*

**no dhcpv6-guard trusted-host** { **all** | *mac* }

**default dhcpv6-guard trusted-host**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>mac</i>	Sets the MAC address.
	<b>all</b>	Deletes all trusted hosts.
<b>Defaults</b>	N/A	
<b>Command Mode</b>	NFPP configuration mode	
<b>Usage Guide</b>	<p>After this function is enabled, the DHCPv6 packets are sent from the trusted host to CPU without rate limit or alarm notification.</p> <p>Up to 500 trusted hosts are supported.</p>	
<b>Configuration Examples</b>	<p>The following example sets the host whose MAC address is 0000.0000.1111 as the trusted host.</p> <pre>Ruijie(config)# nfpp Ruijie(config-nfpp)#dhcpv6-guard trusted-host 0000.0000.1111</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

### 3.32 icmp-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard attack-threshold { per-src-ip | per-port } pps**

**no icmp-guard attack-threshold { per-src-ip | per-port }**

**default icmp-guard attack-threshold { per-src-ip | per-port }**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>per-src-ip</b>	Sets the attack threshold for each source IP address.
	<b>per-port</b>	Sets the attack threshold for each port.
	<i>pps</i>	Sets the attack threshold, in the range from 1 to 9999 in the unit of <input type="text"/> pps.

**Defaults** By default, the attack threshold and the rate-limit threshold for each source IP address and each port are the same. For the default rate-limit threshold value, see the icmp-guard rate-limit command.

**Command** NFPP configuration mode  
**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the global attack threshold.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard attack-threshold per-src-ip 600
Ruijie(config-nfpp)# icmp-guard attack-threshold per-port 1200
```

**Related  
Commands**

Command	Description
<b>nfpp icmp-guard policy</b>	Displays the rate-limit threshold and attack threshold.
<b>show nfpp icmp-guard summary</b>	Displays the configuration.
<b>show nfpp icmp-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp icmp-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.33 icmp-guard enable

Use this command to enable the ICMP anti-attack function. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard enable**

**no icmp-guard enable**

**default icmp-guard enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** This function is enabled by default.

**Command** NFPP configuration mode  
**Mode**

**Usage Guide** N/A

**Configuration** The following example enables the ICMP anti-attack function globally.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard enable
```

Related Commands	Command	Description
	<b>nfpp icmp-guard enable</b>	Enables the ICMP anti-attack function on the interface.
	<b>show nfpp icmp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.34 icmp-guard isolate-period

Use this command to set the isolate time globally. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard isolate-period** { *seconds* | **permanent** }

**no icmp-guard isolate-period**

**default icmp-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate time. The value is in the range is 0 or from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.

**Defaults** The default is 0 second, which means no isolation.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** The isolate period can be configured globally or based on the interface. For one interface, if the isolate period is not set based on the interface, the global value shall be adopted; or the interface-based isolate period shall be adopted.

**Configuration** The following example sets the isolate time globally to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard isolate-period 180
```

Related Commands	Command	Description
	<b>nfpp icmp-guard isolate-period</b>	Sets the isolate time on the interface.
	<b>show nfpp icmp-guard summary</b>	Displays the configuration.

**Platform** N/A

## Description

### 3.35 icmp-guard monitored-host-limit

Use this command to set the maximum monitored host number. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard monitored-host-limit** *number*

**no icmp-guard monitored-host-limit**

**default icmp-guard monitored-host-limit**

Parameter Description	Parameter	Description
	<i>number</i>	The maximum monitored host number, in the range from 1 to 4294967295.

**Defaults** The default is 1000.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** If the monitored host number has reached the default 1000, the administrator shall set the max-number smaller than 1000 and it will prompt the message that %ERROR: The value that you configured is smaller than current monitored hosts 1000, please clear a part of monitored hosts. to remind the administrator of the invalid configuration and removing the monitored hosts. When the maximum monitored host number has been exceeded, it prompts the message that %NFPP\_ARP\_GUARD-4-SESSION\_LIMIT: Attempt to exceed limit of 1000 monitored hosts.to remind the administrator.

**Configuration** The following example sets the maximum monitored host number to 200.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitored-host-limit 200
```

Related Commands	Command	Description
	<b>show nfpp icmp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.36 icmp-guard monitor-period

Use this command to configure the monitor time. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard monitor-period** *seconds*  
**no icmp-guard monitor-period**  
**default icmp-guard monitor-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the monitor time, in the range from 180 to 86400 seconds.

**Defaults** The default is 600 seconds.

**Command Mode** NFPP configuration mode

**Usage Guide** When the attacker is detected, if the isolate period is 0, the attacker will be monitored by the software and the timeout time will be the monitor period. During the software monitoring, if the isolate period is not 0, the software-monitored attacker will be auto-isolated by the hardware and the timeout time will be the isolate period. The monitor period is valid with the isolate period 0.  
 If the isolate period has changed to be 0, the attackers on the interface will be removed rather than being monitored by the software.

**Configuration Examples** The following example sets the monitor time to 180 seconds.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitor-period 180
```

Related Commands	Command	Description
	<b>show nfpp icmp-guard summary</b>	Displays the configuration.
	<b>show nfpp icmp-guard hosts</b>	Displays the monitored host list.
	<b>clear nfpp icmp-guard hosts</b>	Clears the isolate host.

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

### 3.37 icmp-guard rate-limit

Use this command to set the rate-limit threshold globally. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard rate-limit** { **per-src-ip** | **per-port** } *pps*  
**no icmp-guard rate-limit** { **per-src-ip** | **per-port** }  
**default icmp-guard rate-limit** { **per-src-ip** | **per-port** }

Parameter Description	Parameter	Description
	<b>per-src-ip</b>	Sets the rate limit for each source IP address.

<b>per-port</b>	Sets the rate limit for each port.
<i>pps</i>	Sets the rate limit, in the range from 1 to 9999.

**Defaults** N/A

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the rate-limit threshold globally.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard rate-limit per-src-ip 500
Ruijie(config-nfpp)# icmp-guard rate-limit per-port 800
```

**Related Commands**

Command	Description
<b>nfpp icmp-guard policy</b>	Sets the rate limit and the attack threshold.
<b>show nfpp icmp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.38 icmp-guard trusted-host

Use this command to set the trusted hosts free form monitoring. Use the **no** or **default** form of this command to restore the default setting.

**icmp-guard trusted-host** *ip mask*

**no icmp-guard trusted-host** { **all** | *ip mask* }

**default icmp-guard trusted-host**

**Parameter Description**

Parameter	Description
<i>ip</i>	Sets the IP address.
<i>mask</i>	Sets the IP mask.
<b>all</b>	Deletes the configuration of all trusted hosts.

**Defaults** No trusted host is configured by default.

**Command Mode** NFPP configuration mode

**Usage Guide** The administrator can use this command to set the trusted host free from monitoring. The ICMP



packets are allowed to send to the trusted host CPU without any rate-limit and warning configuration. Configure the mask to set all hosts in one network segment free from monitoring. UP to 500 trusted hosts are supported.

**Configuration** The following example sets the trusted hosts free form monitoring.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard trusted-host 1.1.1.0 255.255.255.0
```

**Related Commands**

Command	Description
<b>show nfpp icmp-guard trusted-host</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.39 ip-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

```
ip-guard attack-threshold { per-src-ip | per-port } pps
no ip-guard attack-threshold { per-src-ip | per-port }
default ip-guard attack-threshold { per-src-ip | per-port }
```

**Parameter Description**

Parameter	Description
<b>per-src-ip</b>	Sets the attack threshold for each source IP address.
<b>per-port</b>	Sets the attack threshold for each port.
<i>pps</i>	Sets the attack threshold, in pps. The valid range is 1 to 9999.

**Defaults** By default, the attack threshold for each source IP address and each port are 20pps and 2000pps respectively.

**Command Mode** NFPP configuration mode

**Usage Guide** The attack threshold shall be equal to or larger than the rate-limit threshold.

**Configuration** The following example sets the global attack threshold.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# ip-guard attack-threshold per-port 50
```

**Related**

Command	Description
---------	-------------

Commands	
<b>nfpp ip-guard policy</b>	Displays the rate-limit threshold and attack threshold.
<b>show nfpp ip-guard summary</b>	Displays the configuration.
<b>show nfpp ip-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp ip-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.40 ip-guard enable

Use this command to enable the IP anti-scan function. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard enable**

**no ip-guard enable**

**default ip-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enables the IP anti-scan function globally.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard enable
```

Related Commands	Command	Description
	<b>nfpp ip-guard enable</b>	Enables the IP anti-scan function on the interface.

**Platform** N/A

**Description**

### 3.41 ip-guard isolate-period

Use this command to set the isolate time globally. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard isolate-period** { *seconds* | **permanent** }

**no ip-guard isolate-period**

**default ip-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate time. The value is 0 or in the range from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.

**Defaults** The default is 0 second, which means no isolation.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the isolate time globally to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard isolate-period 180
```

Related Commands	Command	Description
	<b>nfpp ip-guard isolate-period</b>	Sets the isolate time on the interface.
	<b>show nfpp ip-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.42 ip-guard monitored-host-limit

Use this command to set the maximum number of monitored hosts. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard monitored-host-limit** *number*

**no ip-guard monitored-host-limit**

**default ip-guard monitored-host-limit**

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

<i>number</i>	The maximum monitored host number, in the range from 1 to 4294967295.
---------------	---

**Defaults** The default is 1000.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** If the number of monitored hosts has reached the default 1000, the administrator shall set the max-number smaller than 1000 and it will prompt the message that %ERROR: The value that you configured is smaller than current monitored hosts 1000, please clear a part of monitored hosts. to remind the administrator of the invalid configuration and removing the monitored hosts.  
When the maximum number of monitored hosts has been exceeded, it prompts the message that %NFPP\_ARP\_GUARD-4-SESSION\_LIMIT: Attempt to exceed limit of 1000 monitored hosts.to remind the administrator.

**Configuration** The following example sets the maximum number of monitored hosts to 200.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard monitored-host-limit 200
```

**Related  
Commands**

Command	Description
<b>show nfpp ip-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.43 ip-guard monitor-period

Use this command to configure the monitor time. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard monitor-period** *seconds*

**no ip-guard monitor-period**

**default ip-guard monitor-period**

**Parameter  
Description**

Parameter	Description
<i>seconds</i>	Sets the monitor time, in the range from 180 to 86400 in the unit of seconds.

**Defaults** The default is 600 seconds.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** When the attacker is detected, if the isolate period is 0, the attacker will be monitored by the software and the timeout time will be the monitor period. During the software monitoring, if the isolate period is not 0, the software-monitored attacker will be auto-isolated by the hardware and the timeout time will be the isolate period. The monitor period is valid with the isolate period 0.

If the isolate period has changed to be 0, the attackers on the interface will be removed rather than being monitored by the software

**Configuration** The following example sets the monitor time to 180 seconds.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard monitor-period 180
```

**Related Commands**

Command	Description
<b>show nfpp ip-guard summary</b>	Displays the configuration.
<b>show nfpp ip-guard hosts</b>	Displays the monitored host list.
<b>clear nfpp ip-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.44 ip-guard rate-limit

Use this command to set the rate-limit threshold globally. Use the **no** or **default** form of this command to restore the default setting.

```
ip-guard rate-limit { per-src-ip | per-port } pps
no ip-guard rate-limit { per-src-ip | per-port }
default ip-guard rate-limit {per-src-ip | per-port }
```

**Parameter Description**

Parameter	Description
<b>per-src-ip</b>	Sets the rate limit for each source IP address.
<b>per-port</b>	Sets the rate limit for each port.
<i>pps</i>	Sets the rate limit, in the range of 1 to 9999.

**Defaults** By default, the rate-limit threshold for each source IP address and each port is 20pps and 100pps respectively.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the rate-limit threshold globally.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# ip-guard rate-limit per-port 50
```

**Related  
Commands**

Command	Description
<b>nfpp ip-guard policy</b>	Sets the rate limit and the attack threshold.
<b>show nfpp ip-guard summary</b>	Displays the configuration.

**Platform**

N/A

**Description**

### 3.45 ip-guard scan-threshold

Use this command to set the global scan threshold. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard scan-threshold** *pkt-cnt*

**no ip-guard scan-threshold**

**default ip-guard scan-threshold**

**Parameter  
Description**

Parameter	Description
<i>pkt-cnt</i>	Sets the scan threshold, in the range from 1 to 9999.

**Defaults**

The default is 100, in 10 seconds.

**Command  
Mode**

NFPP configuration mode

**Usage Guide**

N/A

**Configuration**

The following example sets the global scan threshold to 20pps.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard scan-threshold 20
```

**Related  
Commands**

Command	Description
<b>nfpp ip-guard scan-threshold</b>	Sets the scan threshold on the port.
<b>show nfpp ip-guard summary</b>	Displays the configuration.

**Platform**

N/A

**Description**

### 3.46 ip-guard trusted-host

Use this command to set the trusted host free form monitoring. Use the **no** or **default** form of this command to restore the default setting.

**ip-guard trusted-host** *ip mask*

**no ip-guard trusted-host** { **all** | *ip mask* }

**default ip-guard trusted-host**

Parameter Description	Parameter	Description
	<i>ip</i>	Sets the IP address.
	<i>mask</i>	Sets the IP mask.
	<b>all</b>	Deletes the configuration of all trusted hosts.

**Defaults** N/A

**Command** NFPP configuration mode

**Mode**

**Usage Guide** The administrator can use this command to set the trusted host free from monitoring. The ICMP packets are allowed to sent to the trusted host CPU without any rate-limit and warning. Configure the mask to set all hosts in one network segment free from monitoring. Up to 500 trusted hosts are supported.

**Configuration** The following example sets the trusted host free form monitoring.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard trusted-host 1.1.1.0 255.255.255.0
```

Related Commands	Command	Description
	<b>show nfpp ip-guard trusted-host</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.47 log-buffer entries

Use this command to set the size of the NFPP log buffer. Use the **no** or **default** form of this command to restore the default setting.

**log-buffer entries** *number*

**no log-buffer entries**

**default log-buffer entries**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>number</i></td> <td>The buffer size, in the range from 0 to 1024.</td> </tr> </tbody> </table>	Parameter	Description	<i>number</i>	The buffer size, in the range from 0 to 1024.		
Parameter	Description						
<i>number</i>	The buffer size, in the range from 0 to 1024.						
<b>Defaults</b>	The default is 256.						
<b>Command Mode</b>	NFPP configuration mode						
<b>Usage Guide</b>	N/A						
<b>Configuration Examples</b>	<p>The following example sets the size of the NFPP log buffer.</p> <pre>Ruijie(config)# nfpp Ruijie(config-nfpp)# log-buffer entries 50</pre>						
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>log-buffer logs</b> <i>number_of_message interval length_in_seconds</i></td> <td>Displays the rate of the syslog generated from the NFPP buffer.</td> </tr> <tr> <td><b>show nfpp log</b></td> <td>Displays the NFPP log configuration or the log buffer.</td> </tr> </tbody> </table>	Command	Description	<b>log-buffer logs</b> <i>number_of_message interval length_in_seconds</i>	Displays the rate of the syslog generated from the NFPP buffer.	<b>show nfpp log</b>	Displays the NFPP log configuration or the log buffer.
Command	Description						
<b>log-buffer logs</b> <i>number_of_message interval length_in_seconds</i>	Displays the rate of the syslog generated from the NFPP buffer.						
<b>show nfpp log</b>	Displays the NFPP log configuration or the log buffer.						
<b>Platform Description</b>	N/A						

### 3.48 log-buffer logs

Use this command to set the rate of syslog generation from the NFPP log buffer. Use the **no** or **default** form of this command to restore the default setting.

**log-buffer logs** *number\_of\_message interval length\_in\_seconds*

**no log-buffer logs**

**default log-buffer logs**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>number_of_message</i></td> <td>The valid range is from 0 to 1024. 0 indicates that all logs are recorded in the specific buffer and no syslogs are generated.</td> </tr> <tr> <td><i>length_in_seconds</i></td> <td>The valid range is from 0 to 86400 (one day). 0 indicates not to write the log to the buffer but generate the syslog immediately. With both the <i>number_of_message</i> and <i>length_in_seconds</i> values are 0, it indicates not to write the log to the buffer but generate the syslog immediately.</td> </tr> </tbody> </table>	Parameter	Description	<i>number_of_message</i>	The valid range is from 0 to 1024. 0 indicates that all logs are recorded in the specific buffer and no syslogs are generated.	<i>length_in_seconds</i>	The valid range is from 0 to 86400 (one day). 0 indicates not to write the log to the buffer but generate the syslog immediately. With both the <i>number_of_message</i> and <i>length_in_seconds</i> values are 0, it indicates not to write the log to the buffer but generate the syslog immediately.
Parameter	Description						
<i>number_of_message</i>	The valid range is from 0 to 1024. 0 indicates that all logs are recorded in the specific buffer and no syslogs are generated.						
<i>length_in_seconds</i>	The valid range is from 0 to 86400 (one day). 0 indicates not to write the log to the buffer but generate the syslog immediately. With both the <i>number_of_message</i> and <i>length_in_seconds</i> values are 0, it indicates not to write the log to the buffer but generate the syslog immediately.						



	The parameter <i>number_of_message /length_in_second</i> indicates the rate of syslog generated from the NFPP log buffer.
--	---

**Defaults** By default, *number\_of\_message* is 1 and *length\_in\_seconds* is 30 seconds.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the rate of syslog generation from the NFPP log buffer.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# log-buffer logs 2 interval 12
```

**Related  
Commands**

Command	Description
<b>log-buffer entries</b> <i>number</i>	Sets the NFPP log buffer size.
<b>show nfpp log summary</b>	Displays the NFPP log configuration or the log buffer.

**Platform** N/A

**Description**

### 3.49 logging

Use this command to set the VLAN or the interface log for NFPP. Use the **no** or **default** form of this command to restore the default setting.

**logging vlan** *vlan-range*

**logging interface** *interface-id*

**no logging vlan** *vlan-range*

**no logging interface** *interface-id*

**default logging**

**Parameter  
Description**

Parameter	Description
<i>vlan-range</i>	Sets the specified VLAN range, in the format such as "1-3, 5".
<i>interface-id</i>	Sets the interface ID.

**Defaults** All logs are recorded by default.

**Command** NFPP configuration mode

**Mode**

**Usage Guide** Use this command to filter the logs and records the logs within the specified VLAN range or the

specified port

**Configuration** The following example records the logs in VLAN 1,VLAN 2,VLAN 3 and VLAN 5 only.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging vlan 1-3,5
```

The following example records the logs on the interface GigabitEthernet 0/1 only.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging interface G 0/1
```

**Related  
Commands**

Command	Description
<b>show nfpp log summary</b>	Displays the NFPP log configuration or the log buffer.

**Platform** N/A

**Description**

### 3.50 nd-guard attack-threshold

Use this command to set the global attack threshold. When the packet rate exceeds the attack threshold, the attack occurs. Use the **no** or **default** form of this command to restore the default setting.

```
nd-guard attack-threshold per-port { ns-na | rs | ra-redirect } pps
no nd-guard attack-threshold per-port { ns-na | rs | ra-redirect }
default nd-guard attack-threshold per-port { ns-na | rs | ra-redirect }
```

**Parameter  
Description**

Parameter	Description
<b>ns-na</b>	Sets the neighbor request and neighbor advertisement.
<b>rs</b>	Sets the router request.
<b>ra-redirect</b>	Sets the router advertisement and the redirect packets.
<i>pps</i>	Sets the attack threshold, in the range from 1 to 9999 in the unit of seconds.

**Defaults** By default, the default attack threshold for the **ns-na**, **rs** and **ra-redirect** on each port is 30 seconds.

**Command  
Mode** NFPP configuration mode

**Usage Guide** The attack threshold shall be equal to or larger than the rate-limit threshold.

**Configuration** The following example sets the global attack threshold.

**Examples**

```
Ruijie(config)# nfpp
```

```
Ruijie(config-nfpp)# nd-guard attack-threshold per-port ns-na 20
Ruijie(config-nfpp)# nd-guard attack-threshold per-port rs 10
Ruijie(config-nfpp)# nd-guard attack-threshold per-port ra-redirect 10
```

**Related  
Commands**

Command	Description
<b>nfpp ip-guard policy</b>	Displays the rate-limit threshold and attack threshold.
<b>show nfpp ip-guard summary</b>	Displays the configuration.

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

### 3.51 nd-guard enable

Use this command to enable ND anti-attack function. Use the **no** form of this command to disable ND anti-attack function. Use the **default** form of this command to restore the default setting.

**nd-guard enable**

**no nd-guard enable**

**default nd-guard enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration** The following example enables ND anti-attack function.

**Examples**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nd-guard enable
```

**Related  
Commands**

Command	Description
<b>nfpp nd-guard enable</b>	Enables ND anti-attack function on the interface.
<b>show nfpp nd-guard summary</b>	Displays the configuration.

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

## 3.52 nd-guard rate-limit

Use this command to set the rate-limit threshold globally. Use the **no** or **default** form of this command to restore the default setting.

**nd-guard rate-limit per-port** { **ns-na** | **rs** | **ra-redirect** } *pps*

**no nd-guard rate-limit per-port** { **ns-na** | **rs** | **ra-redirect** }

**default nd-guard rate-limit per-port** { **ns-na** | **rs** | **ra-redirect** }

Parameter Description	Parameter	Description
	<b>ns-na</b>	Sets the neighbor request and neighbor advertisement.
	<b>rs</b>	Sets the router request.
	<b>ra-redirect</b>	Sets the router advertisement and the redirect packets.
	<i>pps</i>	Sets the attack threshold, in the range is from 1 to 9999 in the unit of pps.

**Defaults** By default, the default rate-limit threshold for the **ns-na**, **rs** and **ra-redirect** on each port is 15 pps.

**Command Mode** NFPP configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the rate-limit threshold globally.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nd-guard rate-limit per-port ns-na 10
Ruijie(config-nfpp)# nd-guard rate-limit per-port rs 5
Ruijie(config-nfpp)# nd-guard rate-limit per-port ra-redirect 5
```

Related Commands	Command	Description
	<b>nfpp nd-guard policy</b>	Sets the rate limit and the attack threshold.
	<b>show nfpp nd-guard summary</b>	Displays the configuration.

**Platform Description** N/A

## 3.53 nd-guard trusted-host

Use this command to set the trusted host. Use the **no** or **default** form of this command to restore the default setting.

**nd-guard trusted-host** *mac*

**no nd-guard trusted-host** { **all** | *mac* }

**default nd-guard trusted-host**

Parameter Description	Parameter	Description
	<i>mac</i>	Sets the MAC address.
	<b>all</b>	Deletes all trusted hosts.

**Defaults** N/A

**Command Mode** NFPP configuration mode

**Usage Guide** After this function is enabled, the ND packets are sent from the trusted host to CPU without rate limit or alarm notification.  
Up to 500 trusted hosts are supported.

**Configuration Examples** The following example sets the host whose MAC address is 0000.0000.1111 as the trusted host.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#nd-guard trusted-host 0000.0000.1111
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.54 nfpp arp-guard enable

Use this command to enable ARP anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp arp-guard enable**

**no nfpp arp-guard enable**

**default nfpp arp-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The ARP anti-attack function is not enabled on the interface.

**Command Mode** Interface configuration mode

**Usage Guide** The interface ARP anti-attack configuration is prior to the global configuration.

**Configuration** The following example enables ARP anti-attack function on the interface.

**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp arp-guard enable
```

Related Commands	Command	Description
		<b>arp-guard enable</b>
	<b>show nfpp arp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.55 nfpp arp-guard isolate-period

Use this command to set the isolate period in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**nfpp arp-guard isolate-period** { *seconds* | **permanent** }

**no nfpp arp-guard isolate-period**

**default nfpp arp-guard isolate-period**

Parameter Description	Parameter	Description
		<i>seconds</i>
	<b>permanent</b>	Permanent isolation.

**Defaults** By default, the isolate period is not configured.

**Command Mode** Interface configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the isolate period in the Interface configuration mode

**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp arp-guard isolate-period 180
```

Related Commands	Command	Description
		<b>arp-guard isolate-period</b>
	<b>show nfpp arp-guard summary</b>	Displays the configuration.

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

### 3.56 nfpp arp-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp arp-guard policy** { **per-src-ip** | **per-src-mac** | **per-port** } *rate-limit-pps* *attack-threshold-pps*

**no nfpp arp-guard policy** { **per-src-ip** | **per-src-mac** | **per-port** }

**default nfpp arp-guard policy** { **per-src-ip** | **per-src-mac** | **per-port** }

**Parameter Description**

Parameter	Description
<b>per-src-ip</b>	Sets the rate-limit threshold and the attack threshold for each source IP address.
<b>per-src-mac</b>	Sets the rate-limit threshold and the attack threshold for each source MAC address.
<b>per-port</b>	Sets the rate-limit threshold and the attack threshold for each port.
<i>rate-limit-pps</i>	Sets the rate-limit threshold , in the range from 1 to 9999.
<i>attack-threshold-pps</i>	Sets the attack threshold, in the range from1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.

**Command Mode** Interface configuration mode

**Usage Guide** The attack threshold value shall be equal to or greater than the rate-limit threshold.

**Configuration Examples** The following example sets the rate-limit threshold and the attack threshold.

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard policy per-src-ip 2 10
Ruijie(config-if)# nfpp arp-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp arp-guard policy per-port 50 100
```

**Related Commands**

Command	Description
<b>arp-guard attack-threshold</b>	Sets the global attack threshold.
<b>arp-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>show nfpp arp-guard summary</b>	Displays the configuration.
<b>show nfpp arp-guard hosts</b>	Displays the monitored host.
<b>clear nfpp arp-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.57 nfpp arp-guard scan-threshold

Use this command to set the scan threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp arp-guard scan-threshold** *pkt-cnt*

**no nfpp arp-guard scan-threshold**

**default nfpp arp-guard scan-threshold**

Parameter Description	Parameter	Description
	<i>pkt-cnt</i>	Sets the scan threshold, in the range from 1 to 9999.

**Defaults** By default, the sport-based scan threshold is not configured.

**Command** Interface configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the scan threshold to 20pps.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard scan-threshold 20
```

Related Commands	Command	Description
	<b>arp-guard attack-threshold</b>	Sets the global attack threshold.
	<b>show nfpp arp-guard summary</b>	Displays the configuration.
	<b>show nfpp arp-guard scan</b>	Displays the ARP scan table.
	<b>clear nfpp arp-guard scan</b>	Clears the ARP scan table.

**Platform** N/A

**Description**

### 3.58 nfpp dhcp-guard enable

Use this command to enable DHCP anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcp-guard enable**

**no nfpp dhcp-guard enable**

**default nfpp dhcp-guard enable**



<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	The DHCP anti-attack function is not enabled on the interface.	
<b>Command Mode</b>	Interface configuration mode	
<b>Usage Guide</b>	The interface DHCP anti- attack configuration is prior to the global configuration.	
<b>Configuration Examples</b>	The following example enables DHCP anti-attack function on the interface.	
	<pre>Ruijie(config)# interface G0/1 Ruijie(config-if)# nfpp dhcp-guard enable</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>dhcp-guard enable</b>	Enables DHCP anti-attack function.
	<b>show nfpp dhcp-guard summary</b>	Displays the configuration.
<b>Platform Description</b>	N/A	

### 3.59 nfpp dhcp-guard isolate-period

Use this command to set the isolate period in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcp-guard isolate-period** { *seconds* | **permanent** }

**no nfpp dhcp-guard isolate-period**

**default nfpp dhcp-guard isolate-period**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>seconds</i>	Sets the isolate period. The value is 0 or in the range from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.
<b>Defaults</b>	By default, the isolate period is not configured	
<b>Command Mode</b>	Interface configuration mode	
<b>Usage Guide</b>	N/A	

**Configuration** The following example sets the isolate period to 180 seconds.

**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcp-guard isolate-period 180
```

**Related  
Commands**

Command	Description
<b>dhcp-guard isolate-period</b>	Sets the global isolate period.
<b>show nfpp dhcp-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.60 nfpp dhcp-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcp-guard policy { per-src-mac | per-port } rate-limit-pps attack-threshold-pps**

**no nfpp dhcp-guard policy { per-src-mac | per-port }**

**default nfpp dhcp-guard policy { per-src-mac | per-port }**

**Parameter  
Description**

Parameter	Description
<b>per-src-mac</b>	Sets the rate-limit threshold and the attack threshold for each source MAC address.
<b>per-port</b>	Sets the rate-limit threshold and the attack threshold for each port.
<i>rate-limit-pps</i>	Sets the rate-limit threshold, in the range from 1 to 9999.
<i>attack-threshold-pps</i>	Sets the attack threshold, in the range from 1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.

**Command** Interface configuration mode

**Mode**

**Usage Guide** The attack threshold value should be no smaller than the rate-limit threshold.

**Configuration** The following example sets the rate-limit threshold and the attack threshold.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp dhcp-guard policy per-port 50 100
```

**Related  
Commands**

Command	Description
---------	-------------

N/A	N/A
-----	-----

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

### 3.61 nfpp dhcpv6-guard enable

Use this command to enable the DHCPv6 anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcpv6-guard enable**

**no nfpp dhcpv6-guard enable**

**default nfpp dhcpv6-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The DHCPv6 anti-attack function is not enabled on the interface.

**Command** Interface configuration mode  
**Mode**

**Usage Guide** The interface DHCPv6 anti- attack configuration is prior to the global configuration.

**Configuration** The following example enables the DHCPv6 anti-attack function on interface G0/1.

**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcpv6-guard enable
```

Related Commands	Command	Description
	<b>dhcpv6-guard enable</b>	Enables the ARP anti-attack function.
	<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.

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

### 3.62 nfpp dhcpv6-guard isolate-period

Use this command to set the isolate period in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcpv6-guard isolate-period** { *seconds* | **permanent** }

**no nfpp dhcpv6-guard isolate-period**

**default nfpp dhcpv6-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate period. The value is 0 or in the range from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.

**Defaults** By default, the isolate period is not configured.

**Command Mode** Interface configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the isolate period in the interface configuration mode to 180 seconds.

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcpv6-guard isolate-period 180
```

Related Commands	Command	Description
	<b>dhcpv6-guard isolate-period</b>	Sets the global isolate period.
	<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.

**Platform Description** N/A

### 3.63 nfpp dhcpv6-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp dhcpv6-guard policy { per-src-mac | per-port } rate-limit-pps attack-threshold-pps**

**no nfpp dhcpv6-guard policy { per-src-mac | per-port }**

**default nfpp dhcpv6-guard policy { per-src-mac | per-port }**

Parameter Description	Parameter	Description
	<b>per-src-mac</b>	Sets the rate-limit threshold and the attack threshold for each source MAC address.
	<b>per-port</b>	Sets the rate-limit threshold and the attack threshold for each port.
	<i>rate-limit-pps</i>	Sets the rate-limit threshold, in the range from 1 to 9999.
	<i>attack-threshold-pps</i>	Sets the attack threshold, in the range from 1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.

**Command** Interface configuration mode  
**Mode**

**Usage Guide** The attack threshold value should be no smaller than the rate-limit threshold.

**Configuration** The following example sets the rate-limit threshold and the attack threshold.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcpv6-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp dhcpv6-guard policy per-port 50 100
```

**Related Commands**

Command	Description
<b>dhcpv6-guard attack-threshold</b>	Sets the global attack threshold.
<b>dhcpv6-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>show nfpp dhcpv6-guard summary</b>	Displays the configuration.
<b>show nfpp dhcpv6-guard hosts</b>	Displays the monitored host.
<b>clear nfpp dhcpv6-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.64 nfpp icmp-guard enable

Use this command to enable the ICMP anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp icmp-guard enable**

**no nfpp icmp-guard enable**

**default nfpp icmp-guard enable**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** The ICMP anti-attack function is not enabled on the interface.

**Command** Interface configuration mode  
**Mode**

**Usage Guide** The interface ICMP anti- attack configuration is prior to the global configuration.

**Configuration** The following example enables the ICMP anti-attack function on the interface.

**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp icmp-guard enable
```

Related Commands	Command	Description
	<code>icmp-guard enable</code>	Enables the ARP anti-attack function.
	<code>show nfpp icmp-guard summary</code>	Displays the configuration.

Platform N/A  
Description

### 3.65 nfpp icmp-guard isolate-period

Use this command to set the isolate period in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**nfpp icmp-guard isolate-period** { *seconds* | **permanent** }

**no nfpp icmp-guard isolate-period**

**default nfpp icmp-guard isolate-period**

Parameter Description	Parameter	Description
	<i>seconds</i>	Sets the isolate period. The value is 0 or in the range from 30 to 86400 in the unit of seconds.
	<b>permanent</b>	Permanent isolation.

**Defaults** By default, the isolate period is not configured.

**Command Mode** Interface configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the isolate period in the interface configuration mode.

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp icmp-guard isolate-period 180
```

Related Commands	Command	Description
	<code>icmp-guard isolate-period</code>	Sets the global isolate period.
	<code>show nfpp icmp-guard summary</code>	Displays the configuration.

Platform N/A  
Description

## 3.66 nfpp icmp-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp icmp-guard policy** { **per-src-ip** | **per-port** } *rate-limit-pps attack-threshold-pps*

**no nfpp icmp-guard policy** { **per-src-ip** | **per-port** }

**default nfpp icmp-guard policy** { **per-src-ip** | **per-port** }

Parameter Description	Parameter	Description
	<b>per-src-ip</b>	Sets the rate-limit threshold and the attack threshold for each source IP address.
	<b>per-port</b>	Sets the rate-limit threshold and the attack threshold for each port.
	<i>rate-limit-pps</i>	Sets the rate-limit threshold, in the range from 1 to 9999.
	<i>attack-threshold-pps</i>	Sets the attack threshold, in range from 1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.

**Command** Interface configuration mode

**Mode**

**Usage Guide** The attack threshold value shall be equal to or greater than the rate-limit threshold.

**Configuration** The following example sets the rate-limit threshold and the attack threshold.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp icmp-guard policy per-src-ip 5 10
Ruijie(config-if)# nfpp icmp-guard policy per-port 100 200
```

Related Commands	Command	Description
	<b>icmp-guard attack-threshold</b>	Sets the global attack threshold.
	<b>icmp-guard rate-limit</b>	Sets the global rate-limit threshold.
	<b>show nfpp icmp-guard summary</b>	Displays the configuration.
	<b>show nfpp icmp-guard hosts</b>	Displays the monitored host.
	<b>clear nfpp icmp-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

## 3.67 nfpp ip-guard enable

Use this command to enable the ICMP anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp ip-guard enable**  
**no nfpp ip-guard enable**  
**default nfpp ip-guard enable**

Parameter Description	Parameter	Description
		N/A

**Defaults** The IP anti-scan function is not enabled on the interface.

**Command Mode** Interface configuration mode

**Usage Guide** The interface IP anti-scan configuration is prior to the global configuration.

**Configuration Examples** The following example enables the ICMP anti-attack function on the interface.

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp ip-guard enable
```

Related Commands	Command	Description
		<b>ip-guard enable</b>
	<b>show nfpp ip-guard summary</b>	Displays the configuration.

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

### 3.68 nfpp ip-guard isolate-period

Use this command to set the isolate period in the interface configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**nfpp ip-guard isolate-period { *seconds* | permanent }**  
**no nfpp ip-guard isolate-period**  
**default nfpp ip-guard isolate-period**

Parameter Description	Parameter	Description
		<i>seconds</i>
	<b>permanent</b>	Permanent isolation.

**Defaults** By default, the isolate period is not configured.

**Command** Interface configuration mode



**Mode****Usage Guide** N/A**Configuration** The following example sets the isolate period in the interface configuration mode.**Examples**

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp ip-guard isolate-period 180
```

**Related  
Commands**

Command	Description
<b>ip-guard isolate-period</b>	Sets the global isolate period.
<b>show nfpp ip-guard summary</b>	Displays the configuration.

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

### 3.69 nfpp ip-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp ip-guard policy { per-src-ip | per-port } rate-limit-pps attack-threshold-pps**

**no nfpp ip-guard policy { per-src-ip | per-port }**

**default nfpp ip-guard policy { per-src-ip | per-port }**

**Parameter  
Description**

Parameter	Description
<b>per-src-ip</b>	Sets the rate-limit threshold and the attack threshold for each source IP address.
<b>per-port</b>	Sets the rate-limit threshold and the attack threshold for each port.
<i>rate-limit-pps</i>	Sets the rate-limit threshold, in the range from 1 to 9999.
<i>attack-threshold-pps</i>	Sets the attack threshold, in the range from 1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.**Command** Interface configuration mode**Mode****Usage Guide** The attack threshold value shall be equal to or greater than the rate-limit threshold.**Configuration** The following example sets the rate-limit threshold and the attack threshold.**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard policy per-src-ip 2 10
Ruijie(config-if)# nfpp ip-guard policy per-port 50 100
```

Related Commands	Command	Description
	<b>ip-guard attack-threshold</b>	Sets the global attack threshold.
	<b>ip-guard rate-limit</b>	Sets the global rate-limit threshold.
	<b>show nfpp ip-guard summary</b>	Displays the configuration.
	<b>show nfpp ip-guard hosts</b>	Displays the monitored host.
	<b>clear nfpp ip-guard hosts</b>	Clears the isolate host.

**Platform** N/A

**Description**

### 3.70 nfpp ip-guard scan-threshold

Use this command to set the scan threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp ip-guard scan-threshold** *pkt-cnt*

**no nfpp ip-guard scan-threshold**

**default nfpp ip-guard scan-threshold**

Parameter Description	Parameter	Description
	<i>pkt-cnt</i>	

**Defaults** By default, the sport-based scan threshold is not configured.

**Command** Interface configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the scan threshold to 20pps.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard scan-threshold 20
```

Related Commands	Command	Description
	<b>ip-guard attack-threshold</b>	Sets the global attack threshold.
	<b>show nfpp ip-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.71 nfpp nd-guard enable

Use this command to enable the ND anti-attack function on the interface. Use the **no** or **default** form of this command to restore the default setting.

**nfpp nd-guard enable**

**no nfpp nd-guard enable**

**default nfpp nd-guard enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The ND anti-attack function is not enabled on the interface.

**Command Mode** Interface configuration mode

**Usage Guide** The interface ND anti-attack configuration is prior to the global configuration.

**Configuration Examples** The following example enables the ND anti-attack function on the interface.

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp nd-guard enable
```

Related Commands	Command	Description
	<b>nd-guard enable</b>	Enables the ND anti-attack function.
	<b>show nfpp nd-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.72 nfpp nd-guard policy

Use this command to set the rate-limit threshold and the attack threshold. Use the **no** or **default** form of this command to restore the default setting.

**nfpp nd-guard policy per-port { ns-na | rs | ra-redirect } rate-limit-pps attack-threshold-pps**

**no nfpp nd-guard policy per-port { ns-na | rs | ra-redirect }**

**default nfpp nd-guard policy per-port { ns-na | rs | ra-redirect }**

Parameter Description	Parameter	Description
	<b>ns-na</b>	Sets the neighbor request and neighbor advertisement.
	<b>rs</b>	Sets the router request.

<b>ra-redirect</b>	Sets the router advertisement and the redirect packets.
<i>rate-limit-pps</i>	Sets the rate-limit threshold, in the range from 1 to 9999.
<i>attack-threshold-pps</i>	Sets the attack threshold, in the range from 1 to 9999.

**Defaults** By default, the rate-limit threshold and the attack threshold are not configured.

**Command** Interface configuration mode

**Mode**

**Usage Guide** The attack threshold value shall be equal to or greater than the rate-limit threshold. For ND snooping, the port is classified into untrusted port and trusted port. The untrusted port connects to the host and the trusted port connects to the gateway. The rate-limit threshold for the trusted port shall higher than the one for the untrusted port because the traffic of the trusted port generally is higher than the traffic of the untrusted port. For the trusted port with ND snooping enabled, ND snooping advertises ND guard to set the rate-limit threshold and attack threshold for the three categories of packets as 800pps and 900pps respectively.

**Configuration** The following example sets the rate-limit threshold and the attack threshold.

**Examples**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp nd-guard policy per-port ns-na 50 100
Ruijie(config-if)# nfpp nd-guard policy per-port rs 10 20
Ruijie(config-if)# nfpp nd-guard policy per-port ra-redirect 10 20
```

**Related  
Commands**

Command	Description
<b>nd-guard attack-threshold</b>	Sets the global attack threshold.
<b>nd-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>show nfpp nd-guard summary</b>	Displays the configuration.

**Platform** N/A

**Description**

### 3.73 show nfpp arp-guard hosts

Use this command to display the monitored host.

```
show nfpp arp-guard hosts [ statistics | [ [ vlan vid ] [ interface interface-id ] [ ip-address | mac-address ] ] ]
```

**Parameter  
Description**

Parameter	Description
<i>statistics</i>	Displays the statistical information of the monitored host.
<i>vid</i>	The VLAN ID.
<i>interface-id</i>	The interface name.

<i>ip-address</i>	The IP address.
<i>mac-address</i>	The MAC address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the statistical information of the monitored host.

**Examples**

```
Ruijie# show nfpp arp-guard hosts statistics
success    fail    total
-----    -
100        20     120
```

The following example shows the monitored host:

```
Ruijie# show nfpp arp-guard hosts
If column 1 shows '*', it means "hardware do not isolate user" .
VLAN interface IP address MAC address remain-time(s)
---- -
1 Gi0/1 1.1.1.1 - 110
2 Gi0/2 1.1.2.1 - 61
*3 Gi0/3 - 0000.0000.1111 110
4 Gi0/4 - 0000.0000.2222 61
Total:4 hosts
```

**Related Commands**

Command	Description
<b>clear nfpp arp-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.74 show nfpp arp-guard scan

Use this command to display the ARP scan list.

**show nfpp arp-guard scan [ statistics ] [ [ vlan vid ] [ interface interface-id ] [ mac-address ] ]**

**Parameter Description**

Parameter	Description
<b>statistics</b>	Displays the statistical information of the ARP scan list.
<i>vid</i>	The VLAN ID.
<i>interface-id</i>	The interface name.

<i>mac-address</i>	The MAC address.
--------------------	------------------

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the ARP scan statistics.

**Examples**

```
Ruijie# show nfpp arp-guard scan statistics
ARP scan table has 4 record(s).
```

The following example displays the ARP scan list.

```
Ruijie# show nfpp arp-guard scan
VLAN    interface  IP address  MAC address  timestamp
----    -
1       Gi0/1     N/A        0000.0000.0001  2008-01-23 16:23:10
2       Gi0/2     1.1.1.1    0000.0000.0002  2008-01-23 16:24:10
3       Gi0/3     N/A        0000.0000.0003  2008-01-23 16:25:10
4       Gi0/4     N/A        0000.0000.0004  2008-01-23 16:26:10
Total:4 record(s)
```

The following example displays the ARP scan for VLAN 1.

```
Ruijie# show nfpp arp-guard scan vlan 1 interface G 0/1 0000.0000.0001
VLAN    interface  IP address  MAC address  timestamp
----    -
1       Gi0/1     N/A        0000.0000.0001  2008-01-23 16:23:10
Total:1 record(s)
```

**Related Commands**

Command	Description
<b>arp-guard scan-threshold</b>	Sets the global scan threshold.
<b>nfpp arp-guard scan-threshold</b>	Sets the scan threshold.
<b>clear nfpp arp-guard scan</b>	Clears the ARP scan list.

**Platform** N/A

**Description**

### 3.75 show nfpp arp-guard summary

Use this command to display the configuration.

**show nfpp arp-guard summary**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	

**Configuration** The following example displays the configuration.

**Examples**

```
Ruijie# show nfpp arp-guard summary
(Format of column Rate-limit and Attack-threshold is
per-src-ip/per-src-mac/per-port.)
Interface  Status  Isolate-period Rate-limit Attack-threshold Scan-threshold
Global      Enable  300           4/5/60   8/10/100   15
Gi 0/1      Enable  180           5/-/-    8/-/-     -
Gi 0/2      Disable 200           4/5/60   8/10/100   20

Maximum count of monitored hosts: 1000
Monitor period:300s
```

Field	Description
Interface(Global)	Global configuration mode.
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the source IP address/ the rate-limit threshold for the source MAC address/ the rate-limit threshold for the port
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

**Related Commands**

Command	Description
<b>arp-guard attack-threshold</b>	Sets the global attack threshold.
<b>arp-guard enable</b>	Enables the ARP anti-attack function.
<b>arp-guard isolate-period</b>	Sets the global isolate time.
<b>arp-guard monitor-period</b>	Sets the monitor period.
<b>arp-guard monitored-host-limit</b>	Sets the maximum number of the monitored hosts.
<b>arp-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>arp-guard scan-threshold</b>	Sets the global scan threshold.
<b>nfpp arp-guard enable</b>	Enables the ARP anti-attack function on the interface.

<b>nfpp arp-guard isolate-period</b>	Sets the isolate time.
<b>nfpp arp-guard policy</b>	Sets the rate-limit threshold and attack threshold.
<b>nfpp arp-guard scan-threshold</b>	Sets the scan threshold.

**Platform** N/A

**Description**

### 3.76 show nfpp arp-guard trusted-host

Use this command to display the trusted host.

**show nfpp arp-guard trusted-host**

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 trusted host.

**Examples**

```
Ruijie# show nfpp arp-guard trusted-host
IP address      mac
-----
1.1.1.1         0000.0000.1111
1.1.2.1         0000.0000.2222
Total: 2 record(s)
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.77 show nfpp dhcp-guard hosts

Use this command to display the monitored host.

**show nfpp dhcp-guard hosts** [ **statistics** ] [ [ **vlan** *vid* ] [ **interface** *interface-id* ] [ *mac-address* ] ]



Parameter Description	Parameter	Description
	<b>statistics</b>	Displays the statistical information of the monitored host.
	<i>vid</i>	The VLAN ID.
	<i>interface-id</i>	The interface name.
	<i>mac-address</i>	The MAC address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the statistical information of the monitored host.

```
Ruijie# show nfpp dhcp-guard hosts statistics
success    fail    total
-----    ----    -----
100        20     120
```

The following example shows the monitored host:

```
Ruijie# show nfpp dhcp-guard hosts
If column 1 shows '*', it means "hardware failed to isolate host".
VLAN  interface  MAC address    remain-time(seconds)
----  -
1     gi0/2          0000.0000.0001  10
*2    gi0/1          0000.0000.0002  20
Total:2 host(s)
```

Related Commands	Command	Description
	<b>clear nfpp dhcp-guard hosts</b>	Clears the monitored host.

**Platform Description** N/A

### 3.78 show nfpp dhcp-guard summary

Use this command to display the configuration.

**show nfpp dhcp-guard summary**

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 configuration.

**Examples**

```
Ruijie# show nfpp dhcp-guard summary
(Format of column Rate-limit and Attack-threshold is
per-src-ip/per-src-mac/per-port.)
Interface  Status  Isolate-period  Rate-limit  Attack-threshold
Global      Enable  300             -/5/150    -/10/300
Gi 0/1      Enable  180             -/6/-      -/8/-
Gi 0/2      Disable 200             -/5/30     -/10/50

Maximum count of monitored hosts: 1000
Monitor period:300s
```

Field	Description
Interface(Global)	Global configuration mode.
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the source IP address/ the rate-limit threshold for the source MAC address/ the rate-limit threshold for the port
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

**Related Commands**

Command	Description
<b>dhcp-guard attack-threshold</b>	Sets the global attack threshold.
<b>dhcp-guard enable</b>	Enables the DHCP anti-attack function.
<b>dhcp-guard isolate-period</b>	Sets the global isolate time.
<b>dhcp-guard monitor-period</b>	Sets the monitor period.
<b>dhcp-guard monitored-host-limit</b>	Sets the maximum number of the monitored hosts.
<b>dhcp-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>nfpp dhcp-guard enable</b>	Enables the DHCP anti-attack function on the interface.
<b>nfpp dhcp-guard isolate-period</b>	Sets the isolate time.
<b>nfpp dhcp-guard policy</b>	Sets the rate-limit threshold and attack threshold.

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

### 3.79 show nfpp dhcp-guard trusted-host

Use this command to display the trusted host.

**show nfpp dhcp-guard trusted-host**

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 trusted host.

```
Ruijie# show nfpp dhcp-guard trusted-host
mac
-----
0000.0000.1111
0000.0000.2222
Total: 2 record(s)
```

Related Commands	Command	Description
	N/A	N/A

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

### 3.80 show nfpp dhcpv6-guard hosts

Use this command to display the monitored host.

**show nfpp dhcpv6-guard hosts** [ **statistics** | [ [ *vlan vid* ] [ **interface** *interface-id* ] [ *mac-address* ] ] ]

Parameter Description	Parameter	Description
	<b>statistics</b>	Displays the statistical information of the monitored host.

<i>vid</i>	The VLAN ID.
<i>interface-id</i>	The interface name.
<i>mac-address</i>	The MAC address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the statistical information of the monitored host.

**Examples**

```
Ruijie# show nfpp dhcpv6-guard hosts statistics
success    fail    total
-----    ----    -----
100        20     120
```

The following example shows the monitored host:

```
Ruijie# show nfpp dhcpv6-guard hosts
If column 1 shows '*', it means "hardware failed to isolate host".
VLAN interface MAC address remain-time(seconds)
----  -
1     gi0/2     0000.0000.0001  10
*2    gi0/1     0000.0000.0002  20
Total:2 host(s)
```

**Related Commands**

Command	Description
<code>clear nfpp dhcpv6-guard hosts</code>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.81 show nfpp dhcpv6-guard summary

Use this command to display the configuration.

**show nfpp dhcpv6-guard summary**

**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 configuration.

**Examples**

```
Ruijie# show nfpp dhcpv6-guard summary
(Format of column Rate-limit and Attack-threshold is
per-src-ip/per-src-mac/per-port.)
Interface  Status  Isolate-period Rate-limit  Attack-threshold
Global     Enable  300           -/5/150    -/10/300
Gi 0/1     Enable  180           -/6/-      -/8/-
Gi 0/2     Disable 200           -/5/30     -/10/50

Maximum count of monitored hosts: 1000
Monitor period:300s
```

Field	Description
Interface(Global)	Global configuration
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the source IP address/ the rate-limit threshold for the source MAC address/ the rate-limit threshold for the port
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

**Related Commands**

Command	Description
<b>dhcpv6-guard attack-threshold</b>	Sets the global attack threshold.
<b>dhcpv6-guard enable</b>	Enables the DHCPv6 anti-attack function.
<b>dhcpv6-guard isolate-period</b>	Sets the global isolate time.
<b>dhcpv6-guard monitor-period</b>	Sets the monitor period.
<b>dhcpv6-guard monitored-host-limit</b>	Sets the maximum number of the monitored hosts.
<b>dhcpv6-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>nfpp dhcpv6-guard enable</b>	Enables the DHCPv6 anti-attack function on the interface.
<b>nfpp dhcpv6-guard isolate-period</b>	Sets the isolate time.
<b>nfpp dhcpv6-guard policy</b>	Sets the rate-limit threshold and attack threshold.

**Platform** N/A

**Description**

### 3.82 show nfpp dhcpv6-guard trusted-host

Use this command to display the trusted host.

**show nfpp dhcpv6-guard trusted-host**

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 trusted host.

**Examples**

```
Ruijie# show nfpp dhcpv6-guard trusted-host
mac
-----
0000.0000.1111
0000.0000.2222
Total: 2 record(s)
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.83 show nfpp icmp-guard hosts

Use this command to display the monitored host.

**show nfpp icmp-guard hosts [ statistics ] [ [ *vlan vid* ] [ **interface** *interface-Id* ] [ *ip-address* ] ]**

Parameter Description	Parameter	Description
	<b>statistics</b>	Displays the statistical information of the monitored host.
	<i>vid</i>	The VLAN ID.
	<i>interface-id</i>	The interface name.
	<i>ip-address</i>	The IP address.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the statistical information of the monitored host.

**Examples**

```
Ruijie# show nfpp icmp-guard hosts statistics
success    fail    total
-----    ----    -----
100        20     120
```

The following example displays the monitored host.

```
Ruijie# show nfpp icmp-guard hosts
If column 1 shows '*', it means "hardware failed to isolate host".
VLAN interface IP address      remain-time(s)
----  -
1     Gi0/1      1.1.1.1      110
2     Gi0/2      1.1.2.1      61
Total:2 host(s)
```

**Related Commands**

Command	Description
<b>clear nfpp icmp-guard hosts</b>	Clears the monitored host.

**Platform** N/A

**Description**

### 3.84 show nfpp icmp-guard summary

Use this command to display the configuration.

**show nfpp icmp-guard summary**

**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 configuration.

**Examples**

```
Ruijie# show nfpp icmp-guard summary
(Format of column Rate-limit and Attack-threshold is
per-src-ip/per-src-mac/per-port.)
Interface  Status  Isolate-period  Rate-limit  Attack-threshold
Global     Enable  300             4/-/60     8/-/100
Gi 0/1     Enable  180             5/-/-      8/-/-
Gi 0/2     Disable 200             4/-/60     8/-/100

Maximum count of monitored hosts: 1000
Monitor period:300s
```

Field	Description
Interface(Global)	Global configuration mode.
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the source IP address/ the rate-limit threshold for the source MAC address/ the rate-limit threshold for the port
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

**Related  
Commands**

Command	Description
<b>icmp-guard attack-threshold</b>	Sets the global attack threshold.
<b>icmp-guard enable</b>	Enables the ICMP anti-attack function.
<b>icmp-guard isolate-period</b>	Sets the global isolate time.
<b>icmp-guard monitor-period</b>	Sets the monitor period.
<b>icmp-guard monitored-host-limit</b>	Sets the maximum number of the monitored hosts.
<b>icmp-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>nfpp icmp-guard enable</b>	Enables the ICMP anti-attack function on the interface.
<b>nfpp icmp-guard isolate-period</b>	Sets the isolate time.
<b>nfpp icmp-guard policy</b>	Sets the rate-limit threshold and attack threshold.

**Platform** N/A

**Description**

### 3.85 show nfpp icmp-guard trusted-host

Use this command to display the trusted host free from being monitored.



**show nfpp icmp-guard summary**

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 trusted host free from being monitored.

**Examples**

```
Ruijie# show nfpp icmp-guard trusted-host
IP address      mask
-----      -
1.1.1.0         255.255.255.0
1.1.2.0         255.255.255.0
Total:2 record(s)
```

Related Commands	Command	Description
	<b>icmp-guard trusted-host</b>	Sets the trusted host.

**Platform** N/A

**Description**

### 3.86 show nfpp ip-guard hosts

Use this command to display the monitored host.

**show nfpp ip-guard hosts** [ **statistics** | [ [ **vlan** *vid*] [ **Interface** *interface-id*] [ *ip-address* ] ] ]

Parameter Description	Parameter	Description
	<b>statistics</b>	Displays the statistical information of the monitored host.
	<i>vid</i>	The VLAN ID.
	<i>interface-id</i>	The interface name.
	<i>ip-address</i>	The IP address.

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode****Usage Guide** N/A**Configuration** The following example displays the statistical information of the monitored host.**Examples**

```
Ruijie# show nfpp ip-guard hosts statistics
success    fail    total
-----    ----    -----
100        20     120
```

The following example displays the monitored host for the IP anti-attack.

```
Ruijie#show nfpp ip-guard hosts
If column 1 shows '*', it means "hardware do not isolate host" .
VLAN  interface IP address  Reason      remain-time(s)
----  -
1     Gi0/1      1.1.1.1     ATTACK      110
2     Gi0/2      1.1.2.1     SCAN        61
Total:2 host(s)
```

**Related  
Commands**

Command	Description
<b>clear nfpp ip-guard hosts</b>	Clears the monitored host.

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

### 3.87 show nfpp ip-guard summary

Use this command to display the configuration.

**show nfpp ip-guard summary****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 configuration.**Examples**

```
Ruijie# show nfpp ip-guard summary
```

```
(Format of column Rate-limit and Attack-threshold is
per-src-ip/per-src-mac/per-port.)
Interface Status Isolate-period Rate-limit Attack-threshold Scan-threshold
Global Enable 300 4/-/60 8/-/100 15
Gi 0/1 Enable 180 5/-/- 8/-/- -
Gi 0/2 Disable 200 4/-/60 8/-/100 20

Maximum count of monitored hosts: 1000
Monitor period..300s
```

Field	Description
Interface(Global)	Global configuration
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the source IP address/ the rate-limit threshold for the source MAC address/ the rate-limit threshold for the port
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

**Related Commands**

Command	Description
<b>ip-guard attack-threshold</b>	Sets the global attack threshold.
<b>ip-guard enable</b>	Enables the IP anti-scan function.
<b>ip-guard isolate-period</b>	Sets the global isolate time.
<b>ip-guard monitor-period</b>	Sets the monitor period.
<b>ip-guard monitored-host-limit</b>	Sets the maximum number of the monitored hosts.
<b>ip-guard rate-limit</b>	Sets the global rate-limit threshold.
<b>nfpp ip-guard enable</b>	Enables the IP anti-scan function on the interface.
<b>nfpp ip-guard isolate-period</b>	Sets the isolate time.
<b>nfpp ip-guard policy</b>	Sets the rate-limit threshold and attack threshold.

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

### 3.88 show nfpp ip-guard trusted-host

Use this command to display the trusted host free from being monitored.

**show nfpp ip-guard summary**

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

<b>Description</b>		
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example displays the trusted host free from being monitored.	
	<pre>Ruijie# show nfpp ip-guard trusted-host IP address      mask ----- 1.1.1.0         255.255.255.0 1.1.2.0         255.255.255.0 Total.2 record(s)</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip-guard trusted-host</b>	Sets the trusted host.
<b>Platform Description</b>	N/A	

### 3.89 show nfpp log

Use this command to display the NFPP log configuration.

**show nfpp log summary**

Use this command to display the NFPP log buffer content.

**show nfpp log buffer [ statistics ]**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>statistics</b>	Displays the statistical information of the NFPP log buffer.
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	When the log buffer is full, the subsequent logs are to be dropped, and an entry with all attributes "-" is displayed in the log buffer. The administrator shall increase the capacity of the log buffer or improve the rate of generating the syslog.	

The generated syslog in the log buffer carries with the timestamp, for example:

```
%NFPP_ARP_GUARD-4-DOS_DETECTED:
```

```
Host<IP=N/A,MAC=0000.0000.0004,port=Gi4/1,VLAN=1> was detected.(2009-07-01 13:00:00)
```

**Configuration** The following example displays the NFPP log configuration.

**Examples**

```
Ruijie#show nfpp log summary
Total log buffer size : 10
Syslog rate : 1 entry per 2 seconds
Logging:
VLAN 1-3, 5
interface Gi 0/1
interface Gi 0/2
```

The following example displays the log number in the buffer.

```
Ruijie#show nfpp log buffer statistics
There are 6 logs in buffer.
```

The following example displays the NFPP log buffer:

```
Ruijie#show nfpp log buffer
Protocol VLAN  Interface IP address MAC address      Reason          Timestamp
-----  -  -  -  -  -  -  -
ARP      1    Gi0/1    1.1.1.1    -    DoS             2009-05-30
16:23:10
ARP      1    Gi0/1    1.1.1.1    -    ISOLATED        2009-05-30
16:23:10
ARP      1    Gi0/1    1.1.1.2    -    DoS             2009-05-30
16:23:15
ARP      1    Gi0/1    1.1.1.2    -    ISOLATE_FAILED  2009-05-30
16:23:15
ARP      1    Gi0/1    -          0000.0000.0001  SCAN            2009-05-30
16:30:10
ARP      -    Gi0/2    -          -          PORT_ATTACKED   2009-05-30
16:30:10
```

Field	Description
Protocol	ARP, IP, ICMP, DHCP,DHCPv6, NS-NA, RS, RA-REDIRECT
Reason	1. DoS 2. ISOLATED 3. ISOLATE_FAILE 4. SCAN 5. PORT_ATTACKED

**Related**

Command	Description
---------	-------------

Commands	
<b>clear nfpp log</b>	Clears the NFPP log buffer.

**Platform** N/A

**Description**

### 3.90 show nfpp nd-guard summary

Use this command to display the configuration.

**show nfpp nd-guard summary**

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 configuration.

**Examples**

```
Ruijie# show nfpp nd-guard summary
(Format of column Rate-limit and Attack-threshold is NS-NA/RS/RA-REDIRECT.)
Interface Status Rate-limit Attack-threshold
Global      Enable  20/5/10   40/10/20
Gi 0/1      Enable  15/15/15  30/30/30
Gi 0/2      Disable -/5/30    -/10/50
```

Field	Description
Interface(Global)	Global configuration mode.
Status	Enables/Disables the anti-attack function.
Rate-limit	In the format of the rate-limit threshold for the NS-NA/RS/RA-REDIRECT.
Attack-threshold	In the same format as the rate-limit.
-	No configuration.

Related Commands	Command	Description
	<b>nd-guard attack-threshold</b>	Sets the global attack threshold.
	<b>nd-guard enable</b>	Enables the ND anti-attack function.
	<b>nd-guard rate-limit</b>	Sets the global rate-limit threshold.

<b>nfpp nd-guard enable</b>	Enables the ND anti-attack function on the interface.
<b>nfpp nd-guard policy</b>	Sets the rate-limit threshold and attack threshold.

**Platform** N/A

**Description**

### 3.91 show nfpp nd-guard trusted-host

Use this command to display the trusted host.

**show nfpp nd-guard trusted-host**

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 trusted host.

**Examples**

```
Ruijie# show nfpp nd-guard trusted-host
mac
-----
0000.0000.1111
0000.0000.2222
Total: 2 record(s)
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**



## WLAN QoS Commands

---

### 1. WLAN QoS Commands



# 1 WLAN QoS Commands

## 1.1 fair-schedule

Use this command to enable fair scheduling on the wireless AP.

Use the **no** form of this command to disable this function.

**fair-schedule**

**no fair-schedule**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is enabled by default.

**Command mode** AC: AP configuration mode  
Fat AP: AP configuration mode

**Usage Guide**

**Configuration Examples**

Related Commands	Command	Description
	N/A	N/A

**Platform Description**

## 1.2 sta-fair

Use this command to specify the fair scheduling priority for a specified user.

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

**sta-fair mac-address priority priority**

**no sta-fair mac-address**

Parameter	Parameter	Description
Description	mac-address	Specifies the user's MAC address.

<i>priority</i>	Sets the fair scheduling priority, in the range from 1 to 6.
-----------------	--

**Defaults** The default is 1 for all STAs by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Example**

**Platform Description**

### 1.3 wlan-qos ap-based

Use this command to configure the upstream and downstream traffic limit of the current AP. Use the **no** form of this command to restore the default setting.

```
wlan-qos ap-based { per-user-limit | total-user-limit } { down-streams | up-streams }
average-data-rate average-data-rate burst-data-rate burst-data-rate
no wlan-qos ap-based { per-user-limit | total-user-limit } { down-streams | up-streams }
```

Use this command to configure the intelligent total-user-limit for of the current AP. Use the **no** form of this command to restore the default setting.

```
wlan-qos ap-based total-user-limit { down-streams | up-streams } intelligent
no wlan-qos ap-based total-user-limit { down-streams | up-streams } intelligent
```

**Parameter Description**

Parameter	Description
<b>per-user-limit</b>	Limit for each user on the AP.
<b>total-user-limit</b>	Limit for the entire AP.
<b>down-streams</b>	Total downstream traffic limit of the AP.
<b>up-streams</b>	Total upstream traffic limit of the AP.
<b>intelligent</b>	Whether to enable intelligent total-user-limit.
<i>average-data-rate</i>	Average rate limit, ranging from 8 to 261,120 in the unit of 8 Kbps.
<i>burst-data-rate</i>	Burst rate limit, ranging from 8 to 261,120 in the unit of 8 Kbps.

**Defaults** These functions are disabled by default.

**Command mode** Global configuration mode.

**Usage Guide** N/A

## Configuration

### Examples

### Related Commands

Command	Description
<b>wlan-qos netuser</b> <i>mac-address</i> { <b>inbound</b>   <b>outbound</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the Client-based in-band and out-of-band traffic rate limits.
<b>wlan-qos wlan-based</b> { <i>wlan-id</i>   <i>ssid</i> } { <b>per-user-limit</b>   <b>total-user-limit</b> } { <b>down-streams</b>   <b>up-streams</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the WLAN-based in-band and out-of-band traffic rate limits.

### Platform

### Description

## 1.4 wlan-qos netuser

Use this command to configure the in-band and out-of-band traffic limits for a specified user in the current WLAN.

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

**wlan-qos netuser** *mac-address* { **inbound** | **outbound** } **average-data-rate** *average-data-rate* **burst-data-rate** *burst-data-rate*

**no wlan-qos netuser** *mac-address* { **inbound** | **outbound** }

### Parameter Description

Parameter	Description
<i>mac-address</i>	User's MAC address to be set.
<b>inbound</b>	User's in-band traffic limit.
<b>outbound</b>	User's out-of-band traffic limit.
<i>average-data-rate</i>	Average rate limit, ranging from 8 to 261120 in the unit of 8Kbps.
<i>burst-data-rate</i>	Burst rate limit, ranging from 8 to 261120 in the unit of 8Kbps.

**Defaults** No traffic limit is set by default.

**Command mode** Global configuration mode

N/A

### Usage Guide

## Configuration

## Examples

Related  
Commands

Command	Description
<b>wlan-qos wlan-based</b> { <i>wlan-id</i>   <i>ssid</i> } { <b>per-user-limit</b>   <b>total-user-limit</b> } { <b>down-streams</b>   <b>up-streams</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the WLAN-based in-band and out-of-band traffic rate limits.
<b>wlan-qos ap-based</b> { <b>per-user-limit</b>   <b>total-user-limit</b> } { <b>down-streams</b>   <b>up-streams</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the AP-based in-band and out-of-band traffic rate limits.

## Platform

## Description

## 1.5 wlan-qos wlan-based

Use this command to configure the upstream and downstream traffic limit of the current WLAN.

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

```
wlan-qos wlan-based { wlan-id | ssid } { per-user-limit | total-user-limit } { down-streams | up-streams } average-data-rate average-data-rate burst-data-rate burst-data-rate
no wlan-qos wlan-based { wlan-id | ssid } { per-user-limit | total-user-limit } { down-streams | up-streams }
```

Use this command to configure the intelligent total-user-limit of the current WLAN. Use the **no** form of this command to restore the default setting.

```
wlan-qos wlan-based { wlan-id | ssid } total-user-limit { down-streams | up-streams } intelligent
no wlan-qos wlan-based { wlan-id | ssid } total-user-limit { down-streams | up-streams }
intelligent
```

Parameter  
Description

Parameter	Description
<i>wlan-id</i>	WLAN ID.
<i>ssid</i>	SSID configured by the WLAN.
<b>per-user-limit</b>	Limit for each user on the WLAN.
<b>total-user-limit</b>	Limit for the entire WLAN.
<b>down-streams</b>	Total downstream traffic limit of the WLAN.
<b>up-streams</b>	Total upstream traffic limit of the WLAN.
<b>intelligent</b>	Whether to enable intelligent total-user-limit.
<i>average-data-rate</i>	Average rate limit, ranging from

<i>burst-data-rate</i>	Burst rate limit, ranging from 8 to 261120 in the unit of 8Kbps.
------------------------	--

**Defaults** The traffic limit and intelligent total-user-limit are disabled by default.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples**

Related Commands	Command	Description
	<b>wlan-qos ap-based</b> { <b>per-user-limit</b>   <b>total-user-limit</b> } { <b>down-streams</b>   <b>up-streams</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the AP-based in-band and out-of-band traffic rate limits.
	<b>netuser</b> <i>mac-address</i> { <b>inbound</b>   <b>outbound</b> } <b>average-data-rate</b> <i>average-data-rate</i> <b>burst-data-rate</b> <i>burst-data-rate</i>	Configures the Client-based in-band and out-of-band traffic rate limits.

**Platform Description**

## 1.6 wqos fs enable

Use this command to enable WQoS traffic statistics.  
Use the **no** form of this command to restore the default setting.

**wqos fs enable**  
**no wqos fs enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** When dot1x authentication and Web authentication are disabled, use this command to enable WQoS traffic statistics. Otherwise, WQoS traffic statistics is enabled by default and this command becomes

invalid.

**Configuration****Example****Platform****Description**





## Access Service Commands

---

1. Interface Commands
2. MAC Address Commands
3. VLAN Commands
4. MAC VLAN Commands
5. VLAN Group Commands
6. RLDP Commands
7. LLDP Commands
8. PPP Commands
9. PPPoE-client 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	Parameter	Description
	<i>kilobits</i>	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

## 1.2 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** { *seconds* }

**no carrier-delay**

Parameter Description	Parameter	Description
	<i>seconds</i>	(Optional) in the range from 0 to 60 in the unit of seconds.

**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 or vice versa. 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** The following example sets the carrier delay of serial interface to 5 seconds.

**Examples**

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config)# carrier-delay 5
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.3 clear counters

Use this command to clear the counters on the specified interface.

**clear counters** [ *interface-type interface-number* ]

Parameter Description	Parameter	Description
	<i>interface-number</i>	Interface ID
	<i>interface-type</i>	Interface type

**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** The following example clears the counters on interface gigabitethernet 1/1.

**Examples**

```
Ruijie# clear counters gigabitethernet 1/1
```

Related Commands	Command	Description
	<b>show interfaces</b>	Displays the interface information.

**Platform** N/A

**Description**

## 1.4 clear interface

Use this command to reset the interface.

**clear interface** *interface-type interface-number*

Parameter Description	Parameter	Description
	<i>interface-type</i>	Interface type and interface ID
	<i>interface-number</i>	

**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
	<b>shutdown</b>	Disables the interface.

**Platform** N/A

**Description**

## 1.5 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
<i>string</i>	Interface alias

**Defaults** No alias is configured by default.

**Command** Interface configuration mode.

**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 serial gigabitEthernet 0/1/0
Ruijie(config-if)# description ShanDong-Bandwidth2M
```

### Related Commands

Command	Description
<b>show interfaces</b>	Displays the interface information.

**Platform** N/A

**Description**

## 1.6 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 Description

Parameter	Description
<b>auto</b>	Self-adaptive full duplex and half duplex
<b>full</b>	Full duplex
<b>half</b>	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-if)# duplex full
```

**Related  
Commands**

Command	Description
<b>show interfaces</b>	Displays the interface information.

**Platform** N/A

**Description**

## 1.7 encapsulation dot1q

Use this command to encapsulate IEEE 802.1Q in interface mode. Use the **no** form of this command to restore the default setting.

**encapsulation dot1Q VLANID**

**no encapsulation**

**Parameter  
Description**

Parameter	Description
<i>VLANID</i>	Indicates the VLAN ID. The value range is from <b>1</b> to <b>4094</b> .

**Defaults** By default, the VLAN encapsulation protocol is disabled for interfaces.

**Command** Interface configuration mode.

**Mode**

**Usage Guide** N/A

**Configuration** The following example encapsulates IEEE 802.1Q for interface 20.

**Examples**

```
Ruijie(config)# interface fastEthernet 0/0.20
Ruijie(config-subif)# encapsulation dot1Q 20
```

**Related  
Commands**

Command	Description
<b>N/A</b>	N/A.

**Platform** N/A.  
**Description**

## 1.8 interface

Use this command to enter the interface configuration mode.

**interface** *interface-type slot-number/interface-number* [*sub-interface-number*]

Parameter Description	Parameter	Description
	<i>interface-type</i>	The interface type.

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** For virtual interface, when input an interface number, just input the virtual number directly, for example, interface loopback 0.

**Configuration Examples** The following example enters configuration mode on Aggregateport 1.

```
Ruijie(config)# interface serial Gi1/1/0.123
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.9 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
	<i>port-range</i>	The interface type and ID range, entered in the form of <i>interface-type slot-number/interface-number</i> . The interface can be either an Ethernet physical interface or a loopback interface.

<b>macro</b> <i>macro_name</i>	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
```

The following example enters interface configuration mode on multiple interfaces by defining the macro name.

```
Ruijie(config)# define interface-range routel gigabitEthernet 0/0-2
Ruijie(config)# interface range macro routel
Ruijie(config-if-range)# bandwidth 100
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 1.10 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
<i>seconds</i>	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

## 1.11 mtu

Use this command to set the MTU supported on the interface.

**mtu** *num*

**Parameter Description**

Parameter	Description
<i>num</i>	64 to 9216 (or 65536, which varies by products)

**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 to 576.

```
Ruijie(config)# interface serial 1/gigabitEthernet 0/1
Ruijie(config-if)# mtu 576
```

**Related Commands**

Command	Description
show interfaces	Displays the interface information.

**Platform** N/A



## Description

## 1.12 show interfaces

Use this command to display the interface information and optical module information.

**show interfaces** [ *interface-type interface-number* ] [ **description** ]

Parameter Description	Parameter	Description
	<i>interface-type</i> <i>interface-number</i>	Interface (including Ethernet interface, aggregate port, SVI or loopback interface).
	<b>description</b>	The description of the interface, including the link status.

## Defaults

**Command** All CLI user modes.

## Mode

**Usage Guide** This command is used to show all basic information if no parameter is specified.

**Configuration** The following example displays the information of Ethernet interface **FastEthernet 0/0**.

## Examples

```
Ruijie# show interface fastEthernet 0/0
Index(dec):1 (hex):1
FastEthernet 0/0 is UP , line protocol is UP
Hardware is Nat-Semi DP83815DVNG FastEthernet, address is 0a0b.0c0d.0e0f (bia
0a0b.0c0d.0e0f)
Interface address is: 1.1.1.1/24
ARP type: ARPA,ARP Timeout: 3600 seconds
Interface IPv6 address is:
No IPv6 address
MTU 1500 bytes, BW 100000 Kbit
Encapsulation protocol is Ethernet-II, loopback not set
Keepalive interval is 10 sec , set
Carrier delay is 2 sec
Ethernet attributes:
  Medium-type is Copper
  Last link state change time: 2012-12-22 14:00:48
  Time duration since last link state change: 3 days, 2 hours, 50 minutes, 50
seconds
  Priority is 0
  Admin duplex mode is AUTO, oper duplex is Unknown
  Admin speed is AUTO, oper speed is Unknown
  Flow control admin status is OFF,flow control oper status is OFF
```

```

Queueing strategy: FIFO
Output queue 0/40, 0 drops;
Input queue 0/75, 0 drops
Rxload is 1/255 ,Txload is 1/255
5 minutes input rate 0 bits/sec, 0 packets/sec
5 minutes output rate 0 bits/sec, 0 packets/sec
782 packets input, 88920 bytes, 0 no buffer
Received 782 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets

Ruijie#
Ruijie#show interfaces gigabitEthernet 0/0 description
Interface                Status  Administrative Description
-----
GigabitEthernet 0/0      up      up           connet_to_g0/1

```

#### Related Commands

Command	Description
<b>duplex</b>	Duplex
<b>flowcontrol</b>	Flow control status.
<b>interface gigabitEthernet</b>	Selects the interface and enter the interface configuration mode.
<b>interface aggregateport</b>	Creates or accesses the aggregate port, and enters the interface configuration mode.
<b>interface vlan</b>	Creates or accesses the switch virtual interface (SVI), and enters the interface configuration mode.
<b>shutdown</b>	Disables the interface.
<b>speed</b>	Configures the speed on the port.
<b>switchport priority</b>	Configures the default 802.1q interface priority.
<b>switchport protected</b>	Configures the interface as a protected port.

**Platform** N/A

#### Description

## 1.13 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
-----------	-------------

<i>interface-type</i> <i>interface-number</i>	The interface type and ID.
--	----------------------------

**Defaults** N/A

**Command** All CLI user modes

**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** N/A

**Description**

## 1.14 show vlans

Use this command to display the sub interface information of VLAN in privileged EXEC mode.

**show vlans [ VLANID ]**

**Parameter Description**

Parameter	Description
VLANID	Indicates ID of a VLAN.

**Defaults**

**Command** Any CLI mode

**Mode**

**Usage Guide** The IP MTU automatically changes to the value of the link MTU of an interface when the globally set link MTU changes.

**Configuration**

```
Ruijie# show vlans
```

**Examples**

```
Virtual LAN ID: 3 (IEEE 802.1Q Encapsulation)
VLAN Interface FastEthernet 0/0.1
IP address: 1.1.1.1
Received:30 packets,
Transmitted: 30 packets
Virtual LAN ID: 4 (IEEE 802.1Q Encapsulation)
VLAN Interface FastEthernet 0/0.2
IP address: 1.1.2.1
Received:0 packets,
Transmitted: 0 packets
```

**Related Commands**

Command	Description
N/A	N/A

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

## 1.15 show interfaces usage

Use this command to display bandwidth usage of the interface.

**show interfaces** [ *interface-type interface-number* ] **usage**

**Parameter Description**

Parameter	Description
<i>interface-type</i>	(Optional) The interface type and ID.
<i>interface-number</i>	

**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** The following example displays bandwidth usage of interface GigabitEthernet 0/1.

**Examples**

```
Interface           Bandwidth   Bandwidth Usage
```

```
-----
GigabitEthernet 0/0          1000000 Kbit 0.001840950%
```

 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** N/A  
**Description**

## 1.16 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
<i>interface-type</i> <i>interface-number</i>	(Optional) The interface type and ID.
<b>increment</b>	Displays the packet statistics increased during the last sample interval.
<b>error</b>	Displays error packet statistics.
<b>rate</b>	Displays packet receiving and transmitting rate.
<b>summary</b>	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.

#### Examples

```
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

```

- ① 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

- ① 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
```

- ① 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.

#### Related Commands

Command	Description
N/A	N/A

#### Platform Description

N/A

## 1.17 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** The following example disables an interface.

**Examples**

```
Ruijie(config)# interface serial 1gigabitEthernet 0/1
Ruijie(config-if)# shutdown
%LINK CHANGED: Interface serial 1gigabitEthernet 0/1, changed state to
administratively down
Ruijie(config-if)# no shutdown
```

**Related Commands**

Command	Description
<b>clear interface</b>	Resets the hardware.
<b>show interfaces</b>	Displays the interface information.

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

## 1.18 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
<b>10</b>	The transmission rate of the interface is 10Mbps.
<b>100</b>	The transmission rate of the interface is 100Mbps.
<b>1000</b>	The transmission rate of the interface is 1000Mbps.
<b>auto</b>	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)# speed 100
```

**Related Commands**

Command	Description
<b>show interfaces</b>	Displays the interface information.

**Platform Description** N/A

## 1.19 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
		<b>snmp trap link-status</b>
	<b>no snmp trap link-status</b>	Disables the interface from sending LinkTrap on the interface.

**Platform** N/A

**Description**

## 1.20 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

**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

**Platform** N/A

**Description**

## 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	Parameter	Description
Description	<b>dynamic</b>	Clears all the dynamic MAC addresses.
	<b>address</b> <i>mac-addr</i>	Clears the specified dynamic MAC address.
	<b>interface</b> <i>interface-id</i>	Clears all the dynamic MAC addresses of the specified interface.
	<b>vlan</b> <i>vlan-id</i>	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
	<b>show mac-address-table dynamic</b>	Displays dynamic MAC address.

**Platform** N/A

**Description**

### 2.2 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	Parameter	Description
-----------	-----------	-------------

<b>Description</b>	<i>seconds</i>	Aging time of the dynamic MAC address (in seconds). The time range depends on the switch.						
<b>Defaults</b>	The default is 300.							
<b>Command Mode</b>	Global configuration mode.							
<b>Usage Guide</b>	Use <b>show mac-address-table aging-time</b> to display configuration.							
<b>Configuration Examples</b>	The following example sets the aging time of the dynamic MAC address to 500 seconds.							
<b>Examples</b>	<pre>Ruijie(config)# mac-address-table aging-time 500</pre>							
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>show mac-address-table aging-time</b></td> <td>Displays the aging time of the dynamic MAC address.</td> </tr> <tr> <td><b>show mac-address-table dynamic</b></td> <td>Displays dynamic MAC address.</td> </tr> </tbody> </table>	Command	Description	<b>show mac-address-table aging-time</b>	Displays the aging time of the dynamic MAC address.	<b>show mac-address-table dynamic</b>	Displays dynamic MAC address.	
Command	Description							
<b>show mac-address-table aging-time</b>	Displays the aging time of the dynamic MAC address.							
<b>show mac-address-table dynamic</b>	Displays dynamic MAC address.							
<b>Platform</b>	N/A							
<b>Description</b>								

## 2.3 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
<b>Description</b>	<i>mac-address</i>	Filtering Address
	<i>vlan-id</i>	VLAN ID, in the range from 1 to 4094.

**Defaults** No filtering address is configured by default.

**Command Mode** Global configuration mode.

**Mode**

**Usage Guide** The filtering MAC address shall not be a multicast address.

**Configuration Examples** The following example configures the filtering MAC address for VLAN 1.

**Examples**

```
Ruijie(config)#mac-address-table filtering 0000.0202.0303 vlan 3
```

Related Commands	Command	Description
	<b>clear mac-address-table filtering</b>	Clears the filtering MAC address.

Platform N/A  
Description

## 2.4 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 Description	Parameter	Description
	<b>interval</b> <i>value</i>	Sets the interval of sending the MAC address trap message, 1 second by default.
	<b>history-size</b> <i>value</i>	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 Mode** Global configuration 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
	<b>snmp-server enable traps</b>	Sets the method of handling the MAC address trap message..
	<b>show mac-address-table notification</b>	Displays the MAC address notification configuration and the MAC address trap notification table.
	<b>snmp trap mac-notification</b>	Enables the MAC address trap notification function on the specified interface.

**Platform** N/A

**Description**

## 2.5 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	Parameter	Description
<b>Description</b>	<i>mac-addr</i>	Destination MAC address of the specified entry
	<i>vlan-id</i>	VLAN ID of the specified entry, in the range from 1 to 4094.
	<i>interface-id</i>	Interface (physical interface or aggregate port) that packets are forwarded to

**Defaults** No static MAC address is configured by default.

**Command** Global configuration mode.

**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
<b>Commands</b>	<b>show mac-address-table static</b>	Displays the static MAC address.

**Platform** N/A

**Description**

## 2.6 show mac-address-learning

Use this command to display the MAC address learning.

**show mac-address-learning**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** All modes.

**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 Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.7 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 Description**

Parameter	Description
<b>address</b> <i>mac-addr</i>	The MAC address.
<b>interface</b> <i>interface-id</i>	The Interface ID.
<b>vlan</b> <i>vlan-id</i>	The VLAN ID, in the range from 1 to 4094.

**Defaults** N/A

**Command Mode** All modes

**Usage Guide** N/A

**Configuration** The following example displays the MAC address.

**Examples**

```
Ruijie# show mac-address-table address 00d0.f800.1001
Vlan      MAC Address      Type      Interface
-----  -
```



1	00d0.f800.1001	STATIC	GigabitEthernet 1/1
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 Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 2.8 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
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command** All modes.

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays the aging time of the dynamic MAC address.

**Examples**

```
Ruijie# show mac-address-table aging-time
Aging time : 300
```

Related Commands	Command	Description
	<b>mac-address-table aging-time</b>	Sets the aging time of the dynamic MAC address.

**Platform** N/A

**Description**

## 2.9 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	Parameter	Description
Description	<b>interface</b> <i>interface-id</i>	Interface ID
	<b>vlan</b> <i>vlan-id</i>	VLAN ID, in the range from 1 to 4094.

**Defaults** N/A

**Command** Privileged EXEC mode.

**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** The following example displays the number of MAC address entries.

**Examples**

```
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
```

**Related**

**Commands**

Command	Description
<b>show mac-address-table static</b>	Displays the static address.
<b>show mac-address-table filtering</b>	Displays the filtering address.
<b>show mac-address-table dynamic</b>	Displays the dynamic address.
<b>show mac-address-table address</b>	Displays all the address information of the specified address.

<b>show mac-address-table interface</b>	Displays all the address information of the specified interface.
<b>show mac-address-table vlan</b>	Displays all the address information of the specified vlan.

**Platform** N/A

**Description**

## 2.10 show mac-address-table dynamic

Use this command to display the dynamic MAC address.

**show mac-address-table dynamic** [ **address** *mac-addr* ] [ **interface** *interface-id* ] [ **vlan** *vlan-id* ]

Parameter	Parameter	Description
<b>Description</b>	<i>mac-addr</i>	Destination MAC address of the entry
	<i>vlan-id</i>	VLAN of the entry, in the range from 1 to 4094.
	<i>interface-id</i>	Interface that the packet is forwarded to. It may be a physical port or an aggregate port

**Defaults**

**Command** All modes.

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays the dynamic MAC address.

**Examples**

```
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	Command	Description
<b>Commands</b>	<b>clear mac-address-table dynamic</b>	Clears the dynamic MAC address.

**Platform** N/A

**Description**

## 2.11 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	<i>mac-addr</i>	Destination MAC address of the entry
	<i>vlan-id</i>	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** The following example displays the filtering MAC address.

### Examples

```
Ruijie# show mac-address-table filtering
Vlan   MAC Address   Type   Interface
-----
1      0000.2222.2222  FILTER Not available
```

	Command	Description
Related Commands	<b>mac-address-table filtering</b>	Configures the filtering MAC address.

**Platform** N/A

**Description**

## 2.12 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	<i>interface-id</i>	Displays the MAC address information of the specified Interface (physical interface or aggregate port).
	<i>vlan-id</i>	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** The following example displays all the MAC addresses on interface gigabitethernet 1/1.

**Examples**

```
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
<b>show mac-address-table static</b>	Displays the static MAC address.
<b>show mac-address-table filtering</b>	Displays the filtering MAC address.
<b>show mac-address-table dynamic</b>	Displays the dynamic MAC address.
<b>show mac-address-table address</b>	Displays all types of MAC addresses.
<b>show mac-address-table vlan</b>	Displays all types of MAC addresses of the specified VLAN.
<b>show mac-address-table count</b>	Displays the address counts in the MAC address table.

**Platform** N/A

**Description**

## 2.13 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**

**Description**

Parameter	Description
<b>interface</b>	Displays the MAC address notification configuration on all interfaces.
<b>interface <i>interface-id</i></b>	Displays the MAC address notification configuration on a specific interface.
<b>history</b>	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
```

Related	Command	Description
<b>Commands</b>	<b>mac-address-table notification</b>	Enables MAC address notification.
	<b>snmp trap mac-notification</b>	Enables the MAC address trap notification function on the specified interface.

**Platform** N/A

**Description**

## 2.14 show mac-address-table static

Use this command to display the static MAC address.

**show mac-address-table static** [**addr** *mac-addr* *r*] [**interface** *interface-id*] [**vlan** *vlan-id*]

Parameter	Parameter	Description
<b>Description</b>	<i>mac-addr</i>	Destination MAC address of the entry
	<i>vlan-id</i>	VLAN ID of the entry, within the range from 1 to 4094.
	<i>interface-id</i>	Interface of the entry physical interface or aggregate port

**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
```

Related	Command	Description
<b>Commands</b>	<b>mac-address-table static</b>	Configures the static MAC address.

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

## 2.15 show mac-address-table vlan

Use this command to display all addresses of the specified VLAN.

**show mac-address-table vlan** [ *vlan-id* ]

Parameter	Parameter	Description
<b>Description</b>	<i>vlan-id</i>	VLAN ID of the entry, within the range from 1 to 4094.

**Defaults** N/A

**Command Mode** Privileged EXEC 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
	<b>show mac-address-table static</b>	Displays static addresses.
	<b>show mac-address-table filtering</b>	Displays filtered addresses.
	<b>show mac-address-table dynamic</b>	Displays dynamic addresses.
	<b>show mac-address-table address</b>	Displays all address information about the specified address.
	<b>show mac-address-table interface</b>	Displays all address information about the specified interface.
	<b>show mac-address-table count</b>	Displays the number of addresses in the address table.

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

## 2.16 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	Parameter	Description
Description	<i>added</i>	Notifies when a MAC address is added.
	<i>removed</i>	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

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification added
```

Related Commands	Command	Description
	<b>mac-address-table notification</b>	Enables MAC address notification.
	<b>show mac-address-table notification</b>	Displays the MAC address notification configuration and the MAC address notification table.

**Platform** N/A

**Description**



## 3 VLAN Commands

### 3.1 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
	<i>vlan-name</i>	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
	<b>show vlan</b>	Displays member ports of the VLAN.

**Platform Description** N/A

### 3.2 show vlan

Use this command to display member ports of the VLAN.

**show vlan** [ *id vlan-id* ]

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

<b>Description</b>		
	<i>vlan-id</i>	VLAN ID

**Defaults** N/A

**Command mode** All modes

**Usage Guide** N/A

**Configuration** The following command displays the status of VLAN 1.

**Examples**

```
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
<b>name</b>	VLAN name.
<b>switchport access</b>	Adds the interface to a VLAN.

**Platform** N/A

**Description**

### 3.3 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
	<i>vlan-id</i>	VLAN ID Default VLAN (VLAN 1) cannot be removed.
	<i>vlan-range</i>	VLAN ID range.

**Defaults** The default is static VLAN.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example creates VLAN 10.

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)#
```

Related Commands	Command	Description
	<b>show vlan</b>	Displays member ports of the VLAN.

**Platform Description** N/A

## 4 MAC VLAN Commands

### 4.1 show mac-vlan

Use this command to display the MAC VLAN entries.

**show mac-vlan** { **all** | **vlan** *vlan-id* | **mac-address** *mac-address* }

Parameter Description	Parameter	Description
	<b>all</b>	Displays all MAC VLAN entries.
	<b>mac-address</b> <i>mac-address</i>	Displays the MAC VLAN entry of the specified MAC address.
	<b>vlan</b> <i>vlan-id</i>	Displays the MAC VLAN entries of the specified VLAN.

**Defaults** N/A

**Command mode** All configuration modes

**Usage Guide** N/A

**Configuration** The following example displays all MAC VLAN entries.

#### Examples

```
Ruijie# show mac-vlan all
The following MAC VLAN addresses exist:

MAC ADDR          VLAN ID
-----
0011.1100.0000    100
0022.2222.0000    200
0000.0000.0003    300
0000.0000.0004    400
0000.0000.0005    500
0000.0000.0006    600
0000.0000.0007    700
Total MAC VLAN address count: 7
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 5 VLAN Group Commands

### 5.1 vlan-assign-mode

Use this command to set the VLAN assignment mode.

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

**vlan-assign-mode** *dot1x*

**no vlan-assign-mode**

Parameter	Parameter	Description
Description	<b>dot1x</b>	Indicates that the authentication server assigns VLANs to users that pass the 802.1x authentication.

**Defaults** No VLAN assignment mode is specified by default.

**Configuration Mode** VLAN group configuration mode/Global configuration mode

**Usage Guide** The VLAN assignment mode configured in global configuration mode takes effect on all VLAN groups.  
The VLAN assignment mode configured in VLAN group configuration mode takes effect only on the specified VLAN group.  
The configuration of VLAN assignment mode in VLAN group configuration mode has higher priority than that configured in global configuration mode.

**Configuration Examples** The following example configures the dot1x-based VLAN assignment mode for VLAN group 10.

```
Ruijie(config)# vlan-group 10
Ruijie(config-vlan-group)# vlan-assign-mode dot1x
```

Related Commands	Command	Description
	<b>show vlan-group</b> [ <i>group-id</i> ]	Displays the VLAN group configuration.

**Platform Description** N/A

### 5.2 vlan-group

Use this command to create a VLAN group on an AP or AC device.

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

**vlan-group** *group-id*

**no vlan-group** *group-id*

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>group-id</i>	VLAN group ID. The range is from 1 to 128.
<b>Defaults</b>	N/A	
<b>Configuration Mode</b>	Global configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example creates VLAN group 100 on a device.	
	<pre>Ruijie# configure terminal Ruijie(config)# vlan-group 100 Ruijie(config-vlan-group)#</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show vlan-group</b> [ <i>group-id</i> ]	Displays the VLAN group configuration.
<b>Platform Description</b>	N/A	

### 5.3 default-vlan

Use this command to configure a default VLAN.

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

**default-vlan** *vlan-id*

**no default-vlan** *vlan-id*

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>vlan-id</i>	Specifies a VLAN ID, which should be in the VLAN group list.
<b>Defaults</b>	The default VLAN is not configured by default.	
<b>Configuration Mode</b>	VLAN group configuration mode	
<b>Usage Guide</b>	<p>The default VLAN must be in the VLAN group list.</p> <p>The default VLAN takes effect only in the 802.1x authentication server VLAN assignment</p>	

mode.

**Configuration** The following example sets VLAN 10 to the default VLAN of VLAN group 100.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# vlan-group 100
Ruijie(config-vlan-group)# default-vlan 10
```

**Related  
Commands**

Command	Description
<b>show vlan-group</b> [group-id]	Displays the VLAN group configuration.

**Platform**

N/A

**Description**

## 5.4 vlan-list

Use this command to configure the VLAN list for a VLAN group on an AP .

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

**vlan-list** *vlan-list*

**no vlan-list**

**Parameter  
Description**

Parameter	Description
<i>vlan-list</i>	Specifies a VLAN list for a VLAN group. A VLAN group includes up to 128 VLANs.

**Defaults**

No VLAN list is configured by default.

**Configuration  
Mode**

VLAN group configuration mode

**Usage Guide**

If a WLAN needs to associate multiple VLANs, you can use this command to configure these VLANs to a VLAN group, and then associate the VLAN group with the WLAN.

**Configuration** The following example adds VLANs 100-105 to VLAN group 100.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# vlan-group 100
Ruijie(config-vlan-group)# vlan-list 100-105
```

**Related  
Commands**

Command	Description
<b>show vlan-group</b> [group-id]	Displays the VLAN group configuration.

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

## 5.5 vlan-group

Use this command to create a VLAN group in WLAN configuration mode on an AP device.

**vlan-group** *group-id*

Parameter	Parameter	Description
<b>Description</b>	<i>group-id</i>	VLAN group ID. The range is from 1 to 128.

**Defaults** The WLAN is not associated with any VLAN group by default.

**Configuration Mode** WLAN configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example associates WLAN 1 with VLAN group 100.

```
Ruijie# configure terminal
Ruijie(config)# dot11 wlan 1
Ruijie(dot11-wlan-config)# vlan-group 100
```

Related Commands	Command	Description
	N/A	N/A

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

## 5.6 encapsulation dot1Q

Use this command to configure encapsulation for a VLAN or VLAN group on the dot11 radio sub-interface of an AP.

Use the **no** form of this command to remove the configuration.

**encapsulation dot1Q** [**group**] {*vlan-id* | *vlan-group-id*}

**no encapsulation dot1Q** [**group**] {*vlan-id* | *vlan-group-id*}

Parameter	Parameter	Description
<b>Description</b>	<i>vlan -id</i>	Specifies a VLAN ID.
	<i>vlan-group-id</i>	VLAN group ID. The range is from 1 to 128.



- Defaults** Packets of a VLAN or VLAN group are not encapsulated.
- Configuration Mode** Interface configuration mode
- Usage Guide** Use the **encapsulation dot1Q *vlan-id*** command to configure VLAN encapsulation on a dot1q sub-interface..  
Use the **encapsulation dot1Q group *vlan-group-id*** command to configure VLAN group encapsulation on a dot1q sub-interface..

