# RG-S5750-28GT-S

# RGOS 10.4(2b11)p1

©2000-2012

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p ´ I

3 Y

# ! ?Ô

RGOS®10.4(2b11)p1

z

z

z

**1.**

Courier New 5

**2.**

Arial

[ ] [ ]

{ x | y | ... }

[ x | y | ... ]

//

**3.**

**a !**

**!**

| | |
|---|---|
| **a** | **1.**<br>**2.**<br>**3.** |

# 1 CLI Ñ ã a —

## 1.1 " - ‘ a —

### 1.1.1 alias

alias no

**alias** mode command-alias original-command

**no alias** mode [original-command]

| | |
|---|---|
| mode | |
| command-alias | |
| original-command | |

EXEC

EXEC **h p s u un** **help ping show undebug undebug**

**no alias exec**

**alias ?**

Ruijie(config)# alias ?

aaa-gs AAA server group mode

acl acl configure mode

bgp Configure bgp Protocol

config globle configure mode

*

*command-alias=original-command

EXEC ”s” ”show” ”s?” ’s’

| | |
|---|---|
| - | - |

## 1.1.2 privilege

**privilege**

**no**

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

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

| | |
|---|---|
| mode | CLI |
| [**all**] | |
| **level** level | 0-15 |
| **reset** | |
| command-string | |

**privilege** CLI

**privilege ?**

CLI

| | |
|---|---|
| **config** | |
| **exec** | |
| **interface** | |
| **ip-dhcp-pool** | DHCP |
| **keychain** | KeyChain |
| **keychain-key** | KeyChain-key |
| **time-range** | Time-Range |

CLI 1 ”test” **reload**

Ruijie(config)# enable secret level 1 0 test
Ruijie(config)# privilege exec level 1 reload
1 CLI **reload**
Ruijie> reload ?
<cr>
reload 1 **all**
Ruijie(config)# privilege exec all level 1 reload
1 CLI **reload**
Ruijie> reload ?
at reload at a specific time/date
cancel cancel pending reload scheme
in reload after a time interval
<cr>

| | |
|---|---|
| **enable secret** | CLI |

| | |
|---|---|
| **-** | - |

# 1.2 ¡ µ - ‘ a —

## 1.2.1 show aliases

EXEC **show aliases**

**show aliases** [mode]

| | |
|---|---|
| mode | |

EXEC

EXEC

Ruijie# show aliases exec

exec mode alias:

h help

p ping

s show

u undebug

un undebug

| | |
|---|---|
| **alias** | |

| | |
|---|---|
| **-** | - |

## 2.1.2 enable

enable

| | |
|---|---|
| - | - |

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.1.3 enable password

**enable password** **no**

**enable password** [**level** level] {password | [**0** | **7**] encrypted-password}**no enable password**

| | |
|---|---|
| Password | EXEC |
| Level | |
| **0\|7** | 0 7 |
| encrypted-password | |

„ 1 26

„

**a** EXEC

pw10

Ruijie(config)# enable password pw10

| | |
|---|---|
| **enable secret** | |

| | |
|---|---|
| - | - |

## 2.1.4 enable secret

**enable secret** **no**

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

**no enable secret**

| | |
|---|---|
| Secret | EXEC |
| Level | |
| **0|5** | 0 5 |
| encrypted-password | |

password security password 15
security 0 15
password 15 password
security 15 password security
password
security

pw10
Ruijie(config)# enable secret 0 pw10

| | |
|---|---|
| **enable password** | |

| | |
|---|---|
| - | - |

## 2.1.5 enable service

SSH Server/Telnet Server/Web Server/Snmp Agent
**enable service**

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

| | | |
|---|---|---|
| **ssh-sesrver** | SSH Server | IPv4 |
| **telnet-server** | Telnet Server | IPv4 |
| **web-server** | Http Server | IPv4 |
| **snmp-agent** | Snmp Agent | IPv4 |

**no enable service**

enable service ssh-sesrver, SSH Server

Ruijie(Config # enable service ssh-sesrver

| | |
|---|---|
| **show service** | |

| | |
|---|---|
| - | - |

## 2.1.6 execute

**execute**

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

| | |
|---|---|
| **flash:** | |
| filename | |

PC

TFTP Flash

CLI

line_rcms_script.text

**Telnet**

configure terminal

line tty 1 16
transport input all
no exec
end

Ruijie# execute flash: line_rcms_script.text
executing script file line_rcms_script.text .....
executing done
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# line vty 1 16
Ruijie(config-line)# transport input all
Ruijie(config-line)# no exec
Ruijie(config-line)# end

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 2.1.7 ip http authentication

Http Server Web Web

**ip http authentication**

**ip http authentication** { **enable** | **local** }

| | |
|---|---|
| **enable** | enable password enable secret 15 enable |
| **local** | username 15 |

enable

Web **no ip http authentication**

Web local

Ruijie(config)# ip http authentication local

| | |
|---|---|
| **enable service** | |

| | |
|---|---|
| - | - |

## 2.1.8 ip http port

HTTP **ip http port**

**ip http port** number

| | |
|---|---|
| number | HTTP Server 80 |

80

HTTP **no ip http port**

HTTP 8080

Ruijie(config)# ip http port 8080

| | |
|---|---|
| **enable service** | |

| | |
|---|---|
| | |

| | |
|---|---|
| | |

**lockable**

**no lockable**

| | |
|---|---|
| - | - |

line

EXEC

**lock**

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

| | |
|---|---|
| **lock** | |

| | |
|---|---|
| - | - |

## 2.1.12 login

AAA

**login** **no**

**login**

**no login**

| | |
|---|---|
| - | - |

line

AAA

VTY console

VTY

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

| | |
|---|---|
| **password** | line |

line

AAA

VTY radius

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

| | |
|---|---|

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

| | |
|---|---|
| **username** | |

| | |
|---|---|
| - | - |

## 2.1.15 privilege mode

CLI

| | |
|---|---|
| - | - |

CLI

CLI

CLI

CLI

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.1.16 password

line line **password** **no** line

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

**no password**

| | |
|---|---|
| | |

| | |
|---|---|
| - | - |

service password-encryption

password service password-encryption

show running write

1 telnet IPV4 192.168.1.1
vlan 1 VRF vpn1
Ruijie# telnet 192.168.1.1 /source interface vlan 1 /vrf vpn1

| | |
|---|---|
| **ip telnet source-interface** | IP Telnet |
| **show session** | TTY |
| **exit** | |

| | |
|---|---|
| - | - |

## 2.1.19 username

username

**username** name{**nopassword**|**password**{password | [**0|7**]encrypted-password }}

**username** name **privilege** privilege-level

**no username** name

| | |
|---|---|
| name | |
| password | |
| **0|7** | 0 7 |

encrypted-password

7

**a** 7

7

15

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

| | |
|---|---|
| **login local** | |

| | |
|---|---|
| - | - |

## 2.2 " n ‡ , Ä • 8 - ‘ a —

### 2.2.1 banner login

**banner login**

**no banner login**

**banner login** c message c

| | |
|---|---|
| c | |
| message | |

Ruijie(config)

Ruijie(config)# banner login $ enter your password $

| | |
|---|---|

| | |
|---|---|
| - | - |
| - | - |

## 2.2.3 boot system

no

**boot system** url

**no boot system**

| | |
|---|---|
| url | |

“ flash:/rgos.bin ”

url

| | | | | |
|---|---|---|---|---|
| | 1 | flash | URL | flash |
| **a** | 2 | | | |
| | | Boot ROM | | |

Ruijie#show boot system
system boot file: flash:/rgos.bin

Ruijie#dir
Directory of flash:/
  11015744 2008-01-01 08:00:46 rgos.bin
  12019754 2008-02-01 08:00:46 s5750_10_4.bin

399 2006-01-01 08:01:37 config.text
33,030,144 bytes total. (10,590,592 bytes free)

Ruijie(config)# boot system s5750_10_4.bin
Ruijie(config)# show boot system
system boot file: flash:/ s5750_10_4.bin
s5750_10_4.bin

| | |
|---|---|
| **show boot system** | |

-

| | |
|---|---|
| - | - |

## 2.2.4 clock set

**clock set**

**clock set** hh:mm:ss month day year

| | |
|---|---|
| hh:mm:ss | 24 : : |
| day | 1-31 |
| month | 1-12 |
| year | 1993-2035 |

clock set

2003 3 17 10 20 30

Ruijie# clock set 10:20:30 3 17 2003

Ruijie# show clock

clock: 2003-3-17 10:20:32

| | |
|---|---|
| **show clock** | |

| | |
|---|---|
| - | - |

## 2.2.5 clock update-calendar

**clock update-calendar**

| | |
|---|---|
| - | - |

calendar

Ruijie# clock update-calendar

| | |
|---|---|
| - | - |

-

| | |
|---|---|
| - | - |

## 2.2.6 exec-timeout

LINE **exec-timeout** **no exec-timeout**
LINE

**exec-timeout** minutes [seconds]

**no exec-timeout**

| | |
|---|---|
| minutes | |
| seconds | |

10 min

LINE

LINE

line vty 0 5 30
Ruijie(config-line)# exec-timeout 5 30

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.2.7 hostname

**hostname**

**hostname** name

| | |
|---|---|
| name | 63 |

Ruijie

CHAP

Ruijie# reload in 10

Router will reload in 600 seconds.

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.2.10 session-timeout

LINE **session-timeout**

**no session-timeout** LINE

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

**no session-timeout**

| | |
|---|---|
| minutes | |
| **output** | |

0 min

LINE

LINE

LINE

line vty 0 5 30

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

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.2.11 speed

| | |
|---|---|
| **memory** | NVRAM **copy running-config startup-config** |
| **network** | TFTP **copy running-config tftp** |
| **terminal** | **show running-config** |

1 **boot config**

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

2 **boot config** U U **write**

```
Ruijie(config)#  boot config  /mnt/usb1/config.text
Ruijie#  write
Building configuration...
Write to boot config file: [/mnt/usb1/config.text]
[OK]
Ruijie#  usb remove  1
0:1:1:38 Ruijie: USB-5-  USB_DISK_REMOVED: USB Device <USB Mass Storage Device> Removed!
Ruijie#  write
Building configuration...
Write to boot config file: [/mnt/usb1/config.text]
[Failed]
The device [usb1] does not exist, write to the default config file [/config.text]? [no]  yes
Write to the default config file: [/config.text]
[OK]
```

| | |
|---|---|

| | |
|---|---|
| **boot config** | |
| **copy** | |
| **show running-config** | |

| | |
|---|---|
| - | - |

## 2.3 ¡ µ - ‘ a —

### 2.3.1 show clock

**show clock**

**show clock**

| | |
|---|---|
| - | - |

detail

**show clock**

Ruijie# show clock

clock: 2003-3-17 10:27:21

| | |
|---|---|
| **clock set** | |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 2.3.2 show line

**show line**

**show line** [**console** line-num **| aux** line-num **| vty** line-num **|** line-num]

| | |
|---|---|
| **console** | |
| **aux** | aux |
| **vty** | vty |
| line-num | line |

console

```
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
```

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.3.3 show reload

**show reload**

**show reload**

| | |
|---|---|
| - | - |

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

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 2.3.4 show running-config

**show running-config**

**show running-config**

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 2.3.5 show startup-config

NVRAM

**show startup-config**

**show startup-config**

| | |
|---|---|
| - | - |

NVRAM startup-config

startup-config Flash “ /config.text ”

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 2.3.6 show version

**show version**

**show version** [**slots** | **devices**]

| | |
|---|---|
| **slots** | |
| **devices** | |

Ruijie# show version
Systemdescription:RuijieDualStackMulti-LayerSwitch(S3760- 24)
By Ruijie Network
System start time: 1970-6-14 11:49:53
System uptime: 3:17:1:17
System hardware version: 2.0
System software version: RGOS 10.3.00(4), Release(34679)
System boot version: 10.2.34077
System CTRL version: 10.2.24136
System serial number: 1234942570001

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 3 LINE a —

## 3.1 LINE " - ‘ a —

### 3.1.1 access-class

Line ACL **access-class** acl-no { **in | out** }
Line no **access-class** access-list-number {**in | out**}
LINE ACL

[**no**] **access-class** access-list-number {**in | out**}

| | |
|---|---|
| access-list-number | access-list |

**in**

| | |
|---|---|
| - | - |

## 3.1.2 line

LINE

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

| | |
|---|---|
| **aux** | |
| **console** | |
| **tty** | |
| **vty** | telnet/ssh |

VTY **no**

VTY

**line vty** line-number

**no line vty** line-number

| | |
|---|---|
| - | - |

VTY 5 0--4

VTY

1 VTY 20 VTY 0--19

Ruijie(config)# line vty 19

2 VTY 10 VTY 0—9

Ruijie(config)# line vty 10

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 3.1.4 transport input

Line **transport input** Line

**default transport input** LINE

**transport input** {**all | ssh | telnet | none**}

**default transport input**

| | |
|---|---|
| **all** | Line |
| **ssh** | Line SSH |

| | |
|---|---|
| **telnet** | Line Telnet |
| **none** | Line |

VTY TTY NONE
**default transport input**

Line

Line VTY
VTY **show**
**running** Line
d**efault transport inpu**t **no transport**
**input** LINE
**transport input none**

# 4 " î U ¹ ÿ Ë ] n a —

## 4.1 " - ‘ a —

### 4.1.1 ping

**ping** [**vrf** vrf-name] [**ip**] [ip-address [**length** length ] [**ntimes** times] [**timeout** seconds] [**data** data] [**source** source] [**df-bit**] [**validate**]]

| | |
|---|---|
| vrf-name | VRF |
| ip-address | IPv4 |
| length | |
| times | |
| seconds | |
| data | |
| source | IPv4<br>127.0.0.1 |
| **df-bit** | IP DF DF 1<br>DF 0 |
| **validate** | |

2 5 100Byte IP

Ping z 1 0 0 B y tI e P Ɤ Z

DNS

1 ping

```
Ruijie# ping 192.168.5.1
Sending5,100-byteICMPEchoesto192.168.5.1,timeoutis2seconds:
 < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10
ms
```

2 ping

```
Ruijie# ping 192.168.5.197 length 1500 ntimes 100 timeout 3 data ffff
source 192.168.4.10
 Sending 100, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3
seconds:
 < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Successrateis100percent(100/100),round-trip ripmin/avg/max=2/2/3
ms
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 4.1.2 traceroute

traceroute .

**traceroute** [**vrf**] [vrf-name] [**ip** ip-address][ip-adress [**probe** number ] [**source** source] [**timeout** seconds] [**ttl** minimum maximum]]

| | |
|---|---|
| vrf-name | VRF |
| Ip-address | IPv4 |

| | |
|---|---|
| number | |
| source | IPv4<br>127.0.0.1 |
| seconds | |
| minimum maximum | TTL |

Traceroute

DNS

traceroute

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

IP 202.108.37.42

1 17 4

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

| | |
|---|---|
| - | - |

-

| | |
|---|---|
| - | - |

# 5 Ç a —

## 5.1

| | |
|---|---|
| - | - |

## 5.1.2 clear counters

**clear counters** [interface-id]

| | |
|---|---|
| interface-id | |

**show interfaces** **clear counters**

Ruijie# clear counters gigabitethernet 1/1

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.3 clear interface

**clear interface** interface-id

| | |
|---|---|
| interface-id | |

Switch Port,L2 Aggregrate port ,Routed port,L3 Aggregate port

**shutdown** **no shutdown**

Ruijie# clear interface gigabitethernet 1/1

| | |
|---|---|
| **shutdown** | |

| | |
|---|---|
| - | - |

## 5.1.4 descriptioin

no

**description** string

**no description**

| | |
|---|---|
| string | |

**show interfaces**

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# description GBIC-1

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.5 duplex

**no**

**duplex** {**auto** | **full** | **half**}

**no duplex**

| | |
|---|---|
| **auto** | |
| **full** | |
| **half** | |

**show interfaces**

Ruijie(config-if)# duplex full

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.6 flowcontrol

aggregate port aggregate port

aggregate port **show**

**interfaces** **show interfaces aggregateport**

| | |
|---|---|
| **show interfaces** | |

-

| | |
|---|---|
| - | - |

## 5.1.9 interface giagbitEthernet

**interface gigabitEthernet** mod-num/port-num

| | |
|---|---|
| mod-num/port-num | / |

**no** **show interfaces** **show interfaces** **gigabitEthernet**

Ruijie(config)# interface gigabitEthernet 1/2
Ruijie(config-if)#

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.10 interface vlan

switch virtual interface SVI

**no** SVI

**interface vlan** vlan-id

**no interface vlan** vlan-id

| | |
|---|---|
| vlan-id | VLAN ID |

**show interfaces** **show interfaces vlan**

Ruijie(config)# interface vlan 2
Ruijie(config-if)#

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.11 line-detect

line-detect

line-detect

line-detect

Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
Interface : GigabitEthernet 0/1

start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state length(meters)
---- ---------- --------------
A Ok 1
pair state length(meters)
---- ---------- --------------
B Ok 2
pair state length(meters)
---- ---------- --------------
C Short 1
pair state length(meters)
---- ---------- --------------
D Short 1

| | |
|---|---|
| **copper** | |

Ap SVI

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# medium-type copper

| | |
|---|---|
| **show interfaces** | |

24SFP/12GT 12 SFP 12 10/100/1000M BASE-T
SFP 10/100/1000M BASE-T

| | |
|---|---|
| - | - |

## 5.1.13 mtu

mtu

**Mtu** num

```
Ruijie(config)#          interface gigabitethernet          1/1
Ruijie(config-if)#           mtu 9216
```

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| **clear interface** | |
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.15 snmp trap link-status

LinkTrap Link SNMP LinkTrap, **no** SNMP LinkTrap

**snmp trap link-status**

**no snmp trap link-status**

| | |
|---|---|
| | |
| | |

Link SNMP LinkTrap

Ap SVI LinkTrap Link SNMP LinkTrap,

1 Link trap

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# no snmp trap link-status
```

2 Link trap

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# snmp trap link-status
```

| | |
|---|---|

| | |
|---|---|
| Ruijie(config-if)# **snmp trap link-status** | link trap |
| Ruijie(config-if)# **no snmp trap link-status** | link trap |

| | |
|---|---|
| - | - |

## 5.1.16 speed

**no**

| | |
|---|---|
| **10** | 10Mbps |
| **100** | 100Mbps |
| **1000** | 1000Mbps |
| **10G** | 10Gbps |
| **auto** | |

Ap Ap

Ap **show interfaces**

SFP

10M 100M

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# speed 100

| | |
|---|---|
| **show interfaces** | |

| | |
|---|---|
| - | - |

## 5.1.17 switchport access

**access port** VLAN

no VLAN

**switchport access vlan** vlan-id

**no switchport access vlan**

| | |
|---|---|
| vlan-id | VLAN ID |

switch port access VLAN VLAN 1

VLAN ID VLAN ID VLAN

VLAN VLAN ID VLAN

trunkport

Ruijie(config)# interface gigabitethernet 1/1

Ruijie(config-if)# switchport access vlan 2

| | |
|---|---|
| **switchport mode** | switch port |
| **switchport trunk** | trunkport native VLAN Trunk VLAN |

switch port access port

trunk port, 802.1Q **no**

**switchport mode** {**access | trunk**}

**no switchport mode**

| | |
|---|---|
| **access** | switch port access port |
| **trunk** | switch port trunk port |

switch port access

switch port access VLAN

**switchport access vlan** VLAN

switch port trunk VLAN

Ó Ь = “ VLAN VLAN trunk port VLAN Ж 0

Acsess vlan is 1,Native vlan is 1

Protected is disabled

Vlan lists is

1,3-4094

| diagnosis | |
|---|---|

Ruijie# show interfacesgigabitEthernet 0/1 switchport

Interface Switchport ModeAccess Native Protected VLAN lists

--------- ---------- --------- ------ ------ ---------

GigabitEthernet 0/1 enabled Access 11 Disabled ALL

# 6 Aggregate Port a —

## 6.1 " - ‘ a —

### 6.1.1 aggregateport load-balance

AP no

**aggregateport load-balance** {**dst-mac** | **src-mac** | **src-dst-mac** | **dst-ip** | **src-ip** | **src-dst-ip** }

**no aggregateport load-balance**

| | |
|---|---|
| **dst-mac** | MAC AP<br>MAC<br>MAC |
| **src-mac** | MAC AP<br>MAC<br>MAC |
| **src-dst-ip** | IP IP IP——<br>IP IP——<br>IP |
| **dst-ip** | IP AP<br>IP<br>IP |
| **src-ip** | IP AP<br>IP<br>IP |
| **src-dst-mac** | MAC MAC<br>MAC—— MAC<br>MAC—— MAC |

MAC

**show aggregateport load-balance**

Ruijie(config)# aggregateport load-balance dst-mac

| | |
|---|---|
| **show aggregateport load-balance** | aggregateport |

| | |
|---|---|
| **-** | - |

## 6.1.2 port-group

Aggregate Port no Aggregate Port

**port-group** port-group-number

**no port-group**

| | |
|---|---|
| port-group-number | Aggregate Port Aggregate Port |

Aggregate Port

AP VLAN trunk port native VLAN AP

1/3 AP 3

Ruijie(config)# interface gigabitethernet 1/3

Ruijie(config-if)# port-group 3

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 6.2 ¡ µ - ‘ a —

### 6.2.1 show aggregateport

aggregateport

| | |
|---|---|
| aggregate-port-number | Aggregate Port |
| **load-balance** | aggregaye port |
| **summary** | aggregate port |

aggregate port aggregate port

```
Ruijie#      show aggregateport       1 summary
AggregatePort MaxPorts     SwitchPort Mode  Ports
------------- --------     -------------- ------
Ag1           8            Enabled    ACCESS
```

| | |
|---|---|
| **aggregateport load-balance** | AP |

| | |
|---|---|
| - | - |

# 7 VLAN a —

## 7.1 " - ‘ a —

### 7.1.1 name

VLAN **no**

**name** vlan-name

**no name**

**switchport access vlan** vlan-id

**no switchport access vlan**

| | |
|---|---|
| vlan-id | VLAN ID |

switch port access VLAN VLAN 1

VLAN ID VLAN ID VLAN
VLAN VLAN ID VLAN

trunk port

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```

| | |
|---|---|
| **switchport mode** | switch port |
| **switchport trunk** | trunk port native VLAN Trunk VLAN |

| | |
|---|---|
| - | - |

## 7.1.3 switchport mode

switch port access port trunk port hybrid port uplink port 802.1Q no

**switchport mode** {**access** | **trunk | hybrid | uplink | dot1q-tunnel**}

**no switchport mode**

| | |
|---|---|
| **access** | switch port access port |
| **trunk** | switch port trunk port |
| **hybrid** | switch port hybrid port |
| **uplink** | switch port uplink port |
| **dot1q-tunnel** | switch port 802.1Q tunnel port |

switch port access

switch port access VLAN
**switchport access vlan** VLAN
switch port trunk VLAN
VLAN VLAN trunk port VLAN
VLAN **switchport trunk** VLAN

Ruijie(config-if)# switchport mode trunk

| | |
|---|---|
| **switchport access** | access port VLAN |
| **switchport trunk** | trunk port native VLAN Trunk VLAN |

| | |
|---|---|
| - | - |

## 7.1.4 switchport trunk

trunk port native VLAN Trunk VLAN
**no** trunk

**switchport trunk** {**allowed vlan** { **all** | [**add** | **remove** | **except**] vlan-list }| **native vlan** vlan-id}

**no switchport trunk** {**allowed vlan** | **native vlan** }

| | |
|---|---|
| **allowed vlan** vlan-list | Trunk VLAN vlan-list<br>VLAN VLAN<br>VLAN ID VLAN ID -<br>10-20 ,<br>1-10,20-25,30,33<br>all VLAN VLAN<br>add VLAN VLAN<br>remove VLAN VLAN<br><br>except VLAN VLAN<br>VLAN |
| **native vlan** vlan-id | Native VLAN |

VLAN all Native VLAN VLAN 1

**Native VLAN**

Trunk native VLAN native VLAN
UNTAG VLAN VLAN ID
IEEE 802.1Q PVID native VLAN VLAN ID Trunk
native VLAN UNTAG

**VLAN**

Trunk VLAN 1 4094
Trunk VLAN VLAN Trunk

**show interfaces switchport**

VLAN 2 1/15

```
Ruijie(config)# interface fastethernet 1/15
Ruijie(config-if)# switchport trunk allowed vlan remove 2
Ruijie(config-if)# end
Ruijie# show interfaces fastethernet 1/15 switchport
Interface Switchport Mode Access Native Protected VLAN lists
--------- --------- --------- --------- --------- --------
FigabitEthernet 1/15 enabled TRUNK 1 1 Disabled 1,3-4094
```

| | |
|---|---|
| **show interfaces** | |
| **switchport access** | access port<br>VLAN |

| | |
|---|---|
| - | - |

## 7.2 ¡ µ - ‘ a —

### 7.2.1 show vlan

VLAN

**show vlan** [**id** vlan-id]

| | |
|---|---|
| vlan-id | VLAN ID |

**end** **Ctrl+C**

**exit**

```
Ruijie#      show vlan id       1
VLAN Name                Status   Ports
---------- ------------- ---------- ---------- ----------
  1 VLAN0001             STATIC   Fa0/1, Fa0/2
```

| | |
|---|---|
| **name** | VLAN |
| **switchport access** | Vlan |

| | |
|---|---|
| - | - |

Super-vlan

subvlan ip

**subvlan-address-range** start-ip end-ip

**no subvlan-address-range**

| | |
|---|---|

VLAN

**end** **Ctrl+C**

**exit**

Ruijie(config)# vlan 3

Ruijie(config-vlan)# supervlan

| | |
|---|---|
| **show supervlan** | supervlan |

| | |
|---|---|
| - | - |

## 8.1.4 proxy-arp

VLAN ARP

**proxy-arp**

**no proxy-arp**

| | |
|---|---|
| - | - |

VLAN

**end** **Ctrl+C**

**exit**

Ruijie(config)# vlan

| | |
|---|---|
| **show supervlan** | supervlan |

| | |
|---|---|
| - | - |

## 8.2 ¡ µ - ‘ a —

### 8.2.1 show supervlan

SuperVLAN SubVLAN

**show supervlan**

**show supervlan id** vlan-id

| | |
|---|---|
| vlan-id | VLAN ID |

Ruijie# show supervlan

supervlan id supervlan arp-proxy subvlan id subvlan arp- proxy subvlan ip range

---------- ---------- ---------- ---------- ----------

3 ON 4 ON

5 ON

| | |
|---|---|
| | |

# 9 Protocol VLAN a —

## 9.1 " - ‘ a —

### 9.1.1 protocol-vlan ipv4 addr mask addr vlan id

IP VLAN

| | |
|---|---|
| addr | IP x.x.x.x |
| id | VLAN ID 1- VLAN |

Ruijie(config)# protocol-vlan ipv4 192.168.100.3 mask 255. 255.255.0 vlan 100

| | |
|---|---|
| **show protocol-vlan ipv4** | - |
| **no protocol-vlan ipv4** addr **mask** addr | - |
| **no protocol-vlan ipv4** | - |

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| | |
|---|---|
| - | - |

### 9.1.2 protocol vlan ipv4

IP VLAN

| | |
|---|---|
| **show protocol-vlan profile** | - |
| **show protocol-vlan profile** num | - |
| **no protocol-vlan profile** | - |
| **no protocol-vlan profile** num | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 9.1.4 protocol-vlan profile num vlan id

profile

| | |
|---|---|
| num | profile |
| id | VLAN ID 1- VLAN |

Ruijie(config-if)# protocol-vlan profile 1 vlan 101

| | |
|---|---|
| **show protocol-vlan profile** | - |
| **show protocol-vlan profile** num | - |
| **no protocol-vlan profile** | - |
| **no protocol-vlan profile** num | - |

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| | |
|---|---|
| - | - |

## 9.2 ¡ µ - ‘ a —

### 9.2.1 show protocol-vlan

Protocol VLAN

**show vlan protocol-vlan**

| | |
|---|---|
| - | - |

Ruijie# show protocol-vlan

| | |
|---|---|
| - | - |

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VLAN

VLAN

Ruijie(config)# vlan 22
Ruijie(config-vlan)# private-vlan primary

| | |
|---|---|
| **show vlan private-vlan** | - |

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| | |
|---|---|
| **show vlan private-vlan** | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 10.1.5 switchport private-vlan host-association

private VLAN primary VLAN secondary VLAN

**switchport private-vlan host-association** p_vid s_vid

**no switchport private-vlan host-association**

| | |
|---|---|
| p_vid | primary VID |
| s_vid | secondary VID |
| **no** | VLAN |

Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan host
Ruijie(config-if)# switchport private-vlan host-association 22 23

| | |
|---|---|
| **show vlan private-vlan** | - |

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| | |
|---|---|

Private VLAN

**show vlan private-vlan** [**community** | **primary** | **isolated**]

| | |
|---|---|
| **primary** | primary VLAN |
| **community** | community VLAN |
| **isolated** | isolated VLAN |

private VLAN

Ruijie# show vlan private-vlan

| | |
|---|---|
| **-** | - |

RGOS10.1

| | |
|---|---|
| - | - |

# 10.3 Hybrid a —

## 10.3.1 switchport hybrid allowed vlan

**switchport hybrid allowed vlan**[[**add**][**tagged** | **untagged**] | **remove**] v

Ruijie(config-if)# switchport hybrid allowed vlan add untagged 3-5

| | |
|---|---|
| - | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 10.3.2 switchport hybrid native vlan

**switchport hybrid native vlan** vid

**no switchport hybrid native vlan**

hybrid vlan

| | |
|---|---|
| **no** | hybrid VLAN |

Ruijie(config-if)# switchport hybrid native vlan 3

| | |
|---|---|
| **-** | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 10.3.3 switchport mode hybrid

**switchport mode hybrid**

**no switchport mode**

hybrid

| | |
|---|---|
| **no** | hybrid |

Ruijie(config-if)# switchport mode hybrid

| | |
|---|---|
| - | - |

RGOS10.1

| | |
|---|---|
| - | - |

# 11 QinQ a —

## 11.1 " - ‘ a —

### 11.1.1 dot1q outer-vid vid register inner-vid v_list

tunnel vid

**dot1q outer-vid** vid **register inner-vid** v_list

**no dot1q outer-vid** vid **register inner-vid** v_list

| | |
|---|---|
| - | - |

## 11.1.2 dot1q relay-vid vid translate local-vid v-list

access trunk hybrid uplink vid

**dot1q relay-vid** vid **translate local-vid** v-list

**no dot1q relay-vid** vid **translate local-vid** v-list

| | |
|---|---|
| v_list | vid |
| vid | tag vid |
| **no** | |

tag vid 10-20 vid 100

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode access
ruijie(config-if)# dot1q relay-vid 100 translate local-vid 10-20
ruijie(config-if)# end
```

| | |
|---|---|
| **show translation-table** [**interface** intf-id] | - |

RGOS10.3

| | |
|---|---|
| - | - |

## 11.1.3 dot1q relay-vid vid translate inner-vid v-list

access trunk hybrid uplink vid

**dot1q relay-vid** vid **translate inner-vid** v-list

**no dot1q relay-vid** vid **translate inner-vid** v-list

| | |
|---|---|
| v_list | vid |
| vid | tag vid |
| **no** | |

tag vid 10-20 vid 100

```
ruijie(config)#          interface gigabitEthernet          0/1
ruijie(config-if)#           switchport mode access
ruijie(config-if)#           dot1q relay-vid          100 translate inner-vid          10-20
ruijie(config-if)#           end
```

| | |
|---|---|
| **show translation-table** [**interface** intf-id] | - |

RGOS10.4

| | |
|---|---|
| - | - |

## 11.1.4 dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value

/ tag tag

**dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value**

**no dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value**

| | |
|---|---|
| **no** | |

```
ruijie(config-if)#              frame-tag tpid          0x9100
ruijie(config-if)#               end
ruijie#       show frame-tag tpid
Ports  tpid
------ ---------
Gi0/3   0x9100
```

| | |
|---|---|
| **show frame-tag tpid** | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 11.1.6 inner-priority-trust enable

/ tag tag

**inner-priority-trust enable**

**no inner-priority-trust enable**

| | |
|---|---|
| **no** | tag tag |

tag tag

```
ruijie#     configure
ruijie(config)#          interface       gigabitEthernet          0/2
ruijie(config-if)#               inner-priority-trust enable
ruijie(config-if)#             end
```

| | |
|---|---|

| | |
|---|---|
| **show inner-priority-trust** | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 11.1.7 mac-address-mapping x source-vlan src-vlan-list destination-vlan dst-vlan-id

vlan mac vlan

**mac-address-mapping x destination-vlan dst-vlan-id source-vlan src-vlan-list**

**no mac-address-mapping x destination-vlan dst-vlan-id source-vlan src-vlan-list**

| | |
|---|---|
| **no** | vlan vlan |

tag tag

```
ruijie# configure
ruijie(config)# interface gigabitEthernet 0/2
ruijie(config-if)#
```

| | |
|---|---|
| - | - |

## 11.1.8 switchport mode dot1q-tunnel

dot1q-tunnel

**switchport mode dot1q-tunnel**

**no switchport mode**

| | |
|---|---|
| | |

| | |
|---|---|
| **no** | uplink |

uplink

uplink

```
ruijie(config)#  interface gigabitEthernet  0/1
ruijie(config-if)#  switchport mode uplink
ruijie(config)#  end
```

| | |
|---|---|
| **show vlan** | - |

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| | |
|---|---|
| - | - |

## 11.1.10 switchport dot1q-tunnel allowed vlan

dot1q-tunnel vlan

**switchport dot1q-tunnel allowed vlan** [**add**] {**tagged|untagged**} v_list

**switchport dot1q-tunnel allowed vlan remove** v_list

**-**

dot1q-tunnel vlan 3-6 vlan tag

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport dot1q-tunnel allowed vlan tagged 3- 6
ruijie(config)# end
```

| | |
|---|---|
| **show interface dot1q-tunnel** | - |

RGOS10.3

ruijie(config)# end

| | |
|---|---|

| | |
|---|---|
| **show traffic-redirect** | - |

RGOS10.3

| | |
|---|---|
| - | - |

## 11.1.13

| | |
|---|---|
| **show traffic-redirect** | - |

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| | |
|---|---|
| - | - |

## 11.1.14 traffic-redirect access-group acl nested-vlan

dot1q-tunnel vid

**traffic-redirect access-group** acl **nested-vlan** vid **in**

**no traffic-redirect access-group** acl **nested -vlan**

| | |
|---|---|
| acl | acl |
| vid | vid |
| **no** | vid |

1.1.1.3 vid 9

```
ruijie# configure
ruijie(config)# ip access-list standard 20
ruijie(config-acl-std)# permit host 1.1.1.3
ruijie(config-acl-std)# exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode dot1q-tunnel
ruijie(config-if)# traffic-redirectaccess-group 20 nested-vlan 10
in
ruijie(config-if)# end
```

| | |
|---|---|
| - | - |

## 11.1.16 **l2protocol-tunnel** proto-type **enable**

**l2protocol-tunnel** { **stp|gvrp** } **enable**

**no l2protocol-tunnel** { **stp|gvrp** } **enable**

| | |
|---|---|
| **stp** | stp |
| **gvrp** | gvrp |
| **no** | |

```
ruijie#       configure
ruijie(config)#          interface fa 0/1
ruijie(config-if)#             l2protocol-tunnel gvrp enable
ruijie(config-if)#             end
```

| | |
|---|---|
| **show l2protocol-tunnel** { **gvrp|stp** } | - |

RGOS10.3

53[1-9mh4469C.02 0 .0401.64 62.7.4 ref6476 10.189.232 4Tm( )Tj1077 018 0 10.02 1351 Tf0 0.420

**l2protocol-tunnel** { **stp|gvrp** } **tunnel-dmac** mac-address

**no l2protocol-tunnel** { **stp|gvrp** } **tunnel-dmac** mac-address

| | |
|---|---|
| **stp** | stp |
| **gvrp** | gvrp |
| **no** | 01d0f8 3<br>(stp 000005 gvrp 000006) |

ruijie# configure
ruijie(config-if)# l2protocol-tunnelgvrptunnel-dmac 011AA9000005
ruijie(config-if)# end

| | |
|---|---|
| **show l2protocol-tunnel** { **gvrp|stp** } | - |

RGOS10.4

| | |
|---|---|
| - | - |

# 11.2 ¡ µ - ‘ a —

## 11.2.1 show dot1q-tunnel

dot1q-tunnel

**show dot1q-tunnel** [**interface** intf-id]

| | |
|---|---|
| intf-id | |

ruijie# show dot1q-tunnel
Ports Dot1q-tunnel
----- ---------
Gi0/1 Enable

| | |
|---|---|
| - | - |

RGOS10.3

| | |
|---|---|
| - | - |

## 11.2.2 show frame-tag tpid

tpid

**show frame-tag tpid** [**interface** intf-id]

| | |
|---|---|
| intf-id | |

tpid

```
ruijie#       show frame-tag tpid
Ports tpid
----- ---------
Gi0/1   0x9100
```

| | |
|---|---|
| - | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 11.2.3 show inner-priority-trust

**show inner-priority-trust**

| | |
|---|---|
| - | - |

```
ruijie#       show inner-priority-trust
Ports  inner-priority-trust
----   ----------
Gi0/1   enable
```

| | |
|---|---|
| - | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 11.2.4 show interface dot1q-tunnel

dot1q-tunnel

**show interface** [intf-id] **dot1q-tunnel**

| | |
|---|---|
| intf-id | |

ruijie# show interface dot1q-tunnel
Interface: Gi0/3
Native vlan: 10
Allowed vlan list: 4-6 10 30-60
Tagged vlan list: 4 6 30-60

| | |
|---|---|
| **-** | - |

RGOS10.3

| | |
|---|---|
| - | - |

Ruijie# show interface intf-name remark

Ports Type From value To value

---------- ---------- ---------- --------

Gi0/1 Cos-To-Cos 3 5

| | |
|---|---|
| **-** | - |

RGOS10.1

| | |
|---|---|
| - | - |

## 11.2.6 show interface mac-address-mapping x

MAC

**show mac-address-mapping** x

| | |
|---|---|
| - | - |

ruijie# show mac-address-mapping 1

Ports Destination-VID Source-VID-list

---------- ---------- ----------

Gi0/1 5 1-3

| | |
|---|---|
| - | - |

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| | |
|---|---|
| - | - |

## 11.2.7 show registration-table

dot1q-tunnel vid

**show registration-table** [**interface** intf-id]

| | | |
|---|---|---|
| | - | - |

## 11.2.8 show traffic-redirect

vid

**show traffic-redirect** [**interface** intf-id]

| | |
|---|---|
| | |

**show translation-table** [**interface** intf-id]

ruijie# show l2protocol-tunnel stp
Destination mac : 01d0f8000005
L2protocol-tunnel: Stp Enable
ruijie# show l2protocol-tunnel gvrp
Destination mac : 01d0f8000006
L2protocol-tunnel: gvrp Disable

| | |
|---|---|
| - | - |

RGOS10.3

| | |
|---|---|
| - | - |

# 12 Share VLAN a —

## 12.1 " - ‘ a —

### 12.1.1 share

share vlan

| | |
|---|---|
| | |

S

Status duplicated
share vlan

| | |
|---|---|
| - | - |

5 ,ÕG!5B

**end** Ctrl+C

**exit**

