



RG-S3250E

RGOS 10.4(2)

©2010



RGOS® 10.4(2)

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1.

Courier New

5

2.

Arial

```
[]      []  
{x|y|...}  
[x|y|...]  
//
```

3.

r



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1.

2.

3.

1 CLI

1.1

1.1.1 alias

alias

no

alias *mode command-alias original-command*

no alias *mode [original-command]*

<i>mode</i>	
<i>command-alias</i>	
<i>original-command</i>	

EXEC

EXEC h p s u un help ping show
undebug undebug
no alias exec

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

EXEC

"sv" "show version"

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

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

"ia"

"ip address"

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

"ip address"

show aliases

"def-route"

"ip route"

0.0.0.0 0.0.0.0 192.168.1.1"

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

show aliases	

privilege

ommand-string

mand-string

CLI

0-15

CLI

privilege ?

0.0.2 294.68 -139.2 -19.1Hp

```

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



EXEC

```
Ruijie# show aliases exec
```

```
exec mode alias:
```

```
h             help  
p             ping  
s             show  
u             undebug  
un            undebug
```



2

2.1

2.1.1 disable

disable

disable [*privilege-level*]

	<i>privilege-level</i>	



disable

Ruijie# **disable 10**

	enable	

	-	-

2.1.2 enable

enable

	-	-

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2.1.3 enable password

enable password

no

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

<i>Password</i>	EXEC	
<i>Level</i>		
0 7	0	7
<i>encrypted-password</i>		

■ 1 26

■

r 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

<i>Secret</i>	EXEC
<i>Level</i>	
0 5	0 5
<i>encrypted-password</i>	

|

|

|

|

no enable service

enable service ssh-sesrver, SSH Server

Ruijie(Config # **enable service ssh-sesrver**



Telnet

configure terminal

line tty 1 16

enable

Web

no ip http authentication

Web

local

Ruijie(config)# **ip http authentication local**

enable service

EXEC

lock

lock

-	-

┌

┌

┌

- lock
-
- Locked

line line lockable

line

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

lockable	

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2.1.11 lockable

lock **lock** **no** **line** **lockable**
lockable
no lockable

-	-

┌

┌

line

┌

lock

EXEC

┌

```

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

```

┌

lock	

login

no login

	-	-

|

|

line

|

AAA
VTY console

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VTY

Ruijie(config)# **no aaa new-model**

Ruijie(config)# **line vty 0**

Ruijie(config-line)# **password 0 normatest**

Ruijie(config-line)# **login**

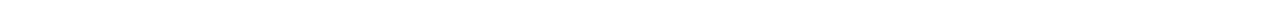
|

--	--

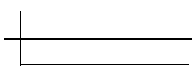
password

line

-



line



username

VTY

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

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CLI

CLI

CLI

CLI

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2.1.16 password

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

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

no password

	<i>password</i>	line

service password-encryption

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interface <i>interface-name</i>	Telnet
!vrf <i>vrf-name</i>	VRF

┌

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telnet		
r	/ipv6	IPV6

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```

1          telnet          IPV4      192.168.1.1
          vlan 1          VRF          vpn1
Ruijie# telnet 192.168.1.1 /source interface vlan 1 /vrf vpn1
2          telnet          IPV6      2AAA:BBBB::CCCC
Ruijie# telnet 2AAA:BBBB::CCCC

```

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ip telnet source-interface	IP Telnet
show session	TTY
exit	

┌

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2.1.19 username

<i>password</i>	
07	0 7
<i>encrypted-password</i>	
<i>privilege-level</i>	

	<i>message</i>	
	Ruijie(config) Ruijie(config)# banner login \$ <i>enter your password</i> \$	
	-	-
	-	-

2.2.2 banner motd

	no banner motd	banner motd
	banner motd <i>c message c</i>	
	<i>c</i>	
	<i>message</i>	



```

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	

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-	-

2.2.4 clock set

clock set

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

<i>hh:mm:ss</i>	24 : :
<i>day</i>	1-31
<i>month</i>	1-12
<i>year</i>	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	

|

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2.2.5 clock update-calendar

clock update-calendar

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|

calendar

```
Ruijie# clock update-calendar
```



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

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2.2.11 speed

speed *speed*

no speed

speed *speed*

<i>Speed</i>	bps 9600 19200 38400 57600 115200 9600

9600

57600 bps

```
Ruijie(config)# line console 0
```

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

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2.2.12 write

running-config

write [memory | network | terminal]

memory	NVRAM running-config startup-config	copy
network	TFTP running-config tftp	copy
terminal		

```

[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

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
<i>line-num</i>	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.
```

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2.3.4 show running-config

show running-config

show running-config

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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

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-	-

3 LINE

3.1 LINE

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** }

LINE

	-	-

3.1.2 line

LINE

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

aux		
console		
tty		
vty		telnet/ssh
<i>First-line</i>		first-line
<i>Last-line</i>		last-line

|

|

|

LINE

|

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

|

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|

|

	-	-

3.1.3 line vty

VTY 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

LINE

telnet	Line	Telnet
none	Line	

VTY TTY NONE
default transport input

Line

Line VTY VTY **show**
running Line
input **default transport input** **no transport**
 **input** **LINE**
transport input none

```

line vty 0 4 telnet
Ruijie# configure terminal
Ruijie(config)# line vty 0 4
Ruijie(config-line)# transport input telnet

```

show running	
---------------------	--

RGOS10.1

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---	---

4

4.1

4.1.1 ping

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



DNS

1 ping

```
Ruijie# ping 192.168.5.1
```

```
Sending 5, 100-byte ICMP Echoes to 192.168.5.1, timeout is 2 seconds:
```

```
< press Ctrl+C to break >
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

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 >
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
Success rate is 100 percent (100/100), round-trip min/avg/max = 2/2/3 ms
```

-	-

-	-

4.1.2 ping ipv6

```
ping [ipv6] [ip-address [length length ] [ntimes times] [timeout seconds] [data data]  
[source source]
```

<i>ip-address</i>	IPv6

<i>length</i>	
<i>times</i>	
<i>seconds</i>	
<i>data</i>	
<i>source</i>	IPv6 ::1

2 5 100Byte IP

```

Ping ipv6
  ping ipv6
  ping ipv6
    2            5            100Byte            IP
    '!'                    ':'
      'C'
      ping
ping ipv6
  
```

	-	-
	ipv6	
	-	-

4.1.3 traceroute

traceroute

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

<i>vrf-name</i>	VRF
<i>ip-address</i>	IPv4
<i>number</i>	
<i>source</i>	IPv4 127.0.0.1
<i>seconds</i>	
<i>minimum maximum</i>	

```

2      192.168.9.2      4 msec  4 msec  4 msec
3      192.168.9.1      8 msec  8 msec  4 msec
4      192.168.0.10     4 msec  28 msec 12 msec
5      202.101.143.130  4 msec  16 msec  8 msec
6      202.101.143.154 12 msec  8 msec  24 msec
7      61.154.22.36    12 msec  8 msec  22 msec
                                     IP      61.154.22.36
1 6

```

2 traceroute

```

Ruijie# traceroute 202.108.37.42
< press Ctrl+C to break >
Tracing the route to 202.108.37.42
1      192.168.12.1     0 msec  0 msec  0 msec
2      192.168.9.2      0 msec  4 msec  4 msec
3      192.168.110.1   16 msec 12 msec 16 msec
4      * * *
5      61.154.8.129    12 msec 28 msec 12 msec
6      61.154.8.17     8 msec 12 msec 16 msec
7      61.154.8.250    12 msec 12 msec 12 msec
8      218.85.157.222 12 msec 12 msec 12 msec
9      218.85.157.130 16 msec 16 msec 16 msec
10     218.85.157.77   16 msec 48 msec 16 msec
11     202.97.40.65    76 msec 24 msec 24 msec
12     202.97.37.65   32 msec 24 msec 24 msec
13     202.97.38.162  52 msec 52 msec 224 msec
14     202.96.12.38    84 msec 52 msec 52 msec
15     202.106.192.226 88 msec 52 msec 52 msec
16     202.106.192.174 52 msec 52 msec 88 msec
17     210.74.176.158 100 msec 52 msec 84 msec
18     202.108.37.42  48 msec 48 msec 52 msec
                                     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
13     211.157.37.14  50 msec  40 msec  50 msec
14     222.35.65.1    40 msec  50 msec  40 msec
15     222.35.65.18   40 msec  40 msec  40 msec
16     222.35.15.109  50 msec  50 msec  50 msec
17     *      *      *
18     64.170.98.32   40 msec  40 msec  40 msec

```

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-	-

4.1.4 traceroute ipv6

traceroute ipv6

traceroute [ipv6 ip-address] [probe number] [timeout seconds] [ttl minimum maximum]

<i>ip-address</i>	IPv6
<i>number</i>	
<i>seconds</i>	
<i>minimum maximum</i>	TTL

Traceroute ipv6

DNS

traceroute ipv6

1 traceroute ipv6

Ruijie# **traceroute ipv6 3004::1**

< press Ctrl+C to break >

Tracing the route to 3004::1

1	3000::1	0 msec	0 msec	0 msec
2	3001::1	4 msec	4 msec	4 msec
3	3002::1	8 msec	8 msec	4 msec
4	3004::1	4 msec	28 msec	12 msec

IP 3004::1

1 4

2 traceroute ipv6

Ruijie# **traceroute ipv6 3004::1**

< press Ctrl+C to break >

Tracing the route to 3004::1

1	3000::1	0 msec	0 msec	0 msec
2	3001::1	4 msec	4 msec	4 msec
3	3002::1	8 msec	8 msec	4 msec
4	* * *			
5	3004::1	4 msec	28 msec	12 msec

IP 3004::1

1 5 4

-	-

--	--	--

- -

5

5.1

5.1.1 carrier-delay

carrier-delay

no

carrier-delay [*seconds*]

no carrier-delay

<i>seconds</i>	1 60

2



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--	---	---

5.1.2 clear counters

clear counters [*interface-id*]

	<i>interface-id</i>	

|

|

	show interfaces	clear
counters		

Ruijie# **clear counters gigabitethernet 1/1**

	show interfaces	

|

	-	-

5.1.3 clear interface

clear interface *interface-id*

	<i>interface-id</i>	

|

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┌

Switch Port,L2 Aggregate port ,Routed port,L3 Aggregate port
shutdown no shutdown

┌

Ruijie# **clear interface gigabitethernet 1/1**

┌

shutdown	

┌

┌

-	-

5.1.4 description

no

description *string*

no description

┌

<i>string</i>	

┌

┌

┌

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**

--	--	--

no

flowcontrol {auto | off | on}

no flowcontrol

auto	
off	
on	

└───┘

└───┘

└───┘

show interfaces

└───┘

1/1

Ruijie(config)# **interface gigabitethernet 1/1**

Ruijie(config-if)# **flowcontrol on**

show interfaces	

└───┘

-	-

5.1.7 interface aggregateport

no

interface aggregateport *port-number*

<i>port-number</i>	Aggregate port

└───┘

	show interfaces	

┌

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5.1.9 interface giagbitEthernet

interface gigabitEthernet *mod-num/port-num*

	<i>mod-num/port-num</i>	/

┌

┌

no

10G

interface tenGigabitEthernet *mod-num/port-num*

<i>mod-num/port-num</i>	/

|

|

|

no
tenGigabitEthernet

show interfaces **show interfaces**

|

Ruijie(config)# **interface tenGigabitEthernet** 1/2
Ruijie(config-if)#

|

show interfaces	

|

|

-	-

5.1.11 interface vlan

switch virtual interface SVI

no SVI

interface vlan *vlan-id*

no interface vlan *vlan-id*

|

<i>vlan-id</i>	VLAN ID

|

```
show interfaces show interfaces vlan
```

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

```
show interfaces
```

show interfaces	
-	-

5.1.12 line-detect

```
line-detect
```

```
line-detect
```

```
line-detect
```

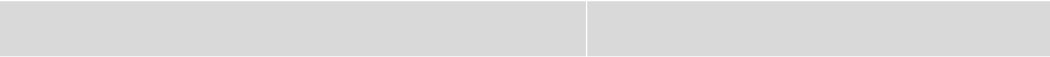
```
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
Interface : GigabitEthernet 0/1
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state      length(meters)
-----
A   Ok          1
pair state      length(meters)
-----
B   Ok          2
pair state      length(meters)
-----
```

C Short 1
pair state length(meters)

D Short 1

pairs	
state	OK Short Open A B OK C Ñ

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



L

L

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5.1.15 shutdown

no

shutdown

no shutdown

L

-	-

L

L

L

Ap SVI

show interfaces



no shutdown

1 Ap 1

Ruijie(config)# interface aggregateport 1

Ruijie(config-if)# shutdown

2 Ap 1

Ruijie(config)# interface aggregateport 1

Ruijie(config-if)# no shutdown

L

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5.1.16 snmp trap link-status

LinkTrap
SNMP
LinkTrap,
LinkTrap
no
SNMP
Link

snmp trap link-status

no snmp trap link-status

Link
SNMP
LinkTrap

Ap
SVI
LinkTrap

SNMP
LinkTrap
LinkTrap

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5.1.17 speed

no

10	10Mbps
100	100Mbps
1000	1000Mbps 1000Mbps

switchport

no switchport

	-	-

	2	
--	---	--

--	--	--

		switchport		
	2		2	3

Ruijie(config-if)# **switchport**

	show interfaces	

--	--	--

	-	-

5.1.19 switchport access

access port VLAN

no VLAN

switchport access vlan *vlan-id*

no switchport access vlan

	<i>vlan-id</i>	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

-	-

5.1.20 switchport mode

```

trunk port,      802.1Q      switch port      access port
                    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

```

native vlan *vlan-id*

5.2

5.2.1 show interfaces

show interfaces [*interface-id*] [**counters** | **description** | **status** | **switchport** | **trunk** | **transceiver** [**alarm** | **diagnosis**]]

<i>interface-id</i>	loopback aggregateport SVI
counters	
description	link
status	
switchport	
trunk	trunking port Aggregate port
transceiver	
alarm	None
diagnosis	

```
Ruijie# show interfacesgigabitEthernet 0/1 switchport
Interface Switchport ModeAccess Native Protected VLAN lists
-----
GigabitEthernet 0/1 enabled Access 11 Disabled ALL
```

duplex	

6 Aggregate Port

6.1

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
	MAC		
	MAC		
src-mac	MAC		AP
	MAC		
	MAC		
src-dst-ip	IP	IP	IP—
	IP		IP—
	IP		
dst-ip		IP	AP
		IP	
	IP		
src-ip		IP	AP
		IP	
		IP	
src-dst-mac	MAC	MAC	
	MAC—	MAC	
	MAC—	MAC	

MAC

┌

┌

-	-

6.2

6.2.1 show aggregateport

aggregateport

┌

<i>aggregate-port-number</i>	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

7.1

7.1.1 name

VLAN **no**

name *vlan-name*

no name

	<i>vlan-name</i>	VLAN

VLAN	VLAN	VLAN ID	VLAN 2	"VLAN0002"
------	------	---------	--------	------------

VLAN		
------	--	--

show vlan	vlan	
------------------	------	--

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)# name vlan10
```

show vlan		VLAN

--	--	--

-		-

7.1.2 switchport access

no access port VLAN VLAN

switchport access vlan *vlan-id*

no switchport access vlan

access	switch port	access port
trunk	switch port	trunk port
hybrid	switch port	hybrid port

no switchport trunk {allowed vlan | native vlan }

allowed vlan <i>vlan-list</i>	Trunk	VLAN	vlan-list
	VLAN		VLAN
	VLAN ID	VLAN ID	-
	10-20		,
	1-10,20-25,30,33		
	all	VLAN	VLAN
add	VLAN	VLAN	
remove	VLAN	VLAN	
except	VLAN	VLAN	
	VLAN		
native vlan <i>vlan-id</i>	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 fastethernet1/15 switchport
Interface Switchport Mode Access Native Protected VLAN lists
-----
FigabitEthernet 1/15 enabled TRUNK 1 1 Disabled 1,3-4094
    
```

--	--	--

subvlan ip

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

no subvlan-address-range

<i>start-ip</i>	SubVLAN	IP
<i>end-ip</i>	SubVLAN	IP

-

VLAN

end **Ctrl+C**
exit

```
Ruijie(config)# vlan 3
Ruijie(config-vlan)# subvlan-address-range 192.168.3.10
192.168.3.100
```

show supervlan	supervlan

-	-

8.1.3 supervlan

VLAN **supervlan**

supervlan

no supervlan

-	-

|

| 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 3  
Ruijie(config-vlan)# proxy-arp
```

show supervlan	supervlan

-	-

8.2

8.2.1 show supervlan

SuperVLAN	SubVLAN	1wzP	gavj	mV	AW	Arca	DNIT	ENR	08N	0.A
-----------	---------	------	------	----	----	------	------	-----	-----	-----



9 Protocol VLAN

9.1

9.1.1 protocol-vlan ipv4 addr mask addr vlan id

IP VLAN

<i>addr</i>	IP	x.x.x.x	
<i>id</i>	VLAN ID	1-	VLAN

┌

┌

┌

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

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

┌

RGOS10.1

-	-

9.1.2 protocol vlan ipv4

IP

VLAN



Protocol VLAN

-	-
---	---

9.2

9.2.1 show protocol-vlan

Protocol VLAN

show vlan protocol-vlan

-	-
---	---

Ruijie# **show protocol-vlan**

-	-
---	---

RGOS10.1

-	-
---	---

private-vlan mapping {*svlist* | **add** *svlist* | **remove** *svlist*}

no private-vlan mapping

<i>svlist</i>	secondary VLAN list
no	

|

Primary VLAN

|

```
Ruijie(config)# interface vlan 22
Ruijie(config-if)# private-vlan mapping add 24-26
```

show vlan private-vlan	-

RGOS10.1

-	-

10.1.3 private-vlan type

VLAN VLAN

private-vlan {*community* | *isolated* | *primary*}

no private-vlan {*community* | *isolated* | *primary*}

<i>community</i>	community VLAN
<i>isolated</i>	isolated VLAN
<i>primary</i>	primary VLAN
<i>no</i>	VLAN

	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

	<i>p_vid</i>	primary VID
	<i>s_vid</i>	secondary VID
	no	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

10.3.1 switchport hybrid allowed vlan

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

no switchport hybrid allowed vlan

hybrid

no	hybrid

|

|

|

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

--	--	--

11 QinQ

11.1

11.1.1 dot1q outer-vid vid register inner-vid v_list

tunnel Qi/TTW* nTr 852/GS297418 519 6.023944120.64 /TTf QTr 852/GS30.3604519 6.02Tm 201

	-	-
--	---	---

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*

<i>v-list</i>		vid
<i>vid</i>	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 <i>intf-id</i>]	-

RGOS10.3

-	-

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

access trunk hybrid uplink vid

└───

└───

└───

```

tag
tag
ruijie# configure
ruijie(config)# interface gigabitEthernet 0/2
ruijie(config-if)# dot1q-Tunnel cos 3 remark-cos 5
ruijie(config-if)# end
    
```

show interface intf-name remark	-

└───

```

-
-
    
```

-	-

11.1.5 frame-tag tpid tpid

tpid

frame-tag tpid <tpid>

no frame-tag tpid

```

no
tpid
    
```

no	tpid

└───

```

(5760
)
    
```

└───

```

tpid 0x9100
ruijie(config)# interface g 0/3
    
```

```

tpid 0x9100
ruijie(config)# interface g 0/3
    
```

```
ruijie(config-if)# frame-tag tpid 0x9100
```

	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)# mac-address-mapping 1 destination-vlan 5
source-vlan 1-3
ruijie(config-if)#end

```

	show interface mac-address-mapping x	-

RGOS10.4

	no	uplink

└───┘

uplink

└───┘

└───┘

uplink

```
ruijie(config)#interface gigabitEthernet
```

```
switchport mode 9.233 0 Td]T2 1 Tf_0 1 T.8474f0 Tc 14.97j/T
```

```

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

-	-

11.1.11 switchport dot1q-tunnel native vlan

```
ruijie(config)#end
```

```
show interface dot1q-tunnel
```

-



	show traffic-redirect	-
--	------------------------------	---

RGOS10.1



	-	-
--	---	---

11.1.15 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 }		-

┌

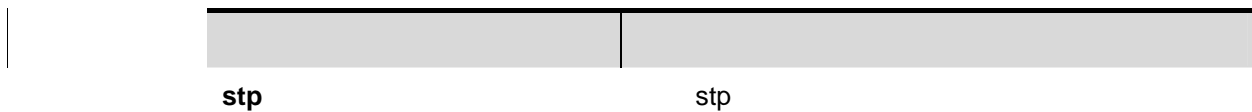
RGOS10.3

-		-

11.1.16 l2protocol-tunnel *proto-type* tunnel-dmac *mac-address*

I2protocol-tunnel { stp|gvrp } tunnel-dmac *mac-address*

no I2protocol-tunnel { stp|gvrp } tunnel-dmac *mac-address*



```
┌
```

```
┌
```

```
┌
```

```

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*]

<i>intf-id</i>	

```
┌
└           tpid

```

```
┌
```

```
┌
```

```

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

```



dot1q-tunnel

show interface [intf-id] dot1q-tunnel



┌

┌

```
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
```

┌

-	-

QinQ

<i>intf-id</i>	

┌

┌

┌

```
ruijie# show traffic-redirect
Ports          Type          VID  Match-filter
-----
Gi0/3          Mod-outer     23   11
Gi0/3          Mod-outer     3    4
Gi0/3          Mod-outer     6    5
Gi0/3          Mod-inner     8    inner-to-8
Gi0/6          Mod-inner     9    100
Gi0/7          Nested-vid    13   nest-13
```

-	-

┌ RGOS10.3

-	-

11.2.9 show translation-table

access,trunk,hybrid vid

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

<i>intf-id</i>	

┌

|
|_____

|
|_____

```
ruijie# show translation-table
```

```
Ports          Relay-VID  Type    VID-list
```

```
-----
```

```
Gi0/8          10        Local   8-9,15,20-30
```

Destination mac : 01d0f8000006

L2protocol-tunnel : gvrp Disable

12 Share VLAN

12.1

12.1.1 share

	share vlan	
	-	-
	vlan	
	share vlan	no share
		end
		exit
		Ctrl+C

	Status	duplicated share vlan	Status	original	Status
		-		-	

|

|

~

13 MAC

13.1

13.1.1 address-bind

ip mac

address-bind *ip-address mac-address*

no address-bind *ip-address*

<i>ip-address</i>	IP
<i>mac-address</i>	mac

|

|

IP	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

```

--	--

/

address-bind install

no address-bind install



|

|

|

|

|

IP MAC IP IP
MAC MAC

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

show address-bind	

	Ipv4
	IPV4+MAC
	IPV4+MAC
	IPV4+MAC

	IPV6	
	ipv6	
	IPV6	
	MAC	MAC IPV6

```

IP      192.168.5.2      00d0.f822.33aa
IPV6
Ruijie# configure t
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind 00d0.f822.33aa ip 192.168.5.2
Ruijie(config)# address-bind ipv6-mode compatible
    
```