**Configuration Examples** The following example configures encapsulation for VLAN group 100 on the sub-interface **Dot11radio 1/0.1** on an AP:

```
Ruijie# configure terminal
Ruijie(config)# interface dot11radio 1/0.1
Ruijie(config-subif)# encapsulation dot1Q group 100
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 5.7 show vlan-group

Use this command to display the VLAN group configuration on an AP.

**show vlan-group** [*group-id*]

**Parameter Description**

Parameter	Description
<i>group-id</i>	Specifies the ID of a VLAN group.

**Defaults** N/A

**Configuration Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays information about VLANs in the VLAN group on an AP:

```
Ruijie# show vlan-group
VLAN-Group ID  Default VLAN  Assign-Mode      VLAN-List
-----
128             NA           dot1x             110-130, 141-150
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 6 RLDP Commands

### 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
	<i>interval</i>	Detection interval in the range of 1 to 15 seconds

**Defaults** 3 seconds.

**Command** Global configuration mode.

**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** The following example shows how to set the detection interval as 5s:

**Examples**

```
Ruijie(config)# rldp detect-interval 5
```

Related Commands	Command	Description
	<b>rldp detect-max</b>	Sets the maximum number of detections.

**Platform** N/A.

**Description**

### 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
-----------	-----------	-------------

<b>Description</b>		
	<i>num</i>	Maximum number of detections in the range of 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

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>rldp detect-interval</b>	Sets the detection interval.

**Platform Description** N/A.

## 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**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	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

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>

<b>rldp port</b>	Enables the RLDP function on the port.
------------------	--

**Platform** N/A.

**Description**

## 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
	<b>rldp port</b>	Enables the RLDP function on the port.

**Platform** N/A.

**Description**

## 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**

Parameter	Description
<b>unidirection-detect</b>	Sets unidirectional link detection.
<b>bidirection-detect</b>	Sets bidirectional link detection.
<b>loop-detect</b>	Sets loop detection type.
<b>warning</b>	Warns the user.
<b>shutdown-svi</b>	Shutowns the SVI the port belongs to.
<b>shutdown-port</b>	Shutowns the port.

**Defaults** N/A

**Command  
Mode** Interface configuration mode.

**Usage Guide** The interfaces include layer-2 switch ports, layer-3 routed ports, layer-2 AP member ports, and layer-3 AP member ports.

Ports on which RLDP is enabled to handle downlink loop failures are random. For example, RLDP downlink loop detection is configured on both downlink ports A and B, and the configured failure handling mode of port A is **warning** while that of port B is **shutdown-port**. When there is a downlink loop between port A and port B, port A may detect the downlink loop failure prior to port B. After port A completes failure handling according to the configuration, it no longer sends packets to detect the downlink loop status. Port B fails to detect the downlink loop failure because it does not receive a loop detection packet from port A, but the downlink loop actually persists. If a detected downlink loop needs to be actually removed in application scenarios, downlink ports in the same loop must be restricted to use a consistent loop failure handling mode and the loop failure handling mode cannot be **warning**.

**Configuration  
Examples** The following example shows how to configure RLDP detection, specify the detection type as loop detection, and troubleshooting method as block.

```
Ruijie(config)# interface GigabitEthernet 2/0/9
Ruijie(config-if-GigabitEthernet 2/0/9)# rldp port loop-detect block
```

**Related  
Commands**

Command	Description
<b>rldp enable</b>	Enables RLDP globally.

**Platform  
Description** N/A.

## rldp reset

Use this command to recover the state of faulty ports and perform RLDP detection again.

**rldp reset**

Parameter Description	Parameter	Description
		N/A.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A.

**Configuration Examples** The example below demonstrates how to recover the state of the faulty port:

```
Ruijie# rldp reset
```

Related Commands	Command	Description
		<b>rldp enable</b>

**Platform Description** N/A.

**show rldp**

Use this command to display the RLDP information.

**show rldp [ interface *interface-id* ]**

Parameter Description	Parameter	Description
		<i>interface-id</i>

**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** N/A.  
**Description**



## 7 LLDP Commands

### 7.1 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
<b>country</b>	Country code, two bytes. For example, the country code of China is CH.
<b>state</b>	Address information, CA type 1
<b>county</b>	CA type 2
<b>city</b>	CA type 3
<b>division</b>	CA type 4
<b>neighborhood</b>	CA type 5
<b>street-group</b>	CA type 6
<b>leading-street-dir</b>	CA type 16
<b>trailing-street-suffix</b>	CA type 17
<b>street-suffix</b>	CA type 18
<b>number</b>	CA type 19
<b>street-number-suffix</b>	CA type 20
<b>landmark</b>	CA type 21
<b>additional-location-information</b>	CA type 22
<b>name</b>	CA type 23
<b>postal-code</b>	CA type 24
<b>building</b>	CA type 25
<b>unit</b>	CA type 26
<b>floor</b>	CA type 27
<b>room</b>	CA type 28
<b>type-of-place</b>	CA type 29
<b>postal-community-name</b>	CA type 30
<b>post-office-box</b>	CA type 31

<b>additional-code</b>	CA type 32
<i>ca-word</i>	Address information

**Defaults** N/A

**Command Mode** LLDP Civic address configuration 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**

**Commands**

Command	Description
<b>show lldp location civic-location { identifier id   interface interface-name   static }</b>	Displays the information about an LLDP Civic address.

**Platform** N/A

**Description**

## 7.2 clear lldp statistics

Use this command to clear LLDP statistics.

**clear lldp statistics [ interface interface-name ]**

**Parameter**

**Description**

Parameter	Description
<i>interface-name</i>	Interface name

**Defaults** N/A

**Command Mode** Privileged EXEC 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	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

### 7.3 clear lldp table

Use this command to clear LLDP neighbor information.

**clear lldp table** [ **interface** *interface-name* ]

Parameter	Parameter	Description
Description	<i>interface-name</i>	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
---------	---------	-------------

<b>Commands</b>	N/A	N/A
-----------------	-----	-----

**Platform** N/A

**Description**

## 7.4 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	Parameter	Description
<b>Description</b>	<i>device-type</i>	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** LLDP Civic address configuration mode

**Mode**

**Usage Guide** This command is used to configure the device type in a common LLDP address in LLDP Civic address configuration mode.

**Configuration** The following example sets the device type to switch.

**Examples**

```
Ruijie#config
Ruijie(config)# lldp location civic-location identifier 1
Ruijie(config-lldp-civic)# device-type 1
```

Related Commands	Command	Description
	<b>show lldp location civic-location { identifier <i>id</i>   interface <i>interface-name</i>   static }</b>	Displays LLDP Civic Address information.

**Platform** N/A

**Description**

## 7.5 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	Parameter	Description
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
	<b>show lldp status</b>	Displays LLDP status information.

**Platform Description** N/A

## 7.6 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	Parameter	Description
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** The following example sets LLDP packet encapsulation format to SNAP.

**Examples**

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp encapsulation snap
```

Related	Command	Description
Commands	<b>show lldp status</b>	Displays LLDP status information.

**Platform** N/A

**Description**

## 7.7 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	Parameter	Description
Description	N/A	N/A

**Defaults** This function is enabled by default.

**Command** Interface configuration mode.

**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** The following example configures LLDP error detection.

**Examples**

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp error-detect
```

Related	Command	Description
Commands	<b>show interface status</b>	Displays LLDP status information.

**Platform** N/A

**Description**

## 7.8 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**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>value</i>	The number of fast sent LLDP packets, in the range from 1 to 10.
<b>Defaults</b>	The default is 3.	
<b>Command Mode</b>	Global configuration mode.	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example sets the number of fast sent LLDP packets to 5.	
	<pre>Ruijie#<b>config</b> Ruijie(config)#<b>lldp fast-count</b> 5</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show interface status</b>	Displays LLDP status information.
<b>Platform</b>	N/A	
<b>Description</b>		

## 7.9 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**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>value</i>	TTL multiplier, in the range from 2 to 10.
<b>Defaults</b>	The default is 4.	
<b>Command</b>	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****Commands**

Command	Description
<b>show lldp status</b>	Displays LLDP status information.

**Platform**

N/A

**Description**

## 7.10 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****Description**

Parameter	Description
<i>id</i>	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 1.

**Examples**

```
Ruijie#config
Ruijie(config)#lldp location civic-location identifier 1
Ruijie(config-lldp-civic)#
```

**Related****Commands**

Command	Description
<b>show lldp location civic-location { identifier <i>id</i>   interface <i>interface-name</i>   static }</b>	Displays the LLDP Civic Address information.

**Platform**

N/A



## Description

## 7.11 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	<i>id</i>	ID of an emergency number, in the range from 1 to 1024.
	<i>tel-number</i>	Emergency number, in the range from 10 to 25 bytes.

**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Usage Guide** This command is used to configure an emergency number.

**Configuration** The following example sets an emergency number.

**Examples**

```
Ruijie#config
Ruijie(config)#lldp location elin identifier 1 elin-location 085283671111
```

Related	Command	Description
Commands	<b>show lldp location elin-location</b> { <b>identifier</b> <i>id</i>   <b>interface</b> <i>interface-name</i>   <b>static</b> }	Displays an LLDP emergency number.

**Platform** N/A

**Description**

## 7.12 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	<i>ip-address</i>	The management address advertised in LLDP packets.

**Defaults** N/A

**Command** Interface configuration mode.  
**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.  
If the IPv4 address is still not found, the IPv6 address of the lowest-ID VLAN carried on the port will be tried.  
If the IPv6 address is still not found, the MAC address of the device will be advertised as the management address.

**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
	<b>show lldp local-information</b>	Displays LLDP local information

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

## 7.13 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
	<b>rx</b>	Only sends LLDPDUs.
	<b>tx</b>	Only receives LLDPDUs.
	<b>txrx</b>	Sends and receives LLDPDUs.

**Defaults** The default is **txrx**.

**Command** Interface configuration mode  
**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** The following example sets LLDP operating mode to tx on the interface.

**Examples**

```
Ruijie#config
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if)#lldp mode tx
```

Related	Command	Description
Commands	show lldp status	Displays LLDP status information

**Platform** N/A

**Description**

## 7.14 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	Parameter	Description
Description	<i>profile-num</i>	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	Command	Description
Commands	show lldp network-policy profile [ <i>profile-num</i> ]	Displays an LLDP network policy.

**Platform** N/A

**Description**

## 7.15 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 Commands	Command	Description
	<b>show lldp status</b>	Displays LLDP status information.

**Platform Description** N/A

## 7.16 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	<i>seconds</i>	Interval of sending LLDP Traps, in the range from 5 to 3600 in the unit of seconds.

- Defaults** The default is 5.
- 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
	<code>show lldp status</code>	Displays LLDP status information.

**Platform** N/A

**Description**

## 7.17 lldp timer reinit-delay

Use this command to set port initialization delay. Use the **no** form of this command to restore the default setting.

**lldp timer reinit-delay** *seconds*

**no lldp timer reinit-delay**

Parameter	Parameter	Description
<b>Description</b>	<i>seconds</i>	Port initialization delay, in the range from 1 to 10 in the unit of seconds.

- Defaults** The default is 2.
- 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
	<b>show lldp status</b>	Displays LLDP status information.

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

## 7.18 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 Description	Parameter	Description
	<i>seconds</i>	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 Commands	Command	Description
	<b>show lldp status</b>	Displays LLDP status information.

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

## 7.19 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**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>seconds</i>	Interval of sending the LLDP packets, in the range from 5 to 32768 in the unit of seconds.
<b>Defaults</b>	The default is 30.	
<b>Command Mode</b>	Global configuration mode.	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example sets the interval of sending the LLDP packets to 10 seconds.	
	<pre>Ruijie#config Ruijie(config)#lldp timer tx-interval 10</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<code>show lldp status</code>	Displays LLDP status information.
<b>Platform Description</b>	N/A	

## 7.20 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 } }
```

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<code>basic-tlv</code>	Basic management TLV
	<code>port-description</code>	Port Description TLV
	<code>system-capability</code>	System Capabilities TLV

<b>system-description</b>	System Description TLV
<b>system-name</b>	System Name TLV
<b>dot1-tlv</b>	802.1 organizationally specific TLV
<b>port-vlan-id</b>	Port VLAN ID TLV
<b>protocol-vlan-id</b>	Port And Protocol VLAN ID TLV
<i>vlan-id</i>	VLAN ID
<i>vlan-name</i>	VLAN Name TLV
<i>vlan-id</i>	VLAN ID corresponding to the specified VLAN name
<b>dot3-tlv</b>	802.3 organizationally specific TLV
<b>link-aggregation</b>	Link Aggregation TLV
<b>mac-physic</b>	MAC/PHY Configuration/Status TLV
<b>max-frame-size</b>	Maximum Frame Size TLV
<b>power</b>	Power Via MDI TLV
<b>med-tlv</b>	LLDP MED TLV
<b>capability</b>	LLDP-MED Capabilities TLV
<b>inventory</b>	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.
<b>location</b>	Location Identification TLV
<b>civic-location</b>	Common address information about the network device in location identification TLVs.
<b>elin</b>	Encapsulated emergency number
<i>id</i>	Policy ID. Range: 1-1024.
<b>network-policy</b>	Network Policy TLV
<i>profile-num</i>	ID of network policy. Range: 1-1024.
<b>power-over-ethernet</b>	Extended Power-via-MDI TLV

### Defaults

If a device supports DCBX by default, all types of TLVs excluding 802.3 TLVs and LLDP-MED TLVs can be advertised on an interface. If the device does not support DCBX, all types of TLVs excluding Location Identification TLVs can be advertised on an interface. The default advertisement policy is none for the network policy in MED.

### Command

Interface configuration mode

### 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 802.3 MAC/PHY TLVs first. When canceling LLDP 802.3 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.

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.

If the device supports DCBX by default, IEEE 802.3 TLVs and LLDP-MED TLVs cannot be advertised on an interface by default.

**Configuration** The following example configures all IEEE 802.1 TLVs to be advertised.

**Examples**

```
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	Command	Description
Commands	<b>show lldp tlv-config interface</b>	Displays the attributes of advertisable TLVs

**Platform** N/A

**Description**

## 7.21 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	Parameter	Description
Description	<i>interface-name</i>	Interface name

**Defaults** N/A

**Command** Privileged EXEC mode  
**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 Examples** The following example displays the device information to be sent to neighbor device.

```
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** N/A  
**Description**

## 7.22 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
	<b>civic-location</b>	Encapsulates a common address of a network device.
	<b>elin</b>	Encapsulates an emergency number.
	<b>identifier</b>	Displays one address or emergency number configured.
	<i>id</i>	Policy ID of configured information
	<b>interface</b>	Displays the address or emergency number on an interface.
	<i>interface-name</i>	Interface name
	<b>static</b>	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** The following example displays all addresses.

**Examples**

```
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 static
Elin location information
-----
Identifier : t
Elin      : iiiiiviiii
Ports     : Gi1/0/3
-----
```

Related Commands	Command	Description
	N/A	N/A

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

## 7.23 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
<b>Description</b>	<i>interface-name</i>	Interface name
	<b>detail</b>	All information about a neighboring device

**Defaults** N/A

**Command Mode** Privileged EXEC 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: <ul style="list-style-type: none"> <li>● PSE</li> <li>● PD</li> </ul>
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** N/A  
**Description**

## 7.24 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	Parameter	Description
<b>Description</b>	<i>profile-num</i>	ID of a network policy, in the range from 1 to 1024.
	<i>interface-name</i>	Name of interface.

**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 Examples** The following example displays the information about a network policy.

```
Ruijie# show lldp network-policy profile
Network Policy Profile 1
  voice vlan 2 cos 4 dscp 6
  voice-signaling vlan 2000 cos 4 dscp 6
```

Related Commands	Command	Description
	N/A	N/A

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

## 7.25 show lldp statistics

The following example displays LLDP statistics.

**show lldp statistics** [ **global** | **interface** *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-name</i>	Interface name

**Defaults** N/A

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

- Usage Guide**
- **global** parameter: display the global LLDP statistics.
  - **Interface** parameter: display 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** N/A

**Description**

## 7.26 show lldp status

Use this command to display LLDP status information.

**show lldp status** [ **interface** *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-name</i>	Interface name

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** **interface** parameter: display the LLDP status information of the specified interface.

**Configuration** The following example displays LLDP status information of all ports.

**Examples**

```
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	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

## 7.27 show lldp tlv-config

Use this command to display the advertisable TLV configuration of a port.

**show lldp tlv-config** [ **interface** *interface-name* ]

Parameter	Parameter	Description
Description	<i>interface-name</i>	Interface name

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** **Interface** parameter: display the LLDP TLV configuration of the specified interface.

**Configuration** The following example displays TLV information of port 1.

**Examples**

```
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	Command	Description
<b>Commands</b>	N/A	N/A

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

## 7.28 { 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	Parameter	Description
Description	<b>voice</b>	Voice application
	<b>voice-signaling</b>	Voice-signaling application
	<i>vlan-id</i>	(Optional) VLAN ID of voice flow. The value ranges from 1 to 4094.
	<b>cos</b>	(Optional) Class of service
	<i>cvalue</i>	(Optional) CoS of the configured voice flow. The value ranges from 0 to 7, and the default value is 5.
	<b>dscp</b>	(Optional) Differentiated services code point
	<i>dvalue</i>	(Optional) DSCP value of the configured voice flow. The value ranges from 0 to 63. The default value is 46.
	<b>dot1p</b>	(Optional) 802.1p priority tagging. The tag frame includes user_priority and vlan id is 0.
	<b>none</b>	(Optional) The network policy is not advertised. VoIP determines the network policy based on its configuration.
	<b>untagged</b>	(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** The following example configures the LLDP network policy (profile-num is 1).

**Examples**

```
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	Command	Description
Commands	<code>show lldp network-policy profile [ profile-num ]</code>	Displays the LLDP network policy.

**Platform** N/A

**Description**



## 8 PPP Commands

### 8.1 ppp accm

Use this command to configure the Asynchronous Control Character Map (ACCM) option for PPP negotiation.

**ppp accm** *value*

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

**no ppp accm**

Parameter Description	Parameter	Description
	<i>value</i>	Value of the ACCM option, in the range from 0 to 0xffffffff.
Command Mode	Interface configuration mode	
Defaults	The default is 0x000A0000.	
Default Level	14	
Usage Guide	This command is used to configure the ACCM option involved in the PPP negotiation phase, in the range from 0 to 0xffffffff. The default is 0x000A0000.	
Configuration Examples	The following example configures the ACCM option for PPP negotiation.	
	<pre>Ruijie(config-if-Virtual-ppp 1)#ppp accm 0x0000000f Ruijie(config-if-Virtual-ppp 1)#</pre>	
Verification	Run the <b>show running-config</b> command to display the value of the ACCM option configured on the current interface for PPP negotiation.	
Note	N/A	
Platform	N/A	

## 8.2 ppp accounting

Use this command to configure the accounting mode of PPP.

**ppp accounting { default | list\_name }**

Use the **no** form of this command to delete the accounting list of PPP.

**no ppp accounting**

Parameter Description	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>default</b></td> <td>Default accounting list</td> </tr> <tr> <td><i>list_name</i></td> <td>Name of the AAA accounting list</td> </tr> </tbody> </table>	Parameter	Description	<b>default</b>	Default accounting list	<i>list_name</i>	Name of the AAA accounting list
Parameter	Description						
<b>default</b>	Default accounting list						
<i>list_name</i>	Name of the AAA accounting list						
Command Mode	Interface configuration mode						
Default Level	14						
Usage Guide	This command is used to configure the accounting mode of PPP. You can set the accounting mode to the default list or to the name of a specified accounting list. Before configuring this command, you need to enable the AAA module; otherwise, this command is invisible.						
Configuration Examples	<p>The following example configures the accounting mode of PPP.</p> <pre>Ruijie(config-if-Virtual-ppp 1)#ppp accounting default Ruijie(config-if-Virtual-ppp 1)#ppp accounting acc_list Ruijie(config-if-Virtual-ppp 1)#</pre>						
Verification	Run the <b>show running-config</b> command to display the name of the PPP accounting list configured on the current interface.						
Note	N/A						
Platform	N/A						

## 8.3 ppp authentication

Use this command to configure the authentication mode of PPP.

```
ppp authentication { { pap | chap } [ callin | { chap | pap } | default | list_name ] }
```

Use the **no** form of this command to delete the authentication mode of PPP.

```
no ppp authentication { { pap | chap } [ callin | { chap | pap } | default | list_name ] }
```

Parameter Description	Parameter	Description
	<b>pap</b>	Sets the authentication mode to PAP.
	<b>callin</b>	Authenticates incoming request packets only.
	<b>chap</b>	Sets the authentication mode to CHAP.
	<b>default</b>	Uses the default authentication list, no matter whether PAP or CHAP authentication applies.
	<i>list_name</i>	Configures the name of the authentication list.

Command Mode  
Interface configuration mode

Default Level 14

Usage Guide This command is used to configure the authentication mode of PPP, which may be PAP or CHAP authentication.

Configuration The following example configures the authentication mode of PPP.

```
Examples
Ruijie(config-if-Virtual-ppp 1)#ppp authentication pap
Ruijie(config-if-Virtual-ppp 1)#ppp authentication chap
Ruijie(config-if-Virtual-ppp 1)#ppp authentication pap chap callin default
Ruijie(config-if-Virtual-ppp 1)#ppp authentication pap chap test_list
Ruijie(config-if-Virtual-ppp 1)#
```

Verification Run the **show running-config** command to display whether the authentication mode of PPP has been configured on the current interface.

Note N/A

Common Error N/A

Platform N/A

## 8.4 ppp authorization

Use this command to configure the authorization list of AAA authentication of PPP.

**ppp authorization** { **default** | *list\_name* }

Use this command to delete the authorization list of AAA authentication of PPP

**no ppp authorization**

Parameter Description	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>default</b></td> <td>Default authorization list of AAA authentication of PPP</td> </tr> <tr> <td><i>list_name</i></td> <td>Name of the specified authorization list of AAA authentication of PPP</td> </tr> </tbody> </table>	Parameter	Description	<b>default</b>	Default authorization list of AAA authentication of PPP	<i>list_name</i>	Name of the specified authorization list of AAA authentication of PPP
Parameter	Description						
<b>default</b>	Default authorization list of AAA authentication of PPP						
<i>list_name</i>	Name of the specified authorization list of AAA authentication of PPP						
Command Mode	Interface configuration mode						
Default Level	14						
Usage Guide	This command is used to configure the authorization list of AAA authentication of PPP. The authorization list of AAA authentication is used in the PPP authentication phase to perform AAA authentication. This command is visible only after the AAA module is enabled.						
Configuration Examples	<p>The following example sets the authorization list of PPP authentication on interface Virtual-PPP 1 to auth_list.</p> <pre>Ruijie(config-if-Virtual-ppp 1)#ppp authorization default Ruijie(config-if-Virtual-ppp 1)#ppp authorization auth_list Ruijie(config-if-Virtual-ppp 1)#</pre>						
Verification	Run the <b>show running-config</b> command to display the authorization list of AAA authentication of PPP configured on the current interface.						
Note	N/A						
Common Error	N/A						
Platform	N/A						

## 8.5 ppp chap

The following example configures the user name and password for CHAP authentication of PPP.

```
ppp chap hostname name
ppp chap password password
```

Use the **no** form of this command to delete the configured user name and password for CHAP authentication of PPP.

```
no ppp chap hostname
```

Parameter Description	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>name</i></td> <td>User name for CHAP authentication</td> </tr> <tr> <td><i>password</i></td> <td>Password for CHAP authentication</td> </tr> </tbody> </table>	Parameter	Description	<i>name</i>	User name for CHAP authentication	<i>password</i>	Password for CHAP authentication
Parameter	Description						
<i>name</i>	User name for CHAP authentication						
<i>password</i>	Password for CHAP authentication						
Command Mode	Interface configuration mode						
Default Level	14						
Usage Guide	PPP negotiation is required for both VPDN and PPPOE dialing. The second phase of PPP negotiation is about user name and password authentication. This command is used to configure the user name and password for CHAP authentication.						
Configuration Examples	<p>The following example configures the user name and password for CHAP authentication on interface Virtual-PPP 1.</p> <pre>Ruijie(config-if-Virtual-ppp 1)#ppp chap hostname 111 Ruijie(config-if-Virtual-ppp 1)#ppp chap password 111 Ruijie(config-if-Virtual-ppp 1)#no ppp chap hostname Ruijie(config-if-Virtual-ppp 1)#</pre>						
Verification	Run the <b>show running-config</b> command to display the user name and password configured on the current interface for CHAP authentication.						
Note	N/A						
Common Error	N/A						
Platform	N/A						

## 8.6 `ppp pap sent-username username password password`

Use this command to configure the user name and password for PAP authentication of PPP.

**ppp pap sent-username *username* password *password***

Use the **no** form of this command to delete the configured user name and password for PAP authentication of PPP.

**no ppp pap sent-username**

Parameter Description	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>username</i></td> <td>User name for PAP authentication</td> </tr> <tr> <td><i>password</i></td> <td>Password for PAP authentication</td> </tr> </tbody> </table>	Parameter	Description	<i>username</i>	User name for PAP authentication	<i>password</i>	Password for PAP authentication
Parameter	Description						
<i>username</i>	User name for PAP authentication						
<i>password</i>	Password for PAP authentication						
Command Mode	Interface configuration mode						
Default Level	14						
Usage Guide	PPP negotiation is required for both VPDN and PPPOE dialing. The second phase of PPP negotiation is about user name and password authentication. This command is used to configure the user name and password for PAP authentication.						
Configuration Examples	<p>The following example configures the user name and password for PAP authentication on interface Virtual-PPP 1.</p> <pre>Ruijie(config-if-Virtual-ppp 1)#ppp pap sent-username 111 password 111 Ruijie(config-if-Virtual-ppp 1)#no ppp pap sent-username Ruijie(config-if-Virtual-ppp 1)#</pre>						
Verification	Run the <b>show running-config</b> command to display the user name and password configured on the current interface for PAP authentication.						
Note	N/A						
Common Error	N/A						
Platform	N/A						

## 8.7 ppp ipcp dns

Use this command to configure the DNS option involved in the IPCP phase of PPP negotiation.

```
ppp ipcp dns { A.B.C.D [A.B.C.D] [accept] | accept | request | reject }
```

Use this command to delete the configured DNS option.

```
no ppp ipcp dns { A.B.C.D [A.B.C.D] [accept] | accept | request | reject }
```

Parameter Description	Parameter	Description
	<b>accept</b>	Receives all non-0 DNS addresses.
	<b>request</b>	Requests the DNS address from the peer server.
	<b>reject</b>	Refuses to negotiate the DNS option with the peer end.
	<i>A.B.C.D</i>	DNS address

Defaults The DNS option is not configured by default.

Command Mode Interface configuration mode

Default Level 14

Usage Guide This command is used to configure the DNS option involved in the IPCP negotiation phase.

Configuration Examples The following example configures the DNS option involved in the IPCP negotiation phase.

```
Ruijie(config-if-Virtual-ppp 1)#ppp ipcp dns accept
Ruijie(config-if-Virtual-ppp 1)#ppp ipcp dns reject
Ruijie(config-if-Virtual-ppp 1)#ppp ipcp dns request
Ruijie(config-if-Virtual-ppp 1)#ppp ipcp dns 1.1.1.1 2.2.2.2
Ruijie(config-if-Virtual-ppp 1)#no ppp ipcp dns
Ruijie(config-if-Virtual-ppp 1)#
```

Verification Run the **show running-config** command to display whether the DNS option has been configured on the current interface.

Note N/A

Common Error N/A

Platform N/A

## 8.8 ppp lcp mru negotiate

Use this command to configure the Maximum Receive Unit (MRU) option for PPP auto-negotiation.

**ppp lcp mru negotiate**

Use the no form of this command to remove the MRU configuration.

**no ppp lcp mru**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Command Mode</b>	Interface configuration mode	
<b>Default Level</b>	14	
<b>Usage Guide</b>	The MRU option, as a common option involved in the PPP negotiation process, will be carried in packets from both ends during negotiation so as to determine the maximum size of packets to be transmitted on the entire link.	
<b>Configuration Examples</b>	The following example configures the MRU option for auto-negotiation on interface Virtual-ppp 1.	
<b>Examples</b>	<pre>Ruijie(config-if-Virtual-ppp 1)#ppp lcp mru negotiate Ruijie(config-if-Virtual-ppp 1)#</pre>	
<b>Verification</b>	1. Run the <b>show running-config</b> command to display whether the MRU option has been configured on the current interface.	
<b>Note</b>	N/A	
<b>Common Error</b>	N/A	
<b>Platform</b>	N/A	



## 8.9 ppp max-bad-auth

Use this command to specify the number of PPP authentication retries.

**ppp max-bad-auth** *number*

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

**no ppp max-bad-auth**

Parameter	
Description	
Parameter	Description
<i>number</i>	Number of PPP authentication retries, in the range from 1 to 255
Defaults	The default is 1.
Command Mode	Interface configuration mode
Default Level	14
Usage Guide	The number of PPP authentication retries includes the first authentication; that is, if the number of PPP authentication retries is set to 3, twice authentication is still allowed following the failure of the first authentication. When the last authentication fails, the line is interrupted (or reset).
Configuration Examples	<p>The following example sets the number of PPP authentication retries on interface virtual-ppp1 to 3:</p> <pre>Ruijie(config-if-Virtual-ppp 1)# ppp max-bad-auth 3</pre> <p>The following example restores the number of PPP authentication retries to the default setting.</p> <pre>Ruijie(config-if-Virtual-ppp 1)# no ppp max-bad-auth</pre>
Verification	Run the <b>show running-config interface virtual-ppp 1</b> command to display the configuration on the current interface.
Note	N/A
Common Error	N/A
Platform	N/A

## 8.10 ppp negotiation-timeout

Use this command to specify the maximum PPP negotiation timeout period.

**ppp negotiation-timeout** *seconds*

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

**no ppp negotiation-timeout**

Parameter Description	Parameter	Description
	<i>seconds</i>	Maximum PPP negotiation timeout period, in the range from 10 to 65535 in the unit of seconds
<b>Defaults</b>	The default is 20 seconds.	
<b>Command Mode</b>	Interface configuration mode	
<b>Default Level</b>	14	
<b>Usage Guide</b>	If the maximum negotiation timeout period expires but PPP negotiation is not finished, the PPP negotiation is considered as having failed. The maximum PPP negotiation timeout period is 20s by default.	
<b>Configuration Examples</b>	<p>The following example sets the maximum PPP negotiation timeout period on interface virtual-ppp1 to 200 seconds.</p> <pre>Ruijie (config)# interface virtual-ppp 1 Ruijie(config-if-Virtual-ppp 1)# ppp negotiation-timeout 200</pre> <p>The following example restores the maximum PPP negotiation timeout period to the default settings.</p> <pre>Ruijie(config-if-Virtual-ppp 1)# no ppp negotiation-timeout</pre>	
<b>Verification</b>	Run the <b>show running-config interface virtual-ppp 1</b> command to check the configuration on the current interface.	
<b>Note</b>	N/A	
<b>Common Error</b>	N/A	
<b>Platform</b>	N/A	

## 9 PPPoE-client Commands

### 9.1 clear dialer

Use this command to clear statistics about the DDR dialer interface.

**clear dialer**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Command Modes</b>	Global configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example clears statistics about the DDR dialer interface.	
	<pre>R1# clear dialer</pre>	
<b>Platform Description</b>	N/A	

### 9.2 clear pppoe tunnel

Use this command to clear all PPPoE tunnels.

**clear pppoe tunnel**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Command Modes</b>	Global configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example clears all PPPoE tunnels.	
	<pre>R1# clear pppoe tunnel</pre>	

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

### 9.3 dialer enable-timeout

Use this command to configure the timeout period for the ASDL line.

**dialer enable-timeout** *seconds*

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

**no dialer enable-timeout**

Parameter Description	Parameter	Description
	<i>seconds</i>	Configures the timeout period for the ASDL line in the unit of seconds.

**Defaults** The default is 15 seconds.

**Command** Interface configuration mode

**Modes**

**Usage Guide** The timeout period for the ASDL line is the period from line disconnection or dial failure to the next dial.

**Configuration** The following example configures the timeout period for the ASDL line to 20 seconds.

**Examples**

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# dialer enable-timeout 20
```

The following example restores the timeout period for the ASDL line to the default setting.

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# no dialer enable-timeout
```

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

### 9.4 dialer-group

Use this command to associate a dialer triggering rule with a DDR dialer interface.

**dialer-group** *group-number*

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

**no dialer-group**

Parameter	Parameter	Description
<b>Description</b>	<i>group-number</i>	The ID of a dialer triggering rule.
<b>Defaults</b>	This function is disabled by default.	
<b>Command</b>	Interface configuration mode	
<b>Modes</b>		
<b>Usage Guide</b>	The dialer triggering rule is configured by the <b>dialer-list</b> command. You should identify what packets can trigger dial before the association.	
<b>Configuration</b>	The following example associates a dialer triggering rule with DDR dialer interface 1.	
<b>Examples</b>	<pre>R1(config)# interface dialer 1 R1(config-if-dialer 1)# dialer-group 1</pre> <p>The following example restores the default setting.</p> <pre>R1(config)# interface dialer 1 R1(config-if-dialer 1)# no dialer-group</pre>	
<b>Platform</b>	N/A	
<b>Description</b>		

## 9.5 dialer hold-queue

Use this command to configure a hold queue on a DDR dialer interface.

**dialer hold-queue** *packets* [ **timeout** *seconds* ]

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

**no dialer hold-queue** [ *packets* [ **timeout** *seconds* ] ]

Parameter	Parameter	Description
<b>Description</b>	<i>packets</i>	Sets the number of packets the queue can hold, in the range from 0 to 100.
	<b>timeout</b> <i>seconds</i>	Sets the timeout period of the hold queue, in the unit of seconds. The default is 45 seconds.

**Defaults** This function is disabled by default.

**Command** Interface configuration mode

**Modes**

**Usage Guide** The device discards packets during negotiation after modem dialing. If this command is configured, packets in the hold queue will be saved on the device and sent once connection is created.

**Configuration** The following example sets the hold queue *packets* to 50.

**Examples**

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# dialer hold-queue 50
```

The following example restores the default setting.

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# no dialer hold-queue
```

**Platform**

N/A

**Description**

## 9.6 dialer idle-timeout

Use this command to specify the idle period for an ADSL line.

**dialer idle-timeout** *seconds*

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

**no dialer idle-timeout**

**Parameter Description**

Parameter	Description
<i>seconds</i>	Sets the idle period for an ADSL line, in the unit of seconds.

**Defaults**

The default is 120 seconds.

**Command**

Interface configuration mode

**Modes****Usage Guide**

This idle period refers to the period when no data traffic is transmitted in the ADSL line. The timer is reset when any message is received.

**Configuration** The following example sets the idle period to 60 seconds.

**Examples**

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# dialer idle-timeout 60
```

The following example restores the default setting.

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# no dialer idle-timeout
```

**Platform** This command is supported only on EG/NBR/NPE products.  
**Description**

## 9.7 dialer-list

Use this command to define a dialer triggering rule.

**dialer-list** *dialer-group* **protocol** *protocol-name* **ip** { **permit** | **deny** | **list** *access-list-number* }

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

**no dialer-list** *dialer-group* [ **protocol** *protocol-name* **ip** { **permit** | **deny** | **list** *access-list-number* } ]

**Parameter**  
**Description**

Parameter	Description
<i>dialer-group</i>	Sets the ID of a dialer triggering rule.
<b>protocol</b> <i>protocol-name</i>	Protocol name.
<b>ip</b>	Specifies the IP protocol to be used for defining a dialer triggering rule.
<b>permit</b>	Permits IP packets.
<b>deny</b>	Denies IP packets.
<b>list</b>	Specifies an access list to be used for defining a dialer triggering rule.
<i>access-list-number</i>	Sets the ID of an ACL list.

**Defaults** This function is disabled by default.

**Command** Global configuration mode

**Modes**

**Usage Guide** This configuration is mandatory to define one or more dialer triggering rules. Use the **dialer-group** command to apply these rules to specific dialer interfaces.

**Configuration** The following example sets dialer triggering rule 1 to **ip**.

**Examples**

```
R1(config)# dialer-list 1 protocol ip permit
```

The following example restores the default setting.

```
R1(config)# no dialer-list 1
```

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

## 9.8 dialer pool

Use this command to associate a dialer pool with a logical interface.

**dialer pool** *number*

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

**no dialer pool** *number*

Parameter Description	Parameter	Description
	<i>number</i>	Sets the ID of a dialer pool, in the range from 1 to 255.

**Defaults** This function is disabled by default.

**Command** Interface configuration mode

**Modes**

**Usage Guide** Advanced dialup requires association between a physical interface and a dialer interface through a dialer pool. First, add a physical interface to several dialer pools. Second, associate the logical interface with only one of the dialer pools. One physical interface may belong to multiple dialer pools but one logical interface is allowed to associate with one single dialer pool. The dialer interface selects an idle physical interface from the dialer pool randomly.

**Configuration** The following example associates dialer pool 1 with dialer interface1.

**Examples**

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# dialer pool 1
```

The following example restores the default setting.

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# no dialer pool
```

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

## 9.9 ip address

Use this command to enable the IP policy on an interface.

**ip address** { **negotiate** | *ip-addr subnet-mask* }

Use this command to disable the IP address acquisition mode.

**no ip address**



<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>negotiate</b>	Enables an interface to acquire IP address through PPP negotiation.
	<i>ip-addr</i>	The IP address of a specified interface.
	<i>subnet-mask</i>	The mask of a specified interface.
<b>Defaults</b>	N/A	
<b>Command Modes</b>	Interface configuration mode	
<b>Usage Guide</b>	Use this command to configure the IP policy on a specified dialer interface. If PPP negotiation is enabled, the IP address is distributed by the server. If the IP address is specified manually, it takes effect only after negotiation with the server succeeds.	
<b>Configuration Examples</b>	The following example sets the IP policy to PPP negotiation.	
	<pre>R1(config)# interface dialer 1 R1(config-if-dialer 1)# ip address negotiate</pre>	
	The following example removes the IP policy configuration.	
	<pre>R1(config)# interface dialer 1 R1(config-if-dialer 1)# no ip address</pre>	
<b>Platform Description</b>	N/A	

## 9.10 ppp max-bad-auth

Use this command to set PPP authentication retry count.

**ppp max-bad-auth** *number*

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

**no ppp max-bad-auth**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>number</i>	Sets PPP authentication retry count, in the range from 1 to 255.

**Defaults** This function is disabled by default.

**Command** Interface configuration mode

**Modes**

**Usage Guide** If *number* is set to 3, you can try twice after one failure t. If the last retry fails, The line will be reset.

**Configuration** The following example Sets PPP authentication retry count to 3.

**Examples**

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# ppp max-bad-auth 3
```

The following example restores the default setting.

```
R1(config)# interface dialer 1
R1(config-if-dialer 1)# no ppp max-bad-auth
```

**Platform**

N/A

**Description**

## 9.11 pppoe enable

Use this command to enable the PPPoE client function on the interface.

**pppoe enable**

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

**no pppoe enable****Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults**

This function is disabled by default.

**Command**

Interface configuration mode

**Modes****Usage Guide**

Use this command on physical WAN interfaces.

**Configuration**

The following example enables the PPPoE client function on GigabitEthernet 0/5.

**Examples**

```
R1(config)# interface GigabitEthernet 0/5
R1(config-if- GigabitEthernet 0/5)# pppoe enable
```

The following example restores the default setting.

```
R1(config)# interface GigabitEthernet 0/5
R1(config-if- GigabitEthernet 0/5)# no pppoe enable
```

**Platform**

N/A

**Description**

## 9.12 pppoe-client dial-pool-number

Use this command to add an Ethernet interface to a dialer pool and specifies the dial mode.

**pppoe-client dial-pool-number** *number* **no-ddr**

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

**no pppoe-client dial-pool-number** *number*

**Parameter Description**

Parameter	Description
<i>number</i>	Sets the ID of a dialer pool.
<b>no-ddr</b>	Applies auto dial.

**Defaults** This function is disabled by default.

**Command** Interface configuration mode

**Modes**

**Usage Guide** Use this command to add an Ethernet interface to a dialer pool, which is associated with the logical interface, In this way, the Ethernet interface and the logical interface are connected to perform dialing.

**Configuration** The following example adds GigabitEthernet 0/5 to dialer pool 1.

**Examples**

```
R1(config)# interface GigabitEthernet 0/5
R1(config-if- GigabitEthernet 0/5)# pppoe-client dial-pool-number 1 no-ddr
```

The following example restores the default setting.

```
R1(config)# interface GigabitEthernet 0/5
R1(config-if- GigabitEthernet 0/5)# no pppoe-client dial-pool-number 1
```

**Platform Description** N/A

## 9.13 pppoe session mac-address

Use this command to configure the MAC address of a PPPoE session.

**pppoe session mac-address** *H.H.H*

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

**no pppoe session mac-address**

Parameter Description	Parameter	Description
	<i>H.H.H</i>	Configures the MAC address of a PPPoE session.

**Defaults** This function is disabled by default.

**Command** Interface configuration mode

**Modes**

**Usage Guide** This configuration takes effect only on sub interfaces after the **pppoe enable** command is executed.

**Configuration** The following example configures the MAC address of a PPPoE session on GigabitEthernet 0/5.1.

**Examples**

```
Ruijie (config)# interface GigabitEthernet 0/5.1
Ruijie(config-subif-GigabitEthernet 0/5.1)#pppoe enable
Ruijie(config-subif-GigabitEthernet 0/5.1)#encapsulation dot1Q 1
Ruijie(config-subif-GigabitEthernet 0/5.1)#pppoe session mac-address
00d0.f822.33f3
```

The following example restores the default setting.

```
Ruijie (config)# interface GigabitEthernet 0/5.1
Ruijie(config-subif-GigabitEthernet 0/5.1)#no pppoe session mac-address
```

**Platform Description** N/A

## 9.14 show pppoe

Use this command to display PPPoE information.

**show pppoe { ref | session | tunnel }**

Parameter Description	Parameter	Description
	<b>ref</b>	Displays fast forwarding information about all PPPoE sessions.
	<b>session</b>	Displays all PPPoE session information.
	<b>tunnel</b>	Displays all PPPoE tunnel information.

**Command** Privileged EXEC mode/Global configuration mode/Interface configuration mode

**Modes**

**Usage Guide** N/A

**Configuration** The following example displays fast forwarding information about all PPPoE sessions.

**Examples**

```
R1# show pppoe ref

GigabitEthernet 0/6 Virtual-pppoe 2 dialer 1
  Protocol UP dialer-group 1 last_time 164235070 ms
  Ether Header: 00 60 4F 67 02 50 00 D0 F8 22 33 43 88 64
  PPPoE Header: 11 00 00 7F 00 50
  PPP Header   : 00 21
  DstMac 0060.4f67.0250, SrcMAC 00d0.f822.3343, SessionID 127
  Input Err : 0 MAC, 0 PPPoE Header
  Input Info: 0 Normal, 0 Drop, 345 Reserve, 0 Lost
  Output Err : 0 SessionState, 0 no ref, 0 length
  Output Info: 0 Normal, 0 Drop, 0 Reserve, 0 Lost

There is 1 pppoe session in System
```

The following example displays all PPPoE session information.

```
R1# show pppoe session
state is SESSION ,my mac is 00.D0.F8.22.33.43 , peer mac is 00.60.4F.67.02.50
  Timer is running: 59750
```

The following example displays all PPPoE tunnel information.

```
R1# show pppoe tunnel
state is SESSION ,my mac is 00.D0.F8.22.33.43 , peer mac is 00.60.4F.67.02.50
  Timer is running: 59003
```

**Platform**

N/A

**Description**



## IP Address & Application Commands

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1. IP Address/Service Commands
2. ARP Commands
3. IPv6 Commands
4. DHCP Commands
5. DNS Commands
6. Network Connectivity Test Tool Commands
7. TCP Commands
8. IPv4/IPv6 REF Commands
9. NAT 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
	<i>ip-address</i>	32-bit IP address, with 8 bits in one group in decimal format. Groups are separated by dots.
	<i>network-mask</i>	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.

**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 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 address negotiate

Use this command to configure an IP address for the interface through PPP negotiation. Use the **no** form of this command to restore the setting.

**ip address negotiate**  
**no ip address negotiate**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Interface configuration mode

**Usage Guide** Only the PPP interface of the router supports IP address configuration through PPP negotiation. After the interface is configured with the **ip address negotiate** command, the peer end should be configured with the **peer default ip address** command.

**Configuration Examples** The following example obtains an IP address for the interface through PPP negotiation.

```
Ruijie(config)# interface dialer 1
Ruijie(config-if-dialer 1)# ip address negotiate
```

Related Commands	Command	Description
	N/A	N/A



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

### 1.3 ip address-pool local

Use this command to enable the IP address pool function. Use the **no** form of this command to disable this function.

**ip address-pool local**  
**no ip address-pool local**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** Global configuration mode

**Usage Guide** This function is enabled by default. PPP users can allocate an IP address to the peer end from the IP address pool configured. If you can use the **no ip address-pool local** command to disable this function and clear all configured IP address pools.

**Configuration Examples** The following example enables the IP address pool function.

```
Ruijie(config)# ip address-pool local
```

Related Commands	Command	Description
	N/A	N/A

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

### 1.4 ip broadcast-address

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-address ip-address**  
**no ip broadcast-address**

Parameter	Parameter	Description
Description	<i>ip-address</i>	Broadcast address of IP network

**Defaults** The default IP broadcast address is 255.255.255.255.

**Command** Interface configuration mode.  
**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-if)# ip broadcast-address 0.0.0.0
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.5 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 Description	Parameter	Description
	<i>milliseconds</i>	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.
	<i>bucket-size</i>	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.  
 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

## 1.6 ip icmp timestamp

Use this command to enable the device to return a Timestamp Reply. Use the **no** form of this command to disable returning of Timestamp Reply.

**ip icmp timestamp**  
**no ip icmp timestamp**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example disables the device to return a Timestamp Reply.

```
Ruijie(config)# no ip icmp timestamp
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.7 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	Parameter	Description
Description	<i>access-list-number</i>	(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** N/A

**Description**

## 1.8 ip local pool

Use this command to create an IP address pool. Use the **no** form of this command to remove the setting.

**ip local pool** *pool-name* *low-ip-address* [ *high-ip-address* ]

**no ip local pool** *pool-name* [ *low-ip-address* [ *high-ip-address* ] ]

Parameter	Parameter	Description
<b>Description</b>	<i>pool-name</i>	Specifies the address pool name. The default name is <b>default</b> .
	<i>low-ip-address</i>	The start IP address in the address pool.
	<i>high-ip-address</i>	(Optional) The end IP address in the address pool.

**Defaults** No IP address pool is configured by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to create one or multiple IP address pools for PPP to allocate addresses to users.

**Configuration Examples** The following example creates an IP address pool named quark ranging from 172.16.23.0 to 172.16.23.255.

```
Ruijie(config)#ip local pool quark 172.16.23.0 172.16.23.255
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.9 ip mask-reply

Use this command to configure the RGOS software to respond the ICMP mask request and send an ICMP response message in the interface configuration mode. Use the **no** form of this

command to restore the default setting.

**ip mask-reply**  
**no ip mask-reply**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is disabled by default.

**Command mode** Interface configuration mode.

**Usage Guide** Sometimes, a network device needs the subnet mask of a subnet on the Internet. To obtain such information, the network device can send an ICMP mask request message, and the network device that receives this message will send a mask response message.

**Configuration Examples** The following example sets the FastEthernet 0/1 interface of a device to respond the ICMP mask request message.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip mask-reply
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.10 ip mtu

Use this command to set the Maximum Transmission Unit (MTU) for an IP packet in the interface configuration mode. Use the **no** form of this command is restore the default setting.

**ip mtu bytes**  
**no ip mtu**

Parameter	Parameter	Description
Description	<i>bytes</i>	Maximum transmission unit of IP packet , in the range from 68 to 1500 bytes

**Defaults** It is the same as the value configured in the interface command **mtu** by default.

**Command Mode** Interface configuration mode.

**Usage Guide** If an IP packet is larger than the IP MTU, the RGOS software will split this packet. All the devices in the same physical network segment must have the same IP MTU for the

interconnected interface.

If the interface configuration command **mtu** is used to set the maximum transmission unit value of the interface, IP MTU will automatically match with the MTU value of the interface. However, if the IP MTU value is changed, the MTU value of the interface will remain unchanged.

**Configuration Examples** The following example sets the IP MTU value of the fastEthernet 0/1 interface to 512 bytes.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip mtu 512
```

Related Commands	Command	Description
	<b>mtu</b>	Sets the MTU value of an interface.

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

### 1.11 ip redirects

Use this command to allow the RGOS software to send an ICMP redirection message in the interface configuration mode. Use the **no** form of this command to disable this function.

**ip redirects**  
**no ip redirects**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** Interface configuration mode.

**Usage Guide** When the route is not optimum, it may make the device to receive packets through one interface and send it though the same interface. If the device sends the packet through the interface through which this packet is received, the device will send an ICMP redirection message to the data source, telling the data source that the gateway for the destination address is another device in the subnet. In this way the data source will send subsequent packets along the optimum path.

**Configuration Examples** The following example disables ICMP redirection for the fastEthernet 0/1 interface.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# no ip redirects
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.12 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	Parameter	Description
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** N/A  
**Description**

## 1.13 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	Parameter	Description
Description	<i>value</i>	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** The following example sets the TTL value of the unicast packet to 100.

**Examples** Ruijie(config)# ip ttl 100

Related	Command	Description
Commands	N/A	N/A

**Platform Description** N/A

## 1.14 ip ttl-expires enable

This command is used to enable notifications of expired TTL. Use the **no** form of this command to disable this function.

**ip ttl-expires enable**

**no ttl-expires enable**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** By default, notifications are enabled to indicate expired TTL.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example disables notifications indicating expired TTL.

**Examples** Ruijie(config)# no ttl-expires enable

<b>Related Commands</b>	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.15 ip unnumbered

This command is used to configure unnumbered interfaces. After an interface is set to an unnumbered interface, IP can be run on the interface and packets can be sent or received on the interface. Use the **no** form of this command to restore the default setting.

**ip unnumbered** *interface-type interface-number*

**no ip unnumbered**

<b>Parameter Description</b>	Parameter	Description
	<i>interface-type</i>	Type of the associated interface
	<i>interface-number</i>	No. of the associated interface

**Defaults** No unnumbered interface is configured by default.

**Command mode** Interface configuration mode

**Usage Guide** An unnumbered interface indicates that IP is enabled on the interface but no IP address is allocated for the interface. An unnumbered interface must associate with an interface with an IP address. The source IP address of the IP packets generated on an unnumbered interface is the IP address of the associated interface. In addition, the routing protocol process determines whether to send route update packets to the unnumbered interface according to the IP address of the associated interface. Pay attention to the following when using an unnumbered interface:

An Ethernet interface cannot be set to an unnumbered interface.

When SLIP, HDLC, PPP, LAPB, and Frame-relay are encapsulated on a serial port, the port can be set to an unnumbered interface. When a frame relay is encapsulated, only a point-to-point subinterface can be set to an unnumbered interface. In the case of X.25 encapsulation, unnumbered interface is not allowed.

The **ping** command cannot be used to check whether an unnumbered interface is working properly because the interface does not have an IP address. The status of an unnumbered interface can be remotely monitored over SNMP.

The network cannot be enabled using an unnumbered interface.

**Configuration Examples** to the following example configures the local interface as an unnumbered interface and sets the associated interface to FastEthernet 0/1 (an IP address is configured for the interface).

```
Ruijie(config-if)# ip unnumbered fastEthernet 0/1
```

Related Commands	Command	Description
	<b>show interface</b>	Displays the detailed information about the interface.

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

## 1.16 ip unreachable

Use this command to allow the RGOS software to generate ICMP destination unreachable messages. Use the **no** form of this command to disable this function.

**ip unreachable**

**no ip unreachable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** Interface configuration mode.

**Usage Guide** RGOS software will send a ICMP destination unreachable message if it receives unicast message with self-destination-address and can not process the upper protocol of this message. RGOS software will send ICMP host unreachable message to source data if it can not forward a message due to no routing. This command influences all ICMP destination unreachable messages.

**Configuration Examples** The following example disables sending ICMP destination unreachable message on FastEthernet 0/1.

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# no ip unreachable
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.17 peer default ip address

Use this command to allocate an IP address to the peer end through PPP negotiation. Use the **no** form of this command to restore the default setting.

**peer default ip address** { *ip-address* | **pool** [*pool-name*] }

**no peer default ip address**

Parameter	Parameter	Description
Description	<i>ip-address</i>	Allocates an IP address to the peer end.
	<i>pool-name</i>	(Optional) Specifies the address pool name. If not specified, the default address pool is used.

**Defaults** No IP address is allocated to the peer end through PPP negotiaon by default.

**Command Mode** Interface configuration mode.

**Usage Guide** If the local end is configured with an IP address while the peer end not, you can enable the local end to allocate an IP address to the peer end by configuring the **ip address negotiate** command on the peer end and the **peer default ip address** on the local end.

This command is configured on PPP interface supporting encapsulation PPP or SLIP.

The **peer default ip address pool** command is used to allocate an IP address to the peer end from the address pool, configured by using the **ip local pool** command.

The **peer default ip address ip-address** command is used to specify an IP address for the peer end. This command cannot be configured on virtual template interfaces and asyn interfaces.

**Configuration Examples** The following example enables interface dialer 1 to allocate IP address 10.0.0.1 to the peer end.

```
Ruijie(config)# interface dialer 1
Ruijie(config-if-dialer 1)# peer default ip address 10.0.0.1
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.18 show ip interface

Use this command to display the IP status information of an interface.

**show ip interface** [ *interface-type interface-number* | **brief** ]

Parameter	Parameter	Description
Description	<i>interface-type</i>	Specifies interface type.
	<i>interface-number</i>	Specifies interface number.
	<i>brief</i>	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 brif 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 <b>up</b> , <b>down</b> , or <b>administratively down</b> .
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 unreachable 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 unreachable 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 fast 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: Request packet: Reply packet: Unknown packet:	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: Echo request: Echo reply: Unreachable:	Show the total number of ICMP packets received on the interface, including: Echo request packet Echo reply packet

Source quench:	Unreachable packet
Routing redirect:	Source quench packet Routing redirection packet
Outgoing access list is	Show whether an outgoing access list has been configured for an interface.
Inbound access list is	Show whether an incoming access list has been configured for an interface.

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

**Platform** N/A.

**Description**

## 1.19 show ip packet statistics

Use this command to display the statistics of IP packets.

**show ip packet statistics** [ *total* | *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-name</i>	Interface name
	<i>total</i>	Displays the total statistics of all interfaces.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A.

**Configuration** The following example displays the output of this command.

**Examples**

```
Ruijie# show ip packet statistics
Total
Received 1000 packets, 1000000 bytes
Unicast:1000,Multicast:0,Broadcast:0
Discards:0
HdrErrors:0 (BadChecksum:0,TTLExceeded:0,Others:0)
NoRoutes:0
Others:0
Sent 100 packets, 6000 bytes
Unicast:50,Multicast:50,Broadcast:0

VLAN 1
Received 1000 packets, 1000000 bytes
```

```

Unicast:1000,Multicast:0,Broadcast:0
Discards:0
HdrErrors:0 (BadChecksum:0,TTLExceeded:0,Others:0)
NoRoutes:0
Others:0
Sent 100 packets, 6000 bytes
Unicast:50,Multicast:50,Broadcast:0

```

**Related  
Commands**

Command	Description
<b>ip default-gateway</b>	Configures the default gateway, which is only supported on the Layer 2 switch.

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

## 1.20 show ip pool

Use this command to display the IP address pool.

**show ip pool** [ *pool-name* ]

**Parameter  
Description**

Parameter	Description
<i>pool-name</i>	Specifies the IP address pool.

**Defaults** N/A

**Command  
Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays all IP address ranges.

**Examples**

```

Ruijie# show ip pool
Ruijie(config)#show ip pool
Pool          Begin          End             Free   In use
default      1.1.1.1       1.1.1.1        1      0
pool1        2.2.2.2       2.2.2.254     253    0
pool2        3.1.1.1       3.2.1.1       65537  0
pool3        192.168.1.1   192.168.1.254

```

Field	Description
Pool	Address pool name
Begin	The start IP address of the address pool
Free	The number of free IP addresses in the address pool



In use	The number of IP addresses in use in the address pool
--------	---

Related Commands	Command	Description
	N/A	N/A

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

## 1.21 show ip raw-socket

Use this command to display IPv4 raw sockets.

**show ip raw-socket** [ *num* ]

Parameter Description	Parameter	Description
	<i>num</i>	Protocol.

**Defaults** N/A.

**Command Mode** Privileged 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** N/A

**Description****1.22 show ip sockets**

Use this command to display all IPv4 sockets.

**show ip sockets**

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

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A.

**Configuration** The following displays all IPv4 sockets.

**Examples**

```
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.

Related  
Commands

Command	Description
N/A	N/A

Platform  
Description

N/A

## 1.23 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
<b>local-port num</b>	Local port number

## Defaults

N/A.

## Command Mode

Privileged EXEC mode.

**Usage Guide** N/A.

**Configuration** The following example displays all IPv4 UDP sockets.

**Examples**

```
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*

Parameter	Parameter	Description
Description	<i>ip-address</i>	The IP address that corresponds to the MAC address. It includes four parts of numeric values in decimal format separated by dots.
	<i>MAC-address</i>	48-bit data link layer address
	<i>type</i>	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** Global configuration mode.

**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** The following example sets an ARP static mapping record for a host in the Ethernet.

**Examples** Ruijie(config)# arp 1.1.1.1 4e54.3800.0002 arpa

Related	Command	Description
Commands	clear arp-cache	Clears the ARP cache table

**Platform** N/A

**Description**

### 2.2 arp-learning

Use this command to enable ARP learning. Use the **no** form of this command to disable this function.

**arp-learning enable**

**no arp-learning enable**

Parameter	Parameter	Description
Description	N/A	N/A
Defaults	This function is enabled by default	
Command Mode	Interface configuration mode	
Usage Guide	<p>After the device learns the dynamic ARP and turns it to the static ARP through Web, it is recommended to enable ARP learning. Otherwise, it is not recommended to enable this function. If this function is disabled with dynamic ARP existing, you can turn dynamic ARP to static ARP through Web. You can also clear the dynamic ARP using the clear arp command to deny the specified user's access to Internet. Otherwise, the dynamic ARP will be aged and then cleared. After this function is disabled, the AnyIP function and trust ARP detection are disabled.</p>	
Configuration Examples	<p>The following example enables ARP learning.</p> <pre>Ruijie(config)# interface gi 0/0 Ruijie(config-if-GigabitEthernet 0/0)# arp-learning enable</pre> <p>The following example disables ARP learning.</p> <pre>Ruijie(config)# interface gi 0/0 Ruijie(config-if-GigabitEthernet 0/0)# no arp-learning enable</pre>	
Related Commands	Command	Description
	N/A	N/A
Platform Description	N/A	

## 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	Parameter	Description
Description	<i>limit</i>	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** Interface configuration mode  
**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** The following example sets the maximum number of ARP learned on the interface to 300.

**Examples**

```
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** N/A  
**Description**

## 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* [ *number* ]

**no arp gratuitous-send**

Parameter	Parameter	Description
<b>Description</b>	<i>seconds</i>	The time interval to send the free ARP request message in the range from 1 to 3600 in the unit of seconds.
	<i>number</i>	The number of free ARP request messages to be sent in the range from 1 to 100 in the unit of seconds. The default value is 1.

**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**

Parameter	Description
<i>seconds</i>	Time for retransmitting the ARP request message in the range from 1 to 3600 in the unit of seconds.

**Description**

**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
<b>arp retry times</b>	Number of times for retransmitting an ARP request message.

**Platform**

N/A

**Description**



## 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	Parameter	Description
Description	<i>number</i>	The times of sending the same ARP request in the range from 1 to 100. 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
	<b>arp retry interval</b>	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	Parameter	Description
Description	<i>secondsv</i>	The timeout is in the range from 0 to 2147483 in the unit of seconds.

- Defaults** The default is 3600.
- Command Mode** Interface 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
<b>clear arp-cache</b>	Clears the ARP cache list.
<b>show interface</b>	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	Parameter	Description
<b>Description</b>	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 egress gateway trusted ARP.

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# no arp trust-monitor enable
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 2.9 arp unresolve

Use this command to set the maximum number of the unresolved ARP entries. Use **no** form of this command to restore the default setting.

**arp unresolve** *number*

**no arp unresolve**

**Parameter  
Description**

Parameter	Description
<i>number</i>	The maximum number of the unresolved ARP entries in the range from 1 to the ARP table size supported by the device.

**Defaults** The default is the ARP table size supported by the device.

**Command  
Mode** Global configuration mode.

**Usage Guide** If there are a large number of unresolved entries in the ARP cache table and they do not disappear after a period of time, this command can be used to limit the quantity of the unresolved entries.

**Configuration** The following example sets the maximum number of the unresolved items to 500.

**Examples**

```
Ruijie(config)# arp unresolve 500
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 2.10 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** [ *ip* [*mask*] ] | **interface** *interface-name* ]

Parameter Description	Parameter	Description
	<i>ip</i>	Deletes ARP entries of the specified IP address. by default, all dynamic ARP entries are deleted.
	<i>mask</i>	Deletes ARP entries in a subnet mask. The dynamic ARP entry specified by the IP address is deleted by default.
	<b>interface</b> <i>interface-name</i>	Deletes dynamic ARP entries on the specified interface. Dynamic ARP entries are deleted on all interfaces by default.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**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
	<b>arp</b>	Adds a static mapping record to the ARP cache table.

**Platform Description** N/A

## 2.11 ip proxy-arp

Use this command to enable ARP proxy function on the interface. Use the **no** form of this command to restore the default setting.

**ip proxy-arp**

**no ip proxy-arp**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Interface configuration mode.	
<b>Usage Guide</b>	Proxy ARP helps those hosts without routing message obtain MAC address of other networks or subnet IP address. For example, a device receives an ARP request. The IP addresses of request sender and receiver are in different networks. However, the device that knows the routing of IP address of request receiver sends ARP response, which is Ethernet MAC address of the device itself.	
<b>Configuration Examples</b>	The following example enables ARP on FastEthernet port 0/1.	
	<pre>Ruijie(config)# interface fastEthernet 0/1 Ruijie(config-if)# ip proxy-arp</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

## 2.12 show arp

Use this command to display the Address Resolution Protocol (ARP) cache table

**show arp** [ *interface-type interface-number* ] [ *ip [mask]* | *mac-address* | **static** | **complete** | **incomplete** ] ]

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>interface-type</i> <i>interface-number</i>	Displays the ARP entry of a specified Layer-2 or Layer-3 port.
	<i>ip</i>	Displays the ARP entry of the specified IP address.
	<i>mask</i>	Displays the ARP entries of the network segment included within the mask.
	<b>static</b>	Displays all the static ARP entries.
	<b>complete</b>	Displays all the resolved dynamic ARP entries.
	<b>incomplete</b>	Displays all the unresolved dynamic ARP entries.
	<i>mac-address</i>	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 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
```

The following example displays the output result of **show arp static**

```
Ruijie# show arp static
Protocol Address Age(min) Hardware Type Interface Origin
Internet 192.168.23.55 <static> 0000.0000.0010 arpa VLAN 100
Configure
Internet 192.168.23.56 <static> 0000.0000.0020 arpa VLAN 100
Authentication
2 static arp entries exist.
```

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
Origin	Origin of ARP entries.

Related Commands	Command	Description
	N/A	N/A

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

## 2.13 show arp counter

Use this command to display the number of ARP entries in the ARP cache table.

**show arp counter**

Parameter	Parameter	Description
<b>Description</b>	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# show arp counter
The Arp Entry counter:0
The Unresolve Arp Entry:0
```

The meaning of each field in the ARP cache table is described in the following Table.

Parameter	Description
overlay	Indicates the number of VxLAN-related ARP entries.
underlayer	Indicates the number of VxLAN-irrelated ARP entries.

Related Commands	Command	Description
	N/A	N/A

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

## 2.14 show arp packet statistics

Use this command to display the statistics of ARP packets.

**show arp packet statistics** [ *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-name</i>	Displays the statistics of ARP packets on the specified interface.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A.

**Configuration** The following example displays the output information of the command.

### Examples

```
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 Commands	Command	Description
	N/A.	N/A.

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

## 2.15 show arp timeout

Use this command to display the aging time of a dynamic ARP entry on the interface.

**show arp timeout**

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 of the **show arp timeout** command:

```
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 Commands	Command	Description
	N/A.	N/A.

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

## 2.16 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** N/A

**Description**

## 3 IPv6 Commands

### 3.1 clear ipv6 neighbors

Use this command to clear the dynamic IPv6 neighbors.

**clear ipv6 neighbors** [ **oob** ] [*interface-id*]

Parameter Description	Parameter	Description
	<b>oob</b>	Clears the dynamic IPv6 neighbors discovered by neighbors on MGMT interface.
	<i>interface-id</i>	Interface name. Clear the dynamically learned IPv6 neighbors on the specified interface.

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** This command does not clear all the dynamic neighbors on authentication VLAN. Note that the static neighbors will not be cleared.

**Configuration Examples** The following example clears all the dynamic IPv6 neighbors.

```
Ruijie# clear ipv6 neighbors
```

The following example clears all dynamic IPv6 neighbors learned on the MGMT interface.

```
Ruijie# clear ipv6 neighbors oob
```

The following example clears all dynamic IPv6 neighbors learned on the interface, gigabitEthernet 0/1.

```
Ruijie# clear ipv6 neighbors gigabitEthernet 0/1
```

Related Commands	Command	Description
	ipv6 neighbor	Configures the neighbor.
	show ipv6 neighbors	Displays the neighbor information.

**Platform Description** N/A

## 3.2 ipv6 address

Use this command to configure an IPv6 address for a network interface. Use the **no** form of this command to restore the default setting.

**ipv6 address ipv6-address/prefix-length**

**ipv6 address** *ipv6-prefix/prefix-length eui-64*

**ipv6 address** *prefix-name sub-bits/prefix-length [ eui-64 ]*

**no ipv6 address**

**no ipv6 address** *ipv6-address/prefix-length*

**no ipv6 address** *ipv6-prefix/prefix-length eui-64*

**no ipv6 address** *prefix-name sub-bits/prefix-length [ eui-64 ]*

Parameter	Parameter	Description
<b>Description</b>	<i>ipv6-prefix</i>	IPv6 address prefix in the format defined in RFC4291. The address shall be in hex; the fields in the address shall be separated by comma, and each field shall contain 16 bits.
	<i>ipv6-address</i>	IPv6 address in the format defined in RFC4291. The address shall be in hex; the fields in the address shall be separated by comma, and each field shall contain 16 bits.
	<i>prefix-length</i>	Length of the IPv6 prefix, the network address of the IPv6 address. Note: The prefix length range of the IPv6 address of the interface of S86 is 0 to 64 or 128 to 128.
	<i>prefix-name</i>	The general prefix name. Use the specified general prefix to generate the interface address.
	<i>sub-bits</i>	The value of the sub-prefix bit and the host bit generates the interface address combining with the general prefix. The value shall be in the format defined in the RFC4291.
	<i>eui-64</i>	The generated IPV6 address consists of the address prefix and the 64 bit interface ID

**Defaults** N/A

**Command** Interface configuration mode

**Mode**

**Usage Guide** When an IPv6 interface is created and the link status is UP, the system will automatically generate a local IP address for the interface.

The IPv6 address could also be generated using the general prefix. That is, the IPv6 address consists of the general prefix and the sub-prefix and the host bit. The general prefix could be configured using the **ipv6 general-prefix** command or may be learned through the DHCPv6 agent PD (Prefix Discovery) function (please refer to the *DHCPv6 Configuration*). Use the *sub-bits/prefix-length* parameter of this command to configure the sub-prefix and the host bit.

If no deleted address is specified when using **no ipv6 address**, all the manually configured

addresses will be deleted.

**no ipv6 address** *ipv6-prefix/prefix-length eui-64* can be used to delete the addresses configured with **ipv6 address** *ipv6-prefix/prefix-length eui-64*.

**Configuration** The following example configures an IPv6 address for the interface, GigabitEthernet 0/1.

**Examples**

```
Ruijie(config-if)# ipv6 address 2001:1::1/64
Ruijie(config-if)# no ipv6 address 2001:1::1/64
Ruijie(config-if)# ipv6 address 2002:1::1/64 eui-64
Ruijie(config-if)# no ipv6 address 2002:1::1/64 eui-64
```

The following example configures an IPv6 address for the interface, GigabitEthernet 0/1, by using the general prefix.

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 address my-prefix
0:0:0:7272::72/64
```

If *my-prefix* is set as 2001:1111:2222::/48, then the IPv6 address generated for an interface is 2001:1111:2222:7272::72/64.

Related Commands	Command	Description
	N/A	N/A

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

### 3.3 ipv6 address autoconfig

Use this command to automatically configure an IPv6 stateless address for a network interface. Use the **no** form of this command to restore the default setting.

**ipv6 address autoconfig** [ **default** ]  
**no ipv6 address autoconfig**

Parameter	Parameter	Description
<b>Description</b>	<b>default</b>	(Optional) If this keyword is configured, a default routing is generated. Note that only one layer3 interface on the entire device is allowed to use the <b>default</b> keyword

**Defaults** N/A

**Command Mode** Interface configuration mode

**Usage Guide** The stateless automatic address configuration is that when receiving the RA (Route Advertisement) message, the device could use the prefix information of the RA message to automatically generate the EUI-64 interface address.  
 If the RA message contains the flag of the “other configurations”, the interface will obtain these “other

configurations” through the DHCPv6. The “other configurations” usually means the IPv6 address of the DNS server, the IPv6 address of the NTP server, etc.

**Configuration** The following example automatically configures an IPv6 stateless address for a network interface.

**Examples**

```
Ruijie(config-if)# ipv6 address autoconfig default
```

The following example restores the default setting.

```
Ruijie(config-if)# no ipv6 address autoconfig
```

Related Commands	Command	Description
	<b>ipv6 address ipv6-prefix/prefix-length [ eui-64 ]</b>	Configures the IPv6 address for the interface manually.

**Platform** N/A

**Description**

### 3.4 ipv6 icmp error-interval

Use this command to set the frequency with which ICMPv6-oversize error packets are sent. Use the **no** form of this command to restore the default setting.

**ipv6 icmp error-interval too-big milliseconds [ bucket-size ]**

**no ipv6 icmp error-interval too-big milliseconds [ bucket-size ]**

Use this command to set the frequency with which other ICMPv6 error packets are sent. Use the **no** form of this command to restore the default setting.

**ipv6 icmp error-interval milliseconds [ bucket-size ]**

**no ipv6 icmp error-interval milliseconds [ bucket-size ]**

Parameter Description	Parameter	Description
	<i>milliseconds</i>	Sets the refresh interval of the token bucket, in the range from 0 to 2147483647 in the unit of seconds. Setting the value to 0 indicates that the frequency with which ICMPv6 error packets are sent is not fixed.
	<i>bucket-size</i>	Sets the number of tokens in the token bucket, in the range from 1 to 200.

**Defaults** The default *milliseconds* is 100 and *bucket-size* is 10.

**Command Mode** Global configuration mode

**Usage Guide** The token bucket algorithm is adopted to set the frequency with which ICMPv6 error packets are sent so as to prevent Denial of Service (DoS) attack, If the forwarded IPv6 packet is greater than the egress IPv6 MTU in size, the router discards the IPv6 packet and sends the ICMPv6-oversize error packet to the source IPv6 address. This kind of ICMPv6

error packet is used for IPv6 path MTU discovery. If there are too many ICMPv6 error packets, the ICMPv6-oversize error packet may not be sent, causing IPv6 path MTU discovery failure. Therefore, it is recommended to set the frequency of ICMPv6-oversize error packet and other ICMPv6 error packet respectively. Note that ICMPv6 redirect packet is not an ICMPv6 error packet and Ruijie sets the frequency of the ICMPv6 redirect packet the same as that of other ICMPv6 error packet. For the timer is accurate to 10 milliseconds, it is recommended to set the refresh interval of the token bucket to an integer multiple of 10 milliseconds. If the refresh interval is not an integer multiple of 10 milliseconds, it is converted automatically. For example, the frequency of 1 per five milliseconds turns out to be 2 per 10 milliseconds; the frequency of 3 per 15 milliseconds is converted to 2 per 10 milliseconds.

**Configuration Examples** The following example sets the frequency with which ICMPv6-oversize error packets are sent to 100 per second.

```
Ruijie(config)# ipv6 icmp error-interval too-big 1000 100
```

The following example sets the frequency with which other ICMPv6 error packets are sent to 10 per second.

```
Ruijie(config)# ipv6 icmp error-interval 1000 10
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.5 ipv6 enable

Use this command to enable the IPv6 function on an interface. Use the **no** form of this command to restore the default setting.

**ipv6 enable**  
**no ipv6 enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Interface configuration mode

**Usage Guide** The IPv6 function of an interface can be enabled by configuring **ipv6 enable** or by configuring IPv6 address for the interface. If an IPv6 address is configured for the interface, the IPv6 function will be enabled automatically on the interface and cannot be disabled with **no ipv6 enable**.



**Configuration** The following example enables IPv6 function on the interface, GigabitEthernet 0/1.

**Examples** Ruijie (config-if) # **ipv6 enable**

Related	Command	Description
Commands	<b>show ipv6 interface</b>	Displays the related information of an interface.

**Platform** N/A

**Description**

### 3.6 ipv6 general-prefix

Use this command to configure the IPv6 general prefix in the global configuration mode.

**ipv6 general-prefix** *prefix-name* *ipv6-prefix/prefix-length*

**no ipv6 general-prefix** *prefix-name* *ipv6-prefix/prefix-length*

Parameter	Parameter	Description
<b>Description</b>	<i>prefix-name</i>	The general prefix name.
	<i>pv6-prefix</i>	The network prefix value of the general-prefix following the format defined in RFC4291.
	<i>prefix-length</i>	The length of the general prefix.

**Defaults** N/A

**Command Mode** Global configuration mode.

**Usage Guide** It is convenient to number the network by using the general prefix, which defines a prefix so that many longer specified prefixes could refer to it. These specified prefixes are updated whenever the general prefix changes. If the network number changes, just modify the general prefix.

A general prefix could contain multiple prefixes.

These longer specified prefixes are usually used for the Ipv6 address configuration on the interface.

**Configuration** The following example configures manually a general prefix as my-prefix.

**Examples** Ruijie (config) # **ipv6 general-prefix my-prefix 2001:1111:2222::/48**

Related	Command	Description
<b>Commands</b>	<b>ipv6 address</b> <i>prefix-name</i> <i>sub-bits/prefix-length</i>	Configures the interface address using the general prefix.
	<b>show ipv6 general-prefix</b>	Displays the general prefix.

**Platform** N/A

**Description**

### 3.7 ipv6 hop-limit

Use this command to configure the default hopcount to send unicast messages in the global configuration mode.

**ipv6 hop-limit** *value*

**no ipv6 hop-limit**

Parameter	Parameter	Description
Description	<i>value</i>	Hopcount ranging from 1 to 255.

**Defaults** The default is 64.

**Command Mode** Global configuration mode.

**Usage Guide** This command takes effect for the unicast messages only, not for multicast messages.

**Configuration Examples** The following example sets the hopcount to 100.

```
Ruijie(config)# ipv6 hop-limit 100
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.8 ipv6 mtu

Use this command to configure the MTU of IPv6 packets. Use the **no** form of this command to restore the default setting.

**ipv6 mtu** *bytes*

**no ipv6 mtu**

Parameter	Parameter	Description
Description	<i>bytes</i>	MTU of IPv6 packets, in bytes. The value ranges from 1280 to 1500.

**Defaults** The default configuration is the same as the configuration of the **mtu** command.

**Command Mode** Interface configuration mode

**Usage Guide** If the size of an IPv6 packet exceeds the IPv6 MTU, the RGOS software segments the packet. For all devices in the same physical network segment, the IPv6 MTU of the interconnected interface must be

the same.

**Configuration** The following example sets the IPv6 MTU of the FastEthernet 0/1 interface to 1400 bytes.

**Examples**

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ipv6 mtu 1400
```

Related Commands	Command	Description
	mtu	Sets the MTU of an interface.

**Platform**

**Description**

### 3.9 ipv6 nd cache interface-limit

Use this command to set the maximum number of neighbors learned on the interface. Use the **no** form of this command to restore the default setting.

**ipv6 nd cache interface-limit** *value*

**no ipv6 nd cache interface-limit**

Parameter Description	Parameter	Description
	<i>value</i>	Sets the maximum number of neighbors learned on the interface, including the static and dynamic neighbors, in the range from 0 to the number supported by the device. 0 indicates the number is not limited.

**Defaults** The default is 0.

**Command Mode** Interface configuration mode

**Usage Guide** This function can prevent neighbor entries generated by malicious neighbor attacks from consuming memory. *limit* must be no smaller than the number of neighbors learned on the interface. Otherwise, the configuration does not take effect.

**Configuration Examples** The following example sets the number of neighbors learned on the interface to 100.

**Examples**

```
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd cache interface-limit 100
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.10 ipv6 nd dad attempts

Use this command to set the number of the NS packets to be continuously sent for IPv6 address collision check on the interface. Use the **no** form of this command to restore it to the default setting.

**ipv6 nd dad attempts** *value*

**no ipv6 nd dad attempts** *value*

Parameter	Parameter	Description
<b>Description</b>	<i>value</i>	Number of the NS packets. If it is set to 0, it indicates that the IPv6 address collision check is disabled on the interface. The range is 0 to 600.

**Defaults** The default is 1.

**Command** Interface configuration mode.

**Mode**

**Usage Guide** When the interface is configured with a new IPv6 address, the address collision shall be checked before the address is assigned to the interface, and the address shall be in the "tentative" status. After the address collision check is completed, if no collision is detected, the address can be used normally; if collision is detected and the interface ID of the address is an EUI-64 ID, it indicates that the link-layer address is repeated, and the system will automatically shut down the interface (that is, to prohibit IPv6 operations on the interface). In this case, you shall modify and configure a new address manually, and restart address collision check for the **down/up** interface. Whenever the state of an interface changes from **down** to **up**, the address collision check function of the interface will be enabled.

**Configuration Examples** The following example continuously sends 3 NS packets for IPv6 address collision check on the interface, GigabitEthernet 0/1.

```
Ruijie(config-if)# ipv6 nd dad attempts 3
```

Related	Command	Description
<b>Commands</b>	<b>show ipv6 interface</b>	Displays the interface information.

**Platform** N/A

**Description**

### 3.11 ipv6 nd dad retry

Use this command to set the interval for address conflict detection. Use the **no** form of this command to restore the default setting.

**ipv6 nd dad retry** *value*

**no ipv6 nd dad retry**

Parameter	Parameter	Description
Description	<i>value</i>	Sets the interval for address conflict detection, 60 seconds by default. Setting <i>value</i> to 0 indicates that the function is disabled.

**Defaults** The default value is 1.

**Command Mode** Global configuration mode

**Usage Guide** Before configuring a new IPv6 address for an interface, enable address conflict detection on the interface. If a conflict address is detected, the device does not receive the IPv6 packet destined to the conflict address. This command is used to perform conflict detection again when the interval expires. If there is no conflict, the address can be used.

**Configuration** The following example sets the interval for address conflict detection to 10s.

**Examples** Ruijie(config)# ipv6 nd dad retry 10

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.12 ipv6 nd managed-config-flag

Use this command to set the “managed address configuration” flag bit of the RA message. Use the **no** form of this command to restore the default setting.

**ipv6 nd managed-config-flag**

**no ipv6 nd managed-config-flag**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Interface configuration mode.

**Usage Guide** This flag determines whether the host that receives the RA message obtains an IP address through stateful auto configuration. If the flag is set, the host obtains an IP address through stateful auto

configuration, otherwise it does not be used.

**Configuration** The following example sets the “managed address configuration” flag bit of the RA message.

**Examples**

```
Ruijie(config-if)# ipv6 nd managed-config-flag
```

Related Commands	Command	Description
	<b>show ipv6 interface</b>	Displays the interface information.
	<b>ipv6 nd other-config-flag</b>	Sets the flag for obtaining all information except IP address through stateful auto configuration.

**Platform** N/A

**Description**

### 3.13 ipv6 nd ns-interval

Use this command to set the interval for the interface to retransmitting NS (Neighbor Solicitation). Use the **no** form of this command to restore the default setting.

**ipv6 nd ns-interval** *milliseconds*

**no ipv6 nd ns-interval**

Parameter	Parameter	Description
<b>Description</b>	<i>milliseconds</i>	Interval for retransmitting NS in the range of 1,000 to 429,467,295 milliseconds

**Defaults** The default value in RA is 0 (unspecified); the interval for retransmitting NS is 1000 milliseconds (1 second).

**Command mode** Interface configuration mode.

**Usage Guide** The configured value will be advertised through RA and will be used by the device itself. It is not recommended to set a too short interval.

**Configuration** The following example sets the interval for the interface to retransmitting NS to 2 seconds.

**Examples**

```
Ruijie(config-if)# ipv6 nd ns-interval 2000
```

Related Commands	Command	Description
	<b>show ipv6 interface</b>	Displays the interface information.

**Platform** N/A

**Description**

### 3.14 ipv6 nd other-config-flag

Use this command to set “other stateful configuration” flag bit of the RA message. Use the **no** form of this command to delete the flag bit.

**ipv6 nd other-config-flag**

**no ipv6 nd other-config-flag**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The flag bit is not set by default.

**Command mode** Interface configuration mode.

**Usage Guide** With this flag bit set, the flag bit of the RA message sent by the device is set. After receiving this flag bit, the host uses the dhcpv6 to acquire the information excluding the IPv6 address for the purpose of automatic configuration. When the **managed address configuration** is set, the default **other stateful configuration** is also set

**Configuration Examples** The following example sets “other stateful configuration” flag bit of the RA message.

```
Ruijie(config-if)# ipv6 nd other-config-flag
```

Related Commands	Command	Description
	<b>show ipv6 interface</b>	Displays the interface information.

**Platform Description** N/A

### 3.15 ipv6 nd prefix

Use this command to configure the address prefix included in the RA. Use the **no** form of this command to delete the set prefix or restore the default setting.

**ipv6 nd prefix** { *ipv6-prefix/prefix-length* | **default** } [ [ *valid-lifetime preferred-lifetime* ] ] [ **at** *valid-date preferred-date* ] [ [ **infinite** | *preferred-lifetime* ] ] [ **no-advertise** ] [ [ **off-link** ] [ **no-autoconfig** ] ]

**no ipv6 nd prefix** { *ipv6-prefix/prefix-length* | **default** }

Parameter	Parameter	Description
Description	<i>ipv6-prefix</i>	IPv6 network ID following the format defined in RFC4291
	<i>prefix-length</i>	Length of the IPv6 prefix. “/” shall be added in front of the prefix
	<i>valid-lifetime</i>	Valid lifetime of the RA prefix received by the host
	<i>preferred-lifetime</i>	Preferred lifetime of the RA prefix received by the host
	<i>at valid-date preferred-date</i>	Sets the dead line for the valid lifetime and that of the preferred

	lifetime, in day, month, year, hour, minute.
<b>infinite</b>	Indicates that the prefix is always valid.
<b>default</b>	Sets the default prefix.
<b>no-advertise</b>	The prefix will not be advertised by the device.
<b>off-link</b>	When the host sends an IPv6 packet, if the prefix of the destination address matches the set prefix, it is considered that the destination is on-link and is directly reachable. If this option is set, it indicates that the prefix is not used for on-link judgment.
<b>no-autoconfig</b>	Indicates that the RA prefix received by the host cannot be used for auto address configuration.

**Defaults**

By default, the advertised prefix is the one set with **ipv6 address** on the interface. The default parameters of the prefix configured in the RA are as follows:

*valid-lifetime*: 2592000s (30 days)

*preferred-lifetime*: 604800s (7 days),

The prefix is advertised and is used for on-link judgment and auto address configuration.

**Command**

Interface configuration mode.

**Mode****Usage Guide**

This command can be used to configure the parameters of each prefix, including whether to advertise the prefix. By default, the prefix advertised in RA is the one set with **ipv6 address** on the interface. To add other prefixes, use this command.

**ipv6 nd prefix default**

Set the default parameters to be used by the interface. If no parameter is specified for an added prefix, the parameters set with **ipv6 nd prefix default** will be used. Note that after a parameter is specified for the prefix, the default configuration will not be used. That is to say, the configuration of the prefix cannot be modified with **ipv6 nd prefix default**; only the prefix that uses all the default configurations can be modified with this command.

**at valid-date preferred-date**

The valid lifetime of a prefix can be specified in two ways. One way is to specify a fixed time for each prefix in the RA; the other way is to specify the end time (in this mode, the valid lifetime of the prefix sent in RA will be gradually reduced until the end time is 0).



**Configuration** The following example adds a prefix for SVI 1.

**Examples**

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd prefix 2001::/64 infinite 2592000
```

The following example sets the default prefix parameters for SVI 1 (they cannot be used for auto address configuration):

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 prefix default no-autoconfig
```

If no parameter is specified, the default parameters will be used, and the prefix cannot be used for auto address configuration.

Related Commands	Command	Description
	show ipv6 interface	Displays the RA information of an interface.

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

### 3.16 ipv6 nd ra-hoplimit

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

```
ipv6 nd ra-hoplimit value
no ipv6 nd ra-hoplimit
```

Parameter	Parameter	Description
Description	value	Hopcount

**Defaults** The default is 64.

**Command Mode** Interface configuration mode.

**Usage Guide**

**Configuration Examples** The following example sets the hopcount of the RA message to 110 on the interface, GigabitEthernet 0/1.

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd ra-hoplimit 110
```

Related Commands	Command	Description
	show ipv6 interface	Displays the interface information.
	ipv6 nd ra-lifetime	Sets the lifetime of the device.

<b>ipv6 nd ra-interval</b>	Sets the interval of sending the RA message.
<b>ipv6 nd ra-mtu</b>	Sets the MTU of the RA message.

**Platform** N/A

**Description**

### 3.17 ipv6 nd ra-interval

Use this command to set the interval of sending the RA. Use the **no** form of this command to restore the default setting.

**ipv6 nd ra-interval** { *seconds* | **min-max** *min\_value* *max\_value* }

**no ipv6 nd ra-interval**

Parameter	Parameter	Description
<b>Description</b>	<i>seconds</i>	Interval of sending the RA message in seconds, 3-1800s.
	<b>min-max</b>	Maximum and minimum interval sending the RA message in seconds
	<i>min_value</i>	Minimum interval sending the RA message in seconds
	<i>max_value</i>	Maximum interval sending the RA message in seconds

**Defaults** 200s. The actual interval of sending the RA message will be fluctuated 20% based on 200s.

**Command** Interface configuration mode.

**Mode**

**Usage Guide** If the device serves as the default device, the set interval shall not be longer than the lifetime of the device. Besides, to ensure other devices along the link occupies network bandwidth while sending the RA message, the actual interval for sending the RA message will be fluctuated 20% based on the set value.

If the key word **min-max** is specified, the actual interval for sending the packet will be chosen between the range of minimum value and maximum value.

**Configuration** The following example sets the interval of sending the RA to 110 seconds.

**Examples**

```
Ruijie(config-if)# ipv6 nd ra-interval 110
```

The following example sets the interval of sending the RA from 110 to 120 seconds.

```
Ruijie(config-if)# ipv6 nd ra-interval min-max 110 120
```

Related	Command	Description
<b>Commands</b>	<b>show ipv6 interface</b>	Displays the interface information.
	<b>ipv6 nd ra-lifetime</b>	Sets the lifetime of the device.
	<b>ipv6 nd ra-hoplimit</b>	Sets the hopcount of the RA message.
	<b>ipv6 nd ra-mtu</b>	Sets the MTU of the RA message.

**Platform** N/A

**Description**

### 3.18 ipv6 nd ra-lifetime

Use this command to set the device lifetime of the RA sent on the interface. Use the **no** form of this command to restore the default setting.

**ipv6 nd ra-lifetime** *seconds*

**no ipv6 nd ra-lifetime**

Parameter	Parameter	Description
<b>Description</b>	<i>seconds</i>	Default life time of the device on the interface, in the range from 0 to 9000 in the unit of seconds.

**Defaults** The default is 1800.

**Command** Interface configuration mode.

**Mode**

**Usage Guide** The router lifetime field is available in each RA. It specifies the time during which the hosts along the link of the interface can select the device as the default device. If the value is set to 0, the device will not serve as the default device any longer. If it is not set to 0, it shall be larger than or equal to the interval of sending the RA (ra-interval)

**Configuration** The following example sets the device lifetime of the RA sent on the interface to 2,000 seconds.

**Examples**

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd ra-lifetime 2000
```

Related	Command	Description
<b>Commands</b>	<b>show ipv6 interface</b>	Displays the interface information.
	<b>ipv6 nd ra-interval</b>	Sets the interval of sending the RA.
	<b>ipv6 nd ra-hoplimit</b>	Sets the hopcount of the RA.
	<b>ipv6 nd ra-mtu</b>	Sets the MTU of the RA.

**Platform** N/A

**Description**

### 3.19 ipv6 nd ra-mtu

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

**ipv6 nd ra-mtu** *value*

**no ipv6 nd ra-mtu**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>value</i>	MTU value, in the range from 0 to 4294967295.
<b>Defaults</b>	IPv6 MTU value of the network interface.	
<b>Command Mode</b>	Interface configuration mode.	
<b>Usage Guide</b>	If it is specified as 0, the RA will not have the MTU option	
<b>Configuration</b>	The following example sets the MTU of the RA message to 1,400 bytes.	
<b>Examples</b>	<pre>Ruijie(config-if)# ipv6 nd ra-mtu 1400</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show ipv6 interface</b>	Displays the interface information.
	<b>ipv6 nd ra-lifetime</b>	Sets the lifetime of the device.
	<b>ipv6 nd ra-interval</b>	Sets the interval of sending the RA message.
	<b>ipv6 nd ra-hoplimit</b>	Sets the hopcount of the RA message.
<b>Platform</b>	N/A	
<b>Description</b>		

### 3.20 ipv6 nd reachable-time

Use this command to set the reachable time after the interface checks the reachability of the neighbor dynamically learned through NDP. Use the **no** form of this command to restore the default setting.

**ipv6 nd reachable-time** *milliseconds*

**no ipv6 nd reachable-time**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>milliseconds</i>	Reachable time for the neighbor in the range from 0 to 3,600,000 in the unit of milliseconds.
<b>Defaults</b>	The default value in RA is 0 (unspecified); the reachable time for the neighbor is 30000 milliseconds (30 seconds) when the device discovers the neighbor.	
<b>Command Mode</b>	Interface configuration mode.	
<b>Usage Guide</b>	The device checks the unreachable neighbor through the set time. A shorter time means that the device can check the neighbor failure more quickly, but more network bandwidth and device resource will be occupied. Therefore, it is not recommended to set a too short reachable time. The configured value will be advertised through RA and will be used by the device itself. If the value is	

set to 0, it indicates that the time is not specified, that is, the default value is used.

According to RFC4861, the actual time to reach neighbor is not consistent with the configured value, ranging from 0.5\*configured value to 1.5\*configured value.

**Configuration** The following example sets the reachable time to 1,000 seconds.

**Examples**

```
Ruijie(config-if)# ipv6 nd reachable-time 1000000
```

Related	Command	Description
<b>Commands</b>	<b>show ipv6 interface</b>	Displays the interface information.

**Platform** N/A

**Description**

### 3.21 ipv6 nd state-time

Use this command to set the period for the neighbor to maintain the state. Use the **no** form of this command to restore the default setting.

**ipv6 nd stale-time** *seconds*

**no ipv6 nd stale-time**

Parameter	Parameter	Description
<b>Description</b>	<i>Seconds</i>	Sets the period for the neighbor to maintain the state, in the range from 0 to 86400 in the unit of seconds.

**Defaults** The default is 3600.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to set the period for the neighbor to maintain the state. After the period expires, neighbor unreachability detection is performed. The shorter the period, the faster the neighbor is found unreachable. On the other hand, more network bandwidth and device resources are consumed. Therefore, it is recommended to set a value not too small.

**Configuration** The following example sets the period to 600 seconds for the neighbor to maintain the state.

**Examples**

```
Ruijie(config)# ipv6 nd stale-time 600
```

Related	Command	Description
<b>Commands</b>	N/A	N/A

**Platform** N/A

**Description**

## 3.22 ipv6 nd suppress-ra

Use this command to disable the interface from sending the RA message. Use the **no** form of this command to enable the function.

**ipv6 nd suppress-ra**

**no ipv6 nd suppress-ra**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The **ipv6 nd suppress-ra** command is enabled by default.

**Command** Interface configuration mode.

**Mode**

**Usage Guide**

**Configuration** The following example disables the interface from sending the RA message.

**Examples**

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd suppress-ra
```

Related	Command	Description
Commands	<b>show ipv6 interface</b>	Displays the interface information.

**Platform** N/A

**Description**

## 3.23 ipv6 nd unresolved

Use this command to set the maximum number of the unresolved neighbor table entries. Use the **no** form of this command to restore the default setting.

**ipv6 nd unresolved *number***

**no ipv6 nd unresolved**

Parameter	Parameter	Description
Description	<i>number</i>	Sets the maximum number of the unresolved neighbor table entries, in the range from 1 to the neighbor table size supported by the device.

**Defaults** The default is 0. (The maximum number is the neighbor table size supported by the device)

**Command** Global configuration mode

**Mode**

**Usage Guide** This command is used to prevent unresolved ND table entries generated by malicious scan attacks

from consuming table entry resources,

**Configuration** The following example sets the maximum number of the unresolved neighbor table entries to 200.

**Examples** Ruijie(config)# ipv6 nd unresolved 200

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.24 ipv6 neighbor

Use this command to configure a static neighbor. Use the **no** form of this command to delete a static neighbor.

**ipv6 neighbor** *ipv6-address interface-id hardware-address*

**no ipv6 neighbor** *ipv6-address interface-id*

Parameter	Parameter	Description
<b>Description</b>	<i>ipv6-address</i>	The neighbor IPv6 address, in the form as defined in RFC4291.
	<i>interface-id</i>	Specifies the network interface where the neighbor is (including Router Port, L3 AP port and SVI interface).
	<i>hardware-address</i>	The 48-bit MAC address, a dotted triple of four-digit hexadecimal numbers.

**Defaults** No static neighbor is configured by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** This command can only be configured on the interface enabled with IPv6 protocol, similar to the ARP command.

If the neighbor to be configured has been learned through Neighbor Discovery Protocol (NDP) and stored in the NDP neighbor table, the dynamic neighbor turns to be static. If the static neighbor is valid, it is always reachable. An invalid static neighbor refers to the neighbor whose IPv6 address is not valid (not in the IPv6 network segment configured for the interface or interface address conflict). The packet is not forwarded to the MAC address as specified by the invalid static neighbor. The invalid static neighbor is in inactive state. Use the show ipv6 neighbor static command to display the state of the static neighbor.

Use the **clear ipv6 neighbors** command to clear all neighbors learned dynamically through NDP.

**Configuration** The following example configures a static neighbor on SVI 1.

**Examples** `Ruijie(config)# ipv6 neighbor 2001::1 vlan 1 00d0.f811.1111`

Related Commands	Command	Description
	N/A	N/A

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

### 3.25 ipv6 ns-linklocal-src

Use this command to set the local address of the link as the source IP address to send neighbor requests. Use the **no** form of this command to use the global IP address as the source address to send neighbor requests.

**ipv6 ns-linklocal-src**  
**no ipv6 ns-linklocal-src**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The local address of the link is always used as the source address to send neighbor requests.

**Command Mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example uses the global IP address as the source address to send neighbor requests.

`Ruijie(config)# no ipv6 ns-linklocal-src`

Related Commands	Command	Description
	N/A	N/A

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

### 3.26 ipv6 redirects

Use this command to control whether to send ICMPv6 redirect message when the switch receives and forwards an IPv6 packet through an interface. Use the **no** form of this command to restore the default setting.

**ipv6 redirects**  
**no ipv6 redirects**



Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is enabled by default.

**Command Mode** Interface configuration mode.

**Usage Guide** The transmission rate of any ICMPv6 error message is limited. By default, it is 10pps.

**Configuration Examples** The following example enables ICMPv6 redirection on interface GigabitEthernet 0/1.

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 redirects
```

Related Commands	Command	Description
	<b>show ipv6 interface</b>	Displays the interface information.