```
Ruijie#      show mac-address-table share
Vlan MAC Address    Type   Interface  Status
---- -------------- ------- ----------- ----------
  1  0040.4650.1e1e DYNAMIC Gigabit 0/1 original
  2  0040.4650.1e1e DYNAMIC Gigabit 0/1 duplicated
```

GVRP

**no gvrp dynamic-vlan-creation enable**

| | |
|---|---|
| - | - |

vlan

**show gvrp configuration**

Ruijie(config)# gvrp dynamic-vlan-creation enable

| | |
|---|---|
| **show gvrp configuration** | GVRP |

| | |
|---|---|
| - | - |

## 13.1.3 gvrp enable

GVRP no

**gvrp enable**

**no gvrp enable**

| | |
|---|---|
| - | - |

GVRP

| | |
|---|---|
| **show gvrp configuration** | GVRP |

| | |
|---|---|
| - | - |

## 13.1.4 gvrp registration mode

VLAN

no

**gvrp registration mode** {**normal** | **disabled**}

**no gvrp registration mode**

| | |
|---|---|
| - | - |

VLAN

**show gvrp configuration**

GVRP no

**gvrp timer** {**join** | **leave** | **leaveall**} timer_value

**no gvrp timer**

| | |
|---|---|
| **join** timer_value | 0 |
| **leave** timer_value | Leave Message VLAN<br>Join Message VLAN<br>Join Message<br>Empty VLAN |
| **leaveall** timer_value | LeaveAll timer LeaveAll Message<br>LeaveAll Message<br>LeaveAll Message LeaveAll Message<br>Leave timer<br>leaveall leaveall + join |

join timer 200ms leave timer 600ms leaveall timer 10,000ms

**show gvrp configuration**

no gvrp timer join leave leaveall timer

Ruijie(config)# gvrp timer join 200

| | |
|---|---|
| **show gvrp configuration** | GVRP |

# 13.2 ¡ µ - ‘ a —

## 13.2.1 clear gvrp statistics

GVRP

**clear gvrp statistics** { interface-id | **all**}

| | |
|---|---|
| interface-id | ID |

**show gvrp statistics**

Ruijie# clear gvrp statistics all

| | |
|---|---|
| **show gvrp statistics** | GVRP |

| | |
|---|---|

**show gvrp configuration**

```
Ruijie#      show gvrp configuration
Global GVRP Configuration:
GVRP Feature:enabled
GVRP dynamic VLAN creation:enabled
Join Timers(ms):200
Join Timers(ms):600
Join Timers(ms):10000
Port based GVRP Configuration:
Port:GigabitEthernet 3/1 app mode:normal reg mode:normal
Port:GigabitEthernet 3/2 app mode:normal reg mode:normal
Port:GigabitEthernet 3/3 app mode:normal reg mode:normal
Port:GigabitEthernet 3/4 app mode:normal reg mode:normal
Port:GigabitEthernet 3/5 app mode:normal reg mode:normal
Port:GigabitEthernet 3/6 app mode:normal reg mode:normal
Port:GigabitEthernet 3/7 app mode:normal reg mode:normal
Port:GigabitEthernet 3/8 app mode:normal reg mode:normal
Port:GigabitEthernet 3/9 app mode:normal reg mode:normal
Port:GigabitEthernet 3/10 app mode:normal reg
mode:normal
Port:GigabitEthernet 3/11 app mode:normal reg
mode:normal
Port:GigabitEthernet 3/12 app mode:normal reg
mode:normal
```

| | |
|---|---|

GVRP

**show gvrp statistics** {interface-id | **all**}

| | |
|---|---|
| interface-id | ID |

**show gvrp statistics** GVRP

```
Ruijie#  show gvrp statistics gigabitethernet  1/1
Interface  GigabitEthernet 3/1
RecValidGvrpPdu  0
RecInvalidGvrpPdu  0
RecJoinEmpty  0
RecJoinIn  0
RecEmpty  0
RecLeaveEmpty  0
RecLeaveIn  0
RecLeaveAll  0
SentGvrpPdu  0
SentJoinEmpty  0
SentJoinIn  0
SentEmpty  0
SentLeaveEmpty 0
SentLeaveIn  0
SentLeaveAll  0
JoinIndicated  0
LeaveIndicated 0
JoinPropagated 0
LeavePropagated 0
```

| | |
|---|---|
| **clear gvrp statistics** | GVRP |

| | |
|---|---|
| - | - |

## 13.2.4 show gvrp status

GVRP VLAN VLAN

**show gvrp status**

| | |
|---|---|
| - | - |

**show gvrp status** GVRP

Ruijie# show gvrp status

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 14 MAC a —

## 14.1 " - ‘ a —

### 14.1.1 address-bind

ip mac

**address-bind** ip-address mac-address

**no address-bind** ip-address

| | |
|---|---|
| ip-address | IP |
| mac-address | mac |

IP MAC IP IP
MAC IP MAC

ip 3.3.3.3 mac 00d0.f811.1112
Ruijie(config)# address-bind 3.3.3.3 00d0.f811.1112

| | |
|---|---|
| **show address-bind** | |

| | |
|---|---|
| - | - |

### 14.1.2 address-bind install

/

**address-bind install**

**no address-bind install**

| | |
|---|---|
| - | - |

fa 0/1

```
Ruijie(config)#  address-bind uplink  fa0/1
Ruijie(config)#  address-bind install
```

| | |
|---|---|
| **show address-bind uplink** | |

RGOS10.1

| | |
|---|---|

IP MAC IP IP
MAC IP MAC

ip 3.3.3.3 mac 00d0.f811.1112
Ruijie(config)# address-bind 3.3.3.3 00d0.f811.1112

| | |
|---|---|
| **show address-bind** | |

| | |
|---|---|
| - | - |

## 14.1.4 address-bind uplink

ip mac .

**address-bind uplink** intf-id

**no address-bind uplink** intf-id

| | |
|---|---|
| intf-id | |

IP MAC IP IP
MAC IP MAC
( address-bind install) $

MAC

## 14.1.6 clear mac-address-table filtering

**clear mac-address-table filtering** [**address** mac-addr ][ **vlan** vlan-id]

| | |
|---|---|
| **filtering** | |
| **address** mac-addr | |
| **vlan** vlan-id | VLAN |

**show mac-address-table filtering**

00d0.f800.0c0c

Ruijie# clear mac-address-table filtering address 00d0.f800.0c0c

| | |
|---|---|
| **interface** interface-id | |
| **vlan** vlan-id | VLAN |

**show mac-address-table static**

MAC 00d0.f800.073c

Ruijie# clear mac-address-table static address 00d0.f800.073c

| | |
|---|---|
| **mac-address-table static** | |
| **show mac-address-table static** | |

| | |
|---|---|
| ← x V T | 5 |

**show mac-address-table dynamic**

Ruijie(config)# mac-address-table aging-time 150

| | |
|---|---|
| **show mac-address-table aging-time** | |
| **show mac-address-table dynamic** | |

| | |
|---|---|
| - | - |

## 14.1.9 mac-address-table filtering

**no**

**mac-address-table filtering** mac-address **vlan** vlan-id

**no mac-address-table filtering** mac-address **vlan** vlan-id

| | |
|---|---|
| mac-address | |
| **vlan** vlan-id | VLAN ID |

**show mac-address-table filtering**

Ruijie(config)# mac-address-table filtering 00d0f8000000 vlan 1

| | |
|---|---|
| **clear mac-address-table filtering** | |
| **show mac-address-table filtering** | |

| | |
|---|---|
| - | - |

## 14.1.10 mac-address-table notification

MAC **no**

**mac-address-table notification** [**interval** value | **history-size** value]

**no mac-address-table notification** [**interva**l | **history-size**]

| | |
|---|---|
| **interval** value | MAC Trap 1 |
| **history-size** value | MAC 50 |

1 50

MAC Trap

**snmp-server enable traps mac-notification**

MAC Trap

U4@

| | |
|---|---|
| - | - |

## 14.1.11 mac-address-table static

**no**

**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

| | |
|---|---|
| mac-addr | MAC |
| vlan-id | VLAN |
| interface-id | (<br>AggregatePort) |

**show mac-address-table static**

**clear mac-address-table static**

00d0.f800.073c VLAN 4
gigabitethernet 1/1

Ruijie(config)# mac-address-table static 00d0.f800.073c vlan 4 interface gigabitethernet 1/1

| | |
|---|---|
| **show mac-address-table static** | |
| **clear mac-address-table static** | |

| | |
|---|---|
| - | - |

## 14.1.12 snmp trap mac-notification

MAC **no**

**snmp trap mac-notification** {**added** | **removed**

**mac-address-learning**

| | |
|---|---|
| | |

MAC

1

Ruijie(config-if)# no mac-address-learning

## 14.2 ¡ µ - ‘ a —

### 14.2.1 show address-bind

**show address-bind**

| | |
|---|---|
| | |

Ruijie# show address-bind

IP Address Binding MAC Addr

---

3.3.3.3 00d0.f811.1112

3.3.3.4 00d0.f811.1117

| | |
|---|---|
| | |

## 14.2.3 show mac-address-table address

MAC

**show mac-address-table** [**address** mac-addr] [**interface** interface-id] [**vlan** vlan-id]

| | |
|---|---|
| **address** mac-addr | MAC |
| **interface** interface-id | |
| **vlan** vlan-id | VLAN |

Ruijie# show mac-address-table address 00d0.f800.1001

Vlan MAC Address Type Interface

------- ------------ -------- --------

1 00d0.f800.1001 STATIC Gi1/1

| | |
|---|---|
| **show mac-address-table static** | |
| **show mac-address-table filtering** | |
| **show mac-address-table dynamic** | |
| **show mac-address-table interface** | |
| **show mac-address-table vlan** | VLAN |
| **show mac-address-table count** | |
| **show mac-address-table static** | |
| **show mac-address-table filtering** | |

| | |
|---|---|
| - | |

## 14.2.4 show mac-address-table aging-time

**show mac-address-table aging-time**

| | |
|---|---|
| - | - |

Ruijie# show mac-address-table aging-time
Aging time : 300

| | |
|---|---|
| “ | |

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

| | |
|---|---|
| **show mac-address-table static** | |
| **show mac-address-table filtering** | |
| **show mac-address-table dynamic** | |
| **show mac-address-table address** | |
| **show mac-address-table interface** | |
| **show mac-address-table vlan** | VLAN |

| | |
|---|---|
| - | - |

## 14.2.6 show mac-address-table dynamic

**show mac-address-table dynamic** [**address** mac-addr] [**interface** interface-id] [**vlan** vlan-id]

| | |
|---|---|
| mac-addr | MAC |
| vlan-id | VLAN |
| interface-id | ( AggregatePort) |

Ruijie# show mac-address-table filtering

Vlan MAC Address Type Interface

------ -------------------- -------- -----------

1 0000.2222.2222 FILTER Not available

| | |
|---|---|

1 00d0.f800.1002 STATIC gigabitethernet 1/1
1 00d0.f800.1003 STATIC gigabitethernet 1/1
1 00d0.f800.1004 STATIC gigabitethernet 1/1

| | |
|---|---|
| **show mac-address-table static** | |
| **show mac-address-table filtering** | |
| **show mac-address-table dynamic** | |
| **show mac-address-table address** | |
| **show mac-address-table vlan** | VLAN |
| **show mac-address-table count** | |

| | |
|---|---|
| - | - |

## 14.2.9 show mac-address-table notification

MAC

**show mac-address-table notification** [**interface**[interface-id] **| history** ]

| | |
|---|---|
| **interface** interface-id | MAC |
| history | MAC |

MAC

Ruijie#

GigabitEthernet1/14 Disabled Disabled

Ruijie# show mac-address-table notification

MAC Notification Feature : Disabled

Interval between Notification Traps : 1 secs

Maximum Number of entries configured in History Table :1

Current History Table Length : 0

Ruijie# show mac-address-table notification history

History Index : 0

MAC Changed Message :

Operation:ADDVlan:1MACAddr:00f8.d012.3456GigabitEthernet3/1

| | |
|---|---|
| **mac-address-table notification** | MAC |
| **snmp trap mac-notification** | MAC |

| | |
|---|---|
| - | - |

## 14.2.10 show mac-address-table static

**show mac-address-table static** [**addr** mac-addr] [**interface** interface-id] [**vlan** vlan-id ]

| | |
|---|---|
| mac-addr | MAC |
| vlan-id | VLAN |
| interface-id | (<br>AggregatePort) |

```
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
```

| | |
|---|---|
| **mac-address-table static** | |

**clear mac-address-table static**

| | |
|---|---|
| **show mac-address-table static** | |
| **show mac-address-table filtering** | |
| **show mac-address-table dynamic** | |
| **show mac-address-table address** | |
| **show mac-address-table interface** | |
| **show mac-address-table count** | |

| | |
|---|---|
| - | - |

## 14.2.12 show mac-address-learning

| | |
|---|---|

```
Ruijie(config-ext-nacl)#  permit ip  host 1.1.1.1 host 233.3.3.3
Ruijie(config)#  interface ethernet  0
Ruijie(config-if)#  ip igmp access-group  ext_acl
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.1.2 ip igmp join-group

no

**ip igmp join-group** group-address

**no ip igmp join-group** group-address

| | |
|---|---|

| | |
|---|---|
| - | - |

## 15.1.3 ip igmp immediate-leave group-list

IGMPversion2 IGMPversion3

no

**ip igmp immediate-leave group-list** access-list

**no ip igmp immediate-leave group-list**

| | |
|---|---|
| access-list | |

IGMP 2s

IGMP IGMP

Ruijie# configure terminal
Ruijie(config)# access-list 1 permit 225.192.20.0 0.0.0.255
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ip igmp immediate-leave group-list 1
Ruijie(config-if)# exit

| | |
|---|---|
| **ip igmp last-member-query-interval** | - |

| | |
|---|---|
| - | - |

## 15.1.4 ip igmp last-member-query-count

**last-member-query-count** leave
**last-member-query-count** no

**ip igmp last-member-query-count** number

**no ip igmp last-member-query-count**

| | |
|---|---|
| number | , <2-7> |

| except | access-list<br>limit |
| --- | --- |
| access-list | |

1024

IGMP

IGMP

300

Ruijie(config-if)# ip igmp limit 300

| | |
| --- | --- |
| - | - |

| | |
| --- | --- |
| - | - |

## 15.1.7 ip igmp limit ( æ e " )

igmp no

**ip igmp limit** number [except access-list]

**no ip igmp limit** number [except access-list]

| | |
| --- | --- |
| number | IGMP |
| except | access-list<br>limit |

65536

IGMP

IGMP

300

Ruijie config # ip igmp limit 300

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.1.8 ip igmp mroute-proxy

**ip igmp mroute-proxy** interfname

**no ip igmp mroute-proxy**

| | |
|---|---|
| interfname | |

proxy-service

gmp

mroute-proxy

Ruijie(config-if)# ip igmp mroute-proxy fa 0/1

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.1.9 ip igmp proxy-service

mroute-proxy

mroute-proxy

**ip igmp proxy-service**

**no ip igmp proxy-service**

| | |
|---|---|
| - | - |

proxy-service

32 IGMP Proxy

proxy-service proxy-service

mroute-proxy

proxy-service .

switchport **ip igmp**

**mroute-proxy interface**

proxy-service

Ruijie(config-if)# ip igmp proxy-service

| | |
|---|---|
| **-** | - |

| | |
|---|---|

no

**ip igmp query-max-response-time** seconds

**no ip igmp query-max-response-time**

255s

IGMPv2 **ip igmp query-interval** Ruijie 255s

1 Ethernet 0 200s

Ruijie(config-if)# ip igmp query-timeout 200

2 Ethernet 0

Ruijie(config-if)# no ip igmp query-timeout

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 15.1.13 ip igmp robustness-variable

no

**ip igmp robustness-variable** number

**no ip igmp robustness-variable**

| | |
|---|---|
| number | 2-7 |

2

3

```
Ruijie#      configure terminal
Ruijie(config)#          interface ethernet          0
Ruijie(config-if)#              ip igmp robustness-variable          3
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.1.14 ip igmp ssm-map enable

**igmp ssm-map**

**ip igmp ssm-map enable**

**no ip igmp ssm-map enable**

| | |
|---|---|
| - | - |

**ip igmp ssm-map static**

**igmp ssm-map**

```
Ruijie(config)#          ip igmp ssm-map enable
```

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 15.1.15 ip igmp ssm-map static

ssm-map

**ip igmp ssm-map static** access-list a.b.c.d

**no ip igmp ssm-map static** access-list a.b.c.d

| | |
|---|---|
| access-list | Acl <1-99> |<1300-1999> |WORD |
| a.b.c.d | |

**ip igmp ssm-map enable** v3

ACL 11 192.168.2.2

Ruijie(config)# ip igmp ssm-map static 11 192.168.2.2.

| | |
|---|---|
| - | - |

**no ip igmp static-group** group-address

| | |
|---|---|
| group-address | |

Eth0 236.6.6.6

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp static-group 236.6.6.6
Ruijie(config-if)# exit
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.1.17 ip igmp version

IGMP no

**ip igmp version** {1 | 2 }

**no ip igmp version**

| | |
|---|---|
| {1 \| 2 } | <1-23> |

2

igmp igmp

2

Ruijie# configure terminal

Ruijie(config)# interface ethernet 0

Ruijie(config-if)# ip igmp version 2

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.2 ¡ µ - ‘ a —

IGMP

| | |
|---|---|
| - | - |

## 15.2.3 show ip igmp groups

IGMP

**show ip igmp groups** [group-address | interface-type interface-number] [detail]

| | |
|---|---|
| group-address | 32 IP D 8 |

Uptime: 00:00:42
Group mode: Include
Last reporter: 192.168.50.111
TIB-A Count: 2
TIB-B Count: 0
Group source list: (R - Remote, M - SSM Mapping)
Source Address Uptime v3 Exp Fwd Flags
192.168.55.55 00:00:42 00:03:38 Yes R
192.168.55.66 00:00:42 00:03:38 Yes R

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.2.4 show ip igmp interface

**show ip igmp interface** [interface-type interface-number]

| | |
|---|---|
| interface-type | |
| interface-number | |
| | |

Ruijie# show ip igmp interface
Interface vlan 1(Index 4294967295)

IGMP Active, Non-Querier, Version 3 (default)
IGMP querying router is 0.0.0.0
IGMP query interval is 125 seconds
IGMP querier timeout is 255 seconds
IGMP max query response time is 10 seconds
Last member query response interval is 1000 milliseconds
Group Membership interval is 260 seconds
IGMP Snooping is globally enabled
IGMP Snooping is enabled on this interface
IGMP Snooping fast-leave is not enabled
IGMP Snooping querier is not enabled
IGMP Snooping report suppression is enabled

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 15.2.5 show ip igmp ssm-mapping

IGMP ssm-map

**show ip igmp ssm-mapping** ( A.B.C.D )

| | |
|---|---|
| A.B.C.D | |

IGMP ssm-map

1 ssm-map
Ruijie# sh ip igmp ssm-mapping

SSM Mapping : Enabled

Database : Static mappings configured

2 233.3.3.3

Ruijie# show ip igmp ssm-mapping 233.3.3.3

Group address: 233.3.3.3

Database : Static

Source list : 192.3.3.3

: 3.3.3.3

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 16 DHCP Snooping a —

## 16.1 DHCP snooping æ e a —

### 16.1.1 ip dhcp snooping

DHCP Snooping no
DHCP Snooping

[**no**] **ip dhcp snooping**

| | |
|---|---|
| - | - |

DHCP Snooping **show ip dhcp snooping** DHCP snooping

| |
|---|
| **a** DHCP Snooping Private VLAN |

DHCP snooping

```
Ruijie#      configure terminal
Ruijie(config)#          ip dhcp snooping
Ruijie(config)#          end
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)
------------------------  -------    ------------
```

| | |
|---|---|

| | |
|---|---|
| **show ip dhcp snooping** | DHCP snooping |

| | |
|---|---|
| - | - |

## 16.1.2 ip dhcp snooping bootp-bind

DHCP Snooping Bootp
no DHCP snooping Bootp

[**no**] **ip dhcp snooping bootp-bind**

| | |
|---|---|
| - | - |

DHCP Snooping Bootp DHCP Snooping Bootp Bootp DHCP Snooping Bootp

DHCP Snooping Bootp

```
Ruijie#  configure terminal
Ruijie(config)#  ip dhcp snooping bootp-bind
Ruijie(config)#  end
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)
-------------------------  -------  ------------
```

| | |
|---|---|
| **show ip dhcp snooping** | DHCP snooping |

| | |
|---|---|
| - | - |

## 16.1.3 ip dhcp snooping database write-delay

DHCP Snooping FLASH

no FLASH

**ip dhcp snooping database write-delay** time

[**no**] **ip dhcp snooping database write-delay**

| | |
|---|---|
| time | DHCP snooping FLASH |

FLASH

DHCP Snooping FLASH

IP

---------- ------- ----------

| | |
|---|---|
| **show ip dhcp snooping** | DHCP snooping |

| | |
|---|---|
| - | - |

## 16.1.4 ip dhcp snooping database write-to-flash

DHCP Snooping

| | | |
|---|---|---|
| | - | - |

## 16.1.5 ip dhcp snooping information option

DHCP option82

ņ

| | | |
|---|---|---|
| | - | - |

[

DHCP

no

[**no**] **ip dhcp snooping limit rate** rate-value

| | |
|---|---|
| rate-value | PPS[Packet Per Second] |

DHCP Snooping VLAN

CPP[CPU Protect Protocol] CPP DHCP

CPP DHCP Snooping

CPP

**show ip dhcp snooping**

1 100pps

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping limit rate 100
Ruijie(config-if)# end
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)
------------------------ ------- ------------
FastEthernet0/1 NO 100
```

| | |
|---|---|
| **show ip dhcp snooping** | DHCP snooping |

| | |
|---|---|
| - | - |

## 16.2.2 ip dhcp snooping suppression

suppression no
no suppression

[**no**] **ip dhcp snooping suppression**

| | |
|---|---|
| - | - |

DHCP
DHCP

fastethernet 0/2 suppression

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/2
Ruijie(config-if)# ip dhcp snooping suppression
Ruijie(config-if)# end
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 16.2.3 ip dhcp snooping trust

DHCP snooping TRUST
no UNTRUST

[**no**] **ip dhcp snooping trust**

| | |
|---|---|

# 16.3 DHCP snooping ¡ µ a —

## 16.3.1 show ip dhcp snooping

DHCP Snooping

**show ip dhcp snooping**

| | |
|---|---|
| - | - |

DHCP Snooping

DHCP Snooping

```
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)
------------------------  -------    ------------
```

| | |
|---|---|
| **ip dhcp snooping** | DHCP snooping |
| **ip dhcp snooping verify mac-address** | DHCP snooping mac |
| **ip dhcp snooping write-delay** | flash |
| **Ip dhcp snooping information option** | DHCP option82 |
| **ip dhcp snooping bootp-bind** | DHCP Snooping Bootp |
| **ip dhcp snooping trust** | DHCP snooping trust |

# 16.4 DHCP snooping c Q " a —

## 16.4.1 clear ip dhcp snooping binding

DHCP Snooping

**clear ip dhcp snooping binding**

| | |
|---|---|
| - | - |

DHCP snooping

DHCP snooping

```
Ruijie#      clear ip dhcp snooping binding
Ruijie#      show ip dhcp snooping binding
Total number of bindings: 0
MacAddress IpAddress Lease(sec) Type VLAN Interface
------- --- ---------- --------- ---- ---------
```

| | |
|---|---|
| **show ip dhcp snooping binding** | DHCP snooping |

| | |
|---|---|
| - | - |

## 16.4.2 debug ip dhcp snooping

DHCP Snooping

**debug ip dhcp snooping** {**event** | **packet**}

| | |
|---|---|
| - | - |

DHCP snooping

DHCP snooping

```
Ruijie#  debug ip dhcp snooping event
Ruijie#  debug ip dhcp snooping packet
```

| | |
|---|---|
| - | - |

# 17 IGMP Snooping a —

## 17.1 " - ‘ a —

### 17.1.1 deny

profile profile deny

**deny**

| | |
|---|---|
| **deny** | profile |

profile deny

profile

profile range profile
profile

224.2.2.2 profile
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2
Ruijie(config-profile)# deny

| | |
|---|---|
| **ip igmp profile** | profile |
| **range** | |

| | |
|---|---|
| - | - |

### 17.1.2 permit

profile profile permit profile

**permit**

| | |
|---|---|
| **permit** | profile |

profile deny

profile

profile range profile
profile

224.2.2.2 profile

```
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2
Ruijie(config-profile)# permit
```

| | |
|---|---|
| **ip igmp profile** | profile |
| **range** | |

| |
|---|
| high-ip-address |

| | |
|---|---|
| a | pim snooping igmp snooping IVGL IVGL-SVGL<br>no ip igmp snooping igmp snooping<br>pim snooping pim snooping |

igmp snooping ivgl

```
Ruijie(config)#  ip igmp snooping ivgl
```

vlan 2 igmp snooping

Ruijie(config)# ip igmp snooping vlan 2

| | |
|---|---|
| **ip igmp snooping ivgl** | igmp snooping ivgl |
| **ip igmp snooping ivgl-svgl** | igmp snooping |

| | |
|---|---|
| - | - |

## 17.1.7 ip igmp snooping svgl vlan

vlan SVGL vlan **ip igmp snooping svgl vlan** no Shared VLAN vlan 1

**ip igmp snooping svgl vlan** vid

**no ip igmp snooping svgl vlan**

| | |
|---|---|
| vid | vlan id |

Shared VLAN vlan 1

SVGL IVGL-SVGL

vlan 2 igmp snooping svgl vlan

Ruijie(config)# ip igmp snooping svgl vlan 2

| | |
|---|---|
| **ip igmp snooping svgl** | igmp snooping svgl |
| **ip igmp snooping ivgl-svgl** | igmp snooping |

| | |
|---|---|
| - | - |

## 17.1.8 ip igmp snooping svgl profile

profile SVGL **ip igmp snooping svgl profile** no

**ip igmp snooping svgl profile** profile-number

**no ip igmp snooping svgl profile**

| | |
|---|---|
| profile-number | profile <1-65536> |

svgl profile

SVGL IVGL-SVGL

igmp snooping svgl profile 2

Ruijie(config)# ip igmp snooping svgl profile 2

| | |
|---|---|
| **ip igmp snooping svgl** | igmp snooping svgl |
| **ip igmp snooping ivgl-svgl** | igmp snooping |

| | |
|---|---|
| - | - |

## 17.1.9 ip igmp snooping dyn-mr-aging-time

**ip igmp snooping dyn-mr-aging-time** time

**no ip igmp snooping dyn-mr-aging-time**

| | |
|---|---|
| time | , <1-3600> |

300s

IGMP PIM

Hello

100s

Ruijie(config)# ip igmp snooping dyn-mr-aging-time 100

| | |
|---|---|
| | |

| | |
|---|---|
| - | - |

IP IGMP

IP IGMP

100s

Ruijie(config)# ip igmp snooping query-max-response-time 100

| | |
|---|---|
| | |

| | |
|---|---|
| - | - |

## 17.1.12 ip igmp snooping suppression enable

igmp snooping Report **ip igmp snooping suppression enable** no igmp snooping suppression

**ip igmp snooping suppression enable**

**no ip igmp snooping suppression enable**

| | |
|---|---|
| - | - |

disable

IGMP

vlan IGMP Report

IGMP Report

suppression IGMPv1/v2 report

IGMPv3 report

**igmp snooping suppression**

Ruijie(config)# ip igmp snooping suppression

| | |
|---|---|
| - | - |

## 17.1.13 ip igmp snooping mrouter learn pim-dvmrp

IGMP Query/Dvmrp/PIM Hellp

**ip igmp snooping mrouter learn** no

**ip igmp snooping mrouter learn pim-dvmrp**

**no ip igmp snooping mrouter learn pim-dvmrp**

| | |
|---|---|
| | |

no

vlan

vlan

vlan

igmp snooping

Ruijie(config)# ip igmp snooping mrouter learn pim-dvmrp

| | |
|---|---|
| **ip igmp snooping vlan mrouter learn pim-dvmrp**5Vä\@ | |

| | |
|---|---|
| - | - |

## 17.1.14 ip igmp snooping vlan mrouter interface

,

**ip igmp snooping vlan mrouter interface** no

**ip igmp snooping vlan** vid **mrouter interface** interface-id

**no ip igmp snooping vlan** vid **mrouter interface** interface-id

| | |
|---|---|
| vid | vlan id |
| interface-id | id |

IP

Ruijie(config)# ip igmp snooping vlan 1 mrouter interface fastEthernet 0/1

| | |
|---|---|

## 17.1.15 ip igmp snooping vlan mrouter learn pim-dvmrp

| | |
|---|---|
| | IGMP Query/Dvmrp/PIM Hellp |
| **ip igmp snooping vlan mrouter learn** | no |

**ip igmp snooping vlan** vid **mrouter learn pim-dvmrp**

igmp snooping

IGMP **ip igmp snooping vlan static interface**

no

**ip igmp snooping vlan** vid **static** ip-addr **interface** interface-id

**no ip igmp snooping vlan** vid **static** ip-addr **interface** interface-id

| | |
|---|---|
| vid | vlan id |
| ip-addr | |
| interface-id | id |

Ruijie(config)# ip igmp snooping vlan 1 static 224.0.0.2 inter f ace fastEthernet 0/1

| | |
|---|---|
| **ip igmp snooping vlan mrouter interface** | |

| | |
|---|---|
| - | - |

## 17.1.17 ip igmp snooping filter

profile no profile

**ip igmp snooping filter** profile-number

**no ip igmp snooping filter** profile-number

| | |
|---|---|

| | |
|---|---|
| profile-number | profile <1-65536> |

IGMP Profile IGMP Report
IGMP Profile
profile filter

0/1 profile 1

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip igmp snooping filter 1
```

| | |
|---|---|
| **ip igmp profile** | profile |

| | |
|---|---|
| - | - |

## 17.1.18 ip igmp snooping max-groups

, **ip igmp snooping max-groups** no

**ip igmp snooping max-groups** number

**no ip igmp snooping max-groups**

| | |
|---|---|
| number | <0 – 1024> |

IGMP Report

0/1 100

```
Ruijie(config)#          interface fastEthernet          0/1
Ruijie(config-if)#          ip igmp snooping max-group          100
```

| | |
|---|---|
| **ip igmp snooping filter** | |

| | |
|---|---|
| - | - |

# 17.2 ¡ µ 0 ³ Å a —

## 17.2.1 show ip igmp snooping

igmp snooping

**Show ip igmp snooping** [**gda-table** | **interfaces** | **mrouter**| **statistics** [**vlan** vlan-id] ]

| | |
|---|---|
| | igmp snooping |
| **gda-table** | |
| **interfaces** | igmp snooping filtring |
| **mrouter** | |
| **statistics** [**vlan** vlan-id] | snooping |
| **vlan** | vlan snooping |

EXEC

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 17.2.2 show ip igmp profile [ profile-number]

| | |
|---|---|
| | profile |
| profile-number | profile |

EXEC

profile

**debug igmp-snp event**

**debug igmp-snp packet**

**debug igmp-snp msf**

**debug igmp-snp warning**

**undebug igmp-snp**

**undebug igmp-snp event**

**undebug igmp-snp packet**

**undebug igmp-snp msf**

**undebug igmp-snp warning**

STP

**clear spanning-tree counters** [ **interface** interface-id ]

| | |
|---|---|
| interface-id | |

Ruijie# clear spanning-tree counters

| | |
|---|---|
| **show spanning-tree counters** | STP |

| | |
|---|---|
| 10.4(2b11)p1 | |

## 18.1.3 clear spanning-tree detected-protocols

RSTP BPDU BPDU

**clear spanning-tree detected-protocols** [**interface** interface-id]

| | |
|---|---|
| interface-id | |

Ruijie# clear spanning-tree detected-protocols

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.4 spanning-tree

MSTP MSTP MSTP
no spanning-tree no
spanning tree

**spanning-tree** [ **forward-time** seconds | **hello-time** seconds | **max-age** seconds ]

**no spanning-tree** [**forward-time** | **hello-time** | **max-age**]

| | |
|---|---|
| **forward-time** seconds | |
| **hello-time** seconds | BPDU |
| **max-age** seconds | BPDU |

spanning-tree

**forward-time hello-time max-age**

2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay – 1.0snd)

1 spanning-tree
Ruijie(config)# spanning-tree
2 BridgeForwardDelay
Ruijie(config)# spanning-tree forward-time 10

| | |
|---|---|

| | |
|---|---|
| **show spanning-tree** | STP |
| **spanning-tree mst cost** | STP PathCost |
| **spanning-tree tx-hold-count STP** | TxHoldCount |

| | |
|---|---|
| - | - |

## 18.1.5 spanning-tree autoedge

Autoedge disabled Autoedge

**spanning-tree autoedge** [**disabled**]

| | |
|---|---|
| **disabled** | Autoedge |

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree autoedge disabled

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.6 spanning-tree bpdufilter

BPDU filter enabled disabled

BPDU filter

**spanning-tree bpdufilter** [**enabled** | **disabled**]

| | |
|---|---|
| **enabled** | BPDU filter |
| **disabled** | BPDU filter |

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree bpdufilter enable

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)#

| | |
|---|---|
| - | - |

## 18.1.9 spanning-tree guard loop

loop guard no loop guard loop guard bpdu

**spanning-tree guard loop**

**no spanning-tree guard loop**

| | |
|---|---|
| - | - |

loop guard

Ruijie(config-if)# spanning-tree guard loop

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 18.1.10 spanning-tree guard none

guard no guard

**spanning-tree guard none**

**no spanning-tree guard none**

| | |
|---|---|
| - | - |

guard

Ruijie(config-if)# spanning-tree guard none

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 18.1.11 spanning-tree guard root

root guard no root guard root guard

**spanning-tree guard root**

**no spanning-tree guard root**

| | |
|---|---|
| - | - |

root guard

Ruijie(config-if)# spanning-tree guard root

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 18.1.12 spanning-tree link-type

“ ” no

**spanning-tree link-type** [**point-to-point** | **shared**]

**no spanning-tree link-type**

| | |
|---|---|
| **poinit-to-point** | point-to-point. |
| **shared** | shared |

point-to-point
shared.

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree link-type point-to-point

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 18.1.13 spanning-tree loopguard default

loop guard no loop guard loop guard
bpdu

**spanning-tree loopguard default**

**no spanning-tree loopguard default**

| | |
|---|---|
| - | - |

loop guard

Ruijie(config)# spanning-tree loopguard default

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 18.1.14 spanning-tree max-hops

BPDU Max-hops Count
BPDU Region Instance no

**spanning-tree max-hops** hop-count

**no spanning-tree max-hops**

| | |
|---|---|
| hop-count | BPDU 1<br>40 |

hop-count 20

Region Root Bridge BPDU Hot Count Root Bridge
Hop Count 1 0 BPDU
Hops 0 BPDU
max-hops Instance

MST Instance Max-hops 10
Ruijie(config)# spanning-tree max-hops 10
**show spanning-tree mst**

| | |
|---|---|
| **show spanning-tree** | MSTP |

| | |
|---|---|
| - | - |

## 18.1.15 spanning-tree mode

STP no

**spanning-tree mode** [**stp** | **rstp** | **mst**p]

**no spanning-tree mode**

.

Ruijie(config)# spanning-tree mode stp

| | |
|---|---|
| **show spanning-tree** | |

| | |
|---|---|
| - | - |

## 18.1.16 spanning-tree mst configure

MST MSTP Region no
name revision vlan map

**spanning-tree mst configuration**

**no spanning-tree mst configuration**

| | |
|---|---|
| - | - |

10 VLAN Instance 0 VLAN Instance
**no** **no instance** instance-id [**vlan** vlan-range] ( no
Instance 1 64)
**name** name MST 32 no name

**revision** version MST 0 65535 no revision

**show** MST region

MST VLAN 3, 5-10 MST Instance 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3 5-10
Ruijie(config-mst)# name region 1
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show
MST configuration
Name [region1]
Revision 1
Instance Vlans Mapped
---------- --------------------
0 1-2,4,11-4094
1 3,5-10
---------------------------------
Ruijie(config-mst)# exit
Ruijie(config)#
```

VLAN 3 Instance 1 MST

```
Ruijie(config-mst)# no instance 1 vlan 3
```

Instance 1

```
Ruijie(config-mst)# no instance 1
```

MST show

| | |
|---|---|
| **show spanning-tree mst** | MST region |
| **instance instance-id vlan vlan-range** | Vlan MST Instance |
| **name** | MST |
| **revision** | MST |
| **show** | MST MST |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 18.1.18 spanning-tree mst port-priority

Instance

Region no

**spanning-tree** [**mst** instance-id] **port-priority** priority

**no spanning-tree** [**mst** instance-id] **port-priority**

| | |
|---|---|
| Instance-id | Instance 0 64 |
| priority | 0 16 32 48 64 80 96 112 128 144 160 176 192 208 224 240<br>16 16 |

Instance-id 0

priority 128

.