-	-

-	-



```
Ruijie# clear mac-address-table dynamic
```

show mac-address-table dynamic	

-	-

13.1.7 clear mac-address-table filtering

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

filtering	
address <i>mac-addr</i>	
vlan <i>vlan-id</i>	VLAN

```
show mac-address-table filtering
```

```
00d0.f800.0c0c
```

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

mac-address-table filtering	
show mac-address-table filtering	



no mac-address-table aging-time

<i>seconds</i>	

300

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

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

show mac-address-table aging-time	

show mac-address-table filtering

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

clear mac-address-table filtering	
show mac-address-table filtering	

-	-

13.1.11 mac-address-table notification

MAC **no**

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

no mac-address-table notification [interval | history-size]

interval <i>value</i>	MAC	Trap	1
history-size <i>value</i>	MAC		50

1 50

MAC Trap
snmp-server enable traps mac-notification
 MAC Trap

Ruijie(config)# **mac-address-table notification**
 Ruijie(config)# **mac-address-table notification interval 40**
 Ruijie(config)# **mac-address-table notification history-size 100**



	show mac-address-table static	
	clear mac-address-table static	

└───┘

	-	-

13.1.13 snmp trap mac-notification

MAC no

snmp trap mac-notification {added | removed}

no snmp trap mac-notification {added | removed}

	added	
	removed	

└───┘

└───┘

show mac-address-table notification *interface*

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification added
```

MAC

	-	
	-	

13.1.14 mac-address-learning

	mac-address-learning	
		MAC
	1	
	Ruijie(config-if)# no mac-address-learning	

13.2

13.2.1 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
```

|

address-bind	

|

|

-	-

13.2.2 show address-bind uplink

show address-bind uplink

|

|

|

|

|

```
Ruijie# show address-bind uplink
Ports      State
-----
Fa0/1      Disabled
Fa0/2      Disabled
```

.....

address-bind uplink

-

-	-

13.2.3 show mac-address-table address

show mac-address-table interface

MAC

	-	-
--	---	---

13.2.5 show mac-address-table count

show mac-address-table count

--	--

13.2.7 show mac-address-table filtering

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

<i>mac-addr</i>	MAC
<i>vlan-id</i>	VLAN

┌

┌

┌

```
Ruijie# show mac-address-table filtering
Vlan      MAC Address      Type      Interface
-----  -
1         0000.2222.2222  FILTER   Not available
```

clear mac-address-table filtering	
mac-address-table filtering	

┌

-	-
---	---

13.2.8 show mac-address-table interface

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

<i>interface-id</i>	(AggregatePort)
---------------------	------------------

interface <i>interface-id</i>	MAC
<i>history</i>	MAC

MAC

```
Ruijie# show mac-address-table notification interface
Interface          MAC Added Trap  MAC Removed Trap
-----
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:ADD Vlan : 1 MAC Addr: 00f8.d012.3456 GigabitEthernet 3/1
```

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

-	-
---	---

13.2.10 show mac-address-table static

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

<i>mac-addr</i>	MAC
<i>vlan-id</i>	VLAN
<i>interface-id</i>	(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	

-	-

13.2.11 show mac-address-table vlan

VLAN

show mac-address-table vlan [vlan-id]

<i>vlan-id</i>	VLAN ID

```
Ruijie# show mac-address-table vlan 1
Vlan    MAC Address      Type      Interface
-----  -
1       00d0.f800.1001  STATIC   gigabitethernet 1/1
1       00d0.f800.1002  STATIC   gigabitethernet 1/1
1       00d0.f800.1003  STATIC   gigabitethernet 1/1
```

|
|
|
|

1

Ruijie# show mac-address-learning

|
|

|
|

14 DHCP Snooping

14.1 DHCP snooping

14.1.1 ip dhcp snooping

```
DHCP Snooping                                no
      DHCP Snooping
```

[no] ip dhcp snooping

-	-

└───

└───

DHCP Snooping snooping	show ip dhcp snooping	DHCP
r	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
	-	-

14.1.2 ip dhcp snooping bootp-bind

DHCP Snooping Bootp
no DHCP snooping Bootp

[no] ip dhcp snooping bootp-bind

--	--	--

	show ip dhcp snooping	DHCP snooping

|

	-	-

14.1.3 ip dhcp snooping database write-delay.00.5 ref292.58 154.38 1.5 102 0 0 5

```

-----

```

show ip dhcp snooping	DHCP snooping

-	-

14.1.4 ip dhcp snooping database write-to-flash

DHCP Snooping

FLASH

ip dhcp snooping database write-to-flash

-	-

```


```

```


```

```


```

DHCP Snooping

FLASH

DHCP

flash

```

Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-to-flash
Ruijie(config)# end

```

-	-

```


```

```


```

--	--

	-	-
--	---	---

14.1.5 ip dhcp snooping information option

DHCP option82
no

[no] ip dhcp snooping information option

	-	-

└───┘

└───┘

└───┘

DHCP option82 DHCP option82

```

DHCP                      option82
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping information option
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
    
```


[no] ip dhcp snooping verify mac-address

-	-

└───┘

└───┘

MAC DHCP	DHCP CLIENT CLIENT MAC	MAC	MAC
-------------	---------------------------	-----	-----

└───┘

```

DHCP      MAC
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping verify mac-address
Ruijie(config)# end
Ruijie# show ip dhcp snooping
Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  ENABLE
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

└───┘

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14.2 DHCP snooping

14.2.1 ip dhcp snooping limit rate

DHCP

no

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

<i>rate-value</i>	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

-	-

14.2.2 ip dhcp snooping suppression

suppression no
no suppression

[no] ip dhcp snooping suppression

-	-

┌

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┌

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
    
```

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┌

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-	-

14.2.3 ip dhcp snooping trust

DHCP snooping TRUST
no UNTRUST

[no] ip dhcp snooping trust

-	-

UNTRUST

	DHCP	TRUST
DHCP	UNTRUST	DHCP

```

fastEthernet 0/1 TRUST
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping trust
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                      YES                unlimited
    
```



14.3 DHCP snooping

14.3.1 show ip dhcp snooping

┌

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-	-

14.3.2 show ip dhcp snooping binding

DHCP Snooping

show ip dhcp snooping binding

┌

-	-

┌

┌

┌

DHCP Snooping

```
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1

MacAddress      IPAddress      Lease(sec)    Type          VLAN  Interface
-----
0000.0000.0001  1.1.1.1       78128         dhcp-snooping 1     FastEthernet 0/1
```

┌

ip dhcp snooping binding	DHCP snooping
clear ip dhcp snooping binding	DHCP snooping

┌

┌

--	--

DHCP Snooping

debug ip dhcp snooping {event | packet}

15 IGMP Snooping

15.1

15.1.1 deny

	profile	profile	deny
deny			
	deny	profile	
	profile	deny	
	profile		
	profile	range	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		
	-	-	

15.1.2 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	

-	-

15.1.3 range

profile profile range
no

range *low-ip-address* [*high-ip-address*]

no range *low-ip-address* [*high-ip-address*]

R | - @ • @ G Ä Ä È æ

<i>high-ip-address</i>	
------------------------	--

┌

┌ profile

┌ profile profile profile deny

┌ 224.2.2.2~224.2.2.244 profile
 Ruijie(config)# **ip igmp profile 1**
 Ruijie(config-profile)# **range 224.2.2.2 224.2.2.244**

ip igmp profile	profile
deny	profile deny
permit	profile permit

┌

-	-

15.1.4 ip igmp profile

IGMP profile profile
 profile profile-number igmp profile

ip igmp profile *profile-number*

no ip igmp profile *profile-number*

<i>profile-number</i>	profile 1-65535

┌

┌

```

IGMP Profiles                               SVGL
IGMP Filtering                               profile
profile
    
```

```

1 profile profile
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)#
    
```

range	profile	
permit	profile	permit
deny	profile	deny

```

    
```

-	-

15.1.5 ip igmp snooping ivgl

```

igmp snooping ivgl ip igmp snooping ivgl
no igmp snooping
    
```

ip igmp snooping ivgl

no ip igmp snooping

-	-

```

disable
    
```

```

    
```

```

VLAN VLAN VLAN
VLAN
    
```

```

r
    pim snooping          igmp snooping  IVGL  IVGL-SVGL
    no ip igmp snooping  igmp snooping
    pim snooping          pim snooping
    
```

```

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

ip igmp snooping svgl		igmp snooping	svgl
ip igmp snooping ivgl-svgl		igmp snooping	

```

    
```

-		-	

15.1.6 ip igmp snooping ivgl-svgl

```

    igmp snooping          ivgl-svgl          ip igmp snooping
    ivgl-svgl             no                  igmp snooping
    ip igmp snooping ivgl-svgl
    no ip igmp snooping
    
```

-		-	

```

disable
    
```

```

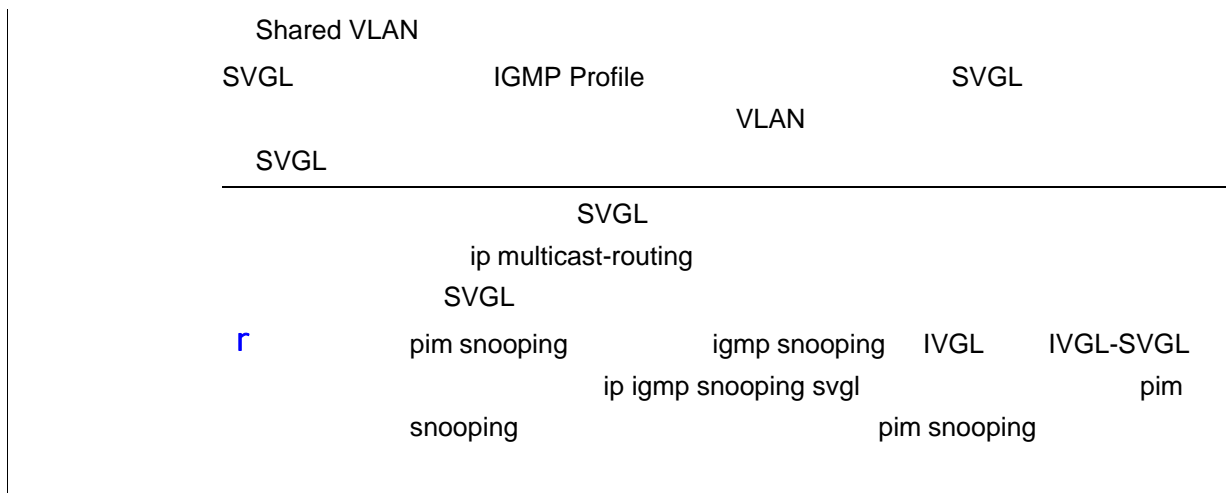
    
```

```

    IGMP Profile          IVGL  SVGL          IVGL  SVGL
                                VLAN          SVGL
                                VLAN
    
```

IVGL-SVGL

r



```

Ruijie(config)# ip igmp snooping svgl
Ruijie(config)# ip igmp snooping svgl profile 1
    
```

ip igmp snooping svgl vlan	Shared VLAN
ip igmp snooping svgl profile	SVGL profile

-	-

15.1.8 ip igmp snooping vlan

```

vlan          igmp snooping          ivgl          ip igmp
snooping vlan      no          igmp snooping

ip igmp snooping vlan vid
no ip igmp snooping vlan vid
    
```

vid	vlan id

disable



	vlan	IGMP Snooping
	vlan pim snooping	igmp snooping
r	no ip igmp snooping vlan	igmp snooping
	pim snooping VLAN	pim snooping

vlan 2 igmp snooping

```

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		

-		-	

15.1.10 ip igmp snooping svgl profile

```

profile          profile          SVGL          ip igmp snooping svgl
profile          no
ip igmp snooping svgl profile profile-number
no ip igmp snooping svgl profile
    
```

		EÄ	
<i>profile-number</i>	profile		<1-65536>

```

svgl          profile
    
```

```

SVGL          IVGL-SVGL
    
```

```

igmp snooping svgl
    
```

-	-

15.1.11 ip igmp snooping dyn-mr-aging-time

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

no ip igmp snooping dyn-mr-aging-time

<i>time</i>	, <1-3600>

300s

IGMP PIM

Hello

100s

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

-	-

15.1.12 ip igmp snooping fast-leave enable

igmp snooping
ip igmp snooping fast-leave
enable no igmp snooping fast-leave

ip igmp snooping fast-leave enable

no ip igmp snooping fast-leave enable

	-	-

disable

IP IGMP

IP IGMP

igmp snooping fast-leave
Ruijie(config)# **ip igmp snooping fast-leave enable**

┌

```

IGMP
                                0
                                IGMP Snooping

IGMP
                                                0
                                IGMP Snooping

IGMPv3
    
```

┌

```

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

┌

┌

┌

-	-

15.1.14 ip igmp snooping source-check default-server

```

IP                                IP                                igmp
snooping ip                        ip                                ip igmp snooping source-check
default-server                    no ip
    
```

ip igmp snooping source-check default-server *address*

no ip igmp sooping souce-check

┌

<i>address</i>	

┌

┌

┌

IP

Server	Server	IP
IP		
		IP

```

Ruijie(config)# ip igmp snooping source-check default-server
192.168.4.243
    
```

ip igmp snooping limit-ipmc	ip
------------------------------------	----

-	-
---	---

15.1.15 ip igmp snooping limit-ipmc

ip igmp snooping limit-ipmc *vid* *address* *gaddress* *server* *saddress*
no ip igmp snooping limit-ipmc *vid* *address* *gaddress* *server* *saddress*

<i>vid</i>	ip	vlan id
<i>gaddress</i>		
<i>saddress</i>	()

```

Ruijie(config)# ip igmp snooping limit-ipmc vlan 1 address 224.0.0.1
    
```

server 192.168.4.243



	-	-
--	---	---

15.1.18 ip igmp snooping mrouter learn pim-dvmrp

IGMP Query/Dvmrp/PIM Hello
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**

--	--	--

15.1.19 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*

<i>vid</i>	vlan id
<i>interface-id</i>	id

|

|

| IP

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

ip igmp snooping source-check port	

|

-	-

15.1.20 ip igmp snooping vlan mrouter learn pim-dvmrp

IGMP Query/Dvmrp/PIM Hello
ip igmp snooping vlan mrouter learn no

|



vid

IGMP Profile

IGMP Report

IGMP Profile

profile

filter

	ip igmp snooping filter	

┌

	-	-

15.2

15.2.1 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 filtering
mrouter		
statistics [vlan <i>vlan-id</i>]		snooping
vlan	vlan	snooping

┌

EXEC

┌

┌

	-	-

┌

-	-

15.2.2 show ip igmp profile [profile-number]

	profile
<i>profile-number</i>	profile

┌

┌ EXEC

┌ profile

┌

-	-

┌

-	-

15.2.3 debug igmp-snp

IGMP Snooping Debug no

- debug igmp-snp**
- debug igmp-snp event**
- debug igmp-snp packet**
- debug igmp-snp msf**
- debug igmp-snp warning**
- undebug igmp-snp**

undebg igmp-snp event
undebg igmp-snp packet
undebg igmp-snp msf
undebg igmp-snp warning

	IGMP Snooping
event	IGMP Snooping
packet	IGMP Snooping
msf	IGMP Snooping
warning	IGMP Snooping

|

| EXEC

|

|

-	-

|

-	-

|

16 DHCPV6 Snooping

16.1

16.1.1 ipv6 dhcp snooping

```

dhcpv6 snooping no dhcpv6
snooping

```

ipv6 dhcp snooping

no ipv6 dhcp snooping

-	-

└───

└───

```

└───

```

```

                                dhcpv6 snooping          show ipv6 dhcp
snooping          dhcpv6 snooping

```

```

└───

```

```

1          dhcpv6 snooping
Ruijie(config)# ipv6 dhcp snooping

```

show ipv6 dhcp snooping	dhcpv6 snooping

└───

```

└───

```

10.4	

16.1.2 ipv6 dhcp snooping binding-delay

no

ipv6 dhcp snooping binding-delay *seconds*

no ipv6 dhcp snooping binding-delay

<i>time</i>	

┌

┌

┌

IPv6

1 10

Ruijie(config)# **ipv6 dhcp snooping binding-delay 10**

┌

10.4	

16.1.3 ipv6 dhcp snooping database write-delay

dhcpv6 snooping

flash

no

ipv6 dhcp snooping database write-delay *time*

no ipv6 dhcp snooping database write-delay

<i>time</i>	flash

┌

|

|

dhcpv6 snooping flash
IP

|

1 flash 100
Ruijie(config)# ipv6 dhcp snooping database write-delay 100

|

show ipv6 dhcp snooping	dhcpv6 snooping

|

10.4	

16.1.4 ipv6 dhcp snooping database write-to-flash

|

dhcpv6 snooping flash
ipv6 dhcp snooping database write-to-flash

|

-	

|

dhcpv6 snooping flash
flash flash

|

1 dhcpv6 snooping flash
Ruijie(config)# ipv6 dhcp snooping database write-to-flash

|

--	--

	10.4	

16.1.5 ipv6 dhcp snooping filter-dhcp-pkt

	dhcpv6	no
	ipv6 dhcp snooping filter-dhcp-pkt	
	no ipv6 dhcp snooping filter-dhcp-pkt	
	dhcpv6	dhcpv6
	1 fastethernet 0/1 dhcpv6	
	Ruijie(config)# interface fastethernet 0/1	
	Ruijie(config-if)# ipv6 dhcp snooping filter-dhcp-pkt	
	-	-
	10.4	

16.1.6 ipv6 dhcp snooping ignore dest-not-found

no DHCPv6

ipv6 dhcp snooping ignore dest-not-found

no ipv6 dhcp snooping ignore dest-not-found

--	--

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DHCPv6	MAC	MAC	DHCPv6	MAC
DHCPV6_SNOOPING-5-DEST_NOT_FOUND: Could not find destination port.				
Destination MAC [mac-address]		DHCPv6		
	MAC			VLAN

1
Ruijie(config)# **ipv6 dhcp snooping ignore dest-not-found**

show ipv6 dhcp snooping	dhcpv6 snooping

┌

10.4	

16.1.7 ipv6 dhcp snooping link-detection

LINK DOWN no

ipv6 dhcp snooping link-detection

no ipv6 dhcp snooping link-detection

	LINK DOWN	
	LINK DOWN	
	1 LINK DOWN	
	Ruijie(config)# ipv6 dhcp snooping link-detection	
	show ipv6 dhcp snooping	dhcpv6 snooping
	10.4	

16.1.8 ipv6 dhcp snooping trust

```

                dhcpv6 snooping      trust      no
            untrust

ipv6 dhcp snooping trust
no ipv6 dhcp snooping trust

trust
    
```

```

1          fastethernet 0/1  trust
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 dhcp snooping trust
    
```

show ipv6 dhcp snooping	dhcpv6 snooping

10.4	

16.1.9 Ipv6 dhcp snooping vlan

```

vlan          dhcpv6 snooping          no
vlan          dhcpv6 snooping
    
```

ipv6 dhcp snooping {*vlan-list* | {*vlan-min* [*vlan-max*]}}

no ipv6 dhcp snooping {*vlan-list* | {*vlan-min* [*vlan-max*]}}

<i>vlan-list</i>	vlan 1,3-5,7,9-11
<i>vlan-min</i>	vlan id
<i>vlan-max</i>	vlan id

```

dhcpv6 snooping  vlan
    
```

```

dhcpv6 snooping          vlan  dhcpv6 snooping
vlan          dhcpv6 snooping          vlan          dhcpv6 snooping
    
```

```

1  vlan 1          dhcpv6 snooping
Ruijie(config)# no ipv6 dhcp snooping vlan 1
    
```

--	--

	-	-
--	---	---

10.4

16.1.11 ipv6 verify source

no

ipv6 verify source [port-security]

no ipv6 verify source

port-security	MAC	+ IPV6	MAC
		IPV6	
		IPV6	IPV6

IPV6

DHCPV6

IPV6

```

1      fastethernet 0/1  MAC+IPV6
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 verify source port-security
    
```

10.4

16.2

16.2.1 show ipv6 dhcp snooping

dhcpv6 snooping

show ipv6 dhcp snooping

-	-

└──

└──

└──

dhcpv6 snooping

1 dhcpv6 snooping

Ruijie# show ipv6 dhcp snooping

Switch DHCPv6 snooping status ENABLE

DHCPv6 snooping vlan: 1-4094

DHCPv6 snooping database write-delay time: 0 seconds

DHCPv6 ignore dest-not-found :DISABLE

DHCPv6 snooping link detection :DISABLE

Interface	Trusted	Filter DHCP
-----	-----	-----
FastEthernet0/10	yes	DISABLE

└──

└──

└──

10.4	

16.2.2 show ipv6 dhcp snooping binding

dhcpv6 snooping

show ipv6 dhcp snooping binding [ipv6-address] [mac-address] [vlan vlan_id]
 [interface interface_name]

vlan <i>vlan_id</i>	VLAN
interface <i>interface_name</i>	

dhcpv6 snooping

```
1 show ipv6 dhcp snooping prefix
```

```
Total number of prefix: 1
```

Mac Address	IPv6 Prefix	Lease(s)	VLAN	Interface
00d0.f801.0101	2001:2002::/64	42368	2	fa 0/1

dhcpv6 snooping

show ipv6 source binding [*ipv6-address*] [*mac-address*] [**vlan** *vlan_id*]
[**interface** *interface_name*] [**dhcp-snooping** | **static**]

16.3.1 clear ipv6 dhcp snooping binding

dhcpv6 snooping

clear ipv6 dhcp snooping binding [*ipv6-address*] [*mac-address*] [**vlan** *vlan_id*]
[**interface** *interface_name*]

<i>ipv6-address</i>	ipv6
<i>mac-address</i>	mac
vlan <i>vlan_id</i>	VLAN
interface <i>interface_name</i>	

<i>ipv6-prefix</i>	ipv6
<i>mac-address</i>	mac
vlan <i>vlan_id</i>	VLAN
interface <i>interface_name</i>	

┌

┌

┌

dhcpv6 snooping

┌
1 dhcpv6 snooping
Ruijie# **clear ipv6 dhcp snooping prefix**

┌

┌

┌

10.4	

16.3.3 clear ipv6 dhcp snooping statistics

dhcpv6 snooping dhcpv6

clear ipv6 dhcp snooping statistics

┌

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┌

┌

┌

dhcpv6 snooping dhcpv6

	10.4	

17 ND Snooping

17.1

17.1.1 ipv6 nd snooping

IPv6 ND snooping

no

10.4(2)	

17.1.2 ipv6 nd snooping vlan

VLAN IPv6 ND snooping no VLAN
 IPv6 ND Snooping
ipv6 nd snooping vlan {vlan-rng | {vlan-min [vlan-max]}}
no ipv6 nd snooping vlan {vlan-rng | {vlan-min [vlan-max]}}

<i>vlan-rng</i>	vlan
<i>vlan-min</i>	vlan
<i>vlan-max</i>	vlan

vlan ipv6 nd snooping

```

1      VLAN 100  IPv6 ND Snooping
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# no ipv6 nd snooping vlan 100

2      VLAN 4 5-7 15  IPv6 ND Snooping
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# no ipv6 nd snooping vlan 4,5-7,15
    
```

show ipv6 nd snooping	ipv6 nd snooping

10.4(2)	

17.1.3 ipv6 nd snooping trust

trust no untrust

ipv6 nd snooping trust
no ipv6 nd snooping trust

untrust

FastEthernet 0/1 Trust