**Platform Description** N/A

### 3.27 ipv6 source-route

Use this command to forward the IPv6 packet with route header. Use the **no** form of this command to restore the default setting.

**ipv6 source-route**

**no ipv6 source-route**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The **ipv6 source-route** command is disabled by default.

**Command Mode** Global configuration mode.

**Usage Guide** Because of the potential security of the header of type 0 route, it's easy for the device to suffer from the denial service attack. Therefore, forwarding the IPv6 packet with route header is disabled by default. However, the IPv6 packet of route header with type 0 that destined to the local machine is processed.

**Configuration Examples** The following example forwards the IPv6 packet with route header.

```
Ruijie(config)# no ipv6 source-route
```

Related	Command	Description
---------	---------	-------------

<b>Commands</b>	N/A	N/A
-----------------	-----	-----

**Platform** N/A

**Description**

### 3.28 show ipv6 address

Use this command to display the IPv6 addresses.

**show ipv6 address** [ *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-name</i>	Interface name

**Defaults** N/A

**Command** Privileged EXEC mode.

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays all IPv6 address configured on the device.

#### Examples

```
Ruijie#show ipv6 address
Global unicast address limit: 1024, Global unicast address count: 3
Tentative address count: 2,Duplicate address count: 1
Preferred address count: 3,Deprecated address count: 0
Gi 0/5
  FE80::1/64                               Preferred
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
  1000::1/64                               Duplicate
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
Gi 0/6
  FE80::1/64                               Tentative
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
  1111:1111:1111:1111:1111:1111:1111:1111/64 Tentative
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
Gi 0/7
  FE80::1/64                               Preferred
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
  2000:1111:1111:1111:1111:1111:1111:1111/64 Preferred
    Preferred lifetime: INFINITE, Valid lifetime: INFINITE
```

The following example displays the IPv6 address configured on the GigabitEthernet 0/1.

```
Ruijie#show ipv6 address Gi 0/5
Global unicast address count: 3
Tentative address count: 0,Duplicate address count: 1
Preferred address count: 1,Deprecated address count: 0
FE80::1/64 Preferred
Preferred lifetime: INFINITE, Valid lifetime: INFINITE
1000::1/64 Duplicate
Preferred lifetime: INFINITE, Valid lifetime: INFINITE
```

Related	Command	Description
Commands	N/A	N/A

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

### 3.29 show ipv6 general-prefix

Use this command to display the information of the general prefix.

**show ipv6 general-prefix**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** Use this command to display the information of the general prefix including the manually configured and learned from the DHCPv6 agent.

**Configuration Examples**

```
The following example displays the information of the general prefix.
Ruijie#
show ipv6 general-prefix
There is 1 general prefix.
IPv6 general prefix my-prefix, acquired via Manual configuration
2001:1111:2222::/48
2001:1111:3333::/48
```

Related	Command	Description
Commands	ipv6 general-prefix	Configures the general prefix.

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

### 3.30 show ipv6 interface

Use this command to display the IPv6 interface information.

**show ipv6 interface** [ *interface-id* ] [ **ra-info** ] [ *brief* [ *interface-id* ] ]

Parameter	Parameter	Description
Description	<i>interface-id</i>	Interface (including Ethernet interface, aggregate port, or SVI)
	<b>ra-info</b>	Displays the RA information of the interface.
	<i>brief</i>	Displays the brief information of the interface (interface status and address information).

**Defaults** N/A

**Command**

**Mode**

**Usage Guide** Use this command to display the address configuration, ND configuration and other information of an IPv6 interface.

**Configuration** The following example displays the information of the IPv6 interface.

**Examples**

```
Ruijie# show ipv6 interface vlan 1
Interface vlan 1 is Up, ifindex: 2001
address(es):
Mac Address: 00:00:00:00:00:01
INET6: fe80::200:ff:fe00:1 , subnet is fe80::/64
Joined group address(es):
ff01:1::1
ff02:1::1
ff02:1::2
ff02:1::1:ff00:1
INET6: 2001::1 , subnet is 2001::/64 [TENTATIVE]
Joined group address(es):
ff01:1::1
ff02:1::1
ff02:1::2
ff02:1::1:ff00:1
MTU is 1500 bytes
ICMP error messages limited to one every 10 milliseconds
ICMP redirects are enabled
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 milliseconds
ND retransmit interval is 1000 milliseconds
ND advertised retransmit interval is 0 milliseconds
```

```
ND router advertisements are sent every 200 seconds<240--160>
ND device advertisements live for 1800 seconds
```

The following line is included in the above information: 2001::1, subnet is 2001::/64 [TENTATIVE].  
The flag bit in the [ ] following the INET6 address is explained as follows:

Flag	Meaning
ANYCAST	Indicate that the address is an anycast address.
TENTATIVE	Indicate that the DAD is underway. The address is a tentative before the DAD is completed.
DUPLICATED	Indicate that a duplicate address exists.
DEPRECATED	Indicate that the preferred lifetime of the address expires.
NODAD	Indicate that no DAD is implemented for the address.
AUTOIFID	Indicate that the interface ID of the address is automatically generated by the system, which is usually an EUI-64 ID.
PRE	Indicates the address automatically generated.
GEN	Indicates the address using the general prefix.

```
The following example displays the RA information of the IPv6 interface. Ruijie#
show ipv6 interface vlan 1 ra-info
vlan 1: DOWN
RA timer is stopped
waits: 0, initcount: 3
statistics: RA(out/in/inconsistent): 4/0/0, RS(input): 0
Link-layer address: 00:00:00:00:00:01
Physical MTU: 1500
ND device advertisements live for 1800 seconds
ND device advertisements are sent every 200 seconds<240--160>
Flags: !M!O, Adv MTU: 1500
ND advertised reachable time is 0 milliseconds
ND advertised retransmit time is 0 milliseconds
ND advertised CurHopLimit is 64
Prefixes: (total: 1)
fec0:1:1:1::/64(Def,Auto,vltime: 2592000, pltime: 604800, flags: LA)
```

Description of the fields in **ra-info**:

Field	Meaning
RA timer is stopped (on)	Indicate whether the RA timer is started.
waits	Indicate that the RS is received but the number of the responses is not available.
initcount	Indicate the number of the RAs when the RA timer is restarted.

RA(out/in/ inconsistent)	out: Indicate the number of the RAs that are sent. In: Indicate the number of the RAs that are received. inconsistent: Indicate the number of the received RAs in which the parameters are different from those contained in the RAs advertised by the device.
RS(input)	Indicate the number of the RSs that are received.
Link-layer address	Link-layer address of the interface.
Physical MTU	Link MTU of the interface.
!M   M	!M indicates the managed-config-flag bit in the RA is not set. M: Conversely
!O   O	!O indicates the other-config-flag bit in the RA is not set. O: Conversely

Description of the fields of the prefix list in **ra-info**:

Field	Meaning
total	The number of the prefixes of the interface.
fec0:1:1:1::/64	A specific prefix.
Def	Indicate that the interfaces use the default prefix.
Auto   CFG	Auto: Indicate the prefix is automatically generated after the interface is configured with the corresponding IPv6 address. CFG: Indicate that the prefix is manually configured.
!Adv	Indicate that the prefix will not be advertised.
vlttime	Valid lifetime of the prefix, measured in seconds.
pltime	Preferred lifetime of the prefix, measured in seconds.
L   !L	L: Indicate that the on-link in the prefix is set. !L: Indicate that the on-link in the prefix is not set.
A   !A	A: Indicate that the auto-configure in the prefix is set. !A: It indicates that the auto-configure in the prefix is not set.

The following example displays the brief information of the IPv6 interface.

```
Ruijie#show ipv6 interface brief
GigabitEthernet 0/1          [down/down]
    2222::2
    FE80::1614:4BFF:FE5C:ED3A
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description**  
N/A

### 3.31 show ipv6 neighbors

Use this command to display the IPv6 neighbors.

**show ipv6 neighbors [ verbose ] [ interface-id ] [ ipv6-address ] [ static ] [ oob ]**

Parameter	Parameter	Description
Description	<b>verbose</b>	Displays the neighbor details.
	<i>interface-id</i>	Displays the neighbors of the specified interface.
	<i>ipv6-address</i>	Displays the neighbors of the specified IPv6 address.
	<b>static</b>	Displays the validity status of static neighbors.
	<b>oob</b>	Displays IPv6 neighbors learned on the MGMT interface.

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

#### Usage Guide

**Configuration** The following example displays the neighbors on the SVI 1 interface:

#### Examples

```
Ruijie# show ipv6 neighbors vlan 1
IPv6 Address Linklayer Addr Interface
fa::1 00d0.0000.0002 vlan 1
fe80::200:ff:fe00:2 00d0.0000.0002 vlan 1
```

Show the neighbor details:

```
Ruijie# show ipv6 neighbors verbose
IPv6 Address Linklayer Addr Interface
2001::1 00d0.f800.0001 vlan 1
State: Reach/H Age: - asked: 0
fe80::200:ff:fe00:1 00d0.f800.0001 vlan 1
State: Reach/H Age: - asked: 0
```

Field	Meaning
IPv6 Address	IPv6 address of the Neighbor
Linklayer Addr	Link address, namely, MAC address. If it is not available, incomplete is displayed.
Interface	Interface the neighbor locates.
State	State of the neighbor: state/H(R) The values of STATE are as below: INCMP (Incomplete): The address resolution of the neighbor is underway, the NS is sent, but the NA is not received.

	<p>REACH (Reachable): The switch is connected with the neighbor. In this state, the switch takes no additional action when sending packets to the neighbor.</p> <p>STALE: The reachable time of the neighbor expires. In this state, the switch takes no additional action; it only starts NUD (Neighbor Unreachability Detection) after a packet is sent to the neighbor.</p> <p>DELAY: A packet is sent to the neighbor in STALE state. If the STALE state changes to DELAY, DELAY will be changed to PROBE if no neighbor reachability notification is received within DELAY_FIRST_PROBE_TIME seconds (5s), the NS will be sent to the neighbor to start NUD.</p> <p>PROBE: The NUD is started to check the reachability of the neighbor. The NS packets are sent to the neighbor at the interval of RetransTimer milliseconds until the response from the neighbor is received or the number of the sent NSs hits MAX_UNICAST_SOLICIT(3).</p> <p>?: Unknown state.</p> <p>/R—indicate the neighbor is considered as a device</p> <p>/H: The neighbor is a host.</p>
Age	<p>The reachable time of the neighbor. '-' indicates that the neighbor is always reachable. Note that the reachability of a static neighbor depends on the actual situation. 'expired' indicates that the lifetime of the neighbor expires, and the neighbor is waits for the triggering of NUD.</p>
Asked	<p>The number of the NSs that are sent to the neighbor for the resolution of the link address of the neighbor.</p>

The following example displays status of static neighbors.

```
Ruijie# show ipv6 neighbors static
IPv6 Address      Linklayer Addr  Interface          State
2001:1::1         00d0.f822.33ab  GigabitEthernet 0/14  ACTIVE
2001:2::2         00d0.f822.33ac  VLAN 1             INACTIVE
```

Field	Meaning
IPv6 Address	IPv6 addresses of the static neighbors
Linklayer Addr	Link addresses, namely, MAC addresses.
Interface	Interfaces the neighbors locate.
State	<p>States of the static neighbors:</p> <p>The values of STATE are as below:</p> <p>ACTIVE</p> <p>INACTIVE</p>

Related	Command	Description
---------	---------	-------------



<b>Commands</b>	<b>ipv6 neighbor</b>	Configures a neighbor.
-----------------	----------------------	------------------------

**Platform** N/A

**Description**

### 3.32 show ipv6 neighbors statistics

Use the following commands to display the statistics of one IPv6 neighbors.

**show ipv6 neighbors statistics**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command** Privileged EXEC mode.

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays the statistics of the global neighbors.

**Examples**

```
Ruijie#show ipv6 neighbor statistics

Memory: 0 bytes
Entries: 0
  Static: 0,Dynamic: 0,Local: 0
  Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0
Ruijie#
```

The following example displays the statistics of all neighbors.

```
Ruijie#show ipv6 neighbor statistics all

IPv6 neighbor table count: 1
Static neighbor count: 0(0 active, 0 inactive)
Total
Memory: 0 bytes
Entries: 0
  Static: 0,Dynamic: 0,Local: 0
  Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0;

Global
Memory: 0 bytes
Entries: 0
  Static: 0,Dynamic: 0,Local: 0
```

```
Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0;
Ruijie#
```

Related Commands	Command	Description
	N/A	N/A

**Platform**  
**Description**

### 3.33 show ipv6 packet statistics

Use this command to display the statistics of IPv6 packets.

**show ipv6 packet statistics** [ **total** | *interface-name* ]

Parameter	Parameter	Description
<b>Description</b>	<b>total</b>	Displays total statistics of all interfaces.
	<i>interface-name</i>	Interface name

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A

**Configuration Examples** The following example displays the total statistics of the Ipv6 packets and the statistics of each interface.

```

Ruijie#show ipv6 packet statistics
Total
  Received 1000 packets, 1000000 bytes
    Unicast:1000,Multicast:0
  Discards:0
    HdrErrors:0(HoplimitExceeded:0,Others:0)
    NoRoutes:0
    Others:0
  Sent 100 packets, 6000 bytes
    Unicast:50,Multicast:50

VLAN 1
  Received 1000 packets, 1000000 bytes
    Unicast:1000,Multicast:0
  Discards:0
    HdrErrors:0(HoplimitExceeded:0,Others:0)
    NoRoutes:0
    Others:0
  Sent 100 packets, 6000 bytes
    Unicast:50,Multicast:50

```

The following example displays the total statistics of the Ipv6 packets.

```

Ruijie#show ipv6 packet statistics total
Received 1000 packets, 1000000 bytes
  Unicast:1000,Multicast:0
Discards:0
  HdrErrors:0(HoplimitExceeded:0,Others:0)
  NoRoutes:0
  Others:0
Sent 100 packets, 6000 bytes
  Unicast:50,Multicast:50

```

Related	Command	Description
Commands	N/A	N/A

**Platform**  
**Description**

### 3.34 show ipv6 raw-socket

Use this command to display all IPv6 raw sockets.

```
show ipv6 raw-socket [ num ]
```

Parameter	Parameter	Description
Description	<i>num</i>	Protocol.

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A

**Configuration** The following example displays all IPv6 raw sockets.

**Examples**

```
Ruijie# show ipv6 raw-socket
Number Protocol Process name
1      ICMPv6   vrrp.elf
2      ICMPv6   tcpip.elf
3      VRRP     vrrp.elf
Total: 3
```

Field	Description
Number	Number.
Protocol	Protocol.
Process name	Process number.
Total	Total number of IPv6 raw sockets.

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 3.35 show ipv6 sockets

Use this command to display all IPv6 sockets.

**show ipv6 sockets**

**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 all IPv6 sockets.

**Examples**

```
Ruijie# show ipv6 sockets
Number Process name      Type  Protocol  LocalIP:Port  ForeignIP:Port  State
1      vrrp.elf          RAW   ICMPv6    :::58         :::0            *
2      tcpip.elf         RAW   ICMPv6    :::58         :::0            *
```

3	vrrp.elf	RAW	VRRP	:::112	:::0	*
4	rg-snmpd	DGRAM	UDP	:::161	:::0	*
5	rg-snmpd	DGRAM	UDP	:::162	:::0	*
6	dhcp6.elf	DGRAM	UDP	:::547	:::0	*
7	rg-sshd	STREAM	TCP	:::22	:::0	LISTEN
8	rg-telnetd	STREAM	TCP	:::23	:::0	LISTEN
Total: 8						

Field	Description
Number	Number.
Process name	Process name.
Type	Socket type. RAW indicates the raw socket. DGRAM indicates data packet type. STREAM indicates traffic type.
Protocol	Protocol number
LocalIP:Port	Local IPv6 address and port.
ForeignIP:Port	Peer IPv6 address and port.
State	State (for IPv6 TCP sockets).
Total	Total number of sockets.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.36 show ipv6 udp

Use this command to display all IPv6 UDP sockets.

**show ipv6 udp [ local-port *num* ] [ peer-port *num* ]**

Use this command to display IPv6 UDP socket statistics.

**show ipv6 udp statistics**

Parameter	Parameter	Description
<b>Description</b>	<b>local-port <i>num</i></b>	Local port number.
	<b>peer-port <i>num</i></b>	Peer port number.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays all IPv6 UDP sockets.

**Examples**

```
Ruijie# show ipv6 udp
Number Local Address Peer Address Process name
1      :::161          :::0          rg-snmpd
2      :::162          :::0          rg-snmpd
3      :::547          :::0          dhcp6.elf
```

Filed	Description
Number	Number.
Local Address	Local IPv6 address and port.
Peer Address	Peer IPv6 address and port.
Process name	Process name.

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 4 DHCP Commands

### 4.1 address range

Use this command to specify the network segment range of the addresses that can be allocated by CLASS associated with DHCP address pool. Use the **no** form of this command to restore the default setting.

**address range** *low-ip-address high-ip-address*

**no address range**

Parameter	Parameter	Description
Description	<i>low-ip-address</i>	Start address in the network segment range.
	<i>high-ip-address</i>	End address in the network segment range.

**Defaults** By default, the associated CLASS is not configured with the network segment range. The default is the address pool range.

**Command Mode** Address pool CLASS configuration mode.

**Usage Guide** Each CLASS corresponds to one network range which must be from low address to high address, so as to allow the duplication of network segment range between multiple CLASSES. If the CLASS associated with the address pool is specified without configuring the corresponding network segment range, the default network segment range of this CLASS is same as the range of the address pool where this CLASS is.

**Configuration Examples** The following example configures the network segment of class1 associated with address pool mypool0 ranging from 172.16.1.1 to 172.16.1.8.

```
Ruijie(config)# ip dhcp pool mypool0
Ruijie(dhcp-config)# class class1
Ruijie (config-dhcp-pool-class)# address range 172.16.1.1 172.16.1.8
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.
	<b>class</b>	Configures the CLASS associated with the DHCP address pool and enters the address pool CLASS configuration mode.

**Platform Description** N/A

## 4.2 address-manage

Use this command to enter the AM rule configuration mode.

**address-manage**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** This command is configured on the DHCP server and used in combination with Super VLAN.

**Configuration Examples** The following example enters the AM rule configuration mode.

```
Ruijie (config) #address-manage
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.3 bootfile

Use this command to define the startup mapping file name of the DHCP client. Use the **no** or **default** form of this command to restore the default setting.

**bootfile** *file-name*

**no bootfile**

**default bootfile**

Parameter	Parameter	Description
Description	<i>file-name</i>	Startup file name.

**Defaults** No startup file name is defined by default.

**Command Mode** DHCP address pool configuration mode

**Usage Guide** Some DHCP clients need to download the operating system and configure the file during the startup. The DHCP server should provide the mapping file name required for the startup, so that DHCP clients



can download the file from the corresponding server (such as TFTP). Other servers are defined by the **next-server** command.

**Configuration** The following example defines the device.conf as the startup file name.

**Examples** `bootfile device.conf`

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enter the DHCP address pool configuration mode.
	<b>next-server</b>	Configures the next server IP address of the DHCP client startup process.

**Platform** N/A

**Description**

## 4.4 class

Use this command to configure the associated CLASS in the DHCP address pool. Use the **no** form of this command to restore the default setting.

**class** *class-name*

**no class**

Parameter Description	Parameter	Description
	<i>class-name</i>	Class name, which can be the character string or numeric such as myclass or 1.

**Defaults** By default, no CLASS is associated with the address pool.

**Command** DHCP address pool configuration mode

**Mode**

**Usage Guide** Each DHCP address pool performs the address assignment according to the Option82 matching information. We can divide this Option82 information into classes and specify the available network segment range for these classes in the DHCP address pool. These classes are called CLASS. One DHCP address pool can map to multiple CLASSES, and each CLASS can specify different network segment range.

During the address assignment, firstly, ensure the assignable address pool through the network segment where the client is, then according to the Option82 information further ensure the CLASS and assign the IP address from the network segment range corresponding to the CLASS. If one request packet matches multiple CLASSES in the address pool, perform the address assignment according to the sequencing of configuring the CLASS in the address pool. If this CLASS's assigned addresses have been to the upper limit, then continue to assign the address from the next CLASS, and so on. Each CLASS corresponds to one network segment range that must be from low addresses to high addresses and the duplicated network ranges between multiple CLASSES are allowed. If the CLASS corresponding to the address pool is specified and the network segment corresponding to the CLASS is not configured, this CLASS's default network segment range is same

as the range of address pool where the CLASS is.

**Configuration** The following example configures the address *mypool0* to associate with class1.

**Examples**

```
Ruijie(config)# ip dhcp pool mypool0
Ruijie(dhcp-config)# class class1
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.5 clear ip dhcp binding

Use this command to clear the DHCP binding table in the privileged user mode.

**clear ip dhcp binding** { \* | *ip-address* }

Parameter	Parameter	Description
<b>Description</b>	*	Deletes all DHCP bindings.
	<i>ip-address</i>	Deletes the binding of the specified IP addresses.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** This command can only clear the automatic DHCP binding, but the manual DHCP binding can be deleted by the **no ip dhcp pool** command.

**Configuration** The following example clears the DHCP binding with the IP address 192.168.12.100.

**Examples**

```
clear ip dhcp binding 192.168.12.100
```

Related Commands	Command	Description
	<b>show ip dhcp binding</b>	Displays the address binding of the DHCP server.

**Platform** N/A

**Description**

## 4.6 clear ip dhcp conflict

Use this command to clear the DHCP address conflict record.

**clear ip dhcp conflict** { \* | *ip-address* }

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	*	Deletes all DHCP address conflict records.
	<i>ip-address</i>	Deletes the conflict record of the specified IP addresses.
<b>Defaults</b>	N/A.	
<b>Command Mode</b>	Privileged EXEC mode.	
<b>Usage Guide</b>	The DHCP server uses the ping session to detect the address conflict, while the DHCP client uses the address resolution protocol (ARP) to detect the address conflict. The <b>clear ip dhcp conflict</b> command can be used to delete the history conflict record.	
<b>Configuration Examples</b>	The following example clears all address conflict records.	
<b>Examples</b>	<pre>clear ip dhcp conflict *</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip dhcp ping packets</b>	Defines the number of the data packets sent by the ping operation for the detection of the address conflict when the DHCP server assigns an IP address.
	<b>show ip dhcp conflict</b>	Displays the address conflict that the DHCP server detects when it assigns an IP address.
<b>Platform Description</b>	N/A	

## 4.7 clear ip dhcp history

Use this command to clear the address assigned by the DHCP server.

**clear ip dhcp history**{ \* | *mac-address* }

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	*	Clears all addresses assigned by the DHCP server.
	<i>mac-address</i>	Clears the address assigned by the DHCP server corresponding to the specified MAC address.
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	This command is configured on the DHCP server.	

**Configuration** The following example clears all addresses assigned by the DHCP server.

**Examples**

```
Ruijie# clear ip dhcp history *
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.8 clear ip dhcp server detect

Use this command to clear statistics about the fake DHCP server.

**clear ip dhcp server detect** { \* | *ip-address* }

Parameter	Parameter	Description
<b>Description</b>	*	Clears statistics about all fake DHCP servers.
	<i>ip-address</i>	Clears statistics about the specified fake DHCP server.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** The detected fake DHCP server addresses are saved on the server. You can use the **clear ip dhcp server detect** command to clear statistics about the fake DHCP server.

**Configuration** The following example clears statistics about all fake DHCP servers.

**Examples**

```
Ruijie# clear ip dhcp server detect *
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.9 clear ip dhcp server rate

Use this command to clear statistics about the packet processing rate of every module.

**clear ip dhcp server rate**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** This command is used to clear statistics about the packet processing rate of every module, including arp, hot backup, lsm, and socket.

**Configuration** The following example clears statistics about the packet processing rate of every module.

**Examples**

```
Ruijie# clear ip dhcp server rate
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.10 clear ip dhcp server statistics

Use this command to reset the counter of the DHCP server in the privileged user mode.

**clear ip dhcp server statistics**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** The DHCP server carries out the statistics counter, records the DHCP address pool, automatic binding, manual binding and expired binding. Furthermore, it also carries out the statistics to the number of sent and received DHCP messages. The **clear ip dhcp server statistics** command can be used to delete the history counter record and carry out the statistics starting from scratch.

**Configuration** The following example clears the statistics record of the DHCP server.

**Examples**

```
clear ip dhcp server statistics
```

Related Commands	Command	Description
	<b>show ip dhcp server statistics</b>	Displays the statistics record of the DHCP server.

**Platform** N/A

**Description**

### 4.11 clear ip dhcp relay statistics

Use this command to clear the DHCP relay statistics.

**clear ip dhcp relay statistics**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** The DHCP relay is configured with the counter to count various packets received or transmitted by the relay. This command is used to clear the counters.

**Configuration** The following example clears the DHCP relay statistics.

**Examples** Ruijie# clear ip dhcp relay statistics

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 4.12 client-identifier

Use this command to define the unique ID of the DHCP client (indicated in hex, separated by dot) in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**client-identifier** *unique-identifier*

**no client-identifier**

**default client-identifier**

Parameter	Parameter	Description
Description	<i>unique-identifier</i>	The DHCP client ID is indicated in hex and separated by dot, for instance, 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31.

**Defaults** N/A.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** When some DHCP clients request the DHCP server to assign IP addresses, they use their client IDs rather than their hardware addresses. The client ID consists of media type, MAC addresses and interface name. For instance, the MAC address is 00d0.f822.33b4, the interface name is GigabitEthernet 0/1, and the corresponding client ID is 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31, where, 01 denotes the type of the Ethernet media. The 67.6967.6162.6974.4574.6865.726e.6574.302f.31 is the hex code of GigabitEthernet0/1. For the definition of the media code, refer to the Address Resolution Protocol Parameters section in RFC1700. This command is used only when the DHCP is defined by manual binding.

**Configuration Examples** The following example defines the client ID of the Ethernet DHCP client whose MAC address is 00d0.f822.33b4.

```
client-identifier
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31
```

**Related Commands**

Command	Description
<b>hardware-address</b>	Defines the hardware address of DHCP client.
<b>host</b>	Defines the IP address and network mask, which is used to configure the DHCP manual binding.
<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

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

### 4.13 client-name

Use this command to define the name of the DHCP client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

- client-name** *client-name*
- no client-name**
- default client-name**

**Parameter Description**

Parameter	Description
client-name	Name of DHCP client, a set of standards-based ASCII characters. The name should not include the suffix domain name. For instance, you can define the name of the DHCP client as river, not river.i-net.com.cn.

**Defaults** No client name is defined by default.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** This command can be used to define the name of the DHCP client only when the DHCP is defined by manual binding. This name should not include the suffix domain name.

**Configuration** The following example defines a string river as the name of the client.

**Examples**

```
Ruijie(dhcp-config)# client-name river
```

**Related  
Commands**

Command	Description
<b>host</b>	Defines the IP address and network mask, which is used to configure the DHCP manual binding.
<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.14 default-router

Use this command to define the default gateway of the DHCP client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**default-router** *ip-address* [ *ip-address2*...*ip-address8* ]

**no default-router**

**default default-route**

**Parameter  
Description**

Parameter	Description
<i>ip-address</i>	Defines the IP address of the equipment. It is required to configure one IP address at least.
<i>ip-address2</i> ... <i>ip-address8</i>	(Optional) Up to 8 gateways can be configured.

**Defaults** No gateway is defined by default.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** In general, the DHCP client should get the information of the default gateway from the DHCP server. The DHCP server should specify one gateway address for the client at least, and this address should be of the same network segment as the address assigned to the client.

**Configuration** The following example defines 192.168.12.1 as the default gateway.

**Examples**

```
default-router 192.168.12.1
```



Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

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

## 4.15 dns-server

Use this command to define the DNS server of the DHCP client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**dns-server** { *ip-address* [ *ip-address2*...*ip-address8* ]  
**no dns-server**  
**default dns-server**

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	Defines the IP address of the DNS server. At least one IP address should be configured.
	<i>ip-address2</i> ... <i>ip-address8</i>	(Optional) Up to 8 DNS servers can be configured.

**Defaults** No DNS server is defined by default.

**Command Mode** DHCP address pool configuration mode.

**Usage Guide** When more than one DNS server is defined, the former will possess higher priority, so the DHCP client will select the next DNS server only when its communication with the former DNS server fails. If the RGOS software also acts as the DHCP client, the DNS server information obtained by the client can be transmitted to the DHCP client.

**Configuration Examples** The following example specifies the DNS server 192.168.12.3 for the DHCP client.

```
dns-server 192.168.12.3
```

Related Commands	Command	Description
	<b>domain-name</b>	Defines the suffix domain name of the DHCP client.
	<b>ip address dhcp</b>	Enables the DHCP client on the interface to obtain the IP address information.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

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

## 4.16 domain-name

Use this command to define the suffix domain name of the DHCP client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**domain-name** *domain-name*

**no domain-name**

**default domain-name**

Parameter	Parameter	Description
Description	<i>domain-name</i>	Defines the suffix domain name string of the DHCP client.

**Defaults** No suffix domain name by default.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** After the DHCP client obtains specified suffix domain name, it can access a host with the same suffix domain name by the host name directly.

**Configuration** The following example defines the suffix domain name i-net.com.cn for the DHCP client.

**Examples**

```
Ruijie(dhcp-config)#domain-name ruijie.com.cn
```

Related	Command	Description
Commands	<b>dns-server</b>	Defines the DNS server of the DHCP client.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enter the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.17 dynamic-pool

Use this command to enable the fit AP to calculate the network number and mask of the dynamic DHCP address pool according to the MAC address. Use the **no** form of this command to remove the setting.

**dynamic-pool**

**no dynamic-pool**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command** ap-config/ap-group mode  
**Mode**

**Usage Guide** This command is configured on the server of the AC.

**Configuration Examples** The following example enables the fit AP to calculate the network number and mask of the dynamic DHCP address pool according to the MAC address

```
Ruijie(config-group) # dynamic-pool
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.18 hardware-address

Use this command to define the hardware address of the DHCP client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

- hardware-address** *hardware-address* [ *type* ]
- no hardware-address**
- default hardware-address**

Parameter Description	Parameter	Description
	<i>hardware-address</i>	Define the MAC address of the DHCP client.
	<i>type</i>	To indicate the hardware platform protocol of the DHCP client, use the string definition or digits definition. String option: Ethernet ieee802 Digits option: 1 (10M Ethernet) 6 (IEEE 802)

**Defaults** No hardware address is defined by default.  
 If there is no option when the hardware address is defined, it is the Ethernet by default.

**Command Mode** DHCP address pool configuration mode.

**Usage Guide** This command can be used only when the DHCP is defined by manual binding.

**Configuration Examples** The following example defines the MAC address 00d0.f838.bf3d with the type ethernet.

```
hardware-address 00d0.f838.bf3d
```

Related Commands	Command	Description
	<b>client-identifier</b>	Defines the unique ID of the DHCP client (Indicated by the hexadecimal numeral, separated by dot).
	<b>host</b>	Defines the IP address and network mask, which is used to configure the DHCP manual binding.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enter the DHCP address pool configuration mode.
	<b>default-router</b>	Defines the default route of the DHCP client.

**Platform** N/A

**Description**

## 4.19 host

Use this command to define the IP address and network mask of the DHCP client host in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**host** *ip-address* [*netmask*]

**no host**

**default host**

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	Defines the IP address of DHCP client.
	<i>netmask</i>	Defines the network mask of DHCP client.

**Defaults** No IP address or network mask of the host is defined.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** If the network mask is not defined definitely, the DHCP server will use the natural network mask of this IP address: 255.0.0.0 for class A IP address, 255.255.0 for class B IP address, and 255.255.255.0 for class C IP address.

This command can be used only when the DHCP is defined by manual binding.

**Configuration Examples** The following example sets the client IP address as 192.168.12.91, and the network mask as 255.255.255.240.

```
host 192.168.12.91 255.255.255.240
```

Related Commands	Command	Description
	<b>client-identifier</b>	Defines the unique ID of the DHCP client (Indicated in hex and separated by dot).

<b>default-router</b>	<b>hardware-address</b>	Defines the hardware address of DHCP client.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.
	Define the default route of the DHCP client.	<b>default-router</b>

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

## 4.20 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**  
**default ip address dhcp**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** The interface cannot obtain the IP address by the DHCP by default.

**Command** Interface configuration mode.  
**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** 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	Command	Description
<b>Commands</b>	<b>dns-server</b>	Defines the DNS server of DHCP client.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.21 ip dhcp class

Use this command to define a CLASS and enter the global CLASS configuration mode. Use the **no** form of this command to restore the default setting.

**ip dhcp class** *class-name*

**no ip dhcp class** *class-name*

Parameter	Parameter	Description
<b>Description</b>	<i>class-name</i>	Class name, which can be character string or numeric such as myclass or 1.

**Defaults** By default, the class is not configured.

**Command** Global configuration mode.

**Mode**

**Usage Guide** After executing this command, it enters the global CLASS configuration mode which is shown as "Ruijie (config-dhcp-class)#". In this configuration mode, user can configure the Option82 information that matches the CLASS and the CLASS identification information.

**Configuration** The following example configures a global CLASS.

**Examples**

```
Ruijie(config)# ip dhcp class myclass
```

Related	Command	Description
<b>Commands</b>	N/A	N/A

**Platform** N/A

**Description**

## 4.22 ip dhcp excluded-address

Use this command to define some IP addresses and make the DHCP server not assign them to the DHCP client in the global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**ip dhcp excluded-address** *low-ip-address* [*high-ip-address*]

**no ip dhcp excluded-address** *low-ip-address* [*high-ip-address*]

**default ip dhcp excluded-address** *low-ip-address* [*high-ip-address*]

Parameter	Parameter	Description
<b>Description</b>	<i>low-ip-address</i>	Excludes the IP address, or excludes the start IP address within the range of the IP address.

<i>high-ip-address</i>	Excludes the end IP address within the range of the IP address.
------------------------	---

**Defaults** The DHCP server assigns the IP addresses of the whole address pool by default.

**Command Mode** Global configuration mode.

**Usage Guide** If the excluded IP address is not configured, the DHCP server attempts to assign all IP addresses in the DHCP address pool. This command can reserve some IP addresses for specific hosts to prevent these addresses are assigned to the DHCP client, and define the excluded IP address accurately to reduce the conflict detecting time when the DHCP server assigns the address.

**Configuration Examples** In the following example, the DHCP server will not attempt to assign the IP addresses within 192.168.12.100~150.

```
ip dhcp excluded-address 192.168.12.100 192.168.12.150
```

The following example restores the default setting.

```
Ruijie(config)#no ip dhcp excluded-address 192.168.12.100 192.168.12.150
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.
<b>network (DHCP)</b>	Defines the network number and network mask of the DHCP address pool.	

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

### 4.23 ip dhcp force-send-nak

Use this command to configure the forcible NAK packet sending function. Use the **no** or **default** form of this command to restore the default setting.

- ip dhcp force-send-nak**
- no ip dhcp force-send-nak**
- default ip dhcp force-send-nak**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command** Global configuration mode.

**Mode**

**Usage Guide** The DHCP client checks the previously used IP address every time it is started and sends a DHCPREQUEST packet to continue leasing this IP address. If the address is not available, the DHCP server sends an NAK packet to let the client resend a DHCPDISCOVER packet to apply for a new IP address. If no corresponding lease record can be found on the server, the client keeps sending DHCPDISCOVER packets. The forcible NAK packet sending function is added to shorten the interval at which the client sends DHCPDISCOVER packets.

**Configuration Examples** The following example enables the forcible NAK packet sending function in global configuration mode.

```
Ruijie(config)# ip dhcp force-send-nak
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 4.24 ip dhcp monitor-vrrp-state

Use this command in layer-3 configuration mode to enable the DHCP Server to monitor the status of VRRP interfaces so that the DHCP Server processes only those packets sent from a VRRP interface in the Master state. Use the **no** or **default** form of this command to restore the default setting. If it is canceled, the DHCP Server processes packets from VRRP interfaces in the Master or Backup state.

- ip dhcp monitor-vrrp-state**
- no ip dhcp monitor-vrrp-state**
- default ip dhcp monitor-vrrp-state**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The **ip dhcp monitor-vrrp-state** command is disabled by default. .

**Command Mode** Layer-3 interface configuration mode.

**Usage Guide** If a VRRP address is configured for an interface, the DHCP Server processes packets sent from the master interface and discards packets sent from the backup interface. If no VRRP address is configured, the DHCP Server does not monitor the status of VRRP interfaces. All DHCP packets will be processed.

**Configuration Examples** The following example enables the DHCP Server to monitor the status of VRRP interfaces.

```
Ruijie(config-if)# ip dhcp monitor-vrrp-state
```



Related	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

## 4.25 ip dhcp ping packets

Use this command to configure the times of pinging the IP address when the DHCP server detects address conflict in the global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**ip dhcp ping packets** [ *number* ]

**no ip dhcp ping packets**

**default ip dhcp ping packets**

Parameter	Parameter	Description
Description	<i>number</i>	(Optional) Number of packets in the range of 0 to 10, where 0 indicates disabling the ping operation. The Ping operation sends two packets by default.

**Defaults** The Ping operation sends two packets by default.

**Command** Global configuration mode.

**Mode**

**Usage Guide** When the DHCP server attempts to assign the IP address from the DHCP address pool, use the ping operation to check whether this address is occupied by other hosts. Record it if the address is occupied, otherwise, assign it to the DHCP client. The Ping operation will send up to 10 packets, two packets by default.

**Configuration** The following example sets the number of the packets sent by the ping operation as 3.

**Examples**

```
ip dhcp ping packets 3
```

Related	Command	Description
Commands	<b>clear ip dhcp conflict</b>	Clears the DHCP history conflict record.
	<b>ip dhcp ping packet</b>	Configures the timeout time that the DHCP server waits for the Ping response. If all the ping packets are not responded within the specified time, it indicates that this IP address can be assigned. Otherwise, it will record the address conflict.
	<b>show ip dhcp conflict</b>	Displays the DHCP server detects address conflict when it assigns an IP address.

**Platform** N/A

**Description**

## 4.26 ip dhcp ping timeout

Use this command to configure the timeout that the DHCP server waits for response when it uses the ping operation to detect the address conflict in the global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**ip dhcp ping timeout** *milli-seconds*

**no ip dhcp ping timeout**

**default ip dhcp ping timeout**

Parameter	Parameter	Description
Description	<i>milli-seconds</i>	Time that the DHCP server waits for ping response in the range 100 to 10000 milliseconds.

**Defaults** The default is 500 seconds.

**Command Mode** Global configuration mode.

**Usage Guide** This command defines the time that the DHCP server waits for a ping response packet.

**Configuration** The following example configures the waiting time of the ping response packet to 600ms.

**Examples**

```
ip dhcp ping timeout 600
```

Related	Command	Description
<b>Commands</b>	<b>clear ip dhcp conflict</b>	Clears the DHCP history conflict record.
	<b>ip dhcp ping packets</b>	Defines the number of the data packets sent by the ping operation for the detection of the address conflict when the DHCP server assigns an IP address.
	<b>show ip dhcp conflict</b>	Displays the address conflict the DHCP server detects when it assigns an IP address.

**Platform** N/A

**Description**

## 4.27 ip dhcp pool

Use this command to define a name of the DHCP address pool and enter the DHCP address pool configuration mode in the global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**ip dhcp pool** *pool-name*

**no ip dhcp pool** *pool-name*

**default ip dhcp pool** *pool-name*

Parameter	Parameter	Description
Description	<i>pool-name</i>	A string of characters and positive integers, for instance, mypool or 1.

**Defaults** No DHCP address pool is defined by default.

**Command Mode** Global configuration mode.

**Usage Guide** Execute the command to enter the DHCP address pool configuration mode:

```
Ruijie (dhcp-config) #
```

In this configuration mode, configure the IP address range, the DNS server and the default gateway.

**Configuration Examples** The following example defines a DHCP address pool named mypool0.

```
ip dhcp pool mypool0
```

Related Commands	Command	Description
	<b>host</b>	Defines the IP address and network mask, which is used to configure the DHCP manual binding.
	<b>ip dhcp excluded-address</b>	Defines the IP addresses that the DHCP server cannot assign to the clients.
	<b>network (DHCP)</b>	Defines the network number and network mask of the DHCP address pool.

**Platform Description** N/A

## 4.28 ip dhcp refresh arp

Use this command to refreshes the trusted ARP allocation.

**ip dhcp refresh arp**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** This command is configured on the DHCP server.

**Configuration** The following example refreshes the trusted ARP allocation.

**Examples**

```
Ruijie(config)#ip dhcp refresh arp
```

Related Commands	Command	Description
	N/A	N/A

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

## 4.29 ip dhcp relay check server-id

Use this command to enable the **ip dhcp relay check server-id** function. Use the **no** form of this command to restore the default setting.

**ip dhcp relay check server-id**  
**no ip dhcp relay check server-id**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** The **ip dhcp relay check server-id** command is disabled.

**Command** Global configuration mode.  
**Mode**

**Usage Guide** Switch will select the server to be sent according to server-id option when forwarding DHCP REQUEST via this command. Without this command configured, the switch forwards the DHCP REQUEST to all configured DHCP servers.

**Configuration** The following example enables the ip dhcp relay check server-id function.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp relay check server-id
```

The following example disables the ip dhcp relay check server-id function.

```
Ruijie(config)# no ip dhcp relay check server-id
```

Related Commands	Command	Description
	<b>service dhcp</b>	Enables the DHCP Relay.

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

## 4.30 ip dhcp relay information option82

Use this command to enable the **ip dhcp relay information option82** function. Use the **no** form of this command to restore the default setting.

**ip dhcp relay information option82**

**no ip dhcp relay information option82**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The **ip dhcp relay information option82** command is disabled.

**Command Mode** Global configuration mode.

**Usage Guide** This command is exclusive with the **option dot1x** command.

**Configuration Examples** The following example enables the option82 function on the DHCP relay.

```
Ruijie# configure terminal
Ruijie(config)# Ip dhcp relay information option82
```

The following example disables the option82 function on the DHCP relay.

```
Ruijie(config)# no ip dhcp relay information option82
```

Related Commands	Command	Description
	<b>service dhcp</b>	Enables the DHCP Relay.

**Platform Description** N/A

## 4.31 ip dhcp relay suppression

Use this command to enable the DHCP binding globally. Use the **no** form of this command to disable the DHCP binding globally and enable the **DHCP relay** suppression on the port.

**ip dhcp relay suppression**

**no ip dhcp relay suppression**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The **ip dhcp relay suppression** command is disabled.

**Command** Interface configuration mode.

**Mode**

**Usage Guide** After executing this command, the system will not relay the DHCP request message on the interface.

**Configuration** The following example enables the relay suppression function.

**Examples** `Ruijie(config-if)# ip dhcp relay suppression`

The following example disables the relay suppression function.

`Ruijie(config-if)# no ip dhcp relay suppression`

Related Commands	Command	Description
	<code>service dhcp</code>	Enables the DHCP Relay.

**Platform** N/A

**Description**

### 4.32 ip dhcp server detect

Use this command to enable the fake DHCP server detection. Use the **no** or **default** form of this command to restore the default setting.

- ip dhcp server detect**
- no ip dhcp server detect**
- default ip dhcp server detect**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** After this function is enabled, any fake DHCP server detected is logged.

**Configuration** The following example enables the fake DHCP server detection.

**Examples** `Ruijie(config)# ip dhcp server detect`

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.33 ip dhcp use class

Use this command to enable the CLASS to allocate addresses in the global configuration mode. Use the **no** form of this command can be used to disable the CLASS.

**ip dhcp use class**

**no ip dhcp use class**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** Enabled

**Command Mode** Global configuration mode

**Usage Guide** This command is configured on the DHCP server.

**Configuration** The following example enables the CLASS to allocate addresses.

**Examples** Ruijie(config)# ip dhcp use class

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.34 ip helper-address

Use this command to add an IP address of the DHCP server. Use the **no** form of this command to delete an IP address of the DHCP server.

The server address can be configured globally or on a specific interface. Therefore, this command can run in the global configuration mode or the interface configuration mode to add the DHCP server information.

**ip helper-address { cycle-mode | A.B.C.D }**

**no ip helper-address { cycle-mode | A.B.C.D }**

Parameter	Parameter	Description
Description	<b>cycle-mode</b>	Forwards DHCP request packets to all DHCP servers.
	<i>A.B.C.D</i>	The IP address of the specified DHCP server.

**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Usage Guide** Up to 20 DHCP server IP addresses can be configured globally.

**Configuration** The following example sets the IP address for the global server to 192.168.100.1

**Examples**

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# ip helper-address 192.168.100.1
```

The following example deletes the set IP address for the global server, 192.168.100.1.

```
Ruijie(config)# no ip helper-address 192.168.100.1
```

The following example enables forwarding DHCP request packets to all DHCP servers.

```
Ruijie(config)# ip helper-address cycle-mode
```

The following example disables forwarding DHCP request packets to all DHCP servers.

```
Ruijie(config)# no ip helper-address cycle-mode
```

**Related Commands**

Command	Description
<b>service dhcp</b>	Enables the DHCP relay.

**Platform** N/A

**Description**

### 4.35 lease

Use this command to define the lease time of the IP address that the DHCP server assigns to the client in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting. A limited lease time ranges from 1 minute to 23 hours and 59 minutes.

**lease** { *days* [ *hours* ] [ *minutes* ] | **infinite** }

**no lease**

**default lease**

**Parameter Description**

Parameter	Description
<i>days</i>	Lease time in days
<i>hours</i>	(Optional) Lease time in hours. It is necessary to define the days before defining the hours.
<i>minutes</i>	(Optional) Lease time in minutes. It is necessary to define the days and hours before defining the minutes.
<b>infinite</b>	Infinite lease time.

**Defaults** The lease time for a static address pool is infinite. The lease time for other address pools is 1 day.



**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** When the lease is getting near to expire, the DHCP client will send the request of renewal of lease. In general, the DHCP server will allow the renewal of lease of the original IP address.

**Configuration** The following example sets the DHCP lease to 1 hour.

**Examples**

```
lease 0 1
```

The following example sets the DHCP lease to 1 minute.

```
lease 0 0 1
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

### 4.36 lease-threshold

Use this command in DHCP address pool configuration mode to define the DHCP alarm threshold. Use the **default** or **no** form of this command to restore the default setting.

- lease-threshold** *percentage*
- default lease-threshold**
- no lease-threshold**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>percentage</i>	Usage of the address pool, ranging from 60 to 100 in percentage.

**Defaults** 90

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** If the maximum IP usage of the address pool reaches the threshold, the DHCP Server generates a SYSLOG alarm. The IP usage indicates the ratio of the number of assigned address pools to the total number of assignable address pools. If the number of assigned pools stays above the alarm threshold, an alarm is generated every 5 minutes.

**Configuration** The following example sets the alarm threshold to 80%.

**Examples**

```
lease-threshold 80
```

The following example restores the default alarm threshold.

```
default lease-threshold
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.37 match ip

Use this command to define an AM matching rule.

Use the **no** form of this command to remove the configuration.

Use the clear form of this command to clear all configurations.

**match ip** *ip-address netmask* [*interface*] [**add/remove**] **vlan** *vlan-list*

**no match ip** *ip-address netmask* [*interface*] [**add/remove**] **vlan** *vlan-list*

Parameter Description	Parameter	Description
	<i>ip-address</i>	IP address
	<i>netmask</i>	Subnet mask
	<i>interface</i>	Interface ID
	<i>add/remove</i>	Adds or removes the specified VLAN.
	<i>vlan-list</i>	VLAN ID

**Defaults** N/A

**Command Mode** AM rule configuration mode

**Usage Guide** With this function enabled, all DHCP clients with specified *vlan-list* and *interface* obtain addresses in the rule.

If a DHCP client obtains a static address, it is not subject to AM matching rules in whichever Sub VLAN unless the AM rule configuration is based on VLAN instead of Sub VLAN. This type of matching rules applies to only static addresses.

**Configuration Examples** The following example defines an AM matching rule.

```
Ruijie(config-address-manage)#match ip 192.168.11.0 255.255.255.0
GigabitEthernet 0/10 vlan 10
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.38 match ip default

Use this command to define a default AM matching rule.

Use the **no** form of this command to remove the configuration,

**match ip default** *ip-address netmask*

**no match ip default** *ip-address netmask*

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	IP address
	<i>netmask</i>	Subnet mask

**Defaults** N/A

**Command** AM rule configuration mode

**Mode**

**Usage Guide** With this function enabled, all DHCP clients with specified *vlan-list* and *interface* obtain addresses in the default rule.

**Configuration** The following example defines a default AM matching rule.

**Examples** Ruijie(config-address-manage)#match ip default 192.168.12.0 255.255.255.0

Related	Command	Description
<b>Commands</b>	N/A	N/A

**Platform** N/A

**Description**

## 4.39 netbios-name-server

Use this command to configure the WINS name server of the Microsoft DHCP client NETBIOS in the DHCP address pool configuration mode. The **no** or **default** form of this command can be used to restore the default setting.

**netbios-name-server** *ip-address [ ip-address2...ip-address8 ]*

**no netbios-name-server**

**default netbios-name-server**

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	IP address of the WINS server. It is required to configure one IP address at least.
	<i>ip-address2...ip-address8</i>	(Optional) IP addresses of WINS servers. Up to 8 WINS servers can

	be configured.
--	----------------

**Defaults** No WINS server is defined by default.

**Command Mode** DHCP address pool configuration mode.

**Usage Guide** When more than one WINS server is defined, the former has higher priority. The DHCP client will select the next WINS server only when its communication with the former WINS server fails.

**Configuration Examples** The following example specifies the WINS server 192.168.12.3 for the DHCP client.

```
netbios-name-server 192.168.12.3
```

Related Commands	Command	Description
	<b>ip address dhcp</b>	Enables the DHCP client on the interface to obtain the IP address.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enter the DHCP address pool configuration mode.
	<b>netbios-node-type</b>	Defines the netbios node type of the client host.

**Platform Description** N/A

### 4.40 netbios-node-type

Use this command to define the node type of the master NetBIOS of the Microsoft DHCP client in the DHCP address configuration mode. Use the **no** or **default** form of this command to restore the default setting.

- netbios-node-type** *type*
- no netbios-node-type**
- default netbios-node-type**

Parameter Description	Parameter	Description
	<i>type</i>	Type of node in two modes: Digit in hexadecimal form in the range of 0 to FF. Only the following numerals are available: 1: b-node. 2: p-node. 4: m-node. 8: h-node. String: b-node: broadcast node p-node: peer-to-peer node m-node: mixed node

	h-node: hybrid node
--	---------------------

**Defaults** No type of the NetBIOS node is defined by default.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** There are 4 types of the NetBIOS nodes of the Microsoft DHCP client: 1) Broadcast, which carries out the NetBIOS name resolution by the broadcast method, 2) Peer-to-peer, which directly requests the WINS server to carry out the NetBIOS name resolution, 3) Mixed, which requests the name resolution by the broadcast method firstly, and then carry out the name resolution by the WINS server connection, 4) Hybrid, which requests the WINS server to carry out the NetBIOS name resolution firstly, and it will carry out the NetBIOS name resolution by the broadcast method if the response is not received.

By default, the node type for Microsoft operating system is broadcast or hybrid. If the WINS server is not configured, broadcast node is used. Otherwise, hybrid node is used. It is recommended to set the type of the NetBIOS node as Hybrid.

**Configuration** The following example sets the NetBIOS node of Microsoft DHCP client as Hybrid.

**Examples**

```
netbios-node-type h-node
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of DHCP address pool and enters the DHCP address pool configuration mode.
	<b>netbios-name-server</b>	Configures the WINS name server of the Microsoft DHCP client NETBIOS.

**Platform** N/A

**Description**

## 4.41 network

Use this command to define the network number and network mask of the DHCP address pool in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**network** *net-number net-mask* [ *low-ip-address high-ip-address* ]

**no network**

**default network**

Parameter Description	Parameter	Description
	<i>net-number</i>	Network number of the DHCP address pool
	<i>net-mask</i>	Network mask of the DHCP address pool. If the network mask is not defined, the natural network mask will be used by default.

<i>low-ip-address</i>	Start IP address.
<i>high-ip-address</i>	End IP address.

**Defaults** No network number or network mask is defined by default.

**Command** DHCP address pool configuration mode.

**Mode**

**Usage Guide** This command defines the subnet and subnet mask of a DHCP address pool, and provides the DHCP server with an address space which can be assigned to the clients. Unless excluded addresses are configured, all the addresses of the DHCP address pool can be assigned to the clients. The DHCP server assigns the addresses in the address pool orderly. If the DHCP server found an IP address is in the DHCP binding table or in the network segment, it checks the next until it assigns an effective IP address.

The **show ip dhcp binding** command can be used to view the address assignment, and the **show ip dhcp conflict** command can be used to view the address conflict detection configuration.

**Configuration Examples** The following example defines the network number of the DHCP address pool as 192.168.12.0, and the network mask as 255.255.255.240.

```
network 192.168.12.0 255.255.255.240
```

**Related  
Commands**

Command	Description
<b>ip dhcp excluded-address</b>	Defines the IP addresses that the DHCP server cannot assign to the clients.
<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform** N/A

**Description**

## 4.42 next-server

Use this command to define the startup sever list that the DHCP client accesses during startup in the DHCP address configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**next-server** *ip-address* [*ip-address2...ip-address8*]

**no next-server**

**default next-server**

**Parameter  
Description**

Parameter	Description
<i>ip-address</i>	Defines the IP address of the startup server, which is usually the TFTP server. It is required to configure one IP address at least.
<i>ip-address2...ip-address8</i>	(Optional) Up to 8 startup servers can be configured.

**Defaults** N/A

**Command Mode** DHCP address pool configuration mode.

**Usage Guide** When more than one startup server is defined, the former will possess higher priority. The DHCP client will select the next startup server only when its communication with the former startup server fails.

**Configuration Examples** The following example specifies the startup server 192.168.12.4 for the DHCP client.

```
next-server 192.168.12.4
```

Related Commands	Command	Description
	<b>bootfile</b>	Defines the default startup mapping file name of the DHCP client.
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enter the DHCP address pool configuration mode.
	<b>ip help-address</b>	Defines the Helper address on the interface.
	<b>option</b>	Configures the option of the RGOS software DHCP server.

**Platform** N/A

**Description**

## 4.43 option

Use this command to configure the option of the DHCP server in the DHCP address pool configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**option** *code* { **ascii** *string* | **hex** *string* | **ip** *ip-address* }

**no option**

**default option**

Parameter Description	Parameter	Description
	<i>code</i>	Defines the DHCP option codes.
	<b>ascii</b> <i>string</i>	Defines an ASCII string.
	<b>hex</b> <i>string</i>	Defines a hex string.
	<b>ip</b> <i>ip-address</i>	Defines an IP address list.

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** The DHCP provides a mechanism to transmit the configuration information to the host in the TCP/IP

network. The DHCP message has a variable option field that can be defined according to the actual requirement. The DHCP client needs to carry the DHCP message with 32 bytes of option information at least. Furthermore, the fixed data field in the DHCP message is also referred to as an option. For the definition of current DHCP option, refer to RFC 2131.

**Configuration Examples** The following example defines the option code 19, which determines whether the DHCP client can enable the IP packet forwarding. 0 indicates to disable the IP packet forwarding, and 1 indicates to enable the IP packet forwarding. The configuration below enable the IP packet forwarding on the DHCP client.

```
Ruijie(dhcp-config)# option 19 hex 1
```

The following example defines the option code 33, which provides the DHCP client with the static route information. The DHCP client will install two static routes: 1) the destination network 172.16.12.0 and the gateway 192.168.12.12, 2) the destination network 172.16.16.0 and the gateway 192.168.12.16.

```
option 33 ip 172.16.12.0 192.168.12.12 172.16.16.0 192.168.12.16
```

Related Commands	Command	Description
	<b>ip dhcp pool</b>	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

**Platform Description** N/A

### 4.44 pool-status

Use this command to enable or disable the DHCP address pool.

```
pool-status { enable | disable }
```

Parameter Description	Parameter	Description
	<b>enable</b>	Enables the address pool.
	<b>disable</b>	Disables the address pool.

**Defaults** By default, the address pool is enabled after it is configured.

**Command Mode** DHCP address pool configuration mode

**Usage Guide** This command is configured on the DHCP server.

**Configuration Examples** The following example disables the address pool.

```
Ruijie(dhcp-config)# pool-status disable
```



Related Commands	Command	Description
	N/A	N/A

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

## 4.45 relay agent information

Use this command to enter the Option82 matching information configuration mode in the global CLASS configuration mode. Use the **no** form of this command to delete the Option82 matching information of the CLASS.

**relay agent information**

**no relay agent information**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Global CLASS configuration mode

**Usage Guide** After executing this command, it enters the Option82 matching information configuration mode which is shown as "Ruijie (config-dhcp-class-relayinfo)#".  
In this configuration mode, user can configure the class matching multiple Option82 information.

**Configuration Examples** The following example configures a global CLASS and enters the Option82 matching information configuration mode.

```
Ruijie(config)# ip dhcp class myclass
Ruijie(config-dhcp-class)# relay agent information
Ruijie(config-dhcp-class-relayinfo)#
```

Related Commands	Command	Description
	<b>ip dhcp class</b>	Defines a CLASS and enters the global CLASS configuration mode.

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

## 4.46 relay-information hex

Use this command to enter the Option82 matching information configuration mode. Use the **no** form of this command to delete a piece of matching information.

**relay-information hex** *aabb.ccdd.eeff...* [ \* ]

**no relay-information hex** *aabb.ccdd.eeff... [ \* ]*

Parameter	Parameter	Description
<b>Description</b>	<i>aabb.ccdd.eeff...[*]</i>	Hexadecimal Option82 matching information. The '*' symbol means partial matching which needs the front part matching only. Without the '*' means needing full matching.

**Defaults** N/A

**Command Mode** Global CLASS configuration mode

**Usage Guide** This command is configured on the DHCP server.

**Configuration Examples** The following example configures a global CLASS which can match multiple Option82 information.

```
Ruijie(config)# ip dhcp class myclass
Ruijie(config-dhcp-class)# relay agent information
Ruijie(config-dhcp-class-relayinfo)# relay-information
hex 0102256535
Ruijie(config-dhcp-class-relayinfo)# relay-information
hex 010225654565
Ruijie(config-dhcp-class-relayinfo)# relay-information
hex 060225654565
Ruijie(config-dhcp-class-relayinfo)# relay-information
hex 060223*
```

Related Commands	Command	Description
	<b>ip dhcp class</b>	Defines a CLASS and enter the global CLASS configuration mode.
	<b>relay agent information</b>	Enters the Option82 matching information configuration mode.

**Platform** N/A

**Description**

### 4.47 remark

Use this command to configure the identification which is used to describe the CLASS in this global CLASS configuration mode. Use the **no** form of this command to delete the identification.

**remark** *class-remark*  
**no remark**

Parameter	Parameter	Description
<b>Description</b>	<i>class-remark</i>	Information used to identify the CLASS, which can be the character strings with space in them.

**Defaults** N/A.

**Command Mode** Global CLASS configuration mode.

**Usage Guide** This command is configured on the DHCP server.

**Configuration** The following example configures the identification information for a global CLASS.

**Examples**

```
Ruijie(config)# ip dhcp class myclass
Ruijie(config-dhcp-class)# remark used in #1 build
```

Related Commands	Command	Description
	<b>ip dhcp class</b>	Defines a CLASS and enter the global CLASS configuration mode.

**Platform Description** N/A

## 4.48 service dhcp

Use this command to enable the DHCP server and the DHCP relay on the device in global configuration mode. Use the **no** or **default** form of this command to restore the default setting.

**service dhcp**

**no service dhcp**

**default service dhcp**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The **service dhcp** command is disabled.

**Command Mode** Global configuration mode, ap-config/ap-group mode

**Usage Guide** The DHCP server can assign the IP addresses to the clients automatically, and provide them with the network configuration information such as DNS server and default gateway. The DHCP relay can forward the DHCP requests to other servers, and the returned DHCP responses to the DHCP client, serving as the relay for DHCP packets.

**Configuration** The following example enables the DHCP server and the DHCP relay feature.

**Examples**

```
service dhcp
```

Related	Command	Description
---------	---------	-------------

<b>Commands</b>	<b>show ip dhcp server statistics</b>	Displays various statistics information of the DHCP server.
	<b>ip helper-address [ vrf ] A.B.C.D</b>	Adds an IP address of the DHCP server.

**Platform** N/A

**Description**

## 4.49 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
<b>Description</b>	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
<b>Commands</b>	N/A	N/A

**Platform** N/A

**Description**

## 4.50 show ip dhcp binding

Use this command to display the binding condition of the DHCP address.

**show ip dhcp binding [ ip-address ]**

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	(Optional) Only displays the binding condition of the specified IP addresses.

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** If the IP address is not defined, show the binding condition of all addresses. If the IP address is defined, show the binding condition of this IP address

**Configuration** The following is the result of the show ip dhcp binding.

**Examples**

```
Ruijie# show ip dhcp binding
Total number of clients   : 4
Expired clients           : 3
Running clients           : 1

IP address      Hardware address      Lease expiration      Type
20.1.1.1        2000.0000.2011      000 days 23 hours 59 mins  Automatic
```

The meaning of various fields in the show result is described as follows.

Field	Description
IP address	The IP address to be assigned to the DHCP client.
Client-Identifier /Hardware address	The client identifier or hardware address of the DHCP client.
Lease expiration	The expiration date of the lease. The Infinite indicates it is not limited by the time. The IDLE indicates the address is in the free status currently for it is not renewed or the DHCP client releases it actively.
Type	The type of the address binding. The Automatic indicates an IP address is assigned automatically, and the Manual indicates an IP address is assigned by manual.

Related Commands	Command	Description
	<b>clear ip dhcp binding</b>	Clears the DHCP address binding table.

**Platform Description** N/A

## 4.51 show ip dhcp conflict

Use this command to show the conflict history record of the DHCP sever.

**show ip dhcp conflict**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** This command can display the conflict address list detected by the DHCP server.

**Configuration Examples** The following example displays the output result of the **show ip dhcp conflict** command.

```
Ruijie# show ip dhcp conflict
IP address  Detection Method
192.168.12.1 Ping
```

The meaning of various fields in the show result is described as follows.

Field	Description
IP address	The IP addresses which cannot be assigned to the DHCP client.
Detection Method	The conflict detection method.

Related Commands	Command	Description
	<b>clear ip dhcp conflict</b>	Clears the DHCP conflict record.

**Platform Description** N/A

## 4.52 show ip dhcp pool

Use this command to display the address statistics of an address pool.

**show ip dhcp pool [ *poolname* ]**

Parameter	Parameter	Description
Description	<i>poolname</i>	(Optional) Address pool whose address statistics are to be displayed.

**Defaults**

**Command** Privileged EXEC mode.

**Mode**

**Usage Guide** This command is configured on the DHCP server. Use this command to show the address statistics of an address pool.

**Configuration** The following example displays the output result of the **show ip dhcp pool** *poolname* command.

**Examples**

```
Ruijie# show ip dhcp poolname
Pool poolname:
  Address range      192.168.0.1 - 192.168.0.254
  Class range        192.168.0.1 - 192.168.0.254
  Total address      252
  Excluded           2
  Distributed        30
  Conflict           10
  Remained           212
  Usage percentage   84.12698%
  Lease threshold    90%
```

The meaning of various fields in the show result is described as follows.

Field	Description
Address range	Address range of the address pool.
Class range	Class address range. By default, the address range for the same address pool is not configured. Otherwise, the class range is displayed.
Total address	Total number of addresses that can be assigned in the address pool.
Excluded	Number of excluded addresses.
Distributed	Number of assigned addresses.
Conflict	Number of conflicting addresses in the address pool.
Remained	Number of remaining addresses that have not been assigned or can be reused.
Usage percentage	Address pool usage.
Lease threshold	Lease threshold.

**Related  
Commands**

Command	Description
ip dhcp pool	Defines the name of the DHCP address pool and enters the DHCP address pool configuration mode.

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

### 4.53 show ip dhcp relay-statistics

Use this command to display the statistics of the DHCP relay.

**show ip dhcp relay-statistics**

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 statistics of the DHCP relay.

**Configuration Examples** The following example displays the statistics of the DHCP relay.

```
Ruijie# show ip dhcp relay-statistics
Cycle mode                0

Message                   Count
Discover                  0
Offer                     0
Request                   0
Ack                       0
Nak                       0
Decline                   0
Release                   0
Info                      0
Bad                       0

Direction                 Count
Rx client                  0
Rx client uni              0
Rx client bro              0
Tx client                  0
Tx client uni              0
Tx client bro              0
Rx server                  0
Tx server                  0
```

The meaning of various fields in the show result is described as follows.

Field	Description
Cycle mode	Whether to allow packets to be sent to multiple DHCP servers.



Discover	The number of Discover packets.
Offer	The number of Offer packets.
Request	The number of Request packets.
Ack	The number of Ack packets.
Nak	The number of Nak packets.
Decline	The number of Decline packets.
Release	The number of Release packets.
Info	The number of Info packets.
Bad	The number of error packets.
Rx client	The number of packets received from the client.
Rx client uni	The number of unicast packets received from the client.
Rx client bro	The number of broadcast packets received from the client.
Tx client	The number of packets transmitted to the client.
Tx client uni	The number of unicast packets transmitted to the client
Tx client bro	The number of multicast packets transmitted to the client
Rx server	The number of packets received from the server.
Tx server	The number of packets transmitted to the server.

Related	Command	Description
Commands	N/A	N/A

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

## 4.54 show ip dhcp server detect

Use this command to display the fake DHCP server detected.

**show ip dhcp server detect**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** This command is configured on the DHCP server.

**Configuration** The following example displays the fake DHCP server detected.

**Examples**

```
Ruijie#show ip dhcp server detect
The DHCP Server information:
Server IP = 10.1.10.40, DHCP server interface = GigabitEthernet 0/1
```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 4.55 show ip dhcp server statistics

Use this command to display the statistics of the DHCP server.

**show ip dhcp server statistics**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** N/A

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

**Usage Guide** This command displays the statistics of the DHCP server.

**Configuration** The following example displays the output result of the **show ip dhcp server statistics** command.

**Examples**

```
Ruijie# show ip dhcp server statistics
Address pools          2
Lease counter         4
Active Lease Counter   0
Expired Lease Counter  4
Malformed messages    0
Dropped messages      0

Message                Received
BOOTREQUEST           216
DHCPDISCOVER          33
DHCPREQUEST           25
DHCPDECLINE           0
DHCPRELEASE           1
DHCPINFORM            150
```

```

Message                Sent
BOOTREPLY              16
DHCPOFFER              9
DHCPACK                7
DHCPNAK                0
DHCPREQTIMES          0
DHCPREQSUCTIMES       0
DISCOVER-PROCESS-ERROR 0
LEASE-IN-PINGSTATE    0
NO-LEASE-RESOURCE     0
SERVERID-NO-MATCH     0
-----
recv                   0
send                   0
    
```

The meaning of various fields in the show result is described as follows.

Field	Description
Address pools	Number of address pools.
Automatic bindings	Number of automatic address bindings.
Manual bindings	Number of manual address bindings.
Expired bindings	Number of expired address bindings.
Malformed messages	Number of malformed messages received by the DHCP.
Message Received or Sent	Number of the messages received and sent by the DHCP server respectively.

Related Commands	Command	Description
	<b>clear ip dhcp server statistics</b>	Clears the DHCP server statistics.

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

### 4.56 show ip dhcp socket

Use this command to display the socket used by the DHCP server.

**show ip dhcp socket**

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 socket used by the DHCP server.

**Examples**

```
ruijie#show ip dhcp socket
dhcp socket = 47.
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.57 update arp

Use this command to enable DHCP to add trusted ARP when allocating addresses. Use the **no** or **default** form of this command to restore the default setting.

**update arp**

**no update arp**

**default update arp**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** DHCP address pool configuration mode

**Usage Guide** This command is configured on the DHCP server. The trusted ARP has a higher priority than the dynamic ARP and cannot be overwritten.

**Configuration** The following example enables DHCP to add trusted ARP when allocating addresses.

**Examples**

```
Ruijie(dhcp-config)# update arp
```

Related Commands	Command	Description
	N/A	N/A

<b>Platform</b>	N/A
<b>Description</b>	

## 5 DNS Commands

### 5.1 clear host

Use this command to clear the dynamically learned host name.

**clear host** [ \* | *host-name* ]

Parameter Description	Parameter	Description
	<i>host-name</i>	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
	<b>show hosts</b>	Displays the host name buffer table.

**Platform** N/A

**Description**

### 5.2 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
	<b>show hosts</b>	

**Platform Description** N/A

### 5.3 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
	<i>host-name</i>	The host name of the equipment
	<i>ip-address</i>	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	Command	Description
---------	---------	-------------

Commands	
<b>show hosts</b>	Show the DNS related configuration information.

**Platform** N/A

**Description**

## 5.4 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* | *ipv6-address* }

**no ip name-server** [ *ip-address* | *ipv6-address* ]

Parameter Description	Parameter	Description
	<i>ip-address</i>	The IP address of the domain name server.
	<i>ipv6-address</i>	The IPv6 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 configures the IPv4 domain name server and IPv6 domain name server.

```
Ruijie(config)# ip name-server 192.168.5.134
Ruijie(config)# ip name-server 2001:0DB8::250:8bff:fee8:f800
2001:0DB8:0:f004::1
```

Related Commands	Command	Description
	<b>show hosts</b>	Displays the DNS related configuration information.

**Platform** N/A

**Description**



## 5.5 ipv6 host

Use this command to configure the mapping of the host name and the IPv6 address by manual. Use the **no** form of the command to remove the host list.

**ipv6 host** *host-name ipv6-address*

**no ipv6 host** *host-name ipv6-address*

Parameter Description	Parameter	Description
	<i>host-name</i>	The host name of the equipment
	<i>ipv6-address</i>	The IPv6 address of the equipment

**Defaults** N/A

**Command Mode** Global configuration mode.

### Usage Guide

**Configuration** The following example configures the IPv6 address for the domain name.

**Examples** Ruijie(config)# ipv6 host switch 2001:0DB8:700:20:1::12

Related Commands	Command	Description
	<b>show hosts</b>	Displays the DNS related configuration information.

**Platform Description** N/A

## 5.6 show hosts

Use this command to display DNS configuration.

**show hosts** [ *hostname* ]

Parameter Description	Parameter	Description
	<i>hostname</i>	Displays the specified domain name information,

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** This command is used to display the DNS related configuration information.

**Configuration**

```
Ruijie# show hosts
```

**Examples**

```
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
<b>ip host</b>	Configures the host name and IP address mapping by manual.
<b>ipv6 host</b>	Configures the host name and IPv6 address mapping by manual.
<b>ip name-server</b>	Configures the DNS server.

**Platform**

N/A

**Description**

## 6 Network Connectivity Test Tool Commands

### 6.1 clear rping table all

Use this command to clear Rping entries.

**clear rping table** [**all** | [**ping-object** *owner test-name*] | [**trace-object** *owner test-name*]]

Parameter Description	Parameter	Description
	<i>owner</i>	User index
	<i>test-name</i>	Test index

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example clears all Rping entries.

```
Ruijie# clear rping table all
```

The following example clears the specified Rping entry.

```
Ruijie# clear rping table user ruijie
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 6.2 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**]

Parameter Description	Parameter	Description

<i>address</i>	Specifies an IPv4 address.
<i>length</i>	Specifies the length of the packet to be sent (range: 36-18024, default: 100).
<i>times</i>	Specifies the number of packets to be sent (range:1-4294967295).
<i>seconds</i>	Specifies the timeout time (range: 1-10 seconds).
<i>data</i>	Specifies the data to fill in.
<i>source</i>	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.
<b>df-bit</b>	Sets the DF bit for the IP address. DF bit=1 indicates not to segment the datagrams. By default, the DF bit is 0.
<b>validate</b>	Sets whether to validate the reply packets or not.
<b>detail</b>	Sets whether to contain details in the echoed message. By default, only "!" and "." are displayed.

**Defaults** Five packets with 100Byte in length are sent to the specified IP address within specified time (2s by default).

**Command** Privileged EXEC mode: enables extended functions.

**Mode** User EXEC mode: enables basic functions.

**Usage** 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 ion** The following example tests the connectivity of a network to locate the network connectivity problem.

```
(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
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  
Command  
s**

Command	Description
N/A	N/A

**Platform  
Descriptio  
n**

N/A

### 6.3 ping ipv6

Use this command to test the connectivity of a network to locate the network connectivity problem. The command format is as follows:

**ping [ipv6] [ip-address [length length] [ntimes times] [timeout seconds] [data data] [source source] [detail]**

Parameter Description	Parameter	Description
	<i>ip-address</i>	Specifies an IPv6 address.
	<i>length</i>	Specifies the length of the packet to be sent (range: 36-18024, default: 100).
	<i>times</i>	Specifies the number of packets to be sent (range:1-4294967295).
	<i>seconds</i>	Specifies the timeout time (range: 1-10 seconds).
	<i>data</i>	Specifies the data to fill in.
	<i>source</i>	Specifies the source IPv6 address or the source interface. The loopback interface address (for example: 127.0.0.1) is not allowed to be the source address.
	<b>detail</b>	Sets whether to contain details in the echoed message. By default, only “!” and “.” are displayed.

**Defaults** Five packets with 100Byte in length are sent to the specified IP address within specified time 2 seconds by default

**Command Mode** Privileged EXEC mode: enables extended functions.

User EXEC mode: enables basic functions.

**Usage Guide** If the device can be pinged, the response information is displayed, and the statistics is listed at the end. If the response data does not match the request data, a ‘Request receive error.’ message is displayed and the statistics is listed in the end. For the extension functions of ping ipv6, 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.

**Configuration Examples** The following example tests the connectivity of a network to locate the network connectivity problem.

```
(regular ping) Ruijie# ping ipv6 2001::5
Sending 5, 100-byte ICMP Echoes to 2001::5, 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 2001::1 detail
```

```

Sending 5, 100-byte ICMP Echoes to 2001::1, timeout is 2 seconds:
  < press Ctrl+C to break >
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms.
    
```

The following example tests the connectivity of a network to locate the network connectivity problem (extension ping).

```

Ruijie# ping ipv6 2001::5 length 1500 ntimes 100 data ffff source 2001::9 timeout
3
Sending 100, 1500-byte ICMP Echoes to 2000::1, 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.

```

Ruijie#ping 2001::5 length 1500 ntimes 10 data ffff source 2001::9 timeout 3
Sending 10, 1500-byte ICMP Echoes to 2001::5, timeout is 3 seconds:
  < press Ctrl+C to break >
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms
Reply from 2001::5: bytes=1500 time=1ms

Success rate is 100 percent (10/10), round-trip min/avg/max = 1/1/1 ms.
    
```

Related Command	Command	Description
	N/A	N/A

**Platform** N/A  
**Description**  
n

## 6.4 show rping detail

Use this command to display Rping information.

### show rping detail

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

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

**Usage Guide** This command is used to display the Rping information such as numbers of test accounts and users.

**Configuration** The following example displays Rping information.

```
Ruijie#show rping detail
Total owner number: 2
Total test number: 4
owner: user1
  test name: taget_1      storage type: volatile
test name: taget_2      storage type: nonVolatile
owner: user2
  test name: taget_1      storage type: permanent
test name: taget_2      storage type: readOnly
```

Field	Description
Total owner number	The number of users
Total test number	The number of Rping accounts
owner	Username
test name	Test name
storage type	Storage type

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A



## 6.5 traceroute

Use this command to display all gateways passed by the test packets from the source address to the destination address.

**traceroute** [**ip**] [*address*] [**probe** *number*] [**source** *source*] [**timeout** *seconds*] [**tll** *minimum maximum* ] ]

Parameter Description	Parameter	Description
	<i>address</i>	Specifies an IPv4 address.
	<i>number</i>	Specifies the number of probe packets to be sent (range: 1-255).
	<i>source</i>	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.
	<i>seconds</i>	Specifies the timeout time (range: 1-10 seconds).
	<i>minimum maximum</i>	Specifies the minimum and maximum TTL values (range:1-255).

**Defaults** By default, *seconds* is 3 seconds, *number* is 3, *minimum* and *maximum* are 1 and 255.

**Command** Privileged EXEC mode: enables extended functions.

**Mode** 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 Examples** The following is two examples of the application about traceroute, the one is of the smooth network, 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.

```
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

**Related Commands**

Command	Description
N/A	N/A

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

## 6.6 traceroute ipv6

Use this command to display all gateways passed by the test packets from the source address to the destination address.

**traceroute [ipv6 ] [ address [ probe number ] [ timeout seconds ] [ ttl minimum maximum ] ]**

**Parameter Description**

Parameter	Description
<i>address</i>	Specifies an IPv6 address.
<i>number</i>	Specifies the number of probe packets to be sent.
<i>seconds</i>	Specifies the timeout time.
<i>minimum maximum</i>	Specifies the minimum and maximum TTL values.

**Defaults** By default, *seconds* is 3 seconds, *number* is 3, *minimum* and *maximum* are 1 and 255.

**Command** Privileged EXEC mode: enables extended functions.

**Mode** User EXEC mode: enables basic functions.

**Usage Guide** Use the **traceroute ipv6** 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 Examples** The following is two examples of the application about traceroute ipv6, the one is of the smooth network, and the other is the network in which some gateways aren't connected successfully.

1. When the network is connected smoothly:

```
Ruijie# traceroute ipv6 3004::1
< press Ctrl+C to break >
Tracing the route to 3004::1
 1  3000::1      0 msec  0 msec  0 msec
 2  3001::1      4 msec  4 msec  4 msec
 3  3002::1      8 msec  8 msec  4 msec
```

```
4      3004::1      4 msec  28 msec  12 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 3004::1 (gateways 1~4) and the spent time are displayed. Such information is helpful for network analysis.

2. When some gateways in the network fail:

```
Ruijie# traceroute ipv6 3004::1
< press Ctrl+C to break >
Tracing the route to 3004::1
1      3000::1      0 msec  0 msec  0 msec
2      3001::1      4 msec  4 msec  4 msec
3      3002::1      8 msec  8 msec  4 msec
4      * * *
5      3004::1      4 msec  28 msec  12 msec
```

The above result clearly shown that the gateways passed by the packets sent to the host with an IP address of 3004::1 (gateways 1~5) and the spent time are displayed, and gateway 4 fails.

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 7 TCP Commands

### 7.1 ip tcp adjust-mss

Use this command to change the Maximum Segment Size (MSS) option value of SYN packets sent and received on an interface. Use the **no** form of this command to restore the default setting.

**ip tcp adjust-mss** *max-segment-size*

**no ip tcp adjust-mss**

Parameter Description	Parameter	Description
	<i>max-segment-size</i>	Maximum segment size in the range from 500 to 1460 bytes

**Defaults** The MSS option value of SYN packets is not changed by default.

**Command Mode** Interface configuration mode

**Usage Guide** MSS refers to the maximum size of the payload of a TCP packet. The TCP Path MTU (PMTU) is implemented as per RFC1191. This feature can improve the network bandwidth utilization ratio. When the user uses TCP to transmit mass data, this feature can substantially enhance the transmission performance.

When the client initiates a TCP connection, it negotiates the maximum payload of TCP packets through the MSS option field of the TCP SYN packet. The MSS value of the client's SYN packet implies the maximum payload of TCP packets sent by the server, and vice versa.

Configuring this command on the interface will change the MSS option of SYN packets received or sent by the interface to the MSS value configured on the interface. If the MSS is configured on both the inbound interface and the outbound interface of the SYN packet, the smaller of the two applies. It is recommended that you configure the same value on the inbound interface and outbound interface. This command actually changes the SYN packet exchanged during TCP connection establishment. For some versions, this command may also change the SYN+ACK packet.

This command takes effect on the subsequent TCP connections to be established instead of established TCP connections.

**Configuration Examples** The following example changes the MSS option value of the TCPv4 SYN packet to 1000 bytes on port GigabitEthernet 0/0.

```
Ruijie(config-if-GigabitEthernet 0/0)# ip tcp adjust-mss 1000
```

Related Commands	Command	Description
	N/A	N/A

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

## 7.2 ip tcp keepalive

Use this command to enable the TCP keepalive function.

**ip tcp keepalive** [ **interval** *num1* ] [ **times** *num2* ] [ **idle-period** *num3* ]

Parameter Description	Parameter	Description
	<b>interval</b> <i>num1</i>	The interval of sending the keepalive packet, in the range from 1 to 120 in the unit of seconds, The default is 75.
	<b>times</b> <i>num2</i>	Keepalive packet sending times, in the range from 1 to 10. The default is 6.
	<b>idle-period</b> <i>num3</i>	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** to 180 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** When you run the RGOS 10.x command **service tcp-keepalives-in** or **service tcp-keepalives-out**, it is converted to this command automatically in RGOS 11.0.

### 7.3 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
	<i>max-segment-size</i>	Upper limit of the MSS value in the range from 68 to 10000 bytes

**Defaults** N/A

**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** In versions 10.X, this command only applies to IPv4 TCP. In version 11.0 or later, this command applies to both IPv4 and IPv6 TCP.

### 7.4 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
	<b>age-timer</b> <i>minutes</i>	The time interval for further discovery after discovering PMTU. Its value ranges from 10 to 30 minutes. The default value is 10.
	<b>age-timer infinite</b>	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 until the PMTU value reaches the MSS or the user stops this timer. Use the parameter **age-timer infinite** to stop this timer.

**Configuration** The following example enables PMTU discovery.

**Examples**

```
Ruijie(config)# ip tcp path-mtu-discovery
```

Related Commands	Command	Description
		<b>show tcp pmtu</b>

**Platform Description** In versions 10.X, this command applies to both IPv4 and IPv6 TCP. In version 11.0 or later, this command only applies to IPv4 TCP, and PMTU discovery function is always enabled and cannot be disabled.

## 7.5 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

**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 RGOS 10.x is compatible in RGOS 11.0. When you run this command, it is converted to the **no ip tcp send-reset** command automatically.

## 7.6 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
<i>seconds</i>	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 Commands	Command	Description
		N/A

**Platform Description** In versions 10.X, this command only applies to IPv4 TCP. In version 11.0 or later, this command applies to both IPv4 and IPv6 TCP.

## 7.7 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
		<i>size</i>

**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.

When the window size exceeds 65,535 bytes, the size of receiving buffer is increased automatically.

**Configuration Examples** The following example sets the TCP window size to 16,386 bytes.

```
Ruijie(config)# ip tcp window-size 16386
```

Related Commands	Command	Description
		N/A

**Platform Description** In versions 10.X, this command only applies to IPv4 TCP. In version 11.0 or later, this command applies to both IPv4 and IPv6 TCP.

## 7.8 ipv6 tcp adjust-mss

Use this command to set the MSS option value of the TCPv6 SYN packet. Use the **no** form of this command to restore the default setting.

**ipv6 tcp adjust-mss** *max-segment-size*

**no ipv6 tcp adjust-mss**

Parameter Description	Parameter	Description
	<i>max-segment-size</i>	The maximum segment size (MSS), in the range from 1220 to 1440 in the unit of bytes.

**Defaults** The MSS option value of the TCPv6 SYN packet is not changed by default.

**Command** Interface configuration mode

**Mode**

**Usage Guide** TCP negotiates MSS at 3-way handshake. If the IPv6 MTU of one link for TCPv6 packet transmission is too small and packet segmentation is not allowed during forwarding, the router changes the MSS option value of the TCPv6 SYN packet to prevent transmitting the TCPv6 packet surpassing MTU.

This configuration is not applicable to established TCPv6 connections.

**Configuration Examples** The following example sets the MSS option value of the TCPv6 SYN packet to 1300 bytes on port GigabitEthernet 0/0.

```
Ruijie(config-if-GigabitEthernet 0/0)# ipv6 tcp adjust-mss 1300
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 7.9 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
	<i>interval</i>	The interval of sending keepalive packets, in the range from 1 to

	65535 in the unit of seconds. The default is 60.
<b>garbage</b>	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 you run this RGOS 10.x command, it is converted to the **ip tcp keepalive** command automatically in RGOS 11.0.

## 7.10 service tcp-keepalives-out

Use this command to enable the keepalive function for the TCP client.

**service tcp-keepalives-out** [ *interval* ] [ **garbage** ]

Parameter Description	Parameter	Description
	<i>interval</i>	
<b>garbage</b>		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 you run this RGOS 10.x command, it is converted to the **ip tcp keepalive** command automatically in RGOS 11.0.

### 7.11 show ipv6 tcp connect

Use this command to display the current IPv6 TCP connection information.

```
show ipv6 tcp connect [ local-ipv6 X:X:X:X::X ] [ local-port num ] [ peer-ipv6 X:X:X:X::X ] [ peer-port num ]
```

Use this command to display the current IPv6 TCP connection statistics.

```
show ipv6 tcp connect statistics
```

Parameter Description	Parameter	Description
		<b>local-ipv6</b> X:X:X:X::X
	<b>local-port</b> num	Local port
	<b>peer-ipv6</b> X:X:X:X::X	Peer IPv6 address
	<b>peer-port</b> num	Peer port
	<b>statistics</b>	Displays IPv6 TCP connection statistics

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the current IPv6 TCP connection information.

```
Ruijie#show ipv6 tcp connect
Number Local Address      Foreign Address          State      Process name
1      :::22                    :::0                     LISTEN    rg-sshd
```

```

2      :::23          :::0              LISTEN         rg-telnetd
3      1000::1:23    1000::2:64201    ESTABLISHED   rg-telnetd

```

The following example displays the current IPv6 TCP connection statistics.

```

Ruijie#show ipv6 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** N/A  
**Description**

## 7.12 show ipv6 tcp pmtu

Use this command to display information about IPv6 TCP PMTU.

```

show ipv6 tcp pmtu [ local-ipv6 X:X:X:X::X ] [ local-port num ] [ peer-ipv6 X:X:X:X::X ] [ peer-port num ]

```

#### Parameter Description

Parameter	Description
<b>local-ipv6</b> X:X:X:X::X	Local IPv6 address
<b>local-port</b> num	Local port
<b>peer-ipv6</b> X:X:X:X::X	Peer IPv6 address
<b>peer-port</b> num	Peer port

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example information about IPv6 TCP PMTU.

**Examples**

```
Ruijie# show ipv6 tcp pmtu
Number Local Address Foreign Address PMTU
1 1000::1:23 1000::2.13560
```

Field	Description
Number	Number
Local Address	Local address and port number. The number after the last colon is the port number.
Foreign Address	Remote address and port number. The number after the last colon is the port number.
PMTU	Path MTU.

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 7.13 show ipv6 tcp port

Use this command to display the current IPv6 TCP port status.

**show ipv6 tcp port** [ *num* ]

**Parameter Description**

Parameter	Description
<i>num</i>	Port number

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the current IPv6 TCP port status.

**Examples**

```
Ruijie#show ipv6 tcp port
TCP connections on port 23:
Number Local Address Foreign Address State
```

```
1      1000::1:23    1000::2:64571    ESTABLISHED
```

Total: 1

TCP connections on port 2650:

```
Number Local Address Foreign Address State
```

Total: 0

Field	Description
Number	Number
Local Address	Local address and port number.
Foreign Address	Remote address and port number.
State	<p>Current status of the TCP connection. There are eleven possible states:</p> <p>CLOSED: The connection has been closed.</p> <p>LISTEN: Listening state</p> <p>SYNSENT: In the three-way handshake phase when the SYN packet has been sent out.</p> <p>SYNRCVD: In the three-way handshake phase when the SYN packet has been received.</p> <p>ESTABLISHED: The connection has been established.</p> <p>FINWAIT1: The local end has sent the FIN packet.</p> <p>FINWAIT2: The FIN packet sent by the local end has been acknowledged.</p> <p>CLOSEWAIT: The local end has received the FIN packet from the peer end.</p> <p>LASTACK: The local end has received the FIN packet from the peer end, and then sent its own FIN packet.</p> <p>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.</p> <p>TIMEWAIT: The FIN packet sent by the local end has been acknowledged, and the local end has also acknowledged the FIN packet.</p>
Process Name	Process name

**Related Commands**

Command	Description
N/A	N/A

**Platform Description**

N/A



## 7.14 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
	<b>local-ip</b> <i>a.b.c.d</i>	Local IP address.
	<b>local-port</b> <i>num</i>	Local port.
	<b>peer-ip</b> <i>a.b.c.d</i>	Peer IP address.
	<b>peer-port</b> <i>num</i>	Peer port.
	<b>statistics</b>	Displays IPv4 TCP connection statistics.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the current IPv4 TCP connection information.

```
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

	<p>packet has been received.</p> <p>ESTABLISHED: The connection has been established.</p> <p>FINWAIT1: The local end has sent the FIN packet.</p> <p>FINWAIT2: The FIN packet sent by the local end has been acknowledged.</p> <p>CLOSEWAIT: The local end has received the FIN packet from the peer end.</p> <p>LASTACK: The local end has received the FIN packet from the peer end, and then sent its own FIN packet.</p> <p>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.</p> <p>TIMEWAIT: The FIN packet sent by the local end has been acknowledged, and the local end has also acknowledged the FIN packet.</p>
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

## 7.15 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
	<b>local-ip</b> <i>a.b.c.d</i>	Local IP address.
	<b>local-port</b> <i>num</i>	Local port.
	<b>peer-ip</b> <i>a.b.c.d</i>	Peer IP address.
	<b>peer-port</b> <i>num</i>	Peer port.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays PMTU of IPv4 TCP connection.

### Examples

```
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
	<b>ip tcp path-mtu-discovery</b>	Enables the TCP PMTU discovery function.

**Platform Description** N/A

## 7.16 show tcp port

Use this command to display information about the current TCP port.

**show tcp port** [ *num* ]

Parameter Description	Parameter	Description
	<i>num</i>	Port number

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the current IPv4 TCP port status.

### Examples

```
Ruijie#show tcp port
TCP connections on port 23:
Number  Local Address  Foreign Address  State
1       1.1.1.1:23    1.1.1.2:64571   ESTABLISHED
Total: 1

TCP connections on port 2650:
Number  Local Address  Foreign Address  State
Total: 0
```

Tcpv6 listen on 23 have total 1 connections.

Field	Description
Number	Port number
Local Address	Local address
Foreign Address	Remote address
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

	<p>acknowledged.</p> <p>CLOSEWAIT: The local end has received the FIN packet from the peer end.</p> <p>LASTACK: The local end has received the FIN packet from the peer end, and then sent its own FIN packet.</p> <p>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.</p> <p>TIMEWAIT: The FIN packet sent by the local end has been acknowledged, and the local end has also acknowledged the FIN packet.</p>
--	--

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 8 IPv4/IPv6 REF Commands

### 8.1 clear ip ref packet statistics

Use this command to clear IPv4 Ruijie Express Forwarding (REF) packet statistics.

**clear ip ref packet statistics**

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 clears IPv4 REF packet statistics.

```
Ruijie #clear ip ref packet statistics
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 8.2 clear ipv6 ref packet statistics

Use this command to clear IPv6 REF packet statistics.

**clear ipv6 ref packet statistics**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example clears IPv6 REF packet statistics.

**Examples**

```
Ruijie #clear ipv6 ref packet statistics
```

Related Commands	Command	Description
	N/A	N/A

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

### 8.3 ip ref load-sharing original

Use this command to configure the algorithm that is used for load balancing during forwarding based on the source and destination IPv4 addresses. Use the **no** form of this command to restore the default setting.

**ip ref load-sharing original**  
**no ip ref load-sharing original**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The default algorithm is based on the destination IPv4 address.

**Command Mode** Global configuration mode

**Usage Guide** The REF is responsible for data forwarding and supports two load balancing algorithms. One is based on destination IP addresses and the other is based on the source and destination IP addresses. When IP packets are forwarded on multiple paths, for example, when load balancing based on destination IP addresses is configured, the REF forwards packets based on a path matching the destination IP address of packets. By default, load balancing based on destination IP addresses is used.

**Configuration Examples** The following example configures the load balancing algorithm based on source and destination IP addresses.

```
Ruijie(config)# ip ref load-sharing original
```

The following example configures the load balancing algorithm based on destination IP addresses of packets.

```
Ruijie(config)# no ip ref load-sharing original
```

Related Commands	Command	Description
	N/A	N/A

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

## 8.4 ipv6 ref load-sharing original

Use this command to configure the algorithm that is used for load balancing during forwarding based on the source and destination IPv6 addresses. Use the **no** form of this command to restore the default setting.

**ipv6 ref load-sharing original**  
**no ipv6 ref load-sharing original**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The default algorithm is based on the destination IPv6 address.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example restores the algorithm that is used for load balancing during forwarding to the default setting.

```
Ruijie(config)#no ipv6 ref load-sharing original
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A.  
**Description**

## 8.5 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	Parameter	Description
Description	<b>glean</b>	Aggregate adjacent node, which is used for a direct route
	<b>local</b>	Local adjacent node, which is used by the local host
	<i>ip</i>	Next-hop IP address
	<i>interface_type</i>	Interface type
	<i>interface_number</i>	Interface number



<b>discard</b>	Displays discarded adjacent nodes.
<b>statistics</b>	Statistics

**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	Command	Description
Commands	<b>show ip ref route</b>	Displays all route information in the current REF module.

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

## 8.6 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	Parameter	Description
Description	<i>source_ipaddress</i>	Source IP address of the packet
	<i>dest_ipaddress</i>	Destination IP address of the packet

**Defaults** N/A

**Command Mode** Privileged EXEC 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 Examples** The following example displays the IPv4 REF exact route from 192.168.217.74 to 192.168.13.1.