Region

Instance 20 Gigabitethernet 1/1 10

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 20 port-priority 0
```

**show spanning-tree mst instance interface** interface-id

| | |
|---|---|
| **show spanning-tree mst** | MSTP |
| **spanning-tree mst cost** | |
| **spanning-tree mst priority** | Instance |

| | |
|---|---|
| - | - |

## 18.1.19 spanning-tree mst priority

Instance

| | |
|---|---|
| **disabled** | Portfast |

-

```
Ruijie(config)#  interface gigabitethernet  1/1
Ruijie(config-if)#  spanning-tree portfast
```

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.22 spanning-tree portfast bpdufilter default

BPDU filter  no  BPDU filter

**spanning-tree portfast bpdufilter default**

**no spanning-tree portfast bpdufilter default**

| | |
|---|---|
| - | - |

BPDU filter

BPDU Filter  BPDU  **show spanning-tree**

```
Ruijie(config)#  spanning-tree portfast bpdufilter default
```

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.23 spanning-tree portfast bpduguard default

BPDU guard no BPDU guard

**spanning-tree portfast bpduguard default**

**no spanning-tree portfast bpduguard default**

| | |
|---|---|
| - | - |

BPDU Guard.

BPDU guard BPDU error-disabled

**show spanning-tree**

Ruijie(config)# spanning-tree portfast bpduguard default

| | |
|---|---|
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.24 spanning-tree portfast default

Portfast no Portfast

**spanning-tree portfast default**

**no spanning-tree portfast default**

Ruijie(config)# spanning-tree reset

| | |
|---|---|
| **show spanning-tree** | STP |
| **show spanning-tree interface** | STP |

| | |
|---|---|
| - | - |

## 18.1.26 spanning-tree tc-guard

tc- guard no tc- guard tc-guard tc

**spanning-tree tc-guard**

**no spanning-tree tc-guard**

| | |
|---|---|
| - | - |

tc- guard

Ruijie(config-if)# spanning-tree tc-guard

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 18.1.27 spanning-tree tc-protection

tc- protection no tc- protection

**spanning-tree tc- protection**

**no spanning-tree tc- protection**

| | |
|---|---|
| - | - |

tc- protection

Ruijie(config)# spanning-tree tc- protection

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 18.1.28 spanning-tree tc-protection tc-guard

tc- guard no tc- guard tc-guard tc

**spanning-tree tc-protection tc-guard**

**no spanning-tree tc-protection tc-guard**

| | |
|---|---|
| - | - |

tc- guard

Ruijie(config)# spanning-tree tc-protection tc-guard

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 18.2 ¡ µ - ‘ a —

### 18.2.1 show spanning-tree

**spanning-tree forward-time**

| | |
|---|---|
| **spanning-tree bpduguard** | BPDU guard |
| **spanning-tree link-type** | “<br>” |

# 19 SPAN a —

## 19.1 " - ‘ a —

### 19.1.1 monitor session

SPAN . no

**monitor session** session_number {**source interface** interface-id [**both** | **rx** | **tx**] | **destination interface** interface-id **switch** | [**acl** name]

**no monitor session** session_number [**source interface** interface-id [**both** | **rx** | **tx**] | **destination interface** interface-id **switch** ] | [**acl** name]

**no monitor session all**

| | |
|---|---|
| session_number | SPAN |
| **source interface** interface-id | interface-id<br>SVI |
| **destination interface**<br>interface-id | interface-id<br>SVI |
| **mac source** mac-addr | MAC |
| **mac destination** mac-addr | MAC |
| **both**<br>**acl** name | **acl** name/id |
| **rx** | |
| **tx** | |
| **all** | |
| **switch** | |

switch port routed port AP SPAN

**show monitor** SPAN 1

Ruijie# show monitor session 1

sess-num: 1

src-intf:

GigabitEthernet 3/1 frame-type Both

dest-intf:

GigabitEthernet 3/8

| | |
|---|---|
| **monitor session** | SPAN |

| | |
|---|---|
| - | - |

# 20 RSPAN a —

## 20.1 " - ‘ a —

### 20.1.1 monitor session

RSPAN

no

**monitor session** session_num {**remote-destination** | **remote-source**}

**monitor session** session-num **destination remote vlan** vlan-id [**reflector-port**] **interface** interface-name [**switch**]

**monitor session** session-num **source interface** interface-name [**rx** | **tx** | **both**]

**monitor session** session-num **destination remote vlan** vlan-id **reflector-port interface** interface-name [**switch**]

| | |
|---|---|
| session-num | |
| vlan-id | **remote span vlan id** |
| Interface-name | |

**end** Ctrl+C

**exit**

1

Ruijie(config)# monitor session 2 remote-source

Ruijie(config)# monitorsession 2 sourceinterface gigabitEthernet

1/2 //

```
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/3 switch //
Ruijie(config)# monitor session 2 destination remote vlan 7
reflector-port interface gigabitEthernet 1/1 switch
2
Ruijie(config)# monitor session 2 remote-destination
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/1 switch
```

| | |
|---|---|
| **show monitor** | |

reflector-port

| | |
|---|---|
| - | - |

| | | |
|---|---|---|
| | **show vlan** | Vlan |

# 21 ERSPAN a —

## 21.1 " - ‘ a —

### 21.1.1 monitor session

ERSPAN no

**monitor session** session_num {

| | |
|---|---|
| - | - |

no shutdown

ERSPAN

**end** Ctrl+C

**exit**

1

Ruijie(config)# monitor session 2 erspan-source

Ruijie(config-mon-erspan-src)#shutdown

| | |
|---|---|
| **show monitor** | |

| | |
|---|---|
| - | - |

## 21.1.3 source

ERSPAN

**source interface** single-interface **[rx|tx|both]**

| | |
|---|---|
| single-interface | |

ERSPAN

**end** Ctrl+C

**exit**

1

```
Ruijie(config)# monitor session 2 erspan-source
Ruijie(config-mon-erspan-src)#source interface gigabitethernet 0/1 both
```

| | |
|---|---|
| **show monitor** | |

| | |
|---|---|
| - | - |

## 21.1.4 destination ip address

GRE IP

**destination ip address** ip_address

| | |
|---|---|

| | |
|---|---|
| - | - |

## 21.1.5 origin ip address

GRE IP

**origin ip address** ip_address

| | |
|---|---|
| ip_address | GRE IP |

ERSPAN

**end** Ctrl+C

**exit**

1

Ruijie(config)# monitor session 2 erspan-source

Ruijie(config-mon-erspan-src)origin ip address 11.1.1.2

| | |
|---|---|
| **show monitor** | |

| | |
|---|---|
| - | - |

## 21.1.6 ip ttl

IP TTL

**ip ttl** ttl-value

| | |
|---|---|
| ttl-value | IP ttl |

64

ERSPAN

**end** Ctrl+C

**exit**

1

Ruijie(config)# monitor session 2 erspan-source

Ruijie(config-mon-erspan-src)#ip ttl 65

| | |
|---|---|
| **show monitor** | |

| | |
|---|---|
| - | - |

## 21.1.7 ip dscp

IP dscp

**ip dscp** dscp-value

| | |
|---|---|
| dscp-value | IP dscp |

0

ERSPAN

**end** Ctrl+C

**exit**

1

Ruijie(config)# monitor session 2 erspan-source

Ruijie(config-mon-erspan-src)#ip dscp 56

| | |
|---|---|
| **show monitor** | |

| | |
|---|---|
| - | - |

# 22 IP a —

## 22.1 Ç " a —

### 22.1.1 ip address

IP no IP

**ip address** ip-address network-mask [ **secondary** ]

**no ip address** ip-address network-mask [ **secondary** ]

| | |
|---|---|
| ip-address | 32 IP 8 |
| network-mask | 32 “1” “0” 8 |
| **secondary** | IP |

IP

IP IP IP IP

32 IP

“ 1 ” IP “ 0 ”

IP A “

IP

”

IP IP

”

IP

„

„ SLIP HDLC PPP LAPB Frame-relay
X.25

„ ping IP
SNMP

„

FastEthernet 0/1

IP

ip unnumbered fastEthernet 0/1

| | |
|---|---|
| **show interface** | |

| | |
|---|---|
| ٦ ٩ Δ ¢ ſ | |

RGOS ARP 32 IP 48 MAC
ARP ARP **clear arp-cache** ARP

ARP
arp 1.1.1.1 4e54.3800.0002 arpa

| | |
|---|---|
| **clear arp-cache** | ARP |

| | |
|---|---|
| - | - |

## 22.2.2 arp gratuitous-send interval

arp no

**arp gratuitous-send interval** seconds

**no arp gratuitous-send**

| | |
|---|---|
| seconds | ARP<br><1-3600> |

0>8 0 J/TT1 1 T0 1D5>550721>6<4301

Ruijie(config-if)# arp gratuitous-send interval 1

2

| | |
|---|---|
| - | - |

## 22.2.4 arp retry times

arp IP ARP
no 5 ARP

**arp retry times** number

**no arp retry times**

| | |
|---|---|
| number | ARP <1-100><br>1 ARP 1 ARP |

ARP ARP 5

ARP ARP

1 ARP
arp retry times 1
2 ARP 1
arp retry times 2

## 22.2.5 arp timeout

ARP ARP no

**arp timeout** seconds

**no arp timeout**

| | |
|---|---|
| seconds | 0-2147483 |

3600

ARP IP MAC
ARP ARP

**no arp unresolve**

| | |
|---|---|
| number | ARP < 1-8192 > 8192 |

ARP 8192

ARP

500

arp unresolved 500

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 22.2.7 ip proxy-arp

ARP **ip proxy-arp** no

ARP

**ip proxy-arp**

**no ip proxy-arp**

ARP IP MAC
ARP ARP IP IP
IP ARP
MAC MAC ARP

FastEthernet 0/1 ARP

```
interface fastEthernet 0/1
no switchport
ip proxy-arp
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 22.3 IP ³ Ê ä a —

### 22.3.1 clear arp-cache

ARP ARP clear arp-cache

**clear arp-cache** [**vrf** vrf_name | **trusted** ] [ip [mask] ] | **interface** interface-name]

| | |
|---|---|
| trusted | ARP |
| **vrf** vrf_name | VRF ARP |
| ip | IP IP ARP<br>**trusted** ARP<br>ARP |
| mask | mask ARP<br>IP ; trusted<br>ARP<br>ARP |
| **interface** interface-name | ARP |

ARP

| | |
|---|---|
| a | NFPP(Network Foundation Protection Policy , )<br>mac ( IP) ARP<br>clear arp 1s<br>ARP |

1 ARP

clear arp-cache

2 ARP 1.1.1.1

clear arp-cache 1.1.1.1

3 SVI1 ARP

clear arp-cache interface Vlan 1

| | |
|---|---|
| **arp** | ARP |

| | |
|---|---|
| - | - |

## 22.3.2 show arp

ARP

**show arp** [[**vrf** vrf-name] [**trusted**] **ip** [**mask**] | **static** | **complete** | **incomplete** | **mac-address** ]

| | |
|---|---|
| **vrf** vrf_name | VRF VRF ARP |
| **trusted** | ARP VRF<br>ARP |
| ip | IP IP ARP<br>trusted ARP<br>ARP |

| | |
|---|---|
| mask | IP ARP ; trusted ARP ARP |
| **static** | arp |
| mac-address | mac ARP |
| **complete** | arp |
| **incomplete** | arp |
| **oob** | (interface of mgmt) ARP |

1 show arp

Ruijie# show arp

Total Numbers of Arp: 7

Protocol Address Age(min) Hardware

Type Interface

> < N M Ä shoc [(“- 00”Tc 0 Tw 4.305 0 Td [<B766.2F0E31.28 0.c -0.0037 677

2 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
```

3 **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
```

4 **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
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 22.3.3 show arp counter

ARP arp

**show arp counter**

| | |
|---|---|
| - | - |

**show arp counter**

```
Ruijie#     show arp counter
The Arp Entry counter:0
The Unresolve Arp Entry:0
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 22.3.4 show arp detail

ARP

**show arp detail** [interface-type interface-number| ip [mask] | mac-address | **static** | **complete** | **incomplete**]

| | |
|---|---|
| interface-type interface-number | ARP |
| ip | ip ip ARP |
| ip mask | ip mask ARP |
| mac-address | mac ARP |
| **static** | arp |
| **complete** | arp |
| **incomplete** | arp |

ARP ARP

**show arp detail**

```
Ruijie#     show arp detail
IP Address          MAC Address          Type          Age(min)     Interface    Port
20.1.1.1            000f.e200.0001       Static        --       --           --
20.1.1.1            000f.e200.0001       Static        --       Vl3          --
20.1.1.1            000f.e200.0001       Static        --       Vl3          Gi2/0/1
193.1.1.70          00e0.fe50.6503       Dynamic       1        Vl3          Gi2/0/1
192.168.0.1         0012.a990.2241       Dynamic       10       Gi2/0/3      Gi2/0/3
192.168.0.1         0012.a990.2241       Dynamic       20       Ag1          Ag1
192.168.0.1         0012.a990.2241       Dynamic       30       Vl2          Ag2
192.168.0.39        0012.a990.2241       Local         --       Vl3          --
192.168.0.39        0012.a990.2241       Local         --       Gi2/0/3      --
192.168.0.1         0012.a990.2241       Local         --       Vl3          --
192.168.0.1         0012.a990.2241       Local         --       Gi2/3/2      --
```

ARP

| | |
|---|---|
| IP Address | IP |
| MAC Address | IP |
| Type | ARP |
| Age | ARP |
| Interface | IP |
| Port | ARP |

| | |
|---|---|
| - | - |

Help address is: 0.0.0.0

Proxy ARP is: ON

## 22.4.1 ip default-gateway

**ip default-gateway** no

**ip default-gateway**

**no ip default-gateway**

| | |
|---|---|
| - | - |

**show ip redirects**

192.168.1.1

ip default-gateway 192.168.1.1

| | |
|---|---|
| **show ip redirects** | |

| | |
|---|---|
| - | - |

# 23 DHCP a —

## 23.1 DHCP " - ‘ a —

### 23.1.1 bootfile

DHCP DHCP **bootfile**

**no**

**bootfile** file-name

**no bootfile**

| | |
|---|---|
| file-name | |

DHCP .

DHCP DHCP
DHCP TFTP
**next-server**

router.conf
bootfile router.conf

| | |
|---|---|
| **ip dhcp pool** | DHCP<br>DHCP |
| **next-server** | DHCP<br>IP |

| | |
|---|---|
| - | - |

## 23.1.2 client-identifier

DHCP DHCP

**client-identifier** **no**

**client-identifier** unique-identifier

**no client-identifier**

| | |
|---|---|
| unique-identifier | DHCP<br>0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 |

DHCP

DHCP DHCP IP

MAC MAC

00d0.f822.33b4 GigabitEthernet 0/1

0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 01

67.6967.6162.6974.4574.6865.726e.6574.302f.31 GigabitEthernet0/1

RFC1700 “ Address Resolution Protocol Parameters ”

DHCP

MAC 00d0.f822.33b4 DHCP

client-identifier 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31

| | |
|---|---|
| **hardware-address** | DHCP |
| **host** | IP<br>DHCP |
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.3 client-name

DHCP DHCP **client-name** no DHCP

**client-name** client-name

**no client-name**

| | |
|---|---|
| client-name | DHCP ASCII river DHCP river.i-net.com.cn |

DHCP

DHCP DHCP

river client-name river

| | |
|---|---|
| **host** | IP DHCP |
| **ip dhcp pool** | DHCP DHCP |

| | |
|---|---|
| - | - |

## 23.1.4 default-router

DHCP DHCP **default-router** **no**

**default-router** ip-address [ ip-address2…ip-address8 ]

**no default-router**

| | |
|---|---|
| ip-address | IP |
| ip-address2…ip-address8 | 8 |

DHCP

DHCP DHCP DHCP
IP

192.168.12.1
default-router 192.168.12.1

| | |
|---|---|
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.5 dns-server

DHCP DNS DHCP **dns-server** **no**
DHCP 。

| | |
|---|---|
| ip-address | DNS IP |
| ip-address2…ip-address8 | 8 DNS |
| **use-dhcp-client** interface-type interface-number | RGOS DHCP DNS DHCP DNS |

DNS

DHCP

DNS DHCP DNS
DNS
RGOS DHCP DNS
DHCP

DHCP DNS 192.168.12.3
dns-server 192.168.12.3

| | |
|---|---|
| **domain-name** | DHCP |
| **ip address dhcp** | DHCP IP |
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.6 domain-name

DHCP DHCP **domain-name** **no**

**domain-name** domain-name

**no domain-name**

| | |
|---|---|
| domain-name | DHCP |

DHCP

DHCP

DHCP i-net.com.cn

domain-name i-net.com.cn

| | |
|---|---|
| **dns-server** | DHCP DNS |
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.7 hardware-address

DHCP DHCP **hardware-address**

**no**

**hardware-address** hardware-address type

**no hardware-address**

| | |
|---|---|
| hardware-address | DHCP MAC |

| | |
|---|---|
| type | DHCP<br>„ ethernet<br>„ ieee802<br>„ 1 10M ethernet<br>„ 6 IEEE 802 |

ethernet

DHCP

DHCP

ethernet MAC 00d0.f838.bf3d

hardware-address 00d0.f838.bf3d

| | |
|---|---|
| **client-identifier** | DHCP |
| **host** | IP<br>DHCP |
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.8 host

DHCP IP DHCP **host**

**no** DHCP IP

**host** ip-address [

| | |
|---|---|
| ip-address | DHCP IP |
| netmask | DHCP |

IP

DHCP

DHCP IP A
255.0.0.0 B 255.255.0 C
255.255.255.0
DHCP

IP 192.168.12.91 255.255.255.240
host 192.168.12.91 255.255.255.240

| | |
|---|---|
| **client-identifier** | DHCP |
| **hardware-address** | DHCP |
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.9 ip address dhcp

DHCP IP **ip address dhcp**

**no**

**ip address dhcp**

**no ip address dhcp**

| | |
|---|---|
| - | - |

DHCP IP

RGOS DHCP IP DHCP
1 DHCP 1 2 DHCP 3
3 DHCP 6 DNS 4 DHCP 15 DHCP
44 WINS

FastEthernet 0 IP FaF75 /CD05Tp address dl

IP DHCP DHCP IP
IP DHCP
IP DHCP

DHCP 192.168.12.100~150 IP
ip dhcp excluded-address 192.168.12.100 192.168.12.150

| | |
|---|---|
| | DHCP |

**ip dhcp pool**

ping 3

ip dhcp ping packets 3

| | |
|---|---|
| **clear ip dhcp conflict** | DHCP |
| **ip dhcp ping timeout** | DHCP ping<br>ping |
| **show ip dhcp conflict** | DHCP |

| | |
|---|---|
| - | - |

## 23.1.12 ip dhcp ping timeout

DHCP ping o

| | |
|---|---|
| **clear ip dhcp conflict** | DHCP |
| **ip dhcp ping packets** | DHCP<br>ping |
| **show ip dhcp conflict** | DHCP |

| | |
|---|---|
| **ip dhcp excluded-address** | DHCP<br>IP |
| **network** DHCP | DHCP |

| | |
|---|---|
| - | - |

## 23.1.14 lease

DHCP DHCP **lease** **no**

**lease** { days [ hours ] [ minutes ] | **infinite** }

**no lease**

| | |
|---|---|
| days | |
| hours | |
| minutes | |
| **infinite** | |

DHCP

DHCP DHCP

DHCP 1

lease 0 1

DHCP 1

lease 0 0 1

| | |
|---|---|
| - | - |

## 23.1.16 netbios-node-type

DHCP NetBIOS DHCP

**netbios-node-type** **no** NetBIOS

**netbios-node-type** type

**no netbios-node-type**

| | |
|---|---|
| type | NetBIOS<br>0~FF<br><br>„ b-node<br>„ p-node<br>„ m-node<br>„ 8 h-node<br><br>„ b-node<br>„ p-node<br>„ m-node<br>„ h-node |

NetBIOS

DHCP

DHCP NetBIOS 1 Broadcast
NetBIOS 2 Peer-to-peer WINS
NetBIOS 3 Mixed
WINS 4 Hybrid WINS
NetBIOS NetBIOS

WINS
WINS NetBIOS
Hybrid

| | | | |
|---|---|---|---|
| | DHCP | 192.168.12.0 | 255.255.255.240 |

DHCP

**bootfile**

IP

option 19 hex 1

2 33 DHCP

DHCP

1 172.16.12.0 192.168.12.12

2 172.16.16.0 192.168.12.16

option 33 ip 172.16.12.0 192.168.12.12 172.16.16.0 192.168.12.16

| | |
|---|---|
| **ip dhcp pool** | DHCP<br>DHCP |

| | |
|---|---|
| - | - |

## 23.1.20 service dhcp

DHCP **service dhcp**

**no** DHCP

**service dhcp**

**no service dhcp**

| | |
|---|---|
| - | - |

DHCP

DHCP IP DNS

DHCP DHCP DHCP

DHCP DHCP

DHCP

DHCP

service dhcp

| | |
|---|---|
| **show ip dhcp server statistics** | DHCP |

| | |
|---|---|
| - | - |

# 23.2 ¡ µ 0 ³ Å a —

## 23.2.1 clear ip dhcp binding

DHCP **clear ip dhcp binding**

**clear ip dhcp binding** { * | ip-address }

| | |
|---|---|
| * | DCHP |
| ip-address | IP |

DHCP DHCP **no ip dhcp pool**

IP 192.168.12.100 DHCP

clear ip dhcp binding 192.168.12.100

| | |
|---|---|
| **show ip dhcp binding** | DHCP |

| | |
|---|---|
| - | - |

## 23.2.2 clear ip dhcp conflict

DHCP **clear ip dhcp conflict**

**clear ip dhcp conflict** { * | ip-address }

| | |
|---|---|
| * | DCHP |
| ip-address | IP |

ع « غى Ò Y مج «

DHCP **clear ip dhcp server statistics**

**clear ip dhcp server statistics**

| | |
|---|---|
| - | - |

DHCP DHCP

DHCP **clear ip dhcp server statistics**

DHCP

clear ip dhcp server statistics

| | |
|---|---|
| **show ip dhcp server statistics** | DHCP |

| | |
|---|---|
| - | - |

## 23.2.4 debug ip dhcp client

DHCP Client **debug ip dhcp client**

**debug ip dhcp client**

**no debug ip dhcp client**

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 23.2.8 show ip dhcp conflict

DHCP EXEC **show ip dhcp conflict**

**show ip dhcp conflict**

| | |
|---|---|
| - | - |

DHCP

**show ip dhcp conflict**

Ruijie# show ip dhcp conflict

IP address Detection Method

192.168.12.1 Ping

dhcpd excluded ipaddress

192.168.12.100

| | |
|---|---|
| IP address | DHCP IP |
| Detection Method | |
| dhcpd excluded ipaddress | |

## 23.2.9 show ip dhcp server statistics

DHCP EXEC **show ip dhcp server statistics**

**show ip dhcp server statistics**

| | |
|---|---|
| - | - |

DHCP

**show ip dhcp server statistics**

```
Ruijie#  show ip dhcp server statistics
Address pools       4
Automatic bindings  4
Manual bindings     0
Expired bindings    0
Malformed messages 2
Message          Received
BOOTREQUEST        216
DHCPDISCOVER        33
DHCPREQUEST         25
DHCPDECLINE          0
DHCPRELEASE          1
DHCPINFORM         150
Message          Sent
BOOTREPLY          16
DHCPOFFER           9
DHCPACK             7
DHCPNAK             0
```

| | |
|---|---|
| Address pools | |
| Automatic bindings | |

| | |
|---|---|
| Manual bindings | |
| Expired bindings | |
| Malformed messages | DHCP |
| Message Received or Sent | DHCP |

| | |
|---|---|
| **clear ip dhcp server statistics** | DHCP |

| | |
|---|---|
| - | - |

# 24 DHCP Relay a —

## 24.1 " - ‘ a —

### 24.1.1 ip dhcp relay check server-id

DHCP Relay check server-id no
DHCP Relay check server-id

[**no**] **ip dhcp relay check server-id**

| | |
|---|---|
| - | - |

DHCP Relay DHCP option server-id
DHCP DHCP DHCP

DHCP relay check server-id

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp relay check server-id
```

DHCP Relay manage-vlan no
default 1

**ip dhcp relay information manage-vlan** vlanid

**no ip dhcp relay information manage-vlan**

DHCP 802.1x

DHCP option dot1x

```
Ruijie#  configure terminal
Ruijie(config)#  ip dhcp relay information option dot1x
```

DenyAccessEachOtherOfUnauthrize

Ruijie(config-ext-nacl)# permit ip any host 192.168.3.1

//

Ruijie(config-ext-nacl)# permit ip any host 192.168.4.1

Ruijie(config-ext-nacl)# permit ip any host 192.168.5.1

Ruijie(config-ext-nacl)# permit ip host 192.168.3.1 any

// IP

Ruijie(config-ext-nacl)# permit ip host 192.168.4.1 any

Ruijie(config-ext-nacl)# permit ip host 192.168.5.1 any

Ruijie(config-ext-nacl)# denyip 192.168.3.00.0.0.255192.168.3.0 0.0.0.255

//

Ruijie(config-ext-nacl)# deny ip 192.168.3.0 0.0.0.255 192.168.4.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.3.0 0.0.0.255 192.168.5.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.4.0 0.0.0.255 192.168.4.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.4.0 0.0.0.255 192.168.5.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.5.0 0.0.0.255 192.168.5.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.5.0 0.0.0.255 192.168.3.0 0.0.0.255

Ruijie(config-ext-nacl)# deny ip 192.168.5.0 0.0.0.255 192.168.4.0 0.0.0.255

Ruijie(config-ext-nacl)# exit

Ruijie(config)# ipdhcprelayinformationoptiondot1xaccess-group DenyAccessEachOtherOfUnauthrize

| | |
|---|---|
| **service dhcp** | DHCP |
| **ip dhcp relay information option dot1x** | DHCP option dot1x |

| | |
|---|---|
| - | - |

## 24.1.5 ip dhcp relay information option vpn

DHCP Relay DHCP Relay Aware VRF

no

| | |
|---|---|
| - | - |

DHCP

1 DHCP relay

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp relay suppression
Ruijie(config-if)# exit
Ruijie(config)#
```

| | |
|---|---|
| **service dhcp** | DHCP |

| | |
|---|---|
| - | - |

## 24.1.7 ip helper-address

DHCP no
DHCP

[**no**] ip helper-address [vrf vrf-name ]A.B.C.D

| | |
|---|---|
| - | - |

/

20 DHCP
DHCP DHCP Relay DHCP
DHCP DHCP Relay

vrf

vrf vrf vrf
vrf

1 192.168.1.1
2 vrf dep1 192.168.2.1
Ruijie# configure terminal
Ruijie(config)# ip helper-address 192.168.1.1
Ruijie(config)# ip helper-address vrf dep1 192.168.2.1

| | |
|---|---|
| **service dhcp** | DHCP |

| | |
|---|---|
| - | - |

## 24.1.8 service dhcp

DHCP no

[**no**] **service dhcp**

| | |
|---|---|
| - | - |

DHCP DHCP DHCP DHCP
DHCP DHCP

DHCP
Ruijie# configure terminal
Ruijie(config)# service dhcp

| | |
|---|---|
| **ip helper-address** [**vrf**] A.B.C.D | DHCP |

| | |
|---|---|
| - | - |

**ip name-server** {ip-address}

**no ip name-server** [ip-address]

| | |
|---|---|
| ip-address | IP |

DNS Server IP/IPv6 DNS Server
Server

**no ip host host-name ip-address**

Ruijie(config)# ip host switch 192.168.5.243

| | |
|---|---|
| **show hosts** | DNS |

| | |
|---|---|
| - | - |

# 25.2 ¡ µ - ‘ a —

## 25.2.1 clear host

**clear host** [host-name]

| | |
|---|---|
| host-name | “*” |

1 ip host

2 DNS DNS

-IP

clear host *

| | |
|---|---|
| **show hosts** | |

| | |
|---|---|
| - | - |

## 25.2.2 show hosts

DNS

**show hosts** [hostname]

| | |
|---|---|
| - | - |

DNS

```
Ruijie#      show hosts
Name servers are:
static
host        type      address
switch      static    192.168.5.243
www.ruijie.com  dynamic   192.168.5.123
```

| | |
|---|---|
| **ip host** | IP |
| **ip name-server** | DNS |

| | |
|---|---|

| | | |
|---|---|---|
| | - | - |

# 26 SNTP a —

## 26.1 " - ‘ a —

### 26.1.1 sntp enable

SNTP **no**

**no sntp interval**

| | |
|---|---|
| seconds | “ ” 60 --65535 |

1800s

**show sntp** SNTP

**a**
sntp enable

Ruijie(config)# sntp interval 3600

| | |
|---|---|
| **sntp enable** | SNTP |
| **show sntp** | SNTP |
| **clock update-calendar** | |

RGOS10.0

| | |
|---|---|
| - | - |

## 26.1.3 sntp server

SNTP Server SNTP NTP Server
internet NTP Server

**sntp server ip-addr**

**no sntp server**

**show sntp** SNTP

Ruijie(config)# sntp server 192.168.4.12

| | |
|---|---|
| | |

Q¸

# 27 NTP a —

## 27.1 NTP " - ‘ a —

### 27.1.1 no ntp

ntp ntp

**no ntp**

**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

| | |
|---|---|
| **peer** | NTP |
| **serve** | NTP |
| **serve-only** | NTP |
| **query-only** | NTP |
| access-list-number | IP 1 99 1300 1999 |
| access-list-name | IP |

NTP

| | |
|---|---|
| - | - |

## 27.1.3 ntp authenticate

NTP NTP

**ntp authenticate**

**no ntp authenticate**

| | |
|---|---|
| - | - |

NTP

**ntp authentication-key ntp trusted-key**

```
ntp authentication-key 6 md5 wooooop
ntp trusted-key 6
ntp authenticate
```

NTP NTP

**ntp authentication-key** key-id **md5** key-string [enc-type]

**no ntp authentication-key** key-id **md5** key-string [enc-type]

| | |
|---|---|

NTP

20

prefer

NTP IP

NTP

NTP server

IPv4 Ruijie(config)# ntp server 192.168.210.222

| | |
|---|---|
| **no ntp** | NTP |

| | |
|---|---|
| - | - |

## 27.1.8 ntp synchronize

NTP

**ntp synchronize**

**no ntp synchronize**

| | |
|---|---|
| - | - |

NTP 8

NTP

Ntp synchronize

| | |
|---|---|
| **ntp server** | NTP |

| | |
|---|---|
| aÁ@[PLDS HX S”fPW!~Q‡”W‰%!•@gÑ56YAN)ga"B@d daf#Bfà.•(Aa.!AedSdRse’YA–.ûCiQ¥-Af„a"B | |

| | |
|---|---|
| **ntp server** | NTP |

| | |
|---|---|
| - | - |

## 27.1.10 ntp update-calendar

NTP

# 27.2 ¡ µ 0 ³ Å a —

## 27.2.1 debug ntp

NTP

**debug ntp**

**no debug ntp**

| | |
|---|---|
| - | - |

NTP

debug ntp

NTP NTP

NTP

show ntp status

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 28 FTP Server a —

## 28.1 " - ‘ a —

### 28.1.1 debug ftpserver

FTP no

**debug ftpserver**

**no debug ftpserver**

| | |
|---|---|
| - | - |

**debug ftpserver** FTP

1

| | |
|---|---|
| - | - |

## 28.1.2 ftp-server enable

FTP no FTP

**ftp-server enable**

**no ftp-server enable**

| | |
|---|---|
| - | - |

FTP FTP

| | |
|---|---|
| **a** | **ftp-server topdir** FTP<br>FTP |

1 FTP gc 2.132 0 Td[<1CE108>Tj7<0C3C03DE>

**ftp-server password** [type] password

**no ftp-server password**

| | |
|---|---|
| type | 0 7 0<br>7 |
| password | |

FTP

1 25 4
52

| |
|---|
| FTP<br>**a** |

1 pass
Ruijie(config)# ftp-server password pass

Ruijie(config)# ftp-server password 0 pass
2 8001
Ruijie(config)# ftp-server password 7 8001
3
Ruijie(config)# no ftp-server password

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 28.1.4 ftp-server topdir

FTP no
FTP

**ftp-server topdir** directory

**no ftp-server topdir**

| | |
|---|---|
| directory | FTP |

FTP
FTP FTP
FTP

1 FTP syslog
Ruijie(config)# ftp-server topdir /syslog
Ruijie(config)# ftp-server enable
2
Ruijie(config)# no ftp-server topdir

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 28.1.5 ftp-server timeout

FTP Session idle timeout no
30

**ftp-server timeout** time

**no ftp-server timeout**

| | |
|---|---|
| time | 1-3600 – |

30

FTP

FTP

FTP FTP

FTP FTP

**a**

FTP

64

FTP

FTP

a

1 user

Ruijie(config)# ftp-server username user

2

Ruijie(config)# no ftp-server username

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 28.2 ¡ µ - ‘ a —

### 28.2.1 show ftp-server

FTP

**show ftp-server**

| | |
|---|---|
| - | - |

FTP

„

„ IP Port

„ IP Port

„

„

„

„

FTP

```
Ruijie#      show ftp-server
ftp-server information
=====================================
enable : Y
topdir : /
timeout: 20min
username config : Y
password config : Y
type: BINARY
control connect : Y
ftp-server: ip=192.167.201.245 port=21
ftp-client: ip=192.167.201.82 port=4978
port data connect : Y
ftp-server: ip=192.167.201.245 port=22
ftp-client: ip=192.167.201.82 port=4982
passive data connect : N
```

| | |
|---|---|
| - | - |

| | |
|---|---|

# 29 UDP-Helper a —

## 29.1 " - ‘ a —

### 29.1.1 ip forward-protocol

UDP **no** UDP

**ip forward-protocol udp** [port | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

**no ip forward-protocol udp** [port | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

| | |
|---|---|
| port | 69,53,37,137,138,49 |
| **tftp** | Trivial File Transfer Protocol(69)<br>UDP 69 |
| **domain** | Domain Name System(53) UDP<br>53 |
| **time** | Time service(37) UDP 37 |
| **netbios-ns** | NetBIOS Name Service(137) UDP<br>137 |
| **netbios-dgm** | NetBIOS Datagram Service(138)<br>UDP 138 |
| **tacacs** | TAC Access Control System(49)<br>UDP 49 |

UDP

UDP-Helper 69,53,37,137,138,49 UDP

| | |
|---|---|
| - | - |

## 29.1.3 udp-helper enable

**udp-helper enable** UDP **no udp-helper enable**

UDP

UDP

**udp-helper enable**

**no udp-helper enable**

| | |
|---|---|
| - | - |

UDP

UDP-Helper

# 30 SNMP a —

## 30.1 " - ‘ a —

### 30.1.1 no snmp-server

SNMP **no snmp-server**

**no snmp-server**

**no snmp-server chassis-id**

| | |
|---|---|
| text | |

60FF60

SNMP

**show snmp**

SNMP 123456:

Ruijie(config)# snmp-server chassis-id 123456

| | |
|---|---|
| **show snmp** | SNMP |

| | |
|---|---|
| aclnumber | 1-99<br>MIB ipv4 NMS |
| aclname | MIB ipv4 NMS |
| ipaddr | NMS MIB NMS |

SNMP

MIB NMS

SNMP **no snmp-server**

MIB 192.168.12.1 NMS

MIB

```
Ruijie(config)#  access-list  2 permit  192.168.12.1
Ruijie(config)#  access-list  2  deny any
Ruijie(config)#  snmp-server community public ro  2
```

| | |
|---|---|
| **access-list** | |

| | |
|---|---|
| - | - |

## 30.1.4 snmp-server contact

SNMP **snmp-server contact** no

SNMP

**snmp-server contact** text

**no snmp-server contact**

| | |
|---|---|
| text | |

SNMP i-net800@i-net.com.cn

Ruijie(config)# snmp-server contact i-net800@i-net.com.cn

| | |
|---|---|
| **show snmp-server** | SNMP |
| **no snmp-server** | SNMP |

| | |
|---|---|
| - | - |

## 30.1.5 snmp-server enable traps

SNMP NMS Trap

**snmp-server enable traps** no SNMP NMS Trap

**snmp-server enable traps** [**snmp** ]

Ruijie(config)# snmp-server enable traps snmp
Ruijie(config)# snmp-server host 192.168.12.219 public snmp

| | |
|---|---|
| **snmp-server host** | SNMP |

| | |
|---|---|
| - | - |

## 30.1.6 snmp-server group

SNMP **snmp-server group** no

**snmp-server group** groupname {**v1** | **v2c** | } [**read** readview][**write** writeview] [**access** {[aclnum | aclname]num | name}]

**no snmp-server group** groupname {**v1** | **v2c** | }

| | |
|---|---|
| **v1** | **v2c** | SNMP |
| readview | |
| writeview | |
| aclnum | MIB ipv4 NMS |
| aclname | MIB ipv4 NMS |

Ruijie(config)# snmp-server group mib2user v3 priv read mib2

SNMP SNMP

| | |
|---|---|
| - | - |

## 30.1.9 snmp-server packetsiz

SNMP **snmp-sever packetsize**

no

**snmp-server packetsize** byte-count

**no snmp-server packetsize**

| | |
|---|---|
| byte-count | 484 17876 |

1500

SNMP 1492

Ruijie(config)# snmp-server packetsize 1492

| | |
|---|---|
| **snmp-server queue-length** | SNMP |

| | |
|---|---|
| - | - |

## 30.1.10 snmp-server queue-length

**snmp-server queue-length**

**snmp-server queue-length** length

| | |
|---|---|
| length | 1 1000 |

10

4

4

Ruijie(config)# snmp-server queue-length 4

| | |
|---|---|
| **snmp-server packetsize** | SNMP |

| | |
|---|---|
| - | - |

## 30.1.11 snmp-server system-shutdown

SNMP **snmp-server system-shutdown**

no SNMP

**snmp-server system-shutdown**

**no snmp-server system-shutdown**

| | |
|---|---|
| - | - |

SNMP

SNMP RGOS reload/reboot NMS

SNMP

Ruijie(config)# snmp-server system-shutdown

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 30.1.12 snmp-server trap-source

SNMP **snmp-server trap-source** no

**snmp-server trap-source** interface

**no snmp-server trap-source**

| | |
|---|---|
| interface | SNMP |

SNMP IP

SNMP IP

IP SNMP

0 IP SNMP

Ruijie(config)# snmp-server trap-source fastethernet 0

| | |
|---|---|
| **snmp-server enable traps** | |
| **snmp-server enable host** | NMS |

| | |
|---|---|
| - | - |

## 30.1.13 snmp-server trap-timeout

**snmp-server trap-timeout**

no

**snmp-server trap-timeout** seconds

**no snmp-server trap-timeout**

| | |
|---|---|
| seconds | 1 – 1000 |

30

60

Ruijie(config)# snmp-server trap-timeout 60

| | |
|---|---|
| **snmp-server queue-length** | |
| **snmp-server enable host** | NMS |

| | |
|---|---|
| - | - |

## 30.1.14 snmp-server user

SNMP **snmp-server user** no

**snmp-server user** username groupname {**v1** | **v2** | [**encrypted**] [**auth** {**md5**

| | |
|---|---|
| - | - |

### 30.1.16 snmp trap link-status

## 30.2 ¡ µ - ‘ a —

### 30.2.1 show snmp

SNMP **show snmp**

**show snmp** [**mib** | **user** | **view** | **group| host**]

| | |
|---|---|
| - | - |

**show snmp** SNMP
**show snmp mib** snmp mib
**show snmp user** snmp
**show snmp view** snmp
**show snmp group** snmp
**show snmp host**

SNMP

```
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 1500)
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

| | |
|---|---|
| **snmp-server** chassis-id | SNMP |

| | |
|---|---|
| - | - |

# 31 RMON a —

## 31.1 " - ‘ a —

### 31.1.1 rmon alarm

MIB no

**rmon alarm** number variable interval {**absolute** | **delta** } **rising-threshold** value [event-number] **falling-threshold** value [event-number] [**owner** ownername]

**no rmon alarm** number

| | |
|---|---|
| - | - |

RGOS variable absolute/delta owner interval rising-threadhold/falling-threadhold event

MIB 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

| | |
|---|---|

**rmon event** number [**log**] [**trap** community] [description-string]

## 31.1.2 rmon collection history

**no**

**rmon collection history** index [**owner** ownername] [**buckets** bucket-number] [**interval** seconds]

**no rmon collection history** index

| | |
|---|---|

| | |
|---|---|

trap

Ruijie(config)# rmon event 1 log trap rmon description "ifInNUcastPkts is too much " owner zhangsan

| | |
|---|---|
| **rmon alarm** number variable interval{**absolute** \| **delta**}**rising-threshold** value [event-number] **falling-threshold** value [event-number] [**owner** ownername] | |

| | |
|---|---|
| - | - |

# 31.2 ¡ µ - ‘ a —

## 31.2.1 show rmon alarm

**show rmon alarm**

| | |
|---|---|
| - | - |

Ruijie# show rmon alarm
Event : 1
Description : firstevent

Event type : log-and-trap
Community : public
Last time sent : 0d:0h:0m:0s
Owner : zhangsan
Log : 1
Log time : 0d:0h:37m:47s
Log description : ipttl
Log : 2
Log time : 0d:0h:38m:56s
Log description : ipttl

| | |
|---|---|
| **rmon alarm** number variable interval {**absolute** \| **delta** } **rising-threshold** value [event-number] **falling-threshold** value [event-number] [**owner** ownername] | |

| | |
|---|---|
| - | - |

0.0023 Tc 7.9414 Tw 10.02 0 0 10.02 135.36 390.3803 Tm (245.7j 27.934 0 Td ( )Tj ET 66.84 404 0.24 0.481 Tfe f 141.6 404 394.98