```
Ruijie# configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Ruijie(config)# interface fastethernet 0/1
```

```
Ruijie(config-if)# ipv6 nd snooping trust
```

```
show ipv6 nd snooping
```

```
ipv6 nd snooping
```

17.1.4 ipv6 nd snooping check address-resolution

ND

no

ND

ipv6 nd snooping check address-resolution [key-node-only]

no ipv6 nd snooping check address-resolution

key-node-only	ND

17.1.5 ipv6 nd snooping detect gateway

no

ipv6 nd snooping detect gateway ra
no ipv6 nd snooping detect gateway ra

VLAN

Ruijie#

<i>vlan-rng</i>	vlan
<i>vlan-min</i>	vlan
<i>vlan-max</i>	vlan

VALN

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping detect gateway vlan 8
```

show ipv6 nd snooping	nd snooping

10.4(2)	

17.1.7 ipv6 nd snooping key-node

ND

nD

ND

```
Ruijie# configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Ruijie(config)#no ipv6 nd snooping monitor stateless-user
```



```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping stateless-user combine-security
```

show ipv6 nd snooping	ipv6 nd snooping

10.4(2)	

17.1.10 ipv6 nd snooping stateless-user address-bind

IPv6

no

```
ipv6 nd snooping stateless-user address-bind [strict] [ip-mac]
no ipv6 nd snooping stateless-user address-bind
```

strict	link-local link-local link-local
ip-mac	IP+MAC IP

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping stateless-user address-bind
                2                               IP+MAC
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#ipv6 nd snooping stateless-user address-bind strict
ip-mac
```

show ipv6 nd snooping

ipv6 nd snooping

Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# **ipv6 nd snooping stateless-user station-move**



show ipv6 nd snooping	ipv6 nd snooping
10.4(2)	

17.1.13 ipv6 nd snooping stateless-user per-vlan prefix-limit

VLAN IPv6

ipv6 nd snooping stateless-user per-vlan prefix-limit *num*
no ipv6 nd snooping stateless-user per-vlan prefix-limit

	VLAN	IPv6
<i>num</i>		

2

VLAN 4 IPv6

Ruijie# **configure terminal**
 Enter configuration commands, one per line. End with CNTL/Z.
 Ruijie(config)#**ipv6 nd snooping stateless-user per-vlan prefix-limit 4**

show ipv6 nd snooping	ipv6 nd snooping
------------------------------	------------------

10.4(2)	
---------	--

17.1.14 clear ipv6 nd snooping key-node

clear ipv6 nd snooping key-node [vlan *vid*]

<i>vid</i>	VLAN

Ruijie# **clear ipv6 nd snooping key-node**

10.4(2)	

17.1.15 clear ipv6 nd snooping stateless-user

clear ipv6 nd snooping stateless-user [vlan *vid*]

<i>vid</i>	VLAN

```
Ruijie# clear ipv6 nd snooping stateless-user
```

	10.4(2)	

17.2

17.2.1 show ipv6 nd snooping

IPv6 nd snooping

show ipv6 nd snooping [interface]

	interface	

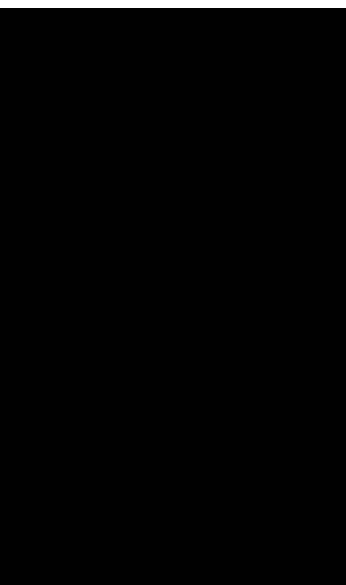
IPv6 nd snooping

```
Ruijie# show ipv6 nd snooping
```

```

-@  A06 2H0 d2A@Bt

```



17.2.2 show ipv6 nd snooping key-node

show ipv6 nd snooping key-node

Ruijie# `show ipv6 nd snooping key-node`

█

17.2.3 show ipv6 nd snooping stateless-user

ipv6

show ipv6 nd snooping stateless-user

ND Snooping

18 MSTP

18.1

18.1.1 bpdu src-mac-check

bpdu mac no bpdu mac

bpdu src-mac-check H.H.H

no bpdu src-mac-check

<i>H.H.H</i>	mac	bpdu
no	bpdu	

└───

└───

└───

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# bpdu src-mac-check 00d0.f800.1e2f
```

-		-

└───

-		-

18.1.2 clear spanning-tree detected-protocols

└───

RSTP BPDUs BPDUs

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

<i>interface-id</i>	

|

|

|

|

Ruijie# **clear spanning-tree detected-protocols**

show spanning-tree interface	STP

|

-	-

18.1.3 spanning-tree

MSTP MSTP MSTP

spanning-5(tg)1 spanning-02_0 1 Tf0 Tc 6 Tw 16.0570 Td<0A1C>Tj/TT0 1 Tf1 0 Td()TjETT1 1 Tf-0.0086 T



forward-time hello-time max-age

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

show spanning-tree interface	STP

--	--

-	-
---	---

18.1.6 spanning-tree bpduguard

BPDU Guard enabled disabled
 BPDU Guard

spanning-tree bpduguard [enabled | disabled]

enabled	BPDU Guard
disabled	BPDU Guard

|

|

|

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

show spanning-tree interface	STP
-------------------------------------	-----

|

-	-
---	---

18.1.7 spanning-tree compatible enable

MSTI

spanning-tree compatible enable

no spanning-tree compatible enable

--	--

	-	-
--	---	---

|

|

|

|

Ruijie(config-if)#**spanning-tree compatible enable**



	-	-

┌

	-	-

18.1.9 spanning-tree guard none

guard no guard

spanning-tree guard none

no spanning-tree guard none

	-	-

┌

guard

┌

┌

┌

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

	-	-

┌

	-	-

18.1.10 spanning-tree guard root

root guard

MSTP

└──────────

└──────────

└──────────

└──────────

└──────────

└──────────

18.1.12 sp

spanning
no spanning

└──────────

└──────────

└──────────

└──────────

└──────────

ernet 1/1
k-type point-to-point

──────────

STP

──────────

-

oop guard

loop guard

──────────

-

ard default

367



18.1.14 spanning-tree mode

STP no

spanning-tree mode [stp | rstp | mstp]

no spanning-tree mode

stp	Spanning tree protocol(IEEE 802.1d)
rstp	Rapid spanning tree protocol(IEEE 802.1w)
mstp	Multiple spanning tree protocol(IEEE 802.1s)

MSTP

.

.

Ruijie(config)# **spanning-tree mode stp**

show spanning-tree	

.

--	--


```
VLAN 3 Instance 1 MST
Ruijie(config-mst)# no instance 1 vlan 3
Instance 1
Ruijie(config-mst)# no instance 1
MST show
```



MSTP

Region

```
Instance 20                8192
Ruijie(config-if)# spanning-tree mst 20 priority 8192
show spanning-tree mst instance interface interface-id
```

	show spanning-tree interface	STP
	-	-

18.1.20 spanning-tree portfast

	Portfast	disabled
	Portfast	Portfast
	spanning-tree portfast [disabled]	
	disabled	Portfast
	-	
	<pre>Ruijie(config)# interface gigabitethernet 1/1 Ruijie(config-if)# spanning-tree portfast</pre>	
	show spanning-tree interface	STP


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



18.1.24 spanning-tree reset

	spanning-tree	no
	spanning-tree reset	
	-	-
	Ruijie(config)# spanning-tree reset	
	show spanning-tree	STP
	show spanning-tree interface	STP
	-	-

18.1.25 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**

|

-	-

|

|

-	-

18.1.26 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**

|

-	-

|

-	-

18.1.27 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**

-	-

┌

-	-

18.1.28 spanning-tree tx-hold-count

STP TxHoldCount BPDU no

spanning-tree tx-hold-count *tx-hold-count*

no spanning-tree tx-hold-count

MSTP

<i>tx-hold-count</i>	TxHoldCount	1	10

3



Ruijie(config)# **spanning-tree tx-hold-count 5**

show spanning-tree	MSTP	

tx-hold-count	TxHoldCount
pathcost method	

└──

└──

└──

Ruijie# **show spanning-tree hello-time**

spanningtree pathcost method	
spanning-tree forward-time	BridgeForwardDelay
spanning-tree hello-time	BridgeHelloTime
spanning-tree max-age	BridgeMaxAge

link-type	linktype
------------------	----------

┌

┌

┌

Ruijie# **show spanning-tree interface gigabitethernet 1/5**

spanning-tree bpdupfilter	BPDU filter
spanning-tree portfast	portfast
spanning-tree bpduguard	BPDU guard
spanning-tree link-type	“ ”

┌

-	-
---	---

18.2.3 show spanning-tree mst

MST Instance

show spanning-tree mst { configuration | instance-id [interface interface-id] }

configuration	mst
<i>instance-id</i>	<i>Instance</i>
<i>interface-id</i>	

Instance

.

Ruijie# **show spanning-tree mst configuration**

spanning-tree mst configuration	MST region
spanning-tree mst cost	instance
spanning-tree mst max-hops	instance
spanning-tree mst priority	instance
spanning-tree mst port-priority	instance

-	-

19 SPAN

19.1

19.1.1 monitor session

SPAN . no

monitor session *session_number* {**source interface** *interface-id* [**both** | **rx** | **tx**] |
destination interface *interface-id* **switch** | [**acl**

SPAN

|

|

|

show monitor

SPAN 1

```
Ruijie# show monitor session 1
sess-num: 1
src-intf:
GigabitEthernet 3/1 frame-type Both
dest-intf:
```




SPAN

destination | remote-source}

on remote vlan *vlan-id* [reflector-port] interface

terface *interface-name* [rx | tx | both]

on remote vlan *vlan-id* reflector-port interface



```

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

-	-

20.1.2 remote-span

RSPAN VLAN

[no] remote-span

-	-

VLAN

end Ctrl+C
 exit

Ruijie(config)#

	show vlan	Vlan
	-	-

21 IP

21.1

21.1.1 ip address

IP

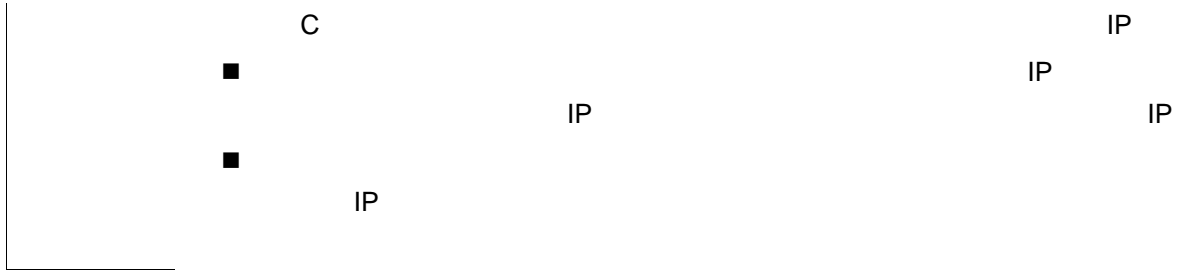
no

IP

ip address *ip-address network-mask* [**secondary**]

no ip address *ip-address network-mask* [**secondary**]





```

IP      10.10.10.1      255.255.255.0
ip address 10.10.10.1 255.255.255.0
    
```

show interface	

IP secondary

-	-

21.1.2 ip unnumbered

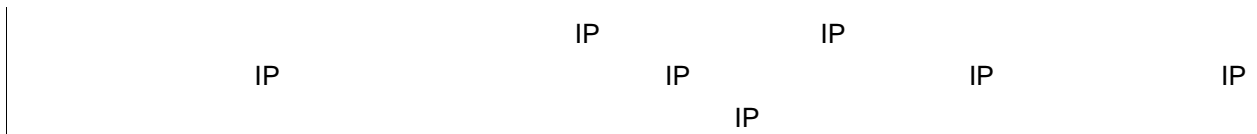
IP

IP no

ip unnumbered *interface-type interface-number*

no ip unnumbered *interface-type interface-number*

<i>interface-type</i>	
<i>interface-number</i>	



-
- SLIP HDLC PPP LAPB Frame-relay X.25
- ping IP
- SNMP
-

FastEthernet 0/1
IP
ip unnumbered fastEthernet 0/1

show interface	

-	-

21.2

21.2.1 arp

ARP

└──

3

CPU

└──

└──

ARP IP

IP

arp anti-ip-attack num

arp anti-ip-attack num

└──

1

ARP

IP

5

Ruijie(config)# **arp anti-ip-attack 5**

2

ARP IP

Ruijie(config)# **arp anti-ip-attack 0**



┌

┌ ARP

```

1          SVI 1          ARP
Ruijie(config)# interface vlan 1
Ruijie(config-if)# arp gratuitous-send interval 1

2          SVI 1          ARP
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp gratuitous-send
    
```

┌

-	-

┌

┌

-	-

21.2.5 arp retry interval

```

ARP          arp          no          IP          ARP          2
          1
    
```

arp retry interval seconds

no arp retry interval

┌

<i>seconds</i>	<1-3600>,ARP 3600 1 —

┌ ARP 1

┌

┌ ARP ARP

		ARP
	ARP	30s
	arp retry interval 30	
	Arp retry times <i>number</i>	ARP
	-	-

21.2.6 arp retry times

	arp	IP	ARP
	no	5	ARP
	arp retry times <i>number</i>		
	no arp retry times		
		ARP	<1-100>
	<i>number</i>	1	ARP 1 ARP
		ARP	5
		ARP	ARP
	1	ARP	
	arp retry times 1		
	2	ARP	1
	arp retry times 2		

	arp retry interval <i>seconds</i>	arp

	-	-

21.2.8 arp trusted aging

	ARP	no
	arp trusted aging	
	no arp trusted aging	
	-	-

GSN ARP



ARP ARP

arp timeout



<i>number</i>	ARP

┌

┌

┌ ARP ARP
ARP

┌ arp trusted 1000 1000 ARP

service trustedarp	ARP

┌

-	-

21.2.10 arp unresolve

8192 ARP no

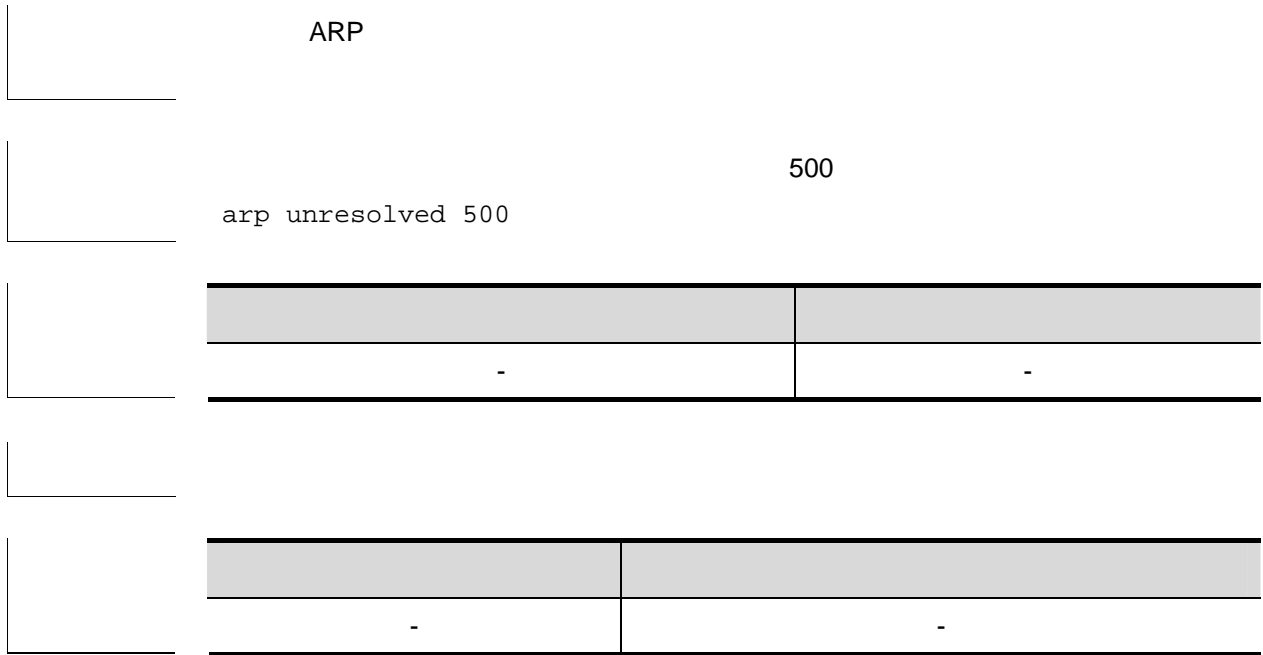
arp unresolve number

no arp unresolve

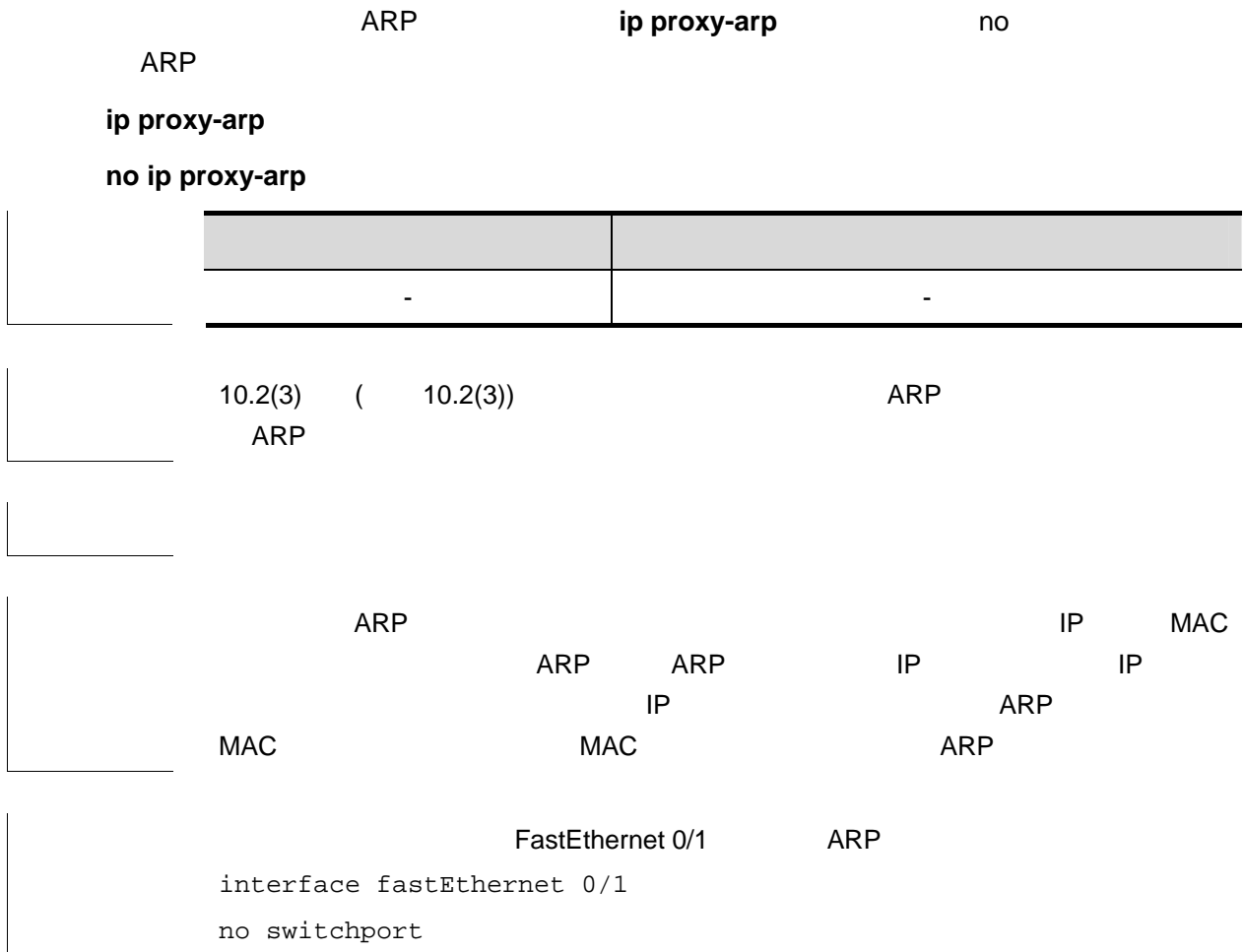
<i>number</i>	ARP < 1-8192 > 8192

┌ ARP 8192

┌



21.2.11 ip proxy-arp



`ip proxy-arp`

	-	-

21.3

21.3.1 ip broadcast-address

ip broadcast-address no

ip broadcast-address *ip-address*

no ip broadcast-address *ip-address*

	<i>ip-address</i>	IP

IP 255.255.255.255

IP 1 255.255.255.255 RGOS
IP 1

IP 0.0.0.0
ip broadcast-address 0.0.0.0

	-	-

	-	-

21.3.2 ip directed-broadcast

IP

ip directed-broadcast

no

ip directed-broadcast [*access-list-number*]

no ip directed-broadcast

		1-199 1300 - 2699
<i>access-list-number</i>		IP

IP

	-	-
--	---	---

21) ~~ΕΡΧΙ~~ ~~CH~~ ~~B~~ ~~β~~ ~~f~~

	arp	ARP
	-	-

21.4.2 clear ip route

	IP	IP	clear ip
route			
clear ip route { * <i>network</i> [<i>netmask</i>] }			
	*		
	<i>network</i>		
	<i>netmask</i>		
		192.168.12.0	
		clear ip route 192.168.12.0	
	show ip route	IP	
	-	-	

21.4.3 show arp

ARP

show arp [[vrf *IP*

```

Internet 192.168.195.63 0 001a.a0b5.3990 arpa VLAN 1
Internet 192.168.195.62 0 001a.a0b5.0b25 arpa VLAN 1
Internet 192.168.195.5 -- 00d0.f822.33b1 arpa VLAN 1

```

ARP

Protocol	Internet
Address	IP
Age (min)	ARP “_”
Hardware	IP
Type	ARPA
Interface	IP

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

```

E/C2_0 1 2-0.0c 018.80 Tc 0- 7904(-)-102(1)JT&T58.3 209.7209.724 1.5 ref58.3 230.48 209.724 1.]T&T1

21.4.4 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
```

	-	-

|

	-	-

<i>ip mask</i>	ip mask	ARP
<i>mac-address</i>	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	-- VI3	--	--
20.1.1.1	000f.e200.0001	Static	-- VI3	Gi2/0/1	--
193.1.1.70	00e0.fe50.6503	Dynamic	1 VI3	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 VI2	Ag2	--
192.168.0.39	0012.a990.2241	Local	-- VI3	--	--
192.168.0.39	0012.a990.2241	Local	-- Gi2/0/3	--	--
192.168.0.1	0012.a990.2241	Local	-- VI3	--	--
192.168.0.1	0012.a990.2241	Local	-- Gi2/3/2	--	--

ARP

IP Address	IP
MAC Address	IP
Type	ARP

-	-

┌

-	-

21.4.7 show ip arp

ARP

show ip arp

-	-

┌

┌

┌

show ip arp

Ruijie# **show ip arp**