```
Ruijie# show ip ref exact-route 192.168.217.74 192.168.13.1
192.168.217.74 --> 192.168.13.1 (vrf index:0):
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
	<b>show ip ref route</b>	Displays all routing information in the current REF module.

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

## 8.7 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 Mode** Privileged EXEC 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**

## 8.8 show ip ref resolve-list

Use this command to display the IPv4 REF resolution information.

**show ip ref resolve-list**

**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 IPv4 REF resolution information.

**Examples**

```
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**

**Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 8.9 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
<b>default</b>	Specifies the default route.
<i>ip</i>	Specifies the destination IP address of the route
<i>mask</i>	Specifies the mask of the route.
<b>statistics</b>	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**

The following example displays all the routing information in the IPv4 REF table.

**Examples**

```
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** N/A

**Description**

## 8.10 show ipv6 ref adjacency

Use this command to display the information about the IPv6 adjacent node.

**show ipv6 ref adjacency** [**glean** | **local** | *ipv6-address* | **interface** *interface\_type interface\_number* | **discard** | **statistics** ]

#### Parameter Description

Parameter	Description
<b>glean</b>	Aggregate adjacent node, which is used for a direct route
<b>local</b>	Local adjacent node, which is used by the local host
<i>ipv6-address</i>	Next-hop IP address
<i>interface_type</i>	Interface type
<i>interface_number</i>	Interface number
<b>discard</b>	Displays discarded adjacent nodes.
<b>statistics</b>	Statistics

**Defaults** N/A

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

**Usage Guide** This command can be used to display the information about the adjacent node table in the privileged EXEC mode and global configuration mode.

**Configuration** The following example displays the information about the IPv6 adjacent node..

**Examples**

```
Ruijie#show ipv6 ref adjacency
id  state      type  rfct chg ip   interface      linklayer(header
data)
1   unresolved glean  1   0   ::   GigabitEthernet 0/0
2   unresolved local  2   0   ::1  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
N/A	N/A

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

### 8.11 show ipv6 ref exact-route

This command is used to display the IPv6 REF exact route.

**show ipv6 ref exact-route** *source-ipv6-address destination-ipv6-address*

Parameter	Parameter	Description
Description	<i>source-ipv6-address</i>	Source IP address of the packet
	<i>destination-ipv6-address</i>	Destination IP address of the packet

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the IPv4 REF exact route from 2001:db8:1::1 to 3001:db8:2::2.

```
Ruijie#show ipv6 exact-route 2001:db8:1::1 3001:db8:2::2
2001:db8:1::1 --> 3001:db8:2::2 (vrf index:0):
ID state      type  rfct chg ip interface          linklayer(header data)
3  unresolve  glean  1   0  :: GigabitEthernet 0/0
```

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
	N/A	N/A

**Platform** N/A



**Description**

## 8.12 show ipv6 ref packet statistics

Use this command to display IPv6 REF packet statistics.

**show ipv6 ref packet statistics**

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 IPv6 REF packet statistics.

**Examples**

```
Ruijie#show ipv6 ref packet statistics
ref packet statistic:
  bad head      : 0
  lookup fib fail : 0
  local adj     : 0
  glean adj    : 0
  forward      : 0
  redirect     : 0
  hop-limit expiration : 0
  no ipv6 unicast-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.
---------------	--

<b>Related Commands</b>	Command	Description
	N/A	N/A

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

### 8.13 show ipv6 ref resolve-list

This command is used to display the IPv6 REF resolution information.

**show ipv6 ref resolve-list**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays IPv6 REF resolution information.

```
Ruijie#show ipv6 ref resolve-list
IP          res_state flags interface
1000::1    unres     1    GigabitEthernet 0/0
```

Field	Description
IP	IPv6 address
res_state	unres: unresolved res: resolved
flags	0: related to adjacency 1: unrelated to adjacency
interface	Interface

<b>Related Commands</b>	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 8.14 show ipv6 ref route

Use this command to display all the routing information in the IPv6 REF table.

**show ipv6 ref route [ default | statistics | prefix/len ]**

**Parameter Description**

Parameter	Description
<b>default</b>	Specifies the default route.
<b>statistics</b>	Statistics
<b>prefix/len</b>	Displays the route with the specified prefix (X:X:X:X/<0-128>).

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** The command can also be used to display information about the default route, the route with the specified prefix, and statistics of all types of routes.

**Configuration** The following example displays all the routing information in the REF IPv6 table.

**Examples**

```
Ruijie#show ipv6 ref route
Codes: * - default route
prefix/len          weight path_id next_hop interface
2001:da8:ffe:2::/64    1      3      ::      GigabitEthernet 0/0
2001:da8:ffe:2::3/128  1      2      :::1    Local 1
fe80::/10            1      6      ::      Null 0
fe80::21a:a9ff:fe3b:fa41/128  1      2      :::1    Local 1
```

Field	Description
prefix/len	IPv6 prefix and prefix length.
path-id	Adjacent identity
next-hop	Address of next hop
weight	Routing weight
interface	Interface

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 9 NAT Commands

### 9.1 address

Use this command to configure the address range of an empty NAT address pool.

Use the **no** form of this command to delete the address range of an address pool.

**address** *start-ip end-ip* [ **match interface** *interface* ]

**no address** *start-ip end-ip* [ **match interface** *interface* ]

**address interface** *interface* [ **match interface** *interface* ]

**no address interface** *interface* [ **match interface** *interface* ]

Parameter	Parameter	Description
Description	<i>start-ip</i>	Start IP address of an address block
	<i>end-ip</i>	End IP address of an address block
	<b>interface</b> <i>interface</i>	Sets the interface used when NAT has multiple outside interfaces. The addresses defined in a pool use interface addresses and are used when the interface addresses are unknown and will be negotiated.  Note that this parameter must be used with the <b>match interface</b> <i>interface</i> parameter, and the two interfaces must be consistent. Otherwise, NAT may fail.
	<b>match interface</b> <i>interface</i>	Sets the interface used when NAT has multiple outside interfaces. When the router determines the egress of packets, NAT uses this egress to select an address that matches it from the pool.

**Defaults** No address range is defined by default.

**Command Mode** NAT address pool configuration mode

**Usage Guide** If you need to define multiple address ranges for an address pool, first enter NAT address pool configuration mode, and then define the NAT address ranges. These commands are not supported on aggregate ports.

**Configuration Examples** The following example creates a mulnets address pool and defines two address blocks.

```
Ruijie(config)# ip nat pool mulnets netmask 255.255.255.0
Ruijie(config-nat)# address 172.16.10.1 172.16.10.254
Ruijie(config-nat)# address 192.168.100.1 192.168.100.50
```

Related	Command	Description
---------	---------	-------------

<b>Commands</b>	<b>ip nat pool</b>	Defines the IP NAT address pool.
-----------------	--------------------	----------------------------------

**Platform**  
**Description**

N/A

## 9.2 ip nat

Use this command to perform NAT on an interface.

Use the **no** form of this command to disable NAT on an interface.

**ip nat { inside | outside }**

**no ip nat { inside | outside }**

Parameter	Parameter	Description
<b>Description</b>	<b>inside</b>	Performs NAT on incoming packets.
	<b>outside</b>	Performs NAT on outgoing packets.

**Defaults** NAT is not enabled by default.

**Command Mode** Interface configuration mode

**Usage Guide** NAT is performed only when packets are routed between outside and inside interfaces and meet a certain rule. Therefore, at least an inside interface and an outside interface must be configured.

**Configuration Examples** The following example dynamically translates the internal host 192.168.12.0/24 to the network segment with the global address 200.168.12.0/28. NAT is not allowed for the hosts in other network segments of the internal network.

```
Ruijie#configure terminal
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)# ip address 192.168.12.6 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/0)# ip nat inside
Ruijie(config-if-GigabitEthernet 0/0)# exit
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 200.168.12.17
255.255.255.0
Ruijie(config-if-GigabitEthernet 0/1)# ip nat outside
Ruijie(config-if-GigabitEthernet 0/1)# exit
Ruijie(config)# ip nat pool net200 200.168.12.1 200.168.12.15 netmask
255.255.255.0
Ruijie(config)# ip nat inside source list 1 pool net200
Ruijie(config)# access-list 1 permit 192.168.12.0 0.0.0.255
```

Related Commands	Command	Description
	<b>clear ip nat translation</b>	Clears the NAT entry table.
	<b>ip nat inside destination</b>	Enables NAT for the internal destination address.
	<b>ip nat inside source</b>	Enables NAT for internal source addresses.
	<b>ip nat outside source</b>	Enables NAT for external source addresses.
	<b>ip nat pool</b>	Defines the IP NAT address pool.
	<b>show ip nat translations</b>	Displays IP NAT entries.

**Platform Description** N/A

### 9.3 ip nat application

Use this command to implement special application of NAT.

Use the **no** form of this command to cancel this special application.

```
ip nat application source list list-num destination dest-ip
{ dest-change | src-change } ip-addr
```

```
ip nat application source list list-num destination { tcp | udp
dest-ip port-num } { dest-change ip-addr port-num | src-change
ip-addr }
```

```
no ip nat application source list list-num destination dest-ip
{ dest-change | src-change } ip-addr
```

```
no ip nat application source list list-num destination { tcp | udp
dest-ip port-num } { dest-change ip-addr port-num | src-change
ip-addr }
```

Parameter Description	Parameter	Description
	<i>list-num</i>	Access list of internal local addresses, that is, match criteria of the source addresses of packets
	<i>dest-ip</i>	Internal global address match, that is, match criteria of the destination addresses of packets. NAT entries are created only when the destination IP address matches this address and the source IP address matches the previously defined access list.
	<b>tcp</b> <i>dest-ip port-num</i>	Matches the internal global address and the destination port. NAT entries are created only when the destination address and port of the TCP packet match the criteria defined here and the source address matches the previously defined access list.
	<b>udp</b> <i>dest-ip port-num</i>	Matches the internal global address and the destination port. NAT entries are created only when the destination address and port of the UDP packet match the criteria

	defined here and the source address matches the previously defined access list.
<b>dest-change</b> <i>ip-addr</i> <i>port-num</i>	Changes the destination address and port of the packet that meets criteria.
<b>src-change</b> <i>ip-addr</i>	Changes the source address of the packet that meets criteria.

**Defaults** This rule is not defined by default.

**Command**

**Mode** Global configuration mode

**Usage Guide** In some advanced applications of NAT, it is necessary to change the source or destination addresses of some particular IP packets. This command can be used to perform this operation. The following example uses this command to implement the domain name resolution relay service (DNS relay).

**Configuration Examples** The following example allows the host in the network segment 192.168.1.0 in the internal network to point the DNS server to the IP address 192.168.1.1 of the NAT inside interface. The NAT function of the router forwards the DNS request from the host in the internal network to the true DNS server 202.101.98.55, and forwards the DNS response packet to the host in the internal network. Implement this function with the **ip nat application** command. The semantics is: If there is a UDP packet whose source address meets the criteria of access-list 1, destination address is 192.168.1.1, and destination port is 53, and then change the destination address of this IP packet to 202.101.98.55 and the destination port to 53.

```
Ruijie#configure terminal
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)# ip address 192.168.1.1 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/0)# ip nat inside
Ruijie(config-if-GigabitEthernet 0/0)# exit
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 200.168.12.1 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/1)# ip nat outside
Ruijie(config-if-GigabitEthernet 0/1)# exit
Ruijie(config)# ip nat pool net200 200.168.12.2 200.168.12.10 netmask
255.255.255.0
Ruijie(config)# ip nat inside source list 1 pool net200
Ruijie(config)# access-list 1 permit 192.168.12.0 0.0.0.255
Ruijie(config)# ip nat application source list 1 destination udp 192.168.1.1
53 dest-change 202.101.98.55 53
Ruijie(config)# access-list 1 permit 192.168.1.0 0.0.0.255
```

**Related**

Command	Description
---------	-------------



<b>Commands</b>	<b>address</b>	Defines the address block range of an address pool.
	<b>clear ip nat translation</b>	Clears the NAT entry table.
	<b>ip nat</b>	Specifies that NAT should be performed on the traffic that passes this interface.
	<b>ip nat inside destination</b>	Enables NAT for the internal destination address.
	<b>ip nat inside source</b>	Enables NAT for internal source addresses.
	<b>ip nat outside source</b>	Enables NAT for external source addresses.
	<b>show ip nat translations</b>	Displays IP NAT entries.

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

## 9.4 ip nat inside destination

Use this command to enable NAT for the internal destination address.

Use the **no** form of this command to disable NAT for the internal destination address.

**ip nat inside destination list** *access-list-number* **pool** *pool-name*

**no ip nat inside destination list** *access-list-number*

Parameter	Parameter	Description
<b>Description</b>	<b>list</b> <i>access-list-number</i>	Internal global addresses are defined in the access list. If the external network accesses the address in the access list, the internal global address will be translated into the internal local address defined in the pool. Note that here you should use the extended ACL in the range from 100 to 199 whose destination IP address is a virtual IP address.
	<b>pool</b> <i>pool-name</i>	A space in the address pool that defines the internal local address. An internal local address will be assigned from this space during destination address translation.

**Defaults** NAT for the internal source address is disabled by default.

**Command**

**Mode** Global configuration mode

**Usage Guide** Translation of internal destination addresses can be performed to realize load balance of TCP traffic. When a host in the internal network is overloaded with TCP traffic, multiple hosts may be required to balance the load of TCP traffic. In this case, you can use NAT to realize load balance of TCP traffic. NAT will create a virtual host to provide the TCP service. This virtual host corresponds to multiple real internal hosts. Then, NAT polls and replaces the destination address, so as to distribute the load. However, no change is made to other IP traffic, unless NAT is configured otherwise.

When NAT is configured to realize TCP load balance, the address of the internal network can be either a valid global address or a private network address. However, the address of the virtual host must be a valid global address.

**Configuration Examples** The following example configures the internal network to provide a virtual host address 10.10.10.100 externally. The external network uses this address to access the WWW service. The hosts that provide services in the internal LAN are actually two hosts with the addresses 10.10.10.1 and 10.10.10.2. During NAT, load balance is realized in polling mode.

```
Ruijie#configure terminal
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)# ip address 10.10.10.254 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/0)# ip nat inside
Ruijie(config-if-GigabitEthernet 0/0)# exit
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 200.168.12.17
255.255.255.0
Ruijie(config-if-GigabitEthernet 0/1)# ip nat outside
Ruijie(config-if-GigabitEthernet 0/1)# exit
Ruijie(config)# ip nat pool net10 10.10.10.1 10.10.10.2 prefix-length 24 type
rotary
Ruijie(config)# ip nat inside destination list 100 pool net10
Ruijie(config)# access-list 100 permit ip any host 10.10.10.100
```

**Related  
Commands**

Command	Description
<b>clear ip nat translation</b>	Clears the NAT entry table.
<b>ip nat</b>	Specifies that NAT should be performed on the traffic that passes this interface.
<b>ip nat inside source</b>	Enables NAT for internal source addresses.
<b>ip nat outside source</b>	Enable NAT for external source addresses.
<b>ip nat pool</b>	Defines the IP NAT address pool
<b>show ip nat translations</b>	Displays IP NAT entries.

**Platform**

**Description** N/A

## 9.5 ip nat inside source

Use this command to enable NAT for internal source addresses in interface configuration mode. Use the **no** form of this command to disable static or dynamic NAT.

**ip nat inside source list** *access-list-number* { **interface** *interface-type interface-number* | **pool**

```

pool-name } [ overload ]
ip nat inside source static local-ip global-ip [ match interface-type interface-number | netmask
mask ][ permit-inside ]
ip nat inside source static local-ip interface interface-type interface-number [permit-inside]
ip nat inside source static { tcp local-ip local-port | udp local-ip local-port } global-ip global-port
[ match interface-type interface-number | netmask mask ] [ permit-inside ]
ip nat inside source static { tcp local-ip local-port | udp local-ip local-port } interface interface-type
interface-number global-port [ permit-inside ]
no ip nat inside source list access-list-number
no ip nat inside source static local-ip global-ip
no ip nat inside source static local-ip interface interface-type interface-number
no ip nat inside source static { tcp local-ip local-port | udp local-ip local-port } global-ip global-port
no ip nat inside source static { tcp local-ip local-port | udp local-ip local-port } interface
interface-type interface-number global-port

```

Parameter Description	Parameter	Description
	<b>list</b> <i>access-list-number</i>	Specifies the access list of local addresses. NAT entries will be created only for the traffic with the source address that matches this access list.
	<b>interface</b> <i>interface-type interface-number</i>	Uses the global address of the outside interface to perform Network Address Port Translation (NAPT), also called extended NAT.
	<b>pool</b> <i>pool-name</i>	Uses a global address in the address pool to perform NAT.
	<b>overload</b>	(Optional) Every global address in the pool can be reused for translation, namely, NAPT. Currently, this parameter is not set, and global addresses are reusable. This parameter is added in order to be compatible with the command of Cisco.
	<b>static</b> <i>local-ip global-ip</i>	Defines the simple static NAT. <i>local-ip</i> is a local address, and <i>global-ip</i> is a global address. The <b>no</b> form of this command does not check the validity of <i>global-ip</i> .
	<b>static</b> <i>protocol</i>	Defines the extended static NAT. <i>protocol</i> can be either TCP or UDP.
	<i>local-port</i>	Service port number (TCP or UDP) of the local address. Each service typically corresponds to a service port.
	<i>global-port</i>	Service port number of the global address. The external network accesses the services of hosts in the internal network through this port. This port number can be different from <i>local-port</i> .
	<b>permit-inside</b>	Allows users in the internal network to access the

	host with the IP address indicated by local-ip through global-ip. This keyword appears only in the <b>ip nat inside source static</b> command is applicable only on routers.
<b>match</b> <i>interface-type interface-number</i>	Specifies the outside interface (used in smart DNS).
<b>netmask</b> <i>mask</i>	Network mask

**Defaults** NAT for internal source addresses is disabled by default.

**Command**

**Mode** Global configuration mode

**Usage Guide** When the IP address of the internal network is a private address and the internal network needs to communicate with the external network, NAT must be configured to translate the internal private IP address into the globally unique IP address.

If organizations, such as net bars or enterprises, access the network only for obtaining resources in the external network, such as browsing Web pages, receiving and sending emails, and downloading files, but not for providing network services for the external network, the IP address of the outside interface can be used directly as the global address and the address is translated in NAPT mode. If NAT is not configured, the internal network with the private address, even if physically interconnected with the external network, is unable to interwork with the external network, because the external network does not provide network routing for the private address.

Static NAT or NAPT should be configured for the internal hosts that provide services. To ensure continuous service provisioning, do not use the address of the outside interface to perform NAPT because this address is interconnected with ISP and is very likely to be translated. Generally, users in the internal network can access the services provided by these internal hosts simply by using the IP address of the internal network. However, some special application services can only be accessed by users in the internal network using the global IP address. In this case, you need to add the keyword **permit-inside** when configuring static NAT or static NAPT for internal source addresses. Moreover, it is advisable to run the **no ip redirects** command on the inside interface to prevent the inside interface from sending redirection packets.

**Configuration Examples** The following example dynamically translates the internal host 192.168.12.0/24 to the network segment with the global address 200.168.12.0/28. NAT is not allowed for the hosts in other network segments of the internal network.

```
Ruijie#configure terminal
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)# ip address 192.168.12.6 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/0)# ip nat inside
Ruijie(config-if-GigabitEthernet 0/0)# exit
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 200.168.12.17
255.255.255.0
```

```
Ruijie(config-if-GigabitEthernet 0/1)# ip nat outside
Ruijie(config-if-GigabitEthernet 0/1)# exit
Ruijie(config)# ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length
28
Ruijie(config)# ip nat inside source list 1 pool net200
Ruijie(config)# access-list 1 permit 192.168.12.0 0.0.0.255
```

#### Related Commands

Command	Description
<b>clear ip nat translation</b>	Clears the NAT entry table.
<b>ip nat</b>	Specifies that the NAT should be performed on the traffic that passes this interface.
<b>ip nat inside destination</b>	Enables NAT for the inside destination address.
<b>ip nat outside source</b>	Enable NAT for external source addresses.
<b>ip nat pool</b>	Defines the IP NAT address pool.
<b>show ip nat translations</b>	Displays IP NAT entries.

#### Platform

Description N/A

## 9.6 ip nat outside source

Use this command to enable NAT for the external source addresses.

Use the **no** form of this command is used to disable NAT for external source addresses.

**ip nat outside source list** *access-list-number* **pool** *pool-name*

**no ip nat outside source list** *access-list-number*

**ip nat outside source static** *global-ip local-ip*

**no ip nat outside source static** *global-ip local-ip*

**ip nat outside source static** *protocol global-ip global-port local-ip local-port*

**no ip nat outside source static** *protocol global-ip global-port local-ip local-port*

#### Parameter Description

Parameter	Description
<b>list</b> <i>access-list-number</i>	Global address access list. NAT entries will be created only for the traffic with the source address that matches this access list.
<b>pool</b> <i>pool-name</i>	Uses a local address in the address pool to perform NAT.
<b>static</b> <i>global-ip local-ip</i>	Defines the simple static NAT. <i>local-ip</i> is a local address, and <i>global-ip</i> is a global address.
<b>static</b> <i>protocol</i>	Defines the extended static NAT. <i>protocol</i> can be either TCP or UDP.
<i>local-port</i>	Service port number (TCP or UDP) of the local address. Each service typically corresponds to a

	service port. This port number can be different from <i>global-port</i> .
<i>global-port</i>	Service port number of the global address

**Defaults** NAT for external source addresses is disabled by default.

**Command**

**Mode** Global configuration mode

**Usage Guide** NAT for external source addresses is mainly used for the overlapped address space. Two private networks to be interconnected are assigned with the same IP address, or a private network and a public network are assigned with the same global IP address, which is called address overlap. Two network hosts with the overlapped address cannot communicate with each other because they both determine that the remote host is located in the local network. Overlapped address NAT is configured to resolve the problem of communication between networks with the overlapped address. With overlapped address NAT configured, the external network host address behaves like another network host address in the internal network, and vice versa.

Configuration of overlapped address NAT includes two steps: 1) Configure the internal source address NAT; 2) Configure the external source address NAT. The external source address translation can be configured only when the address of the external network is overlapped with that of the internal network. The external source address translation can be configured as static NAT or dynamic NAT.

Address overlap is inevitable when a non-registered global IP address is assigned to connect to the Internet during internal network construction. Because the internal network generally uses the domain name to access the external network host, routers must support NAT for DNS packets.

**Configuration Examples** In the following example, the address of the internal network 92.168.12.0/24 is overlapped with that of the external network. After translation, the internal host can access the host in the network segment 92.168.12.0/24 in the external network through the network address 192.168.12.0/24.

```
Ruijie#configure terminal
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)# ip address 192.168.12.55 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/0)# ip nat inside
Ruijie(config-if-GigabitEthernet 0/0)# exit
Ruijie(config)# interface Serial 10/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 192.168.10.1 255.255.255.0
Ruijie(config-if-GigabitEthernet 0/1)# ip nat outside
Ruijie(config-if-GigabitEthernet 0/1)# encapsulation ppp
Ruijie(config-if-GigabitEthernet 0/1)# exit
Ruijie(config)#ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
Ruijie(config)#ip nat pool net192 192.168.12.1 192.168.12.254 prefix-length 24
Ruijie(config)#ip nat inside source list 1 pool net200
Ruijie(config)#ip nat outside source list 1 pool net192
```

```
Ruijie(config)#access-list 1 permit 92.168.12.0 0.0.0.255
Ruijie(config)#ip route 192.168.12.0 255.255.255.0 192.168.100.2
```

### Related Commands

Command	Description
<b>clear ip nat translation</b>	Clears the NAT entry table.
<b>ip nat</b>	Specifies that NAT should be performed for the traffic that passes this interface.
<b>ip nat inside destination</b>	Enables NAT for internal destination address.
<b>ip nat inside source</b>	Enables NAT for internal source address.
<b>ip nat pool</b>	Defines the IP NAT address pool.
<b>show ip nat translations</b>	Displays IP NAT entries.

### Platform

Description N/A

## 9.7 ip nat pool

Use this command to define an address pool for NAT.

Use the **no** form of this command to delete the address pool.

**ip nat pool** *pool-name start-ip end-ip* { **netmask** *netmask* | **prefix-length** *prefix-length* } [ **type rotary** ]

**ip nat pool** *pool-name* { **netmask** *netmask* | **prefix-length** *prefix-length* } [ **type rotary** ]

**ip nat pool** *pool-name* { **netmask** *netmask* | **prefix-length** *prefix-length* } [ **type rotary** ] [ **hardware** ]

**no ip nat pool** *pool-name*

### Parameter Description

Parameter	Description
<i>pool-name</i>	Name of the NAT address pool
<i>start-ip</i>	Start IP address of the NAT address pool
<i>end-ip</i>	End IP address of the NAT address pool
<b>netmask</b> <i>netmask</i>	Net mask of an address in the NAT address pool
<b>type</b>	Type of the NAT address pool. <b>rotary</b> means round robin. That is, each address has the same probability of being assigned. The type is <b>rotary</b> no matter whether <b>rotary</b> is set. The <b>rotary</b> parameter is introduced in order to keep compatible with the command of Cisco.

**Defaults** No address pool is defined by default.

**Command****Mode** Global configuration mode**Usage Guide** If multiple address blocks must be defined for an address pool, first create an empty address pool, and define the address range.**Configuration Examples** The following example creates an address pool named **net192**, with the start address 192.168.12.1, end address 192.168.12.254, and a 24-bit net mask.

```
Ruijie#configure terminal
Ruijie(config)# ip nat pool net192 192.168.12.1 192.168.12.254 prefix-length 24
```

**Related Commands**

Command	Description
<b>address</b>	Defines the address block range of an address pool.
<b>clear ip nat translation</b>	Clears the NAT entry table.
<b>ip nat</b>	Specifies that NAT should be performed for the traffic that passes this interface.
<b>ip nat inside destination</b>	Enables NAT for inside destination addresses.
<b>ip nat inside source</b>	Enables NAT for internal source addresses.
<b>ip nat outside source</b>	Enables NAT for external source addresses.
<b>show ip nat statistics</b>	Displays IP NAT statistics.
<b>show ip nat translations</b>	Displays IP NAT entries.

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

## 9.8 ip nat keepalive

Use this command to configure the interval of sending gratuitous ARP (GARP) packets with the local address.

**ip nat keepalive** [ *keealive\_out* ]**no ip nat keepalive****default ip nat keepalive****Parameter Description**

Parameter	Description
<i>keealive_out</i>	Sending interval

**Defaults** The interval of sending GARP packets with the local address is not configured by default.**Command****Mode** Global configuration mode**Usage Guide** Some addresses in NAT rules should be taken as the local address. Sending GARP packets at



intervals avoids address conflicts.

The following example sets the interval of sending GARP packets with the local address to 10 seconds.

**Configuration****Examples**

```
Ruijie#configure terminal
Ruijie(config)# ip nat keepalive 10
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 9.9 ip nat translation

Use this command to configure the NAT Application Layer Gateway (ALG).

```
ip nat translation { dns [ ttl tll_time ] | ftp [ port port_num ] | tftp | pptp | h323 | rtsp }
no ip nat translation { dns | ftp | tftp | pptp | h323 | rtsp }
```

**Parameter  
Description**

Parameter	Description
<i>tll_time</i>	Defines the UDP TTL for DNS. The default is 0.
<i>port_num</i>	Defines the port for FTP. The default is 21.

**Defaults**

All NAT ALGs are enabled by default.

**Command****Mode**

Global configuration mode

**Usage Guide**

In NAT application, the IP addresses and ports of data packets are changed. However, the IP addresses and ports of certain special protocols are contained in the valid data of the application layer. To successfully perform NAT for such special protocols, the specific protocol gateway needs to be enabled.

The following example configures DNS TTL to 30 seconds.

```
Ruijie#configure terminal
Ruijie(config)# ip nat translation dns ttl 30
```

**Configuration****Examples**

The following example configures Port 25 for FTP.

```
Ruijie#configure terminal
Ruijie(config)# ip nat translation ftp port 25
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 9.10 ip nat user-port-range user-type

Use this command to configure port-range-based QoS. Use the **no** form of this command to restore the default setting.

**ip nat user-port-range user-type {level0 | level1 | level2 | level3 | level4 | level5 | level6} port-range start-port end-port**  
**no ip nat user-port-range user-type {level0 | level1 | level2 | level3 | level4 | level5 | level6}**

Parameter Description	Parameter	Description
	<b>user-type</b>	Indicates user type. Only one port range can be configured for each type.
	<b>level0</b>	Indicates a user type.
	<b>Level1</b>	Indicates a user type.
	<b>Level2</b>	Indicates a user type.
	<b>Level3</b>	Indicates a user type.
	<b>Level4</b>	Indicates a user type.
	<b>Level5</b>	Indicates a user type.
	<b>Level6</b>	Indicates a user type.
	<b>port-range</b>	Indicates port range.
	<i>start-port</i>	Specifies the start port number, which ranges from 1 to 65535.
	<i>end-port</i>	Specifies the end port number, which ranges from 1 to 65535.

**Defaults** By default, this function is disabled.

**Command Mode** Global configuration mode

**Usage Guide** The start port number cannot be smaller than the end port number.  
Port ranges of user types cannot overlap.

**Configuration Examples** The following example configures the port range for Level 1 from 100 to 200..

```
Ruijie#configure terminal
```

```
Ruijie(config)# ip nat user-port-range user-type level1 port-range 100 200
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** This command is supported on Fat APs.

## 9.11 show ip nat translations

Use this command to display NAT translations.

```
show ip nat translations [dev_id] [slot_id] [acl_num] [icmp | tcp | udp] [verbose]
```

Parameter Description	Parameter	Description
	<b>icmp</b>	Displays NAT entries only for ICMP.
	<b>tcp</b>	Displays NAT entries only for TCP.
	<b>udp</b>	Displays NAT entries only for UDP.
	<b>gre</b>	Displays NAT entries only for GRE.
	<i>acl_num</i>	ACL number, which supports only the extended ACL to filter the displayed content.
	<b>verbose</b>	Displays more detailed NAT entries.
	<i>dev_id</i>	Device ID
	<i>slot_id</i>	Slot ID of service card

**Defaults** N/A

**Command**

**Mode** Privileged EXEC mode

**Usage Guide** This command can be used to display the summary of IP NAT entries, such as protocols, internal global addresses and port numbers, internal local addresses and port numbers, external local addresses and port numbers, and external global addresses and port numbers. Used with the **verbose** parameter, it displays more detailed information, including the timeout period configured for each entry, remaining time for this entry, and flag of the entry.

**Configuration Examples** The following example displays NAT translations.

```
Ruijie# show ip nat translations verbose
timeout for NAT TCP flows: 86400
timeout for NAT TCP flows after a FIN or RST: 60
timeout for NAT TCP flows after a SYN : 60
timeout for NAT UDP flows: 300
```

```

timeout for NAT DNS flows: 60
timeout for NAT ICMP flows: 60
Pro Inside global      Inside local      Outside local      Outside global timeout vrf
tcp 192.168.5.103:1987 192.168.211.21 :1987 211.67.71.7 :80 211.67.71.7:80
timeout=85139 1
udp 192.168.5.103:1041 192.168.211.183:1041 202.101.98.55 :53 202.101.98.55:53
timeout=38 1
    
```

Field Description

Field	Description
Pro	Protocol type. <b>udp</b> indicates the UDP translation entry. <b>tcp</b> indicates the TCP translation entry. <b>icmp</b> indicates the ICMP translation entry.
Inside global	Internal global address and port number
Inside local	Internal local address and port number
Outside local	External local address and port number
Outside global	External global address and port number
timeout	Time (in seconds) left before this NAT entry times out

Related Commands

Command	Description
<b>clear ip nat translation</b>	Clears the NAT entry table.
<b>ip nat</b>	Performs NAT on the traffic that passes this interface.
<b>ip nat inside destination</b>	Enables NAT for internal destination addresses.
<b>ip nat inside source</b>	Enables NAT for internal source addresses.
<b>ip nat outside source</b>	Enables NAT for external source addresses.
<b>ip nat pool</b>	Defines the IP NAT address pool.
<b>show ip nat translations</b>	Displays IP NAT entries.

Platform

N/A

Description

## 9.12 show ip nat user-port-range

Use this command to display NAT information based on port range.

**show ip nat user-port-range{configuration | users | all}**

Parameter Description

Parameter	Description
<b>configuration</b>	Displays NAT configuration based on port range.
<b>users</b>	Displays user information based on port range.
<b>all</b>	Displays all NAT information based on port range, including

	configuration and user information.
--	-------------------------------------

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** This command can be used to display NAT information based on port range.

**Configuration** The following example displays all port-range-based NAT information.

**Examples**

```
Ruijie# show ip nat user-port-range all
```

```
User port range NAT configuration:
```

```
Index User Level Begin Port End Port
```

```
-----
```

```
1   level0   ----   ----
2   level1   100    200
3   level2   201    300
4   level3   301    400
5   level4   ----   ----
6   level5   ----   ----
7   level6   ----   ----
```

```
User port range NAT users:
```

```
Index User Level User IP
```

```
-----
```

```
1   level1   10.10.10.1
2   level2   10.10.10.2
3   level3   10.10.10.3
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A



## IP Routing Commands

---

1. NSM Commands
2. FPM Commands

# 1 NSM Commands

## 1.1 clear ip route

Use this command to clear the route cache.

**clear ip route** { \* | *network* [ *netmask* ] }

	Parameter	Description
Parameter	*	Clears all route cache.
	<i>network</i>	Specifies the route cache of the network or subnet.
Description	<i>netmask</i>	(Optional) Subnet mask. If no subnet mask is specified, the longest match principle is used when you match <i>network</i> with the route. The cache of the longest match is cleared.

### Command

**Mode** Privileged EXEC mode

**Usage** Clearing route cache clears the corresponding routes and triggers the routing protocol relearning.

**Guide** Please note that clearing all route cache leads to temporary network disconnection.

**Examples** The following example clears the cache of the route which is the longest match with IP address 192.168.12.0.

```
clear ip route 192.168.12.0
```

Related Commands	Command	Description
	N/A	N/A

### Platform

**Description**

## 1.2 ip default-network

Use this command to configure the default network globally. Use the **no** or **default** form of this command to restore the default setting.

**ip default-network** *network*

**no ip default-network** *network*

**default ip default-network** *network*

	Parameter	Description
Parameter	<i>network</i>	Default network
Description		

**Defaults** The default is 0.0.0.0/0.

**Command Mode** Global configuration mode

**Usage Guide**

The goal of this command is to generate the default route. The default network must be reachable in the routing table, but not the directly connected network.

The default network always starts with an asterisk ("\*"), indicating that it is the candidate of the default route. If there is connected route and the route without the next hop in the default network, the default route must be a static route.

The following example sets 192.168.100.0 as the default network. Since the static route to the network is configured, the device will automatically generate a default route.

**Examples**

```
ip route 192.168.100.0 255.255.255.0 serial 0/1
ip default-network 192.168.100.0
```

The following example sets 200.200.200.0 as the default network. The route becomes the default one only when it is available in the routing table.

```
ip default-network 200.200.200.0
```

**Related Commands**

Command	Description
<b>show ip route</b>	Displays the routing table.

## 1.3 ip route

Use this command to configure a static route. Use the **no** or **default** form of this command to restore the default setting.

**ip route** *network net-mask* { *ip-address* | *interface* [ *ip-address* ] } [ *distance* ] [ **tag** *tag* ] [ **permanent** ] [ **weight** *number* ] [ **description** *description-text* ] [ **disabled** | **enabled** ] [ **global** ]

**no ip route** *network net-mask* { *ip-address* | *interface* [ *ip-address* ] } [ *distance* ]

**no ip route all**

**default ip route** *network net-mask* { *ip-address* | *interface* [ *ip-address* ] } [ *distance* ]

**Parameter Description**

Parameter	Description
<i>network</i>	Network address of the destination
<i>net-mask</i>	Mask of the destination
<i>ip-address</i>	The next hop IP address of the static route
<i>interface</i>	(Optional) The next hop egress of the static route
<i>distance</i>	(Optional) The administrative distance of the static route
<i>tag</i>	(Optional) The tag of the static route
<b>permanent</b>	(Optional) Permanent route ID
<b>weight</b> <i>number</i>	(Optional) Indicates the weight of the static route. The



	weight is 1 by default.
<b>description</b> <i>description-text</i>	(Optional) Indicates the description of the static route. By default, no description is configured. <i>description-text</i> is a string of one to 60 characters.
<b>disabled/enabled</b>	(Optional) Indicates the enable flag of the static route. The flag is enabled by default.
<b>global</b>	(Optional) Indicates that the next hop belongs to a global VRF. By default, the VRF of the next hop is the same as the VRF specified by <i>vrf name</i> .
<b>arp</b>	(Optional) Indicates that the next hop belongs to a global VRF. By default, the VRF of the next hop is the same as the VRF specified by <i>vrf name</i> .

**Defaults** No static route is configured by default.

**Command Mode** Global configuration mode

The default administrative distance of the static route is 1. Setting the administrative distance allows the learnt dynamic route to overwrite the static route. Setting the administrative distance of the static route can enable route backup, which is called floating route in this case. For example, the administrative distance of the OSPF is 110. You can set its administrative distance to 125. Then the data can switch over the static route when the route running OSPF fails.

The default weight of the static route is 1. To view the static route of non default weight, execute the show ip route weight command. The parameter weight is used to enable WCMP. When there are load-balanced routes to the destination, the device assigns data flows by their weights. The higher the weight of a route is, the more data flow the route carries.

### Usage Guide

Enablement/disablement shows the state of the static route. Disablement means the static route is not used for forwarding. The forwarding table used the permanent route until administrator deletes it. When you configure the static route on an Ethernet interface, do not set the next hop as an interface, for example, ip route 0.0.0.0 0.0.0.0 Fastethernet 0/0. In this case, the switch may consider that all unknown destination networks are directly connected to the Fastethernet 0/0. So it sends an ARP request to every destination host, which occupies many CPU and memory resources. It is not recommended to set the static route to an Ethernet interface.

The following example adds a static route to the destination network of 172.16.100.0/24 whose next hop is 192.168.12.1 and administrative distance is 15.

```
ip route 172.16.199.0 255.255.255.0 192.168.12.1 155
```

### Examples

If the static route has not a specific interface, data flows may be sent through other interface in case of interface failure. The following example configures data flows to be sent through fastethernet 0/0 to the destination network of 172.16.100.0/24.

```
ip route 172.16.199.0 255.255.255.0 fastethernet 0/0 192.168.12.1
```

**Related** This command is not supported on 2-layer devices.

## Commands

### 1.4 ip routing

Use this command to enable IP routing in the global configuration mode. Use the **no** or **default** form of this command to disable this function.

**ip routing**

**no ip routing**

**default ip routing**

**Defaults** This function is enabled by default.

**Command Mode** Global configuration mode

IP routing is not necessary when the switch serves as bridge or VoIP gateway.

When a device functions only as a bridge or VoIP gateway, the IP routing function of the RGOS software is not required. In this case, the IP routing function of the RGOS software can be disabled.

After the IP routing function is disabled, the device functions as a common host. The device can send and receive packets but cannot forward packets. All route-related configurations will be deleted except the static route configuration. A large number of static routes may be configured. If a user runs the **no ip routing** command, the configuration of a large number of static routes may be lost. To prevent this situation, the static route configuration will be hidden temporarily when the **no ip routing** command is run. If the **ip routing** command is run again, the static route configuration can be restored.

#### Usage Guide

Note that if the process or whole system restarts when the **no ip routing** command is run, the static route configuration will not be reserved.

**Examples** The following example disables IP routing.

```
Ruijie(config)# no ip routing
```

**Related Commands** N/A

**Platform Description**

### 1.5 ip static route-limit

Use this command to set the upper threshold of the static route. Use the **no** or **default** form of this command to restore the default setting.

**ip static route-limit** *number*

**no ip static route-limit** *number*  
**default ip static route-limit**

Parameter	Description
<i>number</i>	Upper threshold of static routes in the range from 1 to 10000

**Defaults** The default is 1024.

**Command Mode** Global configuration mode

**Usage Guide** The goal is to control the number of static routes. You can view the upper threshold of the configured non-default static routes with the **show running-config** command.

**Examples** The following example sets the upper threshold of the static routes to 900 and then restores the setting to the default value.

```
ip static route-limit 900
```

**Related Commands** N/A

**Platform Description**

## 1.6 ipv6 route

Use this command to configure an ipv6 static route. Use the **no** or **default** form of this command to restore the default setting.

**ipv6 route** *ipv6-prefix / prefix-length* { *ipv6-address* | *interface* [ *ipv6-address* ] } [ *distance* ] [ **tag** *tag* ] [ **weight** *number* ] [ **description** *description-text* ]  
**no ipv6 route** *ipv6-prefix / prefix-length* { *ipv6-address* | *interface* [ *ipv6-address* ] } [ *distance* ]  
**no ipv6 route all**

Parameter	Description
<i>prefix-length</i>	Mask length of the destination
<i>ipv6-address</i>	The next hop IP address of the static route
<i>interface</i>	(Optional) The next hop egress of the static route
<i>distance</i>	(Optional) The administrative distance of the static route. The default is 1.
<i>tag</i>	(Optional) The tag value of the static route. The default is 0.
<b>weight</b> <i>number</i>	(Optional) Indicates the weight of the static route, which must be specified when you configure equal-cost routes.

	The weight ranges from 1 to 8. When the weights of all equal-cost routes of a route are summed up, the sum cannot exceed the maximum number of equal-cost routes that can be configured for the route. Weighting of equal-cost routes of a route indicates the traffic ratio of these routes. The weight is 1 by default.
<b>description</b> <i>description-text</i>	(Optional) Indicates the description of the static route. By default, no description is configured. <i>description-text</i> is a string of one to 60 characters.

**Defaults** No IPv6 static route is configured by default.

**Command Mode** Global configuration mode

**Usage Guide** The default administrative distance of the static route is 1. Setting the administrative distance allows the learnt dynamic route to overwrite the static route. Setting the administrative distance of the static route can enable route backup, which is called floating route in this case. For example, the administrative distance of the OSPF is 110. You can set its administrative distance to 125. Then the data can switch over the static route when the route running OSPF fails.

The following example adds a static route to the destination network of 2001::/64 whose next hop is 2002::2 and administrative distance are 115.

```
ipv6 route 2001::/64 2002::2 115
```

**Examples** If the static route has not a specific interface, data flows may be sent through other interface in case of interface failure. The following example configures that data flows are sent through fastethernet 0/0 to the destination network of 2001::/64.

```
ipv6 route 2001::/64 fastethernet 0/0 2002::2
```

Related Commands	Command	Description
	show ipv6 route	Displays IPv6 routing table.

**Platform Description**

## 1.7 ipv6 static route-limit

Use this command to set the upper threshold of the static route. Use the **no** or **default** form of this command to restore the default setting.

**ipv6 static route-limit** *number*

**no ipv6 static route-limit** *number*

**default ipv6 static route-limit**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>number</i>	Upper threshold of static routes in the range from 1 to 10000.
<b>Defaults</b>	The default is 1000.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	The goal is to control the number of static routes. You can view the upper threshold of the configured non-default static routes with the show running config command.	
<b>Examples</b>	The following example sets the upper threshold of the ipv6 static routes to 900 and then restores the setting to the default value.	
	<pre>Ruijie# ipv6 static route-limit 900 Ruijie# no ipv6 static route-limit</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	ipv6 route	Configures the IPv6 static route.
	show ipv6 route	Displays the IPv6 routing table.
<b>Platform Description</b>		

## 1.8 ipv6 unicast-routing

Use this command to enable the IPv6 route function of the RGOS. Use the **no** or **default** form of this command to disable this function.

**ipv6 unicast-routing**

**no ipv6 unicast-routing**

**default ipv6 unicast-routing**

<b>Parameter</b>	N/A
<b>Description</b>	
<b>Defaults</b>	This function is enabled by default.
<b>Command Mode</b>	Global configuration mode
<b>Usage Guide</b>	This function can be disabled if the device is just used as the bridge-connection device or the VOIP gateway device.

**Examples**

The example disables the IPv6 route function of RGOS.

```
Ruijie# no ipv6 unicast-routing
```

**Related  
Commands**

Command	Description
ipv6 route	Configure the IPv6 static route.
show ipv6 route	Displays the IPv6 routing table.

**Platform****Description**

## 1.9 maximum-paths

Use this command to specify the number of equivalent routes. Use the **no** or **default** form of this command is used to restore the default setting.

**maximum-paths** *number*

**no maximum-paths** *number*

**default maximum-paths**

**Parameter****Description**

Parameter	Description
<i>number</i>	Number of equivalent routes in the range from 1 to 64.

**Defaults**

The default value varies from products.

**Command****Mode**

Global configuration mode

The number of equivalent routes is configured to control the number of equivalent routes. After the number of equivalent routes is configured by running the **maximum-paths** command, the number of load-sharing channels in load-sharing mode will not exceed the number of configured static routes. You can run the **show running config** command to query the number of configured static routes. This command takes effect both to IPv4 and IPv6 addresses. After this command is configured, the maximum number of equivalent routes to an IPv4 or IPv6 destination is equal to the configured value.

**Usage Guide**

S8600/S5750/S7600 supports 64 groups of equivalent routes. Each group supports a maximum of 32 equivalent routes. The maximum number of equivalent routes on S3760/S5760 is 8. The number of static route groups is not restricted, that is, each route supports equivalent routes. An equivalent route group includes multiple equivalent next hops of the same prefix. On S8600/S5750/S7600, when 64 groups of equivalent routes are configured and an equivalent route needs to be configured for a prefix, the configuration is successful if the equivalent route exists in the 64 groups. Otherwise, the configuration fails.

**Examples**

The following example sets the number of equivalent routes to 10 and then restores the default

setting.

```
maximum-paths 10
no maximum-paths 10
```

## 1.10 show ip route

Use the commands to display the configuration of the IP routing table.

**show ip route** [[ *network* [ *mask* [**longer-prefix**] ] | **count** | *protocol* [ *process-id*] | **weight** ] ]

**show ip route** [ [ **normal** | **ecmp** ] [ *network* [ *mask* ] ]

**Parameter Description**

Parameter	Description
<i>network</i>	(Optional) Displays the route information to the network.
<i>mask</i>	(Optional) Displays the route information to the network of this mask.
<b>longer-prefix</b>	(optional) Displays the routes that match the specified prefix.
count	(Optional) Displays the number of existent routes. (for the ECMP/WCMP route, displays one route)
<i>protocol</i>	(Optional) Displays the route information of specific protocol.
<i>process-id</i>	(Optional) Routing protocol process ID.
weight	(Optional) Displays the route information of non default weight.
normal	Displays normal routes and not equivalent routes or fast reroutes.
ecmp	Displays only equivalent routes.

**Defaults**

**Command Mode** Privileged EXEC mode/ Global configuration mode/Interface configuration mode/ Routing protocol configuration mode/ Route map configuration mode

This command can display route information flexibly.

**Usage Guide** This command shows all routes. To show different attributes of routes, specify normal | ecmp | fast-reroute.

The following example displays the configuration of the IP routing table.

**Examples**

```
Ruijie# show ip route

Codes: C - Connected, L - Local, S - Static
       R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - Inter area, * - candidate default

Gateway of last resort is no set

S   20.0.0.0/8 is directly connected, VLAN 1
S   22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN 1
```

```
R 40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN 1
B 50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C 192.1.1.0/24 is directly connected, VLAN 1
C 192.1.1.254/32 is local host.
```

Field	Description
O	Source routing protocol, which may be: C: directly connected route S: static route R: RIP route B: BGP route O: OSPF route I: IS-IS route
E2	Route type, which may be: E1: OSPF external route type 1 E2: OSPF external route type 2 N1: OSPF NSSA external type 1 N2: OSPF NSSA external type 2 IA: OSPF area internal route SU: IS-IS summary route L1: IS-IS level-1 route L2: IS-IS level-2 route IA: IS-IS area internal route
20.0.0.0/8	Network address and mask of the destination network
[1/0]	Administrative distance/metric

```
Ruijie# show ip route 30.0.0.0
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
```

Field	Description
Routing Descriptor Blocks	Next hop IP address, source, update time, forwarding interface, source routing protocol and type of route information



```
Ruijie# show ip route count
----- route info -----
the num of active route: 5
```

```
Ruijie# show ip route weight
-----[distance/metric/weight]-----
S   23.0.0.0/8 [1/0/2] via 192.1.1.20
S   172.0.0.0/16 [1/0/4] via 192.0.0.1
```

```
Ruijie#show ip route normal
```

```
Codes: C - Connected, L - Local, S - Static
       R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - Inter area, * - candidate default

Gateway of last resort is no set

S   20.0.0.0/8 is directly connected, VLAN 1
S   22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN 1
R   40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN 1
B   50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C   192.1.1.0/24 is directly connected, VLAN 1
C   192.1.1.254/32 is local host
```

```
Ruijie#show ip route ecmp
```

```
Codes: C - Connected, L - Local, S - Static
       R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - Inter area, * - candidate default

Gateway of last resort is 192.168.1.2 to network 0.0.0.0

S*  0.0.0.0/0 [1/0] via 192.168.1.2
      [1/0] via 192.168.2.2
O IA 192.168.10.0/24 [110/1] via 35.1.10.2, 00:38:26, VLAN 1
      [110/1] via 35.1.30.2, 00:38:26, VLAN 3
```

```
Ruijie#show ip route fast-reroute
```

```

Codes: C - Connected, L - Local, S - Static
       R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - Inter area, * - candidate default

Status codes: m - main entry, b - backup entry, a - active entry

Gateway of last resort is 192.168.1.2 to network 0.0.0.0
S*  0.0.0.0/0 [ma] via 192.168.1.2
      [b] via 192.168.2.2
O IA 192.168.10.0/24 [m] via 35.1.10.2, 00:38:26, VLAN 1
      [ba] via 35.1.30.2, 00:38:26, VLAN 3

```

```

Ruijie# show ip route fast-reroute 30.0.0.0
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
[m] 192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
[ba]192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2

```

## 1.11 show ip route summary

Use this command to display the statistical information about one routing table.

**show ip route summary**

Use this command to display the statistical information about all routing tables.

**show ip route summary all**

Parameter	Parameter	Description
Description	N/A	N/A
Defaults	N/A	
Command		
Mode	Privileged EXEC mode	
Usage guideline	N/A	

The following example displays the statistics of the global routing table.

```
Ruijie# show ip route summary
Codes: NORMAL - Normal route ECMP - ECMP route FRR - Fast-Reroute route

Memory: 2000 bytes
Entries: 22,based on route prefixes
          NORMAL ECMP FRR TOTAL
Connected 3 0 0 3
Static 2 1 1 4
RIP 1 2 1 4
OSPF 2 1 1 4
ISIS 1 2 0 3
BGP 2 1 1 4
TOTAL 11 7 4 22
```

The following example displays the statistics of all routing tables.

```
Ruijie# show ip route summary all
Codes: NORMAL - Normal route ECMP - ECMP route FRR - Fast-Reroute route

IP routing table count:2
Total
Memory: 4000 bytes
Entries: 44,based on route prefixes
          NORMAL ECMP FRR TOTAL
Connected 6 0 0 6
Static 4 2 2 8
RIP 2 4 2 8
OSPF 4 2 2 8
ISIS 2 4 0 6
BGP 4 2 2 8
TOTAL 22 14 8 44

Global
Memory: 2000 bytes
Entries: 22,based on route prefixes
          NORMAL ECMP FRR TOTAL
Connected 3 0 0 3
Static 2 1 1 4
RIP 1 2 1 4
OSPF 2 1 1 4
ISIS 1 2 0 3
BGP 2 1 1 4
TOTAL 11 7 4 22
```

## Examples

```

VRF1
Memory: 2000 bytes
  Entries: 22, based on route prefixes
  Entries: 29, based on route nexthops
NORMAL
ECMP FRR TOTAL
  Connected 3 0 0 3
  Static 2 1 1 4
  RIP 1 2 1 4
  OSPF 2 1 1 4
  ISIS 1 2 0 3
  BGP 2 1 1 4
  TOTAL 11 7 4 22
    
```

Field	Description
NORMAL	Type of the table entries. Value: NORMAL: common routes (not ECMP or FRR); ECMP: equivalent route; FRR: fast reroute; TOTAL: total
Memory	Memory occupied by the table.
Entries	Number of entries (based on prefix, not next-hop)
Connected	Protocol type. Value: Connected: direct connection; Static: static; RIP: RIP; OSPF: OSPF; ISIS: ISIS; BGP: BGP; TOTAL: total

## 1.12 show ipv6 route

Use the command to display the configuration of the IPv6 routing table.

**show ipv6 route** [ [ *ipv6-prefix / prefix-length* [ **longer-prefixes** ] | *protocol* [ *process-id* ] | **weight** ] ]

**Parameter  
Description**

Parameter	Description
<i>ipv6-prefix/prefix-length</i>	(Optional) Specifies a prefix for route's IPv6 address.
<b>longer-prefixes</b>	(Optional) Displays the route with an IPv6 address prefix mostly matched.
<i>protocol</i>	((Optional) Displays the route information of specific protocol.
<i>process-id</i>	(Optional) Specifies a route process ID.

**weight**

(Optional) Displays the non-default-weight routes only.

**Defaults****Command****Mode** Privileged EXEC mode**Usage Guide** Use this command to display route information.

The following example displays the IPv6 routing table.

```
Ruijie(config)# show ipv6 route

IPv6 routing table - Default - 7 entries
Codes: C - Connected, L - Local, S - Static
       R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - Inter area

C    10::/64 via Loopback 1, directly connected
L    10::1/128 via Loopback 1, local host
S    20::/64 [20/0] via 10::4, Loopback 1C
C    FE80::/10 via Null 0, directly connected
C    FE80::/64 via Loopback 1, directly connected
L    FE80::2D0:F8FF:FE22:33AB/128 via Loopback 1, local host
```

**Examples**

Field	Description
E2	Route type, which may be: E1: OSPF external route type 1 E2: OSPF external route type 2 N1: OSPF NSSA external type 1 N2: OSPF NSSA external type 2 IA: OSPF area internal route SU: IS-IS summary route L1: IS-IS level-1 route L2: IS-IS level-2 route IA: IS-IS area internal route
20::/64	Network address and mask of the destination network
[20/0]	Administrative distance/metric

Related	Command	Description
Commands	<b>ipv6 route</b>	Configures the IPv6 static route.

**Platform****Description**

## 1.13 show ipv6 route summary

Use this command to display the statistics of the IPv6 routing table of a specified VRF.

**show ipv6 route summary**

Use this command to display statistics of all IPv6 routing tables.

**show ipv6 route summary all**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command**

**Mode** Privileged EXEC mode

**Usage Guide** N/A

The following example displays statistics of IPv6 routing table of the global VRF.

```
Ruijie#show ipv6 route summary
IPv6 routing table name is - Default(0) global scope - 5 entries
IPv6 routing table default maximum-paths is 32
Local          2
Connected     3
Static         0
PIP            0
OSPF           0
BGP            0
-----
Total          5
```

**Examples**

Field	Description
Memory	The memory size occupied by the current routing table.
Entries	The entries in the current routing table (based on the entry prefix instead of the next hop entry.)
Connected	Describes the protocol type of the entry. The field can be; Connected: Connected route entry.

	Static: Static route entry. RIP: RIP route entry. OSPF: OSPF route entry. ISIS: ISIS route entry. BGP: BGP route entry. TOTAL: Total number of all protocol entries.
IPv6 routing table count	The number of the routing tables.
Global	The name of the current routing table. The field can be: Global : Global (The default VRF) VRF1: VRF name. TOTAL: All VRF routing table summaries.

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

## 2 FPM Commands

### 2.1 clear ip fpm counters

Use this command to clear counters about the IPv4 packets.

**clear ip fpm counters**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration</b>	The following example clears counters about the IPv4 packets.	
<b>Examples</b>	<pre>Ruijie# clear ip fpm counters</pre>	
<b>Platform Description</b>	N/A	

### 2.2 clear ip v6fpm counters

Use this command to clear counters about the IPv6 packets.

**clear ip v6fpm counters**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration</b>	The following example clears counters about the IPv6 packets.	
<b>Examples</b>	<pre>Ruijie# clear ip v6fpm counters</pre>	
<b>Platform Description</b>	N/A	



## 2.3 ip session direct-trans-disable

Use this command to disable the function to transparently transmit packets when the flow table is full.

**ip session direct-trans-disable**

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

**no ip session direct-trans-disable**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Defaults</b>	This configuration takes effect only on ACs and APs. With this feature, packets are transparently transmitted instead of establishing any flow on wireless products when the flow table is full, and service processing is not accelerated, thereby ensuring that service flows are not interrupted.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example disables the function to transparently transmit packets when the flow table is full.	
<b>Examples</b>	<pre>Ruijie(config)# ip session direct-trans-disable</pre>	
<b>Platform Description</b>	N/A	

## 2.4 ip session tcp-loose

Use this command to enable the loose TCP status transition check function.

**ip session tcp-loose**

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

**no ip session tcp-loose**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A
<b>Defaults</b>	By default, the loose TCP status check function is disabled on FW products while enabled on wireless and EG products.	
<b>Command</b>	Global configuration mode	

**Mode****Usage Guide** N/A**Configuration** The following example enables the loose TCP status transition check function.**Examples**

```
Ruijie(config)# ip session tcp-loose
```

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

## 2.5 ip session tcp-state-inspection-enable

Use this command to enable the TCP status tracing function.

**ip session tcp-state-inspection- enable**Use the **no** form of this command to restore the default setting.**no ip session tcp-state-inspection- enable****Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults**

The TCP status tracing function is disabled on ACs and APs by default.

**Command**

Global configuration mode

**Mode****Usage Guide** N/A**Configuration** The following example enables the TCP status tracing function.**Examples**

```
Ruijie(config)# ip session tcp-state-inspection-enable
```

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

## 2.6 ip session threshold

Use this command to configure the number of packets that can be received for each flow in a certain status.

**ip session threshold {icmp-closed | icmp-started | rawip-closed | tcp-syn-sent | tcp-syn-receive | tcp-closed | udp-closed} { num }**Use the **no** form of this command to restore the default setting.

**no ip session threshold {icmp-closed | icmp-started | rawip-closed | tcp-syn-sent | tcp-syn-receive | tcp-closed | udp-closed}**

**Parameter  
Description**

Parameter	Description
icmp-closed	Sets the number of packets permitted to pass in each ICMP flow in closed status, which is 10 by default and ranges from 1 to 2,000,000,000.
icmp-started	Sets the number of packets permitted to pass in each ICMP flow in started status, which is 300 by default and ranges from 5 to 2,000,000,000.
rawip-closed	Sets the number of packets permitted to pass in each RAWIP flow in closed status, which is 10 by default and ranges from 1 to 2,000,000,000.
tcp-syn-sent	Sets the number of packets permitted to pass in each TCP flow in syn-send status, which is 10 by default and ranges from 5 to 2,000,000,000.
tcp-syn-receive	Sets the number of packets permitted to pass in each TCP flow in syn-receive status, which is 20 by default and ranges from 5 to 2,000,000,000.
tcp-closed	Sets the number of packets permitted to pass in each TCP flow in closed status, which is 20 by default and ranges from 5 to 2,000,000,000.
udp-closed	Sets the number of packets permitted to pass in each UDP flow in closed status, which is 10 by default and ranges from 1 to 2,000,000,000.
<i>num</i>	Sets the number of packets permitted to pass.

**Defaults**

**icmp-closed:** 10;  
**icmp-started:** 300;  
**rawip-closed:** 10;  
**tcp-syn-sent:** 10;  
**tcp-syn-receive:** 20;  
**tcp-closed:** 20;  
**udp-closed:** 10.

**Command  
Mode**

Global configuration mode

**Usage Guide**

To activate this configuration, run the **ip session [dev] [slot] track-state-strictly** command.

**Configuration  
Examples**

The following example configures the number of packets that can be received for each flow in a certain status to 100.

```
Ruijie(config)# ip session threshold tcp-closed 100
```

**Platform  
Description**

N/A

## 2.7 ip session timeout

Use this command to configure the aging time.

**ip session timeout** {icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait1 | tcp-fin-wait2 | tcp-syn-receive | tcp-syn-sent | tcp-syn-sent2 | tcp-time-wait | udp-closed | udp-started | udp-connected | udp-established} { num }

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

**no ip session timeout** {icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait1 | tcp-fin-wait2 | tcp-syn-receive | tcp-syn-sent | tcp-syn-sent2 | tcp-time-wait | udp-closed | udp-started | udp-connected | udp-established}

**Parameter  
Description**

Parameter	Description
icmp-closed	Sets the aging time of ICMP flows in closed status, which is 10 seconds by default and ranges from 5 to 60.
icmp-connected	Sets the aging time of ICMP flows in connected status, which is 10 seconds by default and ranges from 5 to 120.
icmp-started	Sets the aging time of ICMP flows in started status, which is 10 seconds by default and ranges from 5 to 120.
rawip-closed	Sets the aging time of RAWIP flows in closed status, which is 10 seconds by default and ranges from 5 to 60.
rawip-connected	Sets the aging time of RAWIP flows in connected status, which is 300 seconds by default and ranges from 10 to 300.
rawip-established	Sets the aging time of RAWIP flows in established status, which is 300 seconds by default and ranges from 10 to 600.
rawip-started	Sets the aging time of TCP flows in started status, which is 300 seconds by default and ranges from 10 to 300.
tcp-close-wait	Sets the aging time of TCP flows in tcp-close-wait status, which is 60 seconds by default and ranges from 10 to 120.
tcp-closed	Sets the aging time of TCP flows in tcp-closed status, which is 10 seconds by default and ranges from 5 to 20.
tcp-established	Sets the aging time of TCP flows in tcp-established status, which is 1,800 seconds by default and ranges from 300 to 604,800.
tcp-fin-wait1	Sets the aging time of TCP flows in tcp-fin-wait1 status, which is 60 seconds by default and ranges from 10 to 120.
tcp-fin-wait2	Sets the aging time of TCP flows in tcp-fin-wait2 status, which is 60 seconds by default and ranges from 10 to 120.
tcp-syn-receive	Sets the aging time of TCP flows in tcp-syn-receive status, which is 10 seconds by default and ranges from 5 to 30.
tcp-syn-sent	Sets the aging time of TCP flows in tcp-syn-sent status, which is 10 seconds by default and ranges from 5 to 30.
tcp-syn_sent2	Sets the aging time of TCP flows in tcp-syn_sent2 status, which is 10 seconds by default and ranges from 5 to 30.
tcp-time-wait	Sets the aging time of TCP flows in tcp-time-wait status, which is 10 seconds by

	default and ranges from 5 to 60.
udp-closed	Sets the aging time of UDP flows in closed status, which is 10 seconds by default and ranges from 5 to 60.
udp-connected	Sets the aging time of UDP flows in connected status, which is 30 seconds by default and ranges from 10 to 300.
udp-established	Sets the aging time of UDP flows in established status, which is 600 seconds by default and ranges from 120 to 600.
udp-started	Sets the aging time of UDP flows in started status, which is 10 seconds by default and ranges from 10 to 300.
<i>num</i>	Sets the aging time.

**Defaults**

**icmp-closed:** 10 seconds;  
**icmp-connected:** 10 seconds;  
**icmp-started:** 10 seconds;  
**rawip-closed:** 10 seconds;  
**rawip-connected:** 300 seconds;  
**rawip-established:** 300 seconds;  
**rawip-started:** 300 seconds;  
**tcp-close-wait:** 60 seconds;  
**tcp-closed:** 10 seconds;  
**tcp-established:** 1,800 seconds;  
**tcp-fin-wait1:** 60 seconds;  
**tcp-fin-wait2:** 60 seconds;  
**tcp-syn-receive:** 10 seconds;  
**tcp-syn-sent:** 10 seconds;  
**tcp-syn\_sent2:** 10 seconds;  
**tcp-time-wait:** 10 seconds;  
**udp-closed:** 10 seconds;  
**udp-connected:** 30 seconds;  
**udp-established:** 600 seconds;  
**udp-started:** 10 seconds

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the aging time of TCP flows in tcp-established status to 600 seconds.

```
Ruijie(config)# ip session timeout tcp-established 600
```

**Platform Description** N/A

## 2.8 ip session track-state-strictly

Use this command to configure packet threshold check for flows in various states.

**ip session track-state-strictly**

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

**no ip session track-state-strictly**

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 packet threshold check for flows.

```
Ruijie(config)# ip session track-state-strictly
```

**Platform Description** N/A

## 2.9 show ip fpm counters

Use this command to displays the counters about the IPv4 packets.

**show ip fpmcounters**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to display the counters about the IPv4 packets, including information about packet loss and flows.

**Configuration Examples** The following example displays the counters about the IPv4 packets.

```
Ruijie#sh ip fpm 1 2 counters
Dropped packet counters:
```

```

Count      Reason
0          Non-IPv4 packet
0          Bad IPv4 header length
0          Bad IPv4 total length
0          Fragment pkt
0          change flow state notify FW refuse
0          Bad IPv4 checksum
0          Invalid IPv4 address
0          Invalid TCP flags
0          Invalid TCP sequence
0          Invalid ICMP message type
0          Invalid icmp initial message type
54         Invalid tcp init flags
0          Invalid tcp connection state
0          Connect over config threshold
0          Connect has been terminated
0          Invalid egress fid
0          out of vfw session limit
0          Out of capability
<end>
Rejected or terminated connection counters:
Count      Reason
0          Out of life time
1968       Flow Terminated
0          Rejected by policy
<end>
    
```

**Field Description**

Field	Description
count	Packet counters.
Reason	Packet loss reason.

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

## 2.10 show ip fpm flows

Use this command to display IPv4 packet flow information.

**show ip fpm flows**

Parameter Description	Parameter	Description
	N/A	N/A

**Command** Privileged EXEC mode

**Mode****Usage Guide** N/A**Configuration** The following example displays IPv4 packet flow information.**Examples**

Ruijie#show ip fpm flows

```

Pr  SrcAddr                DstAddr                SrcPort
DstPort  Vrf                SendBytes RecvBytes  St  srcif
dstif                ctrl_flag

```

**Field Description**

Field	Description
Pr	Protocol.
SrcAddr	Source address.
DstAddr	Destination address.
SrcPort	Source Port.
DstPort	Destination port.
Vrf	The VRF of the destination interface.
SendBytes	The length of received packets in Tx.
RecvBytes	The length of received packets in Rx.
St	The current state of flows.
srcif	Source interface.
dstif	Destination interface.
ctrl_flag	Flows control flag.

**Platform**

N/A

**Description**

## 2.11 show ip fpm flows filter

Use this command to display IPv4 packet flow information except specific IPv4 packet flows.

**show ip fpm flows filter** *protocol saddr smask daddr dmask***Parameter Description**

Parameter	Description
<i>protocol</i>	IP protocol in the range from 0 to 255.
<i>saddr</i>	Source IP addresses.
<i>smask</i>	Source IP mask in the range from 1 to 32.
<i>daddr</i>	Destination IP addresses.
<i>dmask</i>	Destination IP mask in the range from 1 to 32.

**Command** Privileged EXEC mode**Mode****Usage Guide** N/A



**Configuration** The following example displays IPv4 packet flow information except specific IPv4 packet flows.

**Examples**

```
Ruijie#show ip fpm flows filter 1 192.168.1.1 32 192.168.2.1 30
Pr SrcAddr                DstAddr                SrcPort
DstPort    Vrf                SendBytes RecvBytes  St    srcif
dstif                                ctrl_flag
```

**Field Description**

Field	Description
Pr	Protocol
SrcAddr	Source address.
DstAddr	Destination address.
SrcPort	Source Port.
DstPort	Destination port.
Vrf	The VRF of the destination interface.
SendBytes	The length of received packets in Tx.
RecvBytes	The length of received packets in Rx.
St	The current state of flows.
srcif	Source interface.
dstif	Destination interface.
ctrl_flag	Flows control flag.

**Platform**

N/A

**Description**

## 2.12 show ip fpm statistics

Use this command to display IPv4 flow statistics.

**show ip fpm statistics**

**Parameter****Description**

Parameter	Description
N/A	N/A

**Command**

Privileged EXEC mode

**Mode****Usage Guide**

N/A

**Configuration** The following example displays IPv4 flow statistics on the EG device.

**Examples**

```
Ruijie#show ip fpm statistics
The capacity of the flow table:150016.
Active flows num:109.
event count:65,
```

Fpm attribute is eg.

#### Field Description

Field	Description
The capacity of the flow table	The number of total flow tables.
Active flows num	The number of active flow tables.
event count:65,	The counter for current events.
Fpm attribute is eg	The flow tables are generated based on EG products.

**Platform**  
**Description**

N/A

## 2.13 show ip v6fpm counters

Use this command to displays the counters about the IPv6 packets.

**show ip v6fpm counters**

**Parameter**  
**Description**

Parameter	Description
N/A	N/A

**Command**  
**Mode**

Privileged EXEC mode

**Usage Guide** Use this command to display the counters about the IPv6 packets, including information about packet loss and flows.

**Configuration** The following example displays the counters about the IPv6 packets.

**Examples**

```
Ruijie#sh ip v6fpm 1 2 counters
Dropped packet counters:
Count      Reason
0          Non-IPv6 packet
0          Err length
0          Fragment packet
0          Err address
0          Invalid TCP flags
0          Invalid TCP sequence
0          Invalid ICMPV6 message type
0          Invalid ICMPV6 initial message type
0          Invalid tcp init flag
0          Invalid tcp flow state
```

```

0      Invalid pkt fid
0      Conn Terminated
0      Out of vfw session limit
0      Out of capability
<end>
Rejected or terminated connection counters:
Count   Reason
0       Out of life time
2105    Flow Terminated
0       Rejected by policy
<end>
    
```

**Field Description**

Field	Description
count	Packet counters.
Reason	Packet loss reason.

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

## 2.14 show ip v6fpm flows

Use this command to display IPv6 packet flow information.

**show ip v6fpm flows**

**Parameter**  
**Description**

Parameter	Description
N/A	N/A

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

**Usage Guide** N/A

**Configuration** The following example displays IPv6 packet flow information.

**Examples**

```

Ruijie# show ip v6fpm flows
Pr  Saddr                Daddr
Sport Dport Sedby      Recby   Vrf   st   src_if   dst_id
ctrl_flag
    
```

**Field Description**

Field	Description
Pr	Protocol.
Saddr	Source address.
Daddr	Destination address.
Sport	Source Port.

Dport	Destination port.
Sedby	The length of received packets in Tx.
Recby	The length of received packets in Rx.
Vrf	The VRF of the destination interface.
st	The current state of flows.
sifx	Source interface.
difx	Destination interface.
ctrl_flag	Flows control flag.

**Platform**  
**Description**

N/A

## 2.15 show ip v6fpm flows filter

Use this command to display IPv6 packet flow information except specific IPv6 packet flows.

**show ip v6fpm flows filter** *protocol saddr smask daddr dmask*

Parameter Description	Parameter	Description
	<i>protocol</i>	Slot ID in the range from 0 to 255.
	<i>saddr</i>	Source IPv6 addresses.
	<i>smask</i>	Source IPv6 mask in the range from 1 to 128.
	<i>daddr</i>	Destination IPv6 addresses.
	<i>dmask</i>	Destination IPv6 mask in the range from 1 to 128.

**Command**  
**Mode**

Privileged EXEC mode

**Usage Guide**

N/A

**Configuration** The following example displays IPv6 packet flow information except specific IPv6 packet flows.

### Examples

```
Ruijie# show ip v6fpm flows
Pr  Saddr                               Daddr
Sport Dport Sedby      Recby      Vrf  st  src_if  dst_id
ctrl_flag
```

### Field Description

Field	Description
Pr	Protocol.
Saddr	Source address.
Daddr	Destination address.
Sport	Source Port.
Dport	Destination port.
Sedby	The length of received packets in Tx.

Recby	The length of received packets in Rx.
Vrf	The VRF of the destination interface.
st	The current state of flows.
sifx	Source interface.
difx	Destination interface.
ctrl_flag	Flows control flag.

**Platform**  
**Description**

N/A

## 2.16 show ip v6fpm statistics

Use this command to display IPv6 flow statistics.

**show ip v6fpm statistics**

Parameter	Parameter	Description
Description	N/A	N/A

**Command**  
**Mode**

Privileged EXEC mode

**Usage Guide**

N/A

**Configuration** The following example displays IPv6 flow statistics.

### Examples

```
Ruijie# show ip v6fpm statistics
The capacity of the flow table:150016.
Active flows num:109.
event count:65,
Fpmv6 state inspection disable.
```

### Field Description

Field	Description
The capacity of the flow table	The number of total flow tables.
Active flows num	The number of active flow tables.
event count	The counter for current events.

**Platform**  
**Description**

N/A



## Security Configuration Commands

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1. Web Authentication Commands
2. AAA Commands
3. RADIUS Commands
4. 802.1X Commands
5. ARP-Check Commands
6. Anti-ARP Spoofing Commands
7. Global IP-MAC Binding Commands
8. DHCP Snooping Commands
9. IP Source Guard Commands
10. DNS Snooping Commands
11. IGMP Snooping Commands
12. ACL
13. SCC Commands
14. SSH Commands

# 1 Web Authentication Commands

## 1.1 accounting

Use this command to set an accounting method for the template.

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

**accounting** { *method-list* }

**no accounting**

Parameter Description	Parameter	Description
	<i>method-list</i>	Name of the method list

**Defaults** N/A

**Command Mode** Template configuration mode

**Usage Guide** The *method-list* parameter in this command should be consistent with network accounting list name configured in AAA.

**Configuration Examples** The following example sets the **mlist1** accounting method for the **eportalv2** template.

```
Ruijie(config.tmplt.eportalv2)# accounting mlist1
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.2 authentication

Use this command to set an authentication method for the template.

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

**authentication** { *method-list* }

**no authentication**

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

<i>method-list</i>	Name of the method list
--------------------	-------------------------

**Defaults** N/A

**Command Mode** Template configuration mode

**Usage Guide** The *method-list* parameter in this command should be consistent with the Web authentication method list configured in AAA.  
The first generation authentication does not support the authentication method list configuration.

**Configuration** The following example sets the **mlist1** authentication method for the **eportalv2** template.

**Examples** Ruijie(config.tmplt.eportalv2)#authentication mlist1

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.3 bindmode

Use this command to set a binding mode for the template.

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

**bindmode { ip-mac-mode | ip-only-mode }**

**no bindmode**

Parameter Description	Parameter	Description
	<b>ip-mac-mode</b>	
<b>ip-only-mode</b>		IP only mode. The device writes only the IP address information into the forwarding entry. On the L3 network, it is recommended to adopt this mode in case that the MAC address is inaccurate.

**Defaults** The default is **ip-mac-mode**.

**Command Mode** Template configuration mode

**Usage Guide** N/A



**Configuration** The following example adopts the IP only mode for the **eportalv2** template.

**Examples**

```
Ruijie(config.tmplt.eportalv2)# bindmode ip-only-mode
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 1.4 clear web-auth acl

Use this command to clears all blacklists and whitelists.

**clear web-auth acl [ black-ip | black-port | black-url | white-url ]**

**Parameter  
Description**

Parameter	Description
<b>white-url</b>	Clears URLs in all whitelists.
<b>black-url</b>	Clears URLs in all blacklists.
<b>black-ip</b>	Clears IPs in all blacklists.
<b>black-port</b>	Clears ports in all blacklists.

**Command  
Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example clears all blacklists and whitelists.

**Examples**

```
Ruijie# clear web-auth acl
```

**Platform  
Description** N/A

## 1.5 clear web-auth direct host

Use this command to clear all authentication-exempted users.

**clear web-auth direct-host**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example clears all authentication-exempted users.

**Examples**

```
Ruijie# clear web-auth direct-host
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 1.6 clear web-auth direct-site

Use this command to clear all authentication-exempted network resources.

**clear web-auth direct-site**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example clears all authentication-exempted network resources.

**Examples**

```
Ruijie# clear web-auth direct-site
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 1.7 clear web-auth user

Use this command to force the user to go offline.

**clear web-auth user** { **all** | **ip** *ip-address* } | **mac** *mac-address* | **name** *name-string* | **session-id** *num* }

Parameter Description	Parameter	Description
	<i>ip-address</i>	Specifies the user's IPv4 address.
	<i>mac-address</i>	Specifies the user's MAC address.
	<i>name-string</i>	Specifies the user name.
	<i>num</i>	Specifies the user's AAA session ID.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example forces all users to go offline.

```
Ruijie(config) clear web-auth user all
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.8 escape interval

Use this command to enable the single escape function based on the escape interval.

**escape interval** *seconds* **online-time** *minutes*

Use the **no** form of this command to disable the single escape function.

**no escape interval**

Parameter Description	Parameter	Description
	<i>seconds</i>	Indicates the escape interval in the unit of seconds. The recommended value is 5s.

<i>minutes</i>	Indicates the maximum online time for escape users in the unit of minutes. When it is set to <b>0</b> , the user can access the Internet without time limit.
----------------	--

**Defaults** N/A

**Command Mode** Template configuration mode

**Usage Guide** N/A

**Configuration** The following example enables the single escape function based on the escape interval.

**Examples**

```
Ruijie(config.tmplt.wechat)# escape interval 5 online-time 10
```

**Platform Description** N/A

## 1.9 eacape user-try-auth

Use this command to enable the single escape function based on the number of authentication attempts.

**escape user-try-auth** *counts* **online-time** *minutes*

Use the **no** form of this command to disable the single escape function.

**no escape user-try-auth**

Parameter Description	Parameter	Description
	<i>counts</i>	Indicates the number of authentication attempts initiated by the STA. After the set value is reached, the user can access the Internet. The recommended value is 4.
	<i>minutes</i>	Indicates the maximum online time for escape users in the unit of minutes.

**Defaults** N/A

**Command Mode** Template configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enables the single escape function based on the number of authentication attempts.

```
Ruijie(config.tmplt.wechat)#escape user-try-auth 4 online-time 15
```

**Platform**  
**Description**

N/A

## 1.10 fmt

Use this command to set the URL redirection format in the second template configuration mode.

```
fmt { cmcc-ext1 | cmcc-ext2 | cmcc-mtx | cmcc-normal | cmcc-ext3 | ct-jc | cucc | ruijie | custom }
```

Use this command to set the URL redirection format in the first template configuration mode.

```
fmt { ace | ruijie | custom }
```

Use this command to set the custom URL redirection format in the first & second template configuration modes.

```
fmt custom [ encry { md5 | des | des_ecb | des_ecb3 | none } ] [ user-ip userip-str ] [ user-mac usermac-str mac-format { dot | line | none } ] [ user-vid uservid-str ] [ user-id userid-str ] [ nas-ip nasip-str ] [ nas-id nasid-str ] [ nas-id2 nasid2-str ] [ ac-name acname-str ] [ ap-mac apmac-str mac-format { dot | line | none } ] [ url url-str ] [ ssid ssid-str ] [ port port-str ] [ ac-serialno ac-sno-str ] [ ap-serialno ap-sno-str ] [ additional extern-str ]
```

Use the **no** form of **fmt custom** command to remove the custom URL redirection format.

```
no fmt custom [ user-ip ] [ user-mac ] [ user-vid ] [ user-id ] [ nas-ip ] [ nas-id ] [ nas-id2 ] [ ac-name ] [ ap-mac ] [ url ] [ ssid ] [ port ] [ ac-serialno ] [ ap-serialno ] [ additional ]
```

**Parameter**  
**Description**

Parameter	Description
<b>cmcc-ext1</b>	Extended CMCC format
<b>cmcc-ext2</b>	Liaoning CMCC format
<b>cmcc-ext3</b>	Ningbo/Jiaxing format for AC manufacturers
<b>cmcc-mtx</b>	CMCC format for AC manufacturers
<b>cmcc-normal</b>	Standard CMCC format
<b>ct-jc</b>	China Telecom format
<b>cucc</b>	Shandong China Unicom format
<b>ace</b>	Supports ACE correlation.
<b>ruijie</b>	Ruijie format
<b>custom</b>	Custom format
<i>userip-str</i>	User IP address string
<i>usermac-str</i>	User MAC address string
<i>uservid-str</i>	User VID string
<i>nasip-str</i>	NAS device IP address string
<i>nasid-str</i>	NAS device ID string

<i>nasid2-str</i>	NAS device ID string (supports 2 NAS ID)
<i>acname-str</i>	AC name string
<i>apmac-str</i>	Associated AP MAC address string
<i>url-str</i>	Original URL string
<i>ssid-str</i>	SSID string
<i>port-str</i>	Auth-Port string
<i>sno-str</i>	SN string
<i>extern-str</i>	Special strings for specific portal servers
<i>md5</i>	MD5 encryption
<i>des</i>	DES encryption
<i>des_ecb</i>	DES_ECB encryption
<i>des_ecb3</i>	DES_ECB3 encryption
<i>none</i>	Not-encrypted

**Defaults** The default URL redirection format is Ruijie format.

**Command** Template configuration mode

**Mode**

**Usage Guide** Use this command to set the URL redirection format based on the corresponding portal standard.

**Configuration** The following example sets the URL redirection format to extended CMCC format.

**Examples**

```
Ruijie(config.tmplt.eportalv2)#fmt cmcc-ext1
```

**Platform** N/A

**Description**

## 1.11 free-auth

Use this command to exempt Wi-Fi authentication for Wechat App.

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

**free-auth pc**

**no free-auth**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults**

**Command** Template configuration mode

**Mode**

**Usage Guide** This command is only supported for Wechat App on PCs.

**Configuration** The following example exempts Wi-Fi authentication for Wechat App on PCs.

**Examples**

```
Ruijie(config.tmplt.wechat)#free-auth pc
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 1.12 gateway-id

Use this command to set the value of **gw\_id** in the WiFiDog standard protocol used for the interaction between the devices authenticated via WiFiDog and the server.

**gateway-id** *string*

Use the **no** form of this command to delete the value of **gw\_id** from the WiFiDog standard protocol used for the interaction between the devices authenticated via WiFiDog and the server.

**no gateway-id**

**Parameter  
Description**


Parameter	Description
<i>string</i>	Indicates the value of <b>gw_id</b> in the WiFiDog protocol used by the devices and the server.

**Defaults** The value of **gw\_id** is set to the SN of the local device by default.

**Command  
Mode** Template configuration mode.

**Default Level** 14

**Usage Guide**

 The value of **gw\_id** is set to the SN of the local device by default. Manual configuration is not required unless a special interworking requirement is imposed.

**Configuration  
Examples** 1. The following example sets the value of **gw\_id** in the WiFiDog protocol used by the devices and the server to **14144b6fb807**.

```
Ruijie(config.tmplt.wifidog)#gateway-id 14144b6fb807
```

**Verification** Run the **show running-config** command to display the currently configured template parameters.

## 1.13 http redirect adapter ios

Use this command to enable automatic IOS window pop-up.

**http redirect adapter ios**

**no http redirect adapter ios**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example enables automatic IOS window pop-up.

**Examples** Ruijie# http redirect adapter ios

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.14 http redirect direct-arp

Use this command to set the address range of the authentication-exempted ARP.

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

**http redirect direct-arp** { *ip-address* [ *ip-mask* ] }

**no http redirect direct-arp** { *ip-address* [ *ip-mask* ] }

Parameter Description	Parameter	Description
	<i>ip-address</i>	IPv4 address
	<i>ip-mask</i>	(Optional) IPv4 mask



**Defaults** No authentication-exempted ARP resource is configured by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** The user cannot learn the ARPs of devices such as the gateway with the ARP CHECK function enabled. Use this command to enable the device to learn the ARP within a specified IP address range without authentication.

**Configuration** The following example sets the IP address 172.16.0.1 as the authentication-exempted ARP resource.

**Examples** Ruijie(config)# http redirect direct-arp 172.16.0.1

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 1.15 http redirect direct-site

Use this command to set the range of authentication-exempted network resources.

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

**http redirect direct-site** { *ipv6-address* | *ip-address* [ *ip-mask* ] [ **arp** ] }

**no http redirect direct-site** { *ipv6-address* | *ip-address* [ *ip-mask* ] }

**Parameter  
Description**

Parameter	Description
<i>ipv6-address</i>	IPv6 address of the authentication-exempted network resources
<i>ip-address</i>	IPv4 address of the authentication-exempted network resources
<i>ip-mask</i>	IPv4 address mask of the authentication-exempted network resources (optional)
<b>arp</b>	If the ARP Check is enabled on the access device, the keyword arp is needed for ARP binding of the authentication-exempted network resources (optional). It is necessary for IPv4 network resources only.

**Defaults** No authentication-exempted network resource is set.

**Command** Global configuration mode

**Mode**

**Usage Guide** When Web/802.1x authentication is enabled, all users must pass Web/client authentication to access network resources. This command is used to make certain network resources available to

unauthenticated users. All users can access the authentication-exempted Web sites.  
Up to 50 authentication-exempted users are supported.

**Configuration Examples** The following example sets the Web site with IP address 172.16.0.1 as the authentication-exempted resource.

```
Ruijie(config)# http redirect direct-site 172.16.0.1
```

**Related Commands**

Command	Description
<b>show http redirect</b>	Displays the HTTP redirection configuration.

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

## 1.16 http redirect port

Use this command to redirect users' HTTP redirection request to a certain destination port.  
Use the **no** form of this command to restore the default setting.

**http redirect port** *port-num*

**no http redirect port** *port-num*

**Parameter Description**

Parameter	Description
<i>port-num</i>	Destination port of the HTTP request

**Defaults** The default is port 80.

**Command Mode** Global configuration mode

**Usage Guide** When you access the network resource, you send HTTP packets. The access device can intercept such HTTP packets to detect your access. If the access device detects that an unauthenticated user is accessing the network resource, it stops the users with an authentication page/client download page.

By default, the access device intercepts users' HTTP packets with port 80 to check whether they are accessing network resources.

This command is used to change the destination port of HTTP packets that are intercepted by the access device.

Up to 10 ports can be configured, including port 80.

**Configuration Examples** The following example redirects users' HTTP requests with port 8080.

```
Ruijie(config)# http redirect port 8080
```

The following example does not redirect users' HTTP requests with port 80.

```
Ruijie(config)# no http redirect port 80
```

**Related  
Commands**

Command	Description
<b>show http redirect</b>	Displays the HTTP redirection configuration.

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

## 1.17 http redirect session-limit

Use this command to set the total number of HTTP sessions that can be originated by an unauthenticated user, or the maximum number of HTTP sessions that can be originated by an unauthenticated user connected to each port.

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

**http redirect session-limit** *session-num* [ **port** *port-session-num* ]

**no http redirect session-limit**

**Parameter  
Description**

Parameter	Description
<i>session-num</i>	Total number of HTTP sessions that can be originated by an unauthenticated user, in the range from 1 to 255.
<i>port-session-num</i>	The maximum number of HTTP sessions that can be originated by an unauthenticated user connected to each port, in the range from 1 to 65535.

**Defaults** Totally 255 HTTP sessions can be originated by an unauthenticated user, and 300 HTTP sessions that can be originated by an unauthenticated user connected to each port.

**Command  
Mode** Global configuration mode

**Usage Guide** To prevent HTTP attacks caused by unauthenticated users from using up the TCP connections of the access device, the maximum number of HTTP sessions by unauthenticated users must be limited on the access device.

In addition to authentication, other programs may also occupy HTTP sessions. Therefore, it is not recommended that the maximum number of HTTP sessions by unauthenticated users be 1

**Configuration  
Examples** The following example sets the maximum number of HTTP sessions originated by an unauthenticated user to 4.

```
Ruijie(config)# http redirect session-limit 4
```

**Related**

Command	Description
---------	-------------

Commands	
<b>show http redirect</b>	Displays the HTTP redirection configuration.

**Platform** N/A

**Description**

## 1.18 http redirect timeout

Use this command to set the timeout for the redirection connection maintenance.

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

**http redirect timeout** *seconds*

**no http redirect timeout**

Parameter Description	Parameter	Description
	<i>seconds</i>	Set the timeout for the redirection connection maintenance, in the range from 1 to 10 in the unit of seconds.

**Defaults** The default is 3 seconds.

**Command** Global configuration mode

**Mode**

**Usage Guide** This command is used to set the timeout for the redirection connection maintenance. After the three-way handshake succeeds, the redirection connection is maintained until the user sends an HTTP GET/HEAD packet and the system returns an HTTP redirection packet. This timeout is set to prevent users from occupying TCP connections for long without sending any GET/HEAD packets.

**Configuration** The following example sets the timeout for the redirection connection maintenance to 4 seconds.

**Examples**

```
Ruijie(config)# http redirect timeout 4
```

Related Commands	Command	Description
	<b>show http redirect</b>	Displays the HTTP redirection configuration.

**Platform** N/A

**Description**

## 1.19 ip

Use this command to set an IP address for the portal server.

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

**port** { *ip-address* }  
**no port**

**Parameter  
Description**

Parameter	Description
<i>ip-address</i>	The IPv4 address of the portal server

**Defaults** No IP address is set for the portal server by default.

**Command  
Mode** Template configuration mode

**Usage Guide** This command takes place of the **http redirect** [*ip-address*] command, which is now hidden as a compatible command.

**Configuration** The following example sets the IP address of the eportalv1 template to 172.16.0.1.

**Examples**

```
Ruijie(config.tmplt.eportalv1)#ip 172.16.0.1
Ruijie(config.tmplt.eportalv1)#
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A

## 1.20 ip portal source-interface

Use this command to specify a communication port for the portal server.

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

**ip portal source-interface** *interface-type interface-num*  
**no ip portal source-interface**

**Parameter  
Description**

Parameter	Description
<i>interface-type</i>	Port type
<i>interface-num</i>	Port No.

**Defaults** No communication interface is specified by default.

**Command  
Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example specifies an aggregate port as the communication port.

**Examples**

```
Ruijie (config)# ip portal source-interface Aggregateport 1
```

**Platform Description** N/A

## 1.21 iportal nat enable

Use this command to enable NAT function for local Web authentication.

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

**iportal nat enable**

**no iportal nat enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** NAT is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example enables NAT function for local Web authentication.

**Examples**

```
Ruijie (config)# iportal nat enable
```

**Platform Description** N/A

## 1.22 iportal retransmit

Use this command to set the retransmission count of HTTP packets.

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

**iportal retransmit times**

**no iportal retransmit**

Parameter Description	Parameter	Description
	<i>times</i>	Retransmission count

**Defaults** The retransmission count of HTTP packets is 3 by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the retransmission count of HTTP packets to 5.

**Examples** Ruijie (config)# `iportal retransmit 5`

**Platform Description** N/A

## 1.23 iportal service

Use this command to configure a service template.

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

**iportal service** [ **internet** *internet-name*] [ **local** *local-name* ]

**no iportal service** [ **internet** *internet-name*] [ **local** *local-name* ]

**Parameter Description**

Parameter	Description
<i>internet-name</i>	External service name
<i>local-name</i>	Local service name

**Defaults** No service template is configured by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example configures a local service template.

**Examples** Ruijie (config)# `iportal service local local-srv`

**Platform Description** N/A

## 1.24 key

Use this command to set the communication key between the Wechat access device and the

authentication server.

Use the **no** form of this command to clear the communication key.

**key** *key-string*

**no key**

Parameter Description	Parameter	Description
	<i>key-string</i>	Communication key between the Wechat access device and the authentication server

**Defaults** No key is set by default.

**Command Mode** Template configuration mode

**Usage Guide** To use the Web authentication function, the communication key between the Wechat access device and the authentication server must be set as the same.

**Configuration Examples** The following example sets the communication key between the Wechat access device and the authentication server to ruijie.

```
Ruijie(config.tmplt.wechat)#key ruijie
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.25 login-popup

Use this command to configure a pre-login popup advertisement.

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

**login-popup** *url-string*

**no login-popup**

Parameter Description	Parameter	Description
	<i>url-string</i>	Ad URL

**Defaults** No pre-login popup advertisement is configured by default.

**Command** Template configuration mode



**Mode**

**Usage Guide** The URL of the popup advertisement should begin with “http://” or “https://”.

**Configuration** The following example configures a pre-login popup advertisement.

**Examples**

```
Ruijie(config.tmplt.iportal)#login-popup http://www.ruijie.com.cn
```

**Platform Description** N/A

## 1.26 nas-ip

Use this command to configure the IP address of the Wechat access device.

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

**nas-ip** { *ip-address* }

**no nas-ip**

Parameter Description	Parameter	Description
	<i>ip-address</i>	IPv4 address

**Defaults** No IPv4 address is configure for the Wechat access device by default.

**Command Mode** Template configuration mode

**Usage Guide**  Make sure the IPv4 address is not pass-through.

**Configuration** The following example configures 192.168.0.1 as the IPv4 address of the Wechat access device.

**Examples**

```
Ruijie(config.tmplt.wechat)#nas-ip 192.168.0.1
```

**Platform Description** N/A

## 1.27 online-popup

Use this command to configure a post-login popup advertisement.

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

**online-popup** *url-string*

**no online-popup**

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

Description	
	<i>url-string</i> Ad URL
Defaults	No post-login popup advertisement is configured by default.
Command Mode	Template configuration mode
Usage Guide	The URL of the popup advertisement should begin with “http://” or “https://”.
Configuration Examples	The following example configures a post-login popup advertisement. Ruijie (config.tmplt.iportal) #online-popup http://www.ruijie.com.cn
Platform Description	N/A

## 1.28 page-suite

Use this command to configure a resource suite for the login page.

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

**page-suite** *filename*

**no page-suite**

Parameter Description	Parameter	Description
	<i>filename</i>	Resource suite name
Defaults	The installed resource suite is used by default.	
Command Mode	Template configuration mode	
Usage Guide	Make sure to download page resource files in the directory of portal/zip under FLASH before.	
Configuration Examples	The following example configures a page suite for internal Web authentication. Ruijie (config.tmplt.iportal) #page-suite ruijiepage	
Platform Description	N/A	

## 1.29 port

Use this command to set a surveillance port for the portal server.

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

**port** { *port-num* }

**no port**

Parameter Description	Parameter	Description
	<i>port</i>	The surveillance port of the portal server, which is on only the 2nd generation portal server,

**Defaults** The default is 50100 based on the UDP protocol.

**Command Mode** Template configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the surveillance port number of the eportalv2 server to 10000.

```
Ruijie(config.tmplt.eportalv2)#port 10000
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 1.30 redirect

Use this command to set the redirect packet protocol.

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

**redirect** { *http* | *js* }

**no redirect**

Parameter Description	Parameter	Description
	<i>http</i>	HTTP 302
	<i>js</i>	HTTP 200

**Defaults** The default is HTTP 200.

**Command** Template configuration mode  
**Mode**

**Usage Guide** N/A

**Configuration** The following example sets the redirect packet protocol to HTTP 200.

**Examples**

```
Ruijie(config.tmplt.eportalv2)#redirect http
```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 1.31 service-url

Use this command to configure the URL of the authentication server for Wechat access.

**service-url** *url-string*

**no service-url**


**Parameter  
Description**

Parameter	Description
<i>url-string</i>	URL of the authentication server for Wechat access

**Defaults** No URL of the authentication server for Wechat access is configured by default.

**Command** Template configuration mode  
**Mode**

**Usage Guide**

 The URL can be configured in the format of either IP address or domain name. It cannot start with http:// or https://.

**Configuration** The following example configures the URL of the authentication server for Wechat access.

**Examples**

```
Ruijie(config.tmplt.wechat)#service-url wmc.ruijie.com.cn
```

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

## 1.32 show web-auth acl

Use this command to display blacklists and whitelists.

**show web-auth acl [ black-ip | black-port | black-url | white-url ]**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays blacklists and whitelists.