## 31.2.2 show rmon event

**show rmon event**

| | |
|---|---|

Ruijie# show rmon event
Alarm : 1
Interval : 1
Variable : 1.3.6.1.2.1.4.2.0
Sample type : absolute
Last value : 64
Startup alarm : 3
Rising threshold : 10
Falling threshold : 22
Rising event : 0
Falling event : 0
Owner : zhangsan

| | |
|---|---|
| **rmon event** number [**log**] [**trap** community] [description-string] | |

| | |
|---|---|
| - | - |

## 31.2.3 show rmon history

**show rmon history**

| | |
|---|---|
| - | - |

```
Ruijie#     show rmon history
Entry : 1
Data source : Gi1/1
Buckets requested : 65535
Buckets granted : 10
Interval : 1
Owner : zhangsan
Sample : 198
Interval start : 0d:0h:15m:0s
DropEvents : 0
Octets : 67988
Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
```

| | |
|---|---|
| **rmon collection history** index [**owner** ownername] [**buckets** bucket-number] [**interval** seconds] | |

| | |
|---|---|
| - | - |

## 31.2.4 show rmon statistics

**show rmon statictics**

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 32 TCP a —

## 32.1 TCP - ‘ " a —

### 32.1.1 ip tcp path-mtu-discovery

TCP (PMTU) **ip tcp path-mtu-discovery** **no**

**ip tcp path-mtu-discovery** [**age-timer** {minutes **| infinite**}]

**no ip tcp path-mtu-discovery** [**age-timer** {minutes **| infinite**}]

| | |
|---|---|
| | TCP PMTU |
| **age-timer** minutes | 10 |

| | |
|---|---|
| **show tcp pmtu** | TCP PMTU |

| | |
|---|---|
| | |
| RGOS 10.4 | RGOS 10.4 |

# 32.2 TCP - ‘ ¡ µ a —

## 32.2.1 show tcp pmtu

TCP PMTU

**show tcp pmtu**

| | |
|---|---|
| | |

TCP PMTU show tcp pmtu

**show tcp pmtu**

Ruijie# show tcp pmtu

No. Local Address Foreign Address PMTU

[1] 2002::1.18946 2002::2.23 1440

[2] 192.168.195.212.23 192.168.195.112.13560 1440

| | |
|---|---|
| No. | |
| Local Address | “.”<br>“2002::2.23” “192.168.195.212.23” “23” |

| | |
|---|---|
| Foreign Address | “.”<br>“2002::2.23” “192.168.195.212.23” “23” |
| **PMTU** | PMTU |

| | |
|---|---|
| **Ip tcp path-mtu-discovery** | TCP PMTU |

| | |
|---|---|
| **10.4** | |

# 33 RIP a —

## 33.1 " - ‘ a —

### 33.1.1 auto-summary (RIP)

RIP **auto-summary** **no**

**auto-summary**

**no auto-summary**

| | |
|---|---|
| - | - |

RIP
RIPv1 RIPv2
RIP

„ RIP
„ RIP
”
RIPv2
RIPv1

RIPv2
Ruijie(config)# router rip
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary

| | |
|---|---|
| | |

| | |
|---|---|
| **ip rip bfd** [**disable**] | RIP<br>BFD |

| | |
|---|---|
| - | - |

## 33.1.3 default-metric (RIP)

RIP **default-metric** **no**

**default-metric** metric-value

**no default-metric**

| | |
|---|---|
| metric-value | 1 16 metric-value<br>16 RGOS |

1

**redistribute**

RIP

RIP

RIP default-metric

default-metric

default-metric 1

RIP OSPF

RIP 3

```
Ruijie(config)# router rip
Ruijie(config-router)# default-metric 3
Ruijie(config-router)# redistribute ospf 100
```

| | |
|---|---|

| | |
|---|---|
| **redistribute** | |

| | |
|---|---|
| - | - |

## 33.1.4 default-information originate (RIP)

RIP **default-information originate** **no**

**default-information originate** [**always**] [**metric** metric-value] [**route-map** map-name]

**no default-information originate** [**always**] [**metric**] [**route-map** map-name]

| | |
|---|---|
| **always** | RIP |
| **metric** metric-value | metric-value 1-15 |
| **route-map** map-name | route-map , route-map |

metric 1

RIP

**default-information originate**

p V **always** RIP ı ɔ

| | |
|---|---|
| RIP | RIP |
| a<br>**ip default-network**<br>**default-information originate** | RIP |

RIP

Ruijie(config-router)# default-information originate always

| | |
|---|---|
| **ip rip default-information** | |
| **redistribute** | RIP |

| | |
|---|---|
| - | - |

## 33.1.5 distance

RIP **distance** **no**

**distance** distance [ ip-address wildcard ]

**no distance** [distance ip-address wildcard ]

| | |
|---|---|
| distance | RIP <1-255> |
| ip-address | IP |
| wildcard | IP |

120

RIP

RIP

RIP

RIP 160, 192.168.12.1
123

```
Ruijie(config)#          router rip
Ruijie(config-router)#          distance     160
Ruijie(config-router)#          distance     123 192.168.12.1 0.0.0.0
```

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 33.1.6 distribute-list in RIP

**distribute-list in**

**no**

**distribute-list** {[access-list-number | name] | **prefix** prefix-list-name [**gateway** prefix-list-name]} **in** [interface-type interface-number]

**no distribute-list** {[access-list-number | name] | **prefix** prefix-list-name [**gateway** prefix-list-name]} **in** [interface-type interface-number]

| | |
|---|---|

access-list-number | name

| | |
|---|---|
| **connected** | ( ) |
| **isis** [area-tag] | ( ) isis area-tag isis |
| **ospf** process-id | ( ) ospf process-id ospf |
| **rip** | ( ) rip |
| **static** | ( ) |

RIP 192.168.12.0/24

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.4.4.0
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# distribute-list 10 out
Ruijie(config-router)# version 2
Ruijie(config)# access-list 10 permit 192.168.12.0 0.0.0.255
```

| | |
|---|---|
| **access-list** | |
| **prefix-list** | |
| **redistribute** | |

| | |
|---|---|
| - | - |

## 33.1.8 exit-address-family

**exit-address-family**

**exit-address-family**

| | |
|---|---|
| - | - |

**exit**

Ruijie(config-router)# address-family ipv4 vrf vpn1
Ruijie(config-router-af)# exit-address-family

| | |
|---|---|
| **address-family** | |

| | |
|---|---|
| - | - |

## 33.1.9 ip rip authentication key-chain

RIP RIP **ip rip authentication key-chain** **no**

**ip rip authentication key-chain** name-of-keychain

**no ip rip authentication key-chain**

| | |
|---|---|
| name-of-keychain | RIP |

**key chain**

RIP

RIPv1 RIP RIPv2

Serial 0 RIP ripchain

Ruijie(config)# interface serial 0/ 0

Ruijie(config-if)# ip rip authentication key-chain ripchain

| | |
|---|---|
| **ip rip authentication mode** | RIP |
| **ip rip authentication text-password** | RIP RIP RIPv2 RIP |
| **ip rip receive version** | RIP<br>RIP |
| **ip rip send version** | RIP<br>RIP |
| **key chain** | |

| | |
|---|---|
| - | - |

## 33.1.10 ip rip authentication mode

RIP **ip rip authentication mode** **no** RIP

**ip rip authentication mode** {**text** | **md5**}

**no ip rip authentication mode**

| | |
|---|---|

**no ip rip authentication text-password**

| | |
|---|---|
| password-string | 1 16 |

RIP

RIPv1 RIP RIPv2

Serial 0 RIP ruijie

Ruijie(config)# interface serial 0/ 0

Ruijie(config-if)# ip rip authentication text-password ruijie

| | |
|---|---|
| **ip rip authentication mode** | RIP |
| **ip rip authentication key-chain** | RIP RIP RIPv2 RIP |

| | |
|---|---|
| 10.4(1) | |

## 33.1.12 ip rip bfd

RIP BFD **ip rip bfd** [**disable**] no **ip rip bfd**

**ip rip bfd** [**disable**]

**no ip rip bfd**

| | |
|---|---|
| **disable** | RIP BFD |

RIP BFD

**bfd all-interfaces**

**ip rip bfd** BFD

RIP **bfd all-interfaces** RIP

BFD **ip rip bfd disable** BFD

| | |
|---|---|
| **router rip** | RIP |
| **bfd all-interfaces** | RIP BFD |

| | |
|---|---|
| - | - |

## 33.1.13 ip rip default-information

RIP **default-information**

**no**

**ip rip default-information only originate** [**metric** metric-value]

**no ip rip default-information**

| | |
|---|---|
| **only** | |
| **originate** | |
| **metric** metric-value | 1-15 |

metric 1

**ip rip default-information** RIP **default-information originate**

| |
|---|
| **ip rip default-information** RIP<br>**a** |

ethernet0/0

Ruijie(config)# interface ethernet 0/ 0

Ruijie(config-if)# ip rip default-information only

| | |
|---|---|
| **default-information originate** | RIP |

| | |
|---|---|
| - | - |

## 33.1.14 ip rip receive enable

RIP RIP **ip rip receive enable** **no** RIP RIP

**ip rip receive enable**

**no ip rip receive enable**

| | |
|---|---|
| - | - |

RIP

RIP **no** **default** RIP

Fastethernet 0/0 RIP

```
Ruijie(config)#          interface fastethernet          0/ 0
Ruijie(config-if)#          no ip rip receive enable
```

| | |
|---|---|
| **ip rip send enable** | RIP |
| **passive-interface** | RIP |

| | |
|---|---|
| - | - |

## 33.1.15 ip rip receive version

RIP RIP **ip rip receive version** **no**

**ip rip receive version** [**1**] [**2**]

**no ip rip receive version**

| | |
|---|---|
| **1** | RIPv1 |
| **2** | RIPv2 |

**version**

**vesion** RIP

RIPv1 RIPv2

version

Fastethernet 0/0 RIPv1 RIPv2

```
Ruijie(config)#          interface fastethernet          0/ 0
Ruijie(config-if)#          ip rip receive version          1 2
```

| | |
|---|---|
| **version** | RIP |

| | |
|---|---|
| - | - |

## 33.1.16 ip rip send enable

RIP RIP **ip rip send enable** **no** RIP RIP

**ip rip send enable**

**no ip rip send enable**

| | |
|---|---|
| - | - |

RIP

RIP **no** **default** RIP

Fastethernet 0/0 RIP

```
Ruijie(config)# interface fastethernet 0/ 0
Ruijie(config-if)# no ip rip send enable
```

| | |
|---|---|
| **ip rip receive enable** | RIP |
| **passive-interface** | RIP |

| | |
|---|---|
| - | - |

## 33.1.17 ip rip send supernet-routes

RIP RIP **ip rip send supernet-routes** **no** RIP RIP

**ip rip send supernet-routes**

**no ip rip send supernet-routes**

| | |
|---|---|
| | |
| | |

RIP

RIPv1 RIPv2 RIPv1

RIPv2 **no**

RIPv2

## 33.1.18 ip rip send version

RIP RIP **ip rip receive version** **no**

**ip rip send version** [**1**] [**2**]

**no ip rip send version**

| | |
|---|---|
| **1** | RIPv1 |
| **2** | RIPv2 |

**version**

**vesion** RIP RIPv1 RIPv2 version

Fastethernet 0/0 RIPv1 RIPv2

```
Ruijie(config)#          interface fastethernet          0/ 0
Ruijie(config-if)#          ip rip send version          1 2
```

| | |
|---|---|
| **version** | RIP |

| | |
|---|---|
| - | - |

## 33.1.19 ip rip split-horizon (RIP)

RIP **ip rip split-horizon** **no** RIP

**ip rip split-horizon**

**RIP**

| | |
|---|---|
| ip-address | IP |
| ip-network-mask | IP |

RIP

**ip rip summary-address** RIP

RIPv2 FastEthernet 1/0
172.16.0.0/16

```
Ruijie(config)# interface FastEthernet 1/ 0
Ruijie(config-if)# ip rip summary-address 172.16.0.0 255.255.0.0
Ruijie(config-if)# ip address 172.16.1.1 255.255.255.0
Ruijie(config)# router rip
Ruijie(config-router)# network 172.16.0.0
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

| | |
|---|---|
| **auto-summary** | RIP |

| | |
|---|---|
| - | - |

## 33.1.21 ip rip v2-broadcast

RIP version 2

**ip rip v2-broadcast** **no**

**ip rip v2-broadcast**

**no ip rip v2-broadcast**

**RIP**

network-number wildcard

RIP

wildcard RGOS

RIP

RIP RIP

RIP

RIP 192.168.12.0/24

172.16.0.0/24 RIP config)#Tj /TT3 4 Tf 9 08 00 Td (RIrouter ripTj /TT3 1

RIPv1 IP 255.255.255.255 RIPv2
224.0.0.9

**passive-interface**

RIP

passive

RIP 192.168.1.2

```
Ruijie(config)# router rip
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# neighbor 192.168.1.2
```

offset

RIP offset-list offset-list
RIP offset-list metric

acl 7 RIP metric 7
Ruijie(config-router)# offset-list 7 out 7
fastEthernet1/0 acl 8 RIP
metric 7
Ruijie(config-router)# offset-list 7 in 7
Ruijie(config-router)# offset-list 8 in 7 fastEthernet 1/ 0

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 33.1.25 output-delay

RIP

**output-delay** **no**

**output-delay** delay

**no output-delay**

| | |
|---|---|
| delay | <8-50> |

RIP 512 25

25

**output-delay**

RIP 30

```
Ruijie(config)# router rip
Ruijie(config-router)# output-delay 30
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 33.1.26 passive-interface

**passive-interface**

**no**

**passive-interface** {**default** | interface-type interface-num}

**no passive-interface** {**default** | interface-type interface-num}

| | |
|---|---|
| **default** | passive |
| interface-type interface-num | |

passive

**passive-interface default** passive **no** **passive-interface** interface-type interface-num passive passive RIP RIP neighbor ip rip send enable ip

rip receive enable

passive ethernet0/0 passive

```
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# no passive-interface ethernet 0/0
```

| | |
|---|---|
| **ip rip receive enable** | RIP |
| **ip rip send enable** | RIP |

| | |
|---|---|
| - | - |

## 33.1.27 redistribute RIP

**redistribute**

**no**

**redistribute** {**bgp** | **connected** | **isis** [area-tag] | **ospf** process-id | **static**} [{**level-1 | level-1-2 | level-2**} **| match** {**internal | external** [**1|2**] **| nssa-external** [**1|2**]} **| metric** metric-value**| route-map** route-map-name]

**no redistribute** {**bgp** | **connected** | **isis** [area-tag] | **ospf** process-id | **static**} [{**level-1 | level-1-2 | level-2**} **| match** {**internal | external** [**1|2**] **| nssa-external** [**1|2**]} **| metric** metric-value**| route-map**route-map-name]

| | |
|---|---|
| **bgp** | bgp |
| **connected** | |
| **isis** area-tag | isis area-tag isis |
| **ospf** process-id | ospf process-id ospf <1-65535> |
| **static** | |
| l**evel-1** \| **level-1-2** \| **level-2** | IS-IS level |
| **match** | OSPF |

| | |
|---|---|
| **metric** metric-value | metric metric-value<br>metric 1-16 |
| **route-map** route-map-name | |

OSPF

ISIS level-2

metric 1

route-map

RIP

RIP OSPF

**isis** level level-2

**RIP**

| | |
|---|---|
| update | update<br>invalid flush<br>30 |
| invalid | invalid<br>invalid<br>invalid<br>Invalid 180 |
| flush | RIP invalid<br>flush invalid<br>Flush 120 |

30 180 120

RIP RIP

RIP **show ip rip**

| |
|---|
| **a** 2Mbps |

RIP 10 30
invalid invalid 90

Ruijie(config)# router rip
Ruijie(config-router)# timers basic 10 30 90

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 33.1.30 validate-update-source

RIP

**validate-update-source** **no**

**validate-update-source**

**no validate-update-source**

| | |
|---|---|
| - | - |

RIP RIP

IP

RIP

**validate-update-source**

ip unnumbered RIP

**validate-update-source**

Ruijie(config)# router rip

Ruijie(config-router)# no validate-update-source

| | |
|---|---|
| **ip rip split-horizon** | RIP |
| **ip unnumbered** | IP |
| **neighbor** (**RIP**) | RIP IP |

| | |
|---|---|
| - | - |

## 33.1.31 version (RIP)

RIP **version** **no**

**version** {**1** | **2**}

**no version**

| | |
|---|---|
| **1** | RIP 1 |
| **2** | RIP 2 |

RIPv1 RIPv2 RIPv1

RIP **ip rip receive version** **ip rip send version** RIP

RIP 2

```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
```

| | |
|---|---|
| **ip rip receive version** | RIP<br>RIP |
| **ip rip send version** | RIP<br>RIP |
| **show ip rip** | **rip** |

| | |
|---|---|
| - | - |

## 33.2 ¡ µ - ‘ a —

## 33.2.1 show ip rip

RIP **show ip rip**

**show ip rip** [**vrf** vrf-name]

Invalid after 180 seconds, flushed after 120 seconds
Outgoing update filter list for all interface is: not set
Incoming update filter list for all interface is: not set
Default redistribution metric is 1
Redistributing:
Default version control: send version 1, receive any version
Routing for Networks:
Distance: (default is 120)

| | |
|---|---|
| - | - |

| | |
|---|---|
| | |

```
192.168.1.0/24   auto-summary
192.168.1.0/30   directly connected, Loopback 3
192.168.1.8/30   directly connected, FastEthernet 0/0
192.168.121.0/24   auto-summary
192.168.121.0/24   redistributed
[1] via 192.168.2.22, FastEthernet 0/1
   2                    RIP                  192.168.121.0/24

Ruijie#     show ip rip database          192.168.121.0 255.255.255.0
192.168.121.0/24   redistributed
[1] via 192.168.2.22, FastEthernet 0/1
   3                    RIP
Ruijie#      show ip rip database count
        All   Valid  Invalid
database     5    5    0
auto-summary  5    5    0

connected    1    1    0
rip          4    4    0
```

| | |
|---|---|
| **show ip rip** | |

| | |
|---|---|
| - | - |

## 33.2.3 show ip rip external

RIP **show ip rip external**

**show ip rip external** [**bgp** | **connected** | **isis** [process-name] | **ospf** <1-65535>| **static**] [**vrf** vrf-name]

| | |
|---|---|
| **bgp \| connected \| isis \| ospf \| static** | |

| | |
|---|---|
| **vrf** vrf-name | VRF RIP |
| process-name | ISIS |
| <1-65535> | OSPF |

| | |
|---|---|
| **vrf** vrf-name | VRF RIP |

RIP RIP

RIP

```
Ruijie#      show ip rip interface
FastEthernet 1/0 is up, line protocol is up
  Routing Protocol: RIP
    Receive RIPv2 packets only
    Send RIPv2 packets only
    Passive interface: Disabled
    Split horizon: Enabled
    V2 Broadcast: Disabled
    Multicast registe: Registed
    Interface Summary Rip:
    Not Configured
    Authentication mode: Text
    Authentication key-chain: ripk1
    Authentication text-password: ruijie
    Default-information: only, metric 5
    IP interface address:
      192.168.64.100/24, next update due in 14 seconds
      2.2.1.1/24, next update due in 24 seconds
     neighbor 2.2.1.6, next update due in 3 seconds
     neighbor 2.2.1.77, next update due in 13 seconds
      2.2.2.57/24, next update due in 16 seconds
```

RIP BFD BFD :

```
Ruijie#show ip rip interface
VLAN 1 is up, line protocol is up
 Routing Protocol: RIP
  Receive RIPv1 and RIPv2 packets
  Send RIPv1 packets only
  Receive RIP packet: Enabled
```

Send RIP packet: Enabled
Send RIP supernet routes: Enabled
Passive interface: Disabled
Split horizon: Enabled
BFD: Enabled
V2 Broadcast: Disabled
Multicast registe: Registed
Interface Summary Rip:
Not Configured
IP interface address:
2.2.2.111/24, next update due in 14 seconds

| | |
|---|---|
| **show ip rip** | |

| | |
|---|---|
| - | - |

## 33.2.5 show ip rip peer

RIP RIP (RIP )
RIP RIP
**show ip rip peer**

RIP

```
Ruijie# show ip rip peer
Peer 192.168.3.2:
  Local address: 192.168.3.1
  Input interface: GigabitEthernet 0/2
  Peer version: RIPv1
  Received bad packets: 3
  Received bad routes: 0
  BFD session state up
```

# 34 OSPF a —

## 34.1 " - ‘ a —

### 34.1.1 area

**no** OSPF

**area** area-id

**no area** area-id

| | |
|---|---|
| area-id | OSPF<br>IP |

OSPF

no OSPF
**area authentication** **area default-cost** **area filter-list** **area nssa**

OSPF

1.

2. network area

OSPF 2
Ruijie(config)# router ospf 2
Ruijie(config-router)# no area 2

| | |
|---|---|
| **network area** | OSPF |

| | |
|---|---|
| 10.4(1) | |

## 34.1.2 area authentication

OSPF **area authentication** **no** OSPF

**area** area-id **authentication** [message-digest]

**no area** area-id **authentication**

| | |
|---|---|
| area-id | OSPF IP |
| message-digest | MD5 message digest 5 |

RGOS OSPF OSPF message-digest MD5 message-digest OSPF **ip ospf authentication-key** **ip ospf message-digest-key** MD5

OSPF 0 MD5 backbone

```
Ruijie(config)# interface FastEthernet 0/0
Ruijie(config-if)# ip address 192.168.12.1 255.255.255.0
Ruijie(config-if)# ip ospf message-digest-key 1 md5 backbone
# OSPF
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# area 0 authentication message-digest
```

| | |
|---|---|

| | |
|---|---|
| **ip ospf authentication-key** | OSPF |
| **ip ospf message-digest-key** | OSPF MD5 |
| **area virtual-link** | |

| | |
|---|---|
| - | - |

## 34.1.3 area default-cost

STUB NSSA OSPF

**area default-cost** **no**

**area** area-id **default-cost** cost

**no area** area-id **default-cost**

| | |
|---|---|

STUB NSSA

| | |
|---|---|
| **area stub** | OSPF |
| **area nssa** | OSPF NSSA |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.1.5 area nssa

OSPF NSSA **area nssa** **no** NSSA NSSA

**area** area-id **nssa** [ **no-redistribution**] [**default-information-originate** [**metric** value | **metric-type** <1-2>]] [**no-summary**]

**no area** area-id **nssa** [ **no-redistribution**] [**default-information-originate**] [**no-summary**]

| | |
|---|---|
| area-id | NSSA |
| z **no-redistribution** | NSSA ABR NSSA |
| z **default-information-originate** | 7 LSA NSSA NSSA ABR ASBR |
| z **metric** value | LSA metric 0-16777214 |
| z **metric-type** <1-2> | LSA E-1 E-2 |
| z **no-summary** | nssa (ABR) summary LSAs Type-3 LSA |

NSSA

**default-information-originate** Type-7 LSA NSSA ABR ASBR ABR Type-7 LSA ASBR ( ABR) Type-7 LSA

**no-redistribution** ASBR OSPF redistribute

NSSA NSSA

RFC1583 RFC1583
cost cost

ABR

advertise not-advertise
cost
OSPF

area range

172.16.16.0/20

```
Ruijie(config)#          router ospf       1
Ruijie(config-router)#          network    172.16.0.0 0.0.15.255          area   0
Ruijie(config-router)#          network    172.16.17.0 0.0.15.255         area   1
Ruijie(config-router)#          area   1   range 172.16.16.0 255.255          . 240.  0
```

| | |
|---|---|
| **discard-route** | discard |
| **summary-address** | OSPF |

| | |
|---|---|
| - | - |

## 34.1.7 area stub

OSPF **area stub**

**no**

**area** area-id **stub** [**no-summary**]

**no area** area-id **stub** [**no-summary**]

| | |
|---|---|
| area-id | STUB |
| **no-summary** | ABR<br>ABR |

OSPF area stub ABR
(LSA) 1 1 LSA 2 2 LSA 3 3
LSA OSPF Ú ʁ

OSPF **area virtual-link** **no**

**area** area-id **virtual-link** router-id [**authentication** [**message-digest** | **null**]] [**dead-interval** seconds] [**hello-interval** seconds] [**retransmit-interval** seconds] [**transmit-delay** seconds] [[**authentication-key** key] | [**message-digest-key** key-id **md5** key]]

**no area** area-id **virtual-link** router-id

| | |
|---|---|
| area-id | OSPF<br>IP |
| z router-id | show ip ospf |
| z **dead-interval** seconds | 1-65535 |
| z **hello-interval** seconds | OSPF Hello<br>1-65535 |
| z **retransmit-interval** seconds | OSPF LSA<br>1-65535 |
| z **transmit-delay** seconds | OSPF LSA<br>1-65535 LSA<br>LSA<br>LSA<br>OSPF |

z **authentication-key** key

| | |
|---|---|
| - | - |

## 34.1.9 auto-cost

**no**

**auto-cost** [**reference-bandwidth** ref-bw]

**no auto-cost** [**reference-bandwidth**]

| | |
|---|---|
| ref-bw | Mbps<br>: 1-4294967 |

100Mbps

, ,

. ( )

. **default auto-cost** **no auto-cost**

**ip ospf cost** cost cost

10M

```
Ruijie(config)#          router     ospf      1
Ruijie(config-router)#             network    172.16.10.0 0.0.0.255          area    0
Ruijie(config-router)#             auto-  cost    reference    - bandwidth     10
```

| | |
|---|---|
| **show ip ospf** | ospf |

| | |
|---|---|
| - | - |

## 34.1.10 bfd all-interfaces (OSPF)

OSPF BFD OSPF **bfd all-interfaces** no

**bfd all-interfaces**

**no bfd all-interfaces**

| | |
|---|---|
| - | - |

OSPF Hello OSPF BFD FULL BFD BFD BFD OSPF

**ip ospf bfd** [**disable**] BFD **bfd all-interfaces**

| | |
|---|---|
| **router ospf** process-id [**vrf** vrf-name] | OSPF OSPF |
| **ip ospf bfd** [**disable**] | OSPF BFD |

| | |
|---|---|
| - | - |

## 34.1.11 clear ip ospf process

OSPF

**clear ip ospf** [process-id] **process**

| | |
|---|---|
| process-id | OSPF<br>OSPF<br>OSPF |

RFC2328

OSPF

OSPF 1

Ruijie# clear ip ospf 1 process

| | |
|---|---|
| - | - |

| | |
|---|---|

| | |
|---|---|

## 34.1.13 default-information originate

OSPF **default-information originate** **no**

**default-information originate** [**always**] [**metric** metric] [**metric-type** type] [**route-map** map-name]

**no default-information originate** [**always**] [**metric**] [**metric-type** type] [**route-map** map-name]

| | |
|---|---|
| | |
| | |
| | |

OSPF **default-metric**

**no**

**default-metric** metric

**no default-metric**

| | |
|---|---|
| metric | OSPF<br>1-16777214 |

20

**default-metric** **redistribute**

**default-metric** **default-information originate** OSPF

OSPF 50

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# router ospf
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# default-metric 50
Ruijie(config-router)# redistribute rip subnets
```

| | | |
|---|---|---|
| discard | no | discard |

**discard-route** {**internal**|**external**}

**no discard-route** {**internal**|**external**}

| | |
|---|---|
| distance | 1-255 |
| **intra-area** distance | 1-255 |
| **inter-area** distance | 1-255 |
| **external** distance | 1-255 |

110

110

110

110

OSPF

OSPF

OSPF 160

Ruijie(config)# router ospf 1

Ruijie(config-router)# distance ospf external 160

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.1.17 distribute-list in

LSA

**distribute-list** {[access-list-number | name] | **prefix** prefix-list-name [**gateway** prefix-list-name]} **in** [interface-type interface-number]

**no distribute-list** {[access-list-number | name] | **prefix** prefix-list-name

| | |
|---|---|
| access-list-number \| name | acl |
| **gateway** prefix-list-name | gateway |
| **prefix** prefix-list-name | prefix-list |
| interface-type interface-number | LSA |

LSA SPF

OSPF

ABR ASBR

```
Ruijie(config)#          access-list       3  permit     172.16.0.0      0.0.127.255
Ruijie(config)#          router ospf       25
Ruijie(config-router)#           redistribute rip metric              100
Ruijie(config-router)#           distribute-list          3  in ethernet        1/0
```

| | |
|---|---|
| **distribute-list out** | |

| | |
|---|---|
| - | - |

## 34.1.18 distribute-list out

**redistribute**

**distribute-list** {[access-list-number | name] | **prefix** prefix-list-name}

**bgp | connected | isis**

z [ area-tag] | **ospf** process-id

| | | |
|---|---|---|
| | - | - |

[**LsdbApproachOverflow | LsdbOverflow | MaxAgeLsa | OriginateLsa**] | **retransmit** [**IfTxRetransmit | VirtIfTxRetransmit**] | **state-change** [**IfStateChange | NbrRestartHelperStatusChange | NbrStateChange | RestartStatusChange | VirtIfStateChange | VirtNbrRestartHelperStatusChange | VirtNbrStateChange**]]

| | |
|---|---|
| **error** | error traps<br>error traps<br>**IfAuthFailure**<br>**IfConfigError**<br>**IfRxBadPacket**<br>**VirtIfAuthFailure**<br>**VirtIfConfigError**<br>**VirtIfRxBadPacket** |
| **lsa** | lsa traps<br>lsa traps<br>**LsdbApproachOverflow** LSA<br>**LsdbOverflow** LSA<br>**MaxAgeLsa** LSA<br>**OriginateLsa** LSA |
| **retransmit** | retransmit traps<br>retransmit traps<br>**IfTxRetransmit**<br>**VirtIfTxRetransmit** |
| **state-change** | state-change traps<br>state-change traps<br>**IfStateChange**<br>**NbrRestartHelperStatusChange** GR<br>**NbrStateChange**<br>**RestartStatusChange** GR Restarter<br>**VirtIfStateChange**<br>**VirtNbrRestartHelperStatusChange** GR<br>**VirtNbrStateChange** |

traps

**snmp-server** **snmp-server enable**

**traps ospf** enable traps ospf trap

MIB TRAP

OSPFv2 12252 78.36 593.9003 Tm[<4721>-6<35420412055F>]TJ/TT1 1

**null** ,

,

FastEthernet 0/0 OSPF MD5

```
Ruijie(config)#        interface fastethernet        0/0
Ruijie(config-if)#          ip address       172.16.10.0 255.255.255.0
Ruijie(config-if)#          ip ospf authentication message-digest
```

| | |
|---|---|
| **area authentication** | OSPF |
| **ip ospf authentication-key** | OSPF |
| **ip ospf message-digest-key** | OSPF MD5 |

| | |
|---|---|
| - | - |

## 34.1.22 ip ospf authentication-key

OSPF **ip ospf authentication-key**

**no**

**ip ospf authentication-key** key

**no ip ospf authentication-key**

| | |
|---|---|
| Key | 8 |

**ip ospf authentication-key** OSPF

OSPF

OSPF **area authentication**

, **ip ospf authentication**

,

FastEthernet 0/0 OSPF ospfauth

```
Ruijie(config)#        interface fastethernet        0/0
Ruijie(config-if)#          ip address       172.16.10.0 255.255.255.0
Ruijie(config-if)#          ip ospf authentication-key ospfauth
```

| | |
|---|---|

| | |
|---|---|
| **router ospf** process-id [**vrf** vrf-name] | OSPF OSPF |
| **bfd all-interfaces** | OSPF BFD |

| | |
|---|---|
| - | - |

## 34.1.24 ip ospf cost

OSPF OSPF **ip ospf cost**

**no**

**ip ospf cost** cost

**no ip ospf cost**

| | |
|---|---|
| cost | OSPF |

/Bandwidth 100Mbps

OSPF 100Mbps/Bandwidth Bandwidth

bandwidth

OSPF

„ 64K cost 1562

„ E1 cost 48

„ 10M cost 10

„ 100M cost 1

**ip ospf cost** OSPF

serial 1/0 OSPF 100

```
Ruijie(config)#          interface serial          1/0
Ruijie(config-if)#              ip ospf cost        100
```

| | |
|---|---|
| **bandwidth** | |
| **show ip ospf** | Ospf |

| | |
|---|---|
| - | - |

## 34.1.25 ip ospf database-filter all out

LSA I

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.1.26 ip ospf dead-interval

OSPF **ip ospf dead-interval**

**no**

**ip ospf dead-interval** seconds

**no ip ospf dead-interval**

| | |
|---|---|

seconds

| | |
|---|---|
| **ip ospf hello-interval** | OSPF Hello |

| | |
|---|---|
| - | - |

## 34.1.27 ip ospf disable all

ospf

**ip ospf disable all**

**no ip ospf disable all**

| | |
|---|---|
| - | - |

network area

network ospf OSPF

OSPF

```
Ruijie(config)#          interface serial          1/0
Ruijie(config-if)#           ip address       172.16.10.1 255.255.255.0
Ruijie(config-if)#           ip ospf disable all
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.1.28 ip ospf hello-interval

OSPF Hello **pf hello-interval no**

**ip ospf hello-interval** seconds

**no ip ospf hello-interval**

| | |
|---|---|
| seconds | OSPF 1- |

10

PPP HDLC 10

10

X.25 30

hello hello

llo

serial 1/0 OSPF 15

```
Ruijie(config)#  interface serial 1/0
Ruijie(config-if)#  ip address 172.16.1  55.0
Ruijie(config-if)#  encapsulation ppp
Ruijie(config-if)#  ip ospf hello-interval
```

OSPF MD5 ip ospf message-digest-key
no OSPF MD5

**ip ospf message-digest-key** key-id **md5** key

**no ip ospf message-digest-key**

| | |
|---|---|
| key | 16 |
| key-id | 1 255 |

MD5

**ip ospf message-digest-key** OSPF
OSPF

OSPF **area authentication**
, **ip ospf authentication**
,
RGOS MD5
OSPF MD5

| | |
|---|---|
| **area authentication** | OSPF |
| **ip ospf authentication** | |

| | |
|---|---|
| - | - |

## 34.1.30 ip ospf mtu-ignore

mtu **no**

**ip ospf mtu-ignore**

**no ip ospf mtu-ignore**

| | |
|---|---|
| - | - |

mtu

| | |
|---|---|
| - | - |

## 34.1.31 ip ospf network

OSPF **ip ospf network** **no**

**ip ospf network** {broadcast non-broadcast
point-to-multipoint [ non-broadcast ] point-to-point}
**no ip ospf network** {broadcast non-broadcast
**point-to-multipoint** [ non-broadcast ] point-to-point}

| | |
|---|---|
| broadcast | OSPF |
| non-broadcast | OSPF<br>NBMA |
| point-to-multipoint<br>[non-broadcast] | OSPF<br>, non-broadcast |
| point-to-point | OSPF |

PPP SLIP X.25
NBMA X.25

B7>6<4C0.0038 08 Tc (X.25)253.964 0 Td[<352534B036<268D1124197909B7>6<4C380EEA>652534B0>6<0 1 Tf

OSPF

,

X.25 OSPF

X.25 map Frame-relay map X.25

OSPF X.25

OSPF

”

”

X.25 IP

broadcast

1

```
Ruijie(config)#        interface Serial        1/0
Ruijie(config-if)#          ip address      172.16.24.4 255.255.255.0
Ruijie(config-if)#          encapsulation frame-relay
Ruijie(config-if)#          ip ospf network broadcast
```

2

```
Ruijie(config)#        interface Serial        1/0
Ruijie(config-if)#          ip address      172.16.24.4 255.255.255.0
Ruijie(config-if)#          encapsulation frame-relay
Ruijie(config-if)#         ip ospf network point-to-multipoint
```

3 DR/RDR

DR/BDR

```
Ruijie(config)#        interface Serial        1/0
Ruijie(config-if)#        ip address      172.16.24.4 255.255.255.0
Ruijie(config-if)#          encapsulation frame-relay
Ruijie(config-if)#          ip ospf network broadcast
Ruijie(config-if)#          ip ospf priority          0
```

| | |
|---|---|
| **dialer map ip** | IP |
| **frame-relay map** | IP DLCI |
| **neighbor** OSPF | IP NBMA |

**X25 map**

| | |
|---|---|
| - | - |

## 34.1.34 ip ospf transmit delay

OSPF LSU **ip ospf transmit delay**
**no**

**ip ospf transmit delay** seconds

**no ip ospf transmit delay**

| | |
|---|---|
| seconds | OSPF LSU<br>1-65535 |

1

LSU LSAs Age
ip ospf transmit delay
LSU
**area virtual-link** transmit-delay
RGOS Age 3600 LSA
LSA

serial1/ 0 5
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf transmit delay 10

| | |
|---|---|
| **area virtual-link** | OSPF |

| | |
|---|---|
| - | - |

## 34.1.35 log-adj-changes

no default

**log-adj-changes** [**detail**]

**no log-adj-changes** [**detail**]

| | |
|---|---|
| **detail** | |

detail Full Full

OSPF

DD

RGOS IP
IP
NBMA
Hello OSPF Hello Hello
OSPF 0 Hello
0 DR/BDR DR/BDR DR/BDR
Hello
, ,
, cost

OSPF IP 172.16.24.2
1 150

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# network 172.16.24.0 0.0.0.255 area 0
Ruijie(config-router)# neighbor 172.16.24.2 priority 1
poll-interval 150
```

| | |
|---|---|
| **ip ospf priority** | OSPF |
| **ip ospf network** | OSPF |

| | |
|---|---|
| - | - |

## 34.1.38 network area

OSPF OSPF **network area**
**no** OSPF

**network** ip-address wildcard **area** area-id

**no network** ip-address wildcard **area** area-id

| | |
|---|---|
| ip-address | IP |

| | | | |
|---|---|---|---|
| wildcard | IP | 0 | 1 |
| area-id | OSPF | OSPF | OSPF |

OSPF

**no overflow database**

| | |
|---|---|
| <1-4294967294> | LSA |
| **hard** \| **soft** | hard LSA |

external-LSA

external-LSA external-LSA

external-LSA max-dbsize

external-LSA external-LSA wait-time

external-LSA

| | | |
|---|---|---|
| | OSPF | |
| | max-dbsize | |
| a | 1 | Full |
| | 2 | |
| | 3 | AS-External-LSA |

external lsa 10 overflow overflow

3

```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database external 10 3
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.1.41 overflow memory-lack

OSPF OVERFLOW no

**overflow memory-lack**

**no overflow memory-lack**

| | |
|---|---|
| no | OSPF OVERFLOW |

OSPF OVERFLOW

OSPF OVERFLOW

OSPF OVERFLOW

OSPF NULL

OVERFLOW

**clear ip ospf process** OSPF OSPF

OVERFLOW

no OSPF OVERFLOW

OSPF

1 OSPF OVERFLOW

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no overflow memory-lack
```

| | |
|---|---|
| **clear ip ospf process** | OSPF |
| **show ip protocols ospf** | OSPF |

| | |
|---|---|
| 10.3(4b3) | |
| | |

## 34.1.42 passive-interface

**no**

**passive-interface** [**default** | **type** number]

**no passive-interface** [**default** | **type** number]

| | |
|---|---|
| | |

| | |
|---|---|
| **isis** [area-tag] | isis area-tag isis |
| **ospf** process-id | ospf process-id ospf 1-65535 |
| **rip** | rip |
| **static** | |
| **level-1** \| **level-1-2** \| **level-2** | IS-IS level level-2 IS-IS |
| **match** | OSPF OSPF |
| **metric** metric-value | OSPF external 2 LSA metric metric-value metric 0-16777214 |
| **metric-type** {1\|2} | E-1 E-2 |
| **route-map** route-map-name | |
| **subnets** | |
| **tag** tag-value | OSPF tag 0-4294967295 |

OSPF
ISIS level-2

BGP metric 1 LSA metric 20 metric-type E-2
route-map

ASBR OSPF type-5 LSA OSPF
**isis** level level-2
level level
level 1, level 2 level-1-2
**ospf** match ospf
match match
no match
route-map route-map match

OSPF ISIS match level route-map

1 **ospf** 2 **isis** isis-001 OSPF

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute ospf 2 subnets
Ruijie(config-router)# redistribute ospf 2 match external 1 internal
Ruijie(config-router)# redistribute isis isis-001
Ruijie(config-router)# redistribute isis isis-001 level-1
```

2 Show run

```
router ospf 1
redistribute ospf 2 match external 1 internal subnets
redistribute isis isis-001 level-1-2
```

| | |
|---|---|
| **summary-address** | OSPF |
| **default-metric** | OSPF |

| | |
|---|---|
| - | - |

## 34.1.44 router ospf

OSPF OSPF router ospf no OSPF

**router ospf**

**router ospf** process-id [**vrf** vrf-name]

**no router ospf** process-id

| | |
|---|---|
| process-id | OSPF 1 |
| vrf-name | VRF OSPF<br>VRF |

OSPF

RGOS10.1 OSPF OSPF

**vrf** vpn_1 OSPF 10

Ruijie(config)# router ospf 10 vrf vpn_1

| | |
|---|---|
| **show ip protocols** | |
| **show ip ospf** | ospf |

OSPF

NSSA **summary-address** NSSA ABR

4

LSA LSA

CPU LSA

1 RGOS 10.4 timers throttle spf
timers spf 5 10
2 RGOS 10.4 timers throttle spf timers spf
SPF **timers throttle spf** timers
throttle spf

spf-delay spf-holdtime OSPF
CPU

| | |
|---|---|
| **a** | timers spf timers throttle spf |

OSPF 3 9
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 3 9

| | |
|---|---|
| **show ip ospf** | ospf |
| **timers throttle spf** | SPF<br>timers spf<br>timers throttle spf timers spf |

| | |
|---|---|
| 10.1 | |

## 34.1.49 timers throttle spf

OSPF SPF SPF
**timers throttle spf** no

**timers throttle spf** spf-delay spf-holdtime spf-max-waittime

**no timers throttle spf**

| | |
|---|---|

| | |
|---|---|
| spf-delay | SPF<br>1-600000 OSPF<br>SPF spf-delay |
| spf-holdtime | SPF<br>1-600000 |
| spf-max-waittime | SPF<br>1-600000 |

spf-delay 1000
spf-holdtime 5000
spf-max-waittime 10000

spf-delay SPF SPF
SPF spf-holdtime SPF
spf-max-waittime
SPF SPF
spf-holdtime
spf-delay spf-holdtime spf-max-waittime
SPF

**timers spf** SPF
SPF **timers throttle spf**

| | |
|---|---|
| a | 1 spf-holdtime spf-delay spf-holdtime spf-delay<br>2 spf-max-waittime spf-holdtime spf-max-waittime spf-holdtime<br>3 timers throttle spf timers spf<br>4 timers spf timers throttle spf timers throttle spf |

OSPF SPF 5
1000 90000 SPF
5ms 1s 3s 7s 15s 31s 63s 89s 179s 179+90 ……

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 5 1000 90000
```

| | |
|---|---|
| | |

| | |
|---|---|
| **show ip ospf** | ospf |
| **timers spf** | SPF RGOS throttle spf 10.4 SPF timers timers spf |

| | |
|---|---|
| | |
| 10.4(1) | |

This router is an ASBR (injecting external routing information)
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
LsaGroupPacing: 240 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 4. Checksum 0x0278E0
Number of opaque AS LSA 0. Checksum 0x000000
Number of non-default external LSA 4
External LSA database is unlimited.
Number of LSA originated 6
Number of LSA received 2
Log Neighbor Adjency Changes : Enabled
Graceful-restart disabled
Graceful-restart helper support enabled
Number of areas attached to this router: 1
Area 0 (BACKBONE)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 1
Area has no authentication
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
Number of LSA 3. Checksum 0x0204bf
Area 1 (NSSA)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 0
Number of fully adjacent virtual neighbors through this area is 0
Area has no authentication
SPF algorithm last executed 02:09:23.040 ago
SPF algorithm executed 4 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State iselected