```

Protocol Address      Age(min)Hardware      Type
Interface
Internet 192.168.7.233    23   0007.e9d9.0488  ARPA FastEthernet 0/0
Internet 192.168.7.112   10   0050.eb08.6617  ARPA FastEthernet 0/0
Internet 192.168.7.79    12   00d0.f808.3d5c  ARPA FastEthernet 0/0
Internet 192.168.7.1     50   00d0.f84e.1c7f  ARPA FastEthernet 0/0
Internet 192.168.7.215   36   00d0.f80d.1090  ARPA FastEthernet 0/0
Internet 192.168.7.127   0    0060.97bd.ebee  ARPA FastEthernet 0/0
Internet 192.168.7.195   57   0060.97bd.ef2d  ARPA FastEthernet 0/0
Internet 192.168.7.183   --   00d0.f8fb.108b  ARPA FastEthernet 0/0
    
```

ARP

Protocol	Internet

IP

Address	IP
Age (min)	ARP " _ "
Hardware	IP
Type	ARPA
Interface	IP

-	-
---	---

-	-
---	---

21.4.8 show ip interface

IP

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

<i>Interface-type</i>	
<i>Interface-number</i>	

RGOS RGOS RGOS

UP

UP

```

show ip interface
Ruijie# show ip interface FastEthernet 0/1

```


IP

MTU

ip mtu

no

ip mtu bytes

no ip mtu

<i>bytes</i>	IP	68~1500

|

mtu

|

IP

IP MTU

RGOS

IP MTU

mtu

IP MTU

MTU

IP MTU

RGOS IP IP IP
RFC 791

RGOS ICMP IP

IP
no ip source-route

-	-

	FastEthernet 0/1	ICMP
	interface fastEthernet 0/1	
	no ip unreachable	

-	-

--

-	-

23 DHCP

23.1 DHCP

23.1.1 bootfile

	DHCP	DHCP	bootfile
	no		
	bootfile <i>file-name</i>		
	no bootfile		
	DHCP	.	
	DHCP	DHCP	DHCP
		next-server	TFTP
		router.conf	
	bootfile router.conf		
	ip dhcp pool	DHCP	DHCP
	next-server	DHCP	IP
	-	-	

23.1.2 client-identifier

DHCP client-identifier no DHCP

client-identifier unique-identifier

no client-identifier

<i>unique-identifier</i>	DHCP 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 DHCP
ip dhcp pool	DHCP DHCP

┌

┌

-	-

23.1.3 client-name

DHCP
DHCP

DHCP

client-name

no

client-name *client-name*

no client-name

┌

<i>client-name</i>	DHCP DHCP
	ASCII river river.i-net.com.cn

┌

┌

DHCP

┌

DHCP

DHCP

┌

client-name river river

┌

host	IP DHCP
ip dhcp pool	DHCP DHCP

┌

┌

-	-

23.1.4 default-router

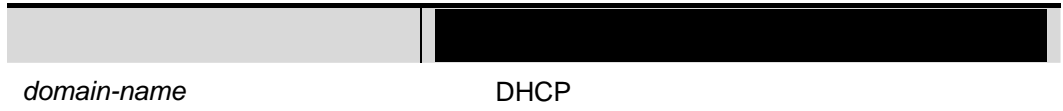
DHCP

DHCP

default-router

no

default-router



	DHCP
<i>type</i>	<ul style="list-style-type: none">■ ethernet■ ieee802 ■ 1 10M ethernet■ 6 IEEE 802

┌
└

ethernet

┌
└

DHCP

┌
└

DHCP

Gä-") SgG&ä

┌

DHCP IP

┌

┌

```

RGOS      DHCP      IP      DHCP
      1 DHCP      1      2 DHCP      3
3 DHCP      6 DNS      4 DHCP      15      DHCP
44 WINS
RGOS      PPP FR HDLC      dhcp
    
```

┌

```

FastEthernet 0      IP
interface fastEthernet 0
ip address dhcp
    
```

┌

dns-server	DHCP DNS
ip dhcp pool	DHCP DHCP

┌

┌

-	-

23.1.10 ip add1(r)T/C2_0 1 Tf0 Tc 0 Tr 10.5 0 0 1.02 625.9 361.520<3F55 Td<116

|

DHCP

IP

|

|

IP

DHCP

DHCP

IP

IP

IP

DHCP

DHCP

|

DHCP

192.168.12.100~150

IP

ip dhcp excluded-address 192.168.12.100 192.168.12.150



```

DHCP          DHCP          IP          ping
              DHCP          10         DHCP          Ping

```

```

              ping          3
ip dhcp ping packets 3

```

clear ip dhcp conflict	DHCP
ip dhcp ping timeout	DHCP ping ping
show ip dhcp conflict	DHCP

-	-
---	---

23.1.12 ip dhcp ping timeout

```

DHCP          ping
ip dhcp ping timeout          no
ip dhcp ping timeout milli-seconds
no ip dhcp ping timeout

```

<i>milli-seconds</i>	DHCP	ping
	100	10000

```

500

```

```

ping

```



ping 600ms
ip dhcp ping timeout 600



host	IP DHCP
ip dhcp excluded-address	DHCP IP
network DHCP	DHCP

┌

-	-

23.1.14 lease

DHCP
no

DHCP

lease

lease { *days* [*hours*] [*minutes*] | **infinite** }

no lease

<i>days</i>	
<i>hours</i>	
<i>minutes</i>	
infinite	

┌

DHCP

┌

DHCP

DHCP

┌

lease 0 1 DHCP 1



DHCP 1

lease 0 0 1



ip dhcp pool	DHCP DHCP
-	-

23.1.16 netbios-node-type

DHCP NetBIOS DHCP

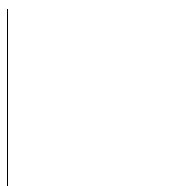
netbios-node-type **no** NetBIOS

netbios-node-type *type*

no netbios-node-type

<i>type</i>	<p style="text-align: center;">NetBIOS</p> <p style="text-align: center;">0~FF</p> <ul style="list-style-type: none"> ■ b-node ■ p-node ■ m-node ■ 8 h-node ■ b-node ■ p-node ■ m-node ■ h-node
-------------	---

NetBIOS	
DHCP	
DHCP NetBIOS 1 Broadcast	
NetBIOS 2 Peer-to-peer WINS	
NetBIOS 3 Mixed	
WINS 4 Hybrid WINS	
NetBIOS	NetBIOS



Hybrid

WINS

WINS
NetBIOS



DHCP

NetBIOS

netbios-node-type h-node

```

show ip dhcp binding
show ip dhcp conflict
DHCP 192.168.12.0 255.255.255.240
network 192.168.12.0 255.255.255.240

```

ip dhcp excluded-address	DHCP IP
ip dhcp pool	DHCP DHCP
-	-

23.1.18 next-server

```

DHCP
next-server no
DHCP
next-server ip-address [ ip-address2...ip-address8 ]
no next-server

```

<i>ip-address</i>	IP	TFTP
<i>ip-address2...ip-address8</i>	8	
DHCP		
	DHCP	

DHCP 192.168.12.4
next-server 192.168.12.4

bootfile	DHCP
ip dhcp pool	DHCP DHCP
ip help-address	Helper
option	RGOS DHCP

```

DHCP option          RFC 2131
1                    19          DHCP
IP      0      IP    1      IP          DHCP
      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 DHCP

```


```



DHCP



DHCP

service dhcp



show ip dhcp server statistics	DHCP



-	-

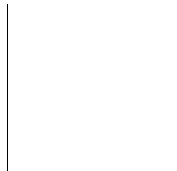
23.2

23.2.1 clear ip dhcp binding

DHCP

clear ip dhcp binding

clear ip dhcp binding { * | ip-address }



*	DHCP
<i>ip-address</i>	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
	<i>ip-address</i>	IP

DHCP ARP ping DHCP
clear ip dhcp conflict

clear ip dhcp conflict *

	ip dhcp ping packets	DHCP ping
	show ip dhcp conflict	DHCP

	-	-

23.2.3 clear ip dhcp server statistics

	DHCP	clear ip dhcp server statistics
clear ip dhcp server statistics		
	-	-

|

|

dhcp client

|

dhcp

debug ip dhcp client

|

-	-

|

|

-	-

23.2.5 debug ip dhcp server

DHCP Server

|

|

-	-

23.2.6 show dhcp lease

DHCP EXEC show dhcp lease

show dhcp lease

|

-	-

|

|

|

IP

IP

IP

|

show dhcp lease

Ruijie# **show dhcp lease**

Temp IP addr: 192.168.5.71 for peer on Interface: FastEthernet0/0

Temp sub net mask: 255.255.255.0

DHCP Lease server: 192.168.5.70, state: 3 Bound

DHCP transaction id: 168F

Lease: 600 secs, Renewal: 300 secs, Rebind: 525 secs

Temp default-gateway addr: 192.168.5.1

Next timer fires after: 00:04:29

Retry count: 0 Client-ID: redgaint-00d0.f8fb.5740-Fa0/0

|

-	-

|

|

--	--

	-	-
--	---	---

23.2.7 show ip dhcp binding

DHCP EXEC show ip dhcp binding

show ip dhcp binding [ip-address]

<i>ip-address</i>	IP

--

--

IP	IP	IP
----	----	----

show ip dhcp binding

Ruijie# show ip dhcp binding

```

IP address      Client-Id/      Lease expiration  Type
                Hardware address
192.168.1.2    00d0.f866.4777  IDLE              Manual
    
```

IP address	DHCP IP
Client-Id/Hardware address	DHCP client identifier
Lease expiration	Infinite IDLE
Type	DHCP Automatic Manual

clear ip dhcp binding	DHCP

--

	-	-

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
```

--	--	--

23.2.9 show ip dhcp server statistics

	DHCP	EXEC	show ip dhcp server statistics						
	show ip dhcp server statistics								
	<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td>-</td><td>-</td></tr></table>							-	-
	-	-							
		DHCP							

Manual bindings	
Expired bindings	
Malformed messages	DHCP
Message Received or Sent	DHCP

clear ip dhcp server statistics	DHCP

--

-	-

24 DHCP Relay

24.1

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
```

```
                DHCP relay    check server-id
Ruijie# configure terminal
Ruijie(config)# ip dhcp relay check server-id
```

--	--

DHCP Relay option dot1x no

[no] ip dhcp relay information option dot1x

-	-

|

|

|

DHCP 802.1x

|
 Ruijie# **configure terminal**
 Ruijie(config)# **ip dhcp relay information option dot1x**

service dhcp	DHCP
ip dhcp relay information option dot1x access-group <i>acl-name</i>	option dot1x acl

|

-	-

24.1.3 ip dhcp relay information option dot1x access-group

DHCP Relay option dot1x ACL no
 DHCP Relay option dot1x ACL

[no] ip dhcp relay information option dot1x access-group *acl-name*

--	--

ACL ACL ACE

dhcp option dot1x acl

```

Ruijie# configure terminal
Ruijie(config)# ip access-list extended
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)# deny ip 192.168.3.0 0.0.0.255 192.168.3.0
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)# ip dhcp relay information option dot1x access-group
DenyAccessEachOtherOfUnauthrize
    
```

service dhcp	DHCP

	ip dhcp relay information option dot1x	DHCP option dot1x
	-	-

24.1.4 ip dhcp relay information option82

DHCP Relay option82 no

[no] ip dhcp relay information option82

	-	-

option dot1x

DHCP option82

Ruijie# **configure terminal**

Ruijie(config)# **Ip dhcp relay information option82**

	Service dhcp	DHCP
	ip dhcp relay information option dot1x	DHCP option dot1x

	-	-

24.1.5 ip dhcp relay information option vpn

DHCP Relay

no

DHCP Relay Aware 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
```



L

L

-	-

25 DNS

25.1

25.1.1 ip domain-lookup

	DNS	no	DNS
	ip domain-lookup		
	no ip domain-lookup		
	-		-
	DNS		
	DNS		DNS
	DNS		
	Ruijie(config)# ip domain-lookup		
	show hosts		DNS
	-		-

25.1.2 ip name-server

no IP/IPv6

ip name-server {*ip-address* | *ipv6-address*}

no ip name-server [*ip-address* | *ipv6-address*]

<i>ip-address</i>	IP
<i>ipv6-address</i>	IPV6

└──

└──

DNS Server	IP/IPv6	DNS Server	DNS Server
Server		Server	DNS
6	DNS Server	ip-address	ipv6-address
	DNS		

Ruijie(config)# **ip name-server** 192.168.5.134
 Ruijie(config)# **ip name-server**
 2001:0DB8::250:8bff:fee8:f800 2001:0DB8:0:f004::1

show hosts	DNS

└──

-	-

<i>ip-address</i>	IP
-------------------	----

┌

┌

┌

no ip host host-name ip-address

┌

Ruijie(config)# **ip host switch 192.168.5.243**

┌

show hosts	DNS

┌

┌

-	-

25.1.4 ipv6 host

IPV6

no

ipv6 host host-name ipv6-address

no ipv6 host host-name ipv6-address

┌

<i>host-name</i>	
<i>ipv6-address</i>	IPV6

┌

┌

┌

no ipv6 host host-name ipv6-address

┌

Ruijie(config)# **ipv6 host ruijie 2001:0DB8:700:20:1::12**

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
ipv6 host	IPV6
ip name-server	DNS

┌

-	-

26 SNTP

26.1

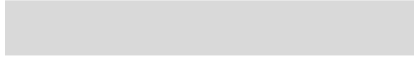
26.1.1 sntp enable

SNTP

no

—Disable

[no] sntp enable



|

|

show sntp SNTP

|

Ruijie(config)# **sntp server** 192.168.4.12

|

show sntp	SNTP
sntp enable	SNTP

|

RGOS10.0

|

-	-

26.2

- show sntp

26.2.1 show sntp

|

SNTP

-	-

|

|

|

show sntp SNTP

|

```
Ruijie# show sntp
SNTP state      : Enable
SNTP server     : 192.168.4.12
```

SNTP

SNTP sync interval : 60
Time zone : +8

sntp enable	SNTP
show sntp	SNTP

RGOS10.0

-	-

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
<i>access-list-number</i>	IP 1 99 1300 1999
<i>access-list-name</i>	IP

NTP

NTP
NTP
NTP

peer serve serve-only query-only

r

1
2

Ruijie(config)# **ntp access-group peer 1**

Ruijie(config)# **ntp access-group serve-only 2**

ip access-list	IP

	-	-

27.1.3 ntp authenticate

NTP NTP

ntp authenticate

no ntp authenticate

	-	-

NTP

ntp authentication-key ntp trusted-key

NTP

NTP

ntp authentication-key *key-id* **md5** *key-string* [*enc-type*]

no ntp authentication-key *key-id* **md5** *key-string* [*enc-type*]

<i>key-id</i>	ID
<i>key-string</i>	
<i>enc-type</i>	0

NTP

-	-
---	---

NTP

NTP	NTP
r	IP

no ntp NTP

-	-
---	---

-	-
---	---

27.1.6 ntp master

no NTP
NTP

ntp master [stratum]

no ntp master

stratum	8	1	15
---------	---	---	----

NTP

┌

┌

20

prefer

NTP

IP

NTP

┌

NTP server

IPv4 Ruijie(config)# **ntp server** 192.168.210.222

IPv6 Ruijie(config)# **ntp server** 10::2

┌

no ntp	NTP

┌

┌

-	-

27.1.8 ntp synchronize

NTP

ntp synchronize

no ntp synchronize

┌

-	-

┌

┌

NTP

8

┌

┌

NTP

Ntp synchronize

┌

ntp server	NTP

┌

┌

-	-

27.1.9 ntp trusted-key

ID

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

┌

<i>key-id</i>	ID

┌

┌

┌

NTP

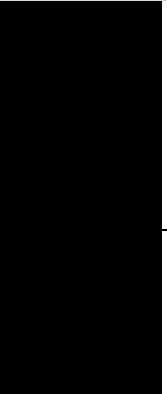
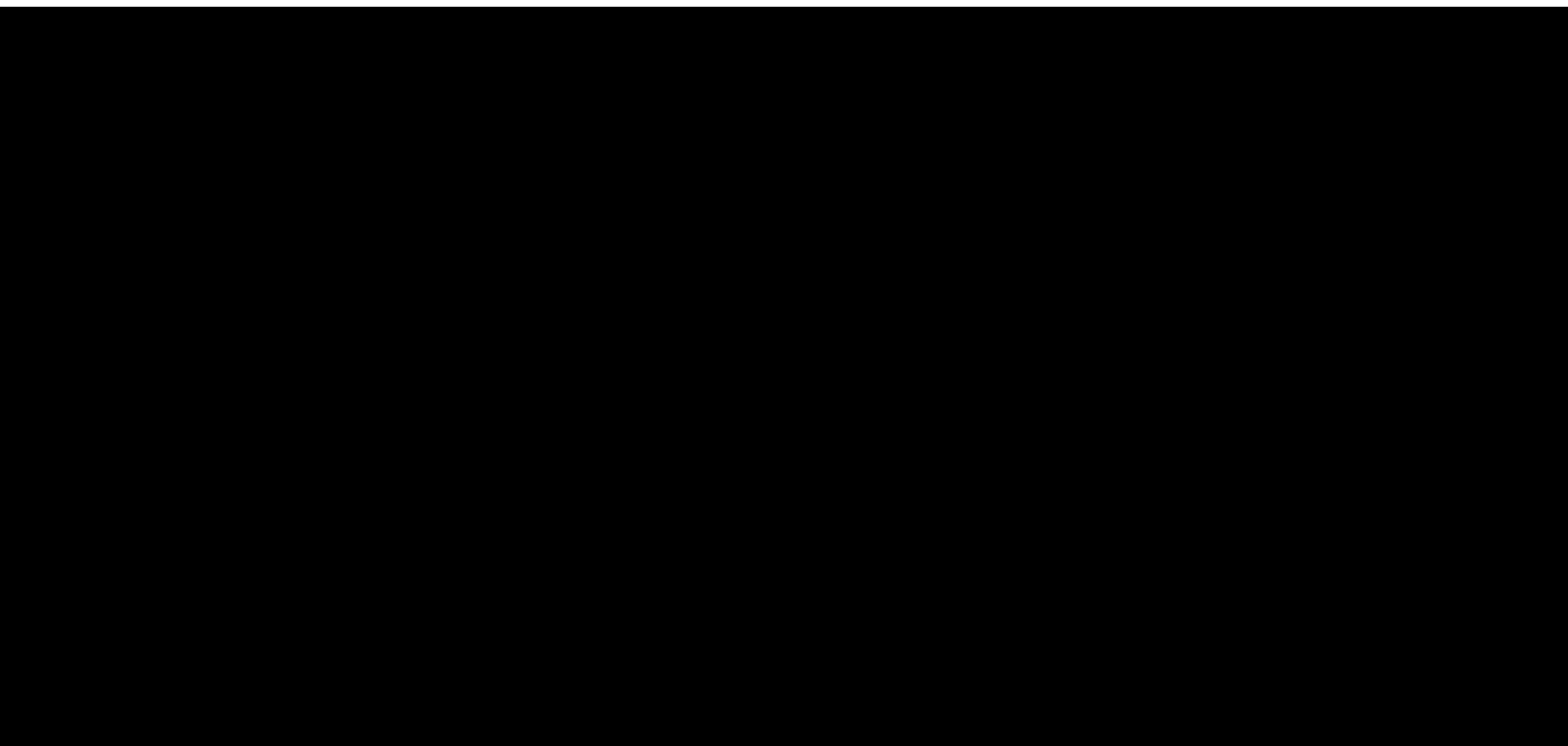
ID

┌

```
ntp authentication-key 6 md5 woooooop
ntp trusted-key 6
ntp server 192.168.210.222 key 6
```

┌

--	--



NTP

	-	-

|

|

|

NTP

NTP

|

NTP

show ntp status

	-	-

|

	-	-

28 FTP Server

28.1

28.1.1 debug ftpserver

FTP no

debug ftpserver

no debug ftpserver

	-	-

|

|

|

debug ftpserver FTP

1

Ruijie# **debug ftpserver**

FTPSRV_DEBUG:(RECV) SYST

FTPSRV_DEBUG:(REPLY) 215 RGOS Type: L8

FTPSRV_DEBUG:(RECV) PORT 192,167,201,82,7,120

FTPSRV_DEBUG:(REPLY) 200 PORT Command okay.

2

Ruijie# **no debug ftpserver**

	-	-

|

|

--	--	--

	-	-
--	---	---

28.1.2 ftp-server enable

FTP no FTP

ftp-server enable

no ftp-server enable

	-	-

┌

┌

FTP

FTP

ftp-server topdir

FTP

!60B

r

ftp-server password [*type*] *password*

no ftp-server password

<i>type</i>	0 7 0
<i>password</i>	7

┌

┌

FTP

	1	25	4
	52		
r	FTP		

```

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

<i>directory</i>	FTP

└──

└──

FTP



FTP

¥ K€

29 UDP-Helper

29.1

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**]

Enter text in the box to search for a command in the Cisco IOS command reference.

```
Ruijie(config)# ip forward-protocol udp 134
```

udp-helper enable	UDP
ip forward-protocol	UDP

RGOS10.1	
-	-

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
--	-----

	UDP-Helper	69,53,37,137,138,49		UDP
--	------------	---------------------	--	-----

	UDP
	Ruijie(config)# udp-helper enable

ip forward-protocol	UDP

	RGOS10.1
--	----------

-	-

SNMP

SNMP

no snmp

123456:

over chassis-id 123456

SNMP

<i>aclnumber</i>	1-99 MIB ipv4 NMS
<i>aclname</i>	MIB ipv4 NMS
<i>ipv6_aclname</i>	ipv6 MIB ipv6 NMS
<i>ipaddr</i>	NMS MIB NMS



snmp-server host

SNMP

```
Ruijie(config)# snmp-server enable traps snmp
```

```
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
```

<i>ipv6_aclname</i>	ipv6 MIB ipv6 NMS
Ruijie(config)# snmp-server group mib2user v3 priv read mib2	
show snmp group	SNMP
-	-

30.1.7 snmp-server host

no SNMP NMS **snmp-server host**
 SNMP

snmp-server host {*host-addr* | **ipv6** *ipv6-addr*} **traps** [*vrf vrfname*] [**version** {**1** | **2c** | **3**
[**auth** | **noauth** | **priv**]] *community-string* [**udp-port**
port-num][*notification-type*]

no snmp-server host {*host-addr* | **ipv6** *ipv6-addr*}

<i>host-addr</i>	SNMP
<i>ipv6-addr</i>	SNMP ipv6
<i>vrfname</i>	vrf
version	snmp V1 V2C V3
auth noauth priv	V3
<i>community-string</i>	V3