```
Ruijie# show web-auth acl
```

```
Black URL List:0
```

```
-----
```

```
Black IP List:0
```

```
-----
```

```
White URL List:0
```

```
-----
```

**Platform Description** N/A

## 1.33 show http redirect

Use this command to display http redirect settings.

**show http redirect**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays http redirect settings.

**Examples**

```
Ruijie# show http redirect
HTTP redirection settings:
  server:      192.168.197.79
  port:        80 443
  homepage:    http://192.168.197.79:8080/eportal/index.jsp
  session-limit: 255
  timeout:     3
Direct sites: 3
  Address      Mask          ARP Binding
  -----
  192.168.5.120 255.255.255.255 Off
  192.168.58.112 255.255.255.255 Off
  192.168.197.0 255.255.255.0   Off
Direct arps: 0
  Address      Mask
  -----
Direct hosts: 0
  Address      Mask          Port          ARP Binding
  -----
```

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

## 1.34 show web-auth control

Use this command to display the authentication configuration.

**show web-auth control**

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 authentication configuration and statistics information on the

**Examples**

interface.

```
Ruijie(config)#show web-auth control
Port                Control  Server Name          Online User Count
-----
GigabitEthernet 0/1    On      <not configured>    0
Ruijie(config)#
```

Field	Description
Port	Name of the authentication port.
Control	Displays whether the Web authentication is enabled on the port or not.
Server Name	The customized server name on the port. <b>&lt;not configured&gt;</b> indicates the server name has not been configured.
Online User Count	The number of online users on this port.

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 1.35 show web-auth direct-arp

Use this command to display the address range of the authentication-exempted ARP.

**show web-auth direct-arp**

**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 address range of the authentication-exempted ARP.

**Examples**

```
Ruijie(config)#show web-auth direct-arp
Direct arps:
Address      Mask
-----
```

```

1.1.1.1      255.255.255.255
2.2.2.2      255.255.255.255
Ruijie(config)#

```

Field	Description
Address	IPv4 address.
Mask	IPv4 mask.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.36 show web-auth direct-host

This command is used to display the Web authentication-exempted users.

**show web-auth direct-host**

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 Web authentication-exempted users.

**Examples**

```

Ruijie# show web-auth direct-host
Direct hosts:
  Address           Mask             Port             ARP Binding
  -----
  192.168.0.1       255.255.255.255 Fa0/2            On
  192.168.4.11     255.255.255.255 Fa0/10           On
  192.168.5.0       255.255.255.0   Fa0/16           Off

```

Field	Description
-------	-------------



Address	IP address of the user free of authentication
Mask	IP address mask of the user free of authentication
Port	Access device port that is bound with the user's IP address
ARP Binding	Enable/Disable ARP binding

**Related Commands**

Command	Description
N/A	N/A

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

## 1.37 show web-auth direct site

Use this command to display the range of the Web authentication-exempted network resources.

**show web-auth direct-site****Parameter Description**

Parameter	Description
N/A	N/A

**Defaults****Command Mode** Privileged EXEC mode**Usage Guide** N/A

**Configuration Examples** The following example displays the range of the Web authentication-exempted network resources without authentication.

```
Ruijie (config) #show web-auth direct-site
Direct sites:
  Address      Mask          ARP Binding
  -----
  1.1.1.1      255.255.255.255 Off
  2.2.2.2      255.255.255.255 On
Ruijie (config) #
```

Field	Description
Address	IP address.

Mask	IP mask.
ARP Binding	Displays whether the ARP binding function is enabled.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.38 show web-auth noise

Use this command to display the anti-noise configuration.

**show web-auth noise**

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 anti-noise configuration.

**Examples** Ruijie#show web-auth noise

```
Noise Enable:    On
Aging Timer:    1min
Hit Counts:     3
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.39 show web-auth parameter

Use this command to display the HTTP redirect configuration.

**show web-auth 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 displays the HTTP redirect configuration

### Examples

```
Ruijie# show web-auth parameter
```

```
session-limit: 10
```

```
timeout:      5
```

Field	Description
session-limit	Total number of HTTP sessions that are created by an unauthenticated user.
timeout	Timeout interval of the redirection connection.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 1.40 show web-auth portal-check

Use this command to display the portal-check configuration.

**show web-auth portal-check**

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 portal-check configuration.

**Examples** Ruijie#sh web portal-check

```
Check:      Enable
Interval:   3s
Timeout:    5s
Retransmit: 3
Escape:     Enable
Nokick:     Disable
```

**Platform Description** N/A

## 1.41 show web-auth rdport

Use this command to display the TCP interception port.

**show web-auth rdport**

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 TCP interception port.

**Examples** Ruijie#show web-auth rdport

```
Rd-Port:
80 443
Ruijie#
```

Related Commands	Command	Description
------------------	---------	-------------

N/A	N/A
-----	-----

**Platform** N/A

**Description**

## 1.42 show web-auth template

Use this command to display the portal server configuration.

**show web-auth template**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** Use this command to display the portal server configuration.

**Configuration** The following example displays the port server configuration.

**Examples**

```
Ruijie#show web-auth template
```

```
Webauth Template Settings:
```

```
-----
Name:      eportalv1
Url:       http://17.17.1.21:8080/eportal/index.jsp
Ip:        17.17.1.21
BindMode:  ip-mac-mode
Type:      v1
-----
```

```
-----
Name:      eportalv2
Url:       http://17.17.1.21:8080/eportal/index.jsp
Ip:        17.17.1.21
BindMode:  ip-only-mode
Type:      v2
Port:      50100
Acctmlist:
Authmlist:
-----
```

```
Ruijie#
```

Field	Description
-------	-------------

Name	Template name.
Url	Server homepage address.
Ip	Server IP address.
Type	Server type, including the first generation portal server v1, the second generation portal server v2 and the intra portal server intra.
Port	The protocol packet communication port of the server, which is on only the second generation portal server.
Acctmlist	Accounting method list name, which is on only the second generation portal server and the intra portal server
Authmlist	Authentication method list name. which is on only the second generation portal server and the intra portal server

**Related Commands**

Command	Description
N/A	N/A

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

### 1.43 show web-auth user

Use this comma to display the online information, including IP address, interface, and online duration, of all users or the specified users.

```
show web-auth user { all | ip ip-address | mac mac-address | name name-string | session-id num | escape }
```

**Parameter Description**

Parameter	Description
<i>ip-address</i>	IPv4 address of the user.
<i>mac-address</i>	MAC address of the user.
<i>name-string</i>	User name.
<i>num</i>	AAA session ID.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration** The following example displays the global Web authentication configuration and statistics.

**Examples**

```
Ruijie# show web-auth user all
Current user num : 4, online 2

Address          Online   Time Limit   Time Used   Status   Name
-----
192.168.0.11    On      0d 01:00:00  0d 00:15:10 Active
192.168.0.13    On      0d 01:00:00  0d 00:00:59 Active  111
192.168.0.25    Off     0d 01:00:00  0d 00:00:59 Create
192.168.0.46    Off     0d 01:00:00  0d 01:00:00 Destroy 222

Ruijie# show web-auth user ip 192.168.0.11
Address          : 192.168.0.11
Mac              : 00d0.f800.2233
Port             : Gi0/2
Online           : On
Time Limit       : 0d 01:00:00
Time Used        : 0d 00:15:10
Time Start       : 2009-02-22 20:05:10
Status           : Active
```

Field	Description
Address	IP address of the user
Mac	MAC address of the user
Port	Access device port connected to the user
Online	Whether the user is online
Time Limit	Available duration of the user. 0 means unlimited.
Time Used	Online duration of the user
Time Start	Time when the user passes authentication and gets online
Status	User status. Active means the user is normally online, Create means the user is created without any settings, Destroy means the user is deleted with its settings not cleared.

**Related Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 1.44 temporary-permit

Use this command to enable the temporary permit function.

Use the **no** form of this command to disable the function.

**temporary-permit** *seconds*

**no temporary-permit**

Parameter Description	Parameter	Description
	<i>seconds</i>	The duration of temporary permit in the unit of seconds. The recommended value ranges from 30s to 60s.

**Defaults** N/A

**Command Mode** Template configuration mode

### Usage Guide

**Configuration Examples** The following example configures the temporary permit.

```
Ruijie(config.tmplt.wechat)# temporary-permit 30
```

**Platform** N/A

**Description**

## 1.45 time-interval

Use this command to set the interval for popup advertisement.

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

**time-interval** { *hour* }

**no time-interval**

Parameter Description	Parameter	Description
	<i>hour</i>	The popup interval in the range from 0 to 24 in the unit of hours

**Defaults** The default is 1 hour.

**Command Mode** Template configuration mode



**Usage Guide** If the parameter hour is 0, it means no popup interval.

**Configuration** The following example sets the interval for popup advertisement to 2 hours.

**Examples**

```
Ruijie(config.tmplt.iportal)#time-interval 2
```

**Platform Description** N/A

## 1.46 url

Use this command to set the portal server URL.

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

**url** *url-string*

**no url**

**Parameter Description**

Parameter	Description
<i>url-string</i>	Portal server URL, starting with <b>http://</b> or <b>https://</b> . The maximum length of this address is 255 bytes.

**Defaults** No portal server URL is set by default.

**Command Mode** Template configuration mode

**Usage Guide** This command takes place of the **http redirect homepage** [ *url-string* ] command, which is now hidden as a compatible command.,  
If no URL is specified, the default URL in the **http://[ ip-address ]** format will be adopted, among which **ip-address** is the IP address of the server.

**Configuration** The following example sets the eportalv1 template URL to **http://www.web-auth.net/login**.

**Examples**

```
Ruijie(config.tmplt.eportalv1)#url http://www.web-auth.net/login
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 1.47 version

Use this command to specify the authentication version for Wechat access.

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

**version {1.0 | 16wifi | 3.0}**

**no version**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The default is V1.0 for the 11.1(5)B8 version while V3.0 for the 11.1(5)B9 version.

**Command Mode** Template configuration mode

**Usage Guide** The 16wifi version supports QR code scan in Wechat.

**Configuration Examples** The following example specifies the authentication version for Wechat access.

```
Ruijie(config.tmplt.wechat)#version 16wifi
```

**Platform Description** N/A

## 1.48 webauth

Use this command to enable Web authentication.

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

**webauth**

**no webauth**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** Web authentication is disabled by default.

**Command Mode** WLANSEC configuration mode

**Usage Guide** N/A

**Configuration** The following example enables Web authentication.

**Examples** Ruijie (config)# webauth

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

## 1.49 web-auth accounting jitter-off

Use this command to enable jitter-off accounting function.  
Use **no** form of this command to restore the default setting.

**web-auth accounting jitter-off**

**no web-auth accounting jitter-off**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** Jitter-off accounting function is disabled by default.

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

**Usage Guide** N/A

**Configuration** The following example enables jitter-off accounting function.

**Examples** Ruijie (config)# web-auth accounting jitter-off

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

## 1.50 web-auth accounting v2

Use this command to specify an accounting method.  
Use **no** form of this command to restore the default setting.

**web-auth accounting v2 { default | name }**

**no web-auth accounting v2 { default | name }**

Parameter	Parameter	Description
Description	<i>name</i>	The accounting method

**Defaults** No accounting method is specified by default.

**Command Mode** Global configuration mode/Template configuration mode

**Usage Guide** N/A

**Configuration** The following example specifies an accounting method.

**Examples** Ruijie (config.tmplt.eportalv2)# web-auth accounting v2 default

**Platform Description** N/A

## 1.51 web-auth authentication v2

Use this command to specify an authentication method.

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

**web-auth authentication v2 [ default | name ]**

**no web-auth authentication v2 [ default | name ]**

Parameter Description	Parameter	Description
	<i>name</i>	The authentication method

**Defaults** The default method is the same as AAA.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example specifies an authentication method.

**Examples** Ruijie (config.tmplt.eportalv2)# web-auth authentication v2 default

**Platform Description** N/A

## 1.52 web-auth acl

Use this command to configure a blacklist or whitelist.

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

**web-auth acl { black-ip ip|black-port port | black-url name | white-url name }**

```
no web-auth acl { black-ip ip | black-port port | black-url name | white-url name }
```

Parameter Description	Parameter	Description
	ip	Blacklist /Whitelist IP address
	port	Blacklist /Whitelist Port number in the range from 1 to 65535
	name	Blacklist /Whitelist URL

**Defaults** N/A

**Command Mode** Global configuration mode/WLAN security configuration mode

**Usage Guide**

**Configuration** The following example configures a blacklist and a whitelist.

```
Ruijie (config)# web-auth acl black-ip 192.168.1.2
Ruijie (config)# web-auth acl white-url www.ruijie.com.cn
```

**Platform Description** N/A

## 1.53 web-auth bind-portal

Use this command to bind MAC SMS authentication to the portal server.

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

```
web-auth bind-portal string [ type { local-spec | group-spec } ]
```

```
no web-auth bind-portal
```

Parameter Description	Parameter	Description
	string	Portal server name

**Defaults** N/A

**Command Mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration** The following example binds MAC SMS authentication to the portal server.

```
Ruijie (wlansec)# web-auth bind-portal eportalv2
```

**Platform**  
**Description**

N/A

## 1.54 web-auth dhcp-check

Use this command to enable DHCP IP address check.

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

**web-auth dhcp-check**

**no web-auth dhcp-check**

**Parameter**  
**Description**

Parameter	Description
N/A	N/A

**Defaults** DHCP IP address check is disabled by default.

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

**Usage Guide** Only users whose IP addresses are allocated by DHCP are allowed to take authentication.

**Configuration** The following example enables DHCP IP address check.

**Examples**

```
Ruijie (config)# web-auth dhcp-check
```

**Platform**  
**Description**

N/A

## 1.55 web-auth direct-host

Use this command to set the authentication-exempted IP/MAC address range.

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

**web-auth direct-host** { *ipv4-address* [ *ip-mask* ] [ **arp** ] | *ipv6-address* | *mac-address*} [ **port** *interface-name* ]

**no web-auth direct-host** { *ipv4-address* [ *ip-mask* ] | *ipv6-address* | *mac-address*}

**Parameter**  
**Description**

Parameter	Description
<i>ipv4-address</i>	IPv4 address of authentication-exempted user
<i>ipv6-address</i>	IPv6 address of authentication-exempted user
<i>ip-mask</i>	Mask of the IPv4 address free of authentication (optional).
<b>port</b> <i>interface-name</i>	Binds user's IP address with a port of the access device (optional).

<b>arp</b>	If ARP CHECK is enabled on the access device, keyword arp is needed for ARP binding of the IP address used by users free of authentication (optional). It is necessary for IPv4 addresses only.
<i>mac-address</i>	MAC address of authentication-exempted user

**Defaults** No user is exempted from authentication. All users must pass the Web authentication to access the restricted network resources.

**Command** Global configuration mode

**Mode**

**Usage Guide** When a user is set to be exempted from authentication, it can access all reachable network resources without Web authentication.

Up to 50 users can be set to be exempted from authentication.

**Configuration Examples** The following example sets the user with the IP address 172.16.0.1 to be exempted from authentication.

```
Ruijie(config)# web-auth direct-host 172.16.0.1
```

The following example sets the user with the MAC address 0000:5e00:0101 to be exempted from authentication.

```
Ruijie(config)# web-auth direct-host 0000:5e00:0101
```

**Related Commands**

Command	Description
<b>show web-auth direct-host</b>	Displays the users free of Web authentication.

**Platform** N/A

**Description**

## 1.56 web-auth dkey-compatible url-parameter

Use this command to configure the DKEY-compatible URL string.

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

**web-auth dkey-compatible url-parameter** *string*

**no web-auth dkey-compatible url-parameter**

**Parameter Description**

Parameter	Description
<i>string</i>	DKEY-compatible URL string

**Defaults** The DKEY-compatible URL string is not configured by default.

**Command** Global configuration mode

**Mode****Usage Guide** N/A**Configuration** The following example configures the DKEY-compatible URL string as login.**Examples**

```
Ruijie(config)# web-auth dkey-compatible url-parameter login
```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 1.57 web-auth enable

Use this command to enable the Web authentication function on a port. This command is compatible with the **web-auth port-control** command.

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

**web-auth enable** [ **eportalv1** | **eportalv2** | *template-name* ]

**no web-auth enable**

**Parameter  
Description**

Parameter	Description
<b>eportalv1</b>	Applies the first generation authentication template.
<b>eportalv2</b>	Applies the second generation authentication template.
<i>template-name</i>	Customized template.

**Defaults** The Web authentication function is disabled on the port by default.  
The **default** template is eportalv1.

**Command** Interface configuration mode**Mode**

**Usage Guide** To ensure the Web authentication function, the authentication page URL should be configured. Because template applications are integrated into the controlled switch, the template or the server applications of the interface where the Web authentication function is disabled will be automatically cleared. This command is compatible with the original command that used to apply the template or server application in the global configuration mode.

**Configuration** The following example enables the Web authentication function on gigabitEthernet 0/14.**Examples**

```
Ruijie(config)# interface GigabitEthernet 0/14
Ruijie(config-if-GigabitEthernet 0/14)# web-auth enable
```



Related Commands	Command	Description
	N/A	N/A

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

## 1.58 web-auth logging enable

Use this command to enable the Web authentication syslog function.

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

**web-auth logging enable** { *num* }

**no web-auth logging enable**

Parameter Description	Parameter	Description
	<i>num</i>	

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to limit the syslog printing rate for only the functional module.

**Configuration Examples** The following example enables the syslog printing with no rate limit.

```
Ruijie(config)# web-auth logging enable 0
```

Related Commands	Command	Description
	N/A	N/A

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

## 1.59 web-auth noise

Use this command to configure the anti-noise policy.

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

**web-auth noise** [ **aging** *agmin* ] [ **hit** *times* ]  
**no web-auth noise**

**Parameter  
Description**

Parameter	Description
<i>agmin</i>	Anti-noise aging time in the range from 1 to 30 in the unit of minutes. The default is 1 minute.
<i>times</i>	Anti-noise time limit in the range from 3 to 100. The default is 3. IP addresses accessing for the time limit are thought as noise.

**Defaults** The anti-noise policy is not configured by default.

**Command  
Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example configures the anti-noise policy.

**Examples** Ruijie (config)# web-auth noise aging 1 hit 3

**Platform  
Description** N/A

## 1.60 web-auth offline-detect

Use this command to configure the online keepalive time for users. Authenticated online users are forced to go offline if their traffic is lower than the specified threshold within a specified interval.

**web-auth offline-detect interval** *interval* **flow** *threshold*

Use this command to restore the default setting.

**default web-auth offline-detect**

Use this command to disable online detection for users.


**no web-auth ping**

**Parameter  
Description**

Parameter	Description
<i>interval</i>	The offline detection interval. The value ranges from 1 min to 65,535 min. The default value is 15 min.
<i>threshold</i>	The traffic threshold. The value ranges from 0 bytes to 4,294,967,294 bytes. The default value is 0, indicating that traffic detection is not performed.

**Defaults** 15min

**Command Mode** WLANSEC configuration mode

**Usage Guide**  For 10.x versions, by default, traffic detection is disabled under WLANSEC but enabled under global configuration. Therefore, after an upgrade to 11.x versions, disable WLANSEC manually.

**Configuration Examples** The following example configures user detection under WLANSEC 1. If users' traffic is lower than 5k Bytes within 5minutes, they are forced to go offline.

```
Ruijie(config)#wlansec 1
Ruijie(config-wlansec)# web-auth offline-detect interval 5 flow 5120
```

**Verification** Run the **show running** command to display corresponding configuration of online detection for users.

**Platform Description** N/A

## 1.61 web-auth ping

Use this command to ping the portal server.

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

**web-auth ping** [ *interval minutes* ] [ *retry times* ]

**no web-auth ping**

Parameter Description	Parameter	Description
	<i>minutes</i>	Ping interval in the range from 1 to 65,535 in the unit of minute The default is 1 minute.
	<i>times</i>	Ping retries in the range from 0 to 65,535 The default is 3.

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example configures ping interval as 5 minutes and retries as 4.

```
Ruijie (config)# web-auth ping interval 5 rerty 4
```

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

## 1.62 web-auth portal

Use this command to map different portal servers with users in different subnets.

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

**web-auth portal { eportalv1 | eportalv2 | iportal | wechat | wifidog | name }**

**no web-auth portal { eportalv1 | eportalv2 | iportal | wechat | wifidog | name }**

Parameter Description	Parameter	Description
	<i>name</i>	Portal server name

**Defaults** This function is disabled by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example maps different portal servers with users in different subnets.

**Examples** Ruijie(config)# web-auth portal eportalv2

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

## 1.63 web-auth portal extension

Use this command to enable portal extension to support CMCC portal server.

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

**no web-auth portal extension**

**default web-auth portal extension**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** By default, Ruijie portal server is supported.

**Command** Global configuration mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example disables portal extension.

**Examples**

```
Ruijie (config)# no web-auth portal extension
Ruijie (config)# http redirect url-fmt ext1
```

**Platform Description** N/A

## 1.64 web-auth portal key

Use this command to set the communication key between the access device and the authentication server.

Use the **no** form of this command to clear the communication key between the redirected Web request of a user and the authentication server.

**web-auth portal key** *key-string*

**no web-auth portal key**

Parameter Description	Parameter	Description
	<i>key-string</i>	Communication key between the access device and the authentication server. The maximum length of the key is 255 bytes.

**Defaults** No key is set by default.

**Command Mode** Global configuration mode

**Usage Guide** To use the Web authentication function, the communication key between the access device and the authentication server must be set.

**Configuration Examples** The following example sets the communication key between the access device and the authentication server to web-auth.

```
Ruijie(config)# web-auth portal key web-auth
```

Related Commands	Command	Description
	<b>http redirect</b>	Sets the IP address of the authentication server.
	<b>http redirect homepage</b>	Sets the address of the authentication homepage.
	<b>web-auth port-control</b>	Enables the Web authentication on the port.

Platform N/A

Description

## 1.65 web-auth portal-attribute

Use this command to configure transparent transmission of the 0x05 attribute of the portal protocol.

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

**web-auth portal-attribute [5 | textinfo]**

**no web-auth portal-attribute [5 | textinfo]**

Parameter  
Description

Parameter	Description
N/A	N/A

Defaults

Command Global configuration mode

Mode

**Usage Guide** In general, enable this function on the portal server when a device needs to upload the error flag (ErrID), or enable this function on the portal server (using Huawei portal protocol 2.0) when a device needs to upload prompts (TextInfo) from a third-party authentication device such as the RADIUS server.

**Configuration Examples** Both of the following examples configure transparent transmission of the 0x05 attribute of the portal protocol.

```
Ruijie (config)# web-auth portal-attribute 5
```

```
Ruijie (config)# web-auth portal-attribute textinfo
```

Platform N/A

Description

## 1.66 web-auth portal-check

Use this command to enable portal server check.

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

**web-auth portal-check [ interval *intsec* ] [ timeout *tosec* ] [ retransmit *retires* ]**

**no web-auth porta-check**

Parameter Description	Parameter	Description
	<i>Intsec</i>	Check interval in the range from 1 to 1,000 in the unit of seconds. The default is 10 seconds.
	<i>tosec</i>	Timeout interval in the range from 1 to 1,000 in the unit of seconds. The default is 5 seconds.
	<i>retries</i>	Retry count in the range from 1 to 100. The default is 3.

**Defaults** Portal server check is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** It is recommended to use this command when there are multiple servers.

**Configuration Examples** The following example enables portal server check.

```
Ruijie (config)# web-auth portal-check interval 20 timeout 2 retransmit 2
```

**Platform Description** N/A

## 1.67 web-auth portal-escape

Use this command to enable portal-escape function.

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

**web-auth portal-escape**

**no web-auth portal-escape**

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 together with **web-auth portal-check** command to sustain key services when the portal server is abnormal.

**Configuration Examples** The following example enables portal-escape function.

```
Ruijie (config)# web-auth portal-escape
```

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

## 1.68 web-auth portal-valid unique-name

Use this command to enable uniqueness check of portal authentication accounts.

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


**web-auth portal-valid unique-name**

**no web-auth portal-valid unique-name**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide**  Enable this feature when the portal server is needed to send preemption prompts to users.

**Configuration** The following example enables uniqueness check of portal authentication accounts.

**Examples** Ruijie (config)# web-auth portal-valid unique-name

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

## 1.69 web-auth sms-flow

Use this command to configure the interval and threshold of flow detection.

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

**web-auth sms-flow [ interval *interval* ] [threshold *flows* ]**

**no web-auth sms-flow [ interval *interval* ] [threshold *flows* ]**

Parameter Description	Parameter	Description
	<i>interval</i>	Detection interval (minute)
	<i>flows</i>	Traffic threshold (Kb)



**Defaults** No interval and threshold is configured by default.

**Command Mode** Global configuration mode

### Usage Guide

**Configuration** The following example configures the interval and threshold of flow detection.

**Examples** Ruijie (config)# web-auth sms-flow interval 5 flows 100

**Platform Description** N/A

## 1.70 web-auth sta-leave detection

Use this command to disable STA connectivity detection.

**no web-auth sta-leave detection**

Use this command to restore the default setting.

**default web-auth sta-leave detection**

**Parameter Description**

Parameter	Description
N/A	N/A

**Defaults** The STA connectivity detection is enabled by default.

**Command Mode** Global configuration mode

### Usage Guide

**Configuration** The following example disables STA connectivity detection.

**Examples** Ruijie (config)# no web-auth sta-leave detection

**Platform Description** N/A

## 1.71 web-auth sta-perception enable

Use this command to enable smart authentication for Wechat access.

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

**web-auth sta-perception enable**  
**no web-auth sta-perception enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode or WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enables smart authentication for Wechat access.

```
Ruijie (config)# web-auth sta-perception enable
```

**Platform Description** N/A

## 1.72 web-auth template

Use this command to create the first generation authentication template and enter its configuration mode.

**web-auth template eportalv1**

Use this command to create the customized first generation authentication template and enter its configuration mode.

**web-auth template { template-name } v1**

Use this command to create the second generation authentication template and enter its configuration mode.

**web-auth template eportalv2**

Use this command to create the customized second generation authentication template and enter its configuration mode.

**web-auth template { template-name } v2**

Use this command to create the built-in authentication template and enter its configuration mode.

**web-auth template iportal**

Use this command to create the customized built-in authentication template and enter its configuration mode.

**web-auth template { template-name } intra**

Use this command to create the WiFiDog authentication template and enter its configuration mode.

**web-auth template wifidog**

Use this command to create the customized WiFiDog authentication template and enter its configuration mode.

**web-auth template { template-name } wifidog**

Use this command to create the Wechat authentication template and enter its configuration mode.

**web-auth template wechat**

Use this command to create the customized Wechat authentication template and enter its configuration mode.

**web-auth template { template-name } wechat**

Use this command to remove the template.

**no web-auth template { template-name }****Parameter  
Description**

Parameter	Description
<b>eportalv1</b>	Applies the first generation authentication template.
<b>eportalv2</b>	Applies the second generation authentication template.
<b>iportal</b>	Applies the built-in authentication template.
<b>wechat</b>	Applies the Wechat authentication template.
<b>wifidog</b>	Applies the WiFiDog authentication template.
<i>template-name</i>	Sets the name of the customized authentication template.

**Defaults** No template is configured by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** You can enter the **eportalv1** template mode to configure the IP address and URL instead of executing the **http redirect** and **http redirect homepage** commands. The **http redirect** and **http redirect homepage** commands are compatible on the device, which will be converted to this command. The original command **portal-server** is compatible on the device, which will be converted to this command.

To ensure the Web authentication function, configure and apply a functional portal server. The **eportalv1** template is applied by default. The IP address, the URL and the communication secret key of the **eportalv1** template should be configured. If no URL format is specified, the default **http://[ ip-address ]** format will be adopted. The IP address of the portal server is the network resource exempted from authentication, so the unauthenticated user can access it. The device limits

the uplink traffic that accesses the IP address to prevent attacks. The upper limit is proportionate to the number of the physical ports.

**Configuration** The following example configures the **eportalv1** template.

**Examples**

```
Ruijie(config)# web-auth template eportalv1
Ruijie(config.tmplt.eportalv1) #
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 1.73 web-auth update-interval

Use this command to set the interval at which the online user information is updated.

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

**web-auth update-interval** {seconds}

**no web-auth update-interval**

**Parameter  
Description**

Parameter	Description
seconds	Update interval in seconds, in the range from 30 to 3,600 in the unit of seconds.

**Defaults** The default is 180 seconds.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the interval at which the online user information is updated to 60 seconds.

**Examples**

```
Ruijie(config)# web-auth update-interval 60
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 1.74 web-auth valid-ip-acct

Use this command to configure the time during which STAs can attempt to obtain IP addresses. The STAs that fail to obtain IP addresses after the specified time has elapsed are forced offline.

**web-auth valid-ip-acct [ timeout *seconds* ]**

Use this command to restore the default setting.

**no web-auth valid-ip-acct**

Parameter Description	Parameter	Description
	<i>seconds</i>	Time during which STAs can attempt to obtain IP addresses in the unit of seconds. The default value is 30s.

**Defaults** By default, smart IP address check is not configured.

**Command** Global configuration mode

**Mode**

### Usage Guide

 The configuration only works to users of smart authentication for WeChat access.

**Configuration** Use this command to configure the time as 1min.

**Examples** Ruijie(config)# web-auth valid-ip-acct timeout 60

**Platform**

**Description**

N/A

## 1.75 web-auth wechat-check

Use this command to configure detection of the authentication server for WeChat access.

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


**web-auth wechat-check interval *minutes***

**no web-auth wechat-check**

Parameter Description	Parameter	Description
	<i>minutes</i>	Interval for server detection. It is recommended to set it to 30minutes.

**Defaults** Server detection is not configured by default.

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

**Usage Guide**  Server detection teams up with collective escape. Run the **web-auth wechat-escape interval minutes times count** command to enable collective escape.

**Configuration** The following example configures the interval for server detection.

**Examples** Ruijie (config)# web-auth wechat-check interval 30

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

## 1.76 web-auth wechat-escape

Use this command to enable collective escape of the authentication server for WeChat access.

**web-auth wechat-escape interval minutes times count**

Use the **no** form of this command to disable collective escape.

**no web-auth wechat-check**


Use this command to cancel collective escape and resume single escape. As a trigger, it is not displayed when running the **show running-config** command.

**web-auth wechat-escape recover**

Parameter Description	Parameter	Description
	<i>minutes</i>	Escape interval. By default, it is 60minutes.
	<i>count</i>	Number of escape users. By default, the value is 5.

**Defaults** Collective escape is disabled by default.

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

**Usage Guide**  To configure collective escape, ensure that single escape has been enabled first. Run the **escape interval seconds online-time minutes** command to enable single escape.

**Configuration** The following example configures the parameters for collective escape.

**Examples** Ruijie (config)# web-auth wechat-escape interval 30 times 10

**Platform**  
**Description**

## 1.77 web-auth wechat-template wlan-range portal-ip nas-ip

Use this command to enable the one-click switch configuration via WeChat.

**web-auth wechat-template** *name* **wlan-range** *wlanid-start wlanid-end* **portal-ip** *portal-ip-addr* **nas-ip** *nas-ip-addr* [**ios-adapter** | **perception**]

Use the **no** form of this command to disable the one-click switch configuration via WeChat.

**no web-auth wechat-template** *name*

### Parameter Description

Parameter	Description
<i>name</i>	Indicates the template name.
<i>wlanid-start</i>	Indicates the start WLAN ID.
<i>wlanid-end</i>	Indicates the end WLAN ID.
<i>portal-ip-addr</i>	Indicates the IP address of the portal server.
<i>nas-ip-addr</i>	Sets the IP address for a device with WeChat configured to access a service, so that the server sends packets to this IP address for communication.
<b>ios-adapter</b>	Enables automatic popups.
<b>perception</b>	Enables the non-perception function.


**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Default Level** 14

### Usage Guide

-  The one-click configuration function can control only one port at a time. To control multiple ports, perform one-click configuration for the required times. The **no** form of this command can delete template information and all the controlled ports, but is not globally valid.

**Configuration** The following example enables the one-click switch configuration.

### Examples

```
Ruijie(config)# web-auth wechat-template aaa interface tenGigabitEthernet 3/2
portal-ip 172.21.6.78 nas-ip 192.168.197.227
```

### Verification

## 1.78 web-auth wifidog-template wlan-range portal-ip nas-ip url

Use this command to enable the one-click switch configuration via WiFiDog.

**web-auth wifidog-template** *name* **wlan-range** *wlanid-start wlanid-end* **portal-ip** *portal-ip-addr* **nas-ip** *nas-ip-addr* **url** *url-string* [**perception**]

Use the **no** form of this command to disable the one-click switch configuration via WiFiDog.

**no web-auth wifidog-template** *name*


Parameter Description	Parameter	Description
	<i>name</i>	Indicates the template name.
	<i>wlanid-start</i>	Indicates the start WLAN ID.
	<i>wlanid-end</i>	Indicates the end WLAN ID.
	<i>portal-ip-addr</i>	Indicates the IP address of the portal server.
	<i>nas-ip-addr</i>	Sets the IP address for a device with WiFiDog configured to access a service, so that the server sends packets to this IP address for communication.
	<i>url-string</i>	Indicates the URL for portal server authentication.
	<b>perception</b>	Enables the non-perception function.

**Defaults** N/A

**Command Mode** Global configuration mode

**Default Level** 14

#### Usage Guide

-  The one-click configuration function can control only one port at a time. To control multiple ports, perform one-click configuration for the required times. The **no** form of this command can delete template information and all the controlled ports, but is not globally valid.

**Configuration** The following example enables the one-click switch configuration via WiFiDog.

#### Examples

```
Ruijie(config)# web-auth wifidog-template aaa interface tenGigabitEthernet 3/2
portal-ip 172.21.6.78 nas-ip 192.168.197.227 url
http://172.21.6.78/auth/wifidogAuth
```

**Verification** Run the **show running-config** command to display the current configurations.

## 1.79 web-auth wlan-ac-ip

Use this command to configure the ACIP parameter in redirect URL.

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

**web-auth wlan-ac-ip** *ipv4*

**no web-auth wlan-ac-ip**

Parameter Description	Parameter	Description
	<i>ipv4</i>	ACIP parameter

**Defaults** The ACIP Parameter is not configured by default.



**Command** WLAN security configuration mode  
**Mode**

**Usage Guide** N/A

**Configuration** The following example configures the ACIP parameter in redirect URL.

**Examples** Ruijie (wlansec) # web-auth wlan-ac-ip 192.168.1.100

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

## 1.80 web-auth winterface

Use this command to configure the winterface parameter in redirect URL.

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

**web-auth winterface** *string*

**no web-auth winterface**

**Parameter**  
**Description**

Parameter	Description
<i>string</i>	winterface parameter

**Defaults** The winterface parameter is not configured by default.

**Command** WLAN security configuration mode  
**Mode**

**Usage Guide** N/A

**Configuration** The following example configures the winterface parameter in redirect URL.

**Examples** Ruijie (wlansec) # web-auth winterface winterface

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

## 2 AAA Commands

### 2.1 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	Parameter	Description
Description	<i>level</i>	The accounting command level, 0-15. The message shall be recorded before which command level is executed is determined.
	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for command accounting.
	<i>list-name</i>	Name of the command accounting method list, which could be any character strings.
	<i>method</i>	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
	<b>none</b>	Does not perform accounting.
	<b>group</b>	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** The following example enables NAS command accounting.

**Examples**

```
Ruijie(config)# aaa accounting commands 15 default start-stop group tacacs+
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa authentication</b>	Defines AAA authentication.
	<b>accounting commands</b>	Applies the accounting commands to the terminal line.

**Platform** N/A

**Description**

## 2.2 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	Parameter	Description
<b>Description</b>	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for Exec accounting.
	<i>list-name</i>	Name of the Exec accounting method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>none</b> and <b>group</b> . One method list can contain up to four methods.
	<b>none</b>	Does not perform accounting.
	<b>group</b>	Uses the server group for accounting, the RADIUS and TACACS+ server group is supported.

**Defaults** This function is disabled by default.

**Command** Global configuration mode

**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** The following example enables NAS access accounting.

**Examples**

```
Ruijie(config)# aaa accounting network start-stop group radius
```

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa authentication</b>	Defines AAA authentication.
	<b>accounting commands</b>	Applies the Exec accounting to the terminal line.

**Platform** N/A

**Description**

## 2.3 aaa accounting network

Use this command to enable network access accounting.

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

**aaa accounting network** { **default** | *list-name* } **start-stop** *method1* [ *method2..*]

**no aaa accounting network** { **default** | *list-name* }

Parameter	Parameter	Description
<b>Description</b>	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for Network accounting.
	<i>list-name</i>	Name of the accounting method list
	<b>start-stop</b>	Sends accounting messages at both the start time and the end time of access. Users are allowed to access the network, no matter whether the start accounting message enables the accounting successfully.
	<i>method</i>	A method list includes up to four methods.
	<b>none</b>	Does not perform accounting.
	<b>group</b>	Uses the server group for accounting, the RADIUS and TACACS+ server group is supported.

**Defaults** This function is disabled by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** RGOS performs accounting of user activities by sending record attributes to the security server. Use the **start-stop** keyword to set the user accounting option.

**Configuration** The following example enables network access accounting.

**Examples**

```
Ruijie(config)# aaa accounting network start-stop group radius
```

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa authorization network</b>	Defines a network authorization method list.
	<b>aaa authentication</b>	Defines AAA authentication.
	<b>username</b>	Defines a local user database.

**Platform** N/A

**Description**

## 2.4 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**

**Commands**

Command	Description
<b>aaa new-model</b>	Enables the AAA security service.
<b>aaa accounting network</b>	Defines a network accounting method list.

**Platform**

N/A

**Description**

## 2.5 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**

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 sets the interval of accounting update to 1 minute.

**Examples**

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
Ruijie(config)# aaa accounting update periodic 1
```

**Related****Commands**

Command	Description
<b>aaa new-model</b>	Enables the AAA security service.
<b>aaa accounting network</b>	Defines a network accounting method list.

**Platform** N/A

**Description**

## 2.6 aaa authentication dot1x

Use this command to enable AAA authentication 802.1x and configure the 802.1x user authentication method list.

Use the **no** form of this command to delete the 802.1x user authentication method list.

**aaa authentication dot1x** { **default** | *list-name* } *method1* [ *method2...* ]

**no aaa authentication dot1x** { **default** | *list-name* }

**Parameter****Description**

Parameter	Description
<b>default</b>	When this parameter is used, the following defined 802.1x user authentication method list is used as the default method for user authentication.
<i>list-name</i>	Name of the 802.1x user authentication method list, which could be any character string
<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> and <b>group</b> . One method list can contain up to four methods.
<b>local</b>	Uses the local user name database for authentication.
<b>none</b>	Does not perform authentication.
<b>group</b>	Uses the server group for authentication. At present, the RADIUS server group is supported.

**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Usage Guide** If the AAA 802.1x security service is enabled on the device, users must use AAA for 802.1x user authentication negotiation. You must use the **aaa authentication dot1x** command to configure a default or optional method list for 802.1x user authentication.  
The next method can be used for authentication only when the current method does not work.

**Configuration Examples** The following example defines an AAA authentication method list named **RDS\_D1X**. 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 dot1x rds_d1x group radius local
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>dot1x authentication</b>	Associates a specific method list with the 802.1x user.
	<b>username</b>	Defines a local user database.

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

## 2.7 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
	<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for Enable authentication.
	<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> and <b>group</b> . One method list can contain up to four methods.
	<b>local</b>	Uses the local user name database for authentication.
	<b>none</b>	Does not perform authentication.
	<b>group</b>	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.
	<b>enable</b>	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
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>enable</b>	Switchover the user level.
	<b>username</b>	Defines a local user database.

**Platform** N/A

**Description**

## 2.8 aaa authentication iportal

Use this command to enable AAA Portal Web user authentication.

Use the **no** form of this command to delete the authentication method list.

**aaa authentication iportal { default | list-name } method1 [ method2...]**

**no aaa authentication iportal { default | list-name }**

Parameter Description	Parameter	Description
	<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for Login authentication.
	<i>list-name</i>	Name of the user authentication method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> , <b>subs</b> and <b>group</b> . One method list can contain up to four methods.
	<b>local</b>	Uses the local user name database for authentication.
	<b>none</b>	Does not perform authentication.
	<b>group</b>	Uses the server group for authentication. At present, the RADIUS server group is supported.
	<b>subs</b>	Uses the subs database for authentication.

**Defaults** N/A

**Command Mode** Global configuration mode



**Usage Guide** If the AAA Portal Web security service is enabled on the device, users must use AAA for Portal Web authentication negotiation. You must use the **aaa authentication iportal** command to configure a default or optional method list for Portal Web authentication.

**Configuration Examples** The following example defines an AAA Portal Web authentication method list named **rds\_web**. 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 iportal rds_web group radius local
```

**Related Commands**

Command	Description
<b>aaa new-model</b>	Enables the AAA security service.
<b>login authentication</b>	Applies the Login authentication method to the terminal lines.
<b>username</b>	Defines a local user database.

**Platform** N/A

**Description**

## 2.9 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
<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for Login authentication.
<b>list-name</b>	Name of the user authentication method list, which could be any character strings
<b>method</b>	It must be one of the keywords: <b>local</b> , <b>none</b> , <b>group</b> and <b>subs</b> . One method list can contain up to four methods.
<b>local</b>	Uses the local user name database for authentication.
<b>none</b>	Does not perform authentication.
<b>group</b>	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.
<b>subs</b>	Uses the subs database for authentication.

**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
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>login authentication</b>	Applies the Login authentication method to the terminal lines.
	<b>username</b>	Defines a local user database.

**Platform Description** N/A

## 2.10 aaa authentication ppp

Use this command to enable the AAA authentication for PPP user and configure the PPP user authentication method list.

Use the **no** form of this command to delete the authentication method list.

```
aaa authentication ppp { default | list-name } method1 [ method2...]
```

```
no aaa authentication ppp { default | list-name }
```

Parameter Description	Parameter	Description
	<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for PPP user authentication.
	<i>list-name</i>	Name of the user authentication method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> , <b>group</b> and <b>subs</b> . One method list can contain up to four methods.
	<b>local</b>	Uses the local user name database for authentication.
	<b>none</b>	Does not perform authentication.
	<b>group</b>	Uses the server group for authentication. At present, the RADIUS server group is supported.
	<b>subs</b>	Uses the subs database for authentication.

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** If the AAA PPP security service is enabled on the device, users must use AAA authentication for PPP negotiation. You must use the **aaa authentication ppp** command to configure a default or optional method list for PPP user authentication.

The next method can be used for authentication only when the current method does not work.

**Configuration Examples** The following example defines an AAA authentication method list named `rds_ppp` for PPP session. 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 ppp rds_ppp group radius local
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>ppp authentication</b>	Associates a specific method list with the PPP user.
	<b>username</b>	Defines a local user database.

**Platform Description** N/A

## 2.11 aaa authentication sslvpn

Use this command to enable AAA authentication for the SSL VPN user and configure the SSL VPN user authentication method list.

Use the **no** form of this command to delete the authentication method list.

**aaa authentication sslvpn** { **default** | *list-name* } *method1* [ *method2...* ]

**no aaa authentication sslvpn** { **default** | *list-name* }

Parameter Description	Parameter	Description
	<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for SSL VPN user authentication.
	<i>list-name</i>	Name of SSL VPN user authentication method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> , <b>subs</b> and <b>group</b> . One method list can contain up to four methods.
	<b>local</b>	Use the local user name database for authentication.
	<b>none</b>	Does not perform authentication.
	<b>group</b>	Uses the server group for authentication. At present, the RADIUS server group is supported.

<b>subs</b>	Uses the subs database for authentication.
-------------	--

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** If the SSL VPN security service is enabled on the device, users must use the AAA authentication for SSL VPN negotiation. You must use the **aaa authentication sslvpn** command to configure a default or optional method list for user authentication.

The next method can be used for authentication only when the current method does not work.

**Configuration Examples** The following example defines an AAA authentication method list named **rds\_sslvpn** for SSL VPN session. In the authentication method list, the RADIUS security server is first used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication.

```
Ruijie(config)# aaa authentication sslvpn rds_sslvpn group radius local
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.12 aaa authentication web-auth

Use this command to enable AAA second-generation Web authentication and configure the second-generation Web authentication method list in global configuration mode.

Use the **no** form of this command to delete the authentication method list.

**aaa authentication web-auth { default | list-name } method1 [ method2...]**

**no aaa authentication web-auth { default | list-name }**

Parameter Description	Parameter	Description
	<b>default</b>	When this parameter is used, the following defined authentication method list is used as the default method for the second-generation Web authentication.
	<i>list-name</i>	Name of second-generation Web authentication method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>local</b> , <b>none</b> , <b>subs</b> and <b>group</b> . One method list can contain up to four methods.
	<b>local</b>	Uses the local user name database for authentication.
	<b>none</b>	Does not perform authentication.
	<b>group</b>	Uses the server group for authentication. At present, the RADIUS server group is supported.

<b>subs</b>	Uses the subs database for authentication.
-------------	--

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** If the AAA second-generation Web security service is enabled on the device, users must use AAA for the second-generation Web authentication negotiation. You must use the **aaa authentication web-auth** command to configure a default or optional method list for user authentication. The next method can be used for authentication only when the current method does not work.

**Configuration Examples** The following example defines an AAA authentication method list named **rds\_web**. In the authentication method list, the RADIUS security server is first used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication.

```
Ruijie(config)# aaa authentication web-auth rds_web group radius none
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.13 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
	<i>level</i>	Command level to be authorized in the range from 0 to 15
	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for command authorization.
	<i>list-name</i>	Name of the user authorization method list, which could be any character strings
	<i>method</i>	It must be one of the keywords: <b>none</b> and <b>group</b> . One method list can contain up to four methods.
	<b>none</b>	Do not perform authorization.
	<b>group</b>	Uses the server group for authorization. At present, the TACACS+ server group is supported.

**Defaults** This function is disabled by default.

**Command** Global configuration mode  
**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** The following example uses the TACACS+ server to authorize the level 15 command.

**Examples**

```
Ruijie(config)# aaa authorization commands 15 default group tacacs+
```

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>authorization commands</b>	Applies the command authorization for the terminal line.

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

## 2.14 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	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** This function is disabled by default.

**Command** Global configuration mode  
**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
	<code>aaa new-model</code>	Enables the AAA security service.
	<code>aaa authorization commands</code>	Defines the AAA command authorization.

**Platform** N/A

**Description**

## 2.15 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	Parameter	Description
<b>Description</b>	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** The following example enables the aaa authorization console function.

**Examples** `Ruijie(config)# aaa authorization console`

Related Commands	Command	Description
	<code>aaa new-model</code>	Enables the AAA security service.
	<code>aaa authorization commands</code>	Defines the AAA command authorization.
	<code>authorization commands</code>	Applies the command authorization to the terminal line.

**Platform** N/A

**Description**

## 2.16 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	Parameter	Description
Description	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for Exec authorization.
	<i>list-name</i>	Name of the user authorization method list, which could be any character strings
	<i>method</i>	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
	<b>local</b>	Uses the local user name database for authorization.
	<b>none</b>	Does not perform authorization.
	<b>group</b>	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** The following example uses the RADIUS server to authorize Exec.

**Examples** Ruijie(config)# aaa authorization exec default group radius

Related	Command	Description
Commands	<b>aaa new-model</b>	Enables the AAA security service.
	<b>authorization exec</b>	Applies the command authorization to the terminal line.
	<b>username</b>	Defines a local user database.

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

## 2.17 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	Parameter	Description
Description	<b>default</b>	When this parameter is used, the following defined method list is used as the default method for Network authorization.
	<i>method</i>	It must be one of the keywords: none and group. One method list can contain up to four methods.
	<b>none</b>	Does not perform authorization.
	<b>group</b>	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 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
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa accounting</b>	Defines AAA accounting.
	<b>aaa authentication</b>	Defines AAA authentication.
	<b>username</b>	Defines a local user database.

**Platform** N/A

**Description**

## 2.18 aaa domain

Use this command to configure the domain attributes.

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

```
aaa domain { default | domain-name }
no aaa domain { default | domain-name }
```

	Parameter	Description
Parameter	<b>default</b>	Uses this parameter to configure the default domain.
Description	<i>domain-name</i>	The name of the specified domain

**Defaults** No domain is configured by default.

**Command Mode** Global configuration mode

**Usage Guide** Use this command to configure the domain-name-based AAA service. The **default** is to configure the default domain. That is the method list used by the network device if the users are without domain information. The *domain-name* is the specified domain name, if the users are with this *domain name*, the method lists associated with this domain are used. At present, the system can configure up to 32 domains.

**Configuration** The following example configures the domain name.

**Examples**

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)#
```

	Command	Description
Related	<b>aaa new-model</b>	Enables the AAA security service.
Commands	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.
	<b>show aaa domain</b>	Displays the domain configuration.

**Platform** N/A

**Description**

## 2.19 aaa domain enable

Use this command to enable domain-name-based AAA service.  
Use the **no** form of this command to restore the default setting.

```
aaa domain enable
no aaa domain enable
```

	Parameter	Description
Parameter	N/A	N/A
Description		

**Defaults** This function is disabled by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** To perform the domain-name-based AAA service configuration, enable this service.

**Configuration** The following example enables the domain-name-based AAA service.

**Examples** Ruijie(config)# aaa domain enable

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>show aaa doomain</b>	Displays the domain configuration.

**Platform** N/A

**Description**

## 2.20 aaa local authentication attempts

Use this command to set login attempt times.

**aaa local authentication attempts** *max-attempts*

Parameter	Parameter	Description
<b>Description</b>	<i>max-attempts</i>	In the range from 1 to 2,147,483,647

**Defaults** The default is 3.

**Command** Global configuration mode

**Mode**

**Usage Guide** Use this command to configure login attempt times.

**Configuration** The following example sets login attempt times to 6.

**Examples** Ruijie #configure terminal  
Ruijie(config)#aaa local authentication attempts 6

Related Commands	Command	Description
	<b>show running-config</b>	Displays the current configuration of the switch.
	<b>show aaa lockout</b>	Displays the lockout configuration parameter of current login.

**Platform** N/A

**Description**

## 2.21 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	Parameter	Description
Description	<i>lockout-time</i>	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
	<b>show running-config</b>	Displays the current configuration of the switch.
	<b>show aaa lockout</b>	Displays the lockout configuration parameter of current login.

**Platform Description** N/A

## 2.22 aaa local user allow public account

Use this command to allow the local account (username or subs) to be shared by multiple terminals with Web authentication configured or built-in.

**aaa local user allow public account**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** One local account cannot be shared by multiple terminals by default.

**Command Mode** Global configuration mode

**Usage Guide** This configuration is supported by EG series products only. For other products, a local account can be shared by multiple terminals by default.

**Configuration** The following example allows the local account (username or subs) to be shared by multiple terminals

**Examples** with Web authentication configured or built-in.

```
Ruijie#configure terminal
Ruijie(config)#aaa local user allow public account
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** This configuration is supported by EG series products only. For other products, a local account can be shared by multiple terminals by default.

## 2.23 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

## 2.24 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**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>num</i>	The number of syslog entries printed per second. The range is from 0 to 65,535. 0 indicates the printing rate is not limited.
<b>Defaults</b>	The default is 5.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	Too much printing may flood the screen or even reduce device performance. In this case, use this command to adjust the printing rate.	
<b>Configuration Examples</b>	The following example sets the rate of printing the syslog informing AAA authentication success to 10.	
	<pre>Ruijie(config)# aaa log rate-limit 10</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

## 2.25 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**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	N/A	N/A
<b>Defaults</b>	This function is disabled by default.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	Use this command to enable AAA. If AAA is not enabled, none of the AAA commands can be configured.	
<b>Configuration Examples</b>	The following example enables the AAA security service.	
	<pre>Ruijie(config)# aaa new-model</pre>	

Related Commands	Command	Description
	<b>aaa authentication</b>	Defines a user authentication method list.
	<b>aaa authorization</b>	Defines a user authorization method list.
	<b>aaa accounting</b>	Defines a user accounting method list.

**Platform** N/A

**Description**

## 2.26 access-limit

Use this command to configure the number of users limit for the domain, which is only valid for the IEEE802.1 users.

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

**access-limit** *num*

**no access-limit**

Parameter	Parameter	Description
<b>Description</b>	<i>num</i>	The number used for the user limitation is only valid for the IEEE802.1 users.

**Defaults** By default, no number of users is limited.

**Command** Domain configuration mode

**Mode**

**Usage Guide** This command limits the number of users for the domain.

**Configuration** The following example sets the number of users to 20 for the domain named ruijie.com.

**Examples**

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# access-limit 2
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Switchover the user level.
	<b>show aaa domain</b>	Defines a local user database.

**Platform** N/A

**Description**

## 2.27 accounting network

Use this command to configure the Network accounting list.

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

**accounting network** { **default** | *list-name* }

**no accounting network**

Parameter	Parameter	Description
Description	<b>default</b>	Uses this parameter to specify the default method list.
	<i>list-name</i>	The name of the network accounting list

**Defaults** With no method list specified, if the user sends the request, the device will attempt to specify the default method list for the user.

**Command Mode** Domain configuration mode

**Usage Guide** Use this command to configure the Network accounting method list for the specified domain.

**Configuration Examples** The following example sets the Network accounting method list for the specified domain.

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# accounting network default
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.
	<b>show aaa domain</b>	Displays the domain configuration.

**Platform Description** N/A

## 2.28 authentication dot1x

Use this command to configure the IEEE802.1x authentication list.

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

**authentication dot1x { default | list-name }**

**no authentication dot1x**

Parameter	Parameter	Description
Description	<b>default</b>	Uses this parameter to specify the default method list
	<i>list-name</i>	The name of the specified method list

**Defaults** With no method list specified, if users send the request, the device will attempt to specify the default method list for users.

**Command Mode** Domain configuration mode



**Usage Guide** Specify an IEEE802.1x authentication method list for the domain.

**Configuration** The following example sets an IEEE802.1x authentication method list for the specified domain.

**Examples**

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authentication dot1x default
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.
	<b>show aaa domain</b>	Displays the domain configuration.

**Platform** N/A

**Description**

## 2.29 authorization network

Use this command to configure the Network authorization list.

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

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

**no authorization network**

Parameter Description	Parameter	Description
	<b>default</b>	Uses this parameter to specify the default method list.
	<i>list-name</i>	The name of the specified method list

**Defaults** With no method list specified, if users send the request, the device will attempt to specify the default method list for users.

**Command Mode** Domain configuration mode

**Usage Guide**

**Configuration** The following example sets an authorization method list for the specified domain.

**Examples**

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authorization network default
```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.
	<b>show aaa domain</b>	Displays the domain configuration.

**Platform** N/A

**Description**

## 2.30 clear aaa local user lockout

Use this command to clear the lockout user list.

**clear aaa local user lockout** { all | user-name *word* }

Parameter	Parameter	Description
<b>Description</b>	<b>all</b>	Indicates all locked users.
	<b>user-name</b> <i>word</i>	Indicates the ID of the locked User.

**Defaults** N/A

**Command Mode** Privileged EXEC 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

Related Commands	Command	Description
	<b>show running-config</b>	Displays the current configuration of the switch.
	<b>show aaa lockout</b>	Displays the lockout configuration parameter of current login.

**Platform** N/A

**Description**

## 2.31 show aaa accounting update

Use this command to display the accounting update information.

**show aaa accounting update**

Parameter	Parameter	Description
<b>Description</b>	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 accounting update interval and whether the accounting update is enabled.

**Configuration** The following example displays the accounting update information.

**Examples** Ruijie# show aaa accounting update

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.

**Platform** N/A

**Description**

## 2.32 show aaa domain

Use this command to display all current domain information.

**show aaa domain [ default | domain-name ]**

Parameter	Parameter	Description
<b>Description</b>	<b>default</b>	Displays the default domain.
	<i>domain-name</i>	Displays the specified domain.

**Defaults** N/A

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

**Usage Guide** If no domain-name is specified, all domain information will be displayed.

**Configuration** The following example displays the domain named domain.com.

**Examples**

```
Ruijie(config)# show aaa domain domain.com
=====Domain domain.com=====
State: Active
Username format: Without-domain
Access limit: No limit
802.1X Access statistic: 0

Selected method list:
authentication dot1x default
```

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.

**Platform** N/A

**Description**

## 2.33 show aaa lockout

Use this command to display the lockout configuration.

**show aaa lockout**

Parameter	Parameter	Description
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** The following example displays the lockout configuration.

**Examples**

```
Ruijie# show aaa lockout
Lock tries:      3
Lock timeout: 15 minutes
```

Related	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

## 2.34 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 Mode** Privileged EXEC mode/Global configuration mode/Interface configuration 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
<b>aaa group server</b>	Configures the AAA server group.

**Platform** N/A

**Description**

### 2.35 show aaa method-list

Use this command to display all AAA method lists.

**show aaa method-list**

**Parameter**

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 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
	<b>aaa authentication</b>	Defines a user authentication method list
	<b>aaa authorization</b>	Defines a user authorization method list
	<b>aaa accounting</b>	Defines a user accounting method list

**Platform** N/A

**Description**

## 2.36 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
	<b>all</b>	Displays all AAA user information.
	<b>lockout</b>	Displays the locked AAA user information.
	<b>by-id <i>session-id</i></b>	Displays the information of the AAA user that with a specified session ID.
	<b>by-name <i>user-name</i></b>	Displays the information of the AAA user with a specified user name.

**Defaults** N/A

**Command Mode** Privileged EXEC mode/Global configuration mode/Interface configuration 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** N/A  
**Description**

## 2.37 state

Use this command to set whether the configured domain is valid.

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

**state { block | active }**

**no state**

Parameter Description	Parameter	Description
	<b>block</b>	The configured domain is invalid.
	<b>active</b>	The configured domain is valid.

**Defaults** The default is active.

**Command Mode** Domain configuration mode

**Usage Guide** Use this command to set whether the specified configured domain is valid.

**Configuration** The following example sets the configured domain to be invalid.

**Examples**

```

Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# state block

```

Related Commands	Command	Description
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.

<b>show aaa domain enable</b>	Displays the domain configuration.
-------------------------------	------------------------------------

**Platform** N/A

**Description**

## 2.38 username-format

Use this command to configure the user name whether to be with the domain information when the NAS interacts with the servers.

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

**username-format** { **without-domain** | **with-domain** }

**no username-format**

Parameter	Parameter	Description
<b>Description</b>	<b>without-domain</b>	Sets the user name without the domain information.
	<b>with-domain</b>	Sets the user name with the domain information.

**Defaults** The default is without-domain.

**Command** Domain configuration mode

**Mode**

**Usage Guide** Use this command to configure the user name whether to be with the domain information when the NAS interacts with the servers.

**Configuration** The following example sets the user name without the domain information.

**Examples**

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# username-domain without-domain
```

Related	Command	Description
<b>Commands</b>	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa domain enable</b>	Enables the domain-name-based AAA service.
	<b>show aaa domain</b>	Displays the domain configuration.

**Platform** N/A

**Description**



### 3 RADIUS Commands

#### 3.1 aaa group server radius

Use this command to enter AAA server group configuration mode.

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

**aaa group server radius** *name*

**no aaa group server radius** *name*

Parameter Description	Parameter	Description
	<i>name</i>	Server group name. Keywords "radius" and "tacacs +" are excluded as they are the default RADIUS and TACACS+ server group names.

**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Usage Guide** This command is used to configure a RADIUS AAA server group.

**Configuration** The following example configures a RADIUS AAA server group named ss.

```

Examples
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Type          Reference Name
-----
radius        1          radius
tacacs+       1          tacacs+
radius        1          ss
    
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

#### 3.2 ip radius source-interface

Use this command to specify the source IP address for the RADIUS packet.

Use the **no** form of this command to delete the source IP address for the RADIUS packet.

**ip radius source-interface** *interface-name*

**no radius source-interface** *interface-name*

**Parameter Description**

Parameter	Description
<i>interface-name</i>	Interface that the source IP address of the RADIUS packet belongs to.

**Defaults**

The source IP address of the RADIUS packet is set by the network layer.

**Command mode**

Global configuration mode

**Usage Guide**

In order to reduce the NAS information to be maintained on the RADIUS server, use this command to set the source IP address of the RADIUS packet. This command uses the first IP address of the specified interface as the source IP address of the RADIUS packet. This command is used in the layer 3 devices.

**Configuration Examples**

The following example specifies that the RADIUS packet obtains an IP address from the fastEthernet 0/0 interface and uses it as the source IP address of the RADIUS packet.

```
Ruijie(config)# ip radius source-interface fastEthernet 0/0
```

**Related Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS server.
<b>ip address</b>	Configures the IP address of the interface.

**Platform**

N/A

**Description**

### 3.3 ip vrf forwarding

Use this command to select a VRF for the AAA server group.

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

**ip vrf forwarding** *vrf\_name*

**no ip vrf forwarding**

**Parameter Description**

Parameter	Description
<i>vrf_name</i>	VRF name

**Defaults**

N/A

**Command** Server group configuration mode

**Mode**

**Usage Guide** This command is used to select a VRF for the specified server.

**Configuration** The following example selects the VRF named `vrf_name` for AAA server group `ss`.

**Examples**

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 3.4 radius attribute

Use this command to set the private attribute type value.

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

**radius attribute** { *id* | **down-rate-limit** | **dscp** | **mac-limit** | **up-rate-limit** } **vendor-type** *type*

**no radius attribute** { *id* | **down-rate-limit** | **dscp** | **mac-limit** | **up-rate-limit** } **vendor-type**

**Parameter  
Description**

Parameter	Description
<i>id</i>	Function ID, in the range from 1 to 255
<i>type</i>	Private attribute type, in the range from 1 to 255.

**Defaults**

Only the default configuration of private attributes in Ruijie is recognized.

id	Function	type
1	max down-rate	1
2	qos	2
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7

8	password	8
9	file-directory	9
10	file-count	10
11	file-name-0	11
2	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	16
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42

Extended attributes:

id	Function	type
1	max down-rate	76
2	qos	77
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-directory	9
10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15

16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42
24	limit to user number	50

**Command Mode** Global configuration mode

**Usage Guide** This command is used to configure the private attribute type value.

**Configuration Examples** The following example sets the type of max up-rate to 211.

```
Ruijie(config)# radius attribute 16 vendor-type 211
```

Related Commands	Command	Description
	<b>radius set qos cos</b>	Sets the qos value sent by the RADIUS server as the cos value of the interface.

**Platform Description** N/A

### 3.5 radius vendor-specific extend

Use this command to extend RADIUS not to differentiate the IDs of private vendors. Use the **no** form of this command to restore the default setting.

**radius vendor-specific extend**  
**no radius vendor-specific extend**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** Only the private vendor IDs of Ruijie are recognized.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to identify the attributes of all vendor IDs by type.

**Configuration Examples** The following example extends RADIUS so as not to differentiate the IDs of private vendors:

```
Ruijie(config)# radius vendor-specific extend
```

**Related Commands**

Command	Description
<b>radius attribute</b>	Configures vendor type.
<b>radius set qos cos</b>	Sets the QoS value sent by the RADIUS server as the cos value of the interface.

**Platform Description** N/A

### 3.6 radius vendor-specific attribute support

Use this command to configure whether RADIUS accounting request packets carry the private attribute of a specified vendor.

Use the **no** form of this command to configure that RADIUS accounting request packets do not carry the private attribute of a specified vendor.

**radius vendor-specific attribute support { cisco | huawei | ms}**

**no radius vendor-specific attribute support { cisco | huawei | ms}**

**Parameter Description**

Parameter	Description
<b>cisco</b>	Indicates the private attribute of Cisco.
<b>huawei</b>	Indicates the private attribute of Huawei.
<b>ms</b>	Indicates the private attribute of Microsoft.

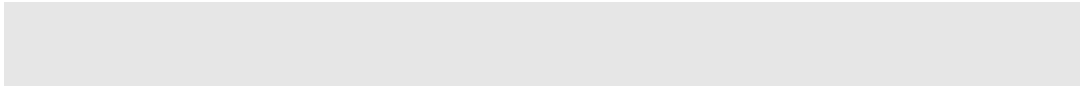
**Defaults** By default, RADIUS accounting request packets carry the private attribute of a specified vendor.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to configure whether RADIUS accounting request packets carry the private attribute of a specified vendor as required.

**Configuration Examples** 1. The following example configures that RADIUS accounting request packets carry the private attribute of Huawei.

```
Ruijie(config)# radius vendor-specific attribute support huawei
```



2. The following example configures that RADIUS accounting request packets do not carry the private attribute of Huawei.

```
Ruijie(config)# no radius vendor-specific attribute support huawei
```

<b>Related Commands</b>	Command	Description
	N/A	N/A

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

### 3.7 radius-server account update retransmit

Use this command to configure accounting update packet retransmission for the second generation Web authentication user.

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

**radius-server account update retransmit**  
**no radius-server account update retransmit**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to configure accounting update packet retransmission for the second generation Web authentication user exclusively.

**Configuration Examples** The following example configures accounting update packet retransmission for the second generation Web authentication user.

```
Ruijie(config)#radius-server account update retransmit
```

<b>Related Commands</b>	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 3.8 radius-server attribute 31

Use this command to specify the MAC-based format of RADIUS Calling-Station-ID attribute.

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

**radius-server attribute 31 mac format { ietf | normal | unformatted }**

**no radius-server attribute 31 mac format**

Parameter Description	Parameter	Description
	<b>ietf</b>	The standard format specified by the IETF RFC3580. '-' is used as the separator, for example: 00-D0-F8-33-22-AC.
	<b>normal</b>	Normal format representing the MAC address. '.' is used as the separator. For example: 00d0.f833.22ac.
	<b>unformatted</b>	No format and separator. By default, unformatted is used. For example: 00d0f83322ac.

**Defaults** The default format is unformatted.

**Command Mode** Global configuration mode

**Usage Guide** Some RADIUS security servers (mainly used to 802.1x authentication) may identify the IETF format only. In this case, the RADIUS Calling-Station-ID attribute shall be set as the IETF format type.

**Configuration** The following example defines the RADIUS Calling-Station-ID attribute as IETF format.

**Examples**

```
Ruijie(config)# radius-server attribute 31 mac format ietf
```

Related Commands	Command	Description
	<b>radius-server host</b>	Defines the RADIUS server.

**Platform Description** N/A

### 3.9 radius-server attribute class

Use this command to analyze the flow control value of the RADIUS CLASS attributes.

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

**radius-server attribute class user-flow-control { format-16bytes | format-32bytes }**

**no radius-server attribute class user-flow-control**



Parameter Description	Parameter	Description
	<b>user-flow-control</b>	Analyzes flow control value in the CLASS attribute.
	<b>format-16bytes</b>	Sets the format of flow control value to 16 bytes.
	<b>format-32bytes</b>	Sets the format of flow control value to 32 bytes.

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is required if the server pushes the flow control value through the CLASS attribute.

**Configuration Examples** The following example analyzes the flow control value of the CLASS attribute and sets the format to 32 bytes.

```
Ruijie(config)#radius-server attribute class user-flow-control
format-32bytes
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.10 radius-server dead-criteria

Use this command to configure criteria on a device to determine that the Radius server is unreachable.

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

**radius-server dead-criteria** { **time** *seconds* [ **tries** *number* ] | **tries** *number* }

**no radius-server dead-criteria** { **time** *seconds* [ **tries** *number* ] | **tries** *number* }

Parameter Description	Parameter	Description
	<b>time</b> <i>seconds</i>	Configures the timeout value. If the device does not receive a correct response packet from the Radius server within the specified time, the Radius server is considered to be unreachable. The value is in the range from 1 to 120 in the unit of seconds.
	<b>tries</b> <i>number</i>	Configures the successive timeout times. When sending a request from the device to the Radius server times out for the specified times, the device considers that the Radius server is unreachable. The value is in the range from 1 to 100 in the unit of seconds.

**Defaults** The default **time** *seconds* is 60 and **tries** *number* is 10.

**Command Mode** Global configuration mode

**Usage Guide** If a Radius server meets the timeout and timeout times at the same time, it is considered to be unreachable. This command is used to adjust the parameter conditions of timeout and timeout times.

**Configuration** The following example sets the timeout to 120 seconds and timeout times to 20.

**Examples** Ruijie(config)# radius-server dead-criteria time 120 tries 20

Related Commands	Command	Description
	<b>radius-server host</b>	Defines the RADIUS security server.
	<b>radius-server deadtime</b>	Defines the duration when a device stops sending any requests to an unreachable Radius server.
	<b>radius-server timeout</b>	Defines the timeout for the packet re-transmission.

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

### 3.11 radius-server deadtime

Use this command to configure the duration when a device stops sending any requests to an unreachable Radius server.

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

**radius-server deadtime** *minutes*

**no radius-server deadtime**

Parameter Description	Parameter	Description
	<i>minutes</i>	Defines the duration in minutes when the device stops sending any requests to the unreachable Radius server. The value is in the range from 1 to 1,440 in the unit of minutes.

**Defaults** The default value of minutes is 0, that is, the device keeps sending requests to the unreachable Radius server.

**Command Mode** Global configuration mode

**Usage Guide** If active Radius server detection is enabled on the device, the time parameter of this command does not take effect on the Radius server. Otherwise, the Radius server becomes reachable when the duration set by this command is shorter than the unreachable time.

**Configuration** The following example sets the duration when the device stops sending requests to 1 minute.

**Examples** Ruijie(config)# radius-server deadtime 1

**Related  
Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS security server.
<b>radius-server dead-criteria</b>	Defines the criteria to determine that a Radius server is unreachable.

**Platform** N/A

**Description**

### 3.12 radius-server host

Use this command to specify a RADIUS security server host.

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

**radius-server host** [ **oob** ] { *ipv4-address* | *ipv6-address* } [ **auth-port** *port-number* ] [ **acct-port** *port-number* ] [ **test username** *name* [ **idle-time** *time* ] ] [ **ignore-auth-port** ] [ **ignore-acct-port** ] ] [ **key** [ **0** | **7** ] *text-string* ]

**no radius-server host** { *ipv4-address* | *ipv6-address* }

**Parameter  
Description**

Parameter	Description
<b>oob</b>	Specifies an MGMT port as the source port for TACACS+ communication.
<i>ipv4-address</i>	IPv6 address of the RADIUS security server host.
<i>ipv6-address</i>	IPv4 address of the RADIUS security server host.
<i>auth-port</i>	UDP port used for RADIUS authentication.
<i>port-number</i>	Number of the UDP port used for RADIUS authentication. If it is set to 0, this host does not perform authentication.
<i>acct-port</i>	UDP port used for RADIUS accounting.
<i>port-number</i>	Number of the UDP port used for RADIUS accounting. If it is set to 0, this host does not perform accounting.
<b>test username</b> <i>name</i>	(Optional) Enables the active detection to the RADIUS security server and specify the username used by the active detection.
<b>idle-time</b> <i>time</i>	(Optional) Sets the interval of sending the test packets to the reachable RADIUS security server, which is 60 minutes by default and in the range of 1 to 1440 minutes (namely 24 hours).

<b>ignore-auth-port</b>	(Optional) Disables the detection to the authentication port on the RADIUS security server. It is enabled by default.
<b>ignore-acct-port</b>	(Optional) Disables the detection to the authentication port on the RADIUS security server. It is enabled by default.
<b>key [ 0   7 ] <i>text-string</i></b>	Configure a shared key for the server. The type of encryption can be specified. 0 is no encryption and 7 is simple encryption. The default is 0.

**Defaults** No RADIUS host is specified by default.

**Command Mode** Global configuration mode

**Usage Guide** In order to implement the AAA security service using RADIUS, you must define a RADIUS security server. You can define one or more RADIUS security servers using the **radius-server host** command.

**Configuration Examples** The following example defines a RADIUS security server host:

```
Ruijie(config)# radius-server host 192.168.12.1
```

The following example defines a RADIUS security server host in the IPv4 environment, enable the active detection with the detection interval 60 minutes and disable the accounting UDP port detection:

```
Ruijie(config)# radius-server host 192.168.100.1 test username viven idle-time 60 ignore-acct-port
```

The following example defines a RADIUS security server host in the IPv6 environment

```
Ruijie(config)# radius-server host 3000::100
```

**Related Commands**

Command	Description
<b>aaa authentication</b>	Defines the AAA authentication method list
<b>radius-server key</b>	Defines a shared password for the RADIUS security server.
<b>radius-server retransmit</b>	Defines the number of RADIUS packet retransmissions.

**Platform** N/A

**Description**

### 3.13 radius-server key

Use this command to define a shared password for the network access server (device) to communicate with the RADIUS security server.

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

**radius-server key** [ 0 | 7 ] *text-string*

**no radius-server key**

Parameter Description	Parameter	Description
	<i>text-string</i>	Text of the shared password
	0   7	Password encryption type. 0: no encryption; 7: Simply-encrypted.

**Defaults** No shared password is specified by default.

**Command**

**Mode** Global configuration mode.

**Usage Guide** A shared password is the basis for communications between the device and the RADIUS security server. In order to allow the device to communicate with the RADIUS security server, you must define the same shared password on the device and the RADIUS security server.

**Configuration** The following example defines the shared password **aaa** for the RADIUS security server:

**Examples** Ruijie(config)# radius-server key aaa

Related Commands	Command	Description
	<b>radius-server host</b>	Defines the RADIUS security server.
	<b>radius-server retransmit</b>	Defines the number of RADIUS packet retransmissions.
	<b>radius-server timeout</b>	Defines the timeout for the RADIUS packet.

**Platform** N/A

**Description**

### 3.14 radius-server retransmit

Use this command to configure the number of packet retransmissions before the device considers that the RADIUS security server does not respond.

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

**radius-server retransmit** *retries*

**no radius-server retransmit**

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

<i>retries</i>	Number of retransmissions in the range from 1 to 100
----------------	--

**Defaults** The default is 3.

**Command Mode** Global configuration mode.

**Usage Guide** AAA uses the next method to authenticate users only when the current security server for authentication does not respond. When the device retransmits the RADIUS packet for the specified times and the interval between every two retries is timeout, the device considers that the security sever does not respond.

**Configuration** The following example sets the number of retransmissions to 4.

**Examples** Ruijie(config)# radius-server retransmit 4

**Related Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS security server.
<b>radius-server key</b>	Defines a shared password for the RADIUS server.
<b>radius-server timeout</b>	Defines the timeout for the RADIUS packet.

**Platform** N/A

**Description**

### 3.15 radius-server source-port

Use this command to configure the source port to send RADIUS packets.

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

**radius-server source-port** *port*

**no radius-server source-port**

**Parameter Description**

Parameter	Description
<i>port</i>	The port ID, in the range from 0 to 65535.

**Defaults** The default is a random number.

**Command Mode** Global configuration mode

**Usage Guide** The source port is random by default. This command is used to specify a source port.

**Configuration** The following example configures source port 10000 to send RADIUS packets.

**Examples**

```
Ruijie(config)# radius-server source-port 10000
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

### 3.16 radius-server timeout

Use this command to set the time for the device to wait for a response from the security server after retransmitting the RADIUS packet.

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

**radius-server timeout** *seconds*

**no radius-server timeout**

**Parameter  
Description**

Parameter	Description
<i>seconds</i>	Timeout in the range from 1 to 1,000 in the unit of seconds.

**Defaults** The default is 5 seconds.

**Command**

**Mode** Global configuration mode

**Usage Guide** This command is used to change the timeout of packet retransmission.

**Configuration** The following example sets the timeout to 10 seconds.

**Examples**

```
Ruijie(config)# radius-server timeout 10
```

**Related  
Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS security server.
<b>radius-server retransmit</b>	Defines the number of the RADIUS packet retransmissions.
<b>radius-server key</b>	Defines a shared password for the RADIUS server.

**Platform** N/A

**Description**

### 3.17 radius set qos cos

Use this command to set the QoS value sent by the RADIUS server as the CoS value of the interface.  
Use the **no** form of this command to restore the default setting.

**radius set qos cos**

**no radius set qos cos**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** Set the QoS value sent by the RADIUS server as the DSCP value.

**Command Mode** Global configuration mode.

#### Usage Guide

**Configuration Examples** The following example sets the QoS value sent by the RADIUS server as the CoS value of the interface:

```
Ruijie(config)# radius set qos cos
```

Related Commands	Command	Description
	<b>radius vendor-specific extend</b>	Extends RADIUS as not to differentiate the IDs of private vendors.

**Platform Description** N/A

### 3.18 radius support cui

Use this command to enable RADIUS to support the cui function.  
Use the **no** form of this command to restore the default setting.

**radius support cui**

**no radius support cui**

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 used to enable RADIUS to support the cui function.

**Configuration Examples** The following example enables RADIUS to support the cui function.

```
Ruijie(config)# radius support cui
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

### 3.19 server auth-port acct-port

Use this command to add the server of the AAA server group.  
 Use the **no** form of this command to restore the default setting.  
**server** { *ipv4-addr* | *ipv6-addr* } [ **auth-port** *port1* ] [ **acct-port** *port2* ]  
**no server** { *ipv4-addr* | *ipv6-addr* } [ **auth-port** *port1* ] [ **acct-port** *port2* ]

**Parameter Description**

Parameter	Description
<i>ip-addr</i>	Server IP address
<i>ipv6-addr</i>	Server IPv6 address
<i>port1</i>	Server authentication port
<i>port2</i>	Server accounting port

**Defaults** No server is configured by default.

**Command Mode** Server group configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example adds server 192.168.4.12 to server group ss and sets the accounting port and authentication port to 5 and 6 respectively.

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12 acct-port 5 auth-port 6
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Type      Reference Name
```

```
-----
radius      1      radius
tacacs+    1      tacacs+
radius      1      ss
```

Related Commands	Command	Description
	N/A	N/A

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

### 3.20 show radius acct statistics

Use this command to display RADIUS accounting statistics.

**show radius acct statistics**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration Examples** The following example displays RADIUS accounting statistics.

```
Ruijie#show radius acct statistics
Accounting Servers:

Server Index..... 1
Server Address..... 192.168.1.1
Server Port..... 1813
Msg Round Trip Time..... 0 (msec)
First Requests..... 1
Retry Requests..... 1
Accounting Responses..... 0
Malformed Msgs..... 0
Bad Authenticator Msgs..... 0
Pending Requests.....
```

Related Commands	Command	Description
		N/A

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

### 3.21 show radius auth statistics

Use this command to display RADIUS authentication statistics.

**show radius auth statistics**

Parameter Description	Parameter	Description
		N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration Examples** The following example displays RADIUS authentication statistics.

```
Ruijie#show radius auth statistics
Authentication Servers:

Server Index..... 1
Server Address..... 192.168.1.1
Server Port..... 1812
Msg Round Trip Time..... 0 (msec)
First Requests..... 0
Retry Requests..... 0
Accept Responses..... 0
Reject Responses..... 0
Challenge Responses..... 0
Malformed Msgs..... 0
Bad Authenticator Msgs..... 0
Pending Requests..... 0
Timeout Requests..... 0
Unknowntype Msgs..... 0
Other Drops..... 0
```

Related Commands	Command	Description
		N/A

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

### 3.22 show radius group

Use this command to display RADIUS server group configuration.

**show radius group**

Parameter Description	Parameter	Description
		N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration Examples** The following example displays RADIUS server group configuration.

#### Examples

```
Ruijie#show radius group
=====Radius group radius=====
Vrf:not-set
Server:192.168.1.1
  Server key:ruijie
  Authentication port:1812
  Accounting port:1813
  State:Active
```

Related Commands	Command	Description
		N/A

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

### 3.23 show radius parameter

Use this command to display global RADIUS server parameters.

**show radius parameter**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration Examples** The following example displays global RADIUS server parameters.

```
Ruijie# show radius parameter
Server Timeout: 5 Seconds
Server Deadtime: 0 Minutes
Server Retries: 3
Server Dead Criteria:
Time: 10 Seconds
Tries: 10
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 3.24 show radius server

Use this command to display the configuration of the RADIUS server.

**show radius server**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode, privileged EXEC mode, interface configuration mode

**Usage Guide** N/A

**Configuration** The following example displays the configuration of the RADIUS server.

**Examples**

```
Ruijie# show radius server
Server IP: 192.168.4.12
Accounting Port: 23
Authen Port: 77
Test Username: viven
Test Idle Time: 10 Minutes
Test Ports: Authen
Server State: Active
    Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
Authen: request 15, timeouts 1
Author: request 0, timeouts 0
Account: request 0, timeouts 0

Server IP: 192.168.4.13
Accounting Port: 45
Authen Port: 74
Test Username: <Not Configured>
Test Idle Time: 60 Minutes
Test Ports: Authen and Accounting
Server State: Active
    Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
Authen: request 0, timeouts 0
Author: request 0, timeouts 0
Account: request 20, timeouts 0
```

**Related  
Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS security server.
<b>radius-server retransmit</b>	Defines the number of RADIUS packet retransmissions.
<b>radius-server key</b>	Defines a shared password for the RADIUS server.
<b>radius-server timeout</b>	Defines the packet transmission timeout.

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

### 3.25 show radius vendor-specific

Use this command to display the configuration of the private vendors.

**show radius vendor-specific**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode, privileged EXEC mode, interface configuration mode

**Usage Guide** N/A

**Configuration** The following example displays the configuration of the private vendors.

**Examples**

```
Ruijie#show radius vendor-specific
id   vendor-specific      type-value
-----
1    max-down-rate         1
2    port-priority         2
3    user-ip               3
4    vlan-id               4
5    last-supPLICANT-vers 5
    ion
6    net-ip               6
7    user-name            7
8    password             8
9    file-directory       9
10   file-count            10
11   file-name-0           11
12   file-name-1           12
13   file-name-2           13
14   file-name-3           14
15   file-name-4           15
16   max-up-rate           16
17   current-supPLICANT-version 17
18   flux-max-high32      18
19   flux-max-low32       19
20   proxy-avoid          20
21   dialup-avoid         21
22   ip-privilege         22
23   login-privilege      42
```

```
26  ipv6-multicast-addre 79
    ss
27  ipv4-multicast-addre 87
    ss
```

**Related  
Commands**

Command	Description
<b>radius-server host</b>	Defines the RADIUS security server.
<b>radius-server retransmit</b>	Defines the number of RADIUS packet retransmissions.
<b>radius-server key</b>	Defines a shared password for the RADIUS server.
<b>radius-server timeout</b>	Defines the packet transmission timeout.

**Platform  
Description**

N/A



## 4 802.1X Commands

### 4.1 clear dot1x user all

Use this command to clear all the 802.1X authentication users.

**clear dot1x user all**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to clear all the 802.1X authentication users.

**Configuration** The following example clears all the 802.1X authentication users.

**Examples** Ruijie#clear dot1x user all

Related	Command	Description
Commands	N/A	N/A

**Platform Description** N/A

### 4.2 clear dot1x user id

Use this command to clear 802.1X authentication users according to session IDs.

**clear dot1x user id session-id**

Parameter	Parameter	Description
Description	<i>session-id</i>	Session ID

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to clear 802.1X authentication users according to session IDs.

**Configuration** The following example clears an 802.1X authentication user whose session ID is 12345678.

**Examples**

```
Ruijie#clear dot1x user id 12345678
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.3 clear dot1x user mac

Use this command to clear 802.1X authentication users according to MAC addresses.

**clear dot1x user mac** *mac-addr*

Parameter	Parameter	Description
<b>Description</b>	<i>mac-addr</i>	MAC address

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to clear 802.1X authentication users according to MAC addresses.

**Configuration** The following example clears an 802.1X authentication user whose MAC address is 0012.3456.789A.

**Examples**

```
Ruijie#clear dot1x user mac 0012.3456.789A
```

Related Commands	Command	Description
	N/A	N/A

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

### 4.4 clear dot1x user name

Use this command to clear the 802.1 X authentication users according to the username.

**clear dot1x user name** *name-str*

Parameter	Parameter	Description
<b>Description</b>	<i>name-str</i>	The username of the 802.1X authentication user

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to clear the 802.1 X authentication users according to the username.

**Configuration** The following example clears the 802.1X authentication user named 802.1X-user.

**Examples**

```
Ruijie#clear dot1x user name dot1x-user
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.5 clear dot1x user ip

Use this command to clear 802.1X authentication users according to IP addresses.

**clear dot1x user ip** *ip-addr*

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

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** Use this command to clear 802.1X authentication users according to IP addresses.

**Configuration** The following example clears an 802.1X authentication user whose IP address is 11.1.1.1.

**Examples**

```
Ruijie#clear dot1x user ip 11.1.1.1
```

**Platform** N/A

**Description**

## 4.6 dot1x accounting

Use this command to configure the accounting list.

**dot1x accounting** *list-name*

Parameter Description	Parameter	Description
	<i>list-name</i>	The name of the accounting list

**Defaults** N/A

**Command Mode** Privileged EXEC mode/WLAN security configuration mode

**Usage Guide** If AAA does not adopts 802.1X accounting as the default accounting method. Use this command to configure the 802.1X accounting method.  
Configuration in WLAN security configuration mode is prior to that in global configuration mode.

**Configuration Examples** The following example configures the accounting list.

```
Ruijie(config)# dot1x accounting dot1x-acct
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 4.7 dot1x acct-update base-on first-time server

Use this command to assign the accounting update interval for the first authentication.  
Use the **no** form of this command to restore the default settings.

**dot1x acct-update base-on first-time server**  
**no dot1x acct-update base-on first-time server**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The assignment is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Some portal servers do not support the assignment of accounting update interval during re-authentication. Use this command if such servers demand users to issue accounting update packets according to the interval in the first authentication.

**Configuration Examples** The following example assigns the accounting update interval for the first authentication.

```
Ruijie(config)# dot1x acct-update base-on first-time server
```

**Platform Description** N/A

## 4.8 dot1x auth-mode

Use this command to specify the 802.1X authentication mode.

**dot1x auth-mode** { eap | chap | pap }

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** The default is EAP-MD5 authentication mode.

**Command Mode** Global configuration mode

**Usage Guide** The selection of authentication mode depends on the suppliant and portal server.

**Configuration Examples** The following example enables CHAP authentication mode.

```
Ruijie(config)# dot1x auth-mode chap
```

Related Commands	Command	Description
	show dot1x	Displays the 802.1X information.

**Platform Description** N/A

## 4.9 dot1x authentication

Use this command to configure the authentication method list.

**dot1x authentication** *list-name*

Parameter	Parameter	Description
Description	<i>list-name</i>	Authentication method list

**Defaults** N/A

**Command Mode** Global configuration mode/WLAN security configuration mode

**Usage Guide** If AAA does not adopt the default 802.1X authentication, use this command to configure the 802.1X authentication method.  
Configuration in WLAN security configuration mode is prior to that in global configuration mode.

**Configuration Examples** The following example configures the authentication method list

```
Ruijie(config)# dot1x authentication dot1x-authen
```

Related	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

### 4.10 dot1x dbg-filter

Use this command to enable debug information print for a user with a specified MAC address.

Use the **no** form of this command to clear the debug information.

**dot1x dbg-filter** *H.H.H*

**no dot1x dbg-filter** *H.H.H*

Parameter	Parameter	Description
Description	<i>H.H.H</i>	The MAC address of a user

**Defaults** Debug information of all authentication users is printed by default.

**Command mode** Global configuration mode

**Usage Guide** Use this command to print the debug information of a specific user. If you want to locate the fault on the network where there are multiple users.

**Configuration Examples** The following example prints the debug information of the device with the specified MAC address.

```
Ruijie(config)# dot1x dbg-filter 00d0.f800.0001
```

Related	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

### 4.11 dot1x default-user-limit

Use this command to set the maximum auth-user number on controlled interfaces.

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

**dot1x default-user-limit** *num*

**no dot1x default-user-limit**

Parameter	Parameter	Description
Description	<i>num</i>	The maximum auth-user number allowed by a controlled

	interface, in the range from 1 to 1,000,000
--	---

**Defaults** By default, there is not a limitation for the auth-user number.

**Command mode** Interface configuration mode

**Usage Guide** This command is used to limit the number of users to be authenticated on a specific port.

**Configuration** The following example sets the maximum auth-user number on a controlled interface.

**Examples** Ruijie(config-if)# dot1x default-user-limit 10

Related Commands	Command	Description
	<b>show dot1x port-control interface fastEthernet 0/10</b>	Displays the number of users allowed by a specific 802.1X interface.
	<b>show dot1x port-control interface fastEthernet 0/10</b>	Displays the number of users allowed by a specific 802.1X interface.

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

## 4.12 dot1x default

Use this command to restore 802.1X configuration to the default setting.

**dot1x default**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** This command is used to restore 802.1X configuration for quick re-configuration.

**Configuration** The following example restores 802.1X configuration to the default setting.

**Examples** Ruijie(config)# dot1x default

Related Commands	Command	Description
	<b>show dot1x</b>	Displays the 802.1X information.

**Platform** N/A

**Description**

## 4.13 dot1x encryption only

Use this command to enable the 802.1X authentication for only encryption purpose. WEB authentication functions in place of 802.1X for authentication purpose.

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

**dot1x encryption only**

**no dot1x encryption only**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is disabled by default.

**Command** WLAN security configuration mode

**Mode**

**Usage Guide** Use this command to enable the 802.1X authentication for only encryption purpose. WEB authentication functions in place of 802.1X for authentication purpose.

**Configuration** The following example enables the 802.1X authentication for only encryption purpose.

**Examples** Ruijie(config-wlansec)#dot1x encryption only

Related	Command	Description
Commands	N/A	N/A

**Platform** This command is supported only on wireless products.

**Description**

## 4.14 dot1x event server-invalid action bypass-wlan

Use this command to enable the RADIUS server bypass function and support the bypass WLAN.

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

**dot1x event server-invalid action bypass-wlan wlan-id**

**no dot1x event server-invalid action bypass-wlan**

Parameter	Parameter	Description
Description	wlan-id	The ID of the bypass WLAN

**Defaults** This function is disabled by default.



**Command Mode** Global configuration mode

**Usage Guide** Use this command to enable the RADIUS server bypass function and support the bypass WLAN.

**Configuration** The following example enables the RADIUS server bypass function.

**Examples**

```
Ruijie(config)#dot1x event server-invalid action bypass-wlan 10
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** This command is supported only on wireless products.

### 4.15 dot1x get-static-ip enable

Use this command to obtain static IP addresses.

**dot1x get-static-ip enable**

Use this command to restore the default setting.

**no dot1x get-static-ip enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Enable this function when wireless terminals use static IP addresses and need to upload the static IP addresses to the server.

Note that the IP addresses are uploaded to the server via accounting packets. In addition, when static IP addresses are used, terminal identification information is not provided.

**Configuration** The following example obtains static IP addresses.

**Examples**

```
Ruijie(config)# dot1x get-static-ip enable
```

**Platform Description**

## 4.16 dot1x logging rate-limit

Use this command to set the logging rate-limit.

**dot1x logging rate-limit** *value*

Use this command to restore the default setting.

**no dot1x logging**

Parameter Description	Parameter	Description
	<i>value</i>	Logging rate 0: logging rate is not limited.

**Defaults** The default is 5 logs per second.

**Command Mode** Global configuration mode

**Usage Guide** The default setting is recommended. Lower the limit in case of much online/offline which raises CPU occupation.

**Configuration Examples** The following example sets the logging rate-limit to 20 logs per second.

```
Ruijie(config)# dot1x logging rate-limit 20
```

**Platform Description** This command is supported only on wireless products.

## 4.17 dot1x mab-username upper

Use this command to enable uppercase letters in MAB user names.

**dot1x mab-username upper**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode.

**Usage Guide** By default, lowercase letters are used in the user name of MAB. After this function is enabled, uppercase letters are used in new user names of MAB to meet server requirements.

**Configuration** The following example enables uppercase letters in MAB user names.

**Examples** `Ruijie(config)# dot1x mab-username upper`

Related Commands	Command	Description
	N/A	N/A

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

### 4.18 dot1x mab-username format

Use this command to configure the MAB authentication user name format.  
 Use the **no** form of this command to restore the default settings.

**dot1x mab-username format [with-dot | with-colon | with-hyphen]**  
**no dot1x mab-username format**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** By default, this function is disabled.

**Command Mode** Global configuration mode

**dot1x mab-username format with-dot** is used to configure the MAB authentication user name format `xxxx.xxxx.xxxx`.

**Usage Guide** **dot1x mab-username format with-colon** is used to configure the MAB authentication user name format `xx:xx:xx:xx:xx:xx`.

**dot1x mab-username format with-hyphen** is used to configure the MAB authentication user name format `xx-xx-xx-xx-xx-xx`.

**Configuration** The following example configures the MAB authentication user name format.

**Examples** `Ruijie(config)# dot1x mab-username format with-hyphen`

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

### 4.19 dot1x max-req

Use this command to set the maximum attempts of authentication requests.

**dot1x max-req num**

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

<b>Description</b>	<i>num</i>	Maximum attempts
--------------------	------------	------------------

**Defaults** The default is 3.

**Command Mode** Global configuration mode

**Usage Guide** Use the **show dot1x** command to display the 802.1X configuration.

**Configuration** The following example sets the maximum attempts of authentication requests to 2.

**Examples**

```
Ruijie(config)# dot1x max-req 2
```

Related	Command	Description
<b>Commands</b>	<b>show dot1x</b>	Displays the information about 802.1X.

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

## 4.20 dot1x multi-account enable

Use this command to enable the user with one single MAC address to perform authentication with multiple accounts.

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

**dot1x multi-account enable**

**no dot1x multi-account enable**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Use the command to enable the multiple-account authentication if you want to switch the username in the authentication or re-authentication, especially in the windows domain authentication.

**Configuration** The following example enables the multiple-account authentication.

**Examples**

```
Ruijie(config)# dot1x multi-account enable
```

Related	Command	Description
<b>Commands</b>	N/A	N/A

**Platform** N/A

**Description**

## 4.21 dot1x offline-detect

Use this command to enable traffic detection.

Use the **no** form of this command to disable this function.

**dot1x offline-detect** {[*interval val*] | [*flow num*]}

**no dot1x offline-detect** {[*interval val*] | [*flow num*]}

**Parameter  
Description**

Parameter	Description
<i>val</i>	Traffic detection interval in the unit of minutes The default is 15 minutes.
<i>num</i>	Traffic threshold in the unit of KB The default is 0 KB.

**Defaults**

AC: This function is enabled by default.