OSPF BFD , ”BFD enabled”,

Ruijie# show ip ospf
Routing Process "ospf 1" with ID 1.1.1.1
Process uptime is 4 minutes
Process bound to VRF default
Conforms to RFC2328, and RFC1583Compatibility flag isenabled
Supports only single TOS(TOS0) routes
Supports opaque LSA

Supports Graceful Restart
This router is an ASBR (injecting external routing information)
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
LsaGroupPacing: 240 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 4. Checksum 0x0278E0
Number of opaque AS LSA 0. Checksum 0x000000
Number of non-default external LSA 4
External LSA database is unlimited.
Number of LSA originated 6
Number of LSA received 2
Log Neighbor Adjency Changes : Enabled
Graceful-restart disabled
Graceful-restart helper support enabled
Number of areas attached to this router: 1
BFD enabled
Area 0 (BACKBONE)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 1
Area has no authentication
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
Number of LSA 3. Checksum 0x0204bf
Area 1 (NSSA)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 0
Number of fully adjacent virtual neighbors through this area is 0
Area has no authentication
SPF algorithm last executed 02:09:23.040 ago
SPF algorithm executed 4 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State iselected

| | |
|---|---|
| Router ID | |
| Process uptime | OSPF router-id 0.0.0.0 |
| Bound to VRF | OSPF VRF |

| | |
|---|---|
| Conforms to RFC2328 | RFC2328 |
| RFC1583Compatibility flag | RFC1583<br>RFC2328 ASBR |
| Support Tos | TOS0 |
| Supports opaque LSA | opaque-LSA |
| Graceful-restart | RFC3623 Graceful Restart GR Restart |
| Graceful-restart helper | RFC3623 Graceful Restart GR Help |
| Router Type | OSPF normal ABR ASBR |
| SPF Delay | SPF |
| SPF-holdtime | SPF |
| LsaGroupPacing | LSA |
| Incomming current DD exchange neighbors | incomming<br>exstart |
| Outgoing current DD exchange neighbors | outgoing<br>exstart |
| Number of external LSA | LSA |
| External LSA Checksum Sum | LSA |
| Number of opaque LSA | opaque-LSA |
| Opaque LSA Checksum Sum | opaque-LSA |
| Number of non-default external LSA | external-LSA |
| External LSA database limit | external-LSA |
| Exit database overflow state interval | overflow |
| Database overflow state | OSPF overflow |
| Number of LSA originated | LSA |
| Number of LSA received | LSA |
| Log Neighbor Adjency Changes | |
| | |

Number of interfaces in this area

ABR ASBR OSPF OSPF

**show ip route** OSPF OSPF

**show ip ospf border-routers**

Ruijie# show ip ospf border-routers

OSPF internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i1.1.1.1[2]via10.0.0.1,FastEthernet 0/1,ABR,ASBR,Area0.0.0.1

select

| | |
|---|---|
| Codes | i I |
| I | |
| 1.1.1.1 | OSPF |
| [2] | cost |
| via 10.0.0.1 | |
| FastEthernet 0/1 | |
| ABR, ASBR | ABR ASBR<br>ABR ASBR |
| Area 0.0.0.1 | |
| select | ASBR select |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.2.3 show ip ospf database

OSPF **show ip ospf database**

LSAs

**show ip ospf** [process-id area-id] **database** [**adv-router** ip-address | {**asbr-summary** | **external** | **network** | **nssa-external | opaque-area | opaque-as | opaque-link | router** | **summary**} [link-state-id] [{**adv-router** ip-address | **self-originate**}] | **database-summary** | **max-age** | **self-originate**]

| | |
|---|---|
| area-id | |
| **adv-router** | |
| link-state-id | OSPF |
| **self-originate** | |
| **max-age** | LSA |
| **router** | OSPF |
| **network** | OSPF |
| **summary** | OSPF |
| **asbr-summary** | ASBR |
| **external** | OSPF |
| **nssa-external** | OSPF |
| **opaque-area** | LSA |
| **opaque-as** | LSA |
| **opaque-link** | LSA |
| **database-summary** | OSPF LSA |

OSPF

OSPF

1 **show ip ospf database**

Ruijie# show ip ospf database

OSPF Router with ID (1.1.1.1) (Process ID 1)

Router Link States (Area 0.0.0.0)

Link ID ADV Router Age Seq# CkSum Link count

1.1.1.1 1.1.1.1 2 0x80000011 0x6f39 2

3.3.3.3 3.3.3.3 120 0x80000002 0x26ac 1

Network Link States (Area 0.0.0.0)

Link ID ADV Router Age Seq# CkSum

192.88.88.27 1.1.1.1 120 0x80000001 0x5366

Summary Link States (Area 0.0.0.0)

Link ID ADV Router Age Seq# CkSum Route

10.0.0.0 1.1.1.1 2 0x80000003 0x350d 10.0.0.0/24

100.0.0.0 1.1.1.1 2 0x8000000c 0x1ecb 100.0.0.0/16

Router Link States (Area 0.0.0.1 [NSSA])

Link ID ADV Router Age Seq# CkSum Link count

1.1.1.1 1.1.1.1 2 0x80000001 0x91a2 1

Summary Link States (Area 0.0.0.1 [NSSA])

Link ID ADV Router Age Seq# CkSum Route

100.0.0.0 1.1.1.1 2 0x80000001 0x52a4 100.0.0.0/16

192.88.88.0 1.1.1.1 2 0x80000001 0xbb2d 192.88.88.0/24

000T-6(0ag0 1.1.1)2 1.1.1.1 ( 1.1.6( Route )]T1)-6(.1 )-102xbb2d 1926088.033c92608E292608

| | |
|---|---|
| ADV Router | |
| Age | |

Seq#

| | |
|---|---|
| Network Mask | |
| TOS | TOS 0 |
| Metric | |

3 **show ip ospf database external**

Ruijie# show ip ospf database external

OSPF Router with ID (1.1.1.35) (Process ID 1)

AS External Link States

LS age: 752

Options: 0x2 (*|-|-|-|-|-|E|-)

LS Type: AS-external-LSA

Link State ID: 20.0.0.0 (External Network Number)

Advertising Router: 1.1.1.1

LS Seq Number: 8000000a

Checksum: 0x7627

Length: 36

Network Mask: /24

Metric Type: 2 (Larger than any link state path)

TOS: 0

Metric: 20

Forward Address: 0.0.0.0

External Route Tag: 0

**show ip ospf database external**

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Type-5 AS External Link States | |
| LS age | |
| Options | |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |
| Length | |

| | |
|---|---|
| TOS | TOS 0 |
| Metric | |
| Forward Address | IP<br>0.0.0.0 |
| External Route Tag | 32<br>OSPF<br>OSPF |

4 **show ip ospf database networ**k

Ruijie# show ip ospf database network

OSPF Router with ID (1.1.1.1) (Process ID 1)

Network Link States (Area 0.0.0.0)

LS age: 572

Options: 0x2 (*|-|-|-|-|-|E|-)

LS Type: network-LSA

Link State ID: 192.88.88.27 (address of Designated Router)

Advertising Router: 1.1.1.1

LS Seq Number: 80000001

Checksum: 0x5366

Length: 32

Network Mask: /24

Attached Router: 1.1.1.1

Attached Router: 3.3.3.3

**show ip ospf database network**

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Network Link States | |
| LS age | |
| Options | |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |
| Length | |

| | |
|---|---|
| Network Mask | |
| Attached Router | |

5 **show ip ospf database router**

Ruijie# show ip ospf database router

OSPF Router with ID (1.1.1.1) (Process ID 1)

Router Link States (Area 0.0.0.0)

LS age: 322

Options: 0x2 (*|-|-|-|-|-|E|-)

Flags: 0x3 : ABR ASBR

LS Type: router-LSA

Link State ID: 1.1.1.1

Advertising Router: 1.1.1.1

LS Seq Number: 80000012

Checksum: 0x6d3a

Length: 48

Number of Links: 2

Link connected to: Stub Network

(Link ID) Network/subnet number: 100.0.1.1

(Link Data) Network Mask: 255.255.255.255

Number of TOS metrics: 0

TOS 0 Metric: 0

**show ip ospf database router**

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Router Link States | |
| LS age | |
| Options | |
| Flag | router |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |
| Length | |
| Number of Links | |

Link connected to

7 **show ip ospf database nssa-external**

Ruijie# show ip ospf database nssa-external

OSPF Router with ID (1.1.1.1) (Process ID 1)

NSSA-external Link States (Area 0.0.0.1 [NSSA])

LS age: 1

| | |
|---|---|
| NSSA:Forward Address | IP<br>0.0.0.0 |
| External Route Tag | 32<br>OSPF<br>OSPF |

8 **show ip ospf database external**

Ruijie# show ip ospf database external

OSPF Router with ID (1.1.1.1) (Process ID 1)

AS External Link States

LS age: 1290

Options: 0x2 (*|-|-|-|-|-|E|-)

LS Type: AS-external-LSA

Link State ID: 20.0.0.0 (External Network Number)

Advertising Router: 1.1.1.1

LS Seq Number: 8000000a

Checksum: 0x7627

Length: 36

Network Mask: /24

Metric Type: 2 (Larger than any link state path)

TOS: 0

Metric: 20

Forward Address: 0.0.0.0

External Route Tag: 0

**show ip ospf database external**

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Type-7 AS External Link States | |
| LS age | |
| Options | |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |

| | |
|---|---|
| Length | |
| Network Mask | |
| Metric Type | |
| TOS | TOS 0 |
| Metric | |
| Forward Address | IP<br>0.0.0.0 |
| External Route Tag | 32<br>OSPF<br>OSPF |

9 **show ip ospf database database-summary**

Ruijie# show ip ospf database database-summary

OSPF process 1:

Router Link States : 4

Network Link States : 2

Summary Link States : 4

ASBR-Summary Link States : 0

AS External Link States : 4

NSSA-external Link States: 2

**show ip ospf database database-summary**

| | |
|---|---|
| OSPF Process | |
| Router Link | OSPF LSA |
| Network Link | OSPF LSA |
| Summary Link | OSPF LSA |
| ASBR-Summary Link | OSPFASBR LSA |
| AS External Link | OSPF LSA |
| NSSA-external Link | ,OSPF NSSA LSA |

| | |
|---|---|
| - | - |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 34.2.4 show ip ospf interface

OSPF **show ip ospf interface**

**show ip ospf interface** [interface-type interface-number]

| | |
|---|---|
| interface-type | |
| z interface-number | |

OSPF OSPF

**show ip ospf interface FastEthernet** 1/0

Ruijie# show ip ospf interface fa 1/0

FastEthernet 1/0 is up, line protocol is up

InternetAddress192.88.88.27/24,Ifindex4,Area0.0.0.0,MTU1500

Matching network config: 192.88.88.0/24

Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State DR, Priority 1

Designated Router (ID) 1.1.1.1, Interface Address 192.88.88.27

Backup Designated Router (ID) 3.3.3.3, Interface Address 192.88.88.72

Timer intervals configured,Hello 10,Dead 40,Wait 40,Retransmit 5

Hello due in 00:00:03

Neighbor Count is 1, Adjacent neighbor count is 1

Crypt Sequence Number is 70784

Hello received 1786 sent 1787, DD received 13 sent 8

LS-Req received 2 sent 2, LS-Upd received 29 sent 53

LS-Ack received 46 sent 23, Discarded 1

BFD :

Ruijie# show ip ospf interface fa 1/0

FastEthernet 1/0 is up, line protocol is up

InternetAddress192.88.88.27/24,Ifindex4,Area0.0.0.0,MTU1500

Matching network config: 192.88.88.0/24

Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State DR, Priority 1, BFD enabled

Designated Router (ID) 1.1.1.1, Interface Address 192.88.88.27

Backup Designated Router (ID) 3.3.3.3, Interface Address 192.88.88.72

Timer intervals configured,Hello 10,Dead 40,Wait 40,Retransmit 5

Hello due in 00:00:03

Neighbor Count is 1, Adjacent neighbor count is 1

Crypt Sequence Number is 70784

Hello received 1786 sent 1787, DD received 13 sent 8

LS-Req received 2 sent 2, LS-Upd received 29 sent 53

LS-Ack received 46 sent 23, Discarded 1

**show ip ospf interface serial** 1/0

| | |
|---|---|
| FastEthernet 0/0 State | UP Down |
| Internet Address | IP |
| Area | OSPF |
| MTU | MTU |
| Matching network config | OSPF network area |
| Process ID | |
| Router ID | OSPF |
| Network Type | OSPF |
| Cost | OSPF |
| Transmit Delay is | OSPF |
| State | DR/BDR |
| Priority | |

Designated Router(ID)

| | |
|---|---|
| Neighbor count | |
| Adjacent neighbor count | Full |
| Crypt Sequence Number | md5 |
| Hello received send | HELLO |
| DD received send | DD |
| LS-Req received send | LS |
| LS-Upd received send | LS |
| LS-Ack received send | LS |
| Discard | |

BFD enabled

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.2.5 show ip ospf neighbor

OSPF **show ip ospf neighbor**

**show ip ospf** [process-id] **neighbor** [[**detail**] | [[interface-type interface-number] [neighbor-id]]]

| | |
|---|---|
| detail | |
| interface-type interface-number | |
| neighbor-id | |

OSPF

**show ip ospf neighbor**

Ruijie# show ip ospf neighbor

OSPF process 1, 1 Neighbors, 1 is Full:

Neighbor ID Pri State BFD State Dead Time

Address Interface

3.3.3.3 1 Full/BDR Up 00:00:32

192.88.88.72 FastEthernet 1/0

Ruijie# show ip ospf neighbor detail

Neighbor 3.3.3.3, interface address 192.88.88.72

In the area 0.0.0.0 via interface FastEthernet 1/0

Neighbor priority is 1, State is Full, 11 state changes

DR is 192.88.88.27, BDR is 192.88.88.72

Options is 0x52 (*|O|-|EA|-|-|E|-)

Dead timer due in 00:00:32

Neighbor is up for 05:11:27

Database Summary List 0

Link State Request List 0

Link State Retransmission List 0

Crypt Sequence Number is 0

Thread Inactivity Timer on

Thread Database Description Retransmission off

Thread Link State Request Retransmission off

Thread Link State Update Retransmission off

Thread Poll Timer on

Graceful-restart helper disabled

BFD ” BFDsessionstateup”

Ruijie# show ip ospf neighbor

OSPF process 1, 1 Neighbors, 1 is Full:

Database Summary List 0

Link State Request List 0

Link State Retransmission List 0

Crypt Sequence Number is 0

Thread Inactivity Timer on

Thread Database Description Retransmission off

Thread Link State Request Retransmission off

Thread Link State Update Retransmission off

Thread Poll Timer on

Graceful-restart helper disabled

BFD session state up

| | |
|---|---|
| Neighbor up time | |
| Database Summary List | DD |
| Link State Request List | LS |
| Link State Retransmission List | |
| Crypt Sequence Number | MD5 |
| Thread Inactivity Timer | |
| Thread Database Description Retransmission | DD |
| Thread Link State Request Retransmission | LS |
| Thread Link State Update Retransmission | LS |
| Thread Poll Timer | Poll Timer |
| Graceful-restart helper | GR Helper |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.2.6 show ip ospf route

OSPF

**show ip ospf** [process-id] **route**[**count**]

| | |
|---|---|
| process-id | OSPF OSPF |
| **count** | OSPF |

OSPF count OSPF

Ruijie# show ip ospf route
OSPF process 1:
Codes: C - connected, D - Discard, O - OSPF,
IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
E2 100.0.0.0/24 [1/20] via 192.88.88.126, FastEthernet 1/0
C 192.88.88.0/24 [1] is directly connected,FastEthernet 1/0,Area 0.0.0.1

**show ip ospf route**

| | |
|---|---|
| codes | |
| 100.0.0.0/24 | |
| [1] | cost |
| via | |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 34.2.7 show ip ospf summary-address

OSPF **show ip ospf summary-address**

**show ip ospf** [process-id] **summary-address**

| | |
|---|---|
| process-id | OSPF OSPF |

NSSA ABR

**show ip ospf summary-address**

Ruijie# show ip ospf summary-address

Summary Address Summary Mask Advertise Status Aggregated subnets

---------- ---------- ---------- ---------- ----------

202.101.0.0 255.255.0.0 advertise Inactive 0

| | |
|---|---|
| Summary Address | |
| Summary Mask | |
| Advertise | |
| Status | |
| Aggregated subnets | |

| | |
|---|---|
| - | - |

**show ip ospf neighbor**

**show ip ospf virtual-links**

Ruijie# show ip ospf virtual-links

Virtual Link VLINK0 to router 1.1.1.1 is up

Transit area 0.0.0.1 via interface FastEthernet 0/1

Local address 10.0.0.37/32

Remote address 10.0.0.27/32

Transmit Delay is 1 sec, State Point-To-Point,

Timer intervals configured,Hello 10,Dead 40,Wait 40,Retransmit 5

Hello due in 00:00:05

Adjacency state Full

| | |
|---|---|
| Virtual Link VLINK0 to router | |
| Virtual Link state | . |
| Transit area | |
| via interface | |
| Local address | |
| Remote Address | |
| Transmit Delay | |
| State | |
| Time intervals configured | Hello Dead Wait Retransmit |
| Adjacency State | FULL |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 35 Ø Ð M ‘ a —

## 35.1 " - ‘ a —

### 35.1.1 distribute-list in

**distribute-list in**

**no**

**distribute-list** {[access-list-number | access-list-name] | **prefix** prefix-list-name [**gateway** prefix-list-name]} **in** [interface-type interface-number]

**no distribute-list** {[

```
Ruijie(config-router)#  distribute-list  10  in  fastethernet 0/0
Ruijie(config-router)#  no auto-summary
Ruijie(config-router)#  exit
Ruijie(config)#  access-list  10  permit  172.16.0.0 0.0.255.255
```

| | |
|---|---|
| **access-list** | |
| **prefix-list** | |

| | |
|---|---|
| community-list-name | 80 |
| community-list-number | 1-99<br>100-199 |
| **permit** | |
| **deny** | |
| community-number | AA:NN( 2 )<br>0-4294967295<br>internet Internet<br>local-as AS<br>no-advertise BGP peers<br>no-export EBGP peers<br>1..255<br>32 |

BGP

```
Ruijie(config)# ip community-list standard test deny 100:20 200:20
Ruijie(config)# ip community-list standard test2 permit internet
```

| | |
|---|---|
| - | - |

## 35.1.4 ip default-network

**ip default-network** no

**ip default-network** network

**no ip default-network** network

| | |
|---|---|
| network | |

0.0.0.0/0

**default-network**

“*” connected

1 192.168.100.0

```
Ruijie(config)#  ip route  192.168.100.0 255.255.255.0 serial 0/1
Ruijie(config)#  ip default-network  192.168.100.0
```

2 200.200.200.0 200.200.200.0

| | |
|---|---|
| **show ip route** | IP |

| | |
|---|---|
| - | - |

## 35.1.5 ip prefix-list

**ip prefix-list** **no**

**ip prefix-list** prefix-lis-name [ **seq** seq-number] { **deny** | **permit** } ip-prefix [**ge** minimum-prefix-length][ **le** maximum-prefix- length]

**no ip prefix-list** prefix-lis-name[ **seq** seq-number] { **deny** | **permit**} ip-prefix [**ge** minimum-prefix- length][ **le** maximum-prefix- length]

| | | |
|---|---|---|
| | prefix-lis-name | |
| | | 1<br>2147483647 ↵ Ś¯ |
| | seq-number | |

IP **Deny routes from Net-A**

Ruijie# configure terminal

Ruijie(config)# ip prefix-list pre description Deny routes from Net-A

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 35.1.7 ip prefix-list sequence-number

**ip prefix-list description** **no**

**ip prefix-list sequence-number**

| | |
|---|---|
| - | - |

Ruijie# configure terminal

Ruijie(config)# ip prefix-list sequence-number

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| | |

ip route 0.0.0.0

0.0.0.0 Fastethernet 0/0

Fastethernet 0/0 ARP CPU

172.16.100.0/24

192.168.12.1 115

ip route 172.16.100.0 255.255.255.0 192.168.12.1 115

172.16.100.0/24

fastethernet 0/0

Ruijie(config)# ip route 172.16.100.0 255.255.255.0 fastethernet 0/0 192.168.12.1

| | |
|---|---|
| **show ip route** | IP |

| | |
|---|---|
| - | - |

## 35.1.9 ip routing

RGOS IP no

IP

**ip routing**

**no ip routing**

RGOS IP

RGOS IP

Ruijie(config)# no ip routing

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 35.1.10 ip static route-limit

**ip static route-limit** no

**ip static route-limit** number

**no ip static route-limit**

| | |
|---|---|
| number | 1-10000 |

1024

**ip static route-limit**

**show**

**running-config**

900

Ruijie(config)# ip static route-limit 900

Ruijie(config)# no ip static route-limit

| | |
|---|---|
| - | - |

| | |
|---|---|
| | |

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set comm-list delete** | |
| **set community** | |
| **set metric** | |

| | |
|---|---|
| - | - |

## 35.1.13 match interface

**match interface** **no**

**match interface** interface-type interface-number […interface-type interface-number]

**no match interface** interface-type interface-number […interface-type interface-number]

| | |
|---|---|
| interface-type | |
| interface-number | |

**match interface**

OSPF

RIP RIP

OSPF

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP fastethernet 0/0 RIP

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match interface fastethernet 0/0
```

| | |
|---|---|
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | set .1603 Tm -164.22 -19.62 reW*721.80 284.0040 |

**no match ip address** {access-list-number [access-list-number... | access-list-name...] | access-list-name [access-list-number...| access-list-name] | **prefix-list** prefix-list-name [prefix-list-name...]}

| | |
|---|---|
| access-list-number | 1-99 1300-1999<br>100-199 2000-2699 |
| access-list-name | |
| **prefix-list** prefix-list-name | |

**match ip address**

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP 10

RIP OSPF type-1 40

```
Ruijie(config)#          router ospf
Ruijie(config-router)#          redistribute rip subnets route-map          redrip
Ruijie(config-router)#          network     192.168.12.0 0.0.0.255          area 0
Ruijie(config-router)#          exit
Ruijie(config)#          access-list        10   permit     200.168.23.0 0.0.0.255
Ruijie(config)#          route-map     redrip     permit     10
Ruijie(config-route-map)#          match ip address         10
Ruijie(config-route-map)#          set metric        40
Ruijie(config-route-map)#          set metric-type type-1
```

| | |
|---|---|
| **access-list** | |

**match interface**

**match ip next-hop**

OSPF

OSPF

RIP RIP OSPF

IP

route maps

1 **match** 1 **set**

**match**

| | |
|---|---|
| - | - |

## 35.1.16 match ip route-source

IP

**match ip route-source** **no**

**match ip route-source** {access-list-number [access-list-number... |access-list-name...] |access-list-name [access-list-number...| access-list-name] | **prefix-list** prefix-list-name [prefix-list-name...]}

**no match ip route-source** {access-list-number [access-list-number... | access-list-name...] | access-list-name [access-list-number...| access-list-name] | **prefix-list** prefix-list-name [prefix-list-name...]}

```
Ruijie(config-router)# route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# access-list 5 permit host 192.168.100.1
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip route-source 5
```

| | |
|---|---|
| **access-list** | |
| **match ip address** | |
| **match interface** | |
| **match ip next-hop** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

| | |
|---|---|
| - | - |

## 35.1.17 match length

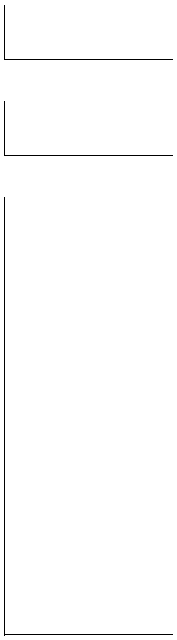
IP **match length**

**no**

**match length** min-length max-length

**no match length** min-length max-length

| | |
|---|---|
| min-length | IP |
| max-length | IP |


1

| | | |
|---|---|---|
| | - | - |

### 35.1.18 match metric

| | |
|---|---|
| **match interface** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

```
Ruijie(config-route-map)#              exit
Ruijie(config)#          route-map     MAP20 20   permit
Ruijie(config-route-map)#              match origin incomplete
Ruijie(config-route-map)#              set community no-export
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set origin** | |

| | |
|---|---|
| - | - |

## 35.1.20 match route-type

**-**

OSPF

RIP RIP

OSPF IP

**match tag** tag […tag]

**no match tag** tag […tag]

| | |
|---|---|
| tag | |

| | |
|---|---|
| **set metric-type** | |
| **set tag** | |

RGIOS

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

„ sequence-number 10

„ sequence-number

„

OSPF RIP 4 RIP

OSPF type-1 40

40

```
Ruijie(config)#          router ospf
Ruijie(config-router)#   redistribute rip subnets route-map   redrip
Ruijie(config-router)#   network   192.168.12.0 0.0.0.255   area 0
Ruijie(config-router)#   exit
```

## 35.1.23 set aggregator as

match AS **set aggregator as** **no**

**set aggregator as** as-num ip_addr

**no set aggregator as** [as-num ip_addr]

| | |
|---|---|
| as-number | AS |

ip_addr

## 35.1.24 set as-path prepend

match AS_PATH **set as-path prepend** **no**

**set as-path prepend** as-number

**no set as-path prepend** [as-number]

| | |
|---|---|
| as-number | AS_PATH AS |

AS_PATH as-path 15 as

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set as-path prepend 100 101 102
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set community** | COMMUNITY |
| **set metric** | |
| **set metric-type** | |

| | |
|---|---|
| - | - |

## 35.1.25 set comm-list delete

match COMMUNITY_LIST community

**set comm-list delete** **no**

**set comm-list** community-list-number | community-list-name **delete**

**no comm-list** community-list-number | community-list-name **delete**

| | |
|---|---|
| community-list-number | 1-99<br>100-199 |
| community-list-name | 80 |

| | |
|---|---|
| **ip community-list** | |
| **match as-path** | AS_PATH |
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set comm-list delete** | |
| **set local-preference** | |

G \Á• €0 gð0 aY`ýÞîÂ 1Äp G L0 ` % Mîì WLG•6 ãA’5A<aÍÓ€ 2 û y4{

```
Ruijie(config)#          route-map     SET_COMMUNITY 10 permit
Ruijie(config-route-map)#          match as-path       1
Ruijie(config-route-map)#           set community       109:10
Ruijie(config-route-map)#           exit
Ruijie(config)#          route-map     SET_COMMUNITY 20 permit
Ruijie(config-route-map)#           match as-path       2
Ruijie(config-route-map)#          set community no-export
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set origin** | |
| **set metric-type** | |

| | |
|---|---|
| - | - |

## 35.1.27 set dampening

match **set dampening**

**no**

**set dampening** half-life reuse suppress max-suppress-time

**no set dampening**

| | |
|---|---|
| half-life | 1..45( ) 15 |
| reuse | 1..20000 750 |

## 35.1.28 set default interface

match

**set default interface** **no**

**set default interface** interface-type interface-number […interface-type interface-number]

**no set default interface** interface-type interface-number […interface-type interface-number]

| | |
|---|---|
| interface-type | |
| interface-number | |

**set default interface**

1

down set

set

serial 1/0 500

fastethernet 1/0

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)# set default interface fastethernet 1/0
```

| | |
|---|---|

| | |
|---|---|
| **route-map** | |

**match ip address**

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set metric-type** | |

| | |
|---|---|
| - | - |

## 35.1.30 set ip default next-hop

match IP **set ip next-hop** **no**

**set ip default next-hop** ip-address [weight] […ip-address [weight] ]

**no set ip default next-hop** ip-address [weight] […ip-address [weight] ]

| | |
|---|---|
| ip-address | IP |
| weight | |

set WCMP WCMP weight WCMP

**set ip default next-hop** IP 32 ip address weight 4 nexthop

| | |
|---|---|
| a | next-hop weight set<br>WCMP WCMP<br>weight nexthop weight<br>1 |

**set ip next-hop** **set ip default next-hop** **set ip next-hop**
**set ip default next-hop**

(nexthop)

1

set

1 1.1.1.1
6.6.6.6 2.2.2.2
7.7.7.7

```
Ruijie(config)# access-list 1 permit ip 1.1.1.1 0.0.0.0
Ruijie(config)# access-list 2 permit ip 2.2.2.2 0.0.0.0
Ruijie(config)# interface async 1
Ruijie(config-if)# ip policy route-map equal-access
Ruijie(config)# route-map equal-access permit 10
Ruijie(config- route-map)# match ip address 1
Ruijie(config-route-map)# set ip default next-hop 6.6.6.6
Ruijie(config)# route-map equal-access permit 20
Ruijie(config-route-map)# match ip address 2
Ruijie(config-route-map) #set ip default next-hop 7.7.7.7
Ruijie(config)# route-map equal-access permit 30
Ruijie(config- route-map)# set default interface null 0
```

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **set default interface** | |

| | |
|---|---|
| **set default interface** | |
| **set interface** | |
| **set ip next-hop** | IP |
| **set ip precedence** | IP |

-

| | |
|---|---|
| - | - |

## 35.1.31 set ip dscp

match DSCP **set ip dscp**

**no**

**set ip dscp** dscp_value

**no set ip dscp**

| | |
|---|---|
| dscp_value | IP IP DSCP |

| | |
|---|---|
| | |

| | |
|---|---|
| **set interface** | |
| **set ip default next-hop** | IP |
| **set ip precedence** | IP |

| | |
|---|---|
| - | - |

## 35.1.32 set vrf

match IP VRF

**set vrf** **no**

**set vrf** name

**no set vrf** name

| | |
|---|---|
| name | VRF |

match IP VRF

1 **set vrf** VRF set VRF
VRF
VRF set
„ **set vrf** VRF
% route-map VRF table vrf-name does not exist.
„ VRF route-map set vrf
% route-map set vrf vrf-name configuration removed from all route-maps.

a

2 **set vrf** **set ip nexthop** **set ip next-hop verify-availability** set vrf **set ip tos** **set ip precedence** **set ip dscp** **set vrf**

„ set ip nexthop set vrf
% route-map can not set vrf .
% Remove other set clauses to set vrf.
„ set vrf set ip nexthop
% route-map can not set next-hop.
% Remove set vrf clause before set ip next-hop.

serial 1/0 10.0.0.0/8
vrf_A 172.16.0.0/16
vrf_B

1 route-map ACL

```
Ruijie(config)# access-list 10 permit 10.0.0.0 0.255.255.255
Ruijie(config)# access-list 20 permit 172.16.0.0 0.0.255.255
```

2 route-map

```
Ruijie(config)# route-map PBR permit 10
Ruijie(config-route-map)# match ip address 10
Ruijie(config-route-map)# set vrf vrf_A
Ruijie(config)# route-map PBR permit 20
Ruijie(config-route-map)# match ip address 20
Ruijie(config-route-map)# set vrf vrf_B
```

3

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip policy route-map PBR
```

| | |
|---|---|

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **match length** | IP |
| **ip vrf receive** | vrf_name VRF |

| | |
|---|---|
| RGOS 10.4 | RGOS 10.4 |

## 35.1.33 set ip next-hop

match IP **set ip next-hop**
**no**

**set ip next-hop** ip-address [weight] […ip-address [weight] ]

**no set ip next-hop** ip-address [weight

1

set

serial 1/0 10.0.0.0/8
192.168.100.1 172.16.0.0/16
172.16.100.1

Ruijie(config)# interface serial 1/0

Ruijie(config-if)# ip policy route-map load-balance

load-ba6ria7 load-ba<1417e

load-ba6ria7 load-ba1( 93)Tj /TT2 1 Tf 0 Tc 9.581 0 Td ( )Tj /TT4 1 Tf 001 Tc0.8 0 0 T55 T55.377 0 Td ( lo

| | |
|---|---|
| - | - |

## 35.1.34 set ip next-hop verify-availability

IP

| | | |
|---|---|---|
| | **route-map**<br><br>**match ip address** | |

```
    precedence    4
Ruijie(config)#       access-list       1 permit      192.168.217.68 0.0.0.0
Ruijie(config)#       route-map     name
Ruijie(config-route-map)#           match ip address        1
Ruijie(config-route-map)#           set ip precedence         4
Ruijie(config)#       interface       FastEthernet      0/0
Ruijie(config-if)#          ip policy route-map           name
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |
| **set ip tos** | IP tos |

| | |
|---|---|
| - | - |

## 35.1.36 set ip tos

match IP TOS, **set ip tos**

**no** tos

**set ip tos** {<0-15> | max-reliability | max-throughput | min-delay | min-monetary-cost | normal }

**no set ip tos** {<0-15> | max-reliability | max-throughput | min-delay | min-monetary-cost | normal }

| | |
|---|---|

| | |
|---|---|
| - | - |

IP TOS IP

IP TOS

fastEthernet 0/0 192.168.217.68

tos 4

Ruijie(config)# access-list 1 permit 192.168.217.68 0.0.0.0

# ) g i f n o c ( e i j i u R 4

## 35.1.37 set level

match **set level**

**no**

**set level** {**level 1**| **level 2** | **level 1-2** | **stub-area** | **backbone**}

**no set level**

| | |
|---|---|
| - | - |

OSPF RIP backbone

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set level backbone
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |

| | |
|---|---|
| - | - |

## 35.1.38 set local-preference

match LOCAL_PREFERENCE **set local-preference** **no**

**set local-preference** number

**no set local-preference**

| | |
|---|---|
| number | 0-4294967295 |

| | |
|---|---|
| - | - |

## 35.1.39 set metric

match **set metric**

**no**

**set metric** [+ metric-value | **-** metric-value | metric-value]

**no set metric**

| | |
|---|---|
| + | metric |
| **-** | metric |
| metric-value | |

set metric ‘ + ’ ‘ - ’ metric

RIP metric 1-16

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP

40

```
Ruijie(config)#          router ospf
Ruijie(config-router)# r          edistribute rip subnets route-map          redrip
Ruijie(config-router)#          network     192.168.12.0 0.0.0.255          area    0
Ruijie(config-router)#          exit
```

Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set metric 40

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |

| | |
|---|---|
| - | - |

## 35.1.40 set metric-type

match **set metric-type**
**no**

**set metric-type** type

**no set metric-type**

| | |
|---|---|

OSPF type-2

OSPF

RIP RIP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP type-1

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set metric-type type-1
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set tag** | |

| | |
|---|---|
| - | - |

## 35.1.41 set next-hop

match IP **set next-hop**

**no**

**set next-hop** ip-address

**no set next-hop** ip-address

| | |
|---|---|

| | |
|---|---|
| ip-address | IP |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

192.168.1.2

```
Ruijie(config)#  route-map  redrip  permit  10
Ruijie(config-route-map)#  match ip address  1
Ruijie(config-route-map)#  set next-hop  192.168.1.2
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |

| | |
|---|---|
| - | - |

## 35.1.42 set origin

match **set origin**

**no**

**set origin** {**egp** | **igp** | **incomplete**}

**no set origin**

| | |
|---|---|
| **egp** | EGP |
| **igp** | IGP |
| **incomplete** | |

| | |
|---|---|
| - | - |

## 35.1.43 set originator-id

match **set originator-id**

**no**

**set originator-id** ip-addr

**no originator-id** [ip-addr]

| | |
|---|---|
| ip-addr | |

```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set originator-id 5.5.5.5
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set originator-id 5.5.5.6
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set local-preference** | |

| | |
|---|---|
| - | - |

## 35.1.44 set tag

match **set tag** **no**

**set tag** tag

**no set tag**

| | |
|---|---|
| tag | |

OSPF RIP 100

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set tag 100
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |

| | |
|---|---|
| **set metric-type** | |

| | |
|---|---|
| - | - |

## 35.1.45 set weight

match BGP **set weight**

**no**

**set weight** number

**no set weight**

| | |
|---|---|
| number | 0-65535 |

BGP

neighbor weight

32768

BGP

BGP in 1.1.1.1

100

```
Ruijie(config)# router bgp 1
Ruijie(config-router)# neighbor 1.1.1.1 route-map nei-rmap-in in
Ruijie(config-router)# exit
Ruijie(config)# route-map nei-rmap-in permit 10
Ruijie(config-route-map)# set weight 100
```

| | |
|---|---|
| **match as-path** | AS_PATH |

| | |
|---|---|
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set community** | COMMUNITY |
| **set metric** | |
| **set metric-type** | |

| | |
|---|---|
| - | - |

## 35.2 ¡ µ - ‘ a —

### 35.2.1 show ip community-list

**show ip community-list** [community-list-number|community-list-name]

| | |
|---|---|
| community-list-number | 1-99<br>100-199 |
| community-list-name | 80 |

Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant

| | |
|---|---|
| - | - |

## 35.2.3 show ip route

IP **show ip route**

**show ip route** [[**vrf** vrf_name] [network [mask] | **count** | **protocol** [process-id] | **weight** ]]

| | |
|---|---|
| **vrf** vrf_name | VRF |
| network | |
| mask | |
| **count** | |
| **protocol** | **connected**, **static** **bgp**, **isis**, **ospf**, **rip** |
| process-id | |
| **weight** | |

1 **show ip rout**e

```
Ruijie#     show ip rout     e
Codes: C - connected, S - static, R - RIP, B - BGP
O - OSPF, IA - OSPF inter area
N1-OSPF NSSA external type 1,N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS,su - IS-IS summary,L1 - IS-IS level-1,L2 - IS-IS level-2
ia - IS-IS 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.

**show ip route**

| | |
|---|---|
| O | C<br>S<br>R RIP<br>B BGP<br>O OSPF<br>i IS-IS |
| E2 | E1 OSPF<br>E2 OSPF<br>N1 OSPF NSSA 1<br>N2 OSPF NSSA 2<br>IA OSPF<br>su IS-IS<br>L1 IS-IS 1<br>L2 IS-IS 2<br>ia IS-IS |
| 20.0.0.0/8 | |
| [1/0] | |
| Via 20.0.0.1 | IP |
| 00:00:06 | |
| VLAN 1 | |

2 **show ip route** network

Ruijie# show ip route 30.0.0.0

Routing entry for 30.0.0.0/8

IP

Routing Descriptor
Blocks

Match clauses:

ip address 2

Set clauses:

metric 10

| | |
|---|---|
| route-map | |
| Permit | permit |
| sequence 10 | |
| Match clauses | permit deny<br>set |
| Set clauses | match |

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 36 n j Ç Å % a —

## 36.1 " - ‘ a —

### 36.1.1 protected-ports route-deny

**no**

**storm-control** {**broadcast** | **multicast** | **unicast**} [{**level** percent | **pps** packets | rate-bps}]

**no storm-control** {**broadcast** | **multicast** | **unicast**} [ {**level** percent | **pps** packets | rate-bps}]

| | |
|---|---|
| **broadcast** | |
| **multicast** | |
| **unicast** | |
| percent | 20 20% |
| packets | pps packets per second |
| Rate-bps | |
| 64k-2M | 64k |
| 2-100M | 1M |
| 100M | 8M |

**show storm-control**

GigabitEthernet 1/1

4M