<i>port-num</i>	snmp
<i>notification-type</i>	snmp

SNMP

```

snmp-server enable traps NMS
SNMP
vrf [ vrf ]
    
```

```

SNMP SNMP
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
    
```

snmp-server enable traps	

-	-

30.1.8 snmp-server location

```

SNMP snmp-server location no
SNMP
    
```

snmp-server location *text*

no snmp-server location

<i>text</i>	

|

|

|

Ruijie(config)# **snmp-server location** start-technology-city 4F of A
Buliding



	snmp-server queue-length	SNMP
	-	-

30.1.10 snmp-server queue-length

snmp-server queue-length

snmp-server queue-length *length*

	<i>length</i>	1 1000

SNMP

no

SNMP

snmp-server system-shutdown

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

<i>interface</i>	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

no

snmp-server trap-timeout

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** | **v3** [**encrypted**] [**auth** {**md5** | **sha**} *auth-password*] [**priv** **des56** *priv-password*]}[**access** {[**ipv6** **ipv6_aclname**] [**aclnum** | **aclname**]}]

no snmp-server user *username groupname* {**v1** | **v2c** | **v3** }

<i>username</i>			
<i>groupname</i>			
v1 v2 v3	SNMP	v3	
			16
encrypted	16	SHA	MD5
			20
auth			

SHA

<i>aclnum</i>	MIB ipv4 NMS
<i>aclname</i>	MIB ipv4 NMS
<i>ipv6_aclname</i>	ipv6 MIB ipv6 NMS

└──

└──

└──

```

                                snmpV3          md5          DES
Ruijie(config)# snmp-server user user-2 mib2user v3 auth md5
authpassstr priv des56 despassstr
    
```

show snmp user	SNMP

└──

-	-

30.1.15 snmp-server view

|

default

MIB

|

|

|

MIB-2 oid 1.3.6.1

Ruijie(config)# **snmp-server view mib2 1.3.6.1 include**

|

show snmp view	SNMP

|

|

-	-

30.1.16 snmp trap link-status

30.2

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

-	-

31.1.2 rmon collection history

no

rmon collection history *index* [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]

no rmon collection history *index*



	-	-

|

|

|

```
1
Ruijie(config)# interface fast-Ethernet 0/1
Ruijie(config-if)# rmon collection stats 1 zhansan
```

--	--	--

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]*

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

```

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 <i>number</i> [log] [trap community] <i>[description-string]</i>	

-	-

31.2.3 show rmon history

show rmon history

-	-

```

Ruijie# show rmon history
Entry : 1
Data source : Gil/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 <i>index</i> [owner <i>ownername</i>] [buckets <i>bucket-number</i>] [interval <i>seconds</i>]	
-	-

31.2.4 show rmon statistics

	-	-

32 DHCPv6 Client

32.1

32.1.1 ipv6 dhcp client pd

DHCPv6 client
no

ipv6 dhcp client pd

ipv6 dhcp client pd *prefix-name* [rapid-commit]

no ipv6 dhcp client pd

DHCPv6 client

	-	-

32.2

32.2.1 clear ipv6 dhcp client

DHCPv6

clear ipv6 dhcp client

clear ipv6 dhcp client *interface-type interface-number*

	<i>interface-type interface-number</i>	

└───

└───

└───

clear ipv6 dhcp client

DHCPv6

└───

DHCPv6

Ruijie# **clear ipv6 dhcp client vlan 1**

	-	-

└───

	-	-

DHCPv6 Relay Agent

show ipv6 dhcp relay destination { all interface <i>interface-type interface-number</i> }	Relay
10.4	

33.2

33.2.1 show ipv6 dhcp relay destination

DHCPv6 Relay Agent

show ipv6 dhcp relay destination

all	
interface <i>interface-type interface-number</i>	

	Relay Agent	Relay	DHCPv6
1		Relay	
Ruijie# show ipv6 dhcp relay destination all			
Interface: Vlan1 // Relay			
Destination address(es) Output Interface			
3001::2			
FF02::1:2		Vlan2	
//		//	
-		-	

	S3760E	
	10.4	

33.2.2 show ipv6 dhcp relay statistics

DHCPv6 Relay
show ipv6 dhcp relay statistics

```

RECONFIGURE          : 0
REPLY                : 8
RELAY-FORWARD        : 8
RELAY-REPLY          : 0
    
```

clear ipv6 dhcp relay statistics	

10.4	

33.2.3 clear ipv6 dhcp relay statistics

```

DHCPv6 Relay
clear ipv6 dhcp relay statistics
    
```

-	-

DHCPv6 Relay

```

DHCPv6 Relay Agent
0
Ruijie#clear ipv6 dhcp relay statistics
    
```

show ipv6 dhcp relay statistics	

	10.4	

34 TCP

34.1 TCP

34.1.1 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 30	10
age-timer infinite	TCP	PTMU

└──┘

└──┘

```
TCP RFC1191
TCP
TCP
TCP
RFC1191 IPv4 IPv6 TCP TCP
PMTU TCP PMTU MSS
PMTU age-timer PMTU TCP
MSS
PMTU PMTU MSS
age-timer infinite
```

```
TCP PMTU
Ruijie(config)# ip tcp path-mtu-discovery
```

--	--

show tcp pmtu		TCP	PMTU
RGOS 10.4			
RGOS 10.4			

34.2 TCP

34.2.1 show tcp pmtu

H7P PMH

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	“.” “2002::2.23” “192.168.195.212.23” “23”

35 RIP

35.1

35.1.1 address-family RIP

RIP

address-family

no

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

	vrf <i>vrf-name</i>	VRF

RIP

address-family

(config-router-af)#

VRF

	exit-address-family	
	ip vrf	VRF

L

	-	-

35.1.2 auto-summary (RIP)

RIP

auto-summary

no

auto-summary

no auto-summary

	-	-

L

L

```

RIP
RIPv1  RIPv2
RIP

■          RIP
■          RIP
■

                               RIPv2

          RIPv1
_____

_____
    
```

L

```

                               RIPv2
Ruijie(config)# router rip
    
```

```
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

version	RIP v1 v2 v1&v2

-	-

35.1.3 bfd all-interfaces (RIP)

```

RIP                    BFD                    RIP                    bfd
all-interfaces                    no
bfd all-interfaces
no bfd all-interfaces

```



router rip	RIP
ip rip bfd [disable]	RIP BFD

--

-	-

35.1.4 default-metric (RIP)

RIP

default-metric

no

default-metric *metric-value*

no default-metric

<i>metric-value</i>	1 16 <i>metric-value</i> 16 RGOS

1

--

redistribute

RIP

Ä

RIP

	redistribute	
		al2°P 'QÇ"j"Û n à=AÓ2°P @
	-	-

35.1.5 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



```
RIP                                     RIP  
  
r  
  ip default-network  
  default-information originate         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

```

-	-

-	-

35.1.7 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*]

<i>access-list-number</i> <i>name</i>	

```

RIP      Fastethernet 0/0
172.16
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
Ruijie(config-router)# distribute-list 10 in
fastethernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config)#access-list 10 permit 172.16.0.0 0.0.255.255

```

access-list	
prefix-list	

-	-

35.1.8 distribute-list out RIP

distribute-list out

no

distribute-list {[*access-list-number* | *name*] | **prefix** *prefix-list-name*} **out** [**interface** | [**bgp** | **connected** | **isis** [*area-tag*] | **ospf** *process-id* | **rip** | **static**]]

no distribute-list {[*access-list-number* | *name*] | **prefix** *prefix-list-name*} **out** [**interface** | [**bgp** | **connected** | **isis** [*area-tag*] | **ospf** *process-id* | **rip** | **static**]]

connected	()
isis [<i>area-tag</i>]	() isis <i>area-tag</i> isis
ospf <i>process-id</i>	() ospf <i>process-id</i> ospf
rip	() rip
static	()

35.1.9 exit-address-family

exit-address-family

exit-address-family

	-	-

|

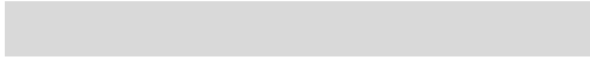
|

|

exit

|

```
Ruijie(config-router)# address-family ipv4 vrf vpn1  
Ruijie(config-router-af)# exit-address-family
```



|
|
|

|
|
|

|
|
|

|
|
|

```

                                     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

text	RIP
md5	RIP MD5

┌

┌

RIP	RIP	RIP
	RIP	
		MD5
RIPv1	RIP	RIPv2

```

Serial 0    RIP    MD5
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication mode md5
    
```

	RIP	RIP
ip rip authentication key-chain	RIPv2	RIP
ip rip authentication text-password	RIPv2	RIP
key chain		

┌

-	-
---	---

35.1.12 ip rip authentication text-password

RIP RIP **ip rip authentication**
text-password **no**
ip rip authentication text-password *password-string*

no ip rip authentication text-password

<i>password-string</i>	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

└──

RIP



RIP

BFD

┌

┌

```

ip rip default-information RIP default-information
originate
r ip rip default-information RIP
    
```

┌

```

ethernet0/0
Ruijie(config)# interface ethernet 0/0
Ruijie(config-if)# ip rip default-information only
    
```

┌

default-information originate	RIP

┌

┌

-	-

35.1.15 ip rip receive enable

RIP
no

RIP RIP RIP

ip rip receive enable

ip rip receive enable

no ip rip receive enable

┌

-	-

┌

RIP

┌

┌

RIP

default no RIP

Fastethernet 0/0 RIP

Ruijie(config)# **interface fastethernet 0/0**

Ruijie(config-if)# **no ip rip receive enable**



version		RIP
	-	-

35.1.17 ip rip send enable

	RIP	RIP	ip rip send enable
no	RIP	RIP	
ip rip send enable			
no ip rip send enable			
	RIP		
	RIP	default	no 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

35.1.19 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
	-	-

35.1.20 ip rip split-horizon (RIP)

RIP	ip rip split-horizon	no
RIP		
ip rip split-horizon		

no ip rip split-horizon

-	-

┌

┌

```

IP
X.25
IP
RIP
show ip rip neighbor
RIP

```

```

Fastethernet 0/0 RIP
Ruijie(config)# interface fastethernet 0/0
Ruijie(config-if)# no ip rip split-horizon

```

neighbor RIP	RIP IP
Validate-update-source	RIP

┌

-	-

35.1.21 ip rip summary-address

```

RIP ip rip
summary-address no
ip rip summary-address ip-address ip-network-mask
no ip rip summary-address ip-address ip-network-mask

```

<i>ip-address</i>	IP
<i>ip-network-mask</i>	IP

RIP

ip rip summary-address

RIP



```

RIPv2
172.16.0.0/16
FastEthernet 1/0
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

--	--

┌

┌

┌

```

network-number wildcard
RIP
wildcard RGOS
RIP
RIP RIP
RIP RIP

```

┌

```

RIP 192.168.12.0/24
172.16.0.0/24 RIP
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# network 172.16.0.0 0.0.0.255

```

┌

-	-

┌

┌

10.4(1)	wildcard

35.1.24 neighbor (RIP)

RIP IP neighbor no

neighbor *ip-address*

no neighbor

┌

<i>ip-address</i>	IP

┌

```
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
RIP offset-list offset-list metric offset-list
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

```

-	-

-	-

35.1.26 output-delay

```

RIP
output-delay no
output-delay delay
no output-delay

```

<i>delay</i>	<8-50>

```

RIP 512 25

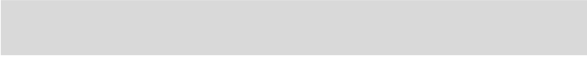
```

25

output-delay

```
rip receive enable
```

```
passive ethernet0/0 passive  
Ruijie(config-router)# passive-interface default  
Ruijie(config-router)# no passive-interface ethernet 0/0
```



metric <i>metric-value</i>	metric	metric	metric-value
route-map <i>route-map-name</i>		1-16	

	OSPF		
	ISIS	level-2	
	metric	1	
	route-map		

RIP

RIP

35.1.29 router rip

RIP
no RIP
router rip
no router rip

router rip

	-	-

RIP

RIP

RIP

	<i>update</i>		<i>update</i>	<i>invalid</i>	<i>flush</i>
			30		

invalid

RIP

-	-
---	---

35.1.31 validate-update-source

RIP

validate-update-source no

validate-update-source

no validate-update-source

-	-
---	---

┌

┌

RIP

IP

RIP

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

35.1.32 version (RIP)

RIP

version

no

version {1 | 2}**no version**

1	RIP	1
2	RIP	2

RIPv1 RIPv2

RIPv1

RIP

ip rip receive version

35.2.1 show ip rip

RIP

show ip rip

show ip rip [vrf vrf-name]

vrf vrf-name	VRF	RIP
--------------	-----	-----

```

┌
└

```

```

┌
└

```

rip	RIP	metric	distance	rip
VRF	VRF	VRF	VRF-id	

```

1
RIP
Ruijie# show ip rip
Routing Protocol is "rip"
Sending updates every 10 seconds, next due in 4 seconds
Invalid after 20 seconds, flushed after 10 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 2
Redistributing: connected
Default version control: send version 2, receive version 2
Interface          Send  Recv
FastEthernet 1/1    2     2
FastEthernet 1/0    2     2
Routing for Networks:
192.168.26.0 255.255.255.0
192.168.64.0 255.255.255.0
Distance: (default is 50)

2
vrf          RIP
Ruijie(config-router)# sh ip rip vrf 1
VRF 1 VRF-id:1
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 4 seconds

```



```

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	

-	-

35.2.3 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 <i>vrf-name</i>	VRF	RIP
<i>process-name</i>	ISIS	
<1-65535>	OSPF	


```
BFD: Enabled
V2 Broadcast: Disabled
Multicast registe: Registered
Interface Summary Rip:
    Not Configured
IP interface address:
    2.2.2.111/24
```

show ip rip	

-	-

36

36.1

36.1.1 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 {[*access-list-number* | *access-list-name*] | **prefix** *prefix-list-name* [**gateway** *prefix-list-name*]} **in** [*interface-type* *interface-number*]

<i>access-list-number</i>	1-99 1300-1999 100-199 2000-2699
<i>access-list-name</i>	
prefix <i>prefix-list-name</i>	
gateway <i>prefix-list-name</i>	
<i>interface-type</i> <i>interface-number</i>	()

OSPF

OSPF

RIP Fastethernet 0/0

172.16

Ruijie(config)# **router rip**

Ruijie(config-router)# **network 200.168.23.0**

```

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	

-	-

36.1.2 distribute-list out

distribute-list out

no

distribute-list {[*access-list-number* | *access-list-name*] | **prefix** *prefix-list-name*} **out** [*interface* | *protocol* | *process-id*]

no distribute-list {[*access-list-number* | *name*] | **prefix** *prefix-list-name*} **out** [*interface* | *protocol* | *process-id*]

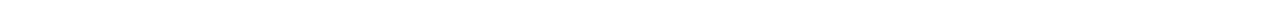
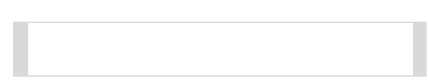
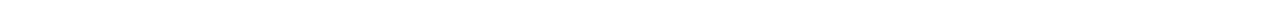
<i>access-list-number</i>	1-99 1300-1999 100-199 2000-2699
<i>access-list-name</i>	
prefix <i>prefix-list-name</i>	
<i>Interface</i>	()
<i>protocol</i>	()

<i>community-list-name</i>	80
<i>community-list-number</i>	1-99 100-199
permit	
deny	
<i>community-number</i>	AA:NN(2) 0-4294967295 internet Internet local-as AS no-advertise BGP peers no-export EBGPeers 1..255 32

BGP

```
Ruijie(config)# ip community-list standard test deny 100:20 200:20
Ruijie(config)# ip community-list standard test2 permit internet
```

match community	
set comm-list delete	BGP
show ip community-list	
show ip bgp community-list	BGP



-	-

36.1.5 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*]

<i>prefix-lis-name</i>	
<i>seq-number</i>	1 2147483647 5
deny	
permit	
<i>ip-prefix</i>	IP 0 32
<i>minimum-prefix-length</i>	() ge
<i>maximum-prefix-length</i>	() le

┌

┌

ip prefix-list IP permit deny

ge le ip-prefix ge le

```

ge          minimum-prefix-length 32          le          ip-prefix
           maximum-prefix-length
minimum-prefix-length  maximum-prefix-length  ip-prefix
minimum-prefix-length  maximum-prefix-length  ip-prefix      <
minimum-prefix-length < maximum-prefix-length <= 32

```

```

           IP          OSPF          RIP
           IP          IP          (
IP 201.1.1.0/24      )
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre1 permit 201.1.1.0/24
Ruijie(config)# router ospf
Ruijie(config-router)# distribute-list prefix pre1 out rip
Ruijie(config-router)# end

```

Q	
--	-

	-	-

36.1.8 ip ref ecmp load-balance

ip ref ecmp load-balance {[crc32_lower | crc32_upper] [dip] [port] [udf number]}

no ip ref ecmp load-balance {[crc32_lower | crc32_upper] [dip] [port] [udf number]}

--	--	--

crc32_lower

36.1.9 ip route

ip route no

ip route [*vrf vrf_name*] *network net-mask* {*ip-address* | *interface [ip-address]*} [*distance*]
 [**tag tag**] [*permanent*] [**weight number**] [*disable* | *enable*]

<i>vrf_name</i>	VRF
<i>network</i>	
<i>net-mask</i>	
<i>ip-address</i>	
<i>Interface</i>	
<i>distance</i>	
<i>tag</i>	Tag
permanent	
<i>number</i>	
disable/enable	

```

1
110 vrf 125 OSPF
      vrf OSPF
      1
      weight show ip route weight
      WCMP
      weight
      WCMP 32
      WCMP
  
```

0.0.0.0 Fastethernet 0/0
Fastethernet 0/0

ip route 0.0.0.0

ARP

CPU

```

RGOS IP
Ruijie(config)# no ip routing

```

-	-

```


```

-	-

36.1.11 ip static route-limit

ip static route-limit no

ip static route-limit *number*

no ip static route-limit

<i>number</i>	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

```

-	-

-	-

36.1.12 ipv6 prefix-list

IPv6 **ipv6 prefix-list**
no

ipv6 prefix-list *prefix-lis-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*][**le** *maximum-prefix-length*]

no ipv6 prefix-list *prefix-lis-name*[**seq** *seq-number*] { **deny** | **permit**} *ipv6-prefix* [**ge** *minimum-prefix-length*][**le** *maximum-prefix-length*]

<i>prefix-lis-name</i>	
<i>seq-number</i>	2147483647 1 5 5
deny	
permit	
<i>ipv6-prefix</i>	IP 0 32
<i>minimum-prefix-length</i>	ge ()
<i>maximum-prefix-length</i>	le ()

ipv6 prefix-list	IPv6	permit	deny
		ge	le

				ipv6-prefix	
	ge	le	ipv6-prefix		
ge		minimum-prefix-length	32	le	
ipv6-prefix		maximum-prefix-length			
	minimum-prefix-length	maximum-prefix-length		ipv6-prefix	
minimum-prefix-length		maximum-prefix-length		ipv6-prefix	<

IPv6

pre

Deny routes from Net-A

Ruijie# **configure terminal**

Ruijie(config)# **ipv6 prefix-list pre description Deny routes from
Net-A**

-	-

-	

	-	-

--	--	--

1::/64 2002::2 115

1::/64

fastEthernet 0/0

1::/64 fastEthernet 0/0 2002::2

--	--

IPv6

ipv6 route	ipv6
show ipv6 route	IPv6

-

36.1.19 match community

COMMUNITY match

community **no**

match community{*community-list-number* | *community-list-name*}[**exact-match**]
 [{*community-list-number* | *community-list-name*}[**exact-match**] ...]

no match community { *community-list-number* | *community-list-name* } [**exact-match**]
 [{ *community-list-number* | *community-list-name* } [**exact-match**] ...]



community-list-number

1-99

100-199

communitys-list-name

pE< i

match origin	
set as-path prepend	AS_PATH
set comm-list delete	
set community	
set metric	

┌

-	-

36.1.20 match interface

match interface **no**

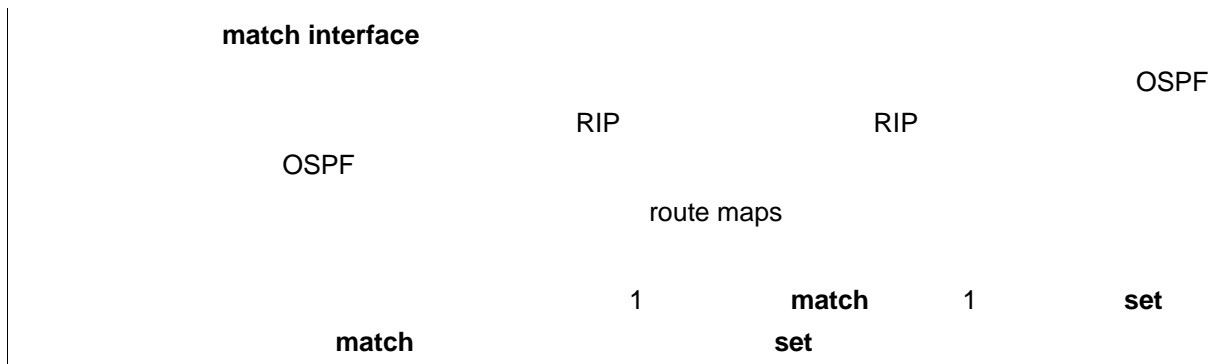
match interface *interface-type interface-number [...interface-type interface-number]*

no match interface *interface-type interface-number [...interface-type interface-number]*

<i>interface-type</i>	
<i>interface-number</i>	

┌

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```

                                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	

-	-

36.1.21 match ip address

match ip

address **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...*] }

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...*] }

<i>access-list-number</i>	1-99 1300-1999 100-199 2000-2699
<i>access-list-name</i>	
prefix-list <i>prefix-list-name</i>	

|
 |
 |

match ip address

RIP

RIP

OSPF

match ip next-hop	
match ip route-source	
match metric	
match route-type	
match tag	
set metric	
set metric-type	
set tag	

match ip next-hop

RIP

RIP
IP

route maps

1

match

sc

OSPF

RIP

10 20 OSPF

Ruijie(config)# **router ospf**

Ruijie(config-router)# **redistribute**

Ruijie(config-router)# **network 192.1**

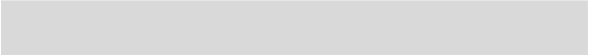
Ruijie(config-router)# **exit**

Ruijie(config)# **access-list 10 permi**

Ruijie(config)# **access-list 20 permi**

Ruijie(config)# **route-map redrip per**

Ruijie(config-route-map)# **match ip next-hop 10 20**



..]
ne

...]
ne

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	

--	--

match ipv6 route-source	IPv6
match metric	
match route-type	
match tag	
set metric	
set metric-type	
set tag	
set ipv6 default next-hop	
set ipv6 next-hop	
show ipv6 policy	

-	-

36.1.25 match ipv6 next-hop

```

                IPv6
  match ipv6 address      no
match ipv6 next-hop

```

	1	match	1	set
match		set		

```

RIP          OSPF          RIP          10
RIP          OSPF          type-1      40
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 2720::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 next-hop v6acl
Ruijie(config-route-map)# set metric 40

```

ipv6 access-list	IPv6
-------------------------	-------------

IPv6

match ipv6 address **no**

match ipv6 route-source { *access-list-name* | **prefix-list** *prefix-list-name* }