AP: This function is disabled by default.

**Command  
Mode**

WLAN security configuration mode

**Usage Guide**

(Optional) Use this command to prevent the device from accounting when a STA has been offline.

The traffic detection parameters configured in WLAN security configuration mode are prior to those configured in global configuration mode.

**Configuration**

The following example enables traffic detection.

**Examples**

```
Ruijie(config)# dot1x offline-detect interval 5 flow 20
```

**Platform**

**Description**

This command is supported only on wireless products.

## 4.22 dot1x reauth-max

Use this command to set the maximum re-auth attempts.

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

**dot1x reauth-max** *num*

**Parameter  
Description**

Parameter	Description
<i>num</i> ,	Maximum re-auth attempts. The range is from 1 to 10.

**Defaults**

The default is 3.

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

**Usage Guide** Use this command to specify the maximum number of supplicant re-authentications. Use the **show dot1x** command to display 802.1X configuration.

**Configuration** The following example sets the maximum re-auth attempts to 2.

**Examples** Ruijie(config)# dot1x reauth-max 2

Related	Command	Description
Commands	show dot1x	Displays the 802.1X information.

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

### 4.23 dot1x re-authentication

Use this command to enable timed re-authentication function.  
 Use the **no** form of the command to restore the default setting.

**dot1x re-authentication**

**no dot1x re-authentication**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is disabled by default.

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

**Usage Guide** This command will re-authenticate the supplicant periodically after he passes the authentication. Use the **show dot1x** command to display 802.1X configuration. The default setting is recommended.

**Configuration** The following example enables timed re-authentication function.

**Examples** Ruijie(config)# dot1x re-authentication

Related	Command	Description
Commands	show dot1x	Displays the 802.1X information.

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

## 4.24 dot1x timeout re-authperiod

Use this command to set the re-authentication interval when re-authentication is enabled.

**dot1x timeout re-authperiod** *time*

Parameter	Parameter	Description
Description	<i>time</i>	Authentication interval, in the range from 1 to 65,535 in the unit of seconds.

**Defaults** The default is 3,600 seconds.

**Command Mode** Global configuration mode

**Usage Guide** Use the **show dot1x** command to display the 802.1X configuration.

**Configuration Examples** The following example sets the re-authentication interval to 2,400 seconds.

```
Ruijie(config)# dot1x timeout re-authperiod 2400
```

Related Commands	Command	Description
	<b>show dot1x</b>	Displays the information about 802.1X.

**Platform Description** N/A

## 4.25 dot1x timeout quiet-period

Use this command to set the quiet period after authentication failure.

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

**dot1x timeout quiet-period** *time*

Parameter	Parameter	Description
Description	<i>time</i>	Sets the quiet period after authentication failure, in the range from 1 to 65,535 in the unit of seconds.

**Defaults** The default is 10 seconds.

**Command Mode** Global configuration mode

**Usage Guide** When authentication fails, the supplicant must wait for a period of time before re-authentication.

**Configuration** The following example sets the quiet period after authentication failure to 60 seconds.

**Examples** `Ruijie(config)# dot1x timeout quiet-period 60`

Related Commands	Command	Description
	<code>show dot1x</code>	Displays the 802.1X information.

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

## 4.26 dot1x timeout supp-timeout

Use this command to set the authentication timeout between the device and the supplicant.

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

**dot1x timeout supp-timeout** *time*

Parameter Description	Parameter	Description
	<i>time</i>	Authentication timeout between the device and the supplicant The range is from 1 to 65,535 seconds.

**Defaults** The default is 3 seconds.

**Command Mode** Global configuration mode

**Usage Guide** Use the **show dot1x** command to show display 802.1X configuration.

**Configuration Examples** The following example sets the authentication timeout between the device and the supplicant to 10s:

**Examples** `Ruijie(config)# dot1x timeout supp-timeout 10`

Related Commands	Command	Description
	<code>show dot1x</code>	Displays the information about 802.1x.

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

## 4.27 dot1x timeout server-timeout

Use this command to set the server timeout interval.

**dot1x timeout server-timeout** *time*

Parameter Description	Parameter	Description
	<i>time</i>	The server timeout interval, in the range from 1 to 65,535 in the unit of seconds



**Defaults** The default is 5 seconds.

**Command Mode** Global configuration mode

**Usage Guide** By default, the timeout of the 802.1X server is less than that of the Radius server. Use this command to raise the 802.1X timeout so as to exceed the Radius value. For details, see *Configuration Guide*.

**Configuration Examples** The following example set the server timeout interval to 10 seconds.

```
Ruijie(config)# dot1x timeout server-timeout 10
```

Related Commands	Command	Description
	<b>show dot1x</b>	Displays the 802.1X information.

**Platform Description** N/A

## 4.28 dot1x timeout tx-period

Use this command to set the request/id packet re-transmission interval.

**dot1x timeout tx-period** *time*

Parameter Description	Parameter	Description
	<i>time</i>	The request/id packet re-transmission interval, in range from 1 to 65,535 in the unit of seconds

**Defaults** The default is 3 seconds.

**Command Mode** Global configuration mode

**Usage Guide** Use the **show dot1x** command to display 802.1X configuration.

**Configuration Examples** The following example sets the request/id packet re-transmission interval to 5 seconds.

```
Ruijie(config)# dot1x timeout tx-period 5
```

Related Commands	Command	Description
	<b>show dot1x</b>	Displays the information about 802.1X.

**Platform Description** N/A

## 4.29 dot1x user-trap enable

Use this command to enable users to send online/offline traps.

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

**dot1x user-trap enable**

**no dot1x user-trap enable**

Parameter	Parameter	Description
Description	N/A	Authentication timeout between the device and the supplicant The range is from 0 to 65,535 seconds.

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Use this command to enable users to send online/offline traps to the SNMP server.

**Configuration Examples** The following example enables STAs to send online/offline traps.

```
Ruijie(config)# dot1x user-trap enable
```

**Platform Description** N/A

## 4.30 dot1x valid-ip-acct enable

Use this command to enable IP address-triggered accounting.

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

**dot1x valid-ip-acct enable**

**no dot1x valid-ip-acct enable**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Use this command to enable accounting only when users obtain valid IP addresses.

**Configuration** The following example enables IP address-triggered accounting.

**Examples** `Ruijie(config)#dot1x valid-ip-acct enable`

**Platform** N/A

**Description**

## 4.31 dot1x valid-ip-acct timeout

Use this command to configure IP address-triggered accounting timeout.

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

**dot1x valid-ip-acct timeout** *time*

**no dot1x valid-ip-acct timeout**

Parameter Description	Parameter	Description
	<i>time</i>	IP address-triggered accounting timeout in the unit of minutes

**Defaults** The default is 5 minutes.

**Command Mode** Global configuration mode

**Usage Guide** The SNMP server will not start accounting until users obtain IP addresses. In this case, use this command to configure the IP address-triggered accounting timeout.

**Configuration Examples** The following example configures IP address-triggered accounting timeout.

**Examples** `Ruijie(config)# dot1x valid-ip-acct timeout 10`

**Platform Description** N/A

## 4.32 dot1x-mab

Use this command to enable MAB function in WLAN.

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

**dot1x-mab**

**no dot1x-mab**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** WLAN security configuration mode

**Usage Guide** (Optional) Use this command to enable MAB function for MAC-based security authentication in WLAN.

**Configuration** The following example enables MAB function in WLAN.

```
Examples Ruijie(config-wlansec) # dot1x-mab
```

**Platform Description** This command is supported only on wireless products.

### 4.33 show dot1x

Use this command to display the 802.1X setting.

**show dot1x**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command**

**Mode** Privileged EXEC mode/Global configuration mode/Interface configuration mode

**Usage Guide** N/A

**Configuration** The following example displays the 802.1X setting.

```
Examples Ruijie#show dot1x

802.1X basic information:
 802.1X Status ..... enable
 Authentication Mode ..... eap
 Authorization mode ..... disable
 Total User Number ..... 0 (exclude dynamic user)
 Authenticated User Number ..... 0 (exclude dynamic user)
 Dynamic User Number ..... 0
 Re-authentication ..... disable
 Re-authentication Period ..... 3600 seconds
 Re-authentication max ..... 3 times
 Quiet Period ..... 10 seconds
 Tx Period ..... 30 seconds
 Supplicant Timeout ..... 3 seconds
 Server Timeout ..... 5 seconds
 Maximum Request ..... 3 times
```

```
Client Online Probe ..... disable
Eapol Tag ..... enable
802.1x redirect ..... disable
Private supplicant only ..... disable
```

Related Commands	Command	Description
	<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
	<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
	<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
	<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
	<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
	<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
	<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
	<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
	<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
	<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

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

### 4.34 show dot1x auth-address-table

Use this command to display 802.1X authentication address table.

**show dot1x auth-address-table** [ **address** *addr* | **interface** *interface* ]

Parameter Description	Parameter	Description
	<i>addr</i>	Physical IP address that can be authenticated
	<i>interface</i>	Interface number

**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 802.1X authentication address table.

```
Ruijie #show dot1x auth-address-table
Interface      Address
-----
```

```

Fa0/1          00d0.f800.0c0e
Fa0/2          001a.c800.0102

Ruijie #show dot1x auth-address-table interface fastEthernet 0/1
Interface      Address
-----
Fa0/1          00d0.f800.0c0e

Ruijie #show dot1x auth-address-table address 00d0.f8.00.0c0e
Interface      Address
-----
Fa0/1          00d0.f800.0c0e

```

#### Related Commands

Command	Description
<b>dot1x auth-mode</b>	Sets the 802.1x authentication mode.
<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

**Platform** N/A

**Description**

## 4.35 show dot1x auto-req

Use this command to display the auto-request authentication information.

**show dot1x auto-req**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration** The following example displays the auto-request authentication information.

**Examples**

```
Ruijie# show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num : 0
Req-Interval: 30 Seconds
```

**Related  
Commands**

Command	Description
<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

**Platform** N/A

**Description**

## 4.36 show dot1x max-req

Use this command to display the maximum number of request/challenge packet transmission.

**show dot1x max-req**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration** The following example displays the maximum number of request/challenge packet transmission.

**Examples**

```
Ruijie#show dot1x max-req

Max-Req: 3 Times
```

**Related  
Commands**

Command	Description
<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

**Platform** N/A

**Description**

## 4.37 show dot1x port-control

Use this command to display the port-control information.

**show dot1x port-control** [ **interface** *interface-type interface-number* ]

Parameter	Parameter	Description
<b>Description</b>	<i>interface-type</i>	Interface type
	<i>interface-number</i>	Interface ID

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration** The following example displays the port-control information.

**Examples**

```
Ruijie#show dot1x port-control
```



Interface	Mode	Dynamic-User	Static-User	Max-User	Authened	MAB
Gi0/5	mac-based	0	0	unlimited	no	disable

Related Commands	Command	Description
	<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
	<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
	<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
	<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
	<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
	<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
	<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
	<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
	<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
	<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

**Platform** N/A

**Description**

### 4.38 show dot1x private-supPLICANT-only

Use this command to display the information about the private supplicant.

**show dot1x private-supPLICANT-only**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**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 information about the private supplicant:

```
Ruijie#show dot1x private-supPLICANT-only

private-supPLICANT-only: Disabled
```

Related Commands	Command	Description
	<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
	<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
	<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
	<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
	<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
	<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
	<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
	<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
	<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
	<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

**Platform** N/A

**Description**

## 4.39 show dot1x probe-timer

Use this command to display the configuration of online user probe.

**show dot1x probe-timer**

Parameter Description	Parameter	Description
	N/A	N/A

**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 configuration of online user probe.

```
Ruijie#show dot1x probe-timer
Hello Interval      : 20
Hello Alive        : 60
```

Field Description

Command	Description
Hello Interval	Sets the probe period.
Hello Alive	Sets the probe alive interval.

Related Commands	Command	Description
	N/A	N/A.

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

## 4.40 show dot1x re-authentication

Use this command to display re-authentication status.

**show dot1x re-authentication**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration Examples** The following example displays re-authentication status.

```
Ruijie#show dot1x re-authentication
```

```
Reauth-Enabled: Disabled
```

Command	Description
Reauth-Enabled	Whether to enable re-authentication.

Related Commands	Command	Description
	N/A	N/A

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

## 4.41 show dot1x reauth-max

Use this command to display the maximum re-auth attempts.

**show dot1x reauth-max**

Parameter Description	Parameter	Description
	N/A	N/A

**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 maximum re-authentication attempts.

```
Ruijie#show dot1x reauth-max

Reauth-Max: 3 Times
```

Command	Description
Reauth-Enabled	Sets the maximum re-authentication attempts.

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 4.42 show dot1x summary

Use this command to display the 802.1X authentication summary.

**show dot1x summary**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

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

**Usage Guide** It is convenient to display the 802.1X authentication summary according to the MAC address or username.

**Configuration Examples** The following example displays the summary of 802.1X authentication.

```
Ruijie#show dot1x summary
ID      User      MAC      Interface VLAN Auth-State  Backend-State
Port-Status User-Type Time
-----
-----
```

Related Commands	Command	Description
	<b>dot1x auth-mode</b>	Sets the 802.1X authentication mode.
	<b>dot1x max-req</b>	Sets the maximum number of authentication request re-transmissions.
	<b>dot1x port-control auto</b>	Sets the port to participate in authentication.
	<b>dot1x reauth-max</b>	Sets the maximum number of the supplicant re-authentications.
	<b>dot1x re-authentication</b>	Sets the re-authentication attribute.
	<b>dot1x timeout quiet-period</b>	Sets the time the device waits before re-authentication.
	<b>dot1x timeout re-authperiod</b>	Sets the re-authentication period for the supplicant.
	<b>dot1x timeout server-timeout</b>	Sets the authentication timeout between the device and authentication server.
	<b>dot1x timeout supp-timeout</b>	Sets the authentication timeout between the device and the supplicant.
	<b>dot1x timeout tx-period</b>	Sets the re-transmission interval.

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

### 4.43 show dot1x timeout quiet-period

Use this command to display the time for the device to wait before re-authentication quiet period after the authentication failure.

**show dot1x timeout quiet-period**

Parameter	Parameter	Description
<b>Description</b>	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 time for the device to wait before re-authentication quiet period after the authentication failure.

**Configuration Examples** The following example shows how to displays the quiet period the time for the device to wait before re-authentication after the authentication failure.

```
Ruijie#show dot1x timeout quiet-period

Quiet-Period: 10 Seconds
Parameter Description:
```

Parameter	Description
Quiet-Period	The time for the device to wait before re-authentication after the authentication failure.

Related Command	Description
N/A	N/A

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

### 4.44 show dot1x timeout re-authperiod

Use this command to display the re-authentication interval.

**show dot1x timeout re-authperiod**

Parameter	Parameter	Description
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 re-authentication interval.

**Configuration Examples** The following example displays the re-authentication interval.:

```
Ruijie#show dot1x timeout re-authperiod

Reauth-Period: 3600 Seconds
```

Parameter Description:

Parameter	Description
Reauth-Period	Re-authentication interval.

Related Command	Description
N/A	N/A

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

### 4.45 show dot1x timeout server-timeout

Use this command to display the authentication timeout period.

**show dot1x timeout server-timeout**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>				
<b>Description</b>	N/A	N/A				
<b>Defaults</b>	N/A					
<b>Command Mode</b>	Privileged EXEC mode/Global configuration mode/Interface configuration mode					
<b>Usage Guide</b>	Use this command to display the authentication timeout period.					
<b>Configuration</b>	Use this command to display the authentication timeout period:					
<b>Examples</b>	<pre>Ruijie#show dot1x timeout server-timeout</pre> <pre>Server-Timeout: 5 Seconds</pre> <p>Parameter Description:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Server-Period</td> <td>AuthenticationServer timeout periodinterval.</td> </tr> </tbody> </table>		Parameter	Description	Server-Period	AuthenticationServer timeout periodinterval.
Parameter	Description					
Server-Period	AuthenticationServer timeout periodinterval.					
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>				
	N/A	N/A				
<b>Platform Description</b>	N/A					

### 4.46 show dot1x timeout supp-timeout

Use this command to display the request/challenge packets re-transmission interval.

**show dot1x timeout supp-timeout**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode/Global configuration mode/Interface configuration mode	
<b>Usage Guide</b>	Use this command to display the request/challenge packets re-transmission interval.	
<b>Configuration</b>	Use this command to display the request/challenge packets re-transmission interval:	
<b>Examples</b>	<pre>Ruijie#show dot1x timeout supp-timeout</pre>	

Supp-Timeout: 3 Seconds

Field Description:

Field	Description
Server-Period	The request/challenge packets re-transmission interval.

Related Commands	Command	Description
	N/A	N/A

Platform N/A  
Description

## 4.47 show dot1x timeout tx-period

Use this command to display the request/id packets re-transmission interval.

**show dot1x timeout tx-period**

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 request/id packets re-transmission interval.

Configuration Use this command to display the request/ id packets re-transmission interval:

Examples Ruijie#show dot1x timeout tx-period

Tx-Period: 30 Seconds

Parameter Description:

Parameter	Description
Tx-Period	Request/id packets re-transmission interval.

Related Commands	Command	Description
	N/A	N/A

Platform N/A  
Description



## 4.48 show dot1x user id

Use this command to display the information about 802.1X authentication users based on user IDs.

**show dot1x user id** *id*

Parameter	Parameter	Description
Description	<i>id</i>	User ID

**Defaults** N/A

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

**Usage Guide** Use the **show dot1x summary** command to display 802.1X authentication summaries. And use this command to display detailed information of a specific user based on its ID.

**Configuration Examples** The following example displays the information about the 802.1X authentication user according to the user ID.

```
Ruijie#show dot1x user id 16777225

User name: ts-user
User id: 16777225
Type: static
Mac address is 0023.aaaa.4286
Vlan id is 2
Access from port Gi0/5
Time online: 0days 0h 0m17s
User ip address is 192.168.3.21
Max user number on this port is 0
Authorization session time is 1000 seconds
Supplicant is private
Start accounting
Permit proxy user
Permit dial user
IP privilege is 0
 user acl-name ts-user_6_0_0 :
Parameter Description:
```

Parameter	Description
User name	User name
User id	User ID
Type	User type
Mac address	User's MAC address
Vlan id	User VLAN ID

Access from port	The port that user accesses from
Time online	User online time
User ip address	User IP address
Max user number on this port	The maximum number of users on the port
Authorization session time	The authorized session time
Supplicant is private	Whether the terminal is a Ruijie device
Start accounting	The accounting is enabled
Permit proxy user	The user is allowed to use the proxy.
Permit dial user	The user is allowed to dial.
IP privilege	The IP privilege level
user acl-name	The ACL information

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

### 4.49 show dot1x user mac

Use this command to display the information about 802.1X authentication users based on MAC addresses.

**show dot1x user mac** *mac-addr*

Parameter Description	Parameter	Description
	<i>mac-addr</i>	MAC address

**Defaults** N/A

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

**Usage Guide** Use the **show dot1x summary** command to display 802.1X authentication summaries. And use this command to display detailed information of a specific user based on its MAC address.

**Configuration Examples** The following example displays the information about the 802.1X authentication user according to the user's MAC address.

```
Ruijie#show dot1x user mac 0023.aaaa.4286

User name: ts-user
User id: 16777225
Type: static
Mac address is 0023.aaaa.4286
```

```

Vlan id is 2
Access from port Gi0/5
Time online: 0days 0h 0m17s
User ip address is 192.168.3.21
Max user number on this port is 0
Authorization session time is 1000 seconds
Supplicant is private
Start accounting
Permit proxy user
Permit dial user
IP privilege is 0
user acl-name ts-user_6_0_0 :

```

## Parameter Description:

Parameter	Description
User name	User name
User id	User ID
Type	User type
Mac address	User's MAC address
Vlan id	User VLAN ID
Access from port	The port that user access from
Time online	User online time
User ip address	User IP address
Max user number on this port	The maximum number of users on the port
Authorization session time	The authorized session time
Supplicant is private	Whether the terminal is a Ruijie device
Start accounting	The accounting is enabled.
Permit proxy user	The user is allowed to use the proxy.
Permit dial user	The user is allowed to dial.
IP privilege	The IP privilege level
user acl-name	The ACL information

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 4.50 show dot1x user name

Use this command to display information about 802.1X authentication users based on usernames.

**show dot1x user name** *name*

**Parameter**

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

<b>Description</b>	<i>name</i>	User name
--------------------	-------------	-----------

**Defaults** N/A

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

**Usage Guide** Use the **show dot1x summary** command to display 802.1X authentication summaries. And use this command to display detailed information of a specific user based on its username.

**Configuration Examples** The following example displays the information about the 802.1X authentication user according to the user name.

```
Ruijie#show dot1x user name ts-user

User name: ts-user
User id: 16777225
Type: static
Mac address is 0023.aaaa.4286
Vlan id is 2
Access from port Gi0/5
Time online: 0days 0h 0m17s
User ip address is 192.168.3.21
Max user number on this port is 0
Authorization session time is 1000 seconds
Supplicant is private
Start accounting
Permit proxy user
Permit dial user
IP privilege is 0
user acl-name ts-user_6_0_0 :
```

Parameter Description:

Parameter	Description
User name	User name
User id	User ID
Type	User type
Mac address	User's MAC address
Vlan id	User VLAN ID
Access from port	The port that user access from
Time online	User online time
User ip address	User IP address
Max user number on this port	The maximum number of users on the port
Authorization session time	The authorized session time
Supplicant is private	Whether the terminal is a Ruijie device.
Start accounting	The accounting is enabled.

Permit proxy user	The user is allowed to use the proxy.
Permit dial user	The user is allowed to dial.
IP privilege	The IP privilege level.
user acl-name	The ACL information.

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

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

## 5 ARP-Check Commands

### 5.1 arp-check

Use this command to enable the ARP check function on the Layer 2 interface.

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

**arp-check**

**no arp-check**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command mode** Interface configuration mode/WLAN security configuration mode

**Usage Guide** The ARP check function generates the ARP filtering information according to legal user information, implementing the illegal ARP packet filtering on the network.

**Configuration Examples** This following example enables the APR check function on interface GigabitEthernet 0/1.

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# arp-check
Ruijie(config-if-GigabitEthernet 0/1)# end
Ruijie# configure terminal
Ruijie(config)# wlansec 1
Ruijie(config-wlansec)# arp-check
Ruijie(config-wlansec)# end
```

Related Commands	Command	Description
	<b>show interface arp-check list</b>	Displays the ARP check entries.

**Platform Description** N/A

### 5.2 show interfaces arp-check list

Use this command to display the ARP check entries on the Layer 2 interface.

**show** { **interface** [ *interface-type interface-number* ] | **wlan** [ *wlan-id* ] } **arp-check list**

Parameter Description	Parameter	Description
	<i>interface-type</i>	Wired interface type
	<i>interface-number</i>	Wired interface number
	<i>wlan-id</i>	WLAN ID

**Command mode** Privileged EXEC mode

**Usage** Use this command to display the ARP check entries.

**Guide**

**Configuration** The following example displays the ARP check entries.

```
Ruijie(config)#show interface arp-check list
INTERFACE                               SENDER MAC      SENDER IP      POLICY SOURCE
-----
GigabitEthernet 0/1                    00D0.F800.0003  192.168.1.3    address-bind
GigabitEthernet 0/1                    00D0.F800.0001  192.168.1.1    port-security
GigabitEthernet 0/4                               192.168.1.3    port-security
GigabitEthernet 0/5                    00D0.F800.0003  192.168.1.3    address-bind
GigabitEthernet 0/7                    00D0.F800.0006  192.168.1.6    AAA ip-auth-mode
GigabitEthernet 0/8                    00D0.F800.0007  192.168.1.7    GSN

Ruijie(config)#show wlan arp-check list
INTERFACE                               SENDER MAC      SENDER IP      POLICY SOURCE
-----
WLAN 1                                  00D0.F800.0008  192.168.1.8    GSN
```

Field	Description
INTERFACE	Interface name
SENDER MAC	Source MAC address
SENDER IP	Source IP address
POLICY SOURCE	Source of the entry

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 6 Anti-ARP Spoofing Commands

### 6.1 anti-arp-spoofing ip

Use this command to enable anti-ARP spoofing.  
 Use the **no** form of this command to disable this function.

**anti-arp-spoofing ip** *ip-address*

**no anti-arp-spoofing ip** *ip-address*

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

**Defaults** The anti-ARP spoofing function is disabled by default.

**Command Mode** WLAN security configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enables anti-ARP spoofing.

```
Ruijie(config)#wlansec 1
Ruijie(config-wlansec)#anti-arp-spoofing ip 192.168.1.1
```

Related Commands	Command	Description
	<b>show anti-arp-spoofing</b>	Displays the anti-ARP spoofing configuration.

**Platform Description** N/A

### 6.2 show anti-arp-spoofing

Use this command to display the anti-ARP spoofing configuration on all interfaces.

**show anti-arp-spoofing**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A



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

**Usage Guide** This command is used to display the anti-ARP spoofing configuration on all interfaces.

**Configuration** The following example displays the anti-ARP-spoofing configuration on all interfaces.

**Examples**

```
Ruijie#show anti-arp-spoofing
NO      PORT      IP          STATUS
-----
1       Gi0/1      192.168.1.1  active
```

Field Description

Field	Description
NO	Order number
PORT	Port number
IP	Gateway IP
STATUS	Anti-ARP spoofing status

**Related Commands**

Command	Description
<b>anti-arp-spoofing ip</b>	Configures anti-ARP spoofing.

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

## 7 Global IP-MAC Binding Commands

### 7.1 address-bind

Use this command to configure global IP-MAC address binding. Use the **no** form of this command to restore the default setting.

**address-bind** { *ip-address* | *ipv6-address* } *mac-address*

**no address-bind** { *ip-address* | *ipv6-address* } *mac-address*

Parameter	Parameter	Description
Description	<i>ip-address</i>	IPv4 address to be bound
	<i>ipv6-address</i>	IPv6 address to be bound
	<i>mac-address</i>	MAC address to be bound

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example configures global IP-MAC address binding.

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind 192.168.5.1 00d0.f800.0001
```

Related Commands	Command	Description
	<b>show address-bind</b>	Displays the IP address-MAC address binding table.

**Platform Description** N/A

### 7.2 address-bind install

Use this command to enable a binding policy globally. Use the **no** form of this command to restore the default setting.

**address-bind install**

**no address-bind install**

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

<b>Description</b>	N/A	N/A
--------------------	-----	-----

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** If you bind an IP address to a MAC address, run this command to make the installation policy take effect.

**Configuration Examples** The following example enables a binding policy.

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind 192.168.5.1 00d0.f800.0001
Ruijie(config)# address-bind install
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 7.3 address-bind ipv6-mode

This command is used to set the IPv6 address binding mode. Use the **no** form of this command to restore the default setting.

This command is also used to set the compatible mode.

**address-bind ipv6-mode { compatible | loose | strict }**

**no address-bind ipv6-mode**

Parameter Description	Parameter	Description
	<b>compatible</b>	Compatible mode
	<b>loose</b>	Loose mode
	<b>strict</b>	Strict mode

**Defaults** The default is strict mode.

**Command Mode** Global configuration mode.

**Usage Guide** N/A

**Configuration** The following example configures the IPv6 address binding mode.

**Examples**

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind ipv6-mode compatible
```

**Related****Commands**

Command	Description
<b>show address-bind uplink</b>	Displays the exceptional port of the address binding.

**Platform**

N/A

**Description**

## 7.4 address-bind uplink

This command is used to configure the exception port. Use the **no** form of this command to restore the default setting.

**address-bind uplink** *interface-id*

**no address-bind uplink** *interface-id*

**Parameter****Description**

Parameter	Description
<i>interface-id</i>	Switching port or layer 2 aggregate port.

**Defaults**

All ports are non-exception ports by default.

**Command**

Global configuration mode.

**Mode****Usage Guide**

If you have bound an IP address and a MAC address, the switch will discard the packets that have the same source IP address but different source MAC address.

If the port is an exceptional port and is installed (see address-bind install), this binding policy does not take effect.

**Configuration**

The following example configures the exception port.

**Examples**

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind uplink GigabitEthernet 0/1
```

**Related****Commands**

Command	Description
<b>show address-bind uplink</b>	Displays the exceptional port of address binding.

**Platform**

N/A

**Description**

## 7.5 show address-bind

Use this command to display global IP address-MAC address binding.

**show address-bind**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A

**Configuration** The following example displays global IPv4 address-MAC address binding.

**Examples**

```
Ruijie#show address-bind
Total Bind Addresses in System : 1
IP Address      Binding MAC Addr
-----
192.168.5.1    00d0.f800.0001
```

Field	Description
Total Bind Addresses in System	IPv4 address-MAC address binding count
IP Address	Bound IP address
Binding MAC Addr	Bound MAC address

Related Commands	Command	Description
	<b>address-bind</b>	Enables IP address-MAC address binding.

**Platform Description** N/A

## 7.6 show address-bind uplink

Use this command to display the exception port.

**show address-bind uplink**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command** N/A

**mode**

**Usage Guide** N/A

**Configuration** The following example displays the exception port.

**Examples**

```
Ruijie#show address-bind uplink
Port      State
-----
Gi0/1     Enabled
Default   Disabled
```

Field	Description
Port	Short for exception ports. All ports are non-exception ports by default.
State	Indicates whether the port is exception port. State Enabled indicates that it is an exception port while state Disabled indicates that it is not.

**Related**

**Commands**

Command	Description
address-bind uplink	Sets the exception port.

**Platform** N/A

**Description**

## 8 DHCP Snooping Commands

### 8.1 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* | **wlan** *wlan-id* ]

Parameter Description	Parameter	Description
	<i>mac</i>	Specifies the user MAC address to be cleared.
	<i>vlan-id</i>	Specifies the ID of the VLAN to be cleared.
	<i>ip</i>	Specifies the IP address to be cleared.
	<i>interface-id</i>	Specifies the ID of the interface to be cleared.
	<i>wlan-id</i>	Specifies the ID of the WLAN 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
	<b>show ip dhcp snooping binding</b>	Displays the information of the DHCP Snooping binding database.

**Platform Description** N/A

## 8.2 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
	<b>show ip dhcp snooping</b>	Displays the configuration information of DHCP Snooping.
	<b>ip dhcp snooping vlan</b>	Configures DHCP Snooping enabled VLAN.

**Platform Description** N/A

## 8.3 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
<b>show ip dhcp snooping</b>	Displays the DHCP Snooping configuration.

**Platform Description** N/A

## 8.4 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** The following example enables DHCP Snooping to support the function of processing Relay requests.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping check-giaddr
Ruijie(config)# end
```

**Related Commands**

Command	Description
<b>show ip dhcp snooping</b>	Displays the configuration information of the DHCP Snooping.

**Platform** N/A

**Description**

## 8.5 ip dhcp snooping clear-broadcast-flag

Use this command to enable the function of clearing the broadcast flag bit.

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

**ip dhcp snooping clear-broadcast-flag**

**no ip dhcp snooping clear-broadcast-flag**

**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, DHCP Snooping checks the broadcast flag bit for non-DHCP Relay requests. If the flag bit is 1, it clears the flag bit. When receiving responses, DHCP Snooping sets the flag bit to 1 and set Layer-2 and Layer-3 destination addresses as broadcast addresses.

**Configuration** The following example enables the function of clearing the broadcast flag bit.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping clear-broadcast-flag
Ruijie(config)# end
```

**Related Commands**

Command	Description
N/A	N/A

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

## 8.6 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
<i>time</i>	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.

 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
<b>show ip dhcp snooping</b>	Displays the configuration information of the DHCP Snooping.

**Platform** N/A

**Description**

## 8.7 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.

**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

## 8.8 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
	<b>standard-format</b>	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
<b>show ip dhcp snooping</b>	Displays the DHCP Snooping configuration.

**Platform Description** N/A

## 8.9 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 Description**

Parameter	Description
<b>string <i>ascii-string</i></b>	The content of the option82 remote-id extension format is customized character string.
<b>hostname</b>	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

### 8.10 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/WLAN 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 Examples** The following example sets **fastEthernet 0/2** and **WLAN 1** to be in the suppression status.

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/2
Ruijie(config-if)# ip dhcp snooping suppression
Ruijie(config-if)# end
Ruijie# configure terminal
Ruijie(config)# wlansec 1
Ruijie(config-wlansec)# ip dhcp snooping suppression
Ruijie(config-if-wlansec)# end
```

Related Commands	Command	Description
		<b>show ip dhcp snooping</b>

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

## 8.11 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

**Defaults** All ports are untrusted by default.

**Command Mode** Interface configuration 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 Examples** The following example sets fastEthernet 0/1 as a trusted port:

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping trust
Ruijie(config-if)# end
```

Related Commands	Command	Description
		<b>show ip dhcp snooping</b>

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

## 8.12 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
	<b>show ip dhcp snooping</b>	Displays the DHCP Snooping configuration.

**Platform Description** N/A

## 8.13 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



<i>vlan-min</i>	Minimum VLAN of effective DHCP Snooping
<i>vlan-max</i>	Maximum VLAN of effective DHCP Snooping

**Defaults** By default, once the DHCP Snooping is enabled globally, it takes effect for all VLANs.

**Command** Global configuration mode

**Mode**

**Usage Guide** Use this command to enable DHCP Snooping for specified VLANs globally.

**Configuration** The following example enables the DHCP Snooping function in VLAN 1000.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping vlan 1000
Ruijie(config)# end
```

**Related  
Commands**

Command	Description
<b>ip dhcp snooping</b>	Enables DHCP Snooping globally.

**Platform** N/A

**Description**

## 8.14 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
<i>vlan-id</i>	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 option82 sub-option circuit-id to VLAN93:

**Examples**

```
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**

## 8.15 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
<i>vlan-id</i>	The VLAN where the DHCP request packets are
<i>ascii-string</i>	The user-defined content to fill to the Circuit ID

**Defaults** This function is disabled by default.

**Command Mode** Interface configuration 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 Examples** The following example adds the option82 to the DHCP request packets with the content of the 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 Description**

N/A

## 8.16 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
<i>vlan-word</i>	The VLAN range
<i>user-number</i>	The maximum number of users bound with the VLAN

**Defaults**

This function is disabled by default.

**Command Mode**

Interface configuration 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 Examples**

The following example sets the maximum number of users bound with VLAN 1 to 10 and VLAN 20 to 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**

N/A

**Description**

## 8.17 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

## 8.18 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
		<b>ip dhcp snooping</b>
	<b>ip dhcp snooping verify mac-address</b>	Enables the check of source MAC address of DHCP Snooping packets.
	<b>ip dhcp snooping write-delay</b>	Sets the interval of writing user information to FLASH periodically.
	<b>ip dhcp snooping information option</b>	Adds option82 to the DHCP request message.
	<b>ip dhcp snooping bootp-bind</b>	Enables the DHCP Snooping bootp bind function.
	<b>ip dhcp snooping trust</b>	Sets the port as a trust port.

**Platform Description** N/A

### 8.19 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

**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.
INNER-VLAN	The inner VLAN of the user. It is applicable to all QINQ-termination products.
VXLAN	The VXLAN where the user belongs.
Interface	The user's connection interface. It can be a either a wired access interface or wireless access WLAN.

Related Commands	Command	Description
	<b>ip dhcp snooping binding</b>	Adds the static user information to the DHCP Snooping database.
	<b>clear ip dhcp snooping binding</b>	Clears the dynamic user information from the DHCP Snooping binding database.

**Platform** N/A

**Description**

## 9 IP Source Guard Commands

### 9.1 ip source binding

Use this command to add static user information to IP source address binding database.

Use the **no** form of this command to delete static user information from IP source address binding database.

**ip source binding** *mac-address* **vlan** *vlan-id* *ip-address* { **interface** *interface-id* | **wlan** *wlan-id* | **ip-mac** | **ip-only** }


**no ip source binding** *mac-address* **vlan** *vlan-id* *ip-address* { **interface** *interface-id* | **wlan** *wlan-id* | **ip-mac** | **ip-only** }


Parameter Description	Parameter	Description
	<i>mac-address</i>	Adds user MAC address statically.
	<i>vlan-id</i>	Adds user VLAN ID statically.
	<i>ip-address</i>	Adds user IP address statically.
	<i>interface-id</i>	Adds user interface ID statically.
	<b>wlan</b> <i>wlan-id</i>	Add user WLAN ID statically.
	<b>ip-mac</b>	The global binding type is IP+MAC
	<b>ip-only</b>	The global binding type is IP only.

**Defaults** No static address is added by default.

**Command Mode** Global configuration mode

**Usage Guide** This command allows specific clients to go through IP source guard detection instead of DHCP. This command is supported on the wired L2 switching port, AP port, sub interface and WLAN. This command enables global binding for IP source guard so that specific clients will get detected on all interfaces.

 A static IPv6 source binding is valid either on wired and WLAN interfaces or in global configuration mode.

 A new binding will overwrite the old one sharing the same configuration.

**Configuration Examples** The following example adds the interface Id and WLAN ID of static users.

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1 interface
GigabitEthernet 0/1
Ruijie(config)# ip source binding 0000.0000.0002 vlan 1 1.1.1.2 wlan 1
```



```
Ruijie(config)# end
```

The following example adds static user information based on IP-MAC binding.

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1 ip-mac
Ruijie(config)# end
```

The following example adds static user information based on IP binding.

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1 ip-only
Ruijie(config)# end
```

#### Related Commands

Command	Description
<b>show ip source binding</b>	Displays the binding information of IP source address and database.

**Platform** N/A

#### Description

## 9.2 ip verify source

Use this command to enable IP Source Guard function on the interface.

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

**ip verify source [ port-security ]**

**no ip verify source**

#### Parameter Description


Parameter	Description
<b>port-security</b>	Configures IP Source Guard to do IP+MAC-based detection.

**Defaults** This function is disabled by default.

**Command Mode** Interface configuration mode/WLAN security configuration mode

**Usage Guide** This command enables IP Source Guard function on the interface to do IP-based or IP+MAC-based detection.

This command is supported on the wired L2 switching port, AP port, sub interface and WLAN.

 IP Source Guard takes effect only on DHCP Snooping untrusted port. In other words, IP Source Guard does not take effect when configuring it on Trust port or the port which is not controlled by DHCP Snooping.

**Configuration Examples** The following example enables IP-based IP Source Guard function.

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip verify source
Ruijie(config-if)# end
Ruijie(config)# wlansec 1
Ruijie(config-wlansec)# ip verify source
Ruijie(config-wlansec)# end
```

The following example enables IP+MAC-based IP Source Guard function.

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/2
Ruijie(config-if-GigabitEthernet 0/2)# ip verify source port-security
Ruijie(config-if)# end
Ruijie(config)# wlansec 2
Ruijie(config-wlansec)# ip verify source port-security
Ruijie(config-wlansec)# end
```

**Related Commands**

Command	Description
<b>show ip verify source</b>	Displays user filtering entry of IP Source Guard.

**Platform Description** N/A

### 9.3 ip verify source exclude-vlan

Use this command to exclude a VLAN from the IP source guard configuration on the port.

Use the **no** form of this command to restore the function.

**ip verify source exclude-vlan** *vlan-id*

**no ip verify source exclude-vlan** *vlan-id*

**Parameter Description**

Parameter	Description
<i>vlan-id</i>	The ID of VLAN excluded from the IP source guard configuration.

**Defaults** This function is disabled by default.

**Command Mode** Interface configuration mode/WLAN security configuration mode

**Usage Guide**

- ✔ This command is used to exclude a VLAN from the IP source guard configuration. IP packets in this VLAN are forwarded without being checked and filtered.
- ✔ Once the IP source guard function is disabled, the excluded VLAN is cleared automatically.
- ✔ This command is supported on the wired L2 switching port, AP port, sub interface and WLAN.

❗ Only when the IP source guard configuration is enabled on the port can a VLAN be excluded.

**Configuration Examples** The following example configuration configures the IP source guard configuration for the port and excludes a VLAN.

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip verify source
Ruijie(config-if-GigabitEthernet 0/1)# ip verify exclude-vlan 1
Ruijie(config-if)# end
Ruijie(config)# wlansec 1
Ruijie(config-wlansec)# ip verify source
Ruijie(config-wlansec)# ip verify exclude-vlan 1
Ruijie(config-wlansec)# end
```

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 9.4 show ip source binding

Use this command to display the binding information of IP source addresses and database.

**show ip source binding** [ *ip-address* ] [ *mac-address* ] [ **dhcp-snooping** ] [ **static** ] [ **vlan** *vlan-id* ] [ **interface** *interface-id* ] [ **wlan** *wlan-id* ]

**Parameter Description**

Parameter	Description
<i>ip-address</i>	Displays user binding information of corresponding IP.
<i>mac-address</i>	Displays user binding information of corresponding MAC.
<b>dhcp-snooping</b>	Displays binding information of dynamic user.
<b>static</b>	Displays binding information of static user.
<i>vlan-id</i>	Displays user binding information of corresponding VLAN.

<i>interface-id</i>	Displays user binding information of corresponding interface.
<i>wlan-id</i>	Displays user information bound with the corresponding WLAN.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the binding information of IP source guard addresses and database.

```
Ruijie# show ip source binding static
Ruijie#show ip source binding static
Total number of bindings: 5
NO.    MACADDRESS          IPADDRESS          LEASE (SEC)    TYPE          VLAN    INTERFACE
-----
1      0001.0002.0001     1.2.3.2           Infinite       Static        1      Global
2      0001.0002.0002     1.2.3.3           Infinite       Static        1      GigabitEthernet
0/5
3      0001.0002.0003     1.2.3.4           Infinite       Static        1      Global
4      0001.0002.0004     1.2.3.5           Infinite       Static        1      Global
5      0001.0002.0005     1.2.3.6           Infinite       Static        1      WLAN 1
```

**Related Commands**

Command	Description
<b>ip source binding</b>	Sets the binding static user.

**Platform** N/A

**Description**

## 9.5 show ip verify source

Use this command to display user filtering entry of IP Source Guard.

**show ip verify source** [ **interface** *interface-id* ] [ **wlan** *wlan-id* ]

**Parameter Description**

Parameter	Description
<i>interface-id</i>	Displays user filtering entry of corresponding interface.
<i>wlan-id</i>	Displays user filtering entry of corresponding WLAN.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** If IP Source Guard is not enabled on the corresponding interface, the printing information will be shown on the terminal as: “IP source guard is not configured on the interface FastEthernet 0/10”  
 Now, IP Source Guard supports the following filtering modes:

**inactive-restrict-off:** the IP Source Guard is disabled on bound interfaces.

**inactive--not-apply:** the IP Source Guard cannot adds bound entries into filtering entries for system errors.

**active:** the IP Source Guard is active.

**Configuration Examples** The following example displays user filtering entry of IP Source Guard.

```
Ruijie # show ip verify source
Total number of bindings: 7
NO.   INTERFACE          FILTERTYPE  FILTERSTATUS      IPADDRESS
MACADDRESS  VLAN TYPE
-----
-----
1     Global              IP+MAC     Inactive-not-apply 192.168.0.127
0001.0002.0003 1 Static
2     GigabitEthernet 0/5 IP-ONLY     Active             1.2.3.4
0001.0002.0004 1 DHCP-Snooping
3     Global              IP-ONLY     Active             1.2.3.7
0001.0002.0007 1 Static
4     Global              IP+MAC     Active             1.2.3.6
0001.0002.0006 1 Static
5     GigabitEthernet 0/1 UNSET       Inactive-restrict-off 1.2.3.9
0001.0002.0009 1 DHCP-Snooping
6     GigabitEthernet 0/5 IP-ONLY     Active             Deny-All
7     WLAN 1              IP-ONLY     Active             Deny-ALL
```

**Related Commands**

Command	Description
<b>ip verify source</b>	Sets IP Source Guard on the interface.

**Platform Description** N/A

## 10 DNS Snooping Commands

### 10.1 clear free-url

Use this command to clear authentication-free URLs.

**clear free-url**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged mode, global configuration mode

**Usage Guide** Run this command to clear authentication-free URLs.

**Configuration Example** The following example clears authentication-free APP URLs.

```
Ruijie(config)#clear free-url
```

**Platform** N/A

### 10.2 free-url

Use this command to configure authentication-free URL.

**free-url { weixin | sina | iphone | url url }**

Use the **no** form of this command to clear authentication-free URL.

**no free-url { weixin | sina | iphone | url url }**

Parameter Description	Parameter	Description
	<b>weixin</b>	Indicates Weixin to be free of authentication.
	<b>sina</b>	Indicates Sina APPs to be free of authentication.
	<b>iphone</b>	Indicates specified iphone APP to be free of authentication.
	<i>url</i>	Indicates authentication-free URL.

**Defaults** By default, this function is disabled.

**Command Mode** Global configuration mode

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**Usage Guide** You can configured multiple authentication-free URLs.

**Configuration** The following example configures authentication-free URL.

```

Example
Ruijie#configure terminal
Ruijie(config)# free-url weixin
Ruijie(config)#exit

```

**Verification** Run the **show free-url** command to check the authentication-free URL information.

**Common Errors** N/A

**Platform** N/A

### 10.3 show free-url

Displays authentication-free URLs.

**show free-url**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged mode, global configuration mode

**Usage Guide** Run this command to display authentication-free URLs.

**Configuration** The following example displays authentication-free APP URLs.

```

Example
Ruijie(config)#show free-url
Total number of domain name : 4
Total number of ip address : 11

===== free-url domain name table =====
Host                type
*.qpic.cn            weixin
*.weixin.qq.com     weixin
weixin.qq.com       weixin
*.baidu.com          url
=====

===== free-url ip table =====

```

Host	type	Address	TTL(sec)
*.weixin.qq.com	weixin	61.151.224.41	2118
		140.207.135.125	2118
		140.207.54.47	2118
*.qpic.cn	weixin	140.206.160.234	2118
		183.61.49.180	151
		101.226.129.204	554
		14.17.52.136	16
weixin.qq.com	weixin	14.17.42.45	800
*.baidu.com	url	115.239.210.246	19
		115.239.211.235	2286
		115.239.210.14	284

Parameters:

Parameter	Description
Host	Indicates a domain name.
type	Indicates a type.
Address	Indicates an IP address.
TTL	Indicates time to live.

**Platform** N/A



## 11 IGMP Snooping Commands

### 11.1 clear ip igmp snooping gda-table

Use this command to clear the Group Destination Address (GDA) table.

**clear ip igmp snooping gda-table**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	The IGMP Snooping GDA table contains VLAN IDs (VIDs), group addresses, routing interface (static or dynamic) ID, and member interface ID. Among them, the VID and group address identify a forwarding entry; the static routing interfaces will not age and cannot be deleted by using the <b>clear ip igmp snooping gda-table</b> command.	
<b>Configuration Examples</b>	The following example clears the Group Destination Address (GDA) table.	
<b>Examples</b>	<pre>Ruijie# clear ip igmp snooping gda-table</pre>	
<b>Platform Description</b>	N/A	

### 11.2 ip igmp snooping

Use this command to enable IGMP snooping and enter the IVGL mode.

**ip igmp snooping**

Use the **no** or **default** command to restore the default setting.

**no ip igmp snooping**

**default ip igmp snooping**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	IGMP Snooping is disabled by default.	

**Command Mode** Global configuration mode, AP configuration mode

**Usage Guide** **IVGL (Independent VLAN Group Learning):** In this mode, the multicast flows in different VLANs are independent. A host can only request multicast flows to the router interface in the same VLAN. Upon receiving the multicast flow in any VLAN, the switch forwards the flow to the member port in the same VLAN.

**Configuration** The following example enables IGMP Snooping and enters the IVGL mode.

**Examples**

```
Ruijie(config)# ip igmp snooping ivgl
```

**Platform** N/A

**Description**

### 11.3 ip igmp snooping fast-leave enable

Use this command to enable the fast leave function.

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

**ip igmp snooping fast-leave enable**

**no ip igmp snooping fast-leave enable**

**default ip igmp snooping fast-leave enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** After you execute this command to enable the fast-leave function, the system will remove the corresponding multicast group on the corresponding interface upon the receipt of the IGMP leave message. Subsequently, when the system receives a specific group query packet, the system does not forward it to the corresponding interface. Leave packets include IGMPv2 leave packets and IGMPv3 report packets of the include type without source addresses. The fast leave function applies to scenarios in which one interface is connected to only one host. This function saves bandwidth and resources.

**Configuration** The following example enables the fast leave function.

**Examples**

```
Ruijie(config)# ip igmp snooping fast-leave
```

**Platform** N/A

**Description**

## 11.4 ip igmp snooping host-aging-time

Use this command to configure the aging time of IGMP dynamic ports.

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

**ip igmp snooping host-aging-time** *seconds*

**no ip igmp snooping host-aging-time**

**default ip igmp snooping host-aging-time**

Parameter	Parameter	Description
Description	<i>seconds</i>	Aging time. The unit is second. The value ranges from 1 to 65,535.

**Defaults** The default is 260 seconds.

**Command Mode** Global configuration mode, AP configuration mode

**Usage Guide** The aging time of a dynamic port is set by the system when the port receives an IGMP packet from the host for joining a certain IP multicast group. When such an IGMP packet is received, the system resets the aging timer for the port. The duration of this timer is determined by **host-aging-time**. If the timer expires, the system determines that there is no host in this port for receiving multicast packets. The multicast device removes the port from the IGMP Snooping group. After the **ip igmp snooping host-aging-time** command is executed, the aging time will be determined by **host-aging-time**. This command takes effect only after the system receives the next IGMP packet. This command does not change the current aging time.

In AP configuration mode, run the **igmp snooping host-aging-time** *seconds* command to configure the aging time of IGMP dynamic ports, and run the **no igmp snooping host-aging-time** command to restore the default setting.

**Configuration Examples** The following example sets the aging time to 30 seconds.

```
Ruijie(config)# ip igmp snooping host-aging-time 30
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 11.5 ip igmp snooping ignore-query-timer

Use this command to ignore the query timer.

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

**ip igmp snooping ignore-query-timer**

**no ip igmp snooping ignore-query-timer**  
**default ip igmp snooping ignore-query-timer**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** The query timer is not ignored by default.

**Command  
Mode** Global configuration mode, AP configuration mode

**Usage Guide** This command is used for instable networks like WLAN, in case that the interface ages due to report packet loss.

In AP configuration mode, run the **igmp snooping ignore-query-timer** command to ignore the query timer and run the **no igmp snooping ignore-query-timer** command to restore the default setting.

**Configuration** The following example ignores the query timer.

**Examples** Ruijie(config)# ip igmp snooping ignore-query-timer

**Platform  
Description** N/A

## 11.6 ip igmp snooping mcast-to-unicast enable

Use this command to enable multicast-to-unicast forwarding.

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

**ip igmp snooping mcast-to-unicast enable**  
**no ip igmp snooping mcast-to-unicast enable**  
**default ip igmp snooping mcast-to-unicast enable**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults** This function is disabled by default.


**Command  
Mode** AC: AP configuration mode  
 Fat AP: Global configuration mode

**Usage Guide** In unicast WLAN, this function is supported only on APs.

- With this function enabled, packets arriving at APs are differentiated in whether to apply this

function.

- In AP configuration mode, run the **igmp snooping mcast-to-unicast enable** command to enable this function and the **no igmp snooping mcast-to-unicast enable** command to disabled it.

 This function takes effect only when enabled on users following multicast-to-unicast policies like the packet rate and the group range.

**Configuration** The following example enables multicast-to-unicast forwarding.

**Examples**

```
Ruijie(config-ap)# igmp snooping mcast-to-unicast enable
```

**Platform** N/A

**Description**

## 11.7 ip igmp snooping mcast-to-unicast group-range

Use this command to set the multicast-to-unicast group range.

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

**ip igmp snooping mcast-to-unicast group-range** *ip-addr ip-addr*

**no ip igmp snooping mcast-to-unicast group-range**

**default ip igmp snooping mcast-to-unicast group-range**

Parameter Description	Parameter	Description
	<i>ip-addr</i>	The group range from 224.0.1.0 to 239.255.255.255

**Defaults** No multicast-to-unicast group range is set by default.

**Command** AC: AP configuration mode

**Mode** Fat AP: Global configuration mode

**Usage Guide** In unicast WLAN, this function is supported only on APs.

This function optimizes bandwidth utilization, which only permits the multicast-to-unicast forwarding of groups in need.

In AP configuration mode, run the **igmp snooping mcast-to-unicast group-range** command to enabled this function and the **no igmp snooping mcast-to-unicast group-range** command to restore the default setting.

**Configuration** The following example sets the multicast-to-unicast group range in AP configuration mode.

**Examples**

```
Ruijie(config-ap)# igmp snooping mcast-to-unicast group-range 239.1.1.1.
239.10.1.1.1
```

**Platform** N/A

**Description**

## 11.8 ip igmp snooping mcast-to-unicast max-group

Use this command to set the maximum multicast-to-unicast group number.

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

**ip igmp snooping mcast-to-unicast max-group** *number*

**no ip igmp snooping mcast-to-unicast max-group**

**default ip igmp snooping mcast-to-unicast max-group**

Parameter Description	Parameter	Description
	<i>number</i>	The maximum group number from 1 to 64
<b>Defaults</b>	The default is 64.	
<b>Command Mode</b>	AC: AP configuration mode Fat AP: Global configuration mode	
<b>Usage Guide</b>	<p>In unicast WLAN, this function is supported only on APs.</p> <p>This function optimizes bandwidth utilization, which only permits the multicast-to-unicast forwarding of groups with the configured number. When the bandwidth is not enough, use this command to reduce the maximum group number. When a multicast group is deleted, this command allows another group to join in the activity.</p> <p>In AP configuration mode, run the <b>igmp snooping mcast-to-unicast max-group</b> command to enable this function and the <b>no igmp snooping mcast-to-unicast max-group</b> command to restore the default setting.</p>	
<b>Configuration Examples</b>	<p>The following example sets the maximum multicast-to-unicast group number in AP configuration mode.</p> <pre>Ruijie(config-ap)# igmp snooping mcast-to-unicast max-group 10</pre>	
<b>Platform Description</b>	N/A	

## 11.9 ip igmp snooping mrouter learn pim-dvmrp

Use this command to configure a device to listen to the IGMP Query/Dvmrp or PIM Help packets dynamically in order to automatically identify a routing interface

Use the **no** form of this command to disable the dynamic learning.

Use the **default** form of this command to restore the default setting.

**ip igmp snooping mrouter learn pim-dvmrp**

**no ip igmp snooping mrouter learn pim-dvmrp**

**default ip igmp snooping [ vlan *vid* ] mrouter learn pim-dvmrp**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>vlan</b> <i>vid</i>	VLAN ID. By default, the specified version is supported on all VLANs.
<b>Defaults</b>	This function is enabled by default.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	<p>Routing interface is a port through which a multicast device (with IGMP Snooping enabled) is directly connected to a multicast neighbouring device (with multicast routing protocols enabled).</p> <p>By default, the dynamic routing interface learning function is enabled. You can use the <b>no</b> form of this command to disable this function and clear all routing interfaces learnt dynamically. With dynamic routing interface learning function disabled globally, the function of all vlans will be disabled. Beside, with this function enabled globally, if the function of specified vlan is disabled, the dynamic routing interface learning function of the corresponding vlan is disabled. When the source port check function is enabled, only the multicast flow enters from the routing interface is legal and it is forwarded to the registered interface by the multicast equipment, the multicast flow from the non routing interface is considered to be the illegal and is discarded. With the source port check function enabled, the dynamic routing interface learning function will improve the application flexibility of IGMP snooping.</p>	
<b>Configuration Examples</b>	<p>The following example enables the dynamic routing interface learning function on VLAN 1.</p> <pre>Ruijie(config)# no ip igmp snooping mrouter learn pim-dvmrp Ruijie(config)# ip igmp snooping vlan 1 mrouter learn pim-dvmrp</pre>	
<b>Platform Description</b>	N/A	

## 11.10 ip igmp snooping querier

Use this command to enable the IGMP querier.

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

**ip igmp snooping [ vlan *vid* ] querier**

**no ip igmp snooping [ vlan *vid* ] querier**

**default ip igmp snooping [ vlan *vid* ] querier**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>vlan</b> <i>vid</i>	VLAN ID. By default, the specified version is supported on all VLANs.
<b>Defaults</b>	This function is disabled by default.	
<b>Command</b>	Global configuration mode	

**Mode**

**Usage Guide** After globally enabling the IGMP querier, you must enable the IGMP querier function in VLAN to activate this function.  
 If the IGMP querier function is disabled globally, the IGMP querier will be disabled in all VLANs.

**Configuration** The following example enables the IGMP querier function in VLAN 2.

**Examples**

```
Ruijie(config)# ip igmp snooping querier
Ruijie(config)# ip igmp snooping vlan 2 querier
```

**Platform** N/A

**Description**

### 11.11 ip igmp snooping querier address

Use this command to specify a source IP address for IGMP querier.  
 Use **no** or **default** form of this command to remove the source IP address configured.

**ip igmp snooping [ vlan vid ] querier address a.b.c.d**  
**no ip igmp snooping [ vlan vid ] querier address**  
**default ip igmp snooping [ vlan vid ] querier address**

Parameter Description	Parameter	Description
	vlan vid	VLAN ID. By default, the specified version is supported on all VLANs.
	a.b.c.d	Source IP address of the IGMP querier

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** After enabling IGMP querier, you must configure a source IP address for the IGMP querier to activate this function.  
 If the IGMP querier source IP has been specified in VLAN, the source IP configured in the relevant VLAN will be used first.

**Configuration** The following example specifies the source IP of the IGMP querier as 1.1.1.1 on the device.

**Examples**

```
Ruijie(config)# ip igmp snooping querier address 1.1.1.1
```

The following example specifies the source IP of the IGMP querier as 1.1.1.1 in VLAN 3.

```
Ruijie(config)# ip igmp snooping vlan 3 querier address 1.1.1.1
```

**Platform**  
**Description**



## 11.12 ip igmp snooping querier max-response-time

Use this command to configure the maximum response time of the IGMP querier.

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

**ip igmp snooping [ vlan *vid* ] querier max-response-time *seconds***

**no ip igmp snooping [ vlan *vid* ] querier max-response-time**

**default ip igmp snooping [ vlan *vid* ] querier max-response-time**

Parameter Description	Parameter	Description
	<i>num</i>	Maximum response time from 1 to 25 in the unit of seconds
	<b>vlan</b> <i>vid</i>	VLAN ID. By default, the specified version is supported on all VLANs.

**Defaults** The default is 10 seconds.

**Command Mode** Global configuration mode

**Usage Guide** Configure this command to specify the maximum response time to query packets. By default, the maximum response time is 10 seconds. If the maximum response time has been specified in the corresponding VLAN, the value specified in VLAN will be used first.

**Configuration Examples** The following example specifies the maximum response time of the IGMP querier on the device.

```
Ruijie(config)# ip igmp snooping querier max-response-time 15
```

The following example specifies the maximum response time of the IGMP querier in VLAN 3.

```
Ruijie(config)# ip igmp snooping vlan 3 querier max-response-time 15
```

**Platform Description** N/A

## 11.13 ip igmp snooping querier query-interval

Use this command to specify the interval for IGMP querier to send query packets.

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

**ip igmp snooping querier query-interval *seconds***

**no ip igmp snooping querier query-interval**

**default ip igmp snooping [ vlan *vid* ] querier query-interval**

Parameter Description	Parameter	Description
	<i>seconds</i>	Query interval from 1 to 18,000 in the unit of seconds
	<b>vlan</b> <i>vid</i>	VLAN ID. By default, the specified version is supported on all VLANs.

<b>Defaults</b>	The default is 60 seconds.
<b>Command Mode</b>	Global configuration mode
<b>Usage Guide</b>	If the query interval has been configured in the corresponding VLAN, the value specified in VLAN will be used first.
<b>Configuration Examples</b>	The following example configures the query interval on the device. <pre>Ruijie(config)# ip igmp snooping querier query-interval 100</pre> The following example configures the query interval in VLAN 3. <pre>Ruijie(config)# ip igmp snooping vlan 3 querier query-interval 100</pre>
<b>Platform Description</b>	N/A

## 11.14 ip igmp snooping querier timer expiry

Use this command to specify the expiration timer for non-querier.

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

**ip igmp snooping [ vlan vid ] querier timer expiry seconds**

**ip igmp snooping [ vlan vid ] querier timer expiry seconds**

**default ip igmp snooping [ vlan vid ] querier timer expiry**

Parameter Description	Parameter	Description
	<i>seconds</i>	The expiration timer from 60 to 300 in the unit of seconds
	<b>vlan vid</b>	VLAN ID. By default, the specified version is supported on all VLANs.

<b>Defaults</b>	The default is 125 seconds.
<b>Command Mode</b>	Global configuration mode
<b>Usage Guide</b>	After globally enabling IGMP querier, if the device is elected as a non-querier, execute this command to change the expiration timer for non-querier. If expiration timer has been configured in the corresponding VLAN, the value specified in VLAN will be used first.
<b>Configuration Examples</b>	The following example configures the non-querier expiration timer on the device. <pre>Ruijie(config)# ip igmp snooping querier timer expiry 60</pre> The following example configures the non-querier expiration timer in VLAN 3. <pre>Ruijie(config)# ip igmp snooping vlan 3 querier timer expiry 60</pre>

**Platform** N/A

**Description**

## 11.15 ip igmp snooping querier version

Use the following commands to specify IGMP Snooping querier version.

**ip igmp snooping [ vlan *vid* ] querier version 1**

**ip igmp snooping [ vlan *vid* ] querier version 2**

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

**no ip igmp snooping [ vlan *vid* ] querier version**

**default ip igmp snooping [ vlan *vid* ] querier version**

Parameter Description	Parameter	Description
	<b>vlan <i>vid</i></b>	VLAN ID. By default, the specified version is supported on all VLANs.

**Defaults** The default version is IGMPv2.

**Command Mode** Global configuration mode

**Usage Guide** If an IGMP querier version has been configured in a VLAN, the version specified in the VLAN will be used first.

**Configuration Examples** The following example configures IGMP querier version on the device.

```
Ruijie(config)# ip igmp snooping querier version 1
```

**Platform** N/A

**Description**

## 11.16 ip igmp snooping query-max-response-time

Use this command to specify the time for the switch to wait for the member join message after receiving the **query** message.

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

**ip igmp snooping query-max-response-time *seconds***

**no ip igmp snooping query-max-resposne-time**

**default ip igmp snooping query-max-response-time**

Parameter Description	Parameter	Description
	<b><i>seconds</i></b>	The aging time of the routing interface that the switch learns dynamically, in the range from 1 to 65.535

**Defaults** The default is 10 seconds.

**Command Mode** Global configuration mode, AP configuration mode

**Usage Guide** You can specify the time for the switch to wait for the member join message after receiving the query message. If the switch does not receive the member join message in the specified time, it considers that the member has left and then deletes the member.  
 This command lets you adjust the waiting time after receiving the query message. This command takes effect only after the switch receives the next member join message. This command does not change the current wait time.

In AP configuration mode, run the **igmp snooping query-max-response-time *seconds*** command to enable this function and the **no igmp snooping query-max-response-time** command to restore the default setting.

**Configuration Examples** The following examples sets the aging time of the routing interface that the switch learns dynamically to 100 seconds.

```
Ruijie(config)# ip igmp snooping query-max-response-time 100
```

**Platform Description** N/A

## 11.17 ip igmp snooping suppression enable

Use this command to enable IGMP snooping suppression.  
 Use the **no** or **default** form of this command to restore the default setting.

- ip igmp snooping suppression enable**
- no ip igmp snooping suppression enable**
- default ip igmp snooping suppression enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** When this function is enabled, IGMP Snooping only forwards the first report from a specific VLAN or group, and suppresses the following reports to constrain traffic in the networks.  
 This function is only supported on IGMPv1 and IGMPv2 reports.

**Configuration** The following example enables IGMP snooping suppression on the device.

**Examples**

```
Ruijie(config)# ip igmp snooping suppression enable
```

**Platform** N/A

**Description**

## 11.18 ip igmp snooping vlan

Use this command to enable the IGMP Snooping in the specified VLAN and enter IVGL mode.

Use the **no** form of this command is used to disable the IGMP Snooping.

Use the **default** form of this command to restore the default setting.

**ip igmp snooping vlan** *vid*

**no ip igmp snooping vlan** *vid*


**default ip igmp snooping vlan** *vid*

Parameter Description	Parameter	Description
	<i>vid</i>	VLAN ID in the range from 1 to 4,094

**Defaults** IGMP Snooping is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** Use this command to enable or disable the IGMP snooping on the specified vlan.

 The PIM Snooping in the specified VLAN works only when IGMP Snooping is configured. To disable PIM Snooping, you must disable IGMP Snooping in the VLAN first, or disabling will fail and be prompted.

**Configuration** The following example enters IVGL mode and disables the IGMP Snooping in the VLAN 2.

**Examples**

```
Ruijie(config)# ip igmp snooping ivgl
Ruijie(config)# no ip igmp snooping vlan 2
```

**Platform** N/A

**Description**

## 11.19 ip igmp snooping vlan fast-leave enable

Use this command to enable fast-leave function for the specified VLAN.

Use the **no** form of this command to disable this function.

Use the **default** form of this command to restore the default setting.

**ip igmp snooping vlan *vid* fast-leave enable**  
**no ip igmp snooping vlan *vid* fast-leave enable**  
**default ip igmp snooping vlan *vid* fast-leave enable**

<b>Parameter Description</b>	Parameter	Description
	<i>vid</i>	VLAN ID in the range from 1 to 4,094
<b>Defaults</b>	This function is enabled by default.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	This command must be used with the <b>ip igmp snooping fast-leave enable</b> command.	
<b>Configuration Examples</b>	The following example disables the fast-leave function for VLAN 1.	
	<pre>Ruijie(config)# no ip igmp snooping vlan 1 fast-leave enable</pre>	
<b>Platform Description</b>	N/A	

## 11.20 ip igmp snooping vlan mrouter interface

Use this command to configure a static routing interface.

Use the **no** form of this command to delete a static routing interface.

Use the **default** form of this command to restore the default setting.

**ip igmp snooping vlan *vid* mrouter interface *interface-type* *interface-number***  
**no ip igmp snooping vlan *vid* mrouter interface *interface-type* *interface-number***  
**default ip igmp snooping vlan *vid* mrouter interface *interface-type* *interface-number***

<b>Parameter Description</b>	Parameter	Description
	<i>vid</i>	VLAN ID in the range from 1 to 4,094
	<i>interface-type</i> <i>interface-number</i>	Interface ID
<b>Defaults</b>	No static routing interface is configured by default.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	A dynamic routing interface is learned dynamically through IGMP Snooping. A static routing interface is configured by using this command and cannot age. When an interface is configured as a static routing interface, all multicast streams received on this	

interface will be forwarded.

When the source port check function is enabled, only the multicast flows from the routing interface are forwarded, and other flows will be discarded.

**Configuration** The following example configures a static routing interface.

**Examples**

```
Ruijie(config)# ip igmp snooping vlan 1 mroute interface fastEthernet 0/1
```

**Platform** N/A

**Description**

## 11.21 ip igmp snooping vlan static interface

Use this command to configure a static member interface of a multicast group.

Use the **no** form of this command to delete a static member interface from a multicast group.

Use the **default** form of this command to restore the default setting.

**ip igmp snooping vlan** *vid* **static** *group-address* **interface** *interface-type* *interface-number*

**no ip igmp snooping vlan** *vid* **static** *group-address* **interface** *interface-type* *interface-number*

**default ip igmp snooping vlan** *vid* **static** *group-address* **interface** *interface-type* *interface-number*

Parameter Description	Parameter	Description
	<i>vid</i>	VLAN ID in the range from 1 to 4,094
	<i>ip-addr</i>	Multicast IP address
	<i>interface-id</i>	Interface ID

**Defaults** No static member interface of any multicast group is configured by default.

**Command Mode** Global configuration mode

**Usage Guide** The IGMP Snooping GDA table contains VLAN IDs (VIDs), group addresses, routing interface (static or dynamic) ID, and member interface ID. Among them, the VID and group address identify a forwarding entry; the static routing interfaces will not age and cannot be deleted by using the **clear ip igmp snooping gda-table** command.

**Configuration** The following example configures a static member interface for the multicast group 224.1.1.1.

**Examples**

```
Ruijie(config)# ip igmp snooping vlan 1 static 224.1.1.1 interface GigabitEthernet 0/1
```

**Platform** N/A

**Description**

## 11.22 ip multicast wlan

Use this command to enable global multicast mode.

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

**ip multicast wlan**

**no ip multicast wlan**

**default ip multicast wlan**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	Global multicast mode is disabled by default.	
<b>Command Mode</b>	Global configuration mode	
<b>Usage Guide</b>	This command is only supported on ACs and fat APs. With global multicast mode disabled, ACs or fat APs will discard received multicast packets without disposal.	
<b>Configuration Examples</b>	The following example enables global multicast mode.	
	<pre>Ruijie(config)# ip multicast wlan</pre>	
<b>Platform Description</b>	N/A	

## 11.23 show ip igmp snooping

Use this command to display related information of IGMP Snooping.

**show ip igmp snooping** [**gda-table** | **interfaces** *interface-type interface-number* | **mdevice** | **statistics** [**vlan** *vlan-id*] | **querier** [ **detail** | **vlan** *vid* ] | **user-info** ]

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>vlan</b> <i>vid</i>	VLAN ID. By default, IGMP Snooping information of all VLANs are displayed.
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	



**Configuration** The following example displays global IGMP Snooping information.

**Examples**

```
Ruijie#show ip igmp snooping
IGMP Snooping running mode: IVGL
IGMP Snooping L2-entry-limit: 65536
Source port check: Disable
Source ip check: Disable
IGMP Fast-Leave: Disable
IGMP Report suppress: Disable
IGMP Global Querier: Disable
IGMP Preview: Disable
IGMP Tunnel: Disable
IGMP Preview group aging time : 60(Seconds)
Dynamic Mroute Aging Time : 300(Seconds)
Dynamic Host Aging Time : 260(Seconds)
The following example displays VLAN1 IGMP Snooping information.
Ruijie#show ip igmp snooping vlan 1
IGMP Snooping running mode: IVGL
IGMP Snooping L2-entry-limit: 65536
Global IGMPv2 Fast-Leave :Disable
Global multicast router learning mode :Enable
Query Max Response Time: 10 (Seconds)
Dynamic Mroute Aging Time : 300(Seconds)
Dynamic Host Aging Time : 260(Seconds)

vlan 1
-----
IGMP Snooping state: Enable
Multicast router learning mode: pim-dvmrp
IGMP Fast-Leave: Disable
IGMP VLAN querier: Disable
IGMP VLAN Mode: STATIC
```

**Platform** N/A

**Description**

## 12 ACL Commands

### 12.1 command ID table

For IDs used in the following commands, refer to the command ID table below:

ID	Meaning
ID	Number of access list. Range: Standard IP ACL: 1 to 99, 1300 to 1999 Extended IP ACL: 100 to 199,2000 to 2699 Extended MAC ACL: 700 to 799 Extended expert ACL: 2700 to 2899
name	ACL name
sn	ACL SN (products can be set according to the priority)
start-sn	Start sequence number
inc-sn	Sequence number increment
deny	If matched, access is denied.
permit	If matched, access is permitted.
port	Protocol number. For IPv6, this field can be IPv6, ICMP, TCP, UDP and numbers 0 to 255. For IPv4, it can be one of EIGRP, GRE, IPINIP, IGMP, NOS, OSPF, ICMP, UDP, TCP,AHP, ESP, PCP, PIM and IP, or it can be numbers 0 to 255 that represent the IP protocol. It is described when some important protocols, such as ICMP, TCP and UDP, are listed individually.
interface <i>idx</i>	Interface index
src	Packet source IP address (host address or network address)
src-wildcard	Source IP address wildcard. It can be discontinuous, for example, 0.255.0.32.
src-ipv6-pfix	Source IPv6 network address or network type
dst-ipv6-pfix	Destination IPv6 network address or network type
pfix-len	Prefix mask length
src-ipv6-addr	Source IPv6 address
dst-ipv6-addr	Destination IPv6 address
dscp	Differential service code point, and code point value. Range: 0 to 63
flow-label	Flow label in the range 0 to 1048575
dst	Packet destination IP address (host address or network address)
dst-wildcard	Destination IP address wildcard. It can be discontinuous, such as 0.255.0.32
fragment	Packet fragment filtering. (Not supported on wireless products)

precedence	Packet precedence value (0 to 7)
range	The layer 4 port number range of the packet.
time-range <i>tm-rng-name</i>	Time range of packet filtering, named <i>tm-rng-name</i>
tos	Type of service (0 to 15)
cos	Class of service (0-7)
cos inner <i>cos</i>	COS of the packet tag
icmp-type	ICMP message type (0 to 255)
icmp-code	ICMP message type code (0 to 255)
icmp-message	ICMP message type name (0 to 255)
operator port[ <i>port</i> ]	Operator (lt-smaller, eq-equal, gt-greater, neq-unequal, range-range) <i>port</i> indicates the port number. Dyadic operation needs two port numbers, while other operators only need one port number
src-mac-addr	Physical address of the source host
dst-mac-addr	Physical address of the destination host
VID <i>vid</i>	VLAN ID
VID inner <i>vid</i>	VID of the tag
ethernet-type	Ethernet protocol type. 0x value can be entered.
match-all <i>tcpf</i>	Match all bits of the TCP flag.
established	Match the RST or ACK bit of the TCP flag.
<i>text</i>	Remark text
<i>in</i>	Filter the incoming packets of the interface
<i>out</i>	Filter the outgoing packets of the interface
{rule mask offset} <sup>+</sup>	rule: Hexadecimal value field; mask: Hexadecimal mask field offset: Refer to the offset table “+” sign indicates at least one group
log	Output the matching syslog when the packet matches the ACL rule.

The fields in the packet are as follows:

AA AA AA AA AA AA BB BB BB BB BB BB CC CC DD DD

DD DD EE FF GG HH HH HH II II JJ KK LL LL MM MM

NN NN OO PP QQ QQ RR RR RR RR SS SS SS SS TT TT

UU UU VV VV VV VV WW WW WW WW XY ZZ aa aa bb bb

The corresponding offset table is as follows:

Letter	Meaning	Offset	Letter	Meaning	Offset
A	Destination MAC	0	O	TTL field	34
B	Source MAC	6	P	Protocol number	35

C	Data frame length field	12	Q	IP check sum	36
D	VLAN tag field	14	R	Source IP address	38
E	DSAP (Destination Service Access Point) field	18	S	Destination IP address	42
F	SSAP (Source Service Access Point) field	19	T	TCP source port	46
G	Ctrl field	20	U	TCP destination port	48
H	Org Code field	21	V	Sequence number	50
I	Encapsulated data type	24	W	Confirmation field	54
J	IP version number	26	XY	IP header length and reserved bits	58
K	TOS field	27	Z	Reserved bits and flags bit	59
L	Length of IP packet	28	a	Windows size field	60
M	ID	30	b	Others	62
N	Flags field	32			

The offsets of fields in the above table are their offsets in 802.3 data frames of SNAP+tag.

## 12.2 access-list

Use this command to create an access list to filter data packets. Use the **no** form of this command to remove the specified access list.

- Standard IP access list (1 to 99, 1300 to 1999)

```
access-list id { deny | permit } { source source-wildcard | host source | any | interface idx }
[time-range tm-range-name] [ log ]
```

- Extended IP access list (100 to 199, 2000 to 2699)

```
access-list id {deny | permit} protocol {source source-wildcard | host source | any| interface idx }
{destination destination-wildcard | host destination | any} [precedence precedence] [tos tos]
[fragment] [range lower upper] [time-range time-range-name] [ log ]
```

- Extended MAC access list (700 to 799)

```
access-list id {deny | permit} {any | host source-mac-address } {any | host
destination-mac-address } [ethernet-type][cos [out][inner in]]
```

- Extended expert access list (2700 to 2899)

```
access-list id {deny | permit} [protocol | [ethernet-type][cos [out][inner in]]] [VID [out][inner in]]
{source source-wildcard | host source | any} {host source-mac-address | any} {destination
destination-wildcard | host destination | any} {host destination-mac-address | any} ][precedence
precedence] [tos tos] [fragment] [time-range time-range-name]
```

- When you select the Ethernet-type field or cos field:

```
access-list id {deny | permit} {ethernet-type| cos [out][inner in]} [VID [out][inner in]] {source
source-wildcard | host source | any} {host source-mac-address | any} {destination
```

*destination-wildcard* | **host** *destination* | **any** } {**host** *destination-mac-address* | **any**} [**time-range** *time-range-name*]

- When you select the protocol field:

**access-list** *id* {deny | permit} **protocol** [**VID** [*out*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

- Extended expert ACLs of some important protocols:

#### Internet Control Message Protocol (ICMP)

**access-list** *id* {deny | permit} **icmp** [**VID** [*out*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [ *icmp-type* ] [ [ *icmp-type* [*icmp-code* ] ] | [ *icmp-message* ] ] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**time-range** *time-range-name*]

#### Transmission Control Protocol (TCP)

**access-list** *id* {deny | permit} **tcp** [**VID** [*out*][*inner in*]] {**source** *source-wildcard* | **host** *Source* | **any**} {**host** *source-mac-address* | **any**} [**operator** *port* [*port* ] ] {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**operator** *port* [*port* ] ] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [ **match-all** *tcp-flag* | **established** ]

#### User Datagram Protocol (UDP)

**access-list** *id* {deny | permit} **udp** [ **VID** [*out*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} [ **operator** *port* [*port* ] ] {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**operator** *port* [*port* ] ] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

#### Parameter Description

Parameter	Description
id	Access list number. The ranges available are 1 to 99, 100 to 199, 1300 to 1999, 2000 to 2699, 2700 to 2899, and 700 to 799.
deny	If not matched, access is denied.
permit	If matched, access is permitted.
source	Specify the source IP address (host address or network address).
source-wildcard	It can be discontinuous, for example, 0.255.0.32.
protocol	IP protocol number. It can be one of EIGRP, GRE, IPINIP, IGMP, NOS, OSPF, ICMP, UDP, TCP, and IP. It can also be a number representing the IP protocol between 0 and 255. The important protocols such as ICMP, TCP, and UDP are described separately.
destination	Specify the destination IP address (host address or network address).
destination-wildcard	Wildcard of the destination IP address. It can be discontinuous, for example, 0.255.0.32.
fragment	Packet fragment filtering
precedence	Specify the packet priority.
precedence	Packet precedence value (0 to 7)

range	Layer4 port number range of the packet.
lower	Lower limit of the layer4 port number.
upper	Upper limit of the layer4 port number.
time-range	Time range of packet filtering
time-range-name	Time range name of packet filtering
tos	Specify type of service.
tos	ToS value (0 to 15)
icmp-type	ICMP message type (0 to 255)
icmp-code	ICMP message type code (0 to 255)
icmp-message	ICMP message type name
operator	Operator (lt-smaller, eq-equal, gt-greater, neq-unequal, range-range)
port [ port ]	Port number; range needs two port numbers, while other operators only need one port number.
host source-mac-address	Source physical address
host destination-mac-address	Destination physical address
VID vid	Match the specified VID.
ethernet-type	Ethernet type
match-all	Match all the bits of the TCP flag.
tcp-flag	Match the TCP flag.
established	Match the RST or ACK bits, not other bits of the TCP flag.

**Defaults** N/A

**Command Mode** Global configuration mode.

**Usage Guide** To filter the data by using the access control list, you must first define a series of rule statements by using the access list. You can use ACLs of the appropriate types according to the security needs: The standard IP ACL (1 to 99, 1300 to 1999) only controls the source IP addresses. The extended IP ACL (100 to 199, 2000 to 2699) can enforce strict control over the source and destination IP addresses. The extended MAC ACL (700 to 799) can match against the source/destination MAC addresses and Ethernet type. The extended expert access list (2700 to 2899) is a combination of the above and can match and filter the VLAN ID. For the layer-3 routing protocols including the unicast routing protocol and multicast routing protocol, the following parameters are not supported by the ACL: **precedence** *precedence/tos* **tos/fragments/range** *lower upper* **time-range** *time-range-name*

The TCP Flag includes part or all of the following:

- urg
- ack

- psh
- rst
- syn
- fin

The packet precedence is as below:

- critical
- flash
- flash-override
- immediate
- internet
- network
- priority
- routine

The service types are as below:

- max-reliability
- max-throughput
- min-delay
- min-monetary-cost
- normal

The ICMP message types are as below:

- administratively-prohibited
- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable

- host-unknown
- host-unreachable
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- device-advertisement
- device-solicitation
- source-quench
- source-route-failed
- time-exceeded
- timestamp-reply
- timestamp-request
- ttl-exceeded
- unreachable

The TCP ports are as follows. A port can be specified by port name and port number:

- bgp
- chargen
- cmd



- daytime
- discard
- domain
- echo
- exec
- finger
- ftp
- ftp-data
- gopher
- hostname
- ident
- irc
- klogin
- kshell
- ldp
- login
- nntp
- pim-auto-rp
- pop2
- pop3
- smtp
- sunrpc
- syslog
- tacacs
- talk
- telnet
- time
- uucp
- whois
- www

The UDP ports are as follows. A UDP port can be specified by port name and port number.

- biff
- bootpc

- bootps
- discard
- dnsix
- domain
- echo
- isakmp
- mobile-ip
- nameserver
- netbios-dgm
- netbios-ns
- netbios-ss
- ntp
- pim-auto-rp
- rip
- snmp
- snmptrap
- sunrpc
- syslog
- tacacs
- talk
- tftp
- time
- who
- xdmcp

The Ethernet types are as below:

- aarp
- appletalk
- decnet-iv
- diagnostic
- etype-6000
- etype-8042
- lat
- larc-sca

- mop-console
- mop-dump
- mumps
- netbios
- vines-echo
- xns-idp

 To remove ACL rules, run the **no {sn | permit | deny}** command in ACL configuration mode.

### Configuration 1. Example of the standard IP ACL

**Examples** The following basic IP ACL allows the packets whose source IP addresses are 192.168.1.64 - 192.168.1.127 to pass:

```
Ruijie (config)#access-list 1 permit 192.168.1.64 0.0.0.63
```

### 2. Example of the extended IP ACL

The following extended IP ACL allows the DNS messages and ICMP messages to pass:

```
Ruijie(config)#access-list 102 permit tcp any any eq domain log
```

```
Ruijie(config)#access-list 102 permit udp any any eq domain log
```

```
Ruijie(config)#access-list 102 permit icmp any any echo log
```

```
Ruijie(config)#access-list 102 permit icmp any any echo-reply
```

### 3. Example of the extended MAC ACL

This example shows how to deny the host with the MAC address 00d0f8000c0c to provide service with the protocol type 100 on gigabit Ethernet port 1/1. The configuration procedure is as below:

```
Ruijie(config)#access-list 702 deny host 00d0f8000c0c any aarp
```

```
Ruijie(config)# interface gigabitethernet 1/1
```

```
Ruijie(config-if)# mac access-group 702 in
```

### 4. Example of the extended expert ACL

The following example shows how to create and display an extended expert ACL. This expert ACL denies all the TCP packets with the source IP address 192.168.12.3 and the source MAC address 00d0.f800.0044.

```
Ruijie (config)#access-list 2702 deny tcp host 192.168.12.3 mac 00d0.f800.0044
any any
```

```
Ruijie(config)# access-list 2702 permit any any any any
```

```
Ruijie(config)# show access-lists
```

```
expert access-list extended 2702
```

```
10 deny tcp host 192.168.12.3 mac 00d0.f800.0044 any any
```

```
10 permit any any any any
```

### Related Commands

Command	Description
show access-lists	Show all the ACLs.
mac access-group	Apply the extended MAC ACL on the interface.

**Platform** N/A

**Description**

## 12.3 access-list list-remark

Use this command to write a helpful comment (remark) for an access list. Use the **no** form of this command to remove the remark.

**access-list** *id* **list-remark** *text*

**no access-list** *id* **list-remark**

Parameter Description	Parameter	Description
	<i>id</i>	Access list number. Standard IP ACL: 1 to 99, 1300 to 1999. Extended IP ACL: 100 to 199, 2000 to 2699. Extended MAC ACL: 700 to 799. Extended Expert ACL: 2700 to 2899.
	<i>text</i>	Comment that describes the access list.

**Defaults** The access lists have no remarks by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** You can use this command to write a helpful comment for a specified access list. If the specified access list does not exist, the command will create the access list, then add remarks for the access list.

**Configuration** The following example writes a comment of “this acl is to filter the host 192.168.4.12” for ACL100.

```
Ruijie(config)# ip access-list extended 100
Ruijie(config)# access-list 100 list-remark this acl is to filter the host
192.168.4.12
```

Related Commands	Command	Description
	show access- lists	Displays all access lists, including the remarks for the access lists.
	show access-lists <i>id</i>	Displays the access list of a specified number, including the remarks for the access list.
	show access-lists <i>name</i>	Displays the access list of a specified name, including the remarks for the access list.

**Platform**

**Description**

## 12.4 access-list remark

Use this command to write a helpful comment (remark) for an entry in a numbered access list. Use the **no** form of this command to remove the remark.

**access-list** *id* **remark** *text*

**no access-list** *id* **remark** *text*

**Parameter Description**

Parameter	Description
<i>id</i>	Access list number. Standard IP ACL: 1 to 99, 1300 to 1999. Extended IP ACL: 100 to 199. 2000 to 2699. Extended MAC ACL: 700 to 799. Extended Expert ACL: 2700 to 2899.
<i>text</i>	Comment that describes the access list entry.

**Defaults** The access list entries have no remarks by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** You can use this command to write a helpful comment for an entry in a specified access list. If the specified access list does not exist, the command will create the access list, then add remarks for the access entry.

**Configuration** The following example writes a comment for an entry in ACL102.

**Examples** Ruijie(config)# access-list 102 remark deny-host-10.1.1.1

**Related Commands**

Command	Description
show access-lists	Displays all access lists, including the remarks for the access list entries.
show access-lists <i>id</i>	Displays the access list of a specified number, including the remarks for the access list entry.
show access-lists <i>name</i>	Displays the access list of a specified name, including the remarks for the access list entry.

**Platform****Description**

## 12.5 deny

One or multiple **deny** conditions are used to determine whether to forward or discard the packet. In ACL configuration mode, you can modify the existent ACL or configure according to the protocol details.

### 5. Standard IP ACL

```
[sn] deny {source source-wildcard | host source | any} interface idx ][time-range tm-range-name]
[ log ]
```

### 6. Extended IP ACL

```
[sn] deny protocol source source-wildcard destination destination-wildcard [precedence
precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [ log ]
```

Extended IP ACLs of some important protocols:

- Internet Control Message Prot (ICMP)

```
[sn] deny icmp {source source-wildcard | host source | any} {destination destination-wildcard |
host destination | any} [icmp-type] [[icmp-type icmp-code]] | [icmp-message]] [precedence
precedence] [tos tos] [fragment] [time-range time-range-name]
```

- Transmission Control Protocol (TCP)

```
[sn] deny udp {source source-wildcard | host source | any} [ operator port [port]] {destination
destination-wildcard | host destination | any} [operator port [port]] [precedence precedence] [tos
tos] [fragment] [range lower upper] [time-range time-range-name] [ match-all tcp-flag |
established ]
```

- User Datagram Protocol (UDP)

```
[sn] deny udp {source source-wildcard | host source | any} [ operator port [port]] {destination
destination-wildcard | host destination | any} [operator port [port]] [precedence precedence] [tos
tos] [fragment] [range lower upper] [time-range time-range-name]
```

### 7. Extended MAC ACL

```
[ sn ] deny { any | host source-mac-address } { any | host destination-mac-address } [ ethernet-type ]
[ cos [ out ] [ inner in ] ]
```

### 8. Extended expert ACL

```
[sn] deny[protocol | [ethernet-type][ cos [out] [inner in]]] [[VID [out][inner in]]] {source
source-wildcard | host source | any}{host source-mac-address | any } {destination
destination-wildcard | host destination | any} {host destination-mac-address | any} [precedence
precedence] [tos tos][fragment] [range lower upper] [time-range time-range-name]
```

- When you select the ethernet-type field or cos field:

```
[sn] deny {[ethernet-type][cos [out] [inner in]]} [[VID [out][inner in]]] {source source-wildcard | host
source | any} {host source-mac-address | any } {destination destination-wildcard | host destination |
any} {host destination-mac-address | any} [time-range time-range-name]
```

- When you select the protocol field:

[sn] deny protocol [[VID [out][inner in]]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} { host destination-mac-address | any} [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]

- Extended expert ACLs of some important protocols

#### Internet Control Message Protocol (ICMP)

[sn] deny icmp [[VID [out][inner in]]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [icmp-type] [[icmp-type icmp-code]] | [icmp-message] [precedence precedence] [tos tos] [fragment] [time-range time-range-name]

#### Transmission Control Protocol (TCP)

[sn] deny tcp [[VID [out][inner in]]]{source source-wildcard | host Source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [match-all tcp-flag | established]

#### User Datagram Protocol (UDP)

[sn] deny udp [[VID [out][inner in]]]{source source-wildcard | host source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any}{host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]

#### Address Resolution Protocol (ARP)

[sn] deny arp {vid vlan-id}[ host source-mac-address | any] [host destination-mac-address | any] {sender-ip sender-ip-wildcard | host sender-ip | any} {sender-mac sender-mac-wildcard | host sender-mac | any} {target-ip target-ip-wildcard | host target-ip | any}

### 5. Extended IPv6 ACL

[sn] deny protocol {source-ipv6-prefix/prefix-length | any | host source-ipv6-address} {destination-ipv6-prefix / prefix-length | any} host destination-ipv6-address} [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range time-range-name]

Extended ipv6 ACLs of some important protocols:

#### Internet Control Message Protocol (ICMP)

[sn] deny icmp {source-ipv6-prefix / prefix-length | any source-ipv6-address | host} {destination-ipv6-prefix / prefix-length | host destination-ipv6-address | any} [icmp-type] [[icmp-type icmp-code]] | [icmp-message] [dscp dscp] [flow-label flow-label] [fragment] [time-range time-range-name]

#### Transmission Control Protocol (TCP)

[sn] deny tcp {source-ipv6-prefix / prefix-length | host source-ipv6-address | any}[operator port [port]] {destination-ipv6-prefix / prefix-length | host destination-ipv6-address | any} [operator port [port]] [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range time-range-name] [match-all tcp-flag | established]

#### User Datagram Protocol (UDP)

[sn] deny udp {source-ipv6-prefix/prefix-length | host source-ipv6-address | any} [operator port [port]] {destination-ipv6-prefix /prefix-length | host destination-ipv6-address | any}[operator port [port]] [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range

*time-range-name]*

Parameter Description	Parameter	Description
	<i>sn</i>	ACL entry sequence number
	<i>source-ipv6-prefix</i>	Source IPv6 network address or network type
	<i>destination-ipv6-prefix</i>	Destination IPv6 network address or network type
	<i>prefix-length</i>	Prefix mask length
	<i>source-ipv6-address</i>	Source IPv6 address
	<i>destination-ipv6-address</i>	Destination IPv6 address
	<i>dscp</i>	Differential Service Code Point
	<i>dscp</i>	Code value, within the range of 0 to 63
	<i>flow-label</i>	Flow label
	<i>flow-label</i>	Flow label value, within the range of 0 to 1048575.
	<i>protocol</i>	For the IPv6, the field can be <code>ipv6   icmp   tcp   udp</code> and number in the range 0 to 255
	<i>time-range</i>	Time range of the packet filtering
	<i>time-range-name</i>	Time range name of the packet filtering

**Defaults** No entry

**Command mode** ACL configuration mode.

**Usage Guide** Use this command to configure the filtering entry of ACLs in ACL configuration mode.

**Configuration Examples** The following example shows how to create and display an extended expert ACL. This expert ACL denies all the TCP packets with the source IP address 192.168.4.12 and the source MAC address 001300498272.

```
Ruijie(config)#expert access-list extended 2702
Ruijie(config-exp-nacl)#deny tcp host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)#permit any any any any
Ruijie(config-exp-nacl)#show access-lists
expert access-list extended 2702
10 deny tcp host 192.168.4.12 host 0013.0049.8272 any any
20 permit any any any any
Ruijie(config-exp-nacl)#
```

This example shows how to use the extended IP ACL. The purpose is to deny the host with the IP address 192.168.4.12 to provide services through the TCP port 100 and apply the ACL to Interface gigabitethernet 1/1. The configuration procedure is as below:

```
Ruijie(config)# ip access-list extended ip-ext-acl
Ruijie(config-ext-nacl)# deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
```



```

ip access-list extended ip-ext-acl
10 deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)#exit
Ruijie(config)#interface gigabitethernet 1/1
Ruijie(config-if)#ip access-group ip-ext-acl in
Ruijie(config-if)#

```

This example shows how to use the extended MAC ACL. The purpose is to deny the host with the MAC address 0013.0049.8272 to send Ethernet frames of the type 100 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```

Ruijie(config)#mac access-list extended mac1
Ruijie(config-mac-nacl)#deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended mac1
10 deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)#exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group mac1 in

```

This example shows how to use the standard IP ACL. The purpose is to deny the host with the IP address 192.168.4.12 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```

Ruijie(config)#ip access-list standard 34
Ruijie(config-ext-nacl)# deny host 192.168.4.12
Ruijie(config-ext-nacl)#show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
Ruijie(config-ext-nacl)#exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 34 in

```

This example shows how to use the extended IPV6 ACL. The purpose is to deny the host with the IP address 192.168.4.12 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```

Ruijie(config)#ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)#11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)#show access-lists
ipv6 access-list extended v6-acl
11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in

```

#### Related Commands

Command	Description
show access-lists	Displays all ACLs.
ipv6 traffic-filter	Applies the extended IPv6 ACL on the

	interface.
ip access-group	Applies the IP ACL on the interface.
mac access-group	Applies the extended MAC ACL on the interface.
ip access-list	Defines an IP ACL.
mac access-list	Defines an extended MAC ACL.
expert access-list	Defines an extended expert ACL.
ipv6 access-list	Defines an extended IPv6 ACL.
permit	Permits the access.

**Platform** N/A

**Description**

## 12.6 expert access-group

Use this command to apply the specified expert access list on the specified interface to control the input and output data streams. Use the **no** form of the command to remove the application.

**expert access-group** { *id* | *name* } { **in** | **out** }

**no expert access-group** { *id* | *name* } { **in** | **out** }

**Parameter Description**

Parameter	Description
<i>id</i>	Expert access list number: 2700 to 2899
<i>name</i>	Name of the expert access list
<b>in</b>	Specifies filtering on inbound packets.
<b>out</b>	Specifies filtering on outbound packets.

**Defaults** No expert access list is applied.

**Command mode** Interface configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example applies the expert ACL named **accept\_00d0f8xxxxxx\_only** to Gigabit interface 0/1:

```
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# expert access-group
accept_00d0f8xxxxxx_only in
```

**Related Commands**

Command	Description
<b>show access-group</b>	Displays the ACL configuration.

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

## 12.7 expert access-list extended

Use this command to create an extended expert access list. Use the **no** form of the command to remove the ACL.