```
Ruijie#  configure terminal
Ruijie(config)#  interface GigabitEthernet  1/1
Ruijie(config-if)#  storm-control multicast  4096
Ruijie(config-if)#  end
```

| | |
|---|---|
| **show storm-control** | |

-

| | |
|---|---|
| - | - |

## 36.1.3 switchport protected

**no**

**switchport protected**

**no switchport protected**

| | |
|---|---|
| - | - |

3 **show interfaces**

```
Ruijie(config)#  interface gigabitethernet  1/1
Ruijie(config-if)#  switchport protected
```

| | |
|---|---|
| **show interfaces** | |

-

| | |
|---|---|
| - | - |

## 36.1.4 switchport port-security

no

**switchport port-security** [**violation** {**protect** | **restrict** | **shutdown**}]

**no switchport port-security** [**violation**]

| | |
|---|---|
| **port-security** | |

no

**switchport port-security aging** {**static** | **time time** }

**no switchport port-security aging** {**static** | **time** }

| | |
|---|---|
| **Static** | |
| **time time** | 0<br>1440 0 |

**no switchport port-security aging time**
**no switchport port-security aging static**

**show port-security**

```
Ruijie(config)#  interface gigabitethernet  1/1
Ruijie(config-if)#  switchport port-security aging time  8
Ruijie(config-if)#  switchport port-security aging  static
```

| | |
|---|---|
| **show port-security** | |

| | |
|---|---|
| - | - |

## 36.1.6 switchport port-security binding

| | |
|---|---|
| - | - |

## 36.1.7 switchport port-security binding interface

IP+ MAC IP

no

[**no**] **switchport port-security binding interface** interface-id mac-address **vlan** vlan_id ipv4-address

[**no**] **switchport port-security binding interface** interface-id ipv4-address | ipv6-address

| | |
|---|---|
| interface-id | ID |

4¥ n Ì$ n\ ð „Å æd” @H è5Ù ™$d

| | |
|---|---|
| **switchport port-security aging** | |
| **show port-security** | |

| | |
|---|---|
| **-** | - |

## 36.1.8 switchport port-security maximum

no

**switchport port-security maximum** value

[**no**] **switchport port-security maximum**

| | |
|---|---|
| value | 1-128 |

128

128

1 10 2

Ruijie(config)# inter g0/10

Ruijie(config-if)# switchport port-security maximum 2

| | |
|---|---|
| **switchport port-security** | |
| **switchport port-security binding** | |
| **Switchport port-security mac-address** | |
| **switchport port-security aging** | |

| | |
|---|---|
| **show port-security** | |

| | |
|---|---|
| **-** | - |

## 36.1.9 switchport port-security mac-address

no

[**no**] **switchport port-security mac-address** mac-address [vlan vlan-id]

| | |
|---|---|
| mac-address | |
| vlan-id | MAC VID<br>TRUNK vlan-id |

1 TRUNK 10 00d0.f800.5555 VID=2

Ruijie(config)# inter g0/10

Ruijie(config-if)# switchport port-security mac-address 00d0.f800.5555 vlan 2

| | |
|---|---|
| **switchport port-security** | |
| **switchport port-security binding** | |
| **switchport port-security mac-address interface** | |
| **switchport port-security aging** | |

| | |
|---|---|
| **show port-security** | |

| | |
|---|---|
| **-** | - |

## 36.1.10 switchport port-security mac-address interface

no

[**no**] **switchport port-security interface** interface-id **mac-address** mac-address [vlan vlan-id]

| | |
|---|---|
| interface-id | ID |
| mac-address | |
| vlan-id | MAC VID<br>TRUNK vlan-id |

1 TRUNK 10 00d0.f800.5555 VID=2

Ruijie(config)# switchport port-security interface g0/10 mac-address 00d0.f800.5555 vlan 2

| | |
|---|---|
| **switchport port-security** | |
| **switchport port-security binding** | |
| **Switchport port-security mac-address** | |

**switchport port-security aging**

| | |
|---|---|
| **show port-security** | |

| | |
|---|---|
| **-** | - |

## 36.1.11 switchport port-security sticky mac-address

Stickk MAC no

[**no**] **switchport port-security mac-address sticky** mac-address [vlan vlan-id]

Sticky MAC no Sticky MAC

[**no**] **switchport port-security mac-address sticky**

| | |
|---|---|
| mac-address | |
| vlan-id | MAC VID<br>TRUNK vlan-id |

Sticky MAC

1 10 Sticky MAC

```
Ruijie(config)# inter g0/10
Ruijie(config-if)# switchport port-security
Ruijie(config-if)# switchport port-security sticky mac-address
Ruijie(config-if)# end
```

2 TRUNK 10 Sticky 00d0.f800.5555 VID=2

```
Ruijie(config)# inter g0/10
Ruijie(config-if)# no switchport port-security sticky mac-address
00d0.f800.5555 vlan 2
Ruijie(config-if)# end
```

| | |
|---|---|
| **switchport port-security** | |
| **switchport port-security binding** | |
| **Switchport port-security mac-address** | |
| **switchport port-security mac-address interface** | |
| **switchport port-security aging** | |
| **show port-security** | |

| | |
|---|---|
| **RGOS 10.4(3)** | Sticky MAC 10.4(3) |

# 36.2 ¡ µ - ‘ a —

## 36.2.1 show storm-control

**show storm-control** [interface-id ]

| | |
|---|---|
| interface-id | |

Ruijie# show storm-control gigabitethernet 1/1

Interface Broadcast Control Multicast Control Unicast Control

---------- ----------

Gi1/1 Disabled Disabled Disabled

| | |
|---|---|
| **storm-control** | |

| | |
|---|---|
| - | - |

## 36.2.2 show port-security

**show port-security** [**address**] [**interface** interface-id] [**all**]

| | |
|---|---|
| **address** | |
| **interface** interface-id | |
| **all** | |

Ruijie# show port-security

Secure Port MaxSecureAddr(count) CurrentAddr(count) Security Action

-------- ---------- ---------- ----------

Gi1/1 128 1 Restrict

Gi1/2 128 0 Restrict

Gi1/3 8 1 Protect

| | |
|---|---|

| | |
|---|---|
| **switchport port-security** | |
| **switchport port-security aging** | |
| **switchport port-security mac-address** | |

| | |
|---|---|
| | |

# 37 802.1X a —

| | |
|---|---|
| - | - |

## 37.1.2 dot1x auto-req packet-num

no

**dot1x auto-req packet-num** num

**no dot1x auto-req packet-num**

| | |
|---|---|
| num | |

num = 0;

**show dot1x auto-req**

802.1x

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x auto-req packet-num          0
Ruijie(config)#          end
Ruijie#      show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num : 0
Req-Interval: 30 Second
```

| | |
|---|---|
| **show dot1x auto-req** | |

| | |
|---|---|
| - | - |

## 37.1.3 dot1x auto-req req-interval

**no**

**dot1x auto-req req-interval** interval

**no dot1x auto-req req-interval**

| | |
|---|---|
| interval | s |

30

## 37.2.1 dot1x timeout quiet-period

**no**

**dot1x timeout quiet-period** seconds

**no dot1x timeout quiet-period**

| | |
|---|---|
| seconds | |

0 65535 fig)#d( )Tj4TT1 1 9.581725 0 Tno

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.2.2 dot1x timeout re-authperiod

**no**

**dot1x timeout re-authperiod** seconds

**no dot1x timeout re-authperiod**

| | |
|---|---|
| seconds | 0 65535 s |

3600

**show dot1x** 802.1x

1000s

```
Ruijie#  configure terminal
Ruijie(config)#  dot1x timeout re-authperiod  1000
Ruijie(config)#  end
Ruijie#  show dot1x
802.1X Status:  Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:  Disabled
Re-authen Period:  1000 sec
Quiet Timer Period:  1000 sec
Tx Timer Period:  3 sec
```

Supplicant Timeout: 3 sec
Server Timeout: 5 sec
Re-authen Max: 3 times
Maximum 2Request: 3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable: Disabled
Authorization Mode: Group Server

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.2.3 dot1x timeout server-timeout

**no**

**dot1x timeout server-timeout**

```
Ruijie(config)#          dot1x timeout server-timeout          10
Ruijie(config)#          end
Ruijie#      show dot1x
802.1X Status:     Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:   Disabled
Re-authen Period:    1000 sec
Quiet Timer Period:  1000 sec
```

3

**show dot1x** 802.1x

10s

```
Ruijie#  configure terminal
Ruijie(config)#  dot1x timeout supp-timeout  10
Ruijie(config)#  end
Ruijie#  show dot1x
802.1X Status:  Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:  Disabled
Re-authen Period:  1000 sec
Quiet Timer Period:  1000 sec
Tx Timer Period:  3 sec
Supplicant Timeout:  10 sec
Server Timeout:  10 sec
Re-authen Max:  3 times
Maximum Request:  3 times
Filter Non-RG Supp:  Disabled
Client Oline Probe:  Disabled
Eapol Tag Enable:  Disabled
Authorization Mode:  Group Server
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.2.5 dot1x timeout tx-period

no

**dot1x timeout tx-period** seconds

**no dot1x timeout tx-period**

| | |
|---|---|
| seconds | 0 65535 |

3

**show dot1x** 802.1x

10s

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x timeout tx-period          10
Ruijie(config)#          end
Ruijie#      show dot1x
802.1X Status:     Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:   Disabled
Re-authen Period:    1000 sec
Quiet Timer Period:  1000 sec
Tx Timer Period:     10 sec
Supplicant Timeout:  10 sec
Server Timeout:      10 sec
Re-authen Max:       3 times
Maximum Request:     3 times
Filter Non-RG Supp:  Disabled
Client Oline Probe:  Disabled
Eapol Tag Enable:    Disabled
Authorization Mode:  Group Server
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| - | - |

## 37.3 dot1x 7 a —

### 37.3.1 dot1x re-authentication

no

[**no**] **dot1x re-authentication**

| | |
|---|---|
| - | - |

**show dot1x** 802.1x

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x re-authentication
Ruijie(config)#          end
Ruijie#      show dot1x
802.1X Status:     Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:   Enabled
Re-authen Period:    1000 sec
Quiet Timer Period:  1000 sec
```

Tx Timer Period: 10 sec
Supplicant Timeout: 10 sec
Server Timeout: 10 sec
Re-authen Max: 3 times
Maximum Request: 3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable: Disabled
Authorization Mode: Group Server

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.3.2 dot1x reauth-max

**no**

**dot1x reauth-max** count

**no dot1x reauth-max**

| | |
|---|---|
| count | |

3

**show dot1x**

802.1x

Ruijie# configure terminal
Ruijie(config)# dot1x reauth-max 5

```
Ruijie(config)#          end
Ruijie#      show dot1x
802.1X Status:     Enabled
Authentication Mode: EAP-MD5
Authed User Number:  0
Re-authen Enabled:   Enabled
Re-authen Period:    1000 sec
Quiet Timer Period:  1000 sec
Tx Timer Period:    10 sec
Supplicant Timeout:  10 sec
Server Timeout:     10 sec
Re-authen Max:      5 times
Maximum Request:    3 times
Filter Non-RG Supp:  Disabled
Client Oline Probe:  Disabled
Eapol Tag Enable:    Disabled
Authorization Mode:  Group Server
```

| | |
|---|---|

| | |
|---|---|
| interval | hello |
| **alive** | |
| **interval** | |

Hello 20
250

**show dot1x** 802.1x

hello 30 , 120

```
Ruijie#  configure terminal
Ruijie(config)#  dot1x probe-timer interval  30
Ruijie(config)#  dot1x probe-timer alive  120
Ruijie(config)#  end
Ruijie#  show dot1x probe-timer
Hello Interval: 30 Seconds
Hello Alive: 120 Seconds
```

| | |
|---|---|
| **Show dot1x probe-timer** | |

| | |
|---|---|
| **-** | - |

## 37.4.2 dot1x client-probe enable

[**no**] **dot1x client-probe enable**

| | |
|---|---|
| **-** | - |

```
Ruijie#      configure termina      l
Ruijie(config)#          dot1x client-probe enable
Ruijie(config)#          end
Ruijie#      show dot1x
802.1X Status:     Enabled
```

## 37.5.1 dot1x authentication

AAA AAA

**no**

**dot1x authentication** {**default** | list-name}

**no dot1x authentication** {**default** | list-name}

| | |
|---|---|
| **default** | |
| list-name | |

AAA AAA

AAA dot1x

group radius

```
Ruijie#      configure terminal
Ruijie(config)#          aaa new-model
Ruijie(config)#          aaa authentication dot1x default group radius
Ruijie(config)#          interface fastEthernet          0/1
Ruijie(config-if)#           dot1x authentication default
Ruijie(config-if)#           end
```

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authentication dot1x** | |

| | |
|---|---|
| **-** | - |

## 37.5.2 dot1x auth-address-table

| | |
|---|---|
| num | VLAN , 1-3 |

3

**show dot1x**

VLAN

```
Ruijie#  configure terminal
Ruijie(config)#  dot1x auth-fail max-attempt  5
Ruijie(config)#  end
Ruijie#write
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **10.3(5)** | |

## 37.5.4 dot1x auth-fail vlan

802.1x vlan

**dot1x auth-fail vlan** vid

**no dot1x auth-fail vlan**

| | |
|---|---|
| vid | vlan vid |

vlan

**show dot1x interface**

802.1x vlan

```
Ruijie# configure terminal
Ruijie(config)# interface fa 0/1
Ruijie(config-if)# dot1x auth-fail vlan 2
Ruijie(config-if)# end
Ruijie#write
```

| | |
|---|---|
| **show dot1x interface** | 802.1x |

| | |
|---|---|
| **10.3(5)** | |

## 37.5.5 dot1x auth-mode

802.1x

**dot1x auth-mode** {**eap-md5** | **chap** | **pap**}

**no dot1x auth-mode**

| | | |
|---|---|---|
| **eap-md5** | 802.1x | EAP-MD5 |
| **chap** | 802.1x | CHAP |
| **pap** | 802.1x | PAP |

EAP-MD5

**show dot1x** 802.1x

802.1x

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x auth-mode chap
Ruijie(config)#          end
Ruijie#
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.5.6 dot1x default

802.1x

**dot1x default**

| | |
|---|---|
| **-** | - |

**show dot1x** 802.1x

802.1x

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x default
Ruijie(config)#          end
Ruijie#      end
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| - | - |

## 37.5.7 dot1x eapol-tag

EAPOL TAG

**dot1x eapol-tag**

**no dot1x eapol-tag**

| | |
|---|---|
| - | - |

**show dot1x** 802.1x

802.1X tag

```
Ruijie# configure terminal
Ruijie(config)# dot1x eapol-tag
Ruijie(config)# end
Ruijie#
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| - | - |

## 37.5.8 dot1x mac-auth-bypass

MAC

802.1x

1-65535

**show run** 802.1x

802.1x MAC

```
Ruijie#      configure terminal
Ruijie(config)#          interface fa          0/1
Ruijie(config-if)#              dot1x mac-auth-bypass timeout-activity 3600
Ruijie(config-if)#              end
Ruijie#write
```

| | |
|---|---|
| **show dot1x port-control interface** | 802.1x |

| | |
|---|---|
| **10.3(5)** | |

## 37.5.10 dot1x mac-auth-bypass violation

802.1x MAC

**dot1x mac-auth-bypass violation**

**no dot1x mac-auth-bypass violation**

| | |
|---|---|
| | |

**show run** 802.1x

802.1x MAC

```
Ruijie#      configure terminal
Ruijie(config)#          interface fa          0/1
Ruijie(config-if)#              dot1x mac-auth-bypass violation
Ruijie(config-if)#              end
Ruijie#write
```

| | |
|---|---|
| **show dot1x port-control interface** | 802.1x |

| | |
|---|---|
| **10.3(5)** | |

DOT1X DOT1X
DOT1X
**no**

**dot1x max-req** count

**no dot1x max-req**

| | |
|---|---|
| count | |

3

**show dot1x** 802.1x

802.1x 7

```
Ruijie#      configure terminal
Ruijie(config)#          dot1x max-req      7
Ruijie(config)#          end
Ruijie#
```

| | |
|---|---|
| **show dot1x** | 802.1x |

| | |
|---|---|
| **-** | - |

## 37.5.12 dot1x private-supplicant-only

**no**

**dot1x private-supplicant-only**

**no dot1x private-supplicant-only**

| | |
|---|---|
| **-** | - |

**show dot1x private-supplicant-only** 802.1x

```
Ruijie#      configure t
Ruijie(config)#          dot1x private-supplicant-only
Ruijie(config)#          end
Ruijie#
```

| | |
|---|---|
| **show dot1x private-supplicant-only** | |

| | |
|---|---|
| - | - |

## 37.5.13 dot1x port-control auto

**no**

**dot1x port-control auto**

**no dot1x port-control**

| | |
|---|---|
| - | - |

802.1x

**show dot1x** 802.1x

802.1x

```
Ruijie#  configure terminal
Ruijie(config)#  interface g  0/1
Ruijie(config-if)#  dot1x port-control auto
Ruijie(config-if)#  end
Ruijie#
```

802.1x MAC

و و

{ | {

Ruijie(config-if)# end

Ruijie#

| | |
|---|---|
| **show dot1x port-control** | 802.1x |
| **Show running-config** | |

| | |
|---|---|
| **-** | - |

## 37.5.15 dot1x stationarity enable

802.1x

802.1X

**dot1x stationarity enable**

**no dot1x stationarity enable**

| | |
|---|---|
| **-** | - |

802.1x

Ruijie# configure terminal

Ruijie(config)# dot1x stationarity enable

Ruijie(config)# end

Ruijie#

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

## 37.5.16 dot1x redirect url

802.1x
URL URL http://
http://ruijie.net/web http:// https://
url url no
url

**dot1x redirect url** [url-string]

[**no** ] **dot1x redirect url**

| | |
|---|---|
| url-string | URL |

1 ruijie.net/web
Ruijie(config)# dot1x redirect url http://ruijie.net/web

| | |
|---|---|
| **dot1x redirect for special tcp-destination port** | ip ip web |
| **dot1x redirect time-out** | |
| **dot1x redirect num for special source-ip** | |
| **show dot1x** | dot1x |

| | |
|---|---|
| - | - |

## 37.5.17 dot1x redirect for special tcp-destination port

ip ip web 80 8080
16 TCP

| | |
|---|---|
| - | - |

## 37.5.18 dot1x redirect time-out

( ), 3 1-10 no

**dot1x redirect time-out port** time-out-interval

**no dot1x redirect time-out port**

| | |
|---|---|
| time-out-interval | |

3

1 5

Ruijie(config)# dot1x redirect time-out 5

| | |
|---|---|
| **dot1x redirect url** | ip ip web |
| **dot1x redirect for special tcp-destination port** | |
| **dot1x redirect num for special source-ip** | |
| **show dot1x** | dot1x |

| | |
|---|---|
| - | - |

## 37.5.19 dot1x redirect num for special source-ip

1 1-10 no

**dot1x redirect num for special source-ip** num

**no dot1x redirect num for special source-ip**

| | |
|---|---|
| num | |

1

1 3

Ruijie(config)# dot1x redirect num for special source-ip 3

| | |
|---|---|
| **dot1x redirect url** | |
| **dot1x redirect for special tcp-destination port** | ip ip web |
| **dot1x redirect time-out** | |
| **show dot1x** | dot1x |

| | |
|---|---|
| **-** | - |

# 37.6 dot1x ¡ µ a —

## 37.6.1 show dot1x

802.1x

**show dot1x**

802.1X

| | |
|---|---|
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.2 show dot1x auth-address-table

802.1X

**show dot1x auth-address-table**[

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.3 show dot1x auto-req

802.1x

**show dot1x auto-req**

| | |
|---|---|
| **-** | - |

Ruijie# show dot1x auto-req
Auto-Req: Disabled
User-Detect : Enabled
Packet-Num : 0
Req-Interval: 30 Seconds

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

**-**

## 37.6.4 show dot1x private-supplicant-only

**show dot1x private-supplicant-only**

| | |
|---|---|

Ruijie# show dot1x private-supplicant-only
private-supplicant-only:: disabled
Ruijie#

| | |
|---|---|
| - | - |

Ruijie# show dot1x max-req
max-req: 2 times
Ruijie#

| | | |
|---|---|---|
| **dot1x auth-mode** | 802.1x | ų |

## 37.6.6 show dot1x port-control

**show dot1x port-control** [**interface** interface]

| | |
|---|---|
| interface | |

Ruijie# show dot1x port-control

interface dyn-user static-user max-user qos

ctrl-mode status

--------- -------- ----------- -------- ------- ------

| | |
|---|---|
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.7 show dot1x probe-timer

**show dot1x probe-timer**

| | |
|---|---|
| **-** | - |

Ruijie# show dot1x probe-timer
Hello Interval: 20 Seconds
Hello Alive: 250 Seconds
Ruijie#

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |

| | |
|---|---|
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.9 show dot1x reauth-max

**show dot1x reauth-max**

| | |
|---|---|
| **-** | - |

Ruijie# show dot1x reauth-max
reauth-max: 2 times

Ruijie#

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.10 show dot1x summary

802.1X

**show dot1x summary**

| | |
|---|---|
| **-** | - |

Ruijie# show dot1x summary
ID MAC Interface VLAN Auth-State
Backend-State Port-Status Type
---------- ---------- ----------
1 00d0f8000000 Gi0/1 1 Authenticated Idle
Authed Static
Ruijie#

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.11 show dot1x user id

802.1X

**show dot1x user id** <id>

| | |
|---|---|
| id | show summary id |

Ruijie# show dot1x user id 1
User name: caikov
id: 1
Type: static
Mac address is 0013.2049.8272
Vlan id is 217
Access from port Gi0/13
User ip address is 192.168.217.64
Max user number on this port is 6000
COS on this port is 5
Up-bandwidth is 1024 kbps
Down-bandwidth is 1024 kbps
Authorization vlan is dep7
Authorization seesion time is 1000000 seconds
Authorization ip address is 192.168.217.64
Start accounting
Permit proxy user
Permit dial user
IP privilige is 2

| | |
|---|---|
| **dot1x auth-mode** | 802.1x |
| **dot1x max-req** | |
| **dot1x port-control auto** | |
| **dot1x reauth-max** | |
| **dot1x re-authentication** | |

| | |
|---|---|
| **dot1x timeout quiet-period** | |
| **dot1x timeout re-authperiod** | |
| **dot1x timeout server-timeout** | |
| **dot1x timeout supp-timeout** | |
| **dot1x timeout tx-period** | |

| | |
|---|---|
| **-** | - |

## 37.6.12 show dot1x timeout

802.1X

**show dot1x timeout quiet-period**

**show dot1x timeout re-authperiod**

**show dot1x timeout server-timeout**

**show dot1x timeout supp-timeout**

**show dot1x timeout tx-period**

| | |
|---|---|
| **-** | - |

```
quiet-period: 60 sec
Ruijie#
```

| | |
|---|---|
| - | - |

Ruijie# configure terminal
Ruijie(config)# dot1x redirect

| | |
|---|---|
| | |

Ruijie# configure terminal
Ruijie(config)# http redirect 172.16.0.1
Ruijie(config)# end

| | |
|---|---|
| **show http redirect** | HTTP |
| **http redirect homepage** | |

| | |
|---|---|
| **10.2(5)** | |

## 37.7.3 http redirect direct-site

**no**

**http redirect direct-site** ip-address [ip-mask] [**arp**]

**no http redirect direct-site** ip-address [ip-mask] [**arp**]

| | |
|---|---|
| ip-address | IP |
| ip-mask | IP |
| **arp** | ARP CHECK<br>ARP **arp** |

802.1x

50

IP 172.16.0.1

Ruijie# configure terminal

Ruijie(config)# http redirect direct-site 172.16.0.1

| | |
|---|---|
| **show http redirect** | HTTP |

| | |
|---|---|
| **10.2(5)** | |

## 37.7.4 http redirect homepage

**no**

**http redirect homepage** url-string

**no http redirect homepage**

| | |
|---|---|
| url-string | url-string<br>“http://” “https://”<br>255 |

www.su-download.net/

Ruijie# configure terminal

Ruijie(config)# http redirect homepage www.su-download.net/

| | |
|---|---|

| | |
|---|---|
| **show http redirect** | HTTP |

| | |
|---|---|
| **10.2(5)** | |

## 37.7.5 http redirect port

HTTP **http redirect port** **no**

**http redirect port** port-num

**no http redirect port** port-num

| | |
|---|---|
| **-** | - |

80 HTTP

HTTP

HTTP

80 HTTP

PC HTTP

10 80

PC 8080 HTTP

```
Ruijie# configure terminal
Ruijie(config)# http redirect port 8080
```

| | |
|---|---|
| | |

| | |
|---|---|
| **10.2(5)** | |

## 37.7.6 http redirect session-limit

HTTP

HTTP **no** HTTP

3

**http redirect session-limit** session-num [**port** port-session-num]

**no http redirect session-limit**

| | |
|---|---|
| session-num | HTTP<br>1-255 |
| port-session-num | HTTP<br>1-300 |

HTTP 255

HTTP 300

HTTP TCP

HTTP

HTTP HTTP

HTTP 1

HTTP 4

Ruijie# configure terminal

Ruijie(config)# http redirect session-limit 4

| | |
|---|---|
| **show http redirect** | HTTP |

| | |
|---|---|
| **10.2(5)** | |

## 37.7.7 http redirect timeout

**no**

3

**http redirect timeout** seconds

**no http redirect timeout**

| | |
|---|---|
| seconds | 1-10 |

3

# 38 AAA a —

## 38.1 - ‘ a —

### 38.1.1 aaa authentication dot1x

AAA 802.1X **aaa authentication dot1x** 802.1Xno 6 8/T

**aaa authentication dot1x** {d

**no aaa authentication dot1**

| | |
|---|---|
| | |
| **default** | /TT0 1]TJ/C2_0 1 Tf0 Tc |
| | |
| method | |
| **local** | 8 0 Td ( )Tj.02 .1/TT1 1 Tf -0.0007 Tc 1 Te -0.036 Td (local )Tj /C |

| | |
|---|---|
| **aaa new-model** | AAA |
| **dot1x authentication** | 802.1X |
| **username** | |

[redacted]

| |
|---|
| - |

## 38.1.2 aaa authentication enable

AAA Enable **aaa authentication enable** Enable no

**aaa authentication enable default** method1 [method2...]

**no aaa authentication enable default**

| | |
|---|---|
| | |

**default**

AAA Enable RADIUS

RADIUS

Ruijie(config)# aaaauthenticationenabledefaultgroupradiuslocal

AAA AAA Login
**aaa authentication login** Login

Login Login

list-1 AAA Login
RADIUS RADIUS

Ruijie(config)# aaa authentication login list-1 group radius local

| | |
|---|---|
| **aaa new-model** | AAA |
| **username** | |
| **login authentication** | Login |

| | |
|---|---|
| - | - |

## 38.1.4 aaa authentication ppp

AAA PPP **aaa authentication ppp** PPP
no

**aaa authentication ppp** {**default** | list-name} method1 [method2...]

**no aaa authentication ppp** {**default** | list-name}

| | |
|---|---|
| **default** | PPP |
| list-name | PPP |
| method | “ local none group ”<br>4 |

**local**

| | |
|---|---|
| | RADIUS |
| **group** | TACACS+ |

Login

Login

Login Login

list-1 AAA Login

VTY 0 - 4

```
Ruijie(config)#  aaa authentication login  list-1  local
Ruijie(config)#  line vty  0 4
Ruijie(config-line)#  login authentication  list-1
```

| | |
|---|---|
| **aaa new-model** | AAA |
| **username** | |
| **login authentication** | Login |

| | |
|---|---|
| - | - |

# 38.2 Ñ ã - ‘ a —

## 38.2.1 aaa authorization commands

NAS CLI AAA

**aaa authorization commands** no AAA

**aaa authorization commands** level {**default** | list-name} method1 [method2...]

**no aaa authorization commands** level {**default** | list-name}

| | |
|---|---|

| | |
|---|---|
| level | 0~15 |
| **default** | |
| list-name | |
| method | “ none group ” 4 |
| **none** | |
| **group** | TACACS+ |

AAA

RGOS RFO>-P€[@pO2D,ǵZA,ʾ]h\X€RÕGp,fP€Ÿl’sO2₩WÞÊP}P€[Ml@x€ǵn!%v<2WjÀEx4C₩d'C6

AAA

**aaa authorization config-commands** no AAA

**aaa authorization config-commands**

**no aaa authorization config-commands**

| | |
|---|---|
| - | - |

no

Ruijie(config)# aaa authorization config-commands

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authorization commands** | AAA |

| | |
|---|---|
| - | - |

## 38.2.3 aaa authorization console

AAA **aaa authorization console** no AAA

**aaa authorization console**

**no aaa authorization console**

| | |
|---|---|

| | |
|---|---|
| - | - |

RGOS

Ruijie(config)# aaa authorization console

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authorization commands** | AAA |
| **authorization commands** | |

| | |
|---|---|
| - | - |

## 38.2.4 aaa authorization exec

AAA NAS CLI Exec

**aaa authorization exec** no AAA Exec

**aaa authorization exec** {**default** | list-name} method1 [method2...]

**no aaa authorization exec** {**default** | list-name}

| | |
|---|---|
| **default** | Exec |
| list-name | Exec |
| method | “ local none group ” 4 |

| | |
|---|---|
| **local** | |
| **none** | |
| **group** | RADIUS<br>TACACS+ |

AAA Exec

RGOS NAS CLI CLI 0~15
Login Exec Exec
CLI
Exec Exec

RADIUS Exec
Ruijie(config)# aaa authorization exec default group radius

| | |
|---|---|
| **default** | Network |
| method | “ none group ” 4 |
| **none** | |
| **group** | RADIUS TACACS+ |

AAA Network

RGOS PPP SLIP

RADIUS TACACS+

RADIUS

Ruijie(config)# aaa authorization network default group radius

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa accounting** | AAA |
| **aaa authentication** | AAA |
| **username** | |

| | |
|---|---|
| - | - |

## 38.2.6 authorization commands

**authorization**

Exec **authorization exec**
no Exec

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

**no authorization exec**

| | |
|---|---|
| **default** | Exec |
| list-name | Exec |

AAA Exec

Exec
Exec
Exec Exec

exec-1 Exec RADIUS
none VTY 0 – 4

```
Ruijie(config)# aaa authorization exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization exec exec-1
```

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authorization commands** | AAA Exec |

| | |
|---|---|
| - | - |

# 38.3 š Ë - ‘ a —

## 38.3.1 aaa accounting commands

| | |
|---|---|
| - | - |

## 38.3.2 aaa accounting exec

NAS **aaa accounting exec** no Exec

**aaa accounting exec** {**default** | list-name} **start-stop** method1 [method2...]

**no aaa accounting exec** {**default** | list-name}

| | |
|---|---|
| **default** | Exec |
| list-name | Exec |
| method | “ **none** **group** ” 4 |
| **none** | |
| **group** | RADIUS TACACS+ |

RGOS Exec

none Exec

NAS CLI Start

Ò hu ک

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authentication** | AAA |
| **accounting commands** | Exec |

| | |
|---|---|
| - | - |

## 38.3.3 aaa accounting network

**aaa accounting network** no

**aaa accounting network** {**default** | list-name} **start-stop** method1 [method2...]

**no aaa accounting network** {**default** | list-name}

| | |
|---|---|
| **default** | Network |
| list-name | |
| **start-stop** | |
| method | 4 |
| **none** | |
| **group** | RADIUS<br>TACACS+ |

RGOS **start-stop**

RADIUS

Ruijie(config)# aaa accounting network default start-stop group radius

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa authorization network** | AAA |
| **aaa authentication** | AAA |
| **username** | |

| | |
|---|---|
| - | - |

## 38.3.4 aaa accounting update

**aaa accounting update**

no

**aaa accounting update**

**no aaa accounting update**

| | |
|---|---|
| - | - |

AAA AAA

Ruijie(config)# aaa new-model
Ruijie(config)#

| | |
|---|---|

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa accounting network** | |

| | |
|---|---|
| - | - |

## 38.3.5 aaa accounting update periodic

**aaa accounting update periodic**

aaa acinterva /C2_0 1Tf -0.0001 Tc -20005 Tw 242177 r-1.9.4 -.057aaa acno counting te periodic

| | |
|---|---|
| - | - |

## 38.3.6 accounting commands

**accounting commands**

no

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

**no accounting commands** level

| | |
|---|---|
| level | 0~15 |
| **default** | |
| list-name | |

cmd 15 TACACS+ none VTY 0 – 4

```
Ruijie(config)#  aaa accounting commands  15  cmd group tacacs+ none
Ruijie(config)#  line vty  0 4
Ruijie(config-line)#  accounting commands  15  cmd
```

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa accounting commands** | AAA |

| | |
|---|---|
| - | - |

## 38.3.7 accounting exec

Exec **accounting exec**
no Exec

**accounting exec** {**default** | list-name}

**no accounting exec**

| | |
|---|---|
| **default** | Exec |
| list-name | Exec |

Exec
Exec
Exec Exec

exec-1 Exec RADIUS
none VTY 0 – 4

```
Ruijie(config)# aaa accounting exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# accounting exec exec-1
```

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa accounting commands** | AAA Exec |

| | |
|---|---|
| - | - |

# 38.4 n 7 ` AAA û ` - ‘ a —

## 38.4.1 aaa domain

no

**aaa domain** {**default** | domain-name}

**no aaa domain** {**default** | domain-name}

| | |
|---|---|
| **default** | |
| domain-name | |

AAA default

domain-name

32

Ruijie(config)# aaa domain ruijie.com

Ruijie(config-aaa-domain)#

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa domain enable** | AAA |
| **show aaa domain** | |

## 38.4.2 aaa domain enable

AAA

AAA no

**aaa domain enable**

**no aaa domain enable**

ruijie.com 20

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# access-limit 20
```

Network

Network

Ruijie(config)# aaa domain

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa domain enable** | AAA |
| **show aaa domain** | |

| | |
|---|---|
| - | - |

## 38.4.6 authorization network

Network no

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

**no authorization network**

| | |
|---|---|
| **default** | |
| list-name | |

default

Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authorization network default

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa domain enable** | AAA |
| **show aaa domain** | |

| | |
|---|---|
| - | - |

## 38.4.7 state

no

**state** {**block** | **active**}

**no state**

| | |
|---|---|
| **block** | |
| **active** | |

Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# state block

| | |
|---|---|
| **aaa new-model** | AAA |
| **aaa domain enable** | AAA |
| **show aaa domain** | |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 38.4.8 show aaa domain

**show aaa domain** [**default** | domain-name]

| | |
|---|---|
| **default** | |
| domain-name | |

domain.com

## 38.4.9 username-format

NAS no

**username-format** {**without-domain** | **with-domain**}

**no username-format**

**aaa group server** {**radius** | **tacacs+**} name

**no aaa group server** {**radius** | **tacacs+**} name

| | |
|---|---|
| name | “ radius ” “ tacacs+ ” RADIUS TACACS+ |

AAA RADIUS TACACS+

```
Ruijie(config)#          aaa group server radius ss
Ruijie(config-gs-radius)#              end
Ruijie# show aaa group
Group Name: ss
Group Type: radius
Referred:  1
Server List:
```

| | |
|---|---|
| **show aaa group** | aaa |

| | |
|---|---|
| - | - |

## 38.5.2 ip vrf forwarding

AAA vrf no

**ip vrf forwarding** vrf_name

**no ip vrf forwarding**

| | |
|---|---|
| vrf_name | vrf |

Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12 acct-port 5 authen-port 6
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Group Name: ss
Group Type: radius
Referred: 2
Server List:
IP Address: 192.168.4.12
Authentication Port: 6
Accounting Port: 5
Referred: 1

| | |
|---|---|
| **aaa group server** | aaa |
| **show aaa group** | aaa |

| | |
|---|---|
| - | - |

## 38.5.4 show aaa group

AAA

**show aaa group**

| | |
|---|---|
| - | - |

Login

Ruijie# configure terminal
Ruijie(config)# aaa local authentication attempts 6

| | |
|---|---|
| **Show running-config** | |
| **Show aaa lockout** | login |

| | |
|---|---|
| - | - |

## 38.6.2 aaa local authentication lockout-time

login

**aaa local authentication lockout-time** lockout-time

| | |
|---|---|
| lockout-time | 1~2147483647 |

15

login

Ruijie# configure terminal
Ruijie(config)# a aa local authentication lockout-time 5

| | |
|---|---|

| | |
|---|---|
| **Show running-config** | |
| **Show aaa lockout** | login |

| | |
|---|---|
| - | - |

## 38.6.3 aaa new-model

RGOS AAA **aaa new-model** AAA **no** AAA

**aaa new-model**

**no aaa new-model**

| | |
|---|---|
| - | - |

AAA

AAA AAA **aaa new-model** AAA AAA AAA AAA

AAA

Ruijie(config)# aaa new-model

| | |
|---|---|
| **aaa authentication** | |
| **aaa authorization** | |
| **aaa accounting** | |

| | |
|---|---|

| | |
|---|---|
| - | - |

## 38.6.4 clear aaa local user lockout

**clear aaa local user lockout** {**all** | **user-name** <word>}

| | |
|---|---|
| <word> | ID |

Ruijie# clear aaa local user lockout all

| | |
|---|---|
| **show running-config** | |
| **show aaa lockout** | login |

EXEC

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 38.6.6 show aaa method-list

AAA

**show aaa method-list**

| | |
|---|---|
| - | - |

AAA

AAA

```
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 authorizating network default group radius

| | |
|---|---|
| **aaa authentication** | |
| **aaa authorization** | |
| **aaa accounting** | |

| | |
|---|---|
| - | - |

## 38.6.7 show aaa user lockout

**show aaa user lockout** {**all** | **user-name** <word>}

| | |
|---|---|
| <word> | ID |

Ruijie# show aaa user lockout all

| | |
|---|---|
| **show running-config** | |

| | |
|---|---|
| **show aaa lockout** | login |

| | |
|---|---|
| - | - |

# 39 SSH a —

## 39.1 SSH " - ‘ a —

### 39.1.1 crypto key generate

**crypto key generate** {**rsa | dsa**}

| | |
|---|---|
| **rsa** | RSA |
| **dsa** | DSA |

SSH Server

SSH Server SSH
**enable service ssh-server** SSH Server SSH 1 RSA SSH 2 RSA DSA RSA SSH1 SSH2 DSA SSH2

| | |
|---|---|
| **a** | **no crypto key generate** **crypto key zeroize** |

Ruijie# configure terminal
Ruijie(config)# crypto key generate rsa

| | |
|---|---|
| **show ip ssh** | SSH Server |
| **crypto key zeroize** {**rsa | dsa**} | DSA RSA SSH Server |

RGOS10.1

| | |
|---|---|

| | |
|---|---|
| retry times | |

3 **no ip ssh authentication-retries**

SSH Server SSH Server

**show ip ssh** 3

SSH

SSH VTY SSH

Ruijie# show ssh

| | |
|---|---|
| - | - |

RGOS10.1

| | |
|---|---|
| - | - |

# 40 CPU ł a —

## 40.1 " - ‘ a —

### 40.1.1 cpu-protect type packet-type pps pps_value

CPU

**cpu-protect type** { **arp** | **bpdu** | **dhcp** | **ipv6mc** | **igmp** | **rip** | **ospf** | **vrrp** | **pim** | **ttl1** | **unknown-ipmc** | **dvmrp** | …} **pps** pps_value

| | |
|---|---|
| pps_value | |

CPU 1000

CPU BPDU

Ruijie(config)# cpu-pr type bpdu pps 100

Set packet type bpdu pps 100 .