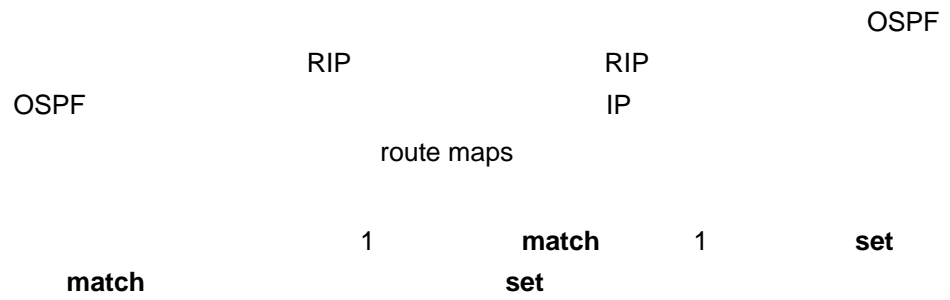
no match ipv6 route-source

<i>access-list-name</i>	
prefix-list <i>prefix-list-name</i>	IPv6

|

|

|



match ipv6 address	IPv6
match ipv6 route-source	IPv6
match metric	
match route-type	
match tag	
set metric	
set metric-type	
set tag	

-	-

36.1.27 match length

no IP **match length**
match length *min-length max-length*
no match length *min-length max-length*

<i>min-length</i>	IP
<i>max-length</i>	IP

<i>metric</i>	0-4294967295
---------------	--------------

└───┘

└───┘

└───┘

```

                                OSPF
                                RIP
                                RIP
                                IP
                                route maps
                                1
                                match
                                set
                                1
                                set
                                match
                                OSPF
                                RIP
                                10
                                RIP
                                OSPF

```

```

Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map
redist-rip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redist-rip permit 10
Ruijie(config-route-map)# match metric 10 Ruijie(config-route-map)#

```

36.1.29 match origin

match origin

no
 match origin {egp | igp | incomplete}
 no match origin {egp | igp | incomplete}

egp	EGP
igp	IGP
Incomplete	

```
Ruijie(config)# route-map MY_MAP 10 permit
Ruijie(config-route-map)# match origin egp
Ruijie(config-route-map)# set community 109
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	
<hr/>	
<hr/>	
-	-

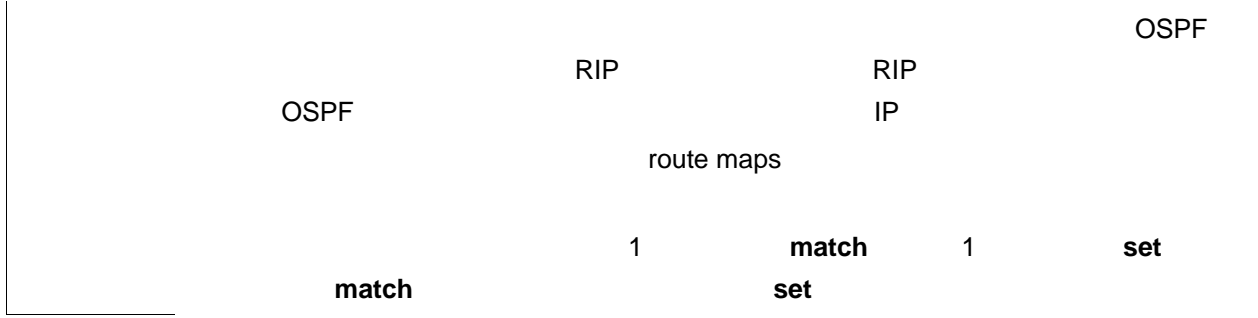
36.1.30 match route-type

match route-type no

match route-type {local | internal | external [type-1 | type-2] | level-1 | level-2}

no match route-type {local | internal | external [type-1 | type-2] | level-1 | level-2}

local	
Internal	OSPF
external	(BGP OSPF)
type-1 type-2	OSPF 1 2
level-1 level-2	ISIS 1 2



```

Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match route-type internal

```

access-list	
match ip address	
match interface	
match ip next-hop	
match ip route-source	
match metric	
match tag	
set metric	
set metric-type	
set tag	

-	-

36.1.31 match tag

match tag **no**

match tag *tag* [...*tag*]

no match tag *tag* [...*tag*]

<i>tag</i>	

```

match tag tag OSPF
RIP RIP
OSPF IP
route maps
1 match 1 set
match set

```

```

RIP OSPF RIP OSPF
50 80
Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf 100 route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match tag 50 80

```

access-list	
match ip address	
match interface	
match ip route-source	
match metric	
match ip next-hop	
match route-type	
set metric	
set metric-type	
set tag	

-	-

36.1.32 maximum-paths

maximum-paths no

maximum-paths *number*

no maximum-paths

<i>number</i>	1-32

└───┬───┘

32

└───┬───┘

maximum-paths

show running config

ipv4 ipv6

ipv4

ipv6

ipv6

10

Ruijie(config)# **maximum-paths** 10

Ruijie(config)# **no maximum-paths**

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---	---

└───┬───┘

└───┬───┘

-	-
---	---

36.1.33 route-map

route-map no

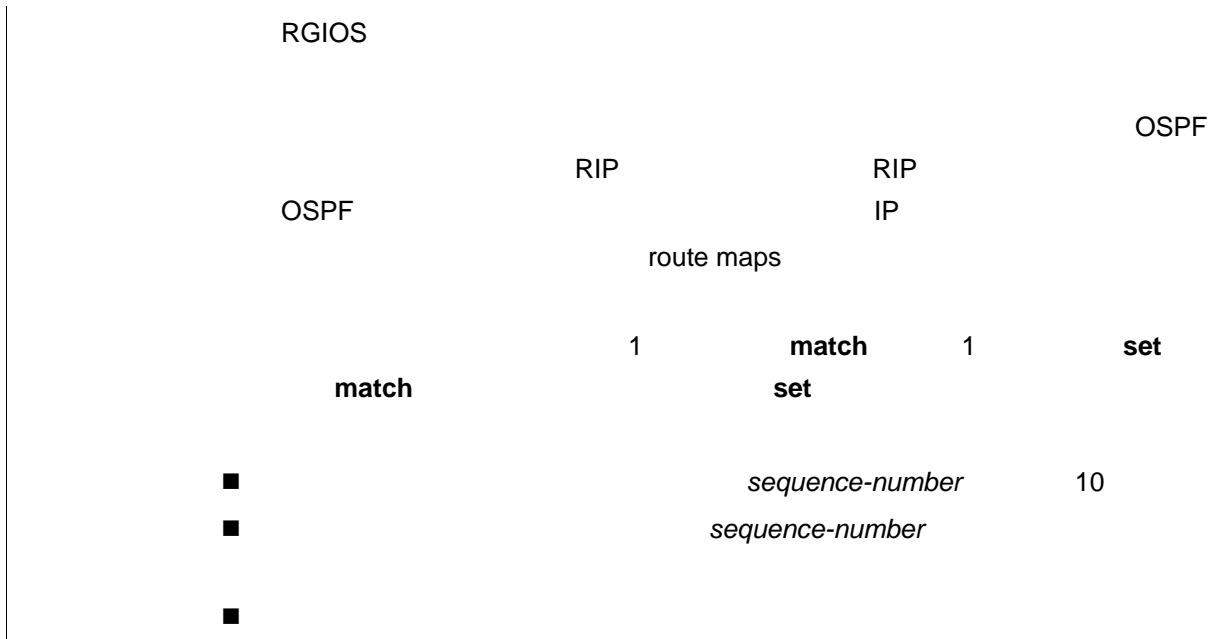
route-map *route-map-name* [**permit** | **deny**] [*sequence-number*]

no route-map *route-map-name* [**permit** | **deny**] [*sequence-number*]

<i>route-map-name</i>	
permit	permit match set set permit match set
deny	deny match deny match set
<i>sequence-number</i>	

└───┘

└───┘



```

      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
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match metric 4
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
Ruijie(config-route-map)# set tag 40

```

Redistribute	

-	-

36.1.34 set aggregator as

```

      match          AS          set
aggregator as      no
set aggregator as as-num ip_addr
no set aggregator as [as-num ip_addr]

```

<i>as-number</i>	AS
<i>ip_addr</i>	

BGP

as,ip-addr

```
Ruijie(config)# route-map set-as-path  
Ruijie(config-route-map)# match as-path 1  
Ruijie(config-route-map)# set aggregator as 3 2.2.2.2
```

match as-path	AS_PATH
match community	
match metric	
match origin	
set community	COMMUNITY
set metric	
set metric-type	

-	-

36.1.35 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*]

ÿ	.

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	

-	-

36.1.36 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**

<i>community-list-number</i>	1-99 100-199
<i>community-list-name</i>	80

```

Ruijie(config)# router bgp 100
Ruijie(config-router)# neighbor 172.16.233.33 remote-as 120
Ruijie(config-router)# neighbor 172.16.233.33 route-map ROUTEMAPIN
in
Ruijie(config-router)# neighbor 172.16.233.33 route-map
ROUTEMAPOUT out
Ruijie(config-router)# exit
Ruijie(config)# ip community-list 500 permit 100:10
Ruijie(config)# ip community-list 500 permit 100:20
Ruijie(config)# ip community-list 120 deny 100:50
Ruijie(config)# ip community-list 120 permit 100:.*
Ruijie(config)# route-map ROUTEMAPIN permit 10
Ruijie(config-route-map)# set comm-list 500 delete
Ruijie(config-route-map)# exit
Ruijie(config)# route-map ROUTEMAPOUT permit 10
Ruijie(config-route-map)# set comm-list 120 delete

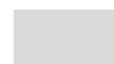
```

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	

match community

g in





```

Ruijie(config)# access-list 2 permit 192.168.78.0 255.255.255.0
Ruijie(config)# route-map MAP_NAME permit 10
Ruijie(config-route-map)# match ip-address 2
Ruijie(config-route-map)# set extcommunity rt 100:2

```

match as-path	AS_PATH
match community	
match metric	
match origin	
set as-path prepend	AS_PATH
set metric	
set metric-type	

-	-

36.1.40 set ip dscp

```

match DSCP set ip dscp
no
set ip dscp dscp_value
no set ip dscp

```

<i>dscp_value</i>	IP IP DSCP

L

L

route-map	
match ip address	
set default interface	

set	WCMP	weight	WCMP	WCMP
set ip next-hop	IP	32		
ip address	weight	4	nexthop	
	next-hop	weight	set	
r	WCMP	weight	WCMP	weight
		weight	nexthop	
	1			

set default interface	
set default interface	
set interface	
set ip default next-hop	IP
set ip precedence	IP

-	-

36.1.42 set ip next-hop verify-availability

```

IP
verify-availability no set ip next-hop
set ip next-hop verify-availability ip-address track track-obj-num
no set ip next-hop verify-availability ip-address track track-obj-num

```

<i>ip-address</i>	IP
<i>track-obj-num</i>	

```

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
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
Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#set ip next-hop 192.168.100.1
Ruijie(config)#route-map load-balance permit 20
Ruijie(config--route-map)#match ip address 20
Ruijie(config-route-map)#set ip next-hop 172.16.100.1
Ruijie(config)#route-map load-balance permit 30
Ruijie(config-route-map)#set interface Null 0

```

route-map	
match ip address	
set default interface	

set default interface

RuijieEE4 r4 0.48 ref66.84 492.1

	-	-
--	---	---

36.1.44 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

R u i j i e ( c o n f i g )
  
```

set metric-type

```

fastEthernet 0/0
2001:0db8:2001:1760::/64          2002:0db8:2003:1::95
Ruijie(config)# ipv6 access-list acl_for_pbr
Ruijie(config-ipv6-acl)#permit ipv6 any 2001:0db8:2001:1760::/64
Ruijie(config)#route-map rm_if_0_0
Ruijie(config-route-map)#match ip address acl_for_pbr
Ruijie(config-route-map)# set ipv6 next-hop 2002:0db8:2003:1::95
Ruijie(config)#interface FastEthernet 0/0
Ruijie(config-if)#ipv6 policy route-map rm_if_0_0

```

match ipv6 address	
ipv6 policy route-map	
set ipv6 default next-hop	IPv6

S3760E

RGOS 10.4	RGOS 10.4

36.1.46 set ipv6 next-hop verify-availability

Route-map **set ipv6 next-hop verify-availability** BFD
IPv6 **no**

set ipv6 next-hop verify-availability [*global-ipv6-address* [*weight*] **bfd** *interface-type* *interface-number* *gateway*]

no set ipv6 next-hop verify-availability [*global-ipv6-address* [*weight*] **bfd** *interface-type* *interface-number* *gateway*]

<i>[1 cVU] -]dj 6-UXXfYgg</i>	fl t 1P] 6
bfd	fl t 6F8
<i>kY][\h</i>	fl t
<i>interface-type</i> <i>interface-number</i>	fl t

<i>gateway</i>	()	BFD	IPv6
----------------	-----	-----	------

6F8

r	gYh]dj 6 bYl h\cd	
	I Pj 6	6F8

```
#
BFD
BFD
2002::2

Ruijie#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# route-map Example1 permit 10

Ruijie(config-route-map)# match ipv6 address 1

Ruijie(config-route-map)# set ipv6 precedence priority

Ruijie(config-route-map)# set ipv6 next-hop 2002::2

Ruijie(config-route-map)#set ipv6 next-hop verify-availability
2002::2 bfd FastEthernet 0/1 2002::2

Ruijie(config-route-map)#end
```

bfd	BFD
------------	-----

match IPv6 set ipv6
precedence no

set ipv6 precedence {<0-7> | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }

no set ipv6 precedence {<0-7> | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }




```

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	

-	-

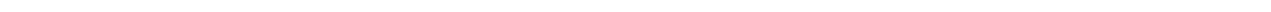
36.1.49 set local-preference

```

match LOCAL_PREFERENCE set
local-preference no
set local-preference number
no set local-preference

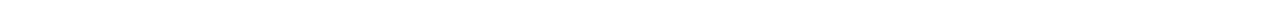
```

<i>number</i>	0-4294967295



local-preference

local-preference



```

set metric + - metric
RIP metric 1-16 OSPF
OSPF RIP RIP IP
route maps
match 1 match 1 set
set

```

```

40 OSPF 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)# set metric 40

```

match interface	
match ip address	
match ip next-hop	
match ip route-source	
match metric	

	-	-

36.1.51 set metric-type

match
no

set metric-type

set metric-type *type*

no set metric-type

	<i>type</i>	

	OSPF	type-2
--	------	--------

	OSPF	RIP
		RIP IP
		OSPF

L

L

|

[REDACTED]

|

[REDACTED]

[REDACTED]

```
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	

36.1.53 set origin

igp	IGP

```

Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set origin igp
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 origin egp

```

match as-path	AS_PATH
match metric	
match origin 2	~
set as-path prepend	AS_PATH
set metric	

```

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	

--	--

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	

└──

└──

└──

BGP

neighbor weight

32768

BGP

└──

BGP in
100

1.1.1.1

```
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	

└──

└──

-	-

36.2

36.2.1 show ip community-list

show ip community-list [*community-list-number*|*community-list-name*]

<i>community-list-number</i>	1-99 100-199
<i>community-list-name</i>	80

|

|

|

```
Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

match community	
set comm-list delete	BGP

|



	<i>prefix-name</i>	

weight	
---------------	--

1 **show ip route**

Ruijie# **show ip route**

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
S
R RIP
B BGP
O OSPF
i IS-IS

E2	E1 OSPF E2 OSPF N1 OSPF NSSA 1 N2 OSPF NSSA 2 IA OSPF su IS-IS L1 IS-IS 1 L2 IS-IS 2 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**

Distance 110, metrif00

36.2.4 show ipv6 prefix-list

IPv6

show ipv6 prefix-list

show ipv6 prefix-list [*prefix-name*]

<i>prefix-name</i>	IPv6
-	-

IPv6

```
Ruijie# show ipv6 prefix-list
ipv6 prefix-list p6: 2 entries
permit 13::/20
permit 14::/20
```

-	-
---	---

-	-
---	---

36.2.5 show ipv6 route

IPv6

show ipv6 route

show ipv6 route *[[network/prefix-length | summary | protocol]]*

<i>network/prefix-length</i>	
summary	ipv6
protocol	connected, static ospf, rip bgp, isis,

show ipv6 route

```
Ruijie(config)# show ipv6 route
IPv6 routing table name is Default(0) global scope - 7 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
O - OSPF intra area, OI - OSPF inter area, OE1 - OSPF external type
1, OE2 - OSPF external type 2
ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
[*] - NOT in hardware forwarding table
L    ::1/128 via Loopback, local host
C    10::/64 via Loopback 1, directly connected
L    10::1/128 via Loopback 1, local host
S    20::/64 [20/0] -102(1, )-A2
```

O	C L S R RIP B BGP O OSPF i IS-IS
E2	E1 OSPF E2 OSPF N1 OSPF NSSA 1 N2 OSPF NSSA 2 IA OSPF su IS-IS L1 IS-IS 1 L2 IS-IS 2 ia IS-IS
20::/64	
[1/0]	
Via 10::4	IP
00:00:06	
VLAN 1	

ipv6 route	ipv6
------------	------

┌

10.1	
------	--

36.2.6 show route-map

show route-map

show route-map *route-map-name*

<i>route-map-name</i>	

|

|

|

Ruijie# **show route-map**

route-map AAA, permit, sequence 10

Match clauses:

ip address 2

Set clauses:

metric 10

route-map	
Permit	permit
sequence 10	

Match clauses

37 IPv6

37.1

37.1.1 ping ipv6

IPV6

ping ipv6 [ipv6-address]

ipv6-addres	s

└───

└───

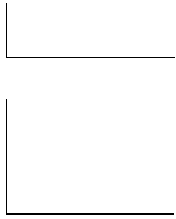
└───

Ruijie# ping ipv6 fec0::1

ping

!	
.	
U	
R	
F	
A	
D	Down IPV6 ()
?	

-	-



-	-

37.1.2 ipv6 address

IPV6 , no

ipv6 address *ipv6-address/prefix-length*

ipv6 address *ipv6-prefix/prefix-length eui-64*

ipv6 address *prefix-name sub-bits/prefix-length [eui-64]*

no ipv6 address

no ipv6 address *ipv6-address/prefix-length*

no ipv6 address *ipv6-prefix/prefix-length eui-64*

no ipv6 address *prefix-name sub-bits/prefix-length [eui-64]*



<i>ipv6-address</i>	IPV6 RFC4291 16
<i>ipv6-prefix</i>	IPV6 RFC4291 16
<i>prefix-length</i>	IPV6 IPV6
<i>prefix-name</i>	
<i>sub-bits</i>	RFC4291
eui-64	IPV6 64 ID



```

IPv6
UP

IPv6
+
DHCPv6 PD
+
no ipv6 address
no ipv6 address ipv6-prefix/prefix-length eui-64
ipv6-prefix/prefix-length eui-64

IPv6 = +
ipv6 general-prefix
DHCPv6
sub-bits/prefix-length
ipv6 address
    
```

```

1 IPv6
Ruijie(config-if)# ipv6 address 2001:1::1/64
Ruijie(config-if)# no ipv6 address 2001:1::1/64
Ruijie(config-if)# ipv6 address 2002:1::/64 eui-64
Ruijie(config-if)# no ipv6 address 2002:1::/64 eui-64

2
Ruijie(config-if)# ipv6 address my-prefix 0:0:0:7272::72/64
my-prefix 2001:1111:2222::/48 IPv6
2001:1111:2222:7272::72/64
    
```

ipv6 address autoconfig	
ipv6 general-prefix	
show ipv6 general-prefix	

RGOS10.4	IPv6 RGOS10.4

37.1.3 ipv6 address autoconfig

```

no IPv6
no ipv6 address autoconfig [default]
no ipv6 address autoconfig
    
```

|



default

2	IPv6	ipv6 enable
	IPv6	
r	IPv6	IPv6
	no ipv6 enable	IPV6

Ruijie(config-if)# **ipv6 enable**

show ipv6 interface	
----------------------------	--

-	-
---	---

37.1.5 ipv6 general-prefix

IPv6

ipv6 general-prefix

ipv6 general-prefix *prefix-name ipv6-prefix/prefix-length*

no ipv6 general-prefix *prefix-name ipv6-prefix/prefix-length*

<i>prefix-name</i>	
<i>ipv6-prefix</i>	RFC4291
<i>prefix-length</i>	

	-	-
	-	-

37.1.7 ipv6 nd dad attempts

```

                IPV6                                (NS)
                no
    ipv6 nd dad attempts value
    no ipv6 nd dad attempts
    
```

value	(NS)	0
	0-600	ipv6 :

```

1

```

```

                IPV6
                "tentative"( )
                EUI-64
                (                IPV6                )
                down/up
                down                up
    
```

```

Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd dad attempts 3
    
```

show ipv6 interface	

-	-

37.1.8 ipv6 nd managed-config-flag

“managed address configuration”

no

ipv6 nd managed-config-flag

no ipv6 managed-config-flag

-	-

┌

┌

┌

```
Ruijie(config)# int vlan 1
Ruijie(config)# ipv6 nd managed-config-flag
```

show ipv6 interface	ra-info
ipv6 nd other-config-flag	

┌

-	-

37.1.9 ipv6 nd ns-interval

(NS)

no

ipv6 nd ns-interval *milliseconds*

no ipv6 nd ns-interval

milliseconds	1000-4294967295

(RA) 0()
1000ms(1)

(RA)

Ruijie(config-if)# **ipv6 nd ns-interval 2000**

--	--

<i>valid-lifetime</i>	
<i>preferred-lifetime</i>	
at <i>valid-date preferred-date</i>	
infinite	
default	
no-advertise	
off-link	IPV6 (on-link) on-link
no-autoconfig	

IPV6 address

valid-lifetime: 2592000 (30)
preferred-lifetime: 604800 (7),
 on-link

(RA) ipv6 address

ipv6 nd prefix default

ipv6 nd prefix default

ipv6 nd prefix default

at *valid-date preferred-date*

2

0

1 SVI 1

```
Ruijie(config)#interface vlan 1
Ruijie(config-if)# ipv6 nd prefix 2001::/64 infinite 2592000
```

```

2          SVI 1          (          )
Ruijie(conifg)# interface vlan 1
Ruijie(conifg-if)# ipv6 nd default no-autoconfig
    
```

show ipv6 interface	ra-info

-	-

37.1.11 ipv6 nd ra-lifetime

(RA) no

ipv6 nd ra-lifetime *seconds*

no ipv6 nd ra-lifetime

seconds	

1800

```

"          "          (RA)
          0          0
(ra-interval)          (RA)
    
```

```

Ruijie(conifg)# interlcce vlan 1
Ruijie(conifg-if)# ipv6 nd ra-lifetime 2000
    
```

--	--

show ipv6 interface	ra-info
ipv6 nd ra-interval	
ipv6 nd ra-hoplimit	
ipv6 nd ra-mtu	MTU

-	-

37.1.12 ipv6 nd ra-interval

(RA) no

ipv6 nd ra-interval {seconds | min-max min_value max_value}

no ipv6 nd ra-interval

<i>seconds</i>	(RA)
<i>min-max</i>	
<i>min_value</i>	
<i>max_value</i>	

200 200 20

min-max

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd ra-interval 110
```

```
Ruijie(config-if)# ipv6 nd ra-interval min-max 110 120
```

show ipv6 interface	ra-info
ipv6 nd ra-lifetime	
ipv6 nd ra-hoplimit	
ipv6 nd ra-mtu	MTU