**expert access-list extended** *{id | name}*

**no expert access-list extended** *{id | name}*

Parameter Description	Parameter	Description
	<i>id</i>	Extended expert access list number: 2700 to 2899
	<i>name</i>	Name of the extended expert access list

**Defaults** N/A

**Command mode** Global configuration mode.

**Usage Guide** Use the **show access-lists** command to display the ACL configurations.

**Configuration** Create an extended expert ACL named exp-acl:

**Examples**

```
Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# show access-lists expert access-list extended
exp-acl
Ruijie(config-exp-nacl)#
```

Create an extended expert ACL numbered 2704:

```
Ruijie(config)# expert access-list extended 2704
Ruijie(config-exp-nacl)# show access-lists access-list extended 2704
Ruijie(config-exp-nacl)#
```

Related Commands	Command	Description
	<b>show access-lists</b>	Displays the extended expert ACLs

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

## 12.8 expert access-list resequence

Use this command to resequence an expert access list. Use the no form of this command to restore the default order of access entries.

**expert access-list resequence** { *id* | *name* } *start-sn* *inc-sn*

**no expert access-list resequence** { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Expert access list number: 2700 to 2899.
	<i>name</i>	Name of the expert access list
	<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
	<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

**Defaults**      *start-sn*: 10  
                   *inc-sn*: 10

**Command mode**      Global configuration mode

**Usage Guide**      Use this command to change the order of the access entries.

**Configuration Examples**      The following example resequences entries of expert access list “exp-acl”:

**Examples**      Before the configuration:

```
Ruijie# show access-lists
expert access-list extended exp-acl
 10 permit ip any any any any
 20 deny ip any any any any
```

After the configuration:

```
Ruijie# config
Ruijie(config)# expert access-list resequence exp-acl 21 43
Ruijie(config)# exit
Ruijie# show access-lists
expert access-list extended exp-acl
 21 permit ip any any any any
 64 deny ip any any any any
```

Related Commands	Command	Description
	show access-lists	Displays all access lists..

**Platform**      N/A

**Description**

## 12.9 ip access-group

Use this command to apply a specific access list globally or to an interface or VXLAN. Use the **no** form of this command to remove the access list from the interface.

**ip access-group** { *id* | *name* } { **in** | **out** }

**no ip access-group** { *id* | *name* } { **in** | **out** }

**Parameter Description**

Parameter	Description
<i>id</i>	IP access list or extended IP access list number: 1 to 199, 1300 to 2699
<i>name</i>	Name of the IP ACL
<b>in</b>	Filters the incoming packets of the interface.
<b>out</b>	Filters the outgoing packets of the interface.

**Defaults** No access list is applied by default.

**Command mode** interface configuration mode.

**Usage Guide** Use this command to control access to a specified interface, VXLAN or globally.

**Configuration Examples** The following example applies the ACL 120 on interface fastEthernet0/0 to filter the incoming packets:

```
Ruijie(config)# interface fastEthernet 0/0
Ruijie(config-if)# ip access-group 120 in
```

**Related Commands**

Command	Description
<b>access-list</b>	Defines an ACL.
<b>show access-lists</b>	Displays all ACLs.

**Platform** N/A

**Description**

## 12.10 ip access-list

Use this command to create a standard IP access list or extended IP access list. Use the **no** form of the command to remove the access list.

**ip access-list** { **extended** | **standard** } { *id* | *name* }

**no ip access-list** { **extended** | **standard** } { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Access list number: Standard: 1 to 99, 1300 to 1999; Extended: 100 to 199, 2000 to 2699.
	<i>name</i>	Name of the access list

**Defaults** N/A

**Command mode** Global configuration mode

**Usage Guide** Configure a standard access list if you need to filter on source address only. If you want to filter on anything other than source address, you need to create an extended access list. Refer to **deny** or **permit** in the two modes. Use the **show access-lists** command to display the ACL configurations.

**Configuration** The following example creates a standard access list named std-acl.

**Examples**

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

The following example creates an extended ACL numbered 123:

```
Ruijie(config)# ip access-list extended 123
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 123
```

**Related Commands**

Command	Description
show access-lists	Displays all ACLs.

**Platform** N/A

**Description**

## 12.11 ip access-list resequence

Use this command to resequence a standard or extended IP access list. Use the **no** form of this command to restore the default order of access entries.

**ip access-list resequence** { *id* | *name* } *start-sn inc-sn*

**no ip access-list resequence** { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	IP access list number: Standard IP access list: 1 to 99, 1300 to 1999; Extended IP access list: 100 to 199, 2000 to 2699.
	<i>name</i>	Name of the standard or extended IP access list
	<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
	<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

**Defaults**      *start-sn*: 10  
                  *inc-sn*: 10

**Command mode**      Global configuration mode

**Usage Guide**      Use this command to change the order of the access entries.

**Configuration**    The following example resequences entries of ACL1:

**Examples**          Before the configuration:

```
Ruijie# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
```

After the configuration:

```
Ruijie# config
Ruijie(config)# ip access-list resequence 1 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
```

Related Commands	Command	Description
	show access-lists	Displays all access lists..

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

## 12.12 ipv6 access-list

Use this command to create an IPv6 access list and to place the device in IPv6 access list

configuration mode. Use the **no** form of this command to remove the access list.

**ipv6 access-list** *name*

**no ipv6 access-list** *name*

Parameter Description	Parameter	Description
	<i>name</i>	Name of the IPv6 access list.

**Defaults** N/A

**Command mode** Global configuration mode

**Usage Guide** To filter the IPv6 packets through the access list, you need to define an IPv6 access list by using the **ipv6 access-list** command.

**Configuration Examples** The following example creates an IPv6 access list named v6-acl:

```
Ruijie(config)# ipv6 access-list v6-acl
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)#
```

Related Commands	Command	Description
	show access-lists	Displays all access lists.

**Platform** N/A

**Description**

## 12.13 ipv6 access-list resequence

Use this command to resequence an IPv6 access list. Use the **no** form of this command to restore the default order of access entries.

**ipv6 access-list resequence** *name start-sn inc-sn*

**no ipv6 access-list resequence** *name*

Parameter Description	Parameter	Description
	<i>name</i>	Name of the IPv6 access list
	<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
	<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

**Defaults** *start-sn*: 10



*inc-sn*: 10

**Command mode** Global configuration mode

**Usage Guide** Use this command to change the order of the access entries.

**Configuration Examples** The following example resequences entries of IPv6 access list “v6-acl”:

**Examples** Before the configuration:

```
Ruijie# show access-lists
ipv6 access-list v6-acl
 10 permit ipv6 any any
 20 deny ipv6 any any
```

After the configuration:

```
Ruijie# config
Ruijie(config)# ipv6 access-list resequence v6-acl 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ipv6 access-list v6-acl
 21 permit ipv6 any any
 64 deny ipv6 any any
```

**Related Commands**

Command	Description
show access-lists	Displays all access lists..

**Platform** N/A

**Description**

## 12.14 ipv6 traffic-filter

Use this command to apply an IPV6 access list on the specified interface/VXLAN. Use the **no** form of the command to remove the IPV6 access list from the interface/VXLAN.

**ipv6 traffic-filter** *name* { **in** | **out** }

**no ipv6 traffic-filter** *name* { **in** | **out** }

**Parameter Description**

Parameter	Description
<i>name</i>	Name of IPv6 access list
<b>in</b>	Specifies filtering on inbound packets
<b>out</b>	Specifies filtering on outbound packets

<b>Defaults</b>	N/A				
<b>Command mode</b>	Interface configuration mode.				
<b>Usage Guide</b>	Use this command to apply the IPv6 access list to a specified interface/VXLAN to filter the inbound or outbound packets.				
<b>Configuration Examples</b>	The following example applies the IPv6 access list named <b>v6-acl</b> to interface GigabitEthernet 0/1: <pre>Ruijie(config)# interface GigabitEthernet 0/1 Ruijie(config-if-GigabitEthernet 0/1)# ipv6 traffic-filter v6-acl in</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>show access-group</td> <td>Displays ACL configurations on the interface.</td> </tr> </tbody> </table>	Command	Description	show access-group	Displays ACL configurations on the interface.
Command	Description				
show access-group	Displays ACL configurations on the interface.				
<b>Platform Description</b>	N/A				

## 12.15 list-remark

Use this command to write a helpful comment (remark) for an access list. Use the **no** form of this command to remove the remark.

**list-remark** *text*

**no list-remark**

Parameter Description	Parameter	Description
	<i>text</i>	Comment that describes the access list.

<b>Defaults</b>	The access lists have no remarks by default.
<b>Command mode</b>	ACL configuration mode
<b>Usage Guide</b>	You can use this command to write a helpful comment for a specified access list.
<b>Configuration Examples</b>	The following example writes a comment of "this acl is to filter the host 192.168.4.12" for ACL102. <pre>Ruijie(config)# ip access-list extended 102 Ruijie(config-ext-nacl)# list-remark this acl is to filter the host 192.168.4.12 Ruijie(config-ext-nacl)# show access-lists ip access-list extended 102 deny ip host 192.168.4.12 any</pre>

```
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

### Related Commands

Command	Description
show access-lists	Displays all access lists.
ip access-list	Defines an IPv4 access list.
access-list list remark	Adds a helpful comment for an access list in global configuration mode.

**Platform** N/A

### Description

## 12.16 mac access-group

Use this command to apply the specified MAC access list on the specified interface. Use the **no** form of the command to remove the access list from the interface.

**mac access-group** { *id* | *name* } { **in** | **out** }

**no mac access-group** { *id* | *name* } { **in** | **out** }

### Parameter Description

Parameter	Description
<i>id</i>	MAC access list number. The range is from 700 to 799.
<i>name</i>	Name of the MAC access list
in	Specifies filtering on the inbound packets.
out	Specifies filtering on the outbound packets.

**Defaults** No MAC access list is applied by default.

**Command mode** interface configuration mode.

**Usage Guide** Use this command to apply the access list to filter the inbound or outbound packets based on the MAC address.

**Configuration Examples** The following example applies the MAC access-list **accept\_00d0f8xxxxxx\_only** to interface GigabitEthernet 1/1:

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# mac access-group
accept_00d0f8xxxxxx_only in
```

### Related

Command	Description
---------	-------------

Commands	
<b>show access-group</b>	Displays the ACL configuration on the interface.

**Platform** N/A

**Description**

## 12.17 mac access-list extended

Use this command to create an extended MAC access list. Use the **no** form of the command to remove the MAC access list.

**mac access-list extended** { *id* | *name* }

**no mac access-list extended** { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Extended MAC access list number. The range is from 700 to 799.
	<i>name</i>	Name of the extended MAC access list

**Defaults** N/A

**Command mode** Global configuration mode.

**Usage Guide** To filter the packets based on the MAC address, you need to define a MAC access list by using the **mac access-list extended** command.

**Configuration Examples** The following command creates an extended MAC access list named mac-acl:

```
Ruijie(config)# mac access-list extended mac-acl
```

```
Ruijie(config-mac-nacl)# show access-lists mac access-list extended mac-acl
```

The following command creates an extended MAC access list numbered 704:

```
Ruijie(config)# mac access-list extended 704
```

```
Ruijie(config-mac-nacl)# show access-lists mac access-list extended 704
```

Related Commands	Command	Description
	show access-lists	Displays all access lists.

**Platform** N/A

**Description**

## 12.18 mac access-list resequence

Use this command to resequence an extended MAC access list. Use the **no** form of this command to restore the default order of access entries.

**mac access-list resequence** { *id* | *name* } *start-sn* *inc-sn*

**no mac access-list resequence** { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Extended MAC access list number: 700 to 799.
	<i>name</i>	Name of the extended MAC access list
	<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
	<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

**Defaults**      *start-sn*: 10  
                   *inc-sn*: 10

**Command mode**      Global configuration mode

**Usage Guide**      Use this command to change the order of the access entries.

**Configuration Examples**      The following example resequences entries of extended MAC access list "mac-acl":

**Examples**      Before the configuration:

```
Ruijie# show access-lists
mac access-list extended mac-acl
 10 permit any any etype-any
 20 deny any any etype-any
```

After the configuration:

```
Ruijie# config
Ruijie(config)# mac access-list resequence exp-acl 21 43
Ruijie(config)# exit
Ruijie# show access-lists
mac access-list extended mac-acl
 21 permit any any etype-any
 64 deny any any etype-any
```

Related Commands	Command	Description
	show access-lists	Displays all access lists..

**Platform**      N/A

## Description

## 12.19 permit

One or multiple **permit** conditions are used to determine whether to forward or discard the packet. In ACL configuration mode, you can modify the existent ACL or configure according to the protocol details.

## 9. Standard IP ACL

```
[ sn ] permit { source source-wildcard | host source | any | interface idx } [ time-range tm-range-name ] [ log ]
```

## 10. Extended IP ACL

```
[ sn ] permit protocol source source-wildcard destination destination-wildcard [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ] [ log ]
```

Extended IP ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

```
[ sn ] permit icmp { source source-wildcard | host source | any } { destination destination-wildcard | host destination | any } [ icmp-type ] [ [ icmp-type [ icmp-code ] ] | [ icmp-message ] ] [ precedence precedence ] [ tos tos ] [ fragment ] [ time-range time-range-name ]
```

Transmission Control Protocol (TCP)

```
[ sn ] permit tcp { source source-wildcard | host source | any } [ operator port [ port ] ] { destination destination-wildcard | host destination | any } [ operator port [ port ] ] [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ] [ match-all tcp-flag | established ]
```

User Datagram Protocol (UDP)

```
[ sn ] permit udp { source source-wildcard | host source | any } [ operator port [ port ] ] { destination destination-wildcard | host destination | any } [ operator port [ port ] ] [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ]
```

## 11. Extended MAC ACL

```
[ sn ] permit { any | host source-mac-address { any | host destination-mac-address } [ ethernet-type ] [ cos [ out ] [ inner in ] ]
```

## 12. Extended expert ACL

```
[ sn ] permit [ protocol | [ ethernet-type ] [ cos [ out ] [ inner in ] ] [ VID [ out ] [ inner in ] ] { source source-wildcard | host source | any } { host source-mac-address | any } { destination destination-wildcard | host destination | any } { host destination-mac-address | any } [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ]
```

When you select the Ethernet-type field or cos field:

```
[ sn ] permit { ethernet-type | cos [ out ] [ inner in ] } [ VID [ out ] [ inner in ] ] { source source-wildcard | host source | any } { host source-mac-address | any } { destination destination-wildcard | host destination | any } { host destination-mac-address | any } [ time-range time-range-name ]
```

When you select the protocol field:

```
[ sn ] permit protocol [ VID [ out ] [ inner in ] ] { source source-wildcard | host source | any } { host
```

*source-mac-address* | **any** } {*destination destination-wildcard* | **host destination** | **any**} {**host destination-mac-address** | **any**} [**precedence precedence**] [**tos tos**] [**fragment**] [**range lower upper**] [**time-range time-range-name**]

Extended expert ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** [**VID** [*out*][*inner in*]] {*source source-wildcard* | **host source** | **any**} {**host source-mac-address** | **any**} {*destination destination-wildcard* | **host destination** | **any**} {**host destination-mac-address** | **any**}[ *icmp-type*] [[*icmp-type icmp-code*] | [ *icmp-message* ]]

[**precedence precedence**] [**tos tos**] [**fragment**] [**time-range time-range-name**]

Transmission Control Protocol (TCP)

[*sn*] **permit tcp** [**VID** [*out*][*inner in*]]{*source source-wildcard* | **host Source** | **any**} {**host source-mac-address** | **any**} [ *operator port* [*port*] ] {*destination destination-wildcard* | **host destination** | **any**} {**host destination-mac-address** | **any**} [ *operator port* [*port*] ] [**precedence precedence**] [**tos tos**] [**fragment**] [**range lower upper**] [**time-range time-range-name**] [**match-all tcp-flag** | **established**]

User Datagram Protocol (UDP)

[*sn*] **permit udp** [**VID** [*out*][*inner in*]]{*source source-wildcard* | **host source** | **any**} {**host source-mac-address** | **any**} [ *operator port* [*port*] ] {*destination destination-wildcard* | **host destination** | **any**} {**host destination-mac-address** | **any**} [ *operator port* [*port*] ] [**precedence precedence**] [**tos tos**] [**fragment**] [**range lower upper**] [**time-range time-range-name**]

Address Resolution Protocol (ARP)

[*sn*] **permit arp** {**vid vlan-id**} [**host source-mac-address** | **any**] [**host destination-mac-address** | **any**] {*sender-ip sender-ip-wildcard* | **host sender-ip** | **any**} {*sender-mac sender-mac-wildcard* | **host sender-mac** | **any**} {*target-ip target-ip-wildcard* | **host target-ip** | **any**}

### 13. Extended IPv6 ACL

[*sn*] **permit protocol** {*source-ipv6-prefix / prefix-length* | **any** | **host source-ipv6-address**} {*destination-ipv6-prefix / prefix-length* | **any**} *hostdestination-ipv6-address*} [**dscp dscp**] [**flow-label flow-label**] [**fragment**] [**range lower upper**] [**time-range time-range-name**]

Extended IPv6 ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** {*source-ipv6-prefix / prefix-length* | **any** *source-ipv6-address* | **host**} {*destination-ipv6-prefix / prefix-length* | **host destination-ipv6-address** | **any**} [*icmp-type*] [[*icmp-type icmp-code*] | [ *icmp-message* ]] [**dscp dscp**] [**flow-label flow-label**][**fragment**] [**time-range time-range-name**]

Transmission Control Protocol (TCP)

[*sn*] **permit tcp** {*source-ipv6-prefix / prefix-length* | **host source-ipv6-address** | **any**} [ *operator port* [*port*] ] {*destination-ipv6-prefix / prefix-length* | **host destination-ipv6-address** | **any**} [ *operator port* [*port*] ] [**dscp dscp**] [**flow-label flow-label**] [**fragment**] [**range lower upper**] [**time-range time-range-name**] [**match-all tcp-flag** | **established**]

User Datagram Protocol (UDP)

[*sn*] **permit udp** {*source-ipv6-prefix / prefix-length* | **host source-ipv6-address** | **any**} [ *operator port* [*port*] ] {*destination-ipv6-prefix / prefix-length* | **host destination-ipv6-address** | **any**} [ *operator port* [*port*] ] [**dscp dscp**] [**flow-label flow-label**] [**fragment**] [**range lower upper**] [**time-range time-range-name**]

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command mode** ACL configuration mode.

**Usage Guide** Use this command to configure the **permit** conditions for the ACL in ACL configuration mode.

**Configuration Examples** The following example shows how to create and display an Expert Extended ACL. This expert ACL permits all the TCP packets with the source IP address 192.168.4.12 and the source MAC address 001300498272.

```
Ruijie(config)#expert access-list extended exp-acl
Ruijie(config-exp-nacl)#permit tcp host 192.168.4.12 host 0013.0049.8272
any any
Ruijie(config-exp-nacl)#deny any any any any
Ruijie(config-exp-nacl)#show access-lists
expert access-list extended exp-acl
10 permit tcp host 192.168.4.12 host 0013.0049.8272 any any
20 deny any any any any
Ruijie(config-exp-nacl)#
```

This example shows how to use the extended IP ACL. The purpose is to permit the host with the IP address 192.168.4.12 to provide services through the TCP port 100 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)#exit
Ruijie(config)#interface gigabitethernet 1/1
Ruijie(config-if)#ip access-group 102 in
Ruijie(config-if)#
```

This example shows how to use the extended MAC ACL. The purpose is to permit the host with the MAC address 0013.0049.8272 to send Ethernet frames through the type 100 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Ruijie(config)#mac access-list extended 702
Ruijie(config-mac-nacl)#permit host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)#show access-lists
mac access-list extended 702
10 permit host 0013.0049.8272 any aarp 702
```



```
Ruijie(config-mac-nacl)#exit
Ruijie(config)#interface gigabitethernet 1/1
Ruijie(config-if)#mac access-group 702 in
```

This example shows how to use the standard IP ACL. The purpose is to permit the host with the IP address 192.168.4.12 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Ruijie(config)#ip access-list standard std-acl
Ruijie(config-std-nacl)#permit host 192.168.4.12
Ruijie(config-std-nacl)#show access-lists
ip access-list standard std-acl
  10 permit host 192.168.4.12
Ruijie(config-std-nacl)#exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group std-acl in
```

This example shows how to use the extended IPV6 ACL. The purpose is to permit the host with the IP address 192.168.4.12 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Ruijie(config)#ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)#11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)#interface gigabitethernet 1/1
Ruijie(config-if)#ipv6 traffic-filter v6-acl in
```

#### Related Commands

Command	Description
show access-lists	Displays all access lists.
ipv6 traffic-filter	Applies the extended IPv6 access list to the interface.
ip access-group	Applies the IP access list to the interface.
mac access-group	Applies the extended MAC access list to the interface.
ip access-list	Defines an IP access list.
mac access-list	Defines an extended MAC access list.
expert access-list	Define an extended expert access list.
ipv6 access-list	Defines an extended IPv6 access list.
deny	Defines the <b>deny</b> access entry.

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

## 12.20 remark

Use this command to write a helpful comment (remark) for an entry in the access list. Use the **no** form of this command to remove the remark.

**remark** *text*

**no remark**

Parameter Description	Parameter	Description
	<i>text</i>	Comment that describes the access entry.

**Defaults** The access entries have no remarks.

**Command mode** ACL configuration mode.

**Usage Guide** Use this command to write a helpful comment for an access entry.  
Up to 100 characters are allowed in the remark.  
Two identical access entry remarks in one access list is not allowed.  
Removing an access entry may delete the remark for it as well.

**Configuration** The following example writes remarks for the entry in extended IP access list 102.

**Examples**

```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# remark first_remark
Ruijie(config-ext-nacl)# permit tcp 1.1.1.1 0.0.0.0 2.2.2.2 0.0.0.0
Ruijie(config-ext-nacl)# remark second_remark
Ruijie(config-ext-nacl)# permit tcp 3.3.3.3 0.0.0.0 4.4.4.4 0.0.0.0
Ruijie(config-ext-nacl)# end
Ruijie#
```

Related Commands	Command	Description
	show access-lists	Displays all access lists.
	ip access-list	Defines an IP access list.

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

## 12.21 security access-group

Use this command to configure an interface secure channel. Use the **no** form of this command to remove the channel.

**security access-group** { *id* | *name* }

**no security access-group**

Parameter Description	Parameter	Description
	<i>id</i>	Access list number.
	<i>name</i>	Name of the access list.

**Defaults** N/A

**Command mode** Interface configuration mode

**Usage Guide** If a device is configured authentications such as 802.1x or Web authentication, the user cannot access the external network before passing the authentication. You can use this command to configure a secure channel for the users on the specified interface to access the external network without authentication.

**Configuration** The following example configures a secure channel on interface GigaEthernet 1/1:

**Examples**

```
Ruijie(config)# interface GigaEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# security access-group 1
```

Related Commands	Command	Description
	show secu-acl	Displays the secure channel configuration.

**Platform** N/A

**Description**

## 12.22 security global access-group

Use this command to configure the global secure channel.

**security global access-group** { *id* | *name* }

**no security global access-group**

Parameter Description	Parameter	Description
	<i>id</i>	Access list number.
	<i>name</i>	Name of the access list.

**Defaults** -

**Command mode** Global configuration mode

**Usage Guide** If a device is configured authentications such as 802.1x or Web authentication, the user cannot access the external network before passing the authentication. You can use this command to configure a global secure channel for some users to access the external network without authentication.

**Configuration** The following example configures a global secure channel.

**Examples** Ruijie(config)#security global access-group 1

Related Commands	Command	Description
	show secu-acl	Displays the secure channel configuration..

**Platform** N/A

**Description**

## 12.23 security uplink enable

Use this command to configure an exceptional interface of the global secure channel.

**security uplink enable**

**no security uplink enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** The global secure channel takes effect on all interfaces by default.

**Command mode** Interface configuration mode.

**Usage Guide** The global secure channel takes effect on all interfaces by default. To disable the secure channel function on some interfaces, you can use this command to configure the interface as exceptional.

**Configuration Examples** The following example configures interface GigaEthernet 1/1 as an exceptional interface of the secure channel.

```
Ruijie(config)# interface GigaEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# security uplink enable
```

Related Commands	Command	Description
	show secu-acl	Displays the secure channel configuration.

**Platform** N/A

**Description**

## 12.24 show access-group

Use this command to display the access list applied to the interface.

**show access-group** [ **interface** *interface-name* ]

Parameter	Parameter	Description
Description	<i>interface</i>	Interface name

**Defaults** -

**Command mode** Privileged EXEC mode

**Usage Guide** Use this command to display the access list configuration on the specified interface. If no interface is specified, access list configuration on all interfaces is displayed.

**Configuration Examples** The following example displays the interfaces where the ACL is applied.

```
Ruijie# show access-group
ip access-list standard ipstd3
Applied On interface GigabitEthernet 0/1.
ip access-list standard ipstd4
Applied On interface GigabitEthernet 0/2.
ip access-list extended 101
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
ip access-group 33 in
Applied On vxlan 1
```

The following example displays whether ACL is applied on the interface GigabitEthernet 0/3 and which direction data streams flow to.

```
Ruijie# show access-group interface GigabitEthernet 0/3
ip access-list extended 101
Applied On interface GigabitEthernet 0/3 in.
```

Related Commands	Command	Description
	ip access-group	Applies the IP access list to the interface.
	mac access-group	Applies the MAC access list to the interface.

expert access-group	Applies the expert access list to the interface.
ipv6 traffic-filter	Applies the IPv6 access list to the interface.

**Platform** N/A

**Description**

## 12.25 show access-lists

Use this command to display all access lists or the specified access list.

**show access-lists** [ *id* | *name* ] [ **summary** ]

Parameter Description	Parameter	Description
	<i>id</i>	Access list number
	<i>name</i>	Name of the IP access list
	summary	Access list summary

**Defaults** N/A

**Command mode** Global configuration mode

**Usage Guide** Use this command to display the specified access list. If no access list number or name is specified, all the access lists are displayed.

**Configuration Examples** The following example displays configuration of the ACL named "n\_acl".

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
```

The following example displays configuration of all ACLs.

```
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
permit icmp host 192.168.1.1 any log (1080 matches)
  permit tcp host 1.1.1.1 any established
  deny ip any any (80021 matches)
mac access-list extended mac-acl
expert access-list extended exp-acl
ipv6 access-list extended v6-acl
petmit ipv6 ::192.168.4.12 any (100 matches)
deny any any (9 matches)
```

Related Commands	Command	Description
	ip access-list	Defines an IP access list.
	mac access-list	Defines an extended MAC access list.
	expert access-list	Defines an extended expert access list.
	ipv6 access-list	Defines an extended IPv6 access list.

**Platform** N/A

**Description**

## 12.26 show expert access-group

Use this command to display the expert access list applied to the interface.

**show expert access-group [ interface *interface-name* ]**

Parameter Description	Parameter	Description
	<i>Interface-name</i>	Interface name

**Defaults** -

**Command mode** Privileged EXEC mode

**Usage Guide** Use this command to display the expert access list configured on the interface. If no interface is specified, the expert access lists on all interfaces are displayed.

**Configuration Examples**

```
Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

Related Commands	Command	Description
	expert access-list	Defines an extended expert access list.

**Platform** N/A

**Description**

## 12.27 show ip access-group

Use this command to display the standard and extended IP access lists on the interface.

**show ip access-group [ interface *interface-name* ]**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>Interface-name</i></td> <td>Interface name</td> </tr> </tbody> </table>	Parameter	Description	<i>Interface-name</i>	Interface name
Parameter	Description				
<i>Interface-name</i>	Interface name				
<b>Defaults</b>	N/A				
<b>Command mode</b>	Privileged EXEC mode				
<b>Usage Guide</b>	Use this command to display the standard and extended IP access lists configured on the interface. If no interface is specified, the standard and extended IP access lists on all interfaces are displayed.				
<b>Configuration Examples</b>	<p>The following example displays whether the standard or extended IP access list is applied on the interface GigabitEthernet 0/1 and which direction data streams flow to.</p> <pre>Ruijie# show ip access-group interface gigabitethernet 0/1 ip access-group aaa in Applied On interface GigabitEthernet 0/1.</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ip access-list</td> <td>Defines an IP access list.</td> </tr> </tbody> </table>	Command	Description	ip access-list	Defines an IP access list.
Command	Description				
ip access-list	Defines an IP access list.				
<b>Platform Description</b>	N/A				

## 12.28 show ipv6 traffic-filter

Use this command to display the IPv6 access list on the interface.

**show ipv6 traffic-filter** [ **interface** *interface-name* ]

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>Interface-name</i></td> <td>Interface name</td> </tr> </tbody> </table>	Parameter	Description	<i>Interface-name</i>	Interface name
Parameter	Description				
<i>Interface-name</i>	Interface name				
<b>Defaults</b>	-				
<b>Command mode</b>	Privileged EXEC mode				
<b>Usage Guide</b>	Use this command to display the IPv6 access list configured on the interface. If no interface is specified, the IPv6 access lists on all interfaces are displayed.				



**Configuration Examples** The following example displays whether IPv6 ACL is applied on the interface GigabitEthernet 0/1 and which direction data streams flow to.

```
Ruijie# show ipv6 traffic-filter interface gigabitethernet 0/4
ipv6 access-group v6 in
Applied On interface GigabitEthernet 0/4.
```

**Related Commands**

Command	Description
ipv6 access-list	Defines an IPv6 access list.

**Platform** N/A

**Description**

## 12.29 show mac access-group

Use this command to display the MAC access list on the interface.

**show mac access-group [ interface *interface-name* ]**

**Parameter Description**

Parameter	Description
<i>Interface-name</i>	Interface name

**Defaults** N/A

**Command mode** Privileged EXEC mode

**Usage Guide** Use this command to display the MAC access list configured on the interface. If no interface is specified, the MAC access lists on all interfaces are displayed.

**Configuration Examples** The following example displays the MAC access list is applied on the interface and which direction data streams flow to.

```
Ruijie# show mac access-group interface gigabitethernet 0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

**Related Commands**

Command	Description
mac access-list	Defines a MAC access list.

**Platform** N/A

**Description**

## 12.30 svi router-acls enable

Use this command to enable the SVI filter only for the Layer3 packets. Use the **no** form of this command to disable this function.

**svi router-acls enable**

**no svi router-acls enable**

Parameter Description	Parameter	Description
	N/A	N/A.

**Defaults** The SVI filter takes effect for both Layer2 and Layer3 packets by default.

**Command mode** Global configuration mode

**Usage Guide** Use this command to make the SVI filter take effect only for the Layer3 packets,

**Configuration** The following example enables the SVI filter only for the Layer3 packets.

**Examples** Ruijie(config)#svi router-acls enable

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 13 SCC Commands

### 13.1 Identifier Description

The following is a list of command identifiers used in commands for reference:

Identifier	Description
vlanlist	Authentication-exemption VLAN list
interval	Authenticated-user online-status detection interval
threshold	The traffic threshold of authenticated-user online-status detection

### 13.2 downstream average-rate burst-rate

Use this command to configure the downstream traffic average and burst threshold.

**downstream average-rate** *avg-threshold* **burst-rate** *burst-threshold*

Use this command to remove the downstream traffic average and burst threshold.

**no downstream**

Parameter Description	Parameter	Description
	avg-threshold	Indicates the traffic average.
burst-threshold	Indicates the traffic burst threshold.	

**Defaults** N/A

**Command Mode** Speed-limit strategy configuration mode

**Default Level** 14

**Usage Guide** The burst thresholds of downstream parameters must not be smaller than the average.

**Configuration** The following example configures the downstream traffic average and burst threshold.

**Examples**

```
Ruijie(config)# rate-policy user-rate
Ruijie (config-rate-policy)#downstream average-rate 10 burst-rate 10
```

**Verification** Use the **show running** command to display the speed-limit downstream policy rule.

**Prompt** N/A

**Messages**

**Common Errors** N/A

**Platforms**

## 13.3 filter-policy

Use this command to enter filtering policy configuration mode.

**filter-policy** *filter-name*

Use this command to configure in filtering policy configuration mode.

**filter-acl** { *acl-name* | *acl-id* }

Parameter Description	Parameter	Description
	filter-name	Indicates the name of a filtering policy.
	acl-name	Indicates the name of the security ACL associated with the filtering policy.
	acl-id	Indicates the ID of the security ACL associated with the filtering policy.

**Defaults** N/A

**Command Mode** Global configuration mode

**Default Level** 14

**Usage Guide** One filtering policy can be deployed in different service strategies.

**Configuration Examples** The following example configures a filtering policies.

```
Ruijie(config)# ip access-list extended user_2000
Ruijie(config)# filter-policy user-filter
Ruijie(config-filter-policy)#filter-acl user_2000
```

**Verification** Use the **show running** command to display the filtering configuration policy.

**Prompt Messages** N/A

**Common Errors** N/A

## Platforms

### 13.4 filter-policy apply

Use this command to configure the filtering policy to be used.

**filter-policy** *filter-name* **apply**

Use this command to enable the specified filtering policy.

**no filter-policy**

Parameter Description	Parameter	Description
	filter-name	Indicates the name of the filtering policy to be used.

#### Defaults

**Command Mode** User policy configuration mode

**Default Level** 14

**Usage Guide** The name of the filtering policy to be used should be configured first.

**Configuration Examples** The following example configures a user policy and specifies the filtering policy name.

```
Ruijie(config)# ip access-list extended user_2000
Ruijie(config)# filter-policy user-filter
Ruijie(config-filter-policy)#filter-acl user_2000
Ruijie (config)# service-policy user-policy
Ruijie (config-service-policy)# filter-policy user-filter apply
```

**Verification** Use the **show running** command to display the filtering policy to be used.

**Prompt Messages** N/A

**Common Errors** N/A

## Platforms

### 13.5 filter-acl

Use this command to configure the security ACL associated with the filtering policy.

**filter-acl** { *acl-name* | *acl-id* }

Use this command to remove the security ACL associated with the filtering policy.

**no filter-acl**

Parameter Description	Parameter	Description
	acl-name	Indicates the name of the security ACL associated with the filtering policy.
	acl-id	Indicates the ID of the security ACL associated with the filtering policy.
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Filtering policy configuration mode	
<b>Default Level</b>	14	
<b>Usage Guide</b>	One filtering policy can be deployed in different service strategies.	
<b>Configuration</b>	The following example configures a filtering policy.	
<b>Examples</b>	<pre>Ruijie(config)# ip access-list extended user_2000 Ruijie(config)# filter-policy user-filter Ruijie(config-filter-policy)#filter-acl user_2000</pre>	
<b>Verification</b>	Use the <b>show running</b> command to display the security ACL associated with the filtering policy.	
<b>Prompt Messages</b>	N/A	
<b>Common Errors</b>	N/A	
<b>Platforms</b>		

## 13.6 offline-detect interval threshold

Use this command to configure user online-status detection, so that a user is disconnected when its traffic is lower than a specified threshold or is zero in a specified interval.

**offline-detect interval** *interval* **threshold** *threshold*

Use this command to restore the default user online-status detection configuration.

**default offline-detect**

Use this command to disable user online-status detection.

**no offline-detect**

Parameter Description	Parameter	Description
	<i>interval</i>	Indicates the interval of traffic detection (in minutes). The range is from 1 to 65,535 in minutes on a non-switch device or from 6 to 65,535 in minutes on a switch.
	<i>threshold</i>	Indicates the traffic threshold (in bytes). The range is from 0 to 4,294,967,294 in bytes. The value of 0 indicates that the user is disconnected when no traffic of the user is detected.

**Defaults** By default, the detection interval is 8 hours and the traffic threshold is 0.

**Command Mode** Global configuration mode

**Default Level** 14

**Usage Guide** You can use this command to configure user online-status detection to enable the device to disconnect the authenticated user whose traffic is lower than a specified value and end accounting process.

**Configuration Examples** The following example directly disconnects a user for the user's traffic is lower than 5 Kbytes within 5 minutes.

```
Ruijie(config)#offline-detect interval 5 threshold 5120
```

**Verification** Use the **show running** command to display the configuration of online-status detection for authenticated users.

**Prompt Messages** N/A

**Common Errors** N/A

**Platforms** N/A

## 13.7 rate-policy

Use this command to enter speed-limit policy configuration mode.

**show direct-vlan**

Use this command to configure the upstream traffic average and burst threshold.

**{downstream | upstream } average-rate avg-threshold burst-rate burst-threshold**

<b>Parameter Description</b>	Parameter	Description
	rate-name	Indicates the name of a speed-limit policy.
	avg-threshold	Indicates the traffic average.
	burst-threshold	Indicates the traffic burst threshold.
<b>Command Mode</b>	Global configuration mode	
<b>Level</b>	14	
<b>Usage Guide</b>	One speed-limit policy can be deployed in different service strategies.	
<b>Configuration Examples</b>	The following example configures the upstream traffic average and burst threshold.	
	<pre>Ruijie(config)# rate-policy user-rate Ruijie (config-rate-policy)#upstream average-rate 10 burst-rate 10 Ruijie (config-rate-policy)#downstream average-rate 10 burst-rate 10</pre>	
<b>Verification</b>	Run the <b>show running</b> command to display the speed limit policy.	
<b>Prompt Messages</b>	N/A	
<b>Platforms</b>		

## 13.8 rate-policy apply

Use this command to configure the speed-limit policy to be used.

**rate-policy** *rate-name* **apply**

Use this command to apply the specified speed-limit policy.

**no rate-policy**

<b>Parameter Description</b>	Parameter	Description
	rate-name	Indicates the name of the speed-limit policy to be used.
<b>Command Mode</b>	User policy configuration mode	
<b>Level</b>	14	



**Usage Guide** The name of the speed-limit policy to be used should be configured first.

**Configuration** The following example configures the speed-limit policy to be used and specifies the policy name.

**Examples**

```
Ruijie(config)# rate-policy user-rate
Ruijie (config-rate-policy)#upstream average-rate 10 burst-rate 10
Ruijie (config-rate-policy)#downstream average-rate 10 burst-rate 10
Ruijie (config)# service-policy user-policy
Ruijie (config-service-policy)# rate-policy user-rate apply
```

**Verification** Run the **show running** command to display the speed-limit policy rule.

**Prompt**  
**Messages** N/A

**Platforms**

## 13.9 service-policy

Use this command to enter user policy configuration mode.

**service-policy** *service-name*

Use this command to apply the specified speed-limit policy.

**rate-policy** *rate-name* **apply**

Parameter Description	Parameter	Description
	service-name	Indicates the name of the user policy.
	rate-name	Indicates the name of the speed-limit policy to be used.

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

**Level** 14

**Usage Guide** The name of the speed-limit policy to be used should be configured first.

**Configuration** The following example configures the speed-limit policy to be used and specifies the policy name.

**Examples**

```
Ruijie(config)# rate-policy user-rate
Ruijie (config-rate-policy)#upstream average-rate 10 burst-rate 10
Ruijie (config-rate-policy)#downstream average-rate 10 burst-rate 10
Ruijie (config)# service-policy user-policy
Ruijie (config-service-policy)# rate-policy user-rate apply
```

**Verification** Run the **show running** command to display the user policy configuration.

**Prompt Messages** N/A

**Platforms**

## 13.10 upstream average-rate burst-rate

Use this command to configure the upstream traffic average and burst threshold.

**upstream average-rate** *avg-threshold* **burst-rate** *burst-threshold*

Use this command to remove the upstream traffic average and burst threshold.

**no upstream**

Parameter Description	Parameter	Description
	avg-threshold	Indicates the traffic average.
	burst-threshold	Indicates the traffic burst threshold.

**Defaults** N/A

**Command Mode** Speed-limit strategy configuration mode

**Default Level** 14

**Usage Guide** The burst thresholds of upstream parameters must not be smaller than the average.

**Configuration** The following example configures the upstream traffic average and burst threshold.

**Examples**

```
Ruijie(config)# rate-policy user-rate
Ruijie (config-rate-policy)#upstream average-rate 10 burst-rate 10
```

**Verification** Use the **show running** command to display the speed-limit upstream policy rule.

**Prompt Messages** N/A

**Common Errors** N/A

**Platforms**

## 14 SSH Commands

### 14.1 crypto key generate

Use this command to generate a public key to the SSH server.

**crypto key generate { rsa | dsa }**

Parameter	Parameter	Description
Description	<b>rsa</b>	Generates an RSA key.
	<b>dsa</b>	Generates a DSA key.

**Defaults** By default, the SSH server does not generate a public key.

**Command Mode** Global configuration mode

**Usage Guide** When you need to enable the SSH SERVER service, use this command to generate a public key on the SSH server and enable the SSH SERVER service by command **enable service ssh-server** at the same time. SSH 1 uses the RSA key; SSH 2 uses the RSA or DSA key. Therefore, if a RSA key has been generated, both SSH1 and SSH2 can use it. If only a DSA key is generated, only SSH2 can use it.

**!** Only DSA/RSA authentication is available for one connection. Also, the key algorithm may differ in different client. Thus, it is recommended to generate both RSA and DSA keys so as to ensure connection with the portal server.

**!** RSA has a minimum modulus of 512 bits and a maximum modulus of 2,048 bits; DSA has a minimum modulus of 360 bits and a maximum modulus of 2,048 bits. For some clients like SCP clients, a 768-bit or more key is required. Thus, it is recommended to generate the key of 768 bits or more.

**!** A key can be deleted by using the **no crypto key generate** command. The **no crypto key zeroize** command is not available.

**Configuration Examples** The following example generates an RSA key to the SSH server.

```
Ruijie# configure terminal
Ruijie(con fig)# crypto key generate rsa
```

Related Commands	Command	Description
	<b>show ip ssh</b>	Displays the current status of the SSH server.
	<b>crypto key zeroize { rsa   dsa }</b>	Deletes DSA and RSA keys and disables the SSH server function.

**Platform** N/A

**Description**

## 14.2 crypto key zeroize

Use this command to delete a public key to the SSH server.

**crypto key zeroize { rsa | dsa }**

Parameter	Parameter	Description
<b>Description</b>	<b>rsa</b>	Deletes the RSA key.
	<b>dsa</b>	Deletes the DSA key.

**Defaults** N/A

**Command** Global configuration mode

**Mode**

**Usage Guide** This command deletes the public key to the SSH server. After the key is deleted, the SSH server state becomes DISABLE. If you want to disable the SSH server, run the **no enable service ssh-server** command.

**Configuration** The following example deletes a RSA key to the SSH server.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# crypto key zeroize rsa
```

Related	Command	Description
<b>Commands</b>	<b>show ip ssh</b>	Displays the current status of the SSH server.
	<b>crypto key generate { rsa   dsa }</b>	Generates DSA and RSA keys.

**Platform** N/A

**Description**

## 14.3 disconnect ssh

Use this command to disconnect the established SSH connection.

**disconnect ssh [ vty ] session-id**

Parameter	Parameter	Description
<b>Description</b>	<b>vtty</b>	Established VTY connection
	<i>session-id</i>	ID of the established SSH connection, in the range from 0 to 35

**Defaults** N/A

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

**Usage Guide** You can disconnect a SSH connection by entering the ID of the SSH connection or disconnect a SSH connection by entering the specified VTY connection ID. Only connections of the SSH type can be disconnected.

**Configuration Examples** The following example disconnects the established SSH connection by specifying the SSH session ID.

```
Ruijie# disconnect ssh 1
```

The following example disconnects the established SSH connection by specifying the VTY session ID.

```
Ruijie# disconnect ssh vty 1
```

Related Commands	Command	Description
	<b>show ssh</b>	Displays the information about the established SSH connection.
	<b>clear line vty <i>line_number</i></b>	Disconnects the current VTY connection.

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

## 14.4 ip scp server enable

Use this command to enable the SCP server function on a network device.

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

**ip scp server enable**

**no ip scp server enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** This function is disabled by default.

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

**Usage Guide** Secure Copy (SCP) enables an authenticated user to transfer files to/from a remote device in an encrypted way, with high security and guarantee.

**Configuration Examples** The following example enables the SCP server function.

```
Ruijie# configure terminal
```

```
Ruijie(config)# ip scp server enable
```

Related Commands	Command	Description
	<b>show ip ssh</b>	Displays the current status of the SSH server.

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

## 14.5 ip ssh authentication-retries

Use this command to set the authentication retry times of the SSH server.

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

**ip ssh authentication-retries** *retry times*

**no ip ssh authentication-retries**

Parameter Description	Parameter	Description
	<i>retry times</i>	Authentication retry times, ranging from 0 to 5

**Defaults** The default is 3.

**Command Mode** Global configuration mode

**Usage Guide** User authentication is considered failed if authentication is not successful when the configured authentication retry times on the SSH server is exceeded. Use the **show ip ssh** command to display the configuration of the SSH server

**Configuration Examples** The following example sets the authentication retry times to 2.

```
Ruijie# configure terminal
Ruijie(config)# ip ssh authentication-retries 2
```

Related Commands	Command	Description
	<b>show ip ssh</b>	Displays the current status of the SSH server.

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

## 14.6 ip ssh cipher-mode

Use this command to set the SSH server encryption mode.

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

**ip ssh cipher-mode** { **cbc** | **ctr** | **others** }

**no ip ssh cipher-mode**

Parameter Description	Parameter	Description
	<b>cbc</b>	Encryption mode: CBC (Cipher Block Chaining)

	Encryption algorithm: DES-CBC, 3DES-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC, Blow fish-CBC
<b>ctr</b>	Encryption mode: CTR (Counter) Encryption algorithm: AES128-CTR, AES192-CTR, AES256-CTR
<b>others</b>	Encryption mode: Others Encryption algorithm: RC4

**Defaults** All encryption modes are supported by default.

**Command** Global configuration mode

**Mode**

**Usage Guide** This command is used to set the SSH server encryption mode. For Ruijie Networks, the SSHv1 server supports DES-CBC, 3DES-CBC, and Blowfish-CBC; the SSHv2 server supports AES128-CTR, AES192-CTR, AES256-CTR, DES-CBC, 3DES-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC, Blowfish-CBC, and RC4. All these algorithms can be grouped into CBC, CTR and Other as shown above. With the advancement of cryptography study, CBC and Others encryption modes are proved to easily decipher. It is recommended to enable the CTR mode to raise assurance for organizations and enterprises demanding high security.

**Configuration** The following example enables CTR encryption mode.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh cipher-mode ctr
```

**Platform** N/A

**Description**

## 14.7 ip ssh hmac-algorithm

Use this command to set the algorithm for message authentication.

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

**ip ssh hmac-algorithm { md5 | md5-96 | sha1 | sha1-96 }**

**no ip ssh hmac-algorithm**

Parameter	Parameter	Description
<b>Description</b>	<b>md5</b>	MD5 algorithm
	<b>md5-96</b>	MD5-96 algorithm
	<b>sha1</b>	SHA1 algorithm
	<b>sha1-96</b>	SHA1-96 algorithm

**Defaults** SSHv1: all the algorithms are not supported.

SSHv2: all the algorithms are supported.

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

**Usage Guide** Ruijie SSHv1 servers do not support algorithms for message authentication. For Ruijie Networks, the SSHv1 server does not support message authentication algorithms; the SSHv2 server supports MD5, MD5-96, SHA1, and SHA1-96 algorithms. Set the algorithm on your demand.

**Configuration** The following example sets the algorithm for message authentication to SHA1.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh hmac-algorithm sha1
```

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

## 14.8 ip ssh peer

Use this command to associate the public key file and the user name on the client. During client login authentication, you can specify a public key file based on the user name.

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

**ip ssh peer** *username* **public-key** { *rsa* | *dsa* } *filename*

**no ip ssh peer** *username* **public-key** { *rsa* | *dsa* } *filename*

Parameter	Parameter	Description
<b>Description</b>	<i>username</i>	User name
	<i>filename</i>	Name of a public key file
	<b>rsa</b>	The public key is a RSA key
	<b>dsa</b>	The public key is a DSA key

**Defaults** N/A

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

**Usage Guide** N/A

**Configuration** The following example sets RSA and DSA key files associated with user **test**.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh peer test public-key rsa flash:rsa.pub
Ruijie(config)# ip ssh peer test public-key dsa flash:dsa.pub
```

Related	Command	Description
<b>Commands</b>	<b>show ip ssh</b>	Displays the current status of the SSH server.



**Platform** N/A

**Description**

## 14.9 ip ssh time-out

Use this command to set the authentication timeout for the SSH server.

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

**ip ssh time-out** *time*

**no ip ssh time-out**

Parameter	Parameter	Description
<b>Description</b>	<i>time</i>	Authentication timeout, in the range from 1 to 120 in the unit of seconds

**Defaults** The default is 120 seconds.

**Command** Global configuration mode

**Mode**

**Usage Guide** The authentication is considered timeout and failed if the authentication is not successful within 120 seconds starting from receiving a connection request. Use the **show ip ssh** command to display the configuration of the SSH server.

**Configuration** The following example sets the timeout value to 100 seconds.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh time-out 100
```

Related	Command	Description
<b>Commands</b>	<b>show ip ssh</b>	Displays the current status of the SSH server.

**Platform** N/A

**Description**

## 14.10 ip ssh version

Use this command to set the version of the SSH server.

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

**ip ssh version** { 1 / 2 }

**no ip ssh version**

Parameter	Parameter	Description
<b>Description</b>	<b>1</b>	Supports the SSH1 client connection request.
	<b>2</b>	Supports the SSH2 client connection request.

**Defaults** SSH1 and SSH2 are compatible by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to configure the SSH connection protocol version supported by SSH server. By default, the SSH server supports SSH1 and SSH2. If Version 1 or 2 is set, only the SSH client of this version can connect to the SSH server. Use the **show ip ssh** command to display the current status of SSH server.

**Configuration** The following example sets the version of the SSH server.

**Examples**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh version 2
```

Related Commands	Command	Description
	<b>show ip ssh</b>	Displays the current status of the SSH server.

**Platform Description** N/A

## 14.11 show crypto key mypubkey

Use this command to display the information about the public key part of the public key to the SSH server.

**show crypto key mypubkey { rsa | dsa }**

Parameter Description	Parameter	Description
	<b>rsa</b>	Displays the RSA key.
	<b>dsa</b>	Displays the DSA key.

**Defaults** N/A

**Command Mode** Privileged EXEC mode/Global configuration mode

**Usage Guide** This command is used to show the information about the public key part of the generated public key on the SSH server, including key generation time, key name, contents in the public key part, etc.

**Configuration Examples** The following example displays the information about the public key part of the public key to the SSH server.

```
Ruijie(config)#show crypto key mypubkey rsa
% Key pair was generated at: 7:1:25 UTC Jan 16 2013
```

```

Key name: RSA1 private
Usage: SSH Purpose Key
Key is not exportable.
Key Data:
    AAAAAwEA AQAAAEAA 2m6H/J+2 xOMLW5MR 8tOmpW1I XU1QItVN mLdR+G7O
Q10kz+4/
    /IqYR0ge 1sZNg32u dFEifZ6D zfLySPqC MTWLfw==

% Key pair was generated at: 7:1:25 UTC Jan 16 2013
Key name: RSA private
Usage: SSH Purpose Key
Key is not exportable.
Key Data:
    AAAAAwEA AQAAAEAA 0E5w2H0k v744uTIR yZBd/7AM 8pLItnW3 XH3LhEEi
BbZGZvn3
    LEYYfQ9s pgYL0ZQf S0s/GY0X gJOMsc6z i80AkQ==

```

**Related  
Commands**

Command	Description
<code>crypto key generate { rsa   dsa }</code>	Generates DSA and RSA keys.

**Platform  
Description**

N/A

## 14.12 show ip ssh

Use this command to display the information of the SSH server.

**show ip ssh**

**Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults**

N/A

**Command  
Mode**

Privileged EXEC mode/Global configuration mode

**Usage Guide**

This command is used to display the information of the SSH server, including version, enablement state, authentication timeout, and authentication retry times.

Note: If no key is generated for the SSH server, the SSH version is still unavailable even if this SSH version has been configured.

**Configuration**

The following example displays the information of the SSH server.

**Examples**

```

SSH and SCP disabled:
Ruijie(config)#show ip ssh

```

```
SSH Disable - version 1.99
please generate rsa and dsa key to enable SSH
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: disabled

SSH and SCP enabled:
Ruijie(config)#show ip ssh
SSH Enable - version 1.99
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: enabled
```

Related Commands	Command	Description
	<b>ip ssh version {1   2}</b>	Configures the version for the SSH server.
	<b>ip ssh time-out time</b>	Sets the authentication timeout for the SSH server.
	<b>ip ssh authentication-retries</b>	Sets the authentication retry times for the SSH server.

**Platform** N/A

**Description**

## 14.13 show ssh

Use this command to display the information about the established SSH connection.

**show ssh**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode/Global configuration mode

**Usage Guide** This command is used to display the information about the established SSH connection, including VTY number of connection, SSH version, encryption algorithm, message authentication algorithm, connection status, and user name.

**Configuration Examples** The following example displays the information about the established SSH connection:

```
Ruijie#show ssh
Connection Version Encryption      Hmac          Compress      State
Username
          0      1.5 blowfish                zlib          Session started test
```

```
1 2.0 aes256-cbc hmac-sha1 zlib Session started test
```

## Field Description

Field	Description
Connection	VTY number
Version	SSH version
Encryption	Encryption algorithm
Hmac	Message authentication algorithm
Compress	Compress algorithm
State	Connection state
Username	Username

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A





## System Configuration Commands

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1. Command Line Interface Commands
2. Basic Configuration Management Commands
3. MCU Commands
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15. SYS Command
16. NTP Commands

17. SNTP Commands

18. TIME Range Commands



# 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
	<i>mode</i>	Mode of the command represented by the alias
	<i>command-alias</i>	Command alias
	<i>original-command</i>	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
globe configure mode alias:
def-route          ip route 0.0.0.0 0.0.0.0
192.168.1.1
```

<b>Related Commands</b>	Command	Description
	<b>show aliases</b>	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
<i>mode</i>	CLI mode of the command to which the execution rights are attributed.
<b>all</b>	Command alias
<b>level</b> <i>level</i>	Specifies the execution right levels (0–15) of a command or sub-commands
<b>reset</b>	Restores the command execution rights to its default level
<i>command-string:</i>	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	Description
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 use 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>
```

#### Related Commands

Command	Description
<b>enable secret</b>	Sets the CLI-level password.

**Platform** N/A.

**Description**

## 1.3 show aliases

Use this command to show all the command aliases or aliases in special command modes.

**show aliases** [ *mode* ]

#### Parameter Description

Parameter	Description
<i>mode</i>	Mode of the command represented by the alias.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** This command displays the configuration of all aliases if no command mode is input.

**Configuration** The following example displays the command alias in privileged EXEC mode:

#### Examples

```
Ruijie#show aliases exec
exec mode alias:
h                help
p                ping
s                show
u                undebug
un              undebug
```

#### Related Commands

Command	Description
<b>alias</b>	Sets a command alias.

**Platform** N/A.  
**Description**

## 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.

<i>message</i>	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
<i>c</i>	Separator of the message. Delimiters are not allowed in the message.
<i>message</i>	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** The following example configures a prompt message for reverse Telnet session.

**Examples**

```
Ruijie(config)# banner incoming $ Welcome $
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 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
<i>c</i>	Separator of the message contained in the login banner. Delimiters are not allowed in the MOTD.
<i>message</i>	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** The following example configures a login banner.

**Examples**

```
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
	<i>c</i>	Separator of the MOTD. Delimiters are not allowed in the MOTD.
	<i>message</i>	Contents of an MOTD

**Defaults** N/A

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

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

**Configuration** The following example configures the MOTD.

**Examples** 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
	<i>c</i>	Separator of the message. Delimiters are not allowed in the

	message.
<i>message</i>	Contents of the message.

**Defaults** N/A

**Command Mode** Global configuration 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
	<i>c</i>	
<i>message</i>		Contents of the message.

**Defaults** N/A

**Command Mode** Global configuration 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** The following example configures the banner slip-ppp message for the SLIP/PPP session.

**Examples**

```
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** The following example enters global configuration mode.

**Examples**

```
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.

 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
	<b>enable</b>	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
	<i>session-id</i>	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 enable

Use this command to enter privileged EXEC mode.

**enable** [ *privilege-level* ]

Parameter Description	Parameter	Description
		<i>privilege-level</i>

**Defaults** N/A

**Command Mode** User EXEC mode

**Usage Guide** N/A

**Configuration** The following example lowers the privilege level to 14.

**Examples**

```
Ruijie> enable 14

Password:
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.12 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 level* ]

Parameter Description	Parameter	Description
	<i>password</i>	Password for the user to enter the EXEC configuration layer
	<b>level</b>	User's level.
	<b>0</b>	The password is in plain text.
	<b>7</b> <i>encrypted-password</i>	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
	<b>enable secret</b>	Sets the security password

**Platform Description** N/A

## 2.13 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
	<b>level</b>	User's level.
	<b>0</b>	The password is in plain text.
	<b>5</b> <i>encrypted-password</i>	The password is encrypted.
	<i>password</i>	Password for the user to enter the privileged EXEC configuration.

**Defaults** N/A

**Command Mode** Global configuration 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** The following example configures the security password as **pw10**.

**Examples** Ruijie(config)# **enable secret 0 pw10**

Related Commands	Command	Description
	<b>enable password</b>	Sets passwords for different privilege levels.

**Platform Description** N/A

## 2.14 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-sesrver | telnet-server | web-server [ http | https | all ] | snmp-agent }**

Parameter Description	Parameter	Description
	<b>ssh-server</b>	Enables SSH Server. IPv4 and IPv6 services are enabled at the same time.
	<b>telnet-server</b>	Enables Telnet Server. IPv4 and IPv6 services are enabled at the same time.

<b>web-server</b> [ <b>http</b>   <b>https</b>   <b>all</b> ]	Enables HTTP Server. IPv4 and IPv6 services are enabled at the same time.
<b>snmp-agent</b>	Enables SNMP Agent. IPv4 and IPv6 services are enabled at the same time.

**Defaults** telnet-server, snmp-agent and web-server are enabled and ssh-server is disabled by default.

**Command** Global configuration mode

**Mode**

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

**i** The **enable service web-server** command is followed by three optional keywords: [http | https | all]. If the command is followed by no keyword or by **all**, the command enables http and https services. Followed by **http**, the command enables http service only. Followed by **https**, the command enables https service only.

**Configuration** The following example enables the SSH Server.

**Examples** Ruijie(Config) # **enable service ssh-sesrver**

**Related Commands**

Command	Description
<b>show service</b>	Displays the service status in the current system.

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

## 2.15 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** LINE configuration mode

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

**Examples**

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

**Related Commands**

Command	Description
N/A	N/A

**Platform**

**Description**

N/A

## 2.16 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
<i>minutes</i>	Timeout in minutes.
<b>seconds</b>	(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**

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

**Examples**

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

**Related**

Command	Description
---------	-------------

Commands		
	N/A	N/A

**Platform Description** N/A

## 2.17 help

Use this command to display the help information.

**help**

Parameter Description	Parameter	Description
	N/A	N/A

### Defaults

**Command Mode** Any 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 all available commands in interface configuration mode.

```
Ruijie(config-if-GigabitEthernet 0/0)#?
Interface configuration commands:
  arp                ARP interface subcommands
  bandwidth          Set bandwidth informational parameter
  carrier-delay      Specify delay for interface transitions
  dampening          Enable event dampening
  default            Set a command to its defaults
```

description	Interface specific description
dldp	Exec data link detection command
duplex	Configure duplex operation
efm	Config efm for an interface
end	Exit from interface configuration mode
exit	Exit from interface configuration mode
expert	Expert extended ACL
flowcontrol	Set the flow-control value for an interface
full-duplex	Force full duplex operation
global	Global ACL
gvrp	GVRP configure command
half-duplex	Force half duplex operation
help	Description of the interactive help system
ip	Interface Internet Protocol config commands
ipv6	Internet Protocol Version 6
isis	Intermediate System - Intermediate System (IS-IS)
l2	Config L2 attribute
label-switching	Enable interface process mpls packet
lacp	LACP interface subcommands
lldp	Link Layer Discovery Protocol
load-interval	Specify interval for load calculation for an interface
mac	Mac extended ACL
mac-address	Set mac-address
mpls	Multi-Protocol Label Switching
mtu	Set the interface Maximum Transmission Unit (MTU)
no	Negate a command or set its defaults
ntp	Configure NTP
port-group	Aggregateport/port bundling configuration
redirect	Redirect packets
rmon	Rmon command
security	Configure the Security
show	Show running system information
shutdown	Shutdown the selected interface
snmp	Modify SNMP interface parameters
speed	Configure speed operation
switchport	Set switching mode characteristics
vrf	Multi-af VPN Routing/Forwarding parameters on the interface
vrrp	VRRP interface subcommands
xconnect	Xconnect commands

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 Description** N/A

## 2.18 hostname

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

**hostname** *name*

Parameter Description	Parameter	Description
	<i>name</i>	

**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

## 2.19 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	Parameter	Description
-----------	-----------	-------------

<b>Description</b>		
	<i>interface-name</i>	Configures the IP address of the interface 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 connection. 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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	telnet	Logs in a Telnet server.

**Platform Description** N/A

## 2.20 lock

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

**lock**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	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
<b>lockable</b>	Supports terminal locking in the line.

**Platform  
Description**

N/A

## 2.21 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.

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

```

Examples 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
<b>lock</b>	Locks the terminal.

**Platform  
Description**

N/A

## 2.22 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**

The login function is disabled for console and enabled for VTY terminal 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** The following example sets a login password authentication on VTY..

**Examples**

```
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
<b>password</b>	Configures the line login password

**Platform  
Description**

N/A

## 2.23 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
	<b>default</b>	Name of the default authentication method list
	<i>list-name</i>	Name of the method list

**Defaults** The default authentication method is used when AAA is enabled,

**Command** Line configuration mode

**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
	<b>aaa new-model</b>	Enables the AAA security service.
	<b>aaa authentication login</b>	Configures the login authentication method list.

**Platform Description** N/A

## 2.24 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	Parameter	Description
-----------	-----------	-------------



<b>Description</b>		
	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** The following example sets local user authentication on VTY.

**Examples**

```
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
<b>username</b>	Configures local user information.

**Platform Description** N/A

## 2.25 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** The following example disables display of the MOTD message on VTY 1.

**Examples**

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

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 2.26 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
<i>password</i>	Password for remote line login
<b>0</b>	The password is in plain text.
<b>7</b> <i>encrypted-password</i>	The password is encrypted.

**Defaults**

N/A

**Command  
Mode**

Line configuration mode

**Usage Guide**

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

**Examples**

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

**Related  
Commands**

Command	Description
<b>login</b>	Moves from user EXEC mode to privileged EXEC mode or enables a higher level of

	authority.
--	------------

**Platform**  
**Description**

N/A

## 2.27 prompt

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

**prompt string**

**no prompt**

Parameter	Parameter	Description
<b>Description</b>	<b>string</b>	Character string of the <b>prompt</b> 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** The following example sets the prompt string to rgnos.

**Examples**

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

Related Commands	Command	Description
	N/A	N/A

**Platform**  
**Description**

N/A

## 2.28 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
	<b>0</b>	(Optional) sets the plaintext password text and encrypts it with irreversible MD5 after configuration.
	<i>password</i>	Sets the password plaintext, a string ranging from 1 to 25 characters.
	<b>5</b> <i>encrypted-secret</i>	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 1<sup>st</sup>, 3<sup>rd</sup> and 8<sup>th</sup> 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” type 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** The following example sets the password encrypted by irreversible MD5 for line login to vty0.

**Examples**

```
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
<b>login</b>	Sets simple password authentication on the interface as the login authentication mode

**Platform** N/A

**Description**

## 2.29 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
	<i>minutes</i>	Timeout in minutes.
	<b>output</b>	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

## 2.30 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
	<b>console</b>	Display s the configuration of a console line.
	<b>vty</b>	Display s the configuration of a vty line.
	<i>line-num</i>	Number of the line.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide**

**Configuration** The following example displays the configuration of a console port.

**Examples**

```
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

## 2.31 show reload

Use this command to display the system restart settings.

**show reload****Parameter Description**

Parameter	Description
N/A	N/A

**Defaults**

N/A

**Command Mode**

Privileged EXEC mode

**Usage Guide**

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

**Examples**

```
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

## 2.32 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

## 2.33 show service

Use this command to display the service status.

**show service**

**Parameter**

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

<b>Description</b>		
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration</b>	The following example displays whether the service is enabled or disabled.	
<b>Examples</b>	<pre>Ruijie# show service web-server      : disabled web-server(https): disabled snmp-agent      : enabled ssh-server      : enabled telnet-server   : disabled</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

## 2.34 show sessions

Use this command to display the Telnet Client session information.

**show sessions**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A
<b>Defaults</b>	N/A	
<b>Command Mode</b>	User EXEC mode	
<b>Usage Guide</b>	Telnet Client session information includes the VTY number and the server IP address.	
<b>Configuration</b>	The following example displays the Telnet Client session information.	
<b>Examples</b>	<pre>Ruijie#show sessions Conn  Address</pre>	



```
*1 127.0.0.1
*2 192.168.21.122
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 2.35 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.

On a device that supports **boot config**, configure **startup-config** as follows:

If you have specified a boot configuration file using the **boot config** command and the file exists, **startup-config** is stored in the specified configuration file.

If the boot configuration file you have specified using the **boot config** command does not exist or you have not specified a boot configuration file using the command, **startup-config** is contained in **/config.text** in the built-in flash memory.

**Configuration  
Examples**

N/A

**Related  
Commands**

Command	Description
<b>boot config</b>	Sets the name of the boot configuration file.

**Platform  
Description**

N/A

## 2.36 show this

Use this command to display effective configuration in the current mode.

### show this

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** All modes.

**Usage Guide** The configuration in the following range modes cannot be displayed. If the **show this** command is run, the outcome is NULL.

1. Use the **line** *first-line last-line* command to configure lines in a continuous group and enter LINE configuration mode.
2. Use the **vlan range** command to configure VLANs and enter vlan range configuration mode.
3. Use the interface range command to configure interfaces and enter interface range configuration mode.

**Configuration Examples** Use this command to display effective configuration on interface fastEthernet 0/1.

```
Ruijie (config)#interface fastEthernet 0/1
Ruijie (config-if-FastEthernet 0/1)#show this
Building configuration...
!
 spanning-tree link-type point-to-point
 spanning-tree mst 0 port-priority 0
!
end
Ruijie (config-if-FastEthernet 0/1)#
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.37 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
<i>speed</i>	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**

Line configuration mode

**Usage Guide**

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

**Configuration**

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

**Examples**

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

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 2.38 telnet

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

**telnet** *host* [ *port* ] [ /**source** { **ip** *A.B.C.D* | **ipv6** *X:X:X:X::X* | **interface** *interface-name* } ]

**Parameter  
Description**

Parameter	Description
<i>host</i>	The IP address of the host or host name you want to log in.
<i>port</i>	Selects the TCP port number for login, 23 by default.
<i>/source</i>	Specifies the source IP address or source interface used by the Telnet client.
<b>ip</b> <i>A.B.C.D</i>	Specifies the source IPv4 address used by the Telnet client.
<b>ipv6</b> <i>X:X:X:X::X</i>	Specifies the source IPv6 address used by the Telnet client.
<b>interface</b> <i>interface-name</i>	Specifies the source interface used by the Telnet client.

**Defaults** N/A

**Command Mode** User EXEC mode

**Usage Guide** This command is used to log in a telnet server.



The **/vrf** keyword only applies to the RSR series of routers.

The **/ipv6** keyword only applies to IPv6-supported devices, such as S3760, S57 and S86.

**Configuration Examples** The following example sets telnet to IPv4 address 192.168.1.11. The port number is the default, and the source interface is Gi 0/1.

```
Ruijie# telnet 192.168.1.11 /source-interface gigabitEthernet 0/1
```

The following example sets telnet to IPv6 address 2AAA:BBBB::CCCC.

```
Ruijie# telnet 2AAA:BBBB::CCCC
```

**Related Commands**

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

**Platform Description** N/A

## 2.39 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 ] [ pwd-modify ] [ nopassword | password [ 0 | 7 ] text-string ]
```

```
no username name
```

**Parameter Description**


Parameter	Description
<i>name</i>	Username
<b>login mode</b>	Sets the login mode.
<b>console</b>	Sets the login mode to console.
<b>ssh</b>	Sets the login mode to ssh.
<b>telnet</b>	Sets the login mode to telnet.
<b>online amount</b> <i>number</i>	Sets the amount of users online simultaneously.

<b>permission</b> <i>oper-mode path</i>	Sets the permission on the specified file. <i>op-mode</i> refers to the operation mode and <i>path</i> to the file or the directory path.
<b>privilege</b> <i>privilege-level</i>	Sets the privilege level, in the range from 0 to 15.
<b>reject remote-login</b>	Confines the account to remote login.
<b>web-auth</b>	Confines the account to web authentication.
<b>pwd-modify</b>	Allows the web authentication user of this account to change the password. It works only when the <b>web-auth</b> command is configured.
<b>nopassword</b>	The account is not configured with a password.
<b>password</b> [ 0   7 ] <i>text-string</i>	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.

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

```
Ruijie(config)# username test permission n /config.text
```

```
Ruijie(config)# username test permission rwx /
```

**Related Commands**

Command	Description
<b>login local</b>	Enables local authentication

**Platform Description** N/A

## 2.40 username import

Use this command to import user information from the file.

**username import** *filename*

Parameter Description	Parameter	Description
	<i>filename</i>	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
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.41 username export

Use this command to export user information to the file.

**username export** *filename*

Parameter Description	Parameter	Description
	<i>filename</i>	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** The following example exports user information to the file.

**Examples** Ruijie# username export user.csv

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 2.42 write

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

**write [ memory | terminal ]**

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

**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 such as USB drive, and the device has not been loaded when you run the **write [ memory ]** command.

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

**Examples** Ruijie# write  
Building configuration...  
[OK]

Related Commands	Command	Description
	N/A	N/A

<b>Platform</b>	N/A
<b>Description</b>	



## 3 MCU Commands

### 3.1 show gps info

Use this command to display GPS information.

**show gps info**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays GPS information..

```
Ruijie#show gps info
Longitude : 119.211571
Latitude  : 26.043112
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform Description** N/A

## 4 LINE Commands

### 4.1 access-class

Use this command to control login into the terminal through IPv4 ACL. Use the **no** form of this command to restore the default setting.

**access-class** { *access-list-number* | *access-list-name* } { **in** | **out** }

**no access-class** { *access-list-number* | *access-list-name* } { **in** | **out** }

Parameter Description	Parameter	Description
	<i>access-list-number</i>	Specifies the ACL number. Standard IP ACL number is from 1 to 99 and from 1300 to 1999. Extended IP ACL number is from 100 to 199 and from 2000 to 2699.
	<i>access-list-name</i>	Specifies the ACL name.
	<b>in</b>	Filters the incoming connections.
	<b>out</b>	Filters the outgoing connections.

**Defaults** N/A

**Command Mode** Line configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example uses ACL 20 to filter the incoming connections in line VTY 0 5.

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)access-list 20 in
```

The following example uses the ACL named "test" to filter the outgoing connections in line VTY 6 7.

```
Ruijie(config)# line vty 6 7
Ruijie(config-line)access-list test out
```

Related Commands	Command	Description
	<b>show running</b>	Displays status information

**Platform Description** N/A

## 4.2 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
	<i>level</i>	Command level ranging from 0 to 15. The command of this level is accounted when it is executed.
	<b>default</b>	Default authorization list name.
	<i>list-name</i>	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

## 4.3 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** { **default** | *list-name* }

**no accounting commands** *level*

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

<b>Description</b>		
	<b>default</b>	Default authorization list name.
	<i>list-name</i>	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 accounting first, and then apply it on the line.

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

```
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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform Description** N/A

## 4.4 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*

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>level</i>	Command level ranging from 0 to 15. The command of this level is executed after authorization is performed.
	<b>default</b>	Default authorization list name,
	<i>list-name</i>	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** The following example enables authorization on commands of level 15 in line VTY 1.

**Examples**

```
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** N/A

**Description**

## 4.5 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
<b>default</b>	Default authorization list name,
<i>list-name</i>	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 authorization first, and then apply it on the line.

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

**Examples**

```
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**

Command	Description
---------	-------------

<b>Commands</b>		
	N/A	N/A

**Platform** N/A

**Description**

## 4.6 clear line

Use this command to clear connection status of the line.

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

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>console</b>	Clears connection status of the console line.
	<b>vtty</b>	Clears connection status of the virtual terminal line.
	<i>line-num</i>	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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform** N/A

**Description**

## 4.7 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 Description	Parameter	Description
	<i>ascii-value</i>	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 Mode** Line configuration 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 Examples** The following example sets the hot key that disconnects the terminal service connection on line VTY 0 5 to **Ctrl+E** (0x05).

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

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.8 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
	<i>escape-value</i>	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** The following example sets the escape character for the line to 23 (**Ctrl+w**).

**Examples**

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

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

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

**Examples**

```
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**

Command	Description
---------	-------------



<b>Commands</b>		
	N/A	N/A

**Platform** N/A

**Description**

## 4.10 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**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<b>size size</b>	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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform** N/A

**Description**

## 4.11 ipv6 access-class

Use this command to configure access to the terminal through IPv6 ACL. Use the **no** form of this

command to restore the default setting.

**ipv6 access-class** *access-list-name* { **in** | **out** }

**no ipv6 access-class** *access-list-name* { **in** | **out** }

Parameter Description	Parameter	Description
	<i>access-list-name</i>	Specifies the ACL name.
	<b>in</b>	Filters the incoming connections.
	<b>out</b>	Filters the outgoing connections.

**Defaults** N/A

**Command Mode** Line configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example uses the ACL named “test” to filter the outgoing IPv6 connections in line VTY 0 4.

```
Ruijie(config)# line vty 0 4
Ruijie(config-line)ipv6 access-list test out
```

Related Commands	Command	Description
	<b>show running</b>	Displays status information

**Platform Description** N/A

## 4.12 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
	<i>screen-length</i>	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** The following example sets the screen length to 10.

**Examples** Ruijie(config-line)# length 10

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A

## 4.13 line

Use this command to enter the specified LINE mode.

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

**Parameter  
Description**

Parameter	Description
<b>console</b>	Console port
<b>vtty</b>	Virtual terminal line, applicable for telnet/ssh connection.
<i>first-line</i>	Number of first line to enter
<i>last-line</i>	Number of last line to enter

**Defaults** N/A

**Command  
Mode** Global configuration mode

**Usage Guide**

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

**Examples** Ruijie(config)# line vty 1 3

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description** N/A

## 4.14 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
	<i>line-number</i>	The number of VTY connections

**Defaults** By default, there are five available VTY connections, numbered 0 to 4.

**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
```

Decrease 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

## 4.15 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
	<i>location</i>	Line location description

**Defaults** N/A

**Command Mode** Line configuration mode

**Usage Guide** N/A

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

**Examples**

```
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

## 4.16 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** The following example enables log display on the terminal in VTY line 0 5.

**Examples**

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

Related Commands	Command	Description
	N/A	N/A

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

## 4.17 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
	<i>level</i>	Privilege level, in the range from 0 to 15.

**Defaults** The default is 1.

**Command Mode** Line configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the privilege level for the line VTY 0 4 to 14.

```
Ruijie(config)# line vty 0 4
Ruijie(config-line)privilege level 14
```

Related Commands	Command	Description
	N/A	N/A

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

## 4.18 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
	<i>c</i>	Delimiter of the login refusal message, which is not allowed within the message.

<code>message</code>	Login refusal message.
----------------------	------------------------

**Defaults** N/A

**Command Mode** Line configuration 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

## 4.19 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** N/A  
**Description**

## 4.20 show line

Use this command to display line configuration.

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

**Parameter Description**

Parameter	Description
<b>console</b>	Displays configuration for the console line.
<b>vty</b>	Displays configuration for the virtual terminal line.
<i>line-num</i>	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

## 4.21 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**

The following example displays the privilege level of the line.

**Examples**

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

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 4.22 show users

Use this command to display the login user information.

**show users [ all ]**

**Parameter  
Description**

Parameter	Description
<b>all</b>	Displays line user information, including users logging into the line and users not logging into the line.

**Defaults** N/A

**Command  
Mode** Privileged EXEC mode

**Usage Guide** N/A

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

**Examples**

```
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      ---          idle           00:00:00      ---
```

```

4 vty 3      ---                00:00:00  ---
5 vty 4      ---                00:00:00  ---
6 vty 5      ---                00:00:00  ---

```

**Related  
Commands**

Command	Description
N/A	N/A

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

## 4.23 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
<i>baudrate</i>	Sets the baud rate, in the range from 9600 to 115200.

**Defaults** The default is 9600.**Command  
Mode** LINE configuration 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**

## 4.24 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
	<i>escape-value</i>	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 Mode** Privileged EXEC 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 current terminal to 23 (**Ctrl+w**).

```
Ruijie# terminal escape-character 23
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.25 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
	<i>size size</i>	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 Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the number of commands in the command history to 20 for the current 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** N/A

**Description**

## 4.26 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
<i>screen-length</i>	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** N/A

**Description**

## 4.27 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 Description	Parameter	Description
	<i>location</i>	Configures location description of the current device.

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example configures location description of the current device as "Switich's Line Vty 0".

```
Ruijie# terminal location Switich's Line Vty 0
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 4.28 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
	<i>baudrate</i>	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** The following example sets the baud rate for the current terminal to 115200,

**Examples**

```
Ruijie# terminal speed 115200
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.29 terminal width

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

**terminal width** *screen-width*

**terminal no width**

Parameter Description	Parameter	Description
	<i>screen-width</i>	

**Defaults** The default is 79.

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

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

**Examples**

```
Ruijie# terminal width 10
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 4.30 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
	<b>response</b>	The time period during which the line waits for the user to enter any message.
	<i>seconds</i>	Timeout value, in the range from 1 to 300 in the unit of seconds.

**Defaults** The default is 30.

**Command Mode** Line configuration 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 Description** N/A

## 4.31 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
	<b>all</b>	Allows all the protocols under Line to be used for communication
	<b>ssh</b>	Allows only the SSH protocol under Line to be used for communication
	<b>telnet</b>	Allows only the Telnet protocol under Line to be used for communication
	<b>none</b>	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 4
Ruijie(config-line)transport input ssh
```

**Related Commands**

Command	Description
<b>show running</b>	Displays status information

**Platform** N/A

**Description**

## 4.32 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
<i>c</i>	Delimiter of the logout message, which is not allowed within the message.
<i>message</i>	Logout message.

**Defaults** N/A

**Command Mode** Line configuration 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 Examples** The following example sets the logout message to "Logout from the ruijie device".

```
Ruijie(config-line)#vacant-message @ Logout from the ruijie device @
```

**Related**

Command	Description
---------	-------------

<b>Commands</b>		
	N/A	N/A

**Platform** N/A

**Description**

## 4.33 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**

<b>Parameter Description</b>	<b>Parameter</b>	<b>Description</b>
	<i>screen-width</i>	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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

**Platform** N/A

**Description**



## 5 RMON Commands

### 5.1 rmon alarm

Use this command to monitor a MIB variable. Use the **no** form of this command to remove the alarm entry.

**rmon alarm** *number variable interval {absolute | delta } rising-threshold value [event-number] falling-threshold value [event-number] [owner ownername]*  
**no rmon alarm** *number*

#### Parameter description

Parameter	Description
<i>number</i>	Alarm number. The value ranges from <b>1</b> to <b>65535</b> .
<i>variable</i>	Alarm variable. The value is a character string consisting of 1 to 255 characters in OID dotted format (the format is entry.integer.instance or a leaf node named .instance, for example. 1.3.6.1.2.1.2.1.10.1).
<i>interval</i>	Sampling interval. The value ranges from <b>1</b> to <b>2147483647</b> in the unit of second.
<b>absolute</b>	Absolute sampling. In this mode, when the sampling time arrives, the system directly invokes the variable value.
<b>delta</b>	Delta sampling. In this mode, when the sampling time arrives, the system invokes the delta value of the variable within the sampling interval.
<b>rising-threshold value</b>	Rising threshold and the corresponding event number when the threshold is reached. The threshold ranges from <b>-2147483648</b> to <b>+2147483647</b> .
<i>event-number</i>	The event number ranges from <b>1</b> to <b>65535</b> .
<b>falling-threshold value</b>	Falling threshold and the corresponding event number when the threshold is reached. The threshold ranges from <b>-2147483648</b> to <b>+2147483647</b> .
<b>owner ownername</b>	Owner of an entry. The value is a character string consisting of 1 to 63 characters that are case sensitive.

**Default** N/A.

**Command mode** Global configuration mode.

#### Usage guidelines

The RGOS allows you to modify the configured history information of the Ethernet network, including variable, absolute/delta, owner, rising-threshold/falling-threshold, and the corresponding events. However, the modification does not take effect immediately until the system triggers the monitoring event at the next time.

#### Examples

The example below monitors the MIB variable instance ifInNUcastPkts.6.

```
Ruijie(config)# rmon alarm 10 1.3.6.1.2.1.2.2.1.12.6 30 delta
```

```
rising-threshold 20 1 falling-threshold 10 1 owner zhangsan
```

### Related commands

Command	Description
<b>rmon event</b> <i>number</i> [ <b>log</b> ] [ <b>trap</b> <i>community</i> ] <b>description</b> <i>string</i> [ <b>owner</b> <i>owner-string</i> ]	Adds an event definition.

## 5.2 rmon collection history

Use this command to enable history statistics on the Ethernet interface. Use the **no** form of this command to remove the history entry.

**rmon collection history** *index* [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]

**no rmon collection history** *index*

### Parameter description

Parameter	Description
<i>index</i>	Index of a history entry. The value ranges from <b>1</b> to <b>65535</b> .
<b>owner</b> <i>ownername</i>	Owner of an entry. The value is a character string consisting of 1 to 63 characters that are case sensitive.
<b>buckets</b> <i>bucket-number</i>	Capacity of a history entry (that is, the maximum number of history entries). The value ranges from <b>1</b> to <b>65535</b> . The default value is 10.
<b>interval</b> <i>seconds</i>	Statistics period. The unit is second. The value ranges from <b>1</b> to <b>3600</b> . The default value is <b>1800</b> seconds.

**Default** N/A.

**Command mode** Interface configuration mode.

**Usage guidelines** The configured history control entry parameters cannot be modified. And the history entry cannot be removed from the interface where the entry configured.

The example below enables log statistics on interface GigabitEthernet 0/1.

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-GigabitEthernet0/1)#rmon collection history 1 owner UserA
buckets 5 interval 60
```

### Examples

### Related commands

Command	Description
<b>rmon collection stats</b> <i>index</i> [ <b>owner</b> <i>owner-name</i> ]	Adds a statistical entry on the Ethernet interface.

## 5.3 rmon collection stats

Use this command to monitor an Ethernet interface. Use the **no** form of this command to remove the configuration.

**rmon collection stats** *index* [**owner** *owner-string*]

**no rmon collection stats** *index*

Parameter description	Parameter	Description
	<i>index</i>	Index of the statistic table. The value ranges from <b>1</b> to <b>65535</b> .
	<b>owner</b> <i>ownername</i>	Owner of an entry. The value is a character string consisting of 1 to 63 characters that are case sensitive and do not contain spaces.

**Default** N/A.

**Command mode** Interface configuration mode.

**Usage guidelines** The configured history control entry parameters cannot be modified. And the history entry cannot be removed from the interface where the entry configured.

The example below enables monitoring the statistics of interface GigabitEthernet 0/1.

### Examples

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-GigabitEthernet0/1)# rmon collection stats 1 owner UserA
```

Related commands	Command	Description
	<b>rmon collection history</b> <i>index</i> [ <b>owner</b> <i>owner-name</i> ] [ <b>buckets</b> <i>bucket-number</i> ] [ <b>interval</b> <i>seconds</i> ]	Adds a history control entry.

## 5.4 rmon event

Use this command to define an event. Use the **no** form of this command to remove the event entry.

**rmon event** *number* [**log**] [**trap** *community*] [*description-string*] [**description** *description-string*] [**owner** *owner-name*]

**no rmon event** *number*

Parameter description	Parameter	Description
	<i>number</i>	Event number. The value ranges from <b>1</b> to <b>65535</b> .
	<b>log</b>	(Optional) Log event. When a log event is triggered, the system records a log.

<b>trap</b> <i>community</i>	(Optional) Trap event. When a trap event is triggered, the system sends trap with the group named "community".
<b>description</b> <i>description-string</i>	(Optional) Description of the event. The value is a character string consisting of 1 to 127 characters.
<b>owner</b> <i>owner-name</i>	(Optional) Owner of an entry. The value is a character string consisting of 1 to 63 characters that are case sensitive.

**Default** N/A.

**Command mode** Global configuration mode.

**Usage guidelines** The RGOS allows you to modify the configured history information of the Ethernet network, including variable, absolute/delta, owner, rising-threshold/falling-threshold, and the corresponding events. However, the modification does not take effect immediately until the system triggers the monitoring event at the next time.

The example below defines the event actions: log event and send trap message.

**Examples**

```
Ruijie#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#rmon event 1 log trap public description "ifInNUcastPkts
is abnormal" owner UserA
```

**Related commands**

Command	Description
<b>rmon alarm</b> <i>number variable interval {absolute   delta } rising-threshold value [event-number] falling-threshold value [event-number] [owner ownername]</i>	Adds an alarm entry.

## 5.5 show rmon

**Default** Use this command to display the RMON configuration.

**show rmo**

**Default** N/A.

**Command mode** Privileged EXEC mode.

**Usage guidelines** N/A.

The example below displays the RMON configuration.

**Examples**

```
Ruijie#show rmon
ether statistic table:
        index = 1
```

```
interface = GigabitEthernet 0/1
owner = admin
status = 0
dropEvents = 61
octets = 170647461
pkts = 580375
broadcastPkts = 2135
multiPkts = 3615
crcAlignErrors = 0
underSizePkts = 0
overSizePkts = 0
fragments = 0
jabbers = 0
collisions = 0
packets64Octets = 3254668
packets65To127Octets = 1833370
packets128To255Octets = 2098146
packets256To511Octets = 126716
packets512To1023Octets = 363621
packets1024To1518Octets = 1077865
```

rmon history control table:

```
index = 1
interface = GigabitEthernet 0/1
bucketsRequested = 5
bucketsGranted = 5
interval = 60
owner = UserA
stats = 1
```

rmon history table:

```
index = 1
sampleIndex = 2485
intervalStart = 7d:22h:56m:38s
dropEvents = 0
octets = 5840
pkts = 27
broadcastPkts = 0
multiPkts = 0
crcAlignErrors = 0
underSizePkts = 0
overSizePkts = 0
fragments = 0
jabbers = 0
```



```

        collisions = 0
        utilization = 0
rmon alarm table:
        index: 1
        interval: 60
        oid = 1.3.6.1.2.1.2.2.1.12.6
        sampleType: 2
        alarmValue: 0
        startupAlarm: 3
        risingThreshold: 20
        fallingThreshold: 10
        risingEventIndex: 1
        fallingEventIndex: 1
        owner: UserA
        status: 1

rmon event table:
        index = 1
        description = ifInNUcastPkts is abnormal
        type = 4
        community = public
        lastTimeSent = 0d:0h:0m:0s
        owner =UserA
        status = 1

rmon log table:
        eventIndex = 1
        index = 1
        logTime = 6 d:19 h:21 m:48 s
        logDescription = ifInNUcastPkts is abnormal
    
```

<b>Related commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A

## 5.6 show rmon alarm

- Default** Use this command to display the RMON alarm table.  
**show rmon alarm**
- Default** N/A.
- Command mode** Privileged EXEC mode.

**Usage guidelines** N/A.

The example below displays the RMON alarm table.

**Examples**

```
Ruijie#show rmon alarm
rmon alarm table:
    index: 1
    interval: 60
    oid = 1.3.6.1.2.1.2.2.1.12.6
    sampleType: 2
    alarmValue: 0
    startupAlarm: 3
    risingThreshold: 20
    fallingThreshold: 10
    risingEventIndex: 1
    fallingEventIndex: 1
    owner: UserA
    status: 1
```

**Related commands**

Command	Description
<b>rmon alarm</b> <i>number variable interval {absolute   delta }</i> <b>rising-threshold</b> <i>value</i> <i>[event-number]</i> <b>falling-threshold</b> <i>value</i> <i>[event-number]</i> <b>owner</b> <i>ownername</i>	Adds an alarm entry.

## 5.7 show rmon event

Use this command to display the event configuration.

**show rmon event**

**Default** N/A.

**Command mode** Privileged EXEC mode.

**Usage guidelines** N/A.

**Examples**

The example below displays the event configuration.

```
Ruijie#show rmon event
rmon event table:
    index = 1
    description = ifInNUcastPkts is abnormal
    type = 4
```

```

community = public
lastTimeSent = 0d:0h:0m:0s
owner =UserA
status = 1

rmon log table:
eventIndex = 1
index = 1
logTime = 6d:19h:21m:48s
logDescription = ifInNUcastPkts is abnormal

```

**Related  
commands**

Command	Description
<b>rmon event</b> <i>number</i> [ <b>log</b> ] [ <b>trap</b> <i>community</i> ] [ <b>description</b> <i>description-string</i> ] [ <b>owner</b> <i>ownername</i> ]	Adds an event entry.

## 5.8 show rmon history

Use this command to display the history information.

**show rmon history**

**Default**

N/A.

**Command mode**

Privileged EXEC mode.

**Usage guidelines**

N/A.

The example below displays the history information.

```

Ruijie#show rmon history
rmon history control table:
index = 1
interface = GigabitEthernet 0/1
bucketsRequested = 5
bucketsGranted = 5
interval = 60
owner = UserA
stats = 1

rmon history table:
index = 1
sampleIndex = 2485
intervalStart = 7d:22h:56m:38s
dropEvents = 0
octets = 5840

```

**Examples**

```

pkts = 27
broadcastPkts = 0
multiPkts = 0
crcAlignErrors = 0
underSizePkts = 0
overSizePkts = 0
fragments = 0
jabbers = 0
collisions = 0
utilization = 0

```

**Related  
commands**

Command	Description
<b>rmon collection history</b> <i>index</i> [owner <i>ownername</i> ] [ <b>buckets</b> <i>bucket-number</i> ] [ <b>interval</b> <i>seconds</i> ]	Adds a history control entry.

## 5.9 show rmon statistics

Use this command to display the RMON statistics.

**show rmon statistics**

**Default**

N/A.

**Command mode**

Privileged EXEC mode.

**Usage guidelines**

N/A.

The example below displays the RMON statistics.

```

Ruijie#show rmon statistics
ether statistic table:
    index = 1
    interface = GigabitEthernet 0/1
    owner = admin
    status = 0
    dropEvents = 61
    octets = 170647461
    pkts = 580375
    broadcastPkts = 2135
    multiPkts = 3615
    crcAlignErrors = 0
    underSizePkts = 0
    overSizePkts = 0

```

**Examples**

```
fragments = 0
jabbers = 0
collisions = 0
packets64Octets = 3254668
packets65To127Octets = 1833370
packets128To255Octets = 2098146
packets256To511Octets = 126716
packets512To1023Octets = 363621
packets1024To1518Octets = 1077865
```

**Related  
commands**

Command	Description
<code>rmon collection stats index [owner owner-string]</code>	Adds a statistical entry.

## 6 File System Commands

### 6.1 cd

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

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

Parameter	Parameter	Description
Description	<i>filesystem:</i>	The URL of filesystem, followed by a colon (:). The filesystem includes <b>flash:</b> , <b>tmp:</b> .
	<i>directory</i>	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** Privileged EXEC mode.

**Mode**

**Usage Guide**

**Configuration** The following example enters the sata hardware.

**Examples**

```
Ruijie#pwd
flash:/
Ruijie#cd sata:
Ruijie#pwd
sata:/
```

Related	Command	Description
Commands	<b>pwd</b>	Displays the present word directory.

**Platform** N/A.

**Description**

### 6.2 copy

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

**copy** *source-url destination-url*

Parameter	Parameter	Description
Description	<i>source-url</i>	Source file URL, which can be local or remote.
	<i>destination-url</i>	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
<b>running-config</b>	Running configuration file.
<b>startup-config</b>	startup configuration file.
<b>flash:</b>	local FLASH file system.
<b>tftp:</b>	The URL of TFTP network server, in the format as follows: <b>tftp:[[/location]/directory]/filename</b>

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

```
Ruijie#copy tftp://192.168.64.2/netconfig flash:/netconfig
Do you want to overwrite [/data/netconfig]? [Y/N]:y
Press Ctrl+C to quit
!
Copy success.
```

**Related Commands**

Command	Description
<b>delete</b>	Deletes the file.
<b>rename</b>	Renames the file.
<b>dir</b>	Displays the file list of the specified directory.

**Platform** N/A

**Description**

## 6.3 delete

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

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

**Parameter Description**

Parameter	Description
<i>filesystem:</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash: tmp:</b> .
<i>file-url</i>	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**

**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
Do you want to delete [flash:/fstab]? [Y/N]:y
Delete success.
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
	<b>copy</b>	Copies the file.
	<b>dir</b>	Displays the file list of the specified directory.

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

## 6.4 dir

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

**dir** [ *filesystem:* ] [ *directory* ]

Parameter Description	Parameter	Description
	<i>filesystem</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash:</b> ,



	<b>tmp:</b>
<i>directory</i>	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.

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

**Command** Privileged EXEC mode.

**Mode**

### Usage Guide

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

#### Examples

```
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: <ul style="list-style-type: none"> <li>● d: directory</li> <li>● r: read</li> <li>● w: write</li> <li>● x: executable</li> </ul>
10485760	File size
rpmdb	File name
files	File number
directories	Directory number
total	Total size
free	Available space

#### Related Commands

Command	Description
<b>pwd</b>	Displays the present directory.
<b>cd</b>	Sets the present directory of the file system.

**Platform** N/A.

**Description**

## 6.5 erase

Use this command to erase the device or file that doesn't have a file system.

**erase filesystem**

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>filesystem:</i>	Name of the file system, followed by a colon (:).
<b>Defaults</b>	N/A	
<b>Command Mode</b>	Privileged EXEC mode	
<b>Usage Guide</b>	N/A	
<b>Configuration Examples</b>	The following example erases the USB filesystem.	
	<pre>Ruijie#erase usb0: Sure to erase usb0:? [Y/N] y Erasing disk usb0 ... Erase disk usb0 done!</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	N/A	N/A
<b>Platform Description</b>	N/A	

## 6.6 mkdir

Use this command to create a directory.

**mkdir** [ *filesystem:* ] *directory*

<b>Parameter</b>	<b>Parameter</b>	<b>Description</b>
<b>Description</b>	<i>filesystem:</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash:</b> , <b>tmp:</b> .
	<i>directory</i>	The path name. A file name starts with "/" is an absolute path. Otherwise, it is a relative path.
<b>Defaults</b>	The default <i>filesystem:</i> is <b>flash:</b> . The default <i>directory</i> is the root directory.	
<b>Command Mode</b>	Privileged EXEC mode.	
<b>Usage Guide</b>		

**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
<b>rmdir</b>	Deletes the directory.
<b>pwd</b>	Displays the present directory.

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

## 6.7 more

Use this command to display the content of a file.

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

Parameter	Description
<b>/ascii</b>	Displays the file content in the ASCII format.
<b>/binary</b>	Displays the file content in the
<i>filesystem:</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash:</b> , <b>tmp:</b> .
<i>file-url</i>	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** Privileged EXEC mode  
**Mode**

**Usage Guide** N/A

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

```

Examples 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 Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 6.8 pwd

Use this command to display the working path.