| | |
|---|---|
| **cpu-protect type packet-type pri** pri_num | CPU |

3 ‘Hʀ Λ Ş ƀ ! ś Ş #

CPU

**cpu-protect type** { **arp** | **bpdu** | **dhcp** | **ipv6mc** | **igmp** | **rip** | **ospf** | **vrrp** | **pim** | **ttl1** | **unknown-ipmc** | **dvmrp** | …} **pri** pri_num

| | |
|---|---|
| pri_num | ID 0 7 |

0

BPDU 7

Ruijie(config)# cpu-protect type bpdu pri 7

Set packet type bpdu pri 7.

| | |
|---|---|
| **cpu-protect type packet-type pps** pps_value | |

| | |
|---|---|
| - | - |

# 40.2 ¡ µ - ‘ a —

## 40.2.1 show cpu-protect mboard

CPU

**show cpu-protect mboard**

CPU

| | |
|---|---|
| slot_num | 1-16 |

# 41 DoS ｜ a —

## 41.1 " - ‘ a —

### 41.1.1 ip deny invalid-l4port

**no**

**ip deny invalid-l4port**

**no ip deny invalid-l4port**

**no ip deny invalid-tcp**

| | |
|---|---|
| - | - |

TCP

1 TCP

Ruijie(config)# ip deny invalid-tcp

2 TCP

Ruijie(config)# no ip deny invalid-tcp

| | |
|---|---|
| **show ip deny invalid-tcp** | TCP |

| | |
|---|---|
| - | - |

## 41.1.3 ip deny land

Land **no** Land

**ip deny land**

**no ip deny land**

| | |
|---|---|
| | |

Land

1 Land

Ruijie(config)# ip deny land

2 Land

Ruijie(config)# no ip deny land

| | |
|---|---|
| **show ip deny land** | Land |

| | |
|---|---|
| | |

-

| | |
|---|---|
| - | - |

## 41.2.2 show ip deny invalid-tcp

TCP

**show ip deny invalid-tcp**

| | |
|---|---|
| - | - |

Ruijie# show ip deny invalid-tcp
DoS Protection Mode State
---------- -----
protect against invalid tcp attack On

| | |
|---|---|
| (**no**) **ip deny invalid-tcp** | TCP |

| | |
|---|---|
| - | - |

## 41.2.3 show ip deny land

Land

**show ip deny land**

| | |
|---|---|

| | |
|---|---|
| - | - |

Ruijie# show ip deny land
DoS Protection Mode State
------------------------------ -----
protect against land attack On

| | |
|---|---|
| (**no**) **ip deny land** | Land |

| | |
|---|---|
| - | - |

# 42 DAI a —

## 42.1 s ä ‘ ž G VLAN DAI q 3 ¿ _ Ÿ a —

### 42.1.1 ip arp inspection vlan

vlan-id VLAN DAI no vlan-id VLAN DAI vlan-id VLAN DAI

**ip arp inspection vlan** vlan-id

**no ip arp inspection vlan** [vlan-id]

| | |
|---|---|
| vlan-id | vlan |

VLAN DAI

DAI

VLAN 1 ARP

Ruijie(config)# ip arp inspection

Ruijie(config)# ip arp inspection vlan 1

| | |
|---|---|
| **show ip arp inspection vlan** | VLAN DAI |

# 42.2 • j Ç ¾ î ¶ ð " a —

## 42.2.1 ip arp inspection trust

**ip arp inspection trust no**

**ip arp inspection trust**

**no ip arp inspection trust**

| | |
|---|---|
| - | - |

ARP DAI
ARP

NFPP( ) NFPP
DAI **show ip arp inspection interface**

gigabitEthernet 0/19

```
Ruijie(config)#  interface gigabitEthernet  0/19
Ruijie(config-if)#  ip arp inspection trust
```

| | |
|---|---|
| | **$ È ñ 0A Xÿ– ö !sC–næXAÈ â** |

VLAN DAI ARP
ARP DHCP Snooping .
DHCP Snooping DHCP
Snooping

# 43 ½ ‘ arp Z , a —

## 43.1 ½ ‘ar p Z , " a —

### 43.1.1 anti-arp-spoofing ip

arp no

**anti-arp-spoofing ip** ip-address

**no anti-arp-spoofing ip** ip-address

| | |
|---|---|
| Ip-address | IP |

**show anti-arp-spoofing**

Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# anti-arp-spoofing ip 192.168.1.1

| | |
|---|---|
| **show anti-arp-spoofing** | arp |

# 44 IP Source Guard a —

## 44.1 IP Source Guard æ e a —

### 44.1.1 ip source binding

IP **no**

[**no**] **ip source binding** mac-address **vlan** vlan-id ip-address **interface** interface-id

| | |
|---|---|
| mac-address | MAC |
| vlan-id | vlan id |
| ip-address | IP |
| interface-id | |

IP Source Guard DHCP

1

```
Ruijie#  configure terminal
Ruijie(config)#  ip source binding  0000.0000.0001  vlan  1  1.1.1.1
interface FastEthernet  0/1
Ruijie(config)#  end
Ruijie#  show ip source binding
MacAddress  IpAddress Lease(sec)  Type  VLAN Interface
------------- --------- ----------  ----  ---- ------------
0000.0000.0001 1.1.1.1  infinite  static  1 FastEthernet 0/1
Total number of bindings: 1
```

| | |
|---|---|

| | |
|---|---|
| **show ip source binding** | IP |

| | |
|---|---|
| - | - |

# 44.2 IP Source Guard Ç f ´ a —

## 44.2.1 ip verify source

IP Source Guard **no**

| | |
|---|---|
| - | - |

## 44.3.2 show ip verify source

IP Source Guard

**show ip verify source** [**interface** interface-id]

| | |
|---|---|
| interface-id | |

**interface** IP Source Guard

"IP source guard is not configured on the interface FastEthernet 0/10"

IP Source Guard ( **mode** )

- **inactive-no-snooping-vlan** DHCP Snooping
- **inactive-trust-port** DHCP Snooping
- **active** DHCP Snooping

```
Ruijie #       show ip verify source
Interface Filter-type Filter-mode Ip-address Mac-address   VLAN
--------- ----------- ----------- ---------- -------------- ----
FastEthernet 0/3   ip       active     3.3.3.3                1
FastEthernet 0/3   ip       active     deny-all
FastEthernet 0/4   ip+mac   active     4.4.4.4   0000.0000.0001  1
FastEthernet 0/4   ip+mac   active     deny-all
```

| | |
|---|---|
| **ip verify source** | IP Source Guard |

| | |
|---|---|
| - | - |

# 45 NFPP a —

## 45.1 " $ + q 3 m « Ö Û Ú - ‘ a —

### 45.1.1 cpu-protect sub-interface {manage|protocol|route} pps

**cpu-protect sub-interface {**manage **|**protocol **|**route **} pps** pps_vaule

**cpu-protect sub-interface** {manage|protocol|route} **percent** percent_vaule

| | |
|---|---|
| percent_vaule | 1 100 |

(Manage) 30
(Route) 25
(Protocol) 45

Ruijie(config)# cpu-protect sub-interface manage percent 60

| | |
|---|---|
| **cpu-protect sub-interface** { manage \| protocol \| route } **pps** | |

| | |
|---|---|
| - | - |

# 45.3 ARP ¦ ^ | " - ‘ a —

## 45.3.1 arp-guard attack-threshold

**arp-guard attack-threshold** {**per-src-ip** | **per-src-mac** | } pps

| | |
|---|---|
| **per-src-ip** | IP |
| **per-src-mac** | MAC |
| **per-port** | |

| | |
|---|---|
| pps | [1,9999] |

IP MAC 8
200

NFPP

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

| | |
|---|---|
| **nfpp arp-guard policy** | |
| **show nfpp arp-guard summary** | |
| **show nfpp arp-guard hosts** | |
| **clear nfpp arp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.3.2 arp-guard enable

ARP

**arp-guard enable**

| | |
|---|---|
| - | - |

ARP

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard enable

| | |
|---|---|
| **nffp arp-guard enable** | ARP |
| **show nfpp arp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.3.3 arp-guard isolate-period

**arp-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400] |
| **permanent** | |

0

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard isolate-period 180

| | |
|---|---|
| **nfpp arp-guard isolate-period** | |
| **show nfpp arp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.3.4 arp-guard monitor-period

**arp-guard monitor-period** seconds

| | |
|---|---|
| seconds | [180, 86400] |

600

NFPP

” 0

0

”

Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitor-period 180

| | |
|---|---|
| **show nfpp arp-guard summary** | |
| **show nfpp arp-guard hosts** | |
| **clear nfpp arp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.3.5 arp-guard monitored-host-limit

**arp-guard monitored-host-limit** number

| | |
|---|---|
| number | 1<br>4294967295 |

1000

NFPP

1000

1000 “ %ERROR The value that you configured is smaller than current monitored hosts 1000 please clear a part of monitored hosts. ”

“ % NFPP_ARP_GUARD-4-SESSION_LIMIT: Attempt to exceed limit of 1000 monitored hosts. ”

Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitored-host-limit 200

| | |
|---|---|
| **show nfpp arp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.3.6 arp-guard rate-limit

**arp-guard rate-limit {per-src-ip | per-src-mac | per-port}** pps

| | |
|---|---|
| **per-src-ip** | IP |
| **per-src-mac** | MAC |
| **per-port** | |
| pps | [1,9999] |

IP MAC 4
100

NFPP

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

| | |
|---|---|
| **nfpp arp-guard policy** | |
| **show nfpp arp-guard summary** | |

NFPP

10 15 ARP MAC IP
MAC IP IP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard scan-threshold 20

| | |
|---|---|
| **nfpp arp-guard scan-threshold** | |
| **show nfpp arp-guard summary** | |
| **show nfpp arp-guard scan** | ARP |
| **clear nfpp arp-guard scan** | ARP |

| | |
|---|---|
| - | - |

## 45.3.8 clear nfpp arp-guard hosts

**clear nfpp arp-guard hosts** [**vlan** vid] [**interface** interface-id] [ip-address | mac-address]

| | |
|---|---|
| vid | |
| interface-id | |
| ip-address | IP |
| mac-address | MAC |

| | |
|---|---|
| seconds | 0 [30, 86400]<br>0 |
| **permanent** | |

permanen-sT6rc-in/C2_0 1 Tf0 Tc 15.461790115 Td[<3501542615F21A303FE4812464CTT0 1 Tf( )Ti01 Tc84
permashowrp-guT6ard-suT6mmary/C2_0 1 Tf0 Tc 15.466.95803 952 Td[<197901DB9699F542e1F5105B

```
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
```

| | |
|---|---|
| **arp-guard attack-threshold** | |
| **arp-guard rate-limit** | |
| **show nfpp arp-guard summary** | |
| **show nfpp arp-guard hosts** | |
| **clear nfpp arp-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.3.13 nfpp arp-guard scan-threshold

**nfpp arp-guard scan-threshold** pkt-cnt

| | |
|---|---|
| pkt-cnt | [1,9999] |

ARP ARP

Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard scan-threshold 20

| | |
|---|---|
| **arp-guard scan-threshold** | |
| **show nfpp arp-guard summary** | |
| **show nfpp arp-guard scan** | ARP |
| **clear nfpp arp-guard scan** | ARP |

| | |
|---|---|
| | |

10.4

## 45.4 DHCP ¦ ^ | " - ‘ a —

### 45.4.1 dhcp-guard attack-threshold

**dhcp-guard attack-threshold** { **per-src-mac** | **per-port**} pps

| | |
|---|---|
| **per-src-mac** | MAC |
| **per-port** | |
| pps | [1,9999] |

MAC 10 300

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-port 200

| | |
|---|---|
| **nfpp dhcp-guard policy** | |
| **show nfpp dhcp-guard summary** | |
| **show nfpp dhcp-guard hosts** | |
| **clear nfpp dhcp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.4.2 dhcp-guard enable

DHCP

**dhcp-guard enable**

| | |
|---|---|
| - | - |

**DHCP** config)#13542>TT5 DHCP9.62.0203 Tnfpp13542>TT4 1 Tf 119.62.- 14 Tr01C4Ruijie(config-nfpp)#13542>T

NFPP

| | |
|---|---|
| - | - |

## 45.4.3 dhcp-guard isolate-period

**dhcp-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400]<br>0 |
| **permanent** | |

0

**8"¯Á•´ã** NFPP

= Ŗ

NFPP

1000

1000 “ %ERROR The value that you configured is smaller than current monitored hosts 1000 please clear a part of monitored hosts. ”

“ % NFPP_DHCP_GUARD-4-SESSION_LIMIT: Attempt to exceed limit of 1000 monitored hosts. ”

Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200

| | |
|---|---|
| **show nfpp dhcp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.4.6 dhcp-guard rate-limit

**dhcp-guard rate-limit** { **per-src-mac** | **per-port**} pps

| | |
|---|---|
| **per-src-mac** | MAC |
| **per-port** | |
| pps | [1,9999] |

MAC 5 150

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcp-guard rate-limit per-port 100

| | |
|---|---|
| **nfpp dhcp-guard policy** | |
| **show nfpp dhcp-guard summary** | |

| | |
|---|---|
| - | - |

| | |
|---|---|
| **show nfpp dhcp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.4.8 nfpp dhcp-guard enable

DHCP

**nfpp dhcp-guard enable**

| | |
|---|---|
| - | - |

DHCP

DHCP DHCP

```
Ruijie(config)#          interface G0/1
Ruijie(config-if)#           nfpp    dhcp-guard enable
```

| | |
|---|---|
| **dhcp-guard enable** | DHCP |
| **show nfpp dhcp-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.4.9 nfpp dhcp-guard isolate-period

**nfpp dhcp-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400]<br>0 |
| **permanent** | |

Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard isolate-period 180

| | |
|---|---|
| **dhcp-guard isolate-period** | |
| **show nfpp dhcp-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.4.10 nfpp dhcp-guard policy

**nfpp dhcp-guard policy** { **per-src-mac** | **per-port**} rate-limit-pps attack-threshold-pps

| | |
|---|---|

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

| | |
|---|---|
| **dhcp-guard attack-threshold** | |
| **dhcp-guard rate-limit** | |
| **show nfpp dhcp-guard summary** | |
| **show nfpp dhcp-guard hosts** | |
| **clear nfpp dhcp-guard hosts** | |

| | |
|---|---|
| 10.4 | |

# 45.5 ICMP ¦ ^ l " - ‘ a —

## 45.5.1 icmp-guard attack-threshold

**icmp-guard attack-threshold** { **per-src-ip** | **per-port**} pps

| | |
|---|---|

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard attack-threshold per-src-ip 600
Ruijie(config-nfpp)# icmp-guard attack-threshold per-port 1200

| | |
|---|---|
| **nfpp icmp-guard policy** | |
| **show nfpp icmp-guard summary** | |
| **show nfpp icmp-guard hosts** | |
| **clear nfpp icmp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.5.2 icmp-guard enable

ICMP

**icmp-guard enable**

| | |
|---|---|
| - | - |

ICMP

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard enable

| | |
|---|---|
| **nffp icmp-guard enable** | ICMP |
| **show nfpp icmp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.5.3 icmp-guard isolate-period

**icmp-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400]<br>0 |
| **permanent** | |

0

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard isolate-period 180

| | |
|---|---|
| **nfpp icmp-guard isolate-period** | |
| **show nfpp icmp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.5.4 icmp-guard monitor-period

**icmp-guard monitor-period** seconds

| | |
|---|---|
| seconds | [180, 86400] |

600

NFPP

” 0

0

”

Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitor-period 180

| | |
|---|---|
| **show nfpp icmp-guard summary** | |
| **show nfpp icmp-guard hosts** | |
| **clear nfpp icmp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.5.5 icmp-guard monitored-host-limit

**icmp-guard monitored-host-limit** number

| | |
|---|---|
| number | 1<br>4294967295 |

1000

NFPP

| | |
|---|---|
| pps | [1,9999] |

IP 900 1000

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard rate-limit per-src-ip 500
Ruijie(config-nfpp)# icmp-guard rate-limit per-port 800
```

| | |
|---|---|
| **nfpp icmp-guard policy** | |
| **show nfpp icmp-guard summary** | |

| | |
|---|---|
| - | - |

## 45.5.7 icmp-guard trusted-host

**icmp-guard trusted-host** ip mask

**no icmp-guard trusted-host** {**all |** ip mask}

| | |
|---|---|
| ip | IP |
| mask | IP |
| **all** | no |

NFPP

CPU ICMP CPU

500

Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guardtrusted-host 1.1.1.0255.255.255.0

| | |
|---|---|

**show nfpp icmp-guard trusted-host**

| | |
|---|---|
| **nfpp icmp-guard policy** | |
| **show nfpp icmp-guard hosts** | |

| | |
|---|---|
| - | - |

## 45.5.9 nfpp icmp-guard enable

ICMP

**nfpp icmp-guard enable**

| | |
|---|---|
| - | - |

ICMP

ICMP ICMP

```
Ruijie(config)#          interface G0/1
Ruijie(config-if)#           nfpp    icmp-guard enable
```

| | |
|---|---|
| **icmp-guard enable** | ICMP |
| **show nfpp icmp-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.5.10 nfpp icmp-guard isolate-period

**nfpp icmp-guard isolate-period** {seconds | **permanent**}

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

| | |
|---|---|
| **icmp-guard attack-threshold** | |
| **icmp-guard rate-limit** | |
| **show nfpp icmp-guard summary** | |
| **show nfpp icmp-guard hosts** | |
| **clear nfpp icmp-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6 IP ½ A M " - ‘ a —

IP

„ ip-guard attack-threshold
„ ip-guard enable
„ ip-guard isolate-period
„ ip-guard monitor-period
„ ip-guard monitored-host-limit
„ ip-guard rate-limitt
„ ip-guard scan-threshold
„ ip-guard trusted-host
„ clear nfpp ip-guard hosts
„ nfpp ip-guard enable
„ nfpp ip-guard isolate-period
„ nfpp ip-guard policy

„ nfpp ip-guard scan-threshold

| | |
|---|---|
| a | IP IP IP IP<br>IP IP IP CPP CPU Protect Policy<br>IP IP |

## 45.6.1 ip-guard attack-threshold

**ip-guard attack-threshold** {**per-src-ip** | **per-port**} pps

| | |
|---|---|
| **per-src-ip** | IP |
| **per-port** | |
| pps | [1,9999] |

IP 20 200

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# ip-guard attack-threshold per-port 50

| | |
|---|---|
| **nfpp ip-guard policy** | |
| **show nfpp ip-guard summary** | |
| **show nfpp ip-guard hosts** | |
| **clear nfpp ip-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6.2 ip-guard enable

IP

**ip-guard enable**

| | |
|---|---|
| - | - |

IP

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard enable

| | |
|---|---|
| **nffp ip-guard enable** | IP |
| **show nfpp ip-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.6.3 ip-guard isolate-period

**ip-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400] |
| **permanent** | |

0

NFPP

[redacted]

[redacted]

Ruijie(config)# nfpp

Ruijie(config-nfpp)# ip-guard isolate-period 180

| | |
|---|---|
| **nfpp ip-guard isolate-period** | |
| **show nfpp ip-guard summary** | |

| | | |
|---|---|---|

Ruijie(config-nfpp)# ip-guard monitor-period 180

| | |
|---|---|
| **show nfpp ip-guard summary** | |
| **show nfpp ip-guard hosts** | |
| **clear nfpp ip-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6.5 ip-guard monitored-host-limit

**ip-guard monitored-host-limit** number

| | |
|---|---|
| number | 1<br>4294967295 |

1000

NFPP

1000

| | |
|---|---|
| **show nfpp ip-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.6.6 ip-guard rate-limit

**ip-guard rate-limit {per-src-ip | per-port}** pps

| | |
|---|---|
| **per-src-ip** | IP |
| **per-port** | |
| pps | [1,9999] |

IP 20 100

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# ip-guard rate-limit per-port 50

| | |
|---|---|
| **nfpp ip-guard policy** | |
| **show nfpp ip-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.6.7 ip-guard scan-threshold

NFPP

CPU IP CPU

500

1.1.1.0/24

Ruijie(config)# nfpp

Ruijie(config-nfpp)#ip-guard trusted-host 1.1.1.0 255.255.255.0

| | |
|---|---|
| **show nfpp ip-guard trusted-hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6.9 clear nfpp ip-guard hosts

**clear nfpp ip-guard hosts** [**vlan** vid] [**interface** interface-id] [ip-address]

| | |
|---|---|
| vid | |
| interface-id | |
| ip-address | IP |

VLAN 1 g 0/1

Ruijie# clear nfpp ip-guard hosts vlan 1 interface g0/1

| | |
|---|---|
| **ip-guard attack-threshold** | |
| **nfpp ip-guard policy** | |
| **show nfpp ip-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6.10 nfpp ip-guard enable

IP

**nfpp ip-guard enable**

| | |
|---|---|
| - | - |

IP

IP

Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp ip-guard enable

| | |
|---|---|
| **ip-guard enable** | IP |
| **show nfpp ip-guard summary** | |

| | |
|---|---|

| | |
|---|---|
| 10.4 | |

## 45.6.11 nfpp ip-guard isolate-period

**nfpp ip-guard isolate-period** {seconds | **permanent**}

| | |
|---|---|
| seconds | 0 [30, 86400]<br>0 |
| **permanent** | |

| per-port | |
|---|---|
| rate-limit-pps | 1 9999 |
| attack-threshold-pps | 1 9999 |

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

| | |
|---|---|
| **ip-guard attack-threshold** | |
| **ip-guard rate-limit** | |
| **show nfpp ip-guard summary** | |
| **show nfpp ip-guard hosts** | |
| **clear nfpp ip-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.6.13 nfpp ip-guard scan-threshold

**nfpp ip-guard scan-threshold** pkt-cnt

| | |
|---|---|
| pkt-cnt | [1,9999] |

IP ARP

Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard scan-threshold 20

| | |
|---|---|
| **ip-guard scan-threshold** | |
| **show nfpp ip-guard summary** | |

| | |
|---|---|
| 10.4 | |

# 45.7 ND ¦ ^ | " - ‘ a —

## 45.7.1 nd-guard attack-threshold

**nd-guard attack-threshold per-port** {**ns-na** | **rs** | **ra-redirect**} pps

| | |
|---|---|
| **ns-na** | |
| **rs** | |
| **ra-redirect** | |
| pps | [1,9999] |

0 Ä

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-redir
ect 10

| | |
|---|---|
| **nfpp nd-guard policy** | |
| **show nfpp nd-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.7.2 nd-guard enable

ND

**nd-guard enable**

| | |
|---|---|
| - | - |

ND

NFPP

Ruijie(config)# nfpp
Ruijie(config-nfpp)# nd-guard enable

| | |
|---|---|
| **nffp nd-guard enable** | ND |
| **show nfpp nd-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.7.3 nd-guard rate-limit

**nd-guard rate-limit per-port** {**ns-na** | **rs** | **ra-redirect**} pps

| | |
|---|---|
| **ns-na** | |
| **rs** | |
| **ra-redirect** | |
| pps | [1,9999] |

/ 15

15 / 15

NFPP

```
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
```

| | |
|---|---|
| **nfpp nd-guard policy** | |
| **show nfpp nd-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.7.4 nfpp nd-guard enable

ND

**nfpp nd-guard enable**

| | |
|---|---|
| - | - |

ND

ND

Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp nd-guard enable

| | |
|---|---|
| **nd-guard enable** | ND |
| **show nfpp nd-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.7.5 nfpp nd-guard policy

**nfpp nd-guard policy per-port** {**ns-na** | **rs** | **ra-redirect**} rate-limit-pps attack-threshold-pps

| | |
|---|---|
| **ns-na** | |
| **rs** | |
| **ra-redirect** | |

| | |
|---|---|
| rate-limit-pps | 1 9999 |
| attack-threshold-pps | 1 9999 |

ND snooping

ND snooping ND snooping
ND guard 800
900
ND guard ND snooping
ND snooping

```
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     1020
```

| | |
|---|---|
| **nd-guard attack-threshold** | |
| **nd-guard rate-limit** | |
| **show nfpp nd-guard summary** | |

| | |
|---|---|
| 10.4 | |

## 45.8 NFPP " - ‘ a —

### 45.8.1 clear nfpp log

NFPP

**clear nfpp log**

| | |
|---|---|
| - | - |

Ruijie# clear nfpp log

32 log-buffer entries were cleared.

| | |
|---|---|
| **show nfpp log** | NFPP |

| | |
|---|---|
| 10.4 | |

## 45.8.2 log-buffer entries

NFPP

**log-buffer entries** number

| | |
|---|---|
| number | [0,1024] |

256

NFPP

NFPP 50

```
Ruijie(config)#  nfpp
Ruijie(config-nfpp)#  log-buffer entries  50
```

| | |
|---|---|
| **log-buffer logs** number_of_message **interval** length_in_seconds | NFPP |
| **show nfpp log** | NFPP |

| | |
|---|---|
| 10.4 | |

## 45.8.3 log-buffer logs

NFPP

**log-buffer logs** number_of_message **interval** length_in_seconds

| | |
|---|---|
| number_of_message | 0-1024 0 |
| length_in_seconds | 0-86400 1 0<br>number_of_message length_in_seconds 0<br>number_of_message /length_in_second |

number_of_message 1 length_in_seconds 30

NFPP

```
Ruijie(config)#  nfpp
Ruijie(config-nfpp)#  log-buffer logs  2 interval  12
```

| | |
|---|---|
| log-buffer entries number | NFPP |
| show nfpp log summary | NFPP |

| | |
|---|---|
| 10.4 | |

## 45.8.4 logging

NFPP VLAN

**logging vlan** vlan-range

**logging interface** interface-id

| | |
|---|---|
| show nfpp log summary | NFPP |

| | |
|---|---|
| 10.4 | |

## 45.8.5 show nfpp log

NFPP

**show nfpp log summary**

NFPP

**show nfpp log buffer** [**statistics**]

| | |
|---|---|
| **statistics** | NFPP |

”-”

%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)

NFPP

```
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
```

NFPP

```
Ruijie#    show nfpp log buffer statistics
There are 6 logs in buffer.
```

NFPP

```
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
```

Protocol

- ARP ARP
- IP IP
- ICMP ICMP
- DHCP DHCP
- NS-NA ND
- RS ND
- RA-REDIRECT ND

Reason 5

- DoS
- ISOLATED
- ISOLATE_FAILED
- SCAN
- PORT_ATTACKED

| | |
|---|---|
| | |

2 “ remain-time(seconds) ”

Ruijie# show nfpp arp-guard hosts

If column 1 shows '*', it means "hardware do not isolate user" .

Ruijie# show nfpp arp-guard scan statistics
ARP scan table has 4 record(s).

“ ARP 4 ”

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)

“ timestamp ” ARP “ 2008-01-23 16:23:10 ”
2008 1 23 16 23 10 ARP

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)

| | |
|---|---|
| **arp-guard scan-threshold** | |
| **nfpp arp-guard scan-threshold** | |
| **clear nfpp arp-guard scan** | ARP |

| | |
|---|---|
| - | - |

## 45.9.3 show nfpp arp-guard summary

**show nfpp arp-guard summary**

| | |
|---|---|
| **arp-guard rate-limit** | |
| **arp-guard scan-threshold** | |
| **nfpp arp-guard enable** | ARP |
| **nfpp arp-guard isolate-period** | |
| **nfpp arp-guard policy** | |
| **nfpp arp-guard scan-threshold** | |

| | |
|---|---|
| - | - |

# 45.10

------- ---- -----

100 20 120

120 100 20

“ remain-time(seconds) ”

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)

| | |
|---|---|
| **clear nfpp dhcp-guard hosts** | |

| | |
|---|---|
| 10.4 | |

## 45.10.2 show nfpp dhcp-guard summary

**show nfpp dhcp-guard summary**

| | |
|---|---|
| - | - |

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 |

**show nfpp icmp-guard hosts** [**statistics** | [[**vlan** vid] [**interface** interface-id] [ip-address]]]

| | |
|---|---|
| **statistics** | |
| vid | |
| interface-id | |
| ip-address | IP |

Ruijie#**show nfpp icmp-guard hosts statistics**

success fail total

------- ---- -----

100 20 120

“ 120 100 20 ”

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)

| | |
|---|---|
| **clear nfpp icmp-guard hosts** | |

| | |
|---|---|
| 10.4 | |

| | |
|---|---|
| **icmp-guard rate-limit** | |
| **nfpp icmp-guard enable** | ICMP |
| **nfpp icmp-guard isolate-period** | |
| **nfpp icmp-guard policy** | |

| | |
|---|---|
| 10.4 | |

## 45.11.3 show nfpp icmp-guard trusted-host

**show nfpp icmp-guard trusted-host**

| | |
|---|---|
| - | - |

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)

| | |
|---|---|
| **icmp-guard trusted-host** | |

| | |
|---|---|
| 10.4 | |

## 45.12 IP ½ A M ¡ µ - ‘ a —

- **„ show nfpp ip-guard hosts**
- **„ show nfpp ip-guard summary**
- **„ show nfpp ip-guard trusted-host**

### 45.12.1 show nfpp ip-guard hosts

**show nfpp ip-guard hosts** [**statistics** | [[**vlan**

| | | | | |
|---|---|---|---|---|
| ---- | -------- | ---------- | -------- | ---------- |
| 1 | Gi0/1 | 1.1.1.1 | ATTACK | 110 |

1 Interface Global

2 Status

3 Rate-limit IP / MAC /
Attack-threshold " - "

| | |
|---|---|
| **ip-guard attack-threshold** | |
| **ip-guard enable** | IP |
| **ip-guard isolate-period** | |
| **ip-guard monitor-period** | |
| **ip-guard monitored-host-limit** | |
| **ip-guard rate-limit** | |
| **nfpp ip-guard enable** | IP |
| **nfpp ip-guard isolate-period** | |
| **nfpp ip-guard policy** | |

| | |
|---|---|
| 10.4 | |

**45.12.3 C25.605 -0.006 Td Tm[0A51>64B8095A09C6]2 TjET6dTow ( )]TJCTc 0 trust**

```
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)
```

| | |
|---|---|
| **ip-guard trusted-host** | |

| | |
|---|---|
| 10.4 | |

| | |
|---|---|
| cos cos | cos (0-7) |
| cos inner cos | tag cos |
| icmp-type | ICMP 0-255 |
| icmp-code | ICMP 0-255 |
| icmp-message | ICMP |
| operator port[port] | Operator lt- eq- gt- neq- range- port |
| src-mac-addr | |
| dst-mac-addr | |
| VID vid | vlan id |
| VID inner vid | tag vid |
| ethernet-type | 0x |
| match-all tcpf | tcp flag |
| text | |
| in | |
| out | |
| {rule mask offset}+ | rule mask offset “+” |

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

| | | | | | |
|---|---|---|---|---|---|
| A | MAC | 0 | O | TTL | 34 |
| B | MAC | 6 | P | | 35 |
| C | | 12 | Q | IP | 36 |
| D | VLAN tag | 14 | R | ip | 38 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | E | DSAP( ) | 18 | S | ip | 42 |
| | F | SSAP( ) | 19 | T | TCP | 46 |
| | G | Ctrl | 20 | U | TCP | 48 |
| | H | Org Code | | | | |

destination-mac-address | **any**} ][**precedence** precedence] [**tos** tos] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

„ Ethernet-type cos

**access-list** id {**deny** | **permit**} {ethernet-type| **cos** [out][ **inner** in]} [**VID** [out][**inner** in]] {**s**ource 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]

„ Protocol

**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] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

„ Expert

**Internet Control Message Protocol** (ICMP)

**access-list** id {**deny** | **permit**}[**VID** [out][**inner** st source-wildcard

| | |
|---|---|
| **Permit** | |
| Source | |
| source-wildcard | 0.255.0.32 |
| protocol | IP EIGRP GRE IPINIP IGMP NOS OSPF ICMP UDP TCP IP IP 0-255 ICMP/TCP/UDP |
| Destination | |
| destination-wildcard | |

**fprecedence**

precedence 0-7

range y [,X ¯ 0Ã · Ë8× È

| | |
|---|---|
| lower | |
| upper | |

| | |
|---|---|
| time-range-name | |
| tos y [,X á u2O _ | |
| tos 0-15 | |
| icmp-type | ICMP 0-589255 |
| icmp-code | ICMP 0-255 |
| icmp-message | ICMP |
| operator lt- eq- gt- neq- range- | |
| port [ port ] | range |
| host source-mac-address | |
| host destination-mac-address | |
| VID vid ûuXd | |
| ethernet-type | |
| tcp-flag | tcp flag |

ACL



fragm.589C.6651s

- general-parameter-problem
- host-isolated
- host-precedence-unreachable
-

„ cmd
„ daytime
„ discard
„ domain
„ echo
„ exec
„ finger
„ ftp
„ ftp-data
„ gopher
„ hostname
„ ident
„ irc
„ klogin
„ kshell
„ login
„ nntp
„ pim-auto-rp
„ pop2
„ pop3
„ smtp
„ sunrpc
„ syslog
„ tacacs
„ talk
„ telnet
„ time
„ uucp
„ whois
„ www

UDP UDP

„ 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

Ethernet-type

„ aarp
„ arp
„ appletalk
„ decnet-iv
„ diagnostic
„ etype-6000
„ etype-8042
„ lat
„ lavc-sca
„ mop-console
„ mop-dump
„ mumps
„ netbios
„ vines-echo
„ xns-idp

1 IP

IP 192.168.1.64 - 192.168.1.127

Ruijie(config)# access-list 1 permit 192.168.1.64 0.0.0.63

2 IP

IP DNS ICMP

Ruijie(config)# access-list 102 permit tcp any any eq domain

Ruijie(config)# access-list 102 permit udp any any eq domain

Ruijie(config)# access-list 102 permit icmp any any echo

Ruijie(config)# access-list 102 permit icmp any any echo-reply

3 MAC

MAC 00d0f8000c0c 100

1

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 Expert

Expert Extended ACL ACL IP

192.168.12.3 MAC 00d0.f800.0044 TCP

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

| | |
|---|---|
| **show access-lists** | |
| **mac access-group** | MAC |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.1.2 deny

(deny)

ACL

[sn] **deny protocol** [[**VID** [out][**inner** in]]] {source source-wildcard | **host** source | **any**} {**host** source-mac-address | **any** } {destinationdestination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [**precedence** precedence] [**tos** tos] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

c) expert

„ **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] [**fragments**] [**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] [**fragments**] [**range** lower upper] [**time-range** time-range-name] [**match-all** tcp-flag]

„ **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] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

„ **Address Resolution Protocol** (ARP)

[sn] **deny arp** {**vid** vlan-id}[ source-mac-address source-wildcard |**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**}

„ **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] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

| | |
|---|---|
| Sn | ACL |
| prefix-length | |
| **dscp** | |
| dscp | 0-63. |
| **flow-label** | |

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
IP ACL IP 192.168.4.12
1
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

| | |
|---|---|
| **show access-lists** | |
| **ip access-group** | IP ACL |
| **mac access-group** | MAC ACL |
| **ip access-list** | IP ACL |
| **mac access-list** | MAC ACL |
| **expert access-list** | ACL |
| **permit** | |

| | |
|---|---|
| | V10.0 arp |

V10.0

| | |
|---|---|
| id | Expert 2700-2899 |
| name | Expert |
| **in** | |
| **out** | |

Expert ACL

ACL **show access-group**

access-list accept_00d0f8xxxxxx_only Gigabit 1
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if)# expertaccess-groupaccept_00d0f8xxxxxx_onlyin

| | |
|---|---|
| **show access-group** | ACL |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.1.4 expert access-list

ACL **no** ACL

**expert access-list extended** {id | name}

**no expert access-list extended** {id | name}

| | |
|---|---|
| Id | Expert 2700-2899 |
| name | ACL |

Expert ACL

**show expert access-lists**

1 ACL

```
Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# show expert access-lists
expert access-list extended exp-acl
Ruijie(config-exp-nacl)#
```

2 ACL

```
Ruijie(config)# expert access-list extended 2704
Ruijie(config-exp-nacl)# show expert access-lists
expert access-list extended 2704
Ruijie(config-exp-nacl)#
```

| | |
|---|---|
| **show expert access-lists** | |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.1.5 ip access-group

**ip access-group** no

**ip access-group** {id | name} {**in** | **out**}

**no ip access-group** { id | name} {**in** | **out**}

| | |
|---|---|
| id | IP 1-199 1300-2699 |
| name | IP |
| **in** | |
| **out** | |

ACL

**ip access-group**

fastEthernet0/0 120

```
Ruijie(config)#  interface fastEthernet  0/0
Ruijie(config-if)#  ip access-group  120 in
```

| | |
|---|---|
| **access-list** | |
| **show access-lists** | |
| **show ip access-list** | IP 1300 – 2699 3000 |

| | |
|---|---|
| V10.0 | (V |

## 46.1.6 ip access-list

IP ACL1IP ACL

| | |
|---|---|
| id | IP 1-99 1300-1999 - |
| name | IP |

ACL

ACL ACL

**deny** **permit** **show ip access-lists** ACL

1 ACL

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show ip access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

2 ACL

```
Ruijie(config)# ip access-list extended 123
Ruijie(config-ext-nacl)# show ip access-lists
ip access-list extended 123
```

| | |
|---|---|
| **show ip access-lists** | IP |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.1.7 ip access-list resequence

ip ACL IPV6 ACL

**no**

**ip access-list resequence** {id | name} **start-sn inc-sn**

**no ip access-list resequence** {id | name}

| | |
|---|---|
| Id | ACL |
| name | ACL |
| start-sn | |
| inc-sn | |

start-sn 10

inc-sn 10

**show access-lists**

ACL

```
Ruijie#      show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
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
```

| | |
|---|---|
| **show access-lists** | |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.1.8 list-remark text

ACL **no**

**list-remark** text

| | |
|---|---|
| Text | |

ACL

ACL

```
Ruijie#      ip access-list extended              102
Ruijie(config-ext-nacl)#              list-remark        t hisaclistofilterthehost
192.168.4.12
Ruijie(config-ext-nacl)#              show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

ACL

Ruijie(config-mac-nacl)# show mac access-lists
mac access-list extended 704

| | |
|---|---|
| **show mac access-lists** | mac |

| | |
|---|---|
| **show access-lists** | |
| **ip access-list** | ip ACL |
| **ipv6 access-list** | IPV6 ACL |

**deny**

[**precedence** precedence] [**tos** tos] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

3) MAC

[sn] **permit** {**any** | **host** source-mac-address} {**any** | **host** destination-mac-address} [ethernet-type][ **cos** [out] [**inner** in]]

4) Expert

[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][**fragments**] [**range** lower upper] [**time-range** time-range-name]

Ethernet-type cos

[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]

Protocol

[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] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

Expert

„ **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] [**fragments**] [**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] [**fragments**] [**range** lower upper] [**time-range** tos

[**precedenceprecedence**] [**tos** tos] [**fragments**] [**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**}

„ **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][**fragments**] [**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] [**fragments**] [**range** lower upper] [**time-range** time-range-name] [**match-all** tcp-flag]

„ **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] [**fragments**] [**range** lower upper] [**time-range** time-range-name]

| | |
|---|---|
| deny | - |

ACL

ACL ACL

1 Expert Extended ACL ACL IP 192.168.4.12 MAC 001300498272 TCP

```
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)#
   2          IP       ACL                          IP    192.168.4.12                TCP
      100                          1
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)#
   3          MAC       ACL                          MAC    0013.0049.8272
            100                              1
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
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
   4          ip       ACL                          IP    192.168.4.12
      1
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
   5          IPV6      ACL                          IP    192.168.4.12
         1
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
```

ACL

acl id name ACL

Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
mac access-list extended mac-acl
expert access-list extended exp-acl

| | |
|---|---|
| **ip access-list** | IP ACL |
| **mac access-list** | MAC ACL |
| **expert access-list** | Expert ACL |

| | |
|---|---|
| V10.0 | V10.0 |

Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.

| | |
|---|---|
| **expert access-list** | Expert ACL |

| | |
|---|---|
| V10.0 | V10.0 |

## 46.2.4 show ip access-group

IP ACL

**show ip access-group**[**interface** <interface>]

| | |
|---|---|
| <interface> | |

I

| | |
|---|---|
| V10.0 | V10.0 |

## 46.2.5 show mac access-group

MAC

**show mac access-group**[**interface** <interface>]

| | |
|---|---|
| <interface> | |

MAC ACL MAC ACL

Ruijie# show mac access-group interface gigabitethernet 0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.

| | |
|---|---|
| **mac access-list** | MAC ACL |

| | |
|---|---|
| V10.0 | V10.0 |

# 47 VACL a —

## 47.1 " - ‘ a —

**Vlan access map** map_name map_sn map map

1 **vlan access map** map map_sn map map map map_sn 10

2 map_sn **vlan access map** map_name Map_name map

3 map_sn **vlan access map** map map map map map map

4 map 6553 map

### 47.1.1 action forward/drop/redirect

map actions vacl no map actions forward

**action forward**

**no action forward**

map actions vacl no map actions forward

**action drop**

**no action drop**

map actions vacl no map actions forward

**action redirect** { **GigabitEthernet** | **Aggregateport** | **FastEthernet** } { **port_id** }

**no action redirect**{**GigabitEthernet** | **Aggregateport** | **FastEthernet** } {port_id }

map forward map

vacl

| a | + | acl, | 8 | acl |
|---|---|---|---|---|

„ map ip acl map acl

„ map 8 acl

„ map acl

„ map ace acl acl

„ map ip acl (mac acl)
ip acl (mac acl) ip acl (mac acl)
ip acl (mac acl)

„ map ip acl (mac acl)
mac acl (ip acl) ip acl (mac
acl) mac acl (ip acl)

| | | |
|---|---|---|
| map_name | map | 100 |
| map_sn | map | [0 - 65535] |

**vlan access map**

Ruijie(config)# vlan access-map ddd 20

Ruijie(config-access-map)#

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 47.1.4 vlan filter

map vlan map vlan

no

**vlan filter** map_name **vlan-list** vlan_id

**no vlan filter** map_name **vlan-list** vlan_id

| | |
|---|---|
| map_name | map |
| vlan_id | vlan id |

vlan access map vlan vlan vlan
filter aa vlan-list 1-33 map 1-33 vlan

map ff vlan access map vlan 5
Ruijie(config)# vlan filter ff vlan-list 5

action: forward
Vlan access-map aa 20
match ip address:  10, 20, 30, sp1, sp2, 60, 50, 80,
action: drop
Vlan access-map dd 20
match mac address:  710, 720, m1, 760,
action: forward
Ruijie(config)#

2 **show vlan access map** { map_name }

Ruijie(config)# show vlan access-map dd
Vlan access-map dd 20
match mac address:  710, 720, m1, 760,
action: forward
Ruijie(config)#

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 47.2.2 show vlan filter

map vlan

**show vlan filter**

| | |
|---|---|
| - | - |

**Show vlan filter access-map** aa

```
Ruijie(config)#          show vlan filter
VLAN Map aa
Configured on VLANs: 1, 5, 6,
Ruijie(config)#
```

| | |
|---|---|
| **show vlan filter** access-map map_name | map vlan |
| **show vlan filter vlan** vlan_id | vlan map |

| | |
|---|---|
| - | - |

# 48 QOS a—

## 48.1 ì˜ "

QoS QoS

„ 1 policy-map

„ policy-map class-map

„ class-map 1 ACL ACL ACE

„ ACE “ ACL”

QoS Policy Map

QoS

QoS Policy Map Off

QOS

| | |
|---|---|
| CoS | 0 |
| | 8 |
| | WRR |
| QueueWeight | 1:1:1:1:1:1:1:1 |
| WRR Weight Range | 1:15 |
| DRR Weight Range | 1:15 |
| | No Trust |

Cos

| CoS | |
|---|---|
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |
| 5 | 6 |

**CoS to DSCP**

| CoS | DSCP |
|---|---|
| 0 | 0 |
| 1 | 8 |
| 2 | 16 |
| 3 | 24 |
| 4 | 32 |
| 5 | 40 |
| 6 | 48 |
| 7 | 56 |

IP-Precedence to DSCP

**IP-Precedence to DSCP**

| IP-Precedence | DSCP |
|---|---|
| 0 | 0 |
| 1 | 8 |
| 2 | 16 |
| 3 | 24 |
| 4 | 32 |
| 5 | 40 |
| 6 | 48 |
| 7 | 56 |

DSCP to CoS

**DSCP to CoS**

| DSCP | CoS |
|---|---|
| 0 | 0 |
| 8 | 1 |
| 16 | 2 |
| 24 | 3 |
| 32 | 4 |
| 40 | 5 |
| 48 | 6 |
| 56 | 7 |

# 48.2 " - ‘ a —

## 48.2.1 class maps

ACL

**ip access-list** {**extended** | **standard**} { acl-id | acl-name }

**mac access-list extended** {acl-id | acl-name}

**expert access-list extended** {acl-id | acl-name}

**access-list acl-id** ACL

class map class map

[**no**] **class-map** class-map-name

class map

[**no**] **match access-group** acl-name| acl-id

| | |
|---|---|
| acl-name | ACL |
| acl-id | ACL id |
| class-map-name | class map |
| **no class-map** class-map-name | class map |
| **no match access-group** acl-name| acl-id | |

1 MAC ACL, me

Ruijie(config)# mac access-list extended me

2 ACL

Ruijie(config-ext-macl)# permit hos t 1111.2222.3333 any

3 ACL

Ruijie(config-ext-macl)# exit

4 class-map, cm

```
Ruijie(config)#          class-map cm
   5          ACL
Ruijie(config-cmap)#          match access-group me
   6          class-map
Ruijie(config-cmap)#          exit
```

| | |
|---|---|
| **show mac access-lists** | - |
| **show ip access-lists** | - |
| **show class-map** | - |

| | |
|---|---|
| - | - |

## 48.2.2 drr-queue bandwidth

DRR

**drr-queue bandwidth** weight1...weight8

**no drr-queue bandwidth**

| | |
|---|---|
| weight1...weight8 | |
| **no** | |

```
Ruijie(config)#          drr-queue bandwidth          1 2 3 4 5 6 7 8
```

| | |
|---|---|
| **show mls qos queueing** | - |

| | |
|---|---|
| - | - |

## 48.2.3 interface rate-limit

**rate-limit** {**input** | **output**} bps burst-size

**no rate-limit**

| | |
|---|---|
| **input** | |
| **output** | |
| bps | |
| burst-size | (Kbyte)dscp-list |
| **no** | |

Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# rate-limit input 1000000 4096

| | |
|---|---|
| **show mls qos interface** | - |

| | |
|---|---|
| - | - |

## 48.2.4 mls qos cos

CoS

**mls qos cos** default-cos

**no mls qos cos**

| | |
|---|---|
| default-cos | 0 7 |
| **no** | |

CoS 0

Ruijie(config)# interface gigabitethernet 1/ 1
Ruijie(config-if)# mls qos cos 7

| | |
|---|---|
| **show mls qos interface** interface-id | - |

| | |
|---|---|
| - | - |

## 48.2.5 mls qos map cos-dscp

CoS DSCP

**mls qos map cos-dscp** dscp1...dscp8

**no mls qos map cos-dscp**

| | |
|---|---|
| **dscp** | |
| **no** | |

Ruijie(config)# mls qo map cos-dscp 8 10 16 18 24 26 32 34

| | |
|---|---|
| **show mls qos maps** | dscp-cos maps,dscp-cos maps ip-prec-dscp maps |

| | |
|---|---|
| - | - |

## 48.2.6 mls qos map dscp-cos

DSCP CoS

**mls qos map dscp-cos** dscp-list to cos

**no mls qos map dscp-cos**

| | |
|---|---|
| - | - |

**show mls qos maps** dscp-cos maps,dscp-cos maps ip-prec-dscp maps

| | |
|---|---|

**mls qos scheduler** [**sp** | **rr** | **wrr** | **drr**]

**no mls qos scheduler**

| | |
|---|---|

| | |
|---|---|
| ip-precedence | Qos IP-PRE |
| **no** | |

Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mls qos trust cos

| | |
|---|---|
| **show mls qos interface** interface-id | - |

| | |
|---|---|
| - | - |

## 48.2.10 policy maps

policy map policymap

[**no**] **policy-map** policy-map-name

policy map class-map ,

[**no**] **class** class-map-name

IP ipdscp IP

**set ip dscp** new-dscp

**no set ip dscp**

**police** rate-bps burst-byte[**exceed-action** {**drop** | **dscp** dscp-value}]

**no police**

| | |
|---|---|
| policy-map-name | policymap |
| **no policy-map** policy-map-name | policy map |

| | |
|---|---|
| class-map-name | class map |
| **no class** class-map-name | |
| new-dscp | DSCP |
| rate-bps | kbps |
| burst-byte | kbyte |
| drop | |
| dscp-value | DSCP |

1 policy map, po

```
Ruijie(config)# policy-map po
```

2 class-map cm

```
Ruijie(config-pmap)# class cm
```

3 dscp 10

```
Ruijie(config-pmap-c)# set ip dscp 10
```

4 1M, 4096k, dscp 16

```
Ruijie(config-pmap-c)# police 1000000 4096 exceed-action dscp 16
```

| | |
|---|---|
| **show policy-map** | - |

| | |
|---|---|
| - | - |

## 48.2.11 priority-queue

[**no**] **priority-queue**

| | |
|---|---|

| | |
|---|---|
| **priority-queue** | SP |
| **no priority-queue** | WRR |

WRR

Ruijie(config)# no priority-queue

| | |
|---|---|
| **show mls qos queueing** | - |

Ruijie(config)# priority-queue cos-map 1 0 1

| | |
|---|---|
| **show mls qos queueing** | - |

| | |
|---|---|
| - | - |

## 48.2.13 service-policy

policy map

**service-policy** {**input** | **output**} policy-map-name

**no service-policy** {**input** | **output**}

| | |
|---|---|
| policy-map-name | policymap |
| **no** | policy map |

Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# service-policy input po

| | |
|---|---|
| **show mls qos interface** | - |

| | |
|---|---|
| - | - |

## 48.2.14 wrr-queue bandwidth

WRR

**wrr-queue bandwidth** weight1 ... weightn

**no wrr-queue bandwidth**

| | |
|---|---|
| weight1...weightn | n n |
| **no** | |

weight1: ...: weightn = 1:..:1

Ruijie(config)# wrr-queue bandwidth 1 2 3 4 5 6 7 8

Ruijie# show class-map

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 48.3.2 show policy-map

QoS policy map [ class class-name]

**show policy-map** [policy-name [**class** class-name]]

| | |
|---|---|
| policy-name | policy name |
| class-name | class map |

policy name

Ruijie# show policy-map

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 48.3.3 show mls qos interface

QoS

**show mls qos interface** interface-id [**policers**]

| | |
|---|---|

Ruijie# show mls qos maps

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 48.3.5 show mls qos queueing

QoS (cos-to-queue map,wrr weight,drr weight)

**show mls qos queueing**

| | |
|---|---|
| - | - |

Ruijie# show mls qos queueing

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 48.3.6 show mls qos rate-limit

**show mls qos rate-limit** [**interface** interface-id]

| | |
|---|---|
| **interface** | interface-id rate-limit |

Ruijie# show mls qos scheduler

| | |
|---|---|

# 49 Voice VLAN a —

## 49.1 " - ‘ a —

### 49.1.1

| | |
|---|---|
| **show voice vlan** | Voice VLAN |

| | |
|---|---|
| | |
| 10.4 | |

## 49.1.2 voice vlan aging

Voice VLAN **no**

**voice vlan aging** minutes

**no voice vlan aging**

| | |
|---|---|
| | **.00[(no Td( )Tj/0229.251 0 Td29Voic** |

## 49.1.3 voice vlan cos

Voice VLAN CoS **no**

**voice vlan cos** cos-value

**no voice vlan cos**

| | |
|---|---|
| cos-value | Voice VLAN CoS |

cos-value 6

Voice VLAN CoS DSCP

1 Voice VLAN CoS 5
Ruijie(config)# voice vlan cos 5

| | |
|---|---|
| **show voice vlan** | Voice VLAN |

| | |
|---|---|
| 10.4 | |

## 49.1.4 voice vlan dscp

Voice VLAN DSCP **no**

**voice vlan dscp** dscp-value

**no voice vlan dscp**

| | |
|---|---|

| | dscp-value | Voice VLAN DSCP |
|---|---|---|
| | dscp-value 46 | |
| | | |
| | Voice VLAN CoS DSCP | |

1 Voice VLAN DSCP

Uplink Voice VLAN

1 OUI 0012.3400.0000 Voice VLAN Company A

```
Ruijie(config)# voice vlan mac-address 0012.3400.0000 mask
ffff.ff00.0000 description Company A
```

| | |
|---|---|
| a | 1 Voice VLAN<br>Voice VLAN Voice VLAN<br>2<br>native VLAN Voice VLAN<br>3 Trunk Port/Hybrid Port VLAN<br>Voice VLAN VLAN Voice<br>VLAN Voice VLAN<br>Voice VLAN |
| | 1 Voice VLAN<br>Voice VLAN<br>2 Voice VLAN<br>Voice VLAN |

1 FastEthernet 0/1 Voice VLAN

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-vlan)# voice vlan mode auto
```

| | |
|---|---|
| **show voice vlan** | Voice VLAN<br>Voice VLAN |

| | |
|---|---|
| 10.4 | |

## 49.1.8 voice vlan security enable

Voice VLAN **no**

**voice vlan security enable**

**no voice vlan security enable**

| | |
|---|---|
| | |

Voice VLAN

Voice VLAN Voice VLAN

1 Voice VLAN

```
Ruijie(config)#          show voice vlan
Voice VLAN status: ENABLE        //Voice VLAN
Voice VLAN ID: 2              //Voice VLAN ID
Voice VLAN security mode: Security  //
Voice VLAN aging time: 5 minutes    //
Voice VLAN cos: 6             //                    CoS
Voice VLAN dscp: 46           //                    DSCP
Current voice vlan enabled port mode: //            Voice VLAN
PORT              MODE
-----------------------------------------------------
Fa0/1             Auto
```

| | |
|---|---|
| **voice vlan** vlan-id | Voice VLAN<br>VLAN Voice VLAN |
| **voice vlan aging** minutes | Voice VLAN |
| **voice vlan cos** cos-value | Voice VLAN CoS |
| **voice vlan dscp** dscp-value | Voice VLAN DSCP |
| **voice vlan enable** | Voice VLAN |
| **voice vlan mode auto** | Voice VLAN |
| **voice vlan security enable** | Voice VLAN |

| | |
|---|---|
| 10.4 | |

## 49.2.2 show voice vlan oui

OUI OUI

**show voice vlan oui**

| | |
|---|---|
| | |

OUI

1 Voice VLAN OUI

```
Ruijie(config)#          show voice vlan oui
OUI         Mask         Description
--------------- --------------- ---------------
0001.e300.0000 ffff.ff00.0000 Siemens phone
0003.6b00.0000 ffff.ff00.0000 Cisco phone
0004.0d00.0000 ffff.ff00.0000 Avaya phone
0060.b900.0000 ffff.ff00.0000 Philips/NEC phone
00d0.1e00.0000 ffff.ff00.0000 Pingtel phone
00e0.7500.0000 ffff.ff00.0000 Polycom phone
00e0.bb00.0000 ffff.ff00.0000 3com phone
```

show voice vlan oui

| | |
|---|---|
| OUI | OUI MAC |
| Mask | OUI OUI |
| Description | OUI |

| | |
|---|---|
| **voice vlan mac-address** mac-addr **mask** oui-mask **[description** text**]** | Voice VLAN OUI |

# 50 , ì 0 o æ _ Ÿ ¹ f ´ " a —

## 50.1 " - ‘ a —

### 50.1.1 rgos-security compatible

RGOS **rgos-security compatible** RGOS no

**rgos-security compatible**

**no rgos-security compatible**

| | |
|---|---|
| | |

RGOS

**a**

1 RGOS

Ruijie(config)# no gos-security compatible

| | |
|---|---|
| | |

| | |
|---|---|
| 10.4 | |

# 51 VRRP a —

## 51.1 " - ‘ a —

### 51.1.1 vrrp authentication

VRRP **no**

**vrrp group authentication** string

**no vrrp** group **authentication**

| | |
|---|---|
| group | VRRP |
| string | VRRP ( 8 ) |

VRRP VRRP

VRRP

/ A

## 51.1.2 vrrp description

VRRP **no**

**vrrp** group **description** text

**no vrrp group description**

| | |
|---|---|
| group | VRRP |

**vrrp** group **ip** ipaddress [**secondary**]

**no vrrp** group **ip** ipaddress [**secondary**]

| | |
|---|---|
| group | VRRP |
| ipaddress | IP |
| **secondary** | IP |

VRRP

secondary IP

VRRP

| | |
|---|---|
| group | VRRP |
| level | VRRP |

VRRP VRRP VRRP
100

VRRP

VRRP 1 254
vrrp 1 priority 254

| | |
|---|---|
| Ruijie(config-if)# **vrrp** group **ip** ipaddress [ **secondary** ] | VRRP IP |
| Ruijie(config-if)# **vrrp** group **preempt** [ **delay** seconds ] | VRRP |

| | |
|---|---|
| | |

VRRP VRRP
VRRP

VRRP 4
vrrp 1 timers advertise 4

| | |
|---|---|
| Ruijie(config-if)# **vrrp** group **ip** ipaddress [ **secondary** ] | VRRP IP |
| Ruijie(config-if)# **vrrp group timers learn** | |

| | |
|---|---|
| - | - |

## 51.1.7 vrrp timers learn

no

**vrrp** group **timers learn**

**no vrrp** group **timers learn**

| | |
|---|---|
| group | VRRP |

VRRP VRRP

VRRP
VRRP VRRP Master
VRRP
Master VRRP

VRRP 1

vrrp 1 timers learn

| | |
|---|---|
| Ruijie(config-if)# **vrrp** group **ip** ipaddress [**secondary**] | VRRP IP |
| Ruijie(config-if)# **vrrp** group **timers advertise** [**msec**] interval | VRRP |

| | *ü |
|---|---|
| - | - |

| | |
|---|---|
| RGOS 10.4 | - |

# 51.2 VRRP ³ Å 0 a —

## 51.2.1 debug vrrp

VRRP VRRP VRRP **no**

**debug vrrp**

**no debug vrrp**

| | |
|---|---|
| - | - |

VRRP

Ruijie# debug vrrp

Ruijie#

VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213

VRRP: Grp 1 Event - Advert higher or equal priority

%VRRP-6-STATECHANGE: FastEthernet 0/0 Grp 1 state Master -> Backup

VRRP: Grp 1 Advertisement from 192.168.201.213 has invalid virtual address 192.168.1.1

%VRRP-6-STATECHANGE: FastEthernet 0/0 Grp 1 state Backup -> Master

Ruijie#

| | |
|---|---|
| Ruijie# **debug vrrp errors** | VRRP |
| Ruijie# **debug vrrp events** | VRRP |

| | |
|---|---|
| Ruijie# **debug vrrp state** | VRRP |

| | |
|---|---|
| - | - |

## 51.2.3 debug vrrp events

VRRP no

**debug vrrp events**

**no debug vrrp events**

| | |
|---|---|
| - | - |

VRRP

VRRP

```
Ruijie#      debug vrrp events
Ruijie#
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
```

| | |
|---|---|

VRRP

**show vrrp** [ **brief** | group ]

| | |
|---|---|
| **brief** | VRRP |

group

```
Ruijie#      show vrrp brief
Interface  Grp Pri Time  Own Pre State  Master addr   Group addr
FastEthernet 0/0   1   100  -   -   P  Backup  192.168.201.213
192.168.201.1
FastEthernet 0/0   2   120  -   -   P  Master  192.168.201.217
192.168.201.2
```

| | |
|---|---|

Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
FastEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec

| | |
|---|---|
| Ruijie(config-if)# **vrrp** group **ip** ip address [ **secondary** ] | VRRP IP |

| | |
|---|---|
| - | - |

# 52 RLDP a —

## 52.1 " - ‘ a —

### 52.1.1 rldp detect-interval

RLDP

**rldp detect-interval** interval

**no rldp detect-interval**

| | |
|---|---|
| interval | 2-15 |

3

stp × stp

5s :

Ruijie(config)# rldp detect-interval 5

| | |
|---|---|
| **rldp detect-max** | |

| | |
|---|---|
| - | - |

### 52.1.2 rldp detect-max

RLDP

**rldp detect-max** num

**no rldp detect-max**

| | |
|---|---|
| num | , 2-10 |

2

5

Ruijie(config)# rldp detect-max

RLDP RLDP

Ruijie(config)# rldp enable

| | |
|---|---|
| **rldp port** | RLDP |

| | |
|---|---|
| - | - |

## 52.1.4 rldp port

rldp

**rldp port {unidirection-detect | bidir**

Ruijie(config)# interface fas 0/1
Ruijie(config-if)# rldp port loop-detect block

| | |
|---|---|
| **rldp enable** | rldp |

| | |
|---|---|
| - | - |

## 52.1.5 rldp reset

**rldp shutdown** **disable** rldp

**rldp reset**

| | |
|---|---|
| - | - |

Ruijie# rldp reset

| | |
|---|---|
| **rldp enable** | Rldp |

| | |
|---|---|
| - | - |

# 52.2 ¡ µ 0 ³ Å a —

## 52.2.1 show rldp

rldp

**show rldp** [**interface** interface-id]

| | |
|---|---|
| Interface-id | |

EXEC

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

# 53 TPP a —

## 53.1 " - ‘ a —

### 53.1.1 topology guard

topology guard

no

[**no**] **topology guard**

no

[**no**] **tp-guard port enable**

| | |
|---|---|

tpp

p

| | |
|---|---|

# 54 3 Ñ , Ä a —

## 54.1 " - ‘ a —

### 54.1.1 cd

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

| | |
|---|---|
| filesystem | “ ” |

directory

## 54.1.2 copy

**copy** source-url destination-url

| | |
|---|---|
| source-url | URL |

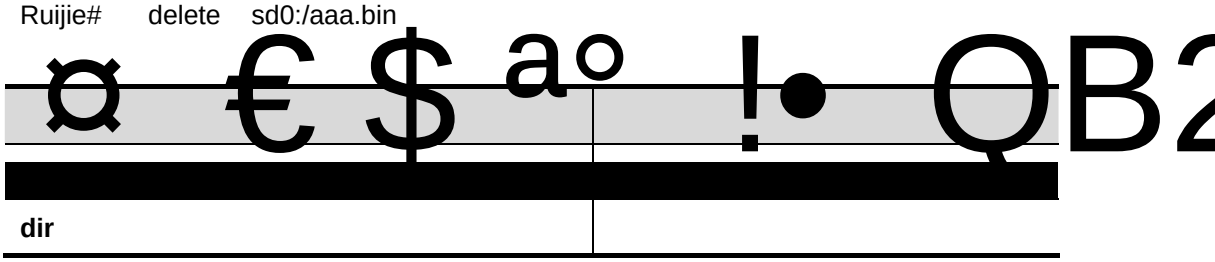
```
Ruijie#    copy    tftp://192.168.201.54/rgos.bin flash:/
   2                  tftp
Ruijie#    copy    flash:/rgos.bin tftp://192.168.201.54/rgos.bin
   3            xmodem
Ruijie#      copy    xmodem: flash:/config.text
   4                     U
Ruijie#    copy    flash:/config.text usb0:/config.text
   5
Ruijie#    copy flash:/config.text slave:/config.text
   6                flash             sd
Ruijie#    copy flash:/rgos.bin sd0:/rgos.bin
   7                U                 sd
Ruijie#    copy usb0:/config.text sd0:/config.text
   8                sd                U
Ruijie#    copy sd0:/config.text usb0:/config.text
```

| | |
|---|---|
| **del** | |
| **rename** | |
| **dir** | |

url URL flash:/
usb0:/ usb1:/ slave:/ url

| a | . |
|---|---|

1 tmpfile
Ruijie# delete tmpfile
2 rgos.bin.bak
Ruijie# delete slave:/rgos.bin.bak
3 sd aaa.bin
Ruijie# delete sd0:/aaa.bin




| dir | |
|---|---|

W n0.852 g141.6 447.38 220.330f66.

**a** .

1

```
Ruijie#      dir slave0:/
Directory of slave:/
  Mode Link    Size         MTime Name
-------- ---- --------- ------------------- ------------------
       1 10838016 2008-01-01 00:01:53 rgos.bin
       1    399 2008-01-01 00:01:37 config.text
       1    399 2008-01-01 00:17:58 cfg.txt
-----------------------------------------------------------------
3 Files (Total size 11210782 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB)
available.
```

| | |
|---|---|
| | |
| | |

### 54.1.5 mkdir

**mkdir** directory

| | |
|---|---|
| directory | |
| | |

| | |
|---|---|
| | |

## 54.1.6 rename

**rename** url1 url2

| | |
|---|---|
| url1 | URL |
| url2 | URL |

usb0/1, flash, slave

1 log.txt , config.txt

```
Ruijie# rename tmp/log.txt ../config.txt
```

2 log.txt usb0

```
Ruijie# rename slave:/log.txt usb0:/log.txt
```

3 log.txt log.txt.bak

```
Ruijie# rename log.txt log.txt.bak
```

4 sd rgos.bin flash

```
Ruijie# rename sd0:/rgos.bin flash:/rgos_bak.bin
```

5 U test.txt sd

```
Ruijie# rename usb0:/test.txt sd0:/test2.txt
```

| | |
|---|---|
| **del** | |
| **copy** | |

| | |
|---|---|
| | |
| | |

### 54.1.7 rmdir

**rmdir** directory

| | |
|---|---|
| directory | , |
| | |

| | |
|---|---|
| | |
| | |
| | , |
| | tmp<br>Ruijie# rmdir tmp |

| | |
|---|---|
| **mkdir** | |

| | |
|---|---|
| | |
| | |

## 54.2 ¡ µ - ‘ a —

### 54.2.1 pwd

**pwd**

| | |
|---|---|
| | |
| | |

1

```
Ruijie#      pwd
flash:/
```

| | |
|---|---|
| **cd** | |

| | |
|---|---|
| | |
| | |

## 54.2.2 show file systems

**show file systems**

| | |
|---|---|
| | |
| | |

1

Ruijie#**show file systems**

| | |
|---|---|
| | |

| | |
|---|---|
| | |
| | |

# 55 ,Ä•8 "

## 55.1 CPU F Ñ ¡a —

### 55.1.1 cpu-log

| | | | | |
|---|---|---|---|---|
| 5 | 0% | 0% | 0% | waitqueue_process |
| 6 | 0% | 0% | 0% | tasklet_task |
| 7 | 0% | 0% | 0% | kevents |
| 8 | 0% | 0% | 0% | snmpd |
| 9 | 0% | 0% | 0% | snmp_trapd |
| 10 | 0% | 0% | 0% | mtdblock |
| 11 | 0% | 0% | 0% | gc_task |
| 12 | 0% | 0% | 0% | Context |
| 13 | 0% | 0% | 0% | kswapd |
| 14 | 0% | 0% | 0% | bdflush |
| 15 | 0% | 0% | 0% | kupdate |
| 16 | 0% | 3% | 1% | ll_mt |
| 17 | 0% | 0% | 0% | ll main process |
| 18 | 0% | 0% | 0% | bridge_relay |
| 19 | 0% | 0% | 0% | d1x_task |
| 20 | 0% | 0% | 0% | secu_policy_task |
| 21 | 0% | 0% | 0% | dhcpa_task |
| 22 | 0% | 0% | 0% | dhcpsnp_task |
| 23 | 0% | 0% | 0% | igmp_snp |
| 24 | 0% | 0% | 0% | mstp_event |
| 25 | 0% | 0% | 0% | GVRP_EVENT |
| 26 | 0% | 0% | 0% | rldp_task |
| 27 | 0% | 2% | 1% | rerp_task |
| 28 | 0% | 0% | 0% | reup_event_handler |
| 29 | 0% | 0% | 0% | tpp_task |
| 30 | 0% | 0% | 0% | ip6timer |
| 31 | 0% | 0% | 0% | rtadvd |
| 32 | 0% | 0% | 0% | tnet6 |
| 33 | 2% | 0% | 0% | tnet |
| 34 | 0% | 0% | 0% | Tarptime |
| 35 | 0% | 0% | 0% | gra_arp |
| 36 | 0% | 0% | 0% | Ttcptimer |
| 37 | 8% | 1% | 0% | ef_res |
| 38 | 0% | 0% | 0% | ef_rcv_msg |
| 39 | 0% | 0% | 0% | ef_inconsistent_daemon |
| 40 | 0% | 0% | 0% | ip6_tunnel_rcv_pkt |
| 41 | 0% | 0% | 0% | res6t |
| 42 | 0% | 0% | 0% | tunrt6 |
| 43 | 0% | 0% | 0% | ef6_rcv_msg |

| | | | | |
|---|---|---|---|---|
| 44 | 0% | 0% | 0% | ef6_inconsistent_daemon |
| 45 | 0% | 0% | 0% | imid |
| 46 | 0% | 0% | 0% | nsmd |
| 47 | 0% | 0% | 0% | ripd |
| 48 | 0% | 0% | 0% | ripngd |
| 49 | 0% | 0% | 0% | ospfd |
| 50 | 0% | 0% | 0% | ospf6d |
| 51 | 0% | 0% | 0% | bgpd |
| 52 | 0% | 0% | 0% | pimd |
| 53 | 0% | 0% | 0% | pim6d |
| 54 | 0% | 0% | 0% | pdmd |
| 55 | 0% | 0% | 0% | dvmrpd |
| 56 | 0% | 0% | 0% | vty_connect |
| 57 | 0% | 0% | 0% | aaa_task |
| 58 | 0% | 0% | 0% | Tlogtrap |
| 59 | 0% | 0% | 0% | dhcp6c |
| 60 | 0% | 0% | 0% | sntp_recv_task |
| 61 | 0% | 0% | 0% | ntp_task |
| 62 | 0% | 0% | 0% | sla_deamon |
| 63 | 0% | 3% | 1% | track_daemon |
| 64 | 0% | 0% | 0% | pbr_guard |
| 65 | 0% | 0% | 0% | vrrpd |
| 66 | 0% | 0% | 0% | psnpd |
| 67 | 0% | 0% | 0% | igsnpd |
| 68 | 0% | 0% | 0% | coa_recv |
| 69 | 0% | 0% | 0% | co_oper |
| 70 | 0% | 0% | 0% | co_mac |
| 71 | 0% | 0% | 0% | radius_task |
| 72 | 0% | 0% | 0% | tac+_acct_task |
| 73 | 0% | 0% | 0% | tac+_task |
| 74 | 0% | 0% | 0% | dhcpd_task |
| 75 | 0% | 0% | 0% | dhcps_task |
| 76 | 0% | 0% | 0% | dhcpping_task |
| 77 | 0% | 0% | 0% | dhcpc_task |
| 78 | 0% | 0% | 0% | uart_debug_file_task |
| 79 | 0% | 0% | 0% | ssp_init_task |
| 80 | 0% | 0% | 0% | rl_listen |
| 81 | 0% | 0% | 0% | ikl_msg_operate_thread |
| 82 | 0% | 0% | 0% | bcmDPC |

```
 83   0%   0%   0%  bcmL2X.0
 84   3%   3%   3%  bcmL2X.0
 85   0%   0%   0%  bcmCNTR.0
 86   0%   0%   0%  bcmTX
 87   0%   0%   0%  bcmXGS3AsyncTX
 88   0%   2%   1%  bcmLINK.0
 89   0%   0%   0%  bcmRX
 90   0%   0%   0%  mngpkt_rcv_thread
 91   0%   0%   0%  mngpkt_recycle_thread
 92   0%   0%   0%  stack_task
 93   0%   0%   0%  stack_disc_task
 94   0%   0%   0%  redun_sync_task
 95   0%   0%   0%  conf_dispatch_task
 96   0%   0%   0%  devprob_task
 97   0%   0%   0%  rdp_snd_thread
 98   0%   0%   0%  rdp_rcv_thread
 99   0%   0%   0%  rdp_slot_change_thread
100   4%   2%   1%  datapkt_rcv_thread
101   0%   0%   0%  keepalive_link_notify
102   0%   0%   0%  rerp_msg_recv_thread
103   0%   0%   0%  ip_scan_guard_task
104   0%   0%   0%  ssp_ipmc_hit_task
105   0%   0%   0%  ssp_ipmc_trap_task
106   0%   0%   0%  hw_err_snd_task
107   0%   0%   0%  rerp_packet_send_task
108   0%   0%   0%  idle_vlan_proc_thread
109   0%   0%   0%  cmic_pause_detect
110   1%   1%   1%  stat_get_and_send
111   0%   1%   0%  rl_con
112  75%  80%  90%  idle
```

| | |
|---|---|
| | |

BGP,OSPF,RIP,LDP,PIM,ISIS

1 show memory protocols

```
Ruijie(config)#          show memory protocols
=================================================
protocol    |memory(byte)
BGP         102000000
OSPF         24000000
RIP         10000000
PIM         50000000
LDP          20000000
Total       206000000
```

| | |
|---|---|
| **show memory** | |

| | |
|---|---|
| 10.3(4b3) | |

# 56 , Ä a —

## 56.1 " - ‘ a —

### 56.1.1 clear logging

**clear logging**

**more flash:filename**

| | |
|---|---|
| Filename | |

FLASH ”//f2/” ”//f3/’

FLASH

Ruijie# more flash : //f2/ log.txt

look up file in the extended flash://f2/log.txt

00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by Administrator. Reload Reason :Reload command

| | |
|---|---|
| **logging file flash:** | FLASH |

| | |
|---|---|
| - | - |

## 56.1.3 logging buffered

A

| | |
|---|---|
| level | 0 7 |

4k Bytes

7

**show logging**

clear logging

FLASH

Syslog Server

8 ear 3 Tm [<0j /C2_0 1 T267.845507EFB /TT0 156>6988 > re 146.5270

| | |
|---|---|
| - | - |

## 56.1.4 logging console

no

**logging console** level

**no logging console**

| | |
|---|---|
| level | 0 7<br><br>1 |

Debugging (7)

**show logging**

6

Ruijie(config)# logging console informational

| | |
|---|---|
| **logging on** | |

**show logging**

## 56.1.5 logging count

no

**logging count**

**no logging count**

| | |
|---|---|
| - | - |

**no logging count**

Ruijie(config)# logging count

| | |
|---|---|
| **show logging count** | |
| **show logging** | |

| | |
|---|---|
| - | - |

## 56.1.6 logging facility

no

(23)

**logging facility** facility-type

**no logging facility**

| | |
|---|---|
| facility-type | |

Syslog kernel

Ruijie(config)# logging facility kern

| | |
|---|---|
| **logging console** | |

| | |
|---|---|
| - | - |

## 56.1.7 logging file flash

FLASH FLASH

no

**logging file flash:filename** [max-file-size] [level]

**no logging file**

A RÂBC"&8Á TjETq36.58 5 402.56 9.4 -20.64 re297.18 584.42 mh531.54 583.94 -229.2 -19.62 reW* n

| | |
|---|---|

| | |
|---|---|
| **logging console** | |
| **logging monitor** | VTY ( telnet ) |
| **logging trap** | Syslog Server |

| | |
|---|---|
| - | - |

## 56.1.10 logging rate-limit

no

**logging rate-limit** {number | all number | console {number | all number}} [except severity]

**no logging rate-limit**

| | |
|---|---|
| number | 1—10000 |
| all | 0—7 |
| console | |
| except | error(3) error |
| severity | 0—7 |

debug 10 wauTT1 1 Tf0 Tr 10.5 0 0 10.

| | |
|---|---|
| **logging on** | |
| **show logging** | |
| **logging trap** | syslog server |

| | |
|---|---|
| - | - |

## 56.1.12 logging source interface

no

**logging source interface** interface-type interface-number

**no logging source interface**

| | |
|---|---|
| interface-type | |
| interface-number | |

Syslog Server IP / Z¾Ìà³ YÚê%B EîE› Dç•Hš ÿ ¢ ¾±‡œL

| | |
|---|---|
| - | - |

## 56.1.14 logging trap

Syslog Server

no Syslog Server

**logging trap** level

**no logging trap**

| | |
|---|---|

level

## 56.1.15 service sequence-numbers

no

**service sequence-numbers**

**no service sequence-numbers**

| | |
|---|---|
| - | - |

1

Ruijie(config)# service sequence-numbers

| | |
|---|---|
| **logging on** | |
| **service timestamps** | |

| | |
|---|---|
| - | - |

## 56.1.16 service sysname

no

**service sysname**

**no service sysname**

| | |
|---|---|

| | |
|---|---|
| message-type | log debug log<br>0 6 debug<br>7 |
| uptime | * * * * 07:00:10:41 |
| datetime | Jul<br>27 16:53:07 |
| msec | |

year

2007 Jul 27 16:53:07

VTY VTY

no

**terminal monitor**

**terminal no monitor**

| | |
|---|---|
| - | - |

VTY

VTY VTY

VTY

Ruijie# terminal monitor

| | |
|---|---|
| **-** | - |

| | |
|---|---|
| - | - |

# 56.2 ¡ µ - ‘ a —

## 56.2.1 show logging

**show logging**

| | |
|---|---|
| - | - |

**show logging**

```
Ruijie#      show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
Sequence log messages: enable
```

| | |
|---|---|
| Buffer logging | |
| Timestamp debug messages | Debug |
| Timestamp log messages | Log |
| Sequence log messages | |
| Trap logging | Syslog Server |
| Log Buffer | |

| | |
|---|---|
| **logging on** | |
| **clear logging** | |

| | |
|---|---|
| - | - |

## 56.2.2 show logging count

**show logging count**

| | |
|---|---|
| - | - |

**logging count** **show logging count**

**show logging**

**show logging count**

```
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

| | |
|---|---|

**logging count**

# 57 USB a —

## 57.1 " - ‘ a —

CLI USB

### 57.1.1 show usb

USB

**show usb**

| | |
|---|---|
| - | - |

USB

USB

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

Mass Storage Device

| | |
|---|---|
| URL | U U |
| Size | U |

| | |
|---|---|
| - | - |

| | |
|---|---|
| 10.4(1) | SD |
| 10.4(2b4) | SD usb |

## 57.1.2 usb remove

**usb remove** device-id

| | |
|---|---|
| device-id | USB ID<br>show usb |

USB

USB

USB

Ruijie# usb remove 0

OK, now you can pull out the device 0.

*Jan 1 00:18:16: %USB-5- USB_DISK_REMOVED: USB Disk <Mass Storage> has been removed from USB port 0!

USB

| | |
|---|---|
| - | - |

| | |
|---|---|
| 10.4(1) | SD |
| 10.4(2b4) | SD usb |

# 58 p ? • 8 a —

## 58.1 " - ‘ a —

### 58.1.1 device-priority

**device-priority** [member] priority

| | |
|---|---|

| | |
|---|---|
| | |

```
Ruijie#      show member
Member Mac Address   Priority Software Version
HardwareVersion Description
------ --------- ------- ---------- ---------  --------
1 00d0.f810.3323 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
2 00d0.f822.33aa 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
3 00d0.f822.33ae 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
4 00d0.f822.33b0 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
5 00d0.f822.33b2 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
6 00d0.f824.23b4 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
7 00d0.f833.44b4 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
8 00d0.f855.33ae 1 RGOS 10.1.00(2),Release(12889) 1.0 SWITCH
```

| | |
|---|---|
| - | - |

| | |
|---|---|
| - | - |

## 59.1.2 show fans

show fans

| | |
|---|---|
| | |

1

```
Ruijie# show fans
Device : M7806-FAN I Temperature:30c
                Item    State   speed(0-4)
              -------  -------- ---------------
                   1    stop     --
                   2    error    --
                   3    work      3
                   4    work      5
                   5    work      1
```

| | |
|---|---|
| Temperature | |
| Item | |
| State | stop<br>error<br>work |
| speed(0-5) | 0-4<br>0 4 |

| | |
|---|---|
| | |

| | |
|---|---|
| **10.4(2b2)** | |
| | |