-	-

37.1.13 ipv6 nd ra-hoplimit

(RA) no

ipv6 nd ra-hoplimit value

no ipv6 nd ra-hoplimit

<i>value</i>	(RA)

64

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd ra-hoplimit 110
```

show ipv6 interface	ra-info

ipv6 nd ra-lifetime	
ipv6 nd ra-interval	
ipv6 nd ra-mtu	MTU

┌

┌

-	-

37.1.15 ipv6 nd reachable-time

NDP
no

ipv6 nd reachable-time *milliseconds*

no ipv6 nd reachable-time

┌

<i>milliseconds</i>	0-3600000

┌

(RA) 0()
 30000ms(30)

┌

┌

0 (RA)

┌

Ruijie(config-if)# **ipv6 nd reachable-time 1000000**

┌

show ipv6 interface	

┌

┌

-	-

37.1.16 ipv6 nd suppress-ra

	(RA)	(RA)	no
	(RA)		
	ipv6 nd suppress-ra		
	no ipv6 nd suppress-ra		
	-	-	
	IPv6		
			ipv6 suppress-ra
	Ruijie(conifgf)# interface vlan 1		
	Ruijie(config-if)# ipv6 suppress-ra		
	show ipv6 interface		ra-info
	-	-	

37.1.17 ipv6 neighbor

<i>interface-id</i>	SVI	Routed Port,L3 AP	
<i>hardware-address</i>		XXXX.XXXX.XXXX	48



```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 redirects
```

show ipv6 interface	

-	-

37.1.20 ipv6 route

IPV6

no

ipv6 route *ipv6-prefix/prefix-length* {*ipv6-address* | *interface-id* [*ipv6-address*]}

no ipv6 route *ipv6-prefix/prefix-length* {*ipv6-address* | *interface-id* [*ipv6-address*]}

<i>ipv6-prefix</i>	IPV6 RFC4291
<i>prefix-length</i>	IPV6 '/'
<i>ipv6-address</i>	RFC4291
<i>interface-id</i>	

r

	-	-

9

RGOS10.4

RGOS10.4

37.1.24 tunnel mode ipv6ip

IPv6

,

no

IPv6

tunnel mode ipv6ip [6to4 | isatap]

no tunnel mode

6to4

6to4

isatap

ISATAP

IPv6

tunnel mode ipv6ip

6to4

```
Ruijie(config)# interface tunnel 1
```

```
Ruijie(config-if)# tunnel mode ipv6ip 6to4
```

```
Ruijie(config-if)# tunnel source vlan 1
```

A

E

, no

tunnel source {*ipv4-address* | *ipv6-address* | *interface-type interface-number*}

no tunnel source

	-	-

37.1.26 tunnel ttl

IPv6 over IPv4	IPv4	TTL	IPv4 over IPv6	IPv6 over IPv4
IPv6	IPv6		no	
255				
tunnel ttl <i>value</i>				

37.2

|

|

|

show ipv6 general-prefix
DHCPv6

|

```
Ruijie# show ipv6 general-prefix
There is 1 general prefix.
IPv6 general prefix my-prefix, acquired via Manual configuration
    2001:1111:2222::/48
    2001:1111:3333::/48
```

|

ipv6 general-prefix	

|

|

RGOS10.4	RGOS10.4

37.2.3 show ipv6 interface

IPV6

show ipv6 interface [*interface-id*] [*ra-info*]

|

<i>interface-id</i>	aggregateport SVI
ra-info	RA

|

|

|

IPV6

ND

```

Ruijie# show ipv6 interface vlan 1
Interface vlan 1 is Up, ifindex: 2001
address(es):
Mac Address: 00:00:00:00:00:01
INET6: fe80::200:ff:fe00:1 , subnet is fe80::/64
INET6: 2001::1 , subnet is 2001::/64 [TENTATIVE]
Joined group address(es):
ff01:1::1
ff02:1::1
ff02:1::2
ff02:1::1:ff00:1
MTU is 1500 bytes
ICMP error messages limited to one every 10 milliseconds
ICMP redirects are enabled
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 milliseconds
ND retransmit interval is 1000 milliseconds
ND advertised retransmit interval is 0 milliseconds
ND router advertisements are sent every 200 seconds<240--160>
ND router advertisements live for 1800 seconds

```

INET6: 2001::1 , subnet is 2001::/64

[TENTATIVE]	INET6	[]
ANYCAST		
TENTATIVE		(DAD)
DUPLICATED		

vlan 1: DOWN

total	
fec0:1:1:1::/64	
Def	
Auto CFG	Auto IPV6 , CFG
!Adv	
vtime	()
ptime	()
L !L	L on-link !L
A !A	A auto-config , !A

-	-

-	-

37.2.4 show ipv6 neighbors

IPV6

show ipv6 neighbors { [**verbose**] [*interface-id*] [*ipv6-address*] | [**static**] }

verbose	
<i>interface-id</i>	
<i>ipv6-address</i>	
static	

1 SVI 1

Ruijie# **show ipv6 neighbors vlan 1**

```
IPv6 Address Linklayer Addr Interface
fa::1          00d0.0000.0002 vlan 1
fe80::200:ff:fe00:2 00d0.0000.0002 vlan 1
```

2

Ruijie# **show ipv6 neighbors verbose**

```
IPv6 Address Linklayer Addr Interface
2001::1       00d0.f800.0001 vlan 1
                State: Reach/H Age: - asked: 0
fe80::200:ff:fe00:1 00d0.f800.0001 vlan 1
                State: Reach/H Age: - asked: 0
```

IPv6 Address	IPV6
Linklayer Addr	Mac incomplete
Interface	

<p>State</p>	<p>state/H(R)</p> <p>STATE</p> <p>INCOMP(Incomplete)— (NS) (NA)</p> <p>REACH(Reachable) —</p> <p>STALE —</p> <p>NUD (Neighbor Unreachability Detection)</p> <p>DELAY— STALE STALE DELAY DELAY_FIRST_PROBE_TIME seconds(5)</p> <p>DELAY PROBE (NS) NUD</p> <p>PROBE— NUD RetransTimer milliseconds (NS)</p> <p>MAX_UNICAST_SOLICIT(3) ?— /R— /H—</p>
<p>Age</p>	<p>'expired' NUD</p>
<p>Asked</p>	<p>(NS)</p>

```

3
Ruijie# show ipv6 neighbors static
IPv6 Address      Linklayer Addr  Interface          State
2001:1::1         00d0.f822.33ab  GigabitEthernet 0/14  ACTIVE
2001:2::2         00d0.f822.33ac  VLAN 1             INACTIVE

```

IPv6 Address	IPV6
Linklayer Addr	Mac

Interface

G Q,Á/P Yb Q V@ldr Q)b Sc“hG /Q`Ab •a-a ðÀ R T

show ipv6 router

IPv6

Ruijie# **show ipv6 router**

Router FE80::2D0:F8FF:FEC1:C6E1 on VLAN 2, last update 62 sec
Hops 64, Lifetime 1800 sec, ManagedFlag=0, OtherFlag=0, MTU=1500
Preference=MEDIUM
Reachable time 0 msec, Retransmit time 0 msec
Prefix 6001:3::/64 onlink autoconfig
Valid lifetime 2592000 sec, preferred lifetime 604800 sec
Prefix 6001:2::/64 onlink autoconfig
Valid lifetime 2592000 sec, preferred lifetime 604800 sec

-	-



	-	-

38.1.2 distance IPv6

RIPng **distance** **no**

distance *distance*

no distance

<i>distance</i>	RIPng	<1-254>

120

RIPng

RIPng 160
 Ruijie(config)# **ipv6 router rip**
 Ruijie(config-router)# **distance 160**

	-	-

	-	-

38.1.3 distribute-list

prefix-list / **distribute-list**
no

distribute-list

originate	ipv6
metric <i>metric-value</i>	1-15

```
metric 1
```

```

RIPng
IPv6
RIPng

```

```

ethernet0/0
RIPng

```

```

Ruijie(config)# interface ethernet 0/0
Ruijie(config-if)# ipv6 rip default-information only

```

show ipv6 rip	RIPng
show ipv6 rip database	RIPng

-	-
---	---

38.1.5 ipv6 rip enable

```

RIPng
RIPng
ipv6 rip enable
no ipv6 rip enable

```

-	-
---	---

┌

┌

┌

RIPng

RIPng

RIPng

┌

ethernet 0/0 RIPng

Ruijie(config)# **interface ethernet 0/0**

Ruijie(config-if)# **ipv6 rip enable**

┌

-	-

┌

┌

-	-

38.1.6 ipv6 rip metric-offset

ipv6 rip metric-offset *value* no

ipv6 rip metric-offset *value*

no ipv6 rip metric-offset

┌

<i>value</i>	1-16

┌

1

┌

┌

metric

┌

ethernet 0/1

5

	-	-
--	---	---

38.1.8 passive-interface RIPng

passive-interface

no

passive-interface {**default** | *interface-type interface-num*}

no passive-interface {**default** | *interface-type interface-num*}

default	passive
<i>interface-type interface-num</i>	

passive

passive-interface default
passive-interface

passive

no

redistribute {**bgp** | **connected** | **isis** [*area-tag*] | **ospf** *process-id* | **static**} [**metric** *metric-value* | **route-map** *route-map-name*]

no redistribute {**bgp** | **connected** | **isis** [*area-tag*] | **ospf** *process-id* | **static**} [**metric** *metric-value* | **route-map** *route-map-name*]

bgp	BGP		
connected			
isis [<i>area-tag</i>]	ISIS	<i>area-tag</i>	ISIS
ospf <i>process-id</i>	OSPF <i>process-id</i>	<i>process-id</i> 1-65535	ospf
static			
metric <i>metric-value</i>			



38.1.11 timers (ipv6)

RIPng	timers	no
<i>timers update invalid flush</i>		
no timers		
<i>update</i>	update 30	invalid flush
<i>invalid</i>	invalid invalid Invalid 180	invalid
<i>flush</i>	flush flush	RIPng invalid invalid 120
	30	180 120

	show ipv6 rip	RIPng
	show ipv6 rip database	RIPng

└──

	-	-	29/C2_0

```

    Redistributing protocol connected route-map rm
    Redistributing protocol static
    Redistributing protocol ospf 1
    Default version control: send version 1, receive version 1
    Interface          Send  Recv
    VLAN 1             1    1
    Loopback 1         1    1
    Routing Information Sources:
    None
  
```

show ipv6 rip	RIPng

└──

-	-

38.2.2 show ipv6 rip database

RIPng

show ipv6 rip database

show ipv6 rip database

-	-

└──

└──

RIPng

```

Ruijie# show ipv6 rip database
Codes: R - RIPng,C - Connected,S - Static,O - OSPF,B - BGP
sub-codes:n - normal,s - static,d - default,r - redistribute,
          i - interface, a/s - aggregated/suppressed
  
```

```

S(r) 2001:db8:1::/64, metric 1, tag 0
      Loopback 0/::
S(r) 2001:db8:2::/64, metric 1, tag 0
      Loopback 0/::
C(r) 2001:db8:3::/64, metric 1, tag 0
      VLAN 1/::
S(r) 2001:db8:4::/64, metric 1, tag 0
      Null 0/::
C(i) 2001:db8:5::/64, metric 1, tag 0
      Loopback 1/::
S(r) 2001:db8:6::/64, metric 1, tag 0
      Null 0/::

```

show ipv6 rip	RIPng

-	-

39 MLD Snooping

39.1

39.1.1 ipv6 mld profile

```

MLD profile profile profile
      profile profile-number mld
profile
ipv6 mld profile profile-number

```

no ipv6 mld profile profile-number

<i>profile-number</i>	profile 1-1024

```

MLD Profiles SVGL
              MLD Filtering profile
              profile

```

```

1 profile profile
Ruijie(config)# ipv6 mld profile 1
Ruijie(config-profile)#

```

range	profile
deny	profile deny
permit	profile permit

	10.4	

39.1.3 deny

	profile	profile	deny
	deny		
	profile	deny	
	profile		
	profile	range	
		FF77::100	profile :
	Ruijie(config)# ipv6 mld profile 1		
	Ruijie(config-profile)# range FF77::100		
	Ruijie(config-profile)# deny		
	ipv6 mld profile	profile	
	range		
	permit	profile	permit
	10.4		

39.1.4 permit

	profile	profile	permit
	permit		



VLAN VLAN VLAN VLAN

VLAN

mld snooping ivgl


```
Ruijie(config)# ipv6 mld snooping svgl profile 1
```

ipv6 mld snooping ivgl	mld snooping ivgl
ipv6 mld snooping ivgl-svgl	mld snooping

10.4	

39.1.8 ipv6 mld snooping svgl ivgl-svgl

mld snooping ivgl-svgl

ipv6 mld snooping ivgl-svgl	mld snooping
10.4	

39.1.9 ipv6 mld snooping dyn-mr-aging-time

ipv6 mld snooping dyn-mr-aging-time *time*
no ipv6 mld snooping dyn-mr-aging-time

ipv6 mld snooping dyn-mr-aging-time *time*
no ipv6 mld snooping dyn-mr-aging-time

<i>time</i>	1-3600

300s

Hello

MLD

IPv6 PIM

500s

Ruijie(config)# **ipv6 mld snooping dyn-mr-aging-time 500**

10.4	

39.1.10 ipv6 mld snooping query-max-response-time

ipv6 mld snooping query-max-response-time *time* MLD
no ipv6 mld snooping query-max-response-time

ipv6 mld snooping query-max-response-time *time*
no ipv6 mld snooping query-max-response-time

<i>time</i>	MLD 1-65535

no ipv6 mld snooping vlan vid

<i>vid</i>	vlan id	1-4094	

mld snooping vlan mld snooping

mld snooping vlan mld snooping
 vlan mld snooping

VLAN 1 mld snooping

Ruijie(config)# **no ipv6 mld snooping vlan 1**

10.4			

39.1.12 ipv6 mld snooping vlan mrouter learn

MLD query PIM
ipv6 mld snooping vlan mrouter learn no

ipv6 mld snooping vlan vid mrouter learn
no ipv6 mld snooping vlan vid mrouter learn

<i>vid</i>	vlan id	1-4094	

```
VLAN
no
mld snooping
```

```
Ruijie(config)# ipv6 mld snooping vlan 1 mrouter learn
```

ipv6 mld snooping vlan mrouter interface	

10.4	

39.1.13 ipv6 mld snooping vlan mrouter interface

```
interface no
ipv6 mld snooping vlan mrouter
interface interface-id
no ipv6 mld snooping vlan vid mrouter interface interface-id
```

<i>vid</i>	vlan id 1-4094
<i>interface-id</i>	

IPv6

```
Ruijie(config)# ipv6 mld snooping vlan 1 mrouter interface  
fastEthernet 0/1
```

ipv6 mld snooping source-check port	

10.4	

```
fastEthernet 0/1
```

ipv6 mld snooping vlan mrouter interface	

10.4	

39.1.15 ipv6 mld snooping fast-leave enable

```

mld snooping fast-leave          ipv6 mld snooping
fast-leave enable                 no      mld snooping fast-leave

```

```

ipv6 mld snooping fast-leave enable
no ipv6 mld snooping fast-leave enable

```


```

IPv6          MLD          IPv6          MLD

```

```

mld snooping fast-leave
Ruijie(config)# ipv6 mld snooping fast-leave

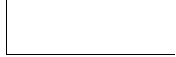
```


10.4	

39.1.16 ipv6 mld snooping suppression enable

```
mld snooping suppression          ipv6 mld snooping
suppression enable                 no      mld snooping suppression

ipv6 mld snooping suppression enable
no ipv6 mld snooping suppression enable
```

```
MLD
IPv6      MLD
          MLD
          MLD

suppression          MLD v1 report
MLD v2 report
```

```
mld snooping suppression
Ruijie(config)# ipv6 mld snooping suppression
```




10.4	

39.1.17 ipv6 mld source-check port

mld snooping

ipv6 mld snooping source-check port

no

ipv6 mld snooping source-check port

no ipv6 mld snooping source-check port

mld snooping

MLD

mld snooping

mld snooping

mld snooping

Ruijie(config)# **ipv6 mld snooping source-check port**

●	●

10.4	

39.1.18 ipv6 mld snooping filter

profile

no

profile

ipv6 mld snooping filter *profile-number*

no ipv6 mld snooping filter

|

|

MLD Report

|

0/1 100

Ruijie(config)# **interface fastEthernet 0/1**

Ruijie(config-if)# **ipv6 mld snooping max-group 100**

|

ipv6 mld snooping filter	

|

10.4	

39.1.20 clear ipv6 mld snooping gda-table

clear ipv6 mld snooping

gda-table

clear ipv6 mld snooping gda-table

|

|

|

|

|

Ruijie# **clear ipv6 mld snooping gda-table**

|

└──

10.4	

39.1.21 debug mld-snp

mld , debug mld-snp

debug mld-snp
undebug mld-snp

└──

└──

└──

mld

└──

mld
Ruijie# debug mld-snp

└──

10.4	

39.2

39.2.1 show ipv6 mld snooping

mld snooping

Show ipv6 mld snooping [gda-table | interfaces | mrouter/ statistics [vlan *vlan-id*]

	mld snooping
gda-table	
interfaces	mld snooping Filtering
mrouter	
statistics [vlan <i>vlan-id</i>]	snooping

mld snooping

```

1      show ipv6 mld snooping          mld snooping
Ruijie# show ipv6 mld snooping
MLD-snooping mode      : IVGL
SVGL vlan-id          : 1
SVGL profile number    : 0
Source check port      : Disabled
Query max response time : 10(Seconds)

2      show ipv6 mld snooping statistics  mld snooping

Ruijie# show ipv6 mld snooping statistics
GROUP      Interface      Last report      Last leave      Last
           time          time             reporter
-----
FF88::1 VL1:Gi4/2      0d:0h:0m:7s     ----          2003::1111
           Report pkts: 1             Leave pkts: 0

3      show ipv6 mld snooping mrouter    mld snooping

Ruijie# show ipv6 mld snooping mrouter
Vlan      Interface      State      MLD profile number
-----
1 GigabitEthernet 0/7      static     1
1 GigabitEthernet 0/12     dynamic    0
    
```


mld profile

```
1      show ipv6 mld profile      MLD profile
Ruijie# show ipv6 mld profile 1
MLD Profile 1
permit
range FF77::1 FF77::100
range FF88::123
```


10.4	

40

40.1

40.1.1 storm-control

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	
<i>percent</i>	20 20%
<i>packets</i>	pps packets per second
<i>Rate-bps</i>	
<i>64k-2M</i>	64k
<i>2-100M</i>	1M
<i>100M</i>	8M

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	

86 pps

-	-

40.1.2 switchport protected

no

switchport protected

no switchport protected

-	-

3

show interfaces

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport protected
```

show interfaces	

|

-

|

-	-

40.1.3 switchport port-security

no

switchport port-security [violation {protect | restrict | shutdown}]

no switchport port-security [violation]

|

port-security	
violation protect	
violation restrict	trap
violation shutdown	Trap

|

|

|

```

)
(
MAC
IP(
)
1
M

```

|

```

GigabitEthernet 1/1
shutdown
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# switchport port-security
Ruijie(config-if)# switchport port-security violation shutdown

```

|

--	--

show port-security

	show port-security	
--	---------------------------	--

--

switchport port-security	
switchport port-security binding interface	
Switchport port-security mac-address	
switchport port-security aging	
show port-security	

└───┘

-	-

40.1.6 switchport port-security binding interface

IP+ MAC IP

no

[no] switchport port-security binding interface *interface-id* *mac-address* **vlan** *vlan_id*
ipv4-address | *ipv6-address*

[no] switchport port-security binding interface *interface-id* *ipv4-address* | *ipv6-address*

<i>interface-id</i>	ID
<i>mac-address</i>	MAC
<i>Vlan_id</i>	MAC VID
<i>Ipv4-address</i>	Ipv4 Ip
<i>Ipv6-address</i>	Ipv6 Ip

└───┘

└───┘

└───┘

```

1      192.168.1.100      10
Ruijie(config)# switchport port-security binding interface g0/10
192.168.1.100
2      192.168.1.100 MAC      00d0.f800.5555, VID= 1      10
Ruijie(config)# switchport port-security binding interface g0/10 00d0.f800.5555
vlan 1 192.168.1.100

```

switchport port-security	
switchport port-security binding	
Switchport port-security mac-address	
switchport port-security aging	
show port-security	

-	-

40.1.7 switchport port-security maximum

no

switchport port-security maximum *value*

[no] switchport port-security maximum

value	1-128

128

128


```

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	

-	-

40.1.9 switchport port-security mac-address interface

no

[no] switchport port-security interface *interface-id* **mac-address** *mac-address* [*vlan* *vlan-id*]

<i>interface-id</i>	ID
<i>mac-address</i>	
<i>vlan-id</i>	MAC VID 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	

-	-

40.2

40.2.1 show storm-control

show storm-control [*interface-id*]

<i>interface-id</i>	

```
Ruijie# show storm-control gigabitethernet 1/1
```

```

Interface Broadcast Control Multicast Control Unicast Control
-----
Gi1/1 Disabled Disabled Disabled

```

storm-control	

-	-

40.2.2 show port-security

show port-security [*address*] [*interface interface-id*] [**all**]

address	
interface <i>interface-id</i>	
all	



41 802.1X

41.1 dot1x

41.1.1 dot1x auto-req

802.1X

dot1x auto-req

no

[no] dot1x auto-req

-	-

└───

└───

└───

802.1x

show dot1x auto-req

└───

802.1x

```

Ruijie# configure terminal
Ruijie(config)# dot1x auto-req
Ruijie(config)# end
Ruijie# show dot1x auto-req
Ruijie(config)# dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num : 0
Req-Interval: 30 Second

```

└───

show dot1x auto-req	

└───

	-	-

41.1.3 dot1x auto-req req-interval

no

dot1x auto-req req-interval *interval*

no dot1x auto-req req-interval

--	--	--

41.1.4 dot1x auto-req user-detect

no

dot1x auto-req user-detect

no dot1x auto-req user-detect

-	-

┌

┌

┌

show dot1x auto-req

┌

```
Ruijie# configure terminal
Ruijie(config)# dot1x auto-req user-detect
Ruijie(config)# end
Ruijie# show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num : 0
Req-Interval: 60 Second
```

┌

show dot1x auto-req	

┌

┌

-	-

41.2 dot1x

41.2.1 dot1x timeout quiet-period

no

dot1x timeout quiet-period *seconds*

no dot1x timeout quiet-period

<i>seconds</i>	0	65535 s

10

```

Client Oline Probe: Disabled
Eapol Tag Enable: Disabled
Authorization Mode: Group Server

```

show dot1x	802.1x

-	-

41.2.2 dot1x timeout re-authperiod

no

dot1x timeout re-authperiod *seconds*

no dot1x timeout re-authperiod

<i>seconds</i>	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



-	-
---	---

41.2.5 dot1x timeout tx-period

no

dot1x timeout tx-period *seconds*

no dot1x timeout tx-period

<i>seconds</i>	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

```

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

-	-

41.3.2 dot1x reauth-max

no

dot1x reauth-max *count*

no dot1x reauth-max

<i>count</i>	

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

```

show dot1x	802.1x

-	-

41.4 dot1x

41.4.1 dot1x probe-timer

dot1x probe-timer{interval | alive}*interval*

no dot1x probe-timer

no	
<i>interval</i>	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	
-------------------------------	--

	-	-
--	---	---

--	--	--

--	--	--

--	--	--

```
Ruijie# configure terminal
Ruijie(config)# dot1x client-probe enable
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
```

41.5 dot1x

41.5.1 dot1x authentication

```
AAA
```

```
AAA
```

```
no
```

```
dot1x authentication {default | list-name}
```

```
no dot1x authentication {default | list-name}
```

```
T-DQ...r...  
T-@ax T5 PÂ dÂ% ÔQ,qM@ aAj u~UAp~$ Q, •5 ,Õ a -A~° T5 bl *Q E * Ô 9E
```

```
default
```

41.5.2 dot1x auth-address-table

802.1X

no

dot1x auth-address-table address *mac-addr* **interface** *interface***no dot1x auth-address-table address** *mac-addr* **interface** *interface*

--	--

mac-addr

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

|

|

show dot1x 802.1x

|

```

802.1x
Ruijie# configure terminal
Ruijie(config)# dot1x default
Ruijie(config)# end
Ruijie# end
    
```

|

show dot1x	802.1x

|

|

-	-

41.5.5 dot1x dynamic-vlan enable

vlan no

dot1x dynamic-vlan enable

no dot1x dynamic-vlan enable

|

-	-

|

|

|

show dot1x dynamic-vlan 802.1x

802.1x vlan

```
Ruijie(config)# dot1x dynamic-vlan enable
Ruijie(config)# end
Ruijie#
```

```
show dot1x
```

```
802.1x
```

```
-
```

```
-
```

41.5.6 dot1x guest-vlan

guest vlan

no

```
dot1x dynamic-vlan <1 - 4094>
```

```
no dot1x guest-vlan
```

	show running-config	802.1x

	-	-

41.5.7 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

|

|

	-	-

41.5.8 dot1x max-req

DOT1X

DOT1X

DOT1X

no

dot1x max-req *count*

no dot1x max-req



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	

-	-

41.5.10 dot1x port-control auto

no

dot1x port-control auto

no dot1x port-control

-	-

```
Ruijie#
```

```
show dot1x
```

```
802.1x
```

```
-
```

```
-
```

41.5.11 dot1x port-control-mode

```
802.1x
```

```
MAC
```

```
dot1x port-control-mode {mac-based | {port-based [single-host]} }
```

```
no dot1x port-control-mode
```

```
single-host
```

```

1          802.1x
Ruijie(config)# interface g 0/1
Ruijie(config-if)# dot1x port-control auto
Ruijie(config-if)# dot1x port-control-mode port-based
Ruijie(config-if)# end
Ruijie#

2          802.1x
Ruijie(config)# interface g 0/1
Ruijie(config-if)# dot1x port-control auto
Ruijie(config-if)# dot1x port-control-mode port-based single-host
Ruijie(config-if)# end
Ruijie#

```

show dot1x port-control	802.1x
Show running-config	

-	-

41.5.12 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#
```

|

-	-

|

|

-	-

41.5.13 dot1x redirect url

802.1x
URL

URL

1 ruijie.net/web

Ruijie(config)# **dot1x redirect url** http://ruijie.net/web

802.1X

dot1x redirect for special tcp-destination port	
dot1x redirect num for special source-ip	
show dot1x	dot1x

-	-

41.5.16 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

<i>num</i>	

1

1 3

```
Ruijie(config)# dot1x redirect num for special source-ip 3
```

dot1x redirect url	
dot1x redirect for special tcp-destination port	web ip ip
dot1x redirect time-out	

	show dot1x	dot1x
	-	-

41.6 dot1x

41.6.1 show dot1x

802.1x

show dot1x

	-	-

```

Ruijie# show dot1x
802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Disabled
Re-authen Period:   3600 sec
Quiet Timer Period: 10 sec
Tx Timer Period:    3 sec
Supplicant Timeout: 3 sec
Server Timeout:     5 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
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	

-	-
---	---

802.1X

show dot1x auth-address-table*[address mac-addr][interface interface]*

<i>mac-addr</i>	<i>interface</i>

└───

└───

└───

```
Ruijie# show dot1x auth-address-table
interface:g3/1
-----
mac addr: 00D0.F800.0001
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	

└───

└───

-	-

41.6.3 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	

	-	-

41.6.4 show dot1x private-supPLICANT-only

show dot1x private-supPLICANT-only

	-	-

└───┘

└───┘

└───┘

```
Ruijie# show dot1x private-supPLICANT-only
private-supPLICANT-only:: disabled
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	

41.6.5 show dot1x max-req

show dot1x max-req

-	-

└───┘

└───┘

└───┘

```
Ruijie# show dot1x max-req
max-req: 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	

└───┘

-	-

41.6.6 show dot1x port-control

show dot1x port-control [interface *interface*]

<i>interface</i>	

└──

└──

└──

```
Ruijie# show dot1x port-control
interface dyn-user static-user max-user qos
ctrl-mode status
-----
Gi0/1      0          1          6000      dscp: 0 mac-base Authed
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 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	

-	-

41.6.8 show dot1x re-authentication

show dot1x re-authentication

-	-

```

|
|
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|
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|
|
|
|

```

```

Ruijie# show dot1x re-authentication
reauth-enabled: disabled
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	

-	-

41.6.9 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	

-	-

41.6.10 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	

-	-
---	---

41.6.11 show dot1x user id

802.1X

show dot1x user id *<id>*

--	--

dot1x max-req	
dot1x port-control auto	

```
Ruijie# show dot1x timeout quiet-period
quiet-period: 60 sec
Ruijie#
```

dot1x auth-mode	802.1x
dot1x max-req	
dot1x port-control auto	
dot1x reauth-max	
dot1x re-authentication	

```
dot1x timeo/Tpf-0.0024 Tw 1.198 <4-0.0024 Tw 1.] 0.47A48 20.1 33.36 394.9840.1 F909E20804
```

42 AAA

42.1

42.1.1 aaa authentication dot1x

AAA 802.1X **aaa authentication dot1x**
802.1X no 802.1X

aaa authentication dot1x {**default** | *list-name*} *method1* [*method2...*]

no aaa authentication dot1x {**default** | *list-name*}

default	802.1X
<i>list-name</i>	802.1X 1

aaa new-model	AAA
dot1x authentication	802.1X
username	

AAA Enable

RADIUS

RADIUS

```
Ruijie(config)# aaa authentication enable default group radius local
```

```

AAA
aaa authentication login
AAA 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

-	-
---	---

42.1.4 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
<i>list-name</i>	PPP
<i>method</i>	local none group 4

AAA

default	Login
<i>list-name</i>	Login

┌

┌

┌

```

Login
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

┌

┌

-	-

42.2

42.2.1 aaa authorization commands

	NAS	CLI	AAA	aaa authorization
commands		no	AAA	
aaa authorization commands <i>level</i> { default <i>list-name</i> } <i>method1</i> [<i>method2...</i>]				

no aaa authorization commands *level* {**default** | *list-name*}

<i>level</i>	0~15
default	
<i>list-name</i>	
<i>method</i>	none group 4
none	
group	TACACS+

AAA

RGOS

14

14

AAA

TACACS+

15

Ruijie(config)# **aaa authorization commands 15 default group tacacs+**

aaa new-model

aaa new-model	AAA
authorization commands	

-

-

-	-

42.2.2 aaa authorization config-commands

AAA
aaa authorization config-commands no AAA

aaa authorization config-commands

no aaa authorization config-commands

	-	-

┌

┌

┌

┌

no

	aaa new-model	AAA
	aaa authorization commands	AAA

┌

-	-

└──

└──

└── RGOS

└── Ruijie(config)# **aaa authorization console**

aaa new-model	AAA
aaa authorization commands	AAA
authorization commands	

└──

-	-

42.2.4 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
<i>list-name</i>	Exec

AAA

default	Network
<i>method</i>	none group 4
none	
group	TACACS+ RADIUS

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

authorization**commands** no**authorization commands** *level* {**default** | *list-name*}**no authorization commands** *level*

<i>level</i>	0~15
default	
<i>list-name</i>	

AAA

cmd

15

TACACS+

none

VTY 0-4

Ruijie(config)# **aaa authorization commands 15 cmd group tacacs+ none**Ruijie(config)# **line vty 0 4**Ruijie(config-line)# **authorization commands 15 cmd**

aaa new-model	AAA
aaa authorization commands	AAA

-	-

42.2.7 authorization exec

Exec

authorization exec

no

Exec

authorization exec {default | list-name}**no authorization exec**

default	Exec
<i>list-name</i>	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

-	-

42.3

42.3.1 aaa accounting commands

NAS

aaa accounting commands no

aaa accounting commands *level* {**default** | *list-name*} **start-stop** *method1* [*method2...*]

no aaa accounting commands *level* {**default** | *list-name*}

<i>level</i>	0~15
default	
<i>list-name</i>	
<i>method</i>	none group 4

-	-

42.3.2 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
<i>list-name</i>	Exec
<i>method</i>	none group 4
none	

aaa new-model	AAA
aaa authentication	AAA
accounting commands	Exec
-	-

42.3.3 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
<i>list-name</i>	
start-stop	
<i>method</i>	4
none	
group	TACACS+ RADIUS

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	

-	-

42.3.4 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	

┌

└



-	-

42.3.6 accounting commands

accounting commands

no

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

no accounting commands *level*

<i>level</i>	0~15
default	
<i>list-name</i>	

└──

└──

└──

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

└──

	-	-
--	---	---

42.4 AAA

42.4.1 aaa domain

no

aaa domain {**default** | *domain-name*}

no aaa domain {**default** | *domain-name*}

	default	
	<i>domain-name</i>	

--	--

--	--

--	--

AAA default
 domain-name

32

--	--

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)#
```

w-m

3 2714Dd<03FE0DB01C4J70T0 1 2 050 Tc 0 Tc 7

42.4.2 aaa domain enable

AAA
AAA no

aaa domain enable

no aaa domain enable

	-	-

AAA

AAA

AAA
Ruijie(config)# **aaa domain enable**

aaa new-model		AAA
show aaa domain		

	-	-

42.4.3 access-limit

IEEE802.1x no

access-limit *num*

no access-limit

--	--	--

default

Network

Network

Ruijie(config)# **aaa domain ruijie.com**

Ruijie(config-aaa-domain)# **accounting network default**

aaa new-model	AAA
aaa domain enable	AAA
show aaa domain	

-	-

42.4.5 authentication dot1x

IEEE802.1x

no

authentication dot1x {default | list-name}

no authentication dot1x

default	
<i>list-name</i>	

default



IEEE802.1x

AAA

Ruijie(config-aaa-domain)# **authorization network default**

aaa new-model	AAA
aaa domain enable	AAA
show aaa domain	

Ô

aaa new-model	AAA
aaa domain enable	AAA
show aaa domain	

└───┘

-	-

42.4.8 show aaa domain

show aaa domain [default

AAA

aaa new-model	AAA
aaa domain enable	AAA

┌

-	-

42.4.9 username-format

NAS

no

username-format {without-domain | with-domain}

no username-format

without-domain	
with-domain	

┌

┌

┌

NAS

	-	-

42.5 AAA

42.5.1 aaa group server

AAA no

aaa group server {radius | tacacs+} name

no aaa group server {radius | tacacs+} name

--	--	--

	-	-

42.5.2 ip vrf forwarding

AAA vrf no

ip vrf forwarding *vrf_name*

no ip vrf forwarding

	<i>vrf_name</i>	vrf

└──

└──

└──

vrf

└──

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
```

	aaa group server	aaa
	show aaa group	aaa

└──

└──

	-	-

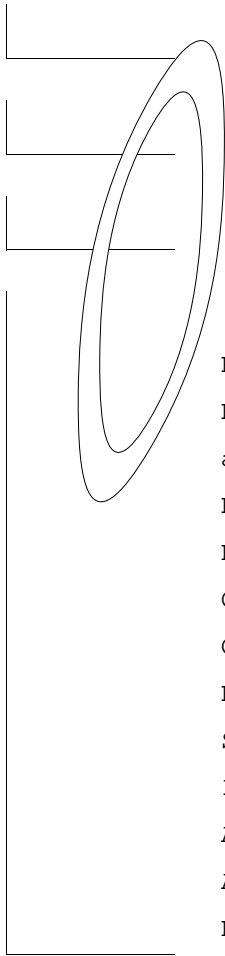
42.5.3 server

AAA no

server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

no server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

<i>ip-addr</i>	ip
<i>port1</i>	RADIUS
<i>port2</i>	RADIUS



```
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
```

3C3.6803215 IP

AAA

	-	-
--	---	---

42.5.4 show aaa group

AAA

show aaa group



42.6.1 aaa local authentication attempts

login

aaa local authentication attempts *max-attempts*

<i>max-attempts</i>	1~2147483647

3

Login

Ruijie# **configure terminal**

Ruijie(config)# **aaa local authentication attempts 6**

Show running-config	
Show aaa lockout	login

-	-

42.6.2 aaa local authentication lockout-time

login

aaa local authentication lockout-time *lockout-time*

<i>lockout-time</i>	1~2147483647

15

┌

┌ login

┌
Ruijie# **configure terminal**
Ruijie(config)# **aaa local authentication lockout-time 5**

Show running-config	
Show aaa lockout	login

┌

-	-

42.6.3 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
Ruijie(config)# **aaa new-model**

|



AAA

42.6.5 debug

AA

debug a

no debu

L

L

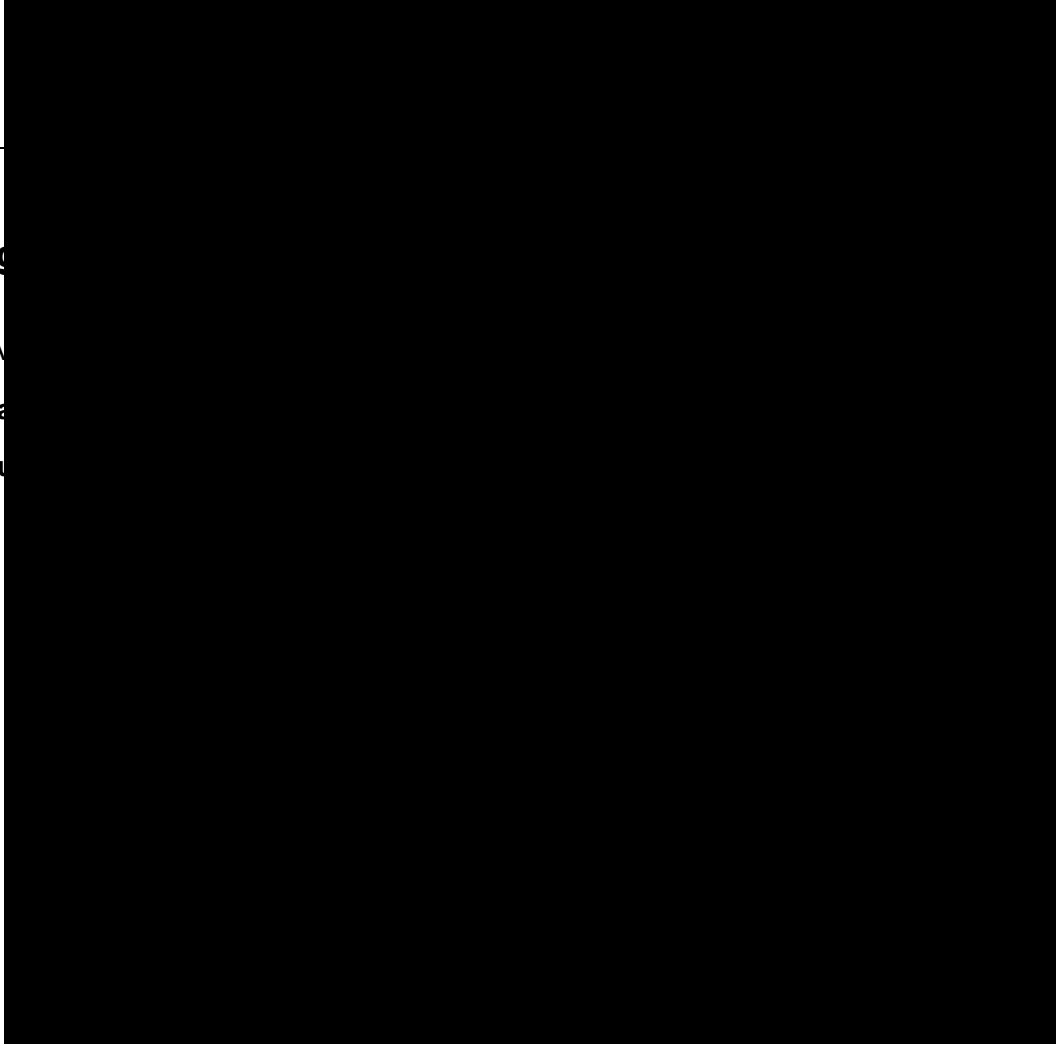
L

L

L

L

L



-	-

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 authorizing network default group radius
```

• V0IR'A • ... • gTrh50&1p2'A • ... • Rgw61% (0' 0115SG'1e!D50010)&RR-8Tr Rf(2)00 0Âj-#0&E

|

|
Ruijie# **show aaa user lockout all**

|

show running-config	
show aaa lockout	login

|

|

-	-

43.1.2 radius attribute

radius ttribute{<id> | **down-rate-limit** | **dscp** | **mac-limit** | **up-rate-limit**} **vendor-type**
<type>

no radius attribute {<id>|**down-rate-limit** | **dscp** | **mac-limit** | **up-rate-limit**} **vendor-type**

<i>id</i>	id <1-255>
<i>type</i>	type

id		type
1	max down-rate	1
2	qos	2
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-diractory	9
10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	16
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22

23	login privilege	42
id		type
1	max down-rate	76
2	qos	77
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-diractory	9
10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42
24	limit to user number	50

max up-rate



RADIUS

radius-server timeout no

radius-server timeout *seconds*

no radius-server timeout



┌

qos dscp

┌

┌

qos cos dscp

┌

Ruijie(config)# radius set qos cos

┌

radius vendor-specific extend	Radius	id	

┌

┌

-		-	

43.1.9 radius vendor-specific extend

id

radius vendor-specific extend

no radius vendor-specific extend

┌

-		-	

┌

id

┌

┌

id

┌

Ruijie(config)# radius vendor-specific extend

┌

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RADIUS

radius attribute			
radius set		qos	cos
-		-	

43.2 RADIUS

43.2.1 debug radius

RADIUS no RADIUS

debug radius [event | detail]

no debug radius [event | detail]

-		-	
EXEC			
-		-	
-		-	

43.2.2 show radius parameter

RADIUS

show radius parameter

-	-

|

|

|

radius

|

```
Ruijie# show radius parameter
Server Timeout: 5 Seconds
Server Deadtime: 5 Minutes
Server Retries: 3
Server Key: *****
```

|

radius-server host	RADIUS
radius-server retransmit	RADIUS
radius-server key	RADIUS
radius-server timeout	RADIUS

|

|

-	-

radius

```
Ruijie# show radius server
server ip : 192.168.4.12
acct port: 23
authen port: 77
server state: ready
server ip : 192.168.4.13
acct port: 45
authen port: 74
server state: ready
```

radius-server host	RADIUS
radius-server retransmit	RADIUS

└───

└───

radius

```
Ruijie# show radius vendor-specific
id   vendor-specific      type-value
-----
1    max down-rate         76
2    qos                   77
3    user ip               3
4    vlan id               4
5    version to client    5
6    net ip                6
7    user name             7
8    password              8
```

RADIUS

L

L

-	-

44 TACACS+

44.1 TACACS+

44.1.1 aaa group server tacacs+

TACACS+

TACACS+

```
aaa group server tacacs+ group-name
```

```
no aaa group server tacacs+ group-name
```

<i>group-name</i>	TACACS+

44.1.2 ip tacacs source-interface

TACACS+

```
ip tacacs source-interface interface
```

```
no ip tacacs source-interface
```

Interface	TACACS+

TACACS+

```
TACACS+ TACACS+ nas ip TACACS+
```

```
TACACS+ fastEthernet 0/0 ip TACACS+
```

```
Ruijie(config)# ip tacacs source-interface fastEthernet 0/0
```



<i>vrf-name</i>	vrf
-----------------	-----

TACACS+

TACACS+ vrf

```

TACACS+ VRF vpn1
Ruijie(config)# aaa group server tacacs+ tac1
Ruijie(config-gs-radius)# server 1.1.1.1
Ruijie(config-gs-radius)# ip vrf forwarding vpn1
    
```

aaa group server tacacs+	TACACS+
server	TACACS+ server

--	--

```
TACACS+          aaa group server tacacs+  TACACS+
host             tacacs-server
                TACACS+
```

```
TACACS+          tac1  TACACS+          1.1.1.1
Ruijie(config)#  aaa group server tacacs+ tac1
Ruijie(config-gs-tacacs+)# server 1.1.1.1
```

[REDACTED] 53209.22 -20.64174.421.6 573.02 055jE56.58 572.5

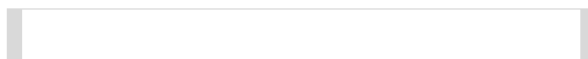
|

|

TACACS+ AAA TACACS+
tacacs-server TACACS+

|

TACACS+
Ruijie(config)# **tacacs-server host** 192.168.12.1
Ruijie(config)# **tacacs-server host** 2001::1





key

host

key

key

TACACS+

aaa

Ruijie(config)#

	tacacs-server host	TACACS+
	tacacs-server key	TACACS+

┌

	-	-

44.2 TACACS+

44.2.1 debug tacacs+

TACACS+ no TACACS+

debug tacacs+

no debug tacacs+

	-	-

┌

┌ EXEC

┌

┌

	-	-

┌

	-	-

44.2.2 show tacacs

TACACS+

show tacacs

-	-

|

|

|

TACACS+

```
Ruijie# show tacacs
Tacacs+ Server : 172.19.192.80/49
Socket Opens: 0
Socket Closes: 0
Total Packets Sent: 0
Total Packets Recv: 0
Reference Count: 0
```

tacacs-server host	TACACS+

|

-	-

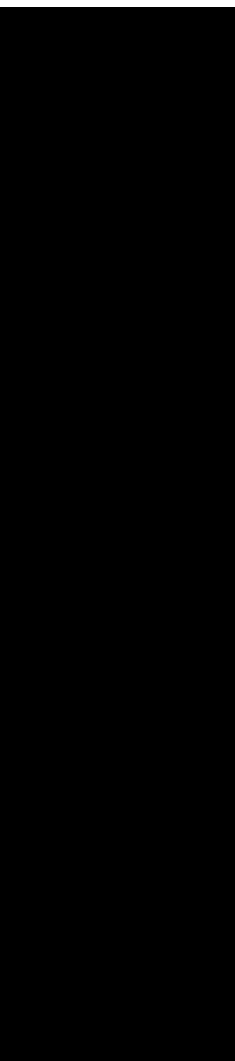
45 SSH

45.1 SSH

45.1.1 crypto