**pwd**

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

**Defaults** N/A.

**Usage Guide**

**Configuration** The following example displays the process of switching the working directory from flash: to sata:.

```

Examples Ruijie#pwd
flash:/
    
```

```
Ruijie#cd sata:/
Ruijie#pwd
sata/
```

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

**Platform** N/A.  
**Description**

## 6.9 rename

Use this command to move or rename the specified file.

**rename** *src-url dst-url*

Parameter Description	Parameter	Description
	<i>src-url</i>	The source file URL to move.
	<i>dst-url</i>	The URL of the destination file or directory.

**Defaults** N/A.

**Command Mode** Privileged EXEC mode.

**Usage Guide** N/A

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

```
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	Command	Description
Commands	<b>delete</b>	Deletes the file.
	<b>copy</b>	Copies the file.

**Platform** N/A

**Description**

## 6.10 rmdir

Use this command to delete an empty directory.

**rmdir** [ *filesystem:* ] *directory*

Parameter	Parameter	Description
Description	<i>filesystem:</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash:</b> , <b>tmp:</b> .
	<i>directory</i>	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 Commands	Command	Description
	N/A.	N/A.

**Platform** N/A.  
**Description**

## 6.11 show file systems

Use this command to display the file system information.

### show file systems

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

**Defaults** N/A.

**Command Mode** N/A

**Usage Guide** Use this command to display the file systems supported in the present devices and the available space condition in the file system.

**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:
      8192        2416        disk   rw    flash:
167772160    147772160        disk   rw    sata0:
  1048576      548576        disk   rw    usb0:
   262144     152144        disk   rw    sd0:
```

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: <ul style="list-style-type: none"> <li>● ro: read-only</li> <li>● wo: write-only</li> <li>● rw: read and write</li> </ul>
Prefixes	File system prefix

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

Platform N/A.  
Description

## 6.12 show mount

Use this command to display the mounted information.

**show mount**

Parameter	Parameter	Description
Description	N/A	N/A

Defaults N/A

Command N/A  
Mode

Usage Guide N/A

**Configuration** The following example displays the mounted information.

**Examples**

```
Ruijie#show mount
/dev/sdal 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 Commands	Command	Description
	N/A	N/A

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

## 6.13 tree

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

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

Parameter Description	Parameter	Description
	<i>filesystem:</i>	The URL of file system, followed by a colon (:). The file system includes <b>flash:</b> , <b>tmp:</b> .
	<i>directory</i>	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 Mode** Privileged EXEC mode

**Usage Guide** N/A

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

```
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**

## 6.14 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 <b>flash:</b> , <b>tmp:</b> .
	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

Related	Command	Description
Commands	N/A	N/A

**Platform** N/A

**Description**

## 6.15 show disk

Use this command to display USB/Flash information.

**show disk [ usb | flash ]**

Parameter	Parameter	Description
Description	flash	Displays FLASH information.
	usb	Displays USB information.

**Defaults** N/A

**Command** Privileged EXEC mode

**Mode**

**Usage Guide** N/A

**Configuration** The following example displays USB information.

**Examples**

```
Ruijie#show disk usb
Disk /dev/sdb: 8159 MB, 8159477760 bytes
252 heads, 62 sectors/track, 1020 cylinders
Units = cylinders of 15624 * 512 = 7999488 bytes
```

The following example displays FLASH information.

```
Ruijie#show disk flash
```

```
Nand flash size: 512MB
```

```
Nor flash size: 1MB
```

Related	Command	Description
Commands	N/A	N/A

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

## 7 SNMP Commands

### 7.1 clear snmp locked-ip

Use this command to clear the source IP addresses which are locked after continuous SNMP authentication failures.

**clear snmp locked-ip** [ **ipv4** *ipv4-address* | **ipv6** *ipv6-address* ]

Parameter Description	Parameter	Description
	<b>ipv4</b> <i>ipv4-address</i>	Clears a specified IPv4 address.
	<b>ipv6</b> <i>ipv6-address</i>	Clears a specified IPv6 address.

**Defaults** N/A

**Command mode** Privileged EXEC mode.

**Usage Guide** Use this command to clear the source IP addresses which are locked after continuous SNMP authentication failures. You can clear the whole source IP address table or a specific source IP address.

After the source IP addresses locked are cleared, the SNMP packets with these source IP addresses could be authenticated again.

**Configuration Examples** The following example clears the whole source IP address table locked after continuous SNMP authentication failures.

```
Ruijie#clear snmp locked-ip
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 7.2 no snmp-server

Use this command to disable the SNMP agent function.

**no snmp-server**

Parameter Description	Parameter	Description
		N/A

**Defaults** SNMP agent is enabled by default.

**Command mode** Global configuration mode.

**Usage Guide** This command disables the SNMP agent services of all versions supported on the device.

**Configuration Examples** The following example disables the SNMP agent.

```
Ruijie(config)# no snmp-server
```

Related Commands	Command	Description
		N/A

**Platform Description** N/A

## 7.3 show snmp

Use this command to display the SNMP configuration.

**show snmp [ mib | user | view | group | host | locked-ip | process-mib-time ]**

Parameter Description	Parameter	Description
		<b>mib</b>
	<b>user</b>	Displays the SNMP user information.
	<b>view</b>	Displays the SNMP view information.
	<b>group</b>	Displays the SNMP user group information.
	<b>host</b>	Displays the explicit host configuration.
	<b>locked-ip</b>	Displays the source IP addresses locked after continuous SNMP authentication failures.
	<b>process-mib-time</b>	Displays the MIB node requiring the longest processing time.

**Defaults** N/A

**Command mode** Privileged EXEC 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
<b>snmp-server chassis-id</b>	Specifies the SNMP system sequence number.

**Platform** N/A

**Description**

## 7.4 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** 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

## 7.5 snmp-server authentication attempt

Use this command to configure the maximum number of continuous SNMP authentication failures, and specified the action policy for the authentication failure. Use the **no** form of this command to remove the limit of continuous SNMP authentication failures and the related action policies.

**snmp-server authentication attempt *times* exceed { lock | lock-time *minutes* | unlock }**

**no snmp-server authentication attempt *times* exceed { lock | lock-time *minutes* | unlock }**

**Parameter Description**

Parameter	Description
<i>times</i>	The maximum number of continuous SNMP authentication failures. The range is from 1 to 10.
<b>exceed</b>	Indicates the action policy in the case that the maximum number of continuous SNMP authentication failures is exceeded.
<b>lock</b>	Indicates that the source IP address is permanently locked to be authenticated and can be unlocked only by the administrator's manual configuration.
<b>lock-time <i>minutes</i></b>	Indicates that the source IP address is locked for a period of time. The <i>minutes</i> indicates the lock time, ranging from 1 to 65,535. The unit is minute.
<b>unlock</b>	Indicates that no action policy is configured for the authentication failed user, that is, the SNMP authentication for this user is allowed.



<b>Defaults</b>	SNMP attack prevention is disabled by default.
<b>Command mode</b>	Global configuration mode
<b>Usage Guide</b>	<p>The IP address of the SNMP authentication failed user is added to the blacklist. When the maximum number of continuous SNMP authentication failures is exceeded, the system will perform the related authentication limit actions according the configured policy.:</p> <ol style="list-style-type: none"> <li>1. For the permanently locked IP addresses: The source IP addresses can be authenticated only after the administrator unlock them manually.</li> <li>2. For the IP addresses locked for a period time: The source IP addresses can be authenticated only after the lock time expires or the administrator unlock them manually.</li> <li>3. For the unlocked IP addresses: The source IP address can pass the authentication as long as the correct community (for SNMPv1 and SNMPv2) or username (for SNMPv3) is used.</li> </ol>
<b>Configuration Examples</b>	<p>The following example configures the maximum number of continuous SNMP authentication failures to 4, and sets the IP address lock time to 30 seconds.</p> <pre>Ruijie(config)# snmp-server authentication attempt 4 exceed lock-time 30</pre>

<b>Related Commands</b>	Command	Description
	N/A	N/A

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

## 7.6 snmp-server cache enable

Use this command to enable MIB cache globally. Use the **no** form of this command to disable MIB cache.

**snmp-server cache enable**

**no snmp-server cache enable**

<b>Parameter Description</b>	Parameter	Description
	N/A	N/A

**Defaults** MIB cache is disabled by default.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example enables MIB cache globally.

**Examples**

```
Ruijie(config)# snmp-server cache enable
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 7.7 snmp-server cache oid

Use this command to enable MIB cache for a specified node and configure the update interval for the MIB cache. Use the **no** form of this command to restore the default setting.

**snmp-server cache oid** *oid-string* [ **update-timer** *seconds* ]

**no snmp-server cache oid** *oid-string* [ **update-timer** ]

Parameter Description	Parameter	Description
	<i>oid-string</i>	
<i>seconds</i>		Configures the update interval for the MIB cache in seconds, in the range from 60 to 3600.

**Defaults** MIB cache for a specified node is disabled by default.

The update interval for a specified node is consistent with the global update interval by default.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example enables MIB cache for a specified node.

**Examples**

```
Ruijie(config)# snmp-server cache oid 1.3.6.1.4.1.4881.1.1.10.2.56.2.1.1.1
```

The following example sets the update interval for the MIB cache to 600 seconds.

```
Ruijie(config)# snmp-server cache oid 1.3.6.1.4.1.4881.1.1.10.2.56.2.1.1.1
update-timer 600
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 7.8 snmp-server cache update-timer

Use this command to configure the update interval for the MIB cache globally. Use the **no** form of this command to restore the default setting.

**snmp-server cache update-timer** *seconds*

**no snmp-server cache update-timer**

**Parameter Description**

Parameter	Description
<i>seconds</i>	Configures the update interval for the MIB cache in seconds, in the range from 60 to 3600.

**Defaults** The default update interval is 300s.

**Command mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example sets the update interval for the MIB cache to 600s globally:

```
Ruijie(config)# snmp-server cache update-timer 600
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 7.9 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
<i>text</i>	SNMP chassis ID: numerals or characters.

**Defaults** The default is 60FF60.

**Command** Global configuration mode.  
**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** The following example specifies the SNMP chassis ID as 123456:

**Examples** Ruijie(config)# **snmp-server chassis-id 123456**

**Related Commands**

Command	Description
<b>show snmp</b>	Displays the SNMP configuration.

**Platform** N/A

**Description**

## 7.10 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* ] [ **ipv6** *ipv6-aclname* ] [ *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.
<i>string</i>	Community string, which is the communication password between the NMS and the SNMP agent
<i>view-name</i>	View name
<b>ro</b>	Indicates that the NMS can only read the variables of the MIB.
<b>rw</b>	Indicates that the NMS can read and write the variables of the MIB.
<i>aclnum</i>	Access list number (1 to 199), which specifies the IPV4 addresses that are permitted to access the MIB.
<i>aclname</i>	Access list name, which specifies the IPV4 addresses that are permitted to access the MIB.
<i>ipv6-aclname</i>	IPv6 access list name, which specifies the IPv6 addresses that are permitted to access the MIB.
<i>ipaddr</i>	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
<b>access-list</b>	Defines an access list.

**Platform Description** N/A

## 7.11 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
<i>text</i>	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
<b>show snmp-server</b>	Displays the SNMP configuration.
<b>no snmp-server</b>	Disables the SNMP agent function.

**Platform** N/A

**Description**

## 7.12 snmp-server enable traps

Use this command to enable the SNMP agent to send the SNMP trap message to NMS. Use the **no** form of this command to disable the SNMP agent to send the SNMP trap message to NMS.

**snmp-server enable traps** [ *notification-type* ]

**no snmp-server enable traps**

Parameter Description	Parameter	Description
	<i>notification-type</i>	Specifies the type of trap messages. snmp: SNMP trap message bridge: Bridge trap message. mac-notification: MAC trap message. ospf: OSPF 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 mode** Global configuration 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
	<b>snmp-server host</b>	Specifies the SNMP host to send the SNMP trap message.

**Platform** N/A

**Description**

## 7.13 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
	<i>count</i>	Indicates the number of SNMP requests processed per second, ranging from 50 to 65,535.

**Defaults** The default count is 150.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example configures the number of SNMP requests processed per second to 200.

```
Ruijie(config)# snmp-server flow-control pps 200
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 7.14 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** { [ **ipv6** *ipv6\_aclname* | *aclnum* | *aclname* } }

**no snmp-server group** *groupname* { **v1** | **v2c** | **v3** { **auth** | **noauth** | **priv** } }

Parameter Description	Parameter	Description
	<b>v1</b>   <b>v2c</b>   <b>v3</b>	Specifies the SNMP version
	<b>auth</b>	Specifies authentication of a packet without encrypting it. This applies to SNMPv3 only.
	<b>noauth</b>	Specifies no authentication a packet. This applies to SNMPv3 only.

<b>priv</b>	Specifies authentication of a packet with encryption. This applies to SNMPv3 only.
<i>readview</i>	Specifies a read-only view for the SNMP group. This view enables you to view only the contents of the agent.
<i>writeview</i>	Specifies a write view for the SNMP group. This view enables you to enter data and configure the contents of the agent.
<i>aclnum</i>	Access list number, which specifies the IPv4 addresses that are permitted to access the MIB.
<i>aclname</i>	Name of the access list, which specifies the IPv4 addresses that are permitted to access the MIB.
<i>ipv6_aclname</i>	Name of the IPv6 access list, which specifies the IPv6 addresses that are permitted to access the MIB.

**Defaults** No SNMP groups are configured by default.

**Command mode** Global configuration 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
<b>show snmp group</b>	Displays the SNMP group configuration.

**Platform** N/A

**Description**

## 7.15 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* | **ipv6** *ipv6-addr* } [ **traps** | **informs** ] [ **version** { **1** | **2c** | **3** [ **auth** | **noauth** | **priv** ] ] *community-string* [ **udp-port** *port-num* ] [ *notification-type* ]

**no snmp-server host** { *host-addr* | **ipv6** *ipv6-addr* } [ **traps** | **informs** ] [ **version** { **1** | **2c** | **3** { **auth** | **noauth** | **priv** } ] *community-string* [ **udp-port** *port-num* ]

**Parameter Description**

Parameter	Description
<i>host-addr</i>	SNMP host address
<i>ipv6-addr</i>	SNMP host address(ipv6)



<b>trap   informs</b>	Enables the host to send the SNMP notification as traps or informs.
<b>version</b>	SNMP version: V1, V2C or V3
<b>auth   noauth   priv</b>	Security level of SNMPv3 users
<i>community-string</i>	Community string or username (SNMPv3 version)
<i>port-num</i>	Port of the SNMP host
<i>notification-type</i>	The type of the SNMP trap message, such as <b>snmp</b> . 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 mode** Global configuration 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
	<b>snmp-server enable traps</b>	Enables the SNMP agent to send the SNMP trap message.

**Platform** N/A

**Description**

## 7.16 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
	<i>retry-num</i>	Specifies the resend times for inform requests, ranging from 0 to 255.
<i>time</i>	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 mode** Global configuration 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 Description** N/A

## 7.17 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 Description**

Parameter	Description
<i>text</i>	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** The following example sets the system location information:

**Examples**

```
Ruijie(config)# snmp-server location start-technology-city 4F of A Buliding
```

**Related**

Command	Description
---------	-------------

Commands	
<b>snmp-server contact</b>	Sets the system contact information.

**Platform** N/A

**Description**

## 7.18 snmp-server net-id

Use this command to configure the network element coding information of the device. Use the **no** form of this command to remove the network element coding information.

**snmp-server net-id** *text*

**no snmp-server net-id**

Parameter Description	Parameter	Description
	<i>text</i>	Configures the network element coding information of the device. The text length ranges from 1 to 255. The text is case-sensitive, and may contain spaces.

**Defaults** No network element coding information is configured by default.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example configures the network element coding text to FZ\_CDMA\_MSC1.

```
Ruijie(config)# snmp-server net-id FZ_CDMA_MSC1
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 7.19 snmp-server 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**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>byte-count</i></td> <td>Packet size. The range is from 484 to 17,876 bytes</td> </tr> </tbody> </table>	Parameter	Description	<i>byte-count</i>	Packet size. The range is from 484 to 17,876 bytes
Parameter	Description				
<i>byte-count</i>	Packet size. The range is from 484 to 17,876 bytes				
<b>Defaults</b>	The default is 1,472 bytes.				
<b>Command mode</b>	Global configuration mode.				
<b>Usage Guide</b>	<p>The following example specifies the largest size of SNMP packet as 1,492 bytes:</p> <pre>Ruijie(config)# snmp-server packet-size 1492</pre>				
<b>Configuration Examples</b>	N/A				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>snmp-server queue-length</b></td> <td>Specifies the length of the message queue for each SNMP trap host.</td> </tr> </tbody> </table>	Command	Description	<b>snmp-server queue-length</b>	Specifies the length of the message queue for each SNMP trap host.
Command	Description				
<b>snmp-server queue-length</b>	Specifies the length of the message queue for each SNMP trap host.				
<b>Platform Description</b>	N/A				

## 7.20 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**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>length</i></td> <td>Queue length. The range is from 1 to 1000.</td> </tr> </tbody> </table>	Parameter	Description	<i>length</i>	Queue length. The range is from 1 to 1000.
Parameter	Description				
<i>length</i>	Queue length. The range is from 1 to 1000.				
<b>Defaults</b>	The default is 100.				
<b>Command mode</b>	Global configuration mode.				
<b>Usage Guide</b>	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. The max speed is four messages per second.				
<b>Configuration</b>	The following example specifies the length of message queue as 4.				

**Examples** `Ruijie(config)# snmp-server queue-length 4`

**Related  
Commands**

Command	Description
<code>snmp-server packetsize</code>	Specifies the largest size of the SNMP packet.

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

## 7.21 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  
Description**

Parameter	Description
N/A	N/A

**Defaults** The SNMP message reload function is disabled by default.

**Command  
mode** Global configuration 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  
Commands**

Command	Description
N/A	N/A

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

## 7.22 snmp-server trap-format private

Use this command to configure the SNMP traps with private fields. Use the **no** form of this command to restore the default trap format.

**snmp-server trap-format private**

**no snmp-server trap-format private****Parameter  
Description**

Parameter	Description
N/A	N/A

**Defaults**

The private field is not carried in the SNMP trap by default.

**Command  
mode**

Global configuration mode.

**Usage Guide**

Use this command to configure the SNMP trap format with the private field. Currently, the supported data in the private field is alarm occurrence time. For the specific data type and range of each field, refer to RUIJIE-TRAP-FORMAT-MIB.mib file.

This command does not work if the traps are sent with SNMPv1.

**Configuration**

The following example configures the SNMP trap format with the private field.

**Examples**

```
Ruijie(config)# snmp-server trap-format private
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform  
Description**

N/A

## 7.23 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  
Description**

Parameter	Description
<i>interface</i>	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
<b>snmp-server enable traps</b>	Enables t the SNMP agent to send the SNMP trap message to NMS.
<b>snmp-server host</b>	Specifies the NMS host to send the SNMP trap message.

**Platform** N/A

**Description**

## 7.24 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
<i>seconds</i>	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
```

**Related Commands**

Command	Description
<b>snmp-server queue-length</b>	Specifies the length of message queue for the SNMP trap host.

<b>snmp-server host</b>	Specifies the NMS host to send the SNMP trap message.
<b>snmp-server trap-source</b>	Specifies the source address of the SNMP trap message.

**Platform** N/A

**Description**

## 7.25 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
<i>port-number</i>	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
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**



## 7.26 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 { [ ipv6 ipv6_aclname ] [ aclnum |
aclname } ] ]
no snmp-server user username groupname { v1 | v2c | v3 }
```

### Parameter Description

Parameter	Description
<i>username</i>	Name of the user on the host that connects to the agent.
<i>groupname</i>	Name of the group to which the user belongs.
<b>v1</b>   <b>v2c</b>   <b>v3</b>	Specifies the SNMP version. But only SNMPv3 supports the following security parameters.
<b>encrypted</b>	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.
<b>auth</b>	Specifies which authentication level should be used.
<i>auth-password</i>	Password string (no more than 32 characters) used by the authentication protocol. The system will change the password to the corresponding authentication key.
<b>priv</b>	Encryption mode. <i>des56</i> refers to 56-bit DES encryption protocol. <i>priv-password</i> : password string (no more than 32 characters) used for encryption. The system will change the password to the corresponding encryption key.
<i>priv-password</i>	Password for encryption (no more than 32 characters).
<b>md5</b>	Enables the MD5 authentication protocol. While the <b>sha</b> enables the SHA authentication protocol.
<i>aclnumber</i>	Access list number, which specifies the IPV4 addresses that are permitted to access the MIB.
<i>aclname</i>	Name of the access list, which specifies the IPV4 addresses that are permitted to access the MIB.
<i>ipv6_aclname</i>	Name of the IPv6 access list, which specifies the IPv6 addresses that are permitted to access the MIB.

### Defaults

No user is configured by default.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example configures an SNMPv3 user with MD5 authentication and DES encryption:

```
Ruijie(config)# snmp-server user user-2 mib2user v3 auth md5 authpassstr priv
des56 despassstr
```

**Related Commands**

Command	Description
<b>show snmp user</b>	Displays the SNMP user configuration.

**Platform** N/A

**Description**

## 7.27 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
<i>view-name</i>	View name
<i>oid-tree</i>	Specifies the MIB object to associate with the view.
<b>include</b>	Includes the sub trees of the MIB object in the view.
<b>exclude</b>	Excludes the sub trees of the MIB object from the view.

**Defaults** By default, a view is set to access all MIB objects.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example sets a view that includes all MIB-2 sub-trees (oid is 1.3.6.1).

```
Ruijie(config)# snmp-server view mib2 1.3.6.1 include
```

**Related Commands**

Command	Description
<b>show snmp view</b>	Displays the SNMP view configuration.

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

## 8 HTTP Service Commands

### 8.1 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** | **https** | **all** ]

**no enable service web-server** [ **http** | **https** ]

**default enable service web-server** [ **http** | **https** ]

Parameter Description	Parameter	Description
	<b>http</b>	Enables the HTTP service.
	<b>https</b>	Enables the HTTPS service.
	<b>all</b>	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 and the HTTPS service; if run a command ends with keyword **http**, it indicates enabling the HTTP service; if run a command ends with keyword **https**, it indicates enabling the HTTPS service. Use the command **no enable service web-server** to disable the corresponding HTTP service.

**Configuration Examples** The following example enables both the HTTP service and the HTTPS service:

```
Ruijie#configure terminal
Ruijie(config)#enable service web-server
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

### 8.2 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
<i>port-number</i>	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

### 8.3 http secure-port

Use this command to configure the HTTPS port number.

Use the **no** form of this command to restore the default HTTPS port number.

**http secure-port** *port-number*  
**no http secure-port**

**Parameter  
Description**

Parameter	Description
<i>port-number</i>	Configures the HTTPS port number. The value includes 443, 1025 to 65,535.

**Defaults** The default HTTP port number is 443.

**Command mode** Global configuration mode.

**Usage Guide** Use this command to configure the HTTPS port number.

**Configuration** The following example configures the HTTPS port number as 4443:

**Examples**

```
Ruijie#configure terminal
Ruijie(config)#http secure-port 4443
```

**Related  
Commands**

Command	Description
<b>enable service web-server</b>	Enables the HTTP service.
<b>show web-server status</b>	Displays the configuration and status of the Web service.

**Platform** N/A

**Description**

## 8.4 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** The following example displays the configuration and status of the Web service:

**Examples**

```
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
<b>enable service web-server</b>	Enables the HTTP service.
<b>http port</b>	Configures the HTTP port number.
<b>http secure-port</b>	Configures the HTTPS port number.

**Platform** N/A

**Description**

## 8.5 upgrade web

Use this command to upgrade the Web package in local file system.

**upgrade web** *uri*

Parameter Description	Parameter	Description
	<i>uri</i>	The storage path of the Web package.

**Defaults** N/A

**Command mode** Privileged EXEC 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
	<b>enable service web-server</b>	Enables the HTTP service.

**Platform** N/A

**Description**

## 8.6 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
	<b>tftp:</b> <i>path</i>	<i>path</i> indicates the storage path of the Web package on the TFTP server. <b>tftp</b> 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 form the TFTP server and upgrade the package automatically.

```
Ruijie#upgrade web download tftp://192.168.23.24/web.upd
```

**Related Commands**

Command	Description
<b>enable service web-server</b>	Enables the HTTP service.

**Platform** N/A

**Description**

## 8.7 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
<i>privilege-level</i>	Configures the user privilege-level.
<i>name</i>	Username.
<i>password</i>	Password.
<b>0</b>   <b>7</b>	Password type; 0 indicates plaintext, 7 indicates ciphertext.
<i>encrypted-password</i>	Password text.

**Defaults**

By default, two users are configured.

1. User1 is configured with privilege level 0, 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 mode**

Global configuration 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#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#webmaster level 0 username ruijie password admin
```

**Related Commands**

Command	Description
<b>enable service web-server</b>	Enables the HTTP service.

**Platform**

N/A

**Description**

## 9 Syslog Commands

### 9.1 clear logging

Use this command to clear the logs from the buffer in privileged EXEC mode.

**clear logging**

Parameter	Parameter	Description
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** The following example clears the log packets from the memory buffer.

**Examples** Ruijie# **clear logging**

Related Commands	Command	Function
	<b>logging on</b>	Turns on the log switch.
	<b>show logging</b>	Displays the logs in the buffer.
	<b>logging buffered</b>	Records the logs in the memory buffer.

**Platform Description** N/A

### 9.2 logging

Use this command to send the log message to the specified syslog server.

**logging** { *ip-address* | **ipv6** *ipv6-address* } [ **udp-prot** *port* ]

Use this command to delete the specified syslog server.

**no logging** { *ip-address* } | **ipv6** *ipv6-address* }

Use this command to restore the default port 514.

**no logging** { *ip-address*] | **ipv6** *ipv6-address* } **udp-prot**

Parameter	Parameter	Description
Description		

<i>ip-address</i>	<b>Sets</b> the IP address of the host receiving log messages.
<i>ipv6-address</i>	Sets the IPv6 address of the host receiving log messages.
<b>udp-port</b> <i>port</i>	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

The following example configures a syslog server with IPv6 address AAAA:BBBB::FFFF.

Ruijie(config)# logging ipv6 AAAA:BBBB::FFFF

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 9.3 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
<i>buffer-size</i>	The value ranges from 4 K to 128 K Bytes.
<i>level</i>	Severity of logs, from 0 to 7. The name of the severity or the numeral can be used.

**Defaults** The buffer size is 4 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 insufficient available continuous memory. The failure message will be shown. It is recommended to modify the log buffer size as soon as the system starts.

### Configuration

The following example allows logs at and below severity 6 to be recorded in the memory buffer sized 10,000 bytes.

### Examples

```
Ruijie(config)# logging buffered 10000 6
```

### Related

#### Commands

Command	Description
<b>logging on</b>	Turns on the log switch.
<b>show logging</b>	Displays the logs in the buffer.
<b>clear logging</b>	Clears the logs in the log buffer.

**Platform**  
**Description**

N/A

## 9.4 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	Parameter	Description
<b>Description</b>	<i>level</i>	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
```

Related Commands	Command	Description
	<b>logging on</b>	Turns on the log switch.
	<b>show logging</b>	Displays the logs and related log configuration parameters in the buffer.

**Platform**  
**Description**

N/A

## 9.5 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	Parameter	Description
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
	<b>show logging count</b>	Displays log information about modules of the system.
	<b>show logging</b>	Displays basic configuration of log modules and log information in the buffer.

**Platform Description** N/A

## 9.6 logging delay-send file

Use this command to set the name of the log file saved locally for delay sending. Use the no form of this command to restore the default setting.

**logging delay-send file flash:filename**

**no logging delay-send file**

Parameter	Parameter	Description
Description	<b>flash:filename</b>	Sets the name of the log file saved locally for delay sending.

**Defaults** The default name format is as follows: file size\_device IP address\_index.txt. If you want to change the file name, the file sent to the remote server should be named as follows: prefix\_file size\_device IP address\_index.txt; the file saved locally should be named as follows: prefix\_index.txt. The default prefix is syslog\_ftp\_server.

**Command Mode** Global configuration mode

**Usage Guide** The file name cannot contain special symbols including . \ : \* " < > and |. For example, the file name is log\_server, file index 5, file size 1000B and device IP address 10.2.3.5. The log file sent to the remote server is named log\_server\_1000\_10.2.3.5\_5.txt and the log file saved locally is named log\_server\_5.txt.

If the device has an IPv6 address, the colon (:) in the IPv6 address is replaced by the hyphen (-). For example, the is log\_server, file index 6, file size 1000B and device IPv6 address 2001::1. The log file sent to the remote server is named log\_server\_1000\_2001-1\_6.txt and the log file saved locally is named log\_server\_6.txt.

**Configuration** The following example sets the name of the log file saved locally to log\_server.

**Examples** Ruijie(config)# logging delay-send file flash:log\_server

**Related Commands**

Command	Description
N/A	N/A

**Platform Description** N/A

## 9.7 logging delay-send interval

Use this command to set the interval at which log sending is delayed. Use the no form of this command to restore the default setting.

**logging delay-send interval seconds**

**no logging delay-send interval**

**Parameter Description**

Parameter	Description
seconds	Sets the interval at which log sending is delayed, in the range from 600 to 65535 seconds.

**Defaults** The default is 3600.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration** The following example sets the the interval at which log sending is delayed to 600 seconds.

**Examples** Ruijie(config)# logging delay-send interval 600

**Related Commands**

Command	Description
---------	-------------

N/A	N/A
-----	-----

**Platform**  
**Description**

N/A

## 9.8 logging delay-send server

Use this command to configure the server address and log sending mode. Use the no form of this command to restore the default setting.

**logging delay-send server** { *ip-address* | **ipv6** *ipv6-address* } **mode** { **ftp user** *username password* [ **0** | **7** ] *password* | **tftp** }

**no logging delay-send server** { *ip-address* | **ipv6** *ipv6-address* }

**Parameter**  
**Description**

Parameter	Description
<i>ip-address</i>	Specifies the IP address of the server.
<b>ipv6</b> <i>ipv6-address</i>	Specifies the IPv6 address of the server.
<i>username</i>	Sets the FTP server username.
<i>password</i>	Sets the FTP server password.
<b>0</b>	(Optional) The password is displayed in plaintext.
<b>7</b>	The password are encrypted.

**Defaults** This function is disabled by default,

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

**Usage Guide** This command is used to specify an FTP/TFTP server to receive logs. You can configure five FTP/TFTP servers. Logs are sent to all configured servers simultaneously.

**Configuration Examples** The following example specifies an FTP server whose IP address is 192.168.23.12, username admin and password admin,

```
Ruijie(config)# logging delay-send server 192.168.23.12 mode ftp user admin
password admin
```

The following example specifies a TFTP server whose IPv6 address is 2000::1.

```
Ruijie(config)# logging delay-send server ipv6 2000::1 mode tftp
```

**Related**  
**Commands**

Command	Description
N/A	N/A

**Platform**  
**Description**

N/A



## 9.9 logging delay-send terminal

Use this command to enable delay in sending logs to console and remote terminal. Use the no form of this command to restore the default setting.

**logging delay-send terminal**

**no logging delay-send terminal**

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 delay in sending logs to console and remote terminal.

```
Ruijie(config)# logging delay-send terminal
```

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 9.10 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
	<i>facility-type</i>	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** Global configuration mode

**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** The following example sets the device value of **Syslog** as **kernel**:

**Examples** Ruijie(config)# logging facility kern

**Related  
Commands**

Command	Description
<b>logging console</b>	Sets the severity of logs that are allowed to be displayed on the console.

**Platform** N/A

**Description**

## 9.11 logging file

Use this command to save log messages in the log file, which can be saved in hardware disk, expanded FLASH. Use the no form of this command to restore the default setting,

**logging file flash:***filename* [ *max-file-size* ] [ *level* ]

**no logging file**

**Parameter Description**

Parameter	Description
<b>flash</b>	Saves the log file in expanded FLASH.
<b>usb0</b>	Saves the log file in USB0. This parameter is supported by the device with one USB connector and the USB extension device.
<i>filename</i>	Sets the file name. The file type is omitted, which is fixed as txt.
<i>max-file-size</i>	Sets the maximum file size, in the range from 128K to 6M bytes, The default is 128K,
<i>level</i>	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.

**Defaults**

Log messages are not saved in expanded FLASH by default.


**Command**

Global configuration mode

**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.

 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 log level to syslog.txt, 128K and 6 respectively.

**Examples**

```
Ruijie(config)# logging file flash:syslog
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 9.12 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.

 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** The following example writes log messages in the system buffer into the flash file immediately.

**Examples**

```
Ruijie(config)# logging flash flush
```

**Related Commands**

Command	Description
N/A	N/A

**Platform** N/A

**Description**

## 9.13 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
<b>interval</b> <i>seconds</i>	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 Mode**

Global configuration 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**

## 9.14 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
	<b>all</b>	Log messages destined to all directions are filtered, including console, VTY terminal, log buffer, log file and log server.
	<b>buffer</b>	Log messages destined to the log buffer are filtered, including log messages displayed by running the show logging command.
	<b>file</b>	Log messages destined to the log file are filtered.
	<b>server</b>	Log messages destined to the log server are filtered.
	<b>terminal</b>	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 Mode** Global configuration 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

## 9.15 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
	<b>contains-only</b>	The log message containing the key word of the filter rule is printed.
	<b>filter-only</b>	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** 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, 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 filter-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 Description** N/A

## 9.16 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
<b>exact-match</b>	Exact-match filter rule. Fill in all the following three parameters.
<b>single-match</b>	Single-match filter rule. Fill in one of the following three parameters.
<b>module <i>module-name</i></b>	Module name.
<b>mnemonic <i>mnemonic-name</i></b>	Mnemonic name.

<b>level</b> <i>level</i>	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** N/A

**Description**

## 9.17 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
<i>level</i>	Sets the log level, which can be either the level name or the level number.
<i>days</i>	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

## 9.18 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
<i>level</i>	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
	<b>logging on</b>	Turns on the log switch.
	<b>show logging</b>	Displays the log messages and related log configuration parameters in the buffer.

**Platform** N/A

**Description**

## 9.19 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 function.

**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 devices 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
	<b>logging buffered</b>	Records the logs to a memory buffer.
	<b>logging server</b>	Sends logs to the Syslog server.
	<b>logging file flash:</b>	Records logs on the expanded FLASH.
	<b>logging console</b>	Allows the log level to be displayed on the console.
	<b>logging monitor</b>	Allows the log level to be displayed on the VTY window (such as telnet window) .
	<b>logging trap</b>	Sets the log level to be sent to the Syslog server.

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

## 9.20 logging policy

Use this command to configure the severity ranking policy. Use the no form of this command to remove one policy, Use the no logging policy command to remove all policies.

**logging policy module** *module-name* [ **not-lesser-than** ] *level* **direction** { **all** | **server** | **file** | **console** | **monitor** | **buffer** }

**no logging policy module** *module-name* [ **not-lesser-than** ] *level* **direction** { **all** | **server** | **file** | **console** | **monitor** | **buffer** }

**no logging policy**

Parameter Description	Parameter	Description
	<i>module-name</i>	The name of the module applying the ranking policy.
	<b>not-lesser-than</b>	If this parameter is specified, only when the log's level is not lower than the configured level can the log be sent. Otherwise, the log is filtered. If this parameter is not specified, only when the log's level is not higher than the configured level can the log be sent. Otherwise, the log is filtered.
	<i>level</i>	Severity level
	<b>all</b>	Applies the ranking policy in all directions.
	<b>server</b>	Applies the ranking policy to the direction toward the server.
	<b>file</b>	Applies the ranking policy to the direction toward the log file.
	<b>console</b>	Applies the ranking policy to the direction toward the console.
	<b>monitor</b>	Applies the ranking policy to the direction toward the remote server.
	<b>buffer</b>	Applies the ranking policy to the direction toward the buffer.

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** This command is used to send logs to different destinations based on module and severity.

**Configuration Examples** The following example sends logs of the SYS module leveled above 5 to the console and sends logs of the SYS module leveled below 3 to the buffer.

```
Ruijie(config)# logging policy module SYS not-lesser-than 5 direction console
Ruijie(config)# logging policy module SYS 3 direction buffer
```

Related	Command	Description
---------	---------	-------------

<b>Commands</b>		
	N/A	N/A

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

## 9.21 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	Parameter	Description
<b>Description</b>	<i>number</i>	The number of logs that can be processed in a second in the range from 1 to 10000.
	<b>all</b>	Sets rate limit to all the logs with severity level 0 to 7.
	<b>console</b>	Sets the amount of logs that can be shown in the console in a second.
	<b>except</b>	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.
	<i>severity</i>	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 output 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	Command	Description
<b>Commands</b>	<b>show logging count</b>	Displays log information about modules of the system.
	<b>show logging</b>	Displays basic configuration of log modules and log information in the buffer.

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

## 9.22 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* | **ipv6** *ipv6-address* } [ **udp-prot** *port* ]

**no logging server**{ *ip-address* | **ipv6** *ipv6-address* }

**no logging server** { *ip-address* | **ipv6** *ipv6-address* } **udp-prot**

Parameter	Parameter	Description
<b>Description</b>	<i>ip-address</i>	IP address of the host that receives log information.
	<i>ipv6-address</i>	Specifies IPv6 address for the host receiving the logs.
	<b>udp-port</b> <i>port</i>	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 Mode** Global configuration 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

The following example specifies a syslog server with IP address 10.1.1.100 and port 8099.

Ruijie(config)# logging server 202.101.11.1 udp-port 8099

The following example specifies an ipv6 address as AAAA:BBBB:FFFF:

Ruijie(config)# **logging server ipv6** AAAA:BBBB:FFFF

Related Commands	Command	Description
	<b>logging on</b>	Turns on the log switch.
	<b>show logging</b>	Displays log messages and related log configuration parameters in the buffer.
	<b>logging trap</b>	Sets the level of logs allowed to be sent to Syslog server.

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

## 9.23 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	<i>interface-type</i>	Interface type.
Description	<i>interface-number</i>	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 Examples** The following example specifies loopback 0 as the source address of the syslog messages:

```
Ruijie(config)# logging source interface loopback 0
```

	Command	Description
Related Commands	<b>logging server</b>	Sends logs to the Syslog server.

**Platform Description** N/A

## 9.24 logging source ip | ipv6

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* | **ipv6** *ipv6-address* }

**no logging source** { **ip** | **ipv6** }

	Parameter	Description
Parameter Description	<i>ip-address</i>	Specifies the source IPV4 address sending the logs to IPV4 log server.

<i>ipv6-address</i>	Specifies the source IPV6 address sending the logs to IPV6 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
	<b>logging server</b>	Sends the logs to the Syslog server.

**Platform Description** N/A

## 9.25 logging statistic enable

Use this command to enable logging periodically. Use no form of this command to restore the default setting.

**logging statistic enable**

**no logging statistic enable**

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 used to send performance statistics at a certain interval for the server to monitor the system performance.

**Configuration** The following example enables logging periodically.

**Examples** Ruijie(config)# logging statistic enable

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

**Description**

N/A

## 9.26 logging statistic interval

Use this command to configure the interval at which logs are sent. Use the no form of this command to restore the default setting.

**logging statistic mnemonic** *mnemonic interval minutes*

**no logging statistic mnemonic** *mnemonic*

**Parameter  
Description**

Parameter	Description
<i>mnemonic</i>	Sets the mnemonics to identify the object.
<i>minutes</i>	Sets the interval at which logs are sent, in the unit of minutes.

**Defaults**

The default is 15.

**Command  
Mode**

Global configuration mode

**Usage Guide**

The available settings include 0, 15, 30, 60 and 120. 0 indicates this function is disabled.

**Configuration** The following example set the interval at which logs are sent to 30 minutes.

**Examples** Ruijie(config)# logging statistic mnemonic TUNNEL\_STAT interval 30

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

**Description**

N/A

## 9.27 logging statistic terminal

Use this command to enable logs to be sent to the console and the remote terminal periodically. Use the no form of this command to restore the default setting.



**logging statistic terminal**  
**no logging statistic terminal**

Parameter Description	Parameter	Description
		N/A

**Defaults** This function is disabled by default.

**Command Mode** Global configuration mode

**Usage Guide** N/A

**Configuration Examples** The following example enable logs to be sent to the console and the remote terminal.

```
Ruijie(config)# logging statistic terminal
```

Related Commands	Command	Description
		N/A

**Platform Description** N/A

## 9.28 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

**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** Ruijie(config)#**line console 0**

**Examples** 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.
```

Related Commands	Command	Description
	<b>show running-config</b>	Displays the configuration.

**Platform Description** N/A

## 9.29 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
	<i>level</i>	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** The following example enables logs at severity 6 to be sent to the Syslog Server with the address of

**Examples**

202.101.11.22:

```
Ruijie(config)# logging 202.101.11.22
Ruijie(config)# logging trap informational
```

**Related  
Commands**

Command	Description
<b>logging on</b>	Turns on the log switch.
<b>logging</b>	Sends logs to the Syslog server.
<b>show logging</b>	Displays the log messages and related log configuration parameters in the buffer.

**Platform**

N/A

**Description**

## 9.30 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**

The following example enables the logging function to record user log/exit.

**Examples**

```
Ruijie(config)# logging user-info
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 9.31 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** The following example enables the logging function to record user operation.

**Examples** Ruijie(config)# logging user-info command-log

Related Commands	Command	Description
	N/A	N/A

**Platform Description** N/A

## 9.32 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** N/A  
**Description**

## 9.33 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**

## 9.34 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** The following example adds serial numbers to the logs.

**Examples** Ruijie(config)# **service sequence-numbers**

**Related  
Commands**

Command	Description
<b>logging on</b>	Turns on the log switch.
<b>service timestamps</b>	Attaches timestamps to the logs.

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

## 9.35 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** 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 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** The following example sets the standard syslog format.

**Examples** Ruijie(config)# service standard-syslog

Related Commands	Command	Description
	N/A	N/A

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

## 9.36 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	Parameter	Description
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** The following example adds a system name in the log information:

**Examples**

```

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

```

Related	Command	Function
Commands	<b>show logging</b>	Displays basic configuration of log modules and log information in the buffer.

**Platform Description** N/A

## 9.37 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	Parameter	Description
<b>Description</b>	<i>message-type</i>	The log type, including <b>Log</b> and <b>Debug</b> . The <b>log</b> type indicates the log information with severity levels of 0 to 6. The <b>debug</b> type indicates that with severity level 7.
	<b>uptime</b>	Device start time in the format of *Day*Hour*Minute*Second, for example, 07:00:10:41.
	<b>datetime</b>	Current time of the device in the format of Month*Date*Hour*Minute*Second, for example, Jul 27 16:53:07.
	<b>msec</b>	Current time of the device in the format of Month*Date*Hour*Minute*Second*milisecond, for example, Jul 27 16:53:07.299
	<b>year</b>	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
	<b>logging on</b>	Turns on the log switch.
	<b>service sequence-numbers</b>	Enables serial numbers of logs.

**Platform Description** N/A

## 9.38 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	Parameter	Description
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 %LINEPROTO/5-UPDOWN: 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 Commands

Command	Function
<b>logging on</b>	Turns on the log switch.
<b>clear logging</b>	Clears the log messages in the buffer.

#### Platform Description

N/A

## 9.39 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 Examples** The following example displays the outcome of running the **show logging config** command with 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

## 9.40 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	Parameter	Description
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** The following example displays the result of the **show logging count** command:

**Examples**

```
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
	<b>logging count</b>	Enables the log statistics function.
	<b>show logging</b>	Displays basic configuration of log modules and log information in the buffer.
	<b>clear logging</b>	Clears the logs in the buffer.

**Platform Description** N/A

## 9.41 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	Parameter	Description
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 format disabled.

### Examples

```
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 2013-07-24T12:20:02.803433Z ruijie - 7 - - Please config the IP address
for capwap.
<132>1 2013-07-24T12:20:02.803133Z 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

## 9.42 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** The following example allows log information to be printed on the current VTY window:

**Examples** Ruijie# **terminal monitor**

	Command	Description
Related Commands	N/A	N/A

**Platform Description** N/A

	Version	Description
Command History	N/A	N/A

## 10 RLOG Commands

### 10.1 rlog server

Use this command to configure the RLOG server.

Use the **no** form of this command to remove the configuration.

**rlog server** *ip-address* [ **vrf** *vrf-name*] [ **port** *port-num* ]

**no rlog server** *ip-address*

#### Parameter Description

Parameter	Description
<i>ip-address</i>	IP address of the RLOG server
<i>port-num</i>	Port number of the RLOG server
<b>vrf</b> <i>vrf-name</i>	VRF name

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** Configuring the RLOG server is the precondition for RLOG export.

 (Mandatory) Make sure the **vrf** parameter is accurate in case of overwriting information.

**Configuration Examples** The following example configures the RLOG server and port on AP.

```
Ruijie(config)# rlog server 10.10.10.10 port 20000
```

**Platform Description**

### 10.2 rlog type

Use this command to set the RLOG type.

Use the **no** form of this command to remove the configuration.

**rlog type** *n* **server** *server-ip* **priority** *prio*

**no rlog type** *n* **server** *server-ip*

#### Parameter Description

Parameter	Description
<i>n</i>	RLOG type
<i>server-ip</i>	IP address of the RLOG server

<i>prio</i>	RLOG priority: 0-7. The lower the value is, the higher the priority is.
-------------	---

**Defaults** N/A

**Command Mode** Global configuration mode

**Usage Guide** (Mandatory) Each log should be configured with this function.

**Configuration** The following example sets the RLOG types on AP.

**Examples** Ruijie(config)# rlog type 16 server 10.10.10.10 priority 1

**Platform Description** N/A

## 10.3 rlog export-rate

Use this command to set the RLOG export rate.

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

**rlog export-rate** *val*

**no rlog export-rate**

Parameter Description	Parameter	Description
	<i>val</i>	RLOG export rate in the range from 10 to 100000 (log number per second)

**Defaults** The default rate is 1000.

**Command Mode** Global configuration mode

**Usage Guide** The RLOG export rate is determined by device and server performance as well as log outputs.

 Too low rate causes log loss. Too high rate raises CPU consumption.

**Configuration** The following example sets the RLOG export rate to 10000.

**Examples** rlog export-rate 10000

**Platform Description** N/A


## 10.4 rlog set

Use this command to enable RLOG-combination export.

Use the **no** form of this command to remove the configuration.

**rlog set log-com**

**no rlog set log-com**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Parameter	Description	N/A	N/A
Parameter	Description				
N/A	N/A				
<b>Defaults</b>	N/A				
<b>Command Mode</b>	Global configuration mode				
<b>Usage Guide</b>	<p>Use this command to improve RLOG export efficiency, which also relies on server performance.</p> <hr/> <p> If the server does not support this function, this command may cause problems such as packet loss or analysis failure.</p> <hr/>				
<b>Configuration Examples</b>	N/A				
<b>Platform Description</b>	N/A				


## 10.5 rlog dev-ip

Use this command to set the IP address of the RLOG device.

Use the **no** form of this command to remove the configuration.

**rlog dev-ip ip**

**no rlog dev-ip**

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>ip</i></td> <td>IP address of the RLOG device</td> </tr> </tbody> </table>	Parameter	Description	<i>ip</i>	IP address of the RLOG device
Parameter	Description				
<i>ip</i>	IP address of the RLOG device				
<b>Defaults</b>	N/A				
<b>Command Mode</b>	Global configuration mode				
<b>Usage Guide</b>	<p>(Optional) Specific types of logs require the IP address of RLOG device.</p> <hr/> <p> If the IP address is not configured, errors may occur when the RLOG server analyzes logs.</p> <hr/>				

**Configuration** The following example sets the IP address of the RLOG device to 10.10.10.2.

**Examples** Ruijie(config)# rlog dev-ip 10.10.10.2

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

## 10.6 rlog filter

Use this command to configure the RLOG filtering.

Use the **no** form of this command to remove the configuration.

**rlog filter** *aclid*


**no rlog filter**

Parameter	Parameter	Description
<b>Description</b>	<i>aclid</i>	ACL ID, in the range from 2000 to 2699.

**Defaults** N/A

**Command** configuration mode  
**Mode**

**Usage Guide** This command applies to both remote flow logs and local logs. Use this command when logs are excessive or partial logs are selected.

 The ACL should be configured at first.

**Configuration** The following example enables the RLOG filtering.

**Examples** Ruijie(config)# access-list 2000 permit udp any any  
Ruijie(config)# rlog filter 2000

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

## 10.7 show rlog

Use this command to display the RLOG configuration.

**show rlog**

Parameter	Parameter	Description
<b>Description</b>	N/A	N/A

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

**Usage Guide** Use this command to display RLOG configuration including the device IP address, log-export rate and count, and log-combination function.

**Configuration** The following example displays the RLOG configuration.

**Examples**

```
Ruijie#show rlog
rlog server is enable
port 20000 server 192.168.1.100
port 20000 server 10.10.10.10
rlog dev-ip 0.0.0.0
rlog export-rate 1000 rlog queue remain 10000
send log count : 0 error count : 0 errorno : 0
recv buf: 0 poll buf err: 0 push buf: 0 local buf: 0
recv err cnt: 0 depatch err cnt: 0

enable log combination: 0
```

Field Description

Field	Description
rlog server is enable	The RLOG server is configured as listed.
rlog dev-ip	Device IP address
rlog export-rate	RLOG-export rate
rlog queue remain	RLOG buffer queue remain
send log count	Log-export count
error count	Error count
errorno	No. of the last export error
recv buf	Log receiving count
poll buf err	Buffer space error
local buf	Local buffer
recv err cnt	MSG receiving error count
depatch err cnt	The source server of messages received cannot be identified.
enable log combination	Log-combination function

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

## 10.8 show rlog-type

Use this command to display the RLOG type.

**show rlog-type**

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



Description		
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the RLOG type.

```
Ruijie#show rlog-type
RLOG_TYPE_FLOW          16
RLOG_TYPE_CPU_MEM       17
RLOG_TYPE_DISC          18
RLOG_TYPE_DEV_LOG       19
RLOG_TYPE_URL_AUDIT     20
RLOG_TYPE_SESSION       21
RLOG_TYPE_IP_APP        22
RLOG_TYPE_IP            23
RLOG_TYPE_CHANNEL       24
RLOG_TYPE_INTERFACE     25
RLOG_TYPE_IP_OFFLINE    26
RLOG_TYPE_MAIL_AUDIT    27
RLOG_TYPE_TELNET_AUDIT  28
RLOG_TYPE_WEB_SEARCH_AUDIT 29
RLOG_TYPE_WEB_BBS_AUDIT 30
RLOG_TYPE_IM_AUDIT      31
RLOG_TYPE_FTP_AUDIT     32
RLOG_TYPE_WEB_AUDIT     33
RLOG_TYPE_APP_AUDIT     34
RLOG_TYPE_FLOOD         35
RLOG_TYPE_FLOOD_CEASEm  36
RLOG_TYPE_SCAN          37
RLOG_TYPE_SCAN_CEASE    38
RLOG_TYPE_ATTACK_FRAG   39
```

**Platform Description** N/A

## 10.9 show rlog-status

Use this command to display the RLOG server details.

```
show rlog-status { [ server ip ] | [ client ] | [ log ] }
```

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

Description	
<i>ip</i>	Specifies a RLOG server.

**Command Mode** Privileged EXEC mode

**Usage Guide** N/A

**Configuration Examples** The following example displays the RLOG server status.

```
Ruijie#show rlog-status
```

```
=====
server:192.168.1.100      port:20000
type                    prio
=====
server:10.10.10.10      port:20000
type                    prio
RLOG_TYPE_FLOW          16      1
```

The following example displays the RLOG module count.

```
Ruijie#show rlog-status client
rlog client count: 0
```

Field Description

Field	Description
rlog client count	RLOG module count

The following example displays the RLOG log count.

```
Ruijie#show rlog-status log
```

```
local rlog message:

remote rlog message:
[16]RLOG_TYPE_FLOW          : 0
[17]RLOG_TYPE_CPU_MEM      : 0
[18]RLOG_TYPE_DISC         : 0
[19]RLOG_TYPE_DEV_LOG      : 0
[20]RLOG_TYPE_URL_AUDIT    : 0
[21]RLOG_TYPE_SESSION      : 0
[22]RLOG_TYPE_IP_APP       : 0
[23]RLOG_TYPE_IP           : 0
[24]RLOG_TYPE_CHANNEL      : 0
[25]RLOG_TYPE_INTERFACE    : 0
[26]RLOG_TYPE_IP_OFFLINE   : 0
[27]RLOG_TYPE_MAIL_AUDIT   : 0
[28]RLOG_TYPE_TELNET_AUDIT : 0
[29]RLOG_TYPE_WEB_SEARCH_AUDIT : 0
```

```
[30]RLOG_TYPE_WEB_BBS_AUDIT      : 0
[31]RLOG_TYPE_IM_AUDIT          : 0
[32]RLOG_TYPE_FTP_AUDIT        : 0
[33]RLOG_TYPE_WEB_AUDIT        : 0
[34]RLOG_TYPE_APP_AUDIT        : 0
[35]RLOG_TYPE_FLOOD            : 0
[36]RLOG_TYPE_FLOOD_CEASEm     : 0
[37]RLOG_TYPE_SCAN             : 0
[38]RLOG_TYPE_SCAN_CEASE       : 0
[39]RLOG_TYPE_ATTACK_FRAG      : 0
```

## Field Description

Field	Description
local rlog message	The number of local RLOG messages
remote rlog message	The number of remote RLOG messages distinguished by RLOG types

**Platform**  
**Description**

N/A

## 11 CWMP Commands

### 11.1 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
	<i>password</i>	Configures the ACS user password to be authenticated for the CPE to connect to the ACS.
	<i>encryption-type</i>	Specifies the encryption type, which can be set to 0 (indicating that no encryption is used) or 7 (indicating that simple encryption is used).
	<i>encrypted-password</i>	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
------------------	---------	-------------

<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.
<b>acs username</b>	Configures the ACS username to be authenticated for the CPE to connect to the ACS.

**Platform** N/A

**Description**

## 11.2 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
	<i>url</i>	Specifies the URL of the ACS.

**Defaults** N/A

**Command** CWMP configuration mode

**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://host[:port]/path` or `https://host[:port]/path`.
- The URL of the ACS consists of at most 256 characters.

**Configuration** The following example specifies the URL of the ACS to `http://10.10.10.1:8080/acs`.

**Examples**

```
Ruijie#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs url http://10.10.10.1:8080/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) #
```

**Related  
Commands**

Command	Description
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

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

## 11.3 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
<i>username</i>	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)#
```

**Related  
Commands**

Command	Description
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.
<b>acs password</b>	Configures the ACS password to be authenticated for the CPE to connect to the

	ACS.
--	------

**Platform** N/A

**Description**

## 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
	<i>seconds</i>	Specifies the delay for backup and restoration of the main program and configuration file of the CPE, in the range from 30 to 10,000 in the unit of seconds

**Defaults** The default is 60 seconds.

**Command Mode** CWMP configuration 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 Examples** The following example disables the backup and restoration of the main program and configuration file 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
	<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
	<b>show cwmp status</b>	Displays the running status of CWMP.

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

## 11.4 cpe back-up

Use this command to enable the CPE backup function.

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

**cpe back-up** [*delay-time seconds*]

**no cpe back-up**

Parameter	Parameter	Description
Description	<i>seconds</i>	Sets the backup delay time (30-10,000 seconds).

**Defaults** The default is 60 seconds.

**Command** CWMP configuration mode

**Mode**

**Usage Guide** After upgrading main programs or configurations, CPE cannot communicate with ACS for wrong configuration delivery. Use this command to recover the previous programs and configurations.

**Configuration** The following example disables the CPE backup function.

**Examples**

```
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)#
```

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

## 11.5 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*] [*starttime time*]

**no cpe inform**

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



Description	
<i>seconds</i>	Specifies the periodical notification interval of the CPE in the range from 30 to 3,600 in the unit of seconds.
<i>time</i>	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
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

**Platform  
Description** N/A

## 11.6 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
	<i>password</i>	Configures the CPE user password to be authenticated for the ACS to connect to the CPE.
	<i>encryption-type</i>	Specifies the encryption type, which can be set to 0 (indicating that no encryption is used) or 7 (indicating that simple encryption is used).
	<i>encrypted-password</i>	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
	<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
	<b>show cwmp status</b>	Displays the running status of CWMP.

<b>acs username</b>	Configures the CPE username to be authenticated for the ACS to connect to the CPE.
---------------------	--

**Platform** N/A

**Description**

## 11.7 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
	<i>url</i>	

**Defaults** N/A

**Command** CWMP configuration mode

**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** The following example specifies the URL of the CPE to `http://10.10.10.1:7547/acs`.

**Examples**

```
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
	<b>show cwmp configuration</b>	
<b>show cwmp status</b>		Displays the running status of CWMP.

**Platform** N/A

**Description**

## 11.8 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.

**cpe username** *username*

**no cpe username**

Parameter Description	Parameter	Description
	<i>username</i>	Configures the CPE username to be authenticated for the ACS to connect to the CPE.

**Defaults** N/A

**Command Mode** CWMP configuration 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
	<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
	<b>show cwmp status</b>	Displays the running status of CWMP.
	<b>cpe password</b>	Configures the CPE password to be authenticated for the ACS to connect to the CPE.

**Platform Description** N/A

## 11.9 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** By default, this function is enabled.

**Command  
Mode** Global configuration 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
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

**Platform  
Description** N/A

## 11.10 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
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

**Platform** N/A

**Description**

## 11.11 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**

Command	Description
---------	-------------

Commands	
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

**Platform** N/A

**Description**

## 11.12 show cwmp configuration

Use this command to display the current configuration of CWMP.

**show cwmp configuration**

Parameter	Parameter	Description
Description	N/A	N/A

**Defaults** N/A

**Command** Privilege EXEC mode

**Mode**

**Usage Guide**

**Configuration** The following example displays the current configuration of CWMP.

**Examples**

```
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 password	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
<b>show cwmp status</b>	Displays the running status of CWMP.

**Platform** N/A

**Description**

## 11.13 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** The following example displays the running status of CWMP.

```

Examples 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
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.

**Platform** N/A

**Description**

## 11.14 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**

Parameter	Description
<i>seconds</i>	Sets the session timeout, in the range from 5 to 600 in the unit of seconds.

**Defaults** By default, the session timeout period is 5 seconds.

**Command** CWMP configuration mode

**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** The following example configures the session timeout period of the CPE to 50 seconds.

**Examples**

```
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
<b>show cwmp configuration</b>	Displays the current configuration of CWMP.
<b>show cwmp status</b>	Displays the running status of CWMP.

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

## 12 LED Commands

### 12.1 quiet-mode session

Use this command to configure LED quiet mode.

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

**quiet-mode session** *session-num*

**no quiet-mode session** *session-num*

Parameter	Parameter	Description
Description	<i>session-num</i>	Session ID.

**Defaults** This function is disabled by default.

**Command Mode** AP configuration mode

**Usage Guide** Use this command to turn off all LEDs on the AP.

**Configuration** The following example configures LED quiet mode from 23:00 that night to 7:00 next day.

**Examples**

```
Ruijie(config)#schedule session 1
Ruijie(config)#schedule session 1 time-range 1 period Mon time 23:00 to 7:00
Ruijie(config)#ap-config 00d0.f822.33bc
Ruijie(config-ap)#quiet-mode session 1
```

The following example disables LED quiet mode.

```
Ruijie(config)#ap-config 00d0.f822.33bc
Ruijie(config-ap)#no quiet-mode session 1
```

**Platform Description** N/A

## 13 USB Commands

### 13.1 show usb

Use this command to display the information about the inserted USB device in the system.

#### show usb

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** Device information is displayed if there is a USB device. Otherwise, there is no output. If the USB disk is connected to the USB port on the device, the ID displayed by running the **show usb** command is X, the USB port number. If the USB disk is connected to the USB port on the device via a HUB, the ID displayed by running the **show usb** command is X-Y, in which X stands for the USB port number and Y for the HUB slot number.

**Configuration Examples** The following example displays the information about the USB device:

```
Ruijie# show usb
Device: Mass Storage:
ID: 0
URL prefix: usb0
Disk Partitions:
usb0 (type:FAT32)
Size : 131,072,000B (125MB)
Available size: 1,260,020B (1.2MB)
```

In above information, the Mass Storage Device is the name of the device.

The meaning of the information is as below:

Table 1: the description of the field.

Field	Description
URL	Prefix used to access the USB device.
Size	Accessible size of the USB device.
Available size	Available size of the USB device.

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 13.2 usb remove

Use this command to remove the USB device.

**usb remove** *device\_id*

Parameter Description	Parameter	Description
	<i>device_id</i>	Device ID of USB to be removed.

**Defaults** N/A

**Command Mode** Privileged EXEC mode.

**Usage Guide** Before pulling out the USB device, you need to remove the device using a command, so as to prevent errors that may occur because the system is using the device. If the device is removed successfully, the system will show a prompt, when you can pull out the device. If the device cannot be pulled out, it indicates that the system is using this USB device, so you have to wait a moment before removing it again.

**Configuration Examples** The following example removes the USB device.

```
Ruijie# usb remove 0
OK, now you can pull out the device 0.
At this moment, the USB device can be plugged out.
```

Related Commands	Command	Description
	N/A	N/A

**Platform** N/A

**Description**

## 14 PKG\_MGMT Commands

### 14.1 patch active

Use this command to activate a patch to take effect.

**patch active**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** N/A

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** Activating operation can be performed only on the device already installed with a patch, after which the patch really takes effect. This command can be used to activate a hot patch temporarily. The activated patch becomes invalid after device restart.

**Configuration Examples** The following example activates a patch on the box device.

```
Ruijie#patch active
Active the patch package success
```

The following example activates a patch on the chassis device.

```
Ruijie#patch active slot 8
[Slot 8]:
Active the patch package success
```

**Verification** Use the **show patch** command to display patch information.

**Prompt** The patch is activated successfully.

**Messages** Active the patch package success

The running fails and a patch package needs to be installed at first.

```
Patch not installed
```

There is no need to run the command for the patch in the activated or running status.

```
The patch status is already active or running
```

Contact the service center to solve the package problem.

```
Cannot find the package's scripts file
```

**Common** There is no hot patch installed on current device.  
**Errors** The hot patch on current device is already activated.

**Platforms** N/A

## 14.2 patch deactivate

Use this command to deactivate a patch.

**patch deactivate**

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** This command can be performed to deactivate a patch only after the patch is in the activated status.

**Configuration** The following example deactivates a patch on the box device.

**Examples**

```
Ruijie#patch deactivate
Deactivate the patch package success
```

The following example deactivates a patch on the chassis device.

```
Ruijie#patch deactivate slot 8
[Slot 8]:
Deactivate the patch package success
```

**Verification** Use the **show patch** command to display patch information.

**Prompt** The patch is deactivated successfully.

**Messages**

```
Deactivate the patch package success
```

The running fails and a patch package needs to be installed at first.

```
Patch not installed
```

There is no need to run the command for the patch in the deactivated status.

```
The patch is not in active or running status
```

Contact the service center to solve the package problem.

```
Cannot find the package's scripts file
```

- Common** There is no hot patch installed on current device.
- Errors** The hot patch on current device is already invalid.

## 14.3 patch delete

Use this command to uninstall a patch.

### patch delete

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** This command is used to remove the existing hot patch package on the device.

**Configuration Examples** The following example removes the installed hot patch package from the box device.

```
Ruijie# patch delete
Clear the patch patch_bridge success
Clear the patch success
```

The following example removes the installed hot patch package from the chassis device.

```
Ruijie# patch delete slot M1
[Slot M1]:
Clear the patch patch_bridge success
Clear the patch success
```

**Verification** Use the **show patch** command to display patch status.

**Prompt** The patch is uninstalled successfully.

```
Clear the patch success
```

A hot patch package should be installed at first for it has not been installed.

```
Patch not installed
```



**Common Errors** There is no hot patch installed on current device.

## 14.4 patch running

Use this command to activate a patch permanently.

### patch running

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** Activating operation can be performed only on the device already installed with a patch, after which the patch really takes effect. This command can be used to activate a hot patch permanently.

**Configuration Examples** The following example activates a patch on the box device.

```
Ruijie#patch running
The patch on the system now is in running status
```

The following example activates a patch on the chassis device.

```
Ruijie#patch running slot M1
[Slot M1]:
The patch on the system now is in running status
```

**Verification** Use the **show patch** command to display the patch information.

**Prompt Messages** The patch is activated permanently.

```
The patch on the system now is in running status
```

The running fails and a patch package needs to be installed at first.

```
Patch not installed
```

There is no need to run the command for the patch is in the deactivated status.

```
The patch is not in active or running status
```

Contact the service center to solve the package problem.

```
Cannot find the package's scripts file
```

**Common** There is no hot patch on current device.

**Errors**            The hot patch is already activated on current device.

## 14.5 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
	<i>component_name</i>	<p>Name of the components</p> <p>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.</p> <p>When this parameter value is not N/A, the command is used to display detailed information of the corresponding component, check whether the component is intact, and check whether this component works properly.</p>

**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 their basic 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 all feature components already installed on the chassis device.

```

Ruijie#show component slot 8
Ruijie#*
[Slot 8]:
Package : utils-system
  Version: 1.0.0.433ef8d      Build time: Sun May 19 19:22:54 2013
  Size: 823936  Install time: Sun May 19 19:27:04 2013
  Description: utils system compile
  Required packages: None
-----
Package : tcl-expect
  Version: 1.0.0.433ef8d      Build time: Sun May 19 19:19:18 2013
  Size: 3474153      Install time: Sun May 19 19:27:04 2013
  Description: tcl & expect packages
  Required packages: None
-----

```

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 files are 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**

The execution is successful with all components information displayed.

**Messages**

```

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
-----
    
```

## 14.6 show patch

Use this command to display the information of a hot patch package already installed on the device.

**show patch** [ *patch\_name* ]

Parameter Description	Parameter	Description
	<i>patch_name</i>	<p>Name of the patches</p> <p>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.</p> <p>When this parameter value is not N/A, the command is used to display detailed information of the corresponding component, check whether the component is intact, and check whether this component works properly.</p>

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** This command is used to check all patches already installed on the device and their information.

**Configuration** The following example displays all patches already installed on the box device.

**Examples**

```
Ruijie# show patch
patch package patch_install installed in the system, version:pa1
Package : patch_bridge
status:running
Version: pa1      Build time: Mon May 13 09:03:07 2013
Size: 277        Install time: Tue May 21 03:07:17 2013
      Description: a patch for bridge
      Required packages: None
```

This command is used to obtain the basic information of all patches already installed on the device.

Field	Description
Package	Name of the patch
status	Status of the patch
Version	Version of the patch
Build time	Compilation time of the patch on the server
Size	Content size of the patch
Install time	Installation time of the patch
Description	Simple functional description of the patch

The following example displays the information of all patches installed on the chassis device.

```
Ruijie#show patch slot 8
[Slot 8]:
Patch package patch_install installed in the system, version:pa1
Package : patch_test
Status: running
      Version: 1.0.0.05151504
```

```
Build time: Wed May 15 07:04:28 2013
Size: 1804
Install time: Thu Jan 1 00:56:43 1970
Description: Experimentation
Required packages: None
-----
```

The following example displays the information of particular patches installed on the box device.

```
Ruijie# show componentbridge
package:bridge
    Version: 2.3.1.1252ea      Build time: Wed Dec 7 00:54:56 2011
    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]
```

The other information except the basic information of the patch is listed as follows:

Field	Description
Package file validate	Checks whether the patch files are intact. "OK" is displayed when all patch files work properly; "ERR" is displayed together with their names when some files are lost or revised.
Package files	Lists all files contained in the patch package.

**Prompt**

The information of the patch is displayed after successful running.

**Messages**

```
Patch package patch_install installed in the system, version:pa1
Package : patch_bridge
    Status:running
    Version: pa1      Build time: Mon May 13 09:03:07 2013
    Size: 277      Install time: Tue May 21 03:07:17 2013
    Description: a patch for bridge
    Required packages: None
```

## 14.7 show upgrade file

Use this command to display the information of the installation package files in the device file system.

**show upgrade file url**

**Parameter**


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

<b>Description</b>	
<i>url</i>	The local <i>url</i> path indicates where an installation package file is stored.

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** This command is used to preview main messages of an installation package after it is downloaded into local file system.

 This command is not applied to a chassis package.

**Configuration** The following example displays the information of an installation package file.

**Examples**

```
Ruijie# show upgrade file flash://bridge_eg1000m_2.3.1.1252ea-1.mips.rpm
Name      : bridge
Version:1.0.1.23cd34aa
Package type      : common component
Support target    : eg1000m
Size              : 26945
Build time        : Wed Dec 7 00:54:56 2013
Install date      : (not installed)
Description       : this is a bridge package
Package files :
  Package files:
    /lib64
    /lib64/libbridge.so
    /sbin
    /sbin/bridge
```

This command is used to obtain the information in the package.

Field	Description
Name	Name of the package
Version	Version of the package
Package type	Type of the package
Support target	Supported product description
Size	Content size of the package
Build time	Compilation time of the package
Install date	Installation time of the package
Description	Description of the package
Package files	All contents in the package

**Prompt** The package information is displayed after running.

**Messages** Name : bridge

```

Version:1.0.1.23cd34aa
Package type      : common component
Support target   : eg1000m
Size             : 26945
Build time       : Wed Dec 7 00:54:56 2013
Install date     : (not installed)
Description      : this is a bridge package
Package files :
  Package files:
    /lib64
    /lib64/libbridge.so
    /sbin
    /sbin/bridge

```

## 14.8 show upgrade history

Use this command to display the upgrade history.

### show upgrade history

Parameter	Parameter	Description
Description	N/A	N/A

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

**Default Level** 2

**Configuration** The following example displays the upgrade history.

**Examples**

```

Ruijie#show upgrade history
Last Upgrade Information:
  Time:          2014-08-31 12:15:03
  Method:        LOCAL
Package Name:    N18000_RGOS11.0(1)B1_CM_01200616_install.bin
Package Type:    Distribution

```

**Prompt Messages** N/A

**Platforms** N/A



## 14.9 upgrade

Use this command to install and upgrade an installation package in the local file system.

**upgrade** [*url*] [**force**]

Parameter Description	Parameter	Description
	<i>url</i>	The local path indicates where an installation package is stored. This command is used to upgrade an installation package on the device.
	<b>force</b>	Mandatory upgrade

**Command** Privileged EXEC mode

**Mode**

**Default Level** 2

**Usage Guide** This command is applicable to installation packages of all subsystem components, chassis devices, feature components and hot patches. 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** The following example upgrades the main package on the device.

```
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!
```

The following example upgrades the chassis package on the device.

```
Ruijie# upgrade usb0:/ ca-octeon_11.0(1B2)_20131106_main_install.bin
[Slot M1]:Upgrade processing is 10%

[Slot 1]:Upgrade processing is 10%

[Slot M1]:Upgrade processing is 60%

[Slot 1]:Upgrade processing is 60%
```

```

[Slot M1]:Upgrade processing is 90%

[Slot M1]:
Upgrade info [OK]
  Kernel version[2.6.32.abb2b41f170c81->2.6.32.abb2b415749f40]
  Rootfs version[1.0.0.d5f0de03->1.0.0.660e0085]

[Slot M1]:Restart to take effect !

[Slot M1]:Upgrade processing is 100%
[Slot 1]:Upgrade processing is 90%

[Slot 1]:
Upgrade info [OK]
  Kernel version[2.6.32.9f8b56f1d45ab2 ->2.6.32.0f48cb9f170c81]
  Rootfs version[1.0.0.2ad02537->1.0.0.1bcc12e8]

[Slot 1]:Restart to take effect !

[Slot 1]:Upgrade processing is 100%
[slot: M1]
  device_name: ca-octeon-cm
  status:      SUCCESS
[slot: 1]
  device_name: ca-octeon-lc
Status:      SUCCESS

```

**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

Run the **show patch** command to check whether the upgrade of a hot patch is successful.

**Prompt** The prompt message of successful running is displayed.

**Messages** 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

The existing patch package needs to be uninstalled before upgrade.

Already exist patch, please uninstall before upgrade

The patch package is not applicable to this system and needs to be changed.

Patch compatibility err

The upgrade of a patch package is not available on this device and needs to be regained.

some origin cmpnt has change

### 14.10 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
	<i>path</i>	The path of installation packages on the tftp server This command is downloaded and upgraded automatically from the server.
	<b>force</b>	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, feature components and hot patches. 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.

Run the **show patch** command to check whether the upgrade is successful of a hot patch package.

**Prompt** The prompt message of successful running is displayed.

**Messages** 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
```

The existing patch package needs to be deleted.

```
Already exist patch, please uninstall before upgrade
```

The patch package is not compatible on this device. Replace the package..

```
Patch compatibility err
```

The upgrade of the patch package is not applied to the device. Regain the package.

Some origin component has change

## 14.11 upgrade rollback

Use this command to roll a subsystem back to the version before the upgrade.


### upgrade rollback

Parameter Description	Parameter	Description
	N/A	N/A

**Command Mode** Privileged EXEC mode

**Default Level** 2

**Usage Guide** This command is used when the device cannot work properly after subsystem upgrade. It takes effect only when the last upgrade of subsystem components is successful.

 The command is valid after device restart. The recursive rollback cannot be executed through this command in succession.

**Configuration Examples** The following example rolls a subsystem back to the version before the upgrade on the box device.

```
Ruijie#upgrade rollback
kernel rollback version[2.6.32.9f8b56f->2.6.32.91f9d21] [OK]
rootfs rollback version[1.0.0.1bcc12e8->1.0.0.2ad02537] [OK]
Rollback success!
Reload system to take effect!
```

The following example rolls a subsystem back to the version before the upgrade on the chassis device.

```
Ruijie#upgrade rollback slot M1
[Slot M1]:
kernel rollback version[2.6.32.9f8b56f->2.6.32.91f9d21] [OK]
rootfs rollback version[1.0.0.1bcc12e8->1.0.0.2ad02537] [OK]
Rollback success!
Reload system to take effect!
```

**Verification** Run the **show version detail** command to check the result of rolling back subsystem components after device restart.

**Prompt Messages** The prompt message of successful running is displayed.

```
Rollback success!
Restart to take effect !
```

The rollback operation cannot be performed when subsystem components have not been upgraded last time.

```
Not subsys package last upgrade
```

The rollback operation cannot be performed for the last upgrade is not successful.

```
Last upgrade err or skip
```

The upgrade command has not been run or the rollback operation has been performed.

```
Monitor file lost
```

**Common Errors** The last upgrade is not for subsystem components, but for feature packages, hot patch packages and so on.  
Run the rollback command for subsystem once.

## 14.12 clear storage

Use this command to remove an installation package on the local device.

**clearstorage**[ *url* ]

Parameter Description	Parameter	Description
	<i>url</i>	A local <i>url</i> 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

## 15 SYS Commands

### 15.1 calendar set

Use this command to set the hardware calendar.

**calendar set** [ *month* [ *day* [ *year* ] ] ]

Parameter Description	Parameter	Description
	<i>hour</i> [ <i>:minute</i> [ <i>:second</i> ] ]	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.
	<i>month</i>	Sets month. The range is from 1 to 12.
	<i>day</i>	Sets date. The range is from 1 to 31. If the day does not exist in the current month, the date is calculated backward.
	<i>year</i>	Sets year. The range is from 1970 to 2069.


**Defaults** -

**Command Mode** Privileged EXEC mode

**Default Level** -

**Usage Guide**

- 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".
- 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.

 This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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** -

## 15.2 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** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported. 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** -

## 15.3 clock set

Use this command to set the system software clock.

**clock set** [ *month* [ *day* [ *year* ] ] ]


Parameter Description	Parameter	Description
	<i>hour</i> [ <i>:minute</i> [ <i>:second</i> ] ]	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.
	<i>month</i>	Sets month. The range is from 1 to 12.
	<i>day</i>	Sets date. The range is from 1 to 31. If the day does not exist in the current month, the date is calculated backward.
	<i>year</i>	Sets year. The range is from 1970 to 2069.

**Defaults** -


**Command Mode** Privileged EXEC mode

**Default Level** -

**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".

This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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** -

## 15.4 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
	<b>zone</b>	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.
	<b>start</b>	Indicates the start time of the summer time.
	<i>start-month</i>	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.
	<i>week</i>	Start week in the start month. The range is from 1 to 5.
	<b>last</b>	The last week of the specified month.
	<i>start-date</i>	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.
	<b>hh:mm</b>	Time, in the format of hour : minute.
	<b>end</b>	Indicates the end time of the summer time.
	<i>end-month</i>	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.
	<b>ahead</b>	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.
	<i>hours-offset</i>	Hours ahead of the standard time. The range is from 0 to 12. You are not allowed to set it to 00:00.
	<i>minutes-offset</i>	Minutes ahead of the standard time. The range is from 0 to 59. If <i>hours-offset</i> has been set to 0, you are not allowed to set <i>minutes-offset</i> to 0.

**Defaults** -

**Command Mode** configuration mode

**Default Level** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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**


## 15.5 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
	<i>name</i>	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.
	<i>hours-offset</i>	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 <i>hours-offset</i> .
	<i>minutes-offset</i>	Minutes of time difference. The range is from 0 to 59.

**Defaults** -

**Command Mode** configuration mode

**Default Level** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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** -

## 15.6 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** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported. 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**

## 15.7 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
	<b>high</b> <i>high-value</i>	Sets the high watermark of the CPU usage. The range is from 2 to 99.
	<b>range</b> <i>range-value</i>	Sets the watermark fluctuation range. The range is from 1 to 20.
<b>Defaults</b>	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%).	
<b>Command Mode</b>	configuration mode	
<b>Default Level</b>	-	
<b>Usage Guide</b>	<p>This command is supported only in VSD0 mode. Multiple VSDs are not supported.</p> <p>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.</p>	
<b>Configuration Examples</b>	<p>The following example sets the CPU usage watermark to the default value and enables CPU usage monitoring (if it is disabled).</p> <pre>Ruijie(config)# default cpu high-watermark set Reset default cpu watermark monitor set system cpu watermark high 80%(75~85%)</pre> <p>The following example disables CPU usage monitoring.</p> <pre>Ruijie(config)# no cpu high-watermark set Close cpu watermark monitor</pre> <p>The following example enables CPU usage monitoring. Keep the defined watermark value.</p> <pre>Ruijie(config)# cpu high-watermark set Open cpu watermark monitor set system cpu watermark high 80%(75~85%)</pre> <p>The following example enables CPU usage monitoring and sets the high watermark to 88% and fluctuation range to 3%.</p> <pre>Ruijie(config)# cpu high-watermark set high 88 range 3 Open cpu watermark monitor set system cpu watermark high 88%(85~91%)</pre> <p>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%).</p>	
<b>Check Method</b>	-	
<b>Prompt Message</b>	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**

## 15.8 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 this command to disable the detection of memory low watermark.

**no memory low-watermark set**

**Parameter Description**

Parameter	Description
<i>mem-value</i>	Memory watermark threshold. The range is from 1 KB to 4,294,967,295 KB.

**Defaults**

By default, the detection of memory low watermark is disabled.

**Command Mode**

Global configuration mode

**Default Level**

-

**Usage Guide**

You can use this command to enable the detection of the memory low watermark and set the memory watermark threshold. When the system memory is less than this threshold, the system will print prompts.

**Configuration Examples**

The following example sets the low watermark threshold of the memory to 500,000 KB and enables detection.

```
Ruijie(config)#memory low-watermark 500000
```

**Check Method**

-

**Prompt Message**

When the system memory is less than the defined watermark value (such as 500000 KB), the system prints the following message:

```
Ruijie(config)#<187> Jan 1 00:18:59 syslog: Free Memory has dropped below 500000k
```

**Platform**

-

**Description**

## 15.9 memory history clear

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

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

**Parameter****Description**

Parameter	Description
<b>one-fourth</b>	Clears one fourth entries.
<b>half</b>	Clears a half of entries.
<b>all</b>	Clears all the entries.

**Defaults**

-

**Command**

Global configuration mode

**Mode****Default Level**

-

**Usage Guide**

-

**Configuration**

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

**Examples**

```
Ruijie# show memory history

Time Thu Jan 1 00:24:45 1970
Used(k) 148516
Maxinum 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
Maxinum 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** -

## 15.10 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** -

**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** -

## 15.11 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** -

**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** -

## 15.12 show clock

Use this command to display the system software clock.

**show clock**

**Parameter Description**

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

-	-
---	---

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

**Default Level** -

**Usage Guide** -

**Configuration Examples** The following example displays the software clock when the time zone is disabled.

```
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** -

## 15.13 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
	<b>sorted total</b>	Ranked according to the memory usage.
	<b>history</b>	Displays the history of memory usage.
	<b>low-watermark</b>	Displays the memory low watermark threshold of the system.
	<i>process-id</i>	Displays the memory usage of the task specified by <i>process-id</i> .
	<i>process-name</i>	Displays the memory usage of the task specified by <i>process-name</i> .

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

**Default Level** -

**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 Examples** The following example displays the memory usage of each task and the ranking (based on the total 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-filessystem
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** -

## 15.14 show memory vsd

Use this command to display memory information.

**show memory vsd** *vsd\_id*

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

**Command** Privileged EXEC mode/ global configuration mode

**Mode**

**Default Level** -

**Usage Guide**

 This command is supported only in VSD0 mode.

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

### Examples

```
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** -

## 15.15 show pci-bus

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

**show pci-bus**

Parameter	Parameter	Description
Description	-	-

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

**Default Level** -

**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 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** -

### 15.16 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
	<b>5sec   1min   5min   15min</b>	Displays lists of tasks in descending order of CPU usage within the last five seconds, one minute, five minutes, and 15 minutes.
	<b>Nonzero</b>	Does not display the task with 0 CPU usage.
	<b>History</b>	Displays the CPU usage of the control core within the last 60 seconds, 60 minutes, and 72 hours in histogram.
	<b>Table</b>	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** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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**

### 15.17 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
	<i>process-id</i>	Displays the information on the task of the specified task ID.
	<i>process-name</i>	Displays the information on the task of the specified task name.

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

**Default Level** -


**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**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	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. 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** -

### 15.18 show processes vsd

Use this command to display system task of the specified VSD.

**show process vsd vsd\_id cpu**

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

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

**Default Level** -

**Usage Guide**  This command is supported only in VSD0 mode. Multiple VSDs are not supported.

**Configuration Examples** The following example displays the system task information in VSD1 mode.

```
Ruijie#show processes vsd 1 cpu
```

**Prompt Message** -

**Platform Description** -



## 15.19 show usb-bus

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

**show usb-bus**

Parameter Description	Parameter	Description
	-	-

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

**Default Level** -

**Usage Guide** -

**Configuration Examples** 1: The following example displays the information on the device mounted to the USB bus.

```
Ruijie# show usb-bus
Device: Linux Foundation 2.0 root hub
Bus 001 Device 001: ID 1d6b:0002
```

**Prompt Message** -

**Platform Description** -

## 15.20 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** -

**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** -

## 15.21 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** -

**Usage Guide** This command is supported only in VSD0 mode. Multiple VSDs are not supported. 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**

## 16 NTP Commands

### 16.1 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
	<b>ntp server</b>	Specifies an NTP server.

**Platform Description** N/A

### 16.2 ntp access-group

Use this command to configure an access group to control NTP access. Use the **no** form of this command to remove the peer access group.

**ntp access-group** { **peer** | **serve** | **serve-only** | **query-only** } *access-list-number* | *access-list-name*

**no ntp access-group** { **peer** | **serve** | **serve-only** | **query-only** } *access-list-number* | *access-list-name*

Parameter Description	Parameter	Description
	<b>peer</b>	Allows the device to receive time requests and NTP control queries to synchronize itself to the servers specified in the access list.

<b>serve</b>	Allows the device to receive time requests and NTP control queries from the servers specified in the access list but not to synchronize itself to the specified servers.
<b>serve-only</b>	Allows the device to receive only time requests from the servers specified in the access list.
<b>query-only</b>	Allows the device to receive only NTP control queries from servers specified in the access list.
<i>access-list-number</i>	Access control list number, ranging from 1 to 99 and 1300 to 1999.
<i>access-list-name</i>	Access control list name.


**Defaults** No access rule to control NTP access is configured by default, namely, NTP access is granted to all devices.

**Command mode** Global configuration mode.

**Usage Guide** Use this command to configure an access group to control NTP access, providing a minimal security measures (more secure way is to use the NTP authentication mechanism).

The NTP service enables the access group options to be scanned in the following order, from least restrictive to most restrictive: **peer**, **serve**, **serve-only**, **query-only**.

If you do not configure any access groups, NTP access is granted to all devices. However, once you configure the access rule, NTP access is granted only to the devices specified in the access list.

 NTP control query is not supported in the current system. Although it matches with the order in accordance with the above rules, the related requests about the control and query are not supported.

**Configuration Examples** The following example shows how to allow the device to only receive time requests from the device of 192.168.1.1.

```
Ruijie(config)# access-list 1 permit 192.168.1.1
Ruijie(config)# ntp access-group serve-only 1
```

**Related Commands**

Command	Description
<b>ip access-list</b>	Creates an IP access control list.

**Platform Description** N/A

## 16.3 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.

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 woooooop
Ruijie(config)#ntp trusted-key 6
Ruijie(config)#ntp authenticate
```

**Related  
Commands**

Command	Description
<b>ntp authentication-key</b>	Sets the global authentication key.
<b>ntp trusted-key</b>	Configures the global trusted key.

**Platform Description** N/A

## 16.4 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
<i>key-id</i>	Key ID, ranging from 1 to 4294967295.
<i>key-string</i>	Key string
<i>enc-type</i>	(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** The following example configures an NTP authentication key.

**Examples** Ruijie(config)#ntp authentication-key 6 md5 woooooop

Related Commands	Command	Description
		<b>ntp authenticate</b>
	<b>ntp trusted-key</b>	Configures an NTP trusted key.
	<b>ntp server</b>	Specifies an NTP server.

**Platform** N/A

**Description**

## 16.5 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

**Defaults** All NTP packets can be received by default.

**Command mode** Interface configuration mode.

**Usage Guide** 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** The following example disables the device to receive the NTP packets.

**Examples** Ruijie(config-if)# no ntp disable

Related Commands	Command	Description
		N/A

**Platform** N/A

**Description**

## 16.6 ntp master

Use this command to configure the device to act as an authoritative NTP server, synchronizing time to other devices. Use the **no** form of this command to remove the device as an authoritative NTP server.

**ntp master** [ *stratum* ]


**no ntp master**


Parameter Description	Parameter	Description
		<i>stratum</i>

**Defaults** N/A

**Command mode** Global configuration mode.

**Usage Guide** In general, the local device synchronizes time from the external time source directly or indirectly. However, if the time synchronization fails due to network connection trouble, you can use this command to configure the local device to act as an authoritative NTP server to synchronize time to other devices. Once configured, the device will not perform time synchronization with the time source which is of a higher stratum.

 Configuring the device to act as an authoritative NTP server (in particular, specify a lower stratum level), may be likely to overwrite the effective time. If multiple devices in the same network are configured with this command, the time synchronization may be instable due to the time difference between the devices.

 Before configuring this command, you need to manually correct the system clock to avoid too much bias if the device has never performed time synchronization with the external clock source.

**Configuration Examples** The following example configures the device to act as an authoritative NTP server, and sets the stratum level to 12:



```
Ruijie(config)# ntp master 12
```

#### Related Commands

Command	Description
N/A	N/A

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

## 16.7 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 | ipv6 domain } [ version version ] [ source if-name ] [ key keyid ] [ prefer ]  

no ntp server ip-addr
```

#### Parameter Description

Parameter	Description
<i>ip-addr</i>	Sets the IP address of the NTP server. The address can be in IPv4 or IPv6 format.
<i>domain</i>	Sets the domain name of the NTP server, supporting IPv4 and IPv6.
<i>version</i>	(Optional) Specifies the NTP version (1-3). The default is NTPv3.
<i>if-name</i>	(Optional) Specifies the source interface from which the NTP message is sent (L3 interface).
<i>keyid</i>	(Optional) Specifies the encryption key adopted when communication with the corresponding server. The key ID range is from 1 to 4,294,967,295.
<b>prefer</b>	(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** The following example configures an NTP server.

**Examples** For IPv4: `Ruijie(config)# ntp server 192.168.210.222`  
 For IPv6: `Ruijie(config)# ntp server 10::2`

Related Commands	Command	Description
	<code>no ntp</code>	

**Platform** N/A

**Description**

## 16.8 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
	<i>key-id</i>	

**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** The following example configures an authentication key and sets it as a trusted key.

**Examples** `Ruijie(config)#ntp authentication-key 6 md5 woooooop`  
`Ruijie(config)#ntp trusted-key 6`  
`Ruijie(config)#ntp server 192.168.210.222 key 6`

Related Commands	Command	Description
	<code>ntp authenticate</code>	Enables NTP authentication.
	<code>ntp authentication-key</code>	Configures an NTP authentication key.
	<code>ntp server</code>	Configures an NTP server.

**Platform** N/A

**Description**

## 16.9 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**

The following example configures the NTP update calendar periodically.

**Examples**

```
Ruijie(config)# ntp update-calendar
```

**Related  
Commands**

Command	Description
N/A	N/A

**Platform**

N/A

**Description**

## 16.10 show ntp server

Use this command to display the NTP server configuration.

**show ntp server**

**Parameter  
Description**

Parameter	Description
N/A	N/A

<b>Defaults</b>	N/A
<b>Command mode</b>	Privileged EXEC mode, global configuration mode, interface configuration mode, VLAN configuration mode
<b>Usage Guide</b>	N/A

**Configuration** The following example displays the NTP server.

**Examples**

```
Ruijie# show ntp server
ntp-server          source      keyid      prefer  version
-----
-----
10::2              None       None       FALSE   3
192.168.210.222   None       None       FALSE   3
```

<b>Related Commands</b>	Command	Description
	N/A	N/A

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

## 16.11 show ntp status

Use this command to display the NTP configuration.

**show ntp status**

<b>Parameter Description</b>	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** The following example displays the NTP configuration.

**Examples**

```
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

## 17 SNTP Commands

### 17.1 sntp enable

Use this command to enable the SNTP function. Use the **no** form of this command to restore the default value.

**sntp enable**  
**no sntp enable**

Parameter Description	Parameter	Description
	N/A	N/A

**Defaults** SNTP is disabled by default.

**Command mode** Global configuration mode.

**Usage Guide** N/A

**Configuration Examples** The following example enables SNTP.

```
Ruijie(config)# sntp enable
```

Related Commands	Command	Description
	<b>show sntp</b>	Displays the SNTP configuration.

**Platform Description** N/A

### 17.2 sntp interval

Use this command to set the interval for the SNTP client to synchronize its clock with the NTP/SNTP server. Use the **no** form of this command to restore the default synchronization interval.

**sntp interval seconds**  
**no sntp interval**

Parameter Description	Parameter	Description
	<i>seconds</i>	Synchronization interval. The unit is second, and the range is from 60 to 65,535.

- Defaults** The default synchronization interval is 1,800 seconds.
- Command mode** Global configuration mode.
- Usage Guide** To make the synchronization interval configuration effective, run the **sntp enable** command.
- Configuration** The following example configures the synchronization interval to 3,600 seconds.
- Examples**
- ```
Ruijie(config)# sntp interval 3600
```

**Related Commands**

| Command            | Description                      |
|--------------------|----------------------------------|
| <b>sntp enable</b> | Enables SNTP.                    |
| <b>show sntp</b>   | Displays the SNTP configuration. |

- Platform** N/A
- Description**

## 17.3 sntp server

Use this command to specify an SNTP server. Use the **no** form of this command to remove the SNTP server.

- sntp server** *ip- address*
- no sntp server**

**Parameter Description**

| Parameter         | Description                    |
|-------------------|--------------------------------|
| <i>ip-address</i> | IP address of the SNTP server. |

- Defaults** No SNTP server is configured by default.
- Command mode** Global configuration mode.
- Usage Guide** As SNTP is fully compatible with NTP, the SNTP server can be used as an NTP server in Internet.
- Configuration** The following example specifies an NTP server in Internet.
- Examples**
- ```
Ruijie(config)# sntp server 192.168.4.12
```

**Related Commands**

Command	Description
<b>show sntp</b>	Displays the SNTP configuration.
<b>sntp enable</b>	Enables SNTP.

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

## 17.4 show sntp

Use this command to display the SNTP configuration.

**show sntp**

**Parameter**  
**Description**

Parameter	Description
N/A	N/A

**Defaults**

**Command mode** Privileged EXEC mode, global configuration mode, interface configuration mode.

**Usage Guide** N/A

**Configuration** The following example displays the SNTP configuration.

**Examples**

```
Ruijie# show sntp
SNTP state           : Enable
SNTP server          : 192.168.4.12
SNTP sync interval   : 60
Time zone            : +8
```

**Related**  
**Commands**

Command	Description
<b>sntp enable</b>	Enables SNTP.

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



# 18 Time Range Commands

## 18.1 absolute

Use this command to configure an absolute time range.

```
absolute { [ start time date ] [ end time date ] }
```

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

```
no absolute
```

Parameter Description	Parameter	Description
	<b>start</b> <i>time date</i>	Indicates the start time of the range.
	<b>end</b> <i>time date</i>	Indicates the end time of the range.

**Defaults** No absolute time range is configured by default.

**Command** Time range configuration mode

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

```
Examples 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** -

## 18.2 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
	<i>day-of-the-week</i>	Indicates the week day when the periodic time starts or ends.
	<i>time</i>	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.

**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** -

## 18.3 show time-range

Use this command to display the time range configuration.

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

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>time-range-name</i></td> <td>Displays a specified time range.</td> </tr> </tbody> </table>	Parameter	Description	<i>time-range-name</i>	Displays a specified time range.
Parameter	Description				
<i>time-range-name</i>	Displays a specified time range.				
<b>Command Mode</b>	Privileged EXEC mode				
<b>Default Level</b>	14				
<b>Usage Guide</b>	Use this command to check the time range configuration.				
<b>Configuration Examples</b>	<p>The following example displays the time range configuration.</p> <pre>Ruijie# show time-range time-range entry: test (inactive)   absolute end 01:02 02 February 2012</pre>				
<b>Prompt Message</b>	-				
<b>Platform Description</b>	-				

## 18.4 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*

<b>Parameter Description</b>	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>time-range-name</i></td> <td>Time range name</td> </tr> </tbody> </table>	Parameter	Description	<i>time-range-name</i>	Time range name
Parameter	Description				
<i>time-range-name</i>	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** The following example creates a time range.

**Examples**

```
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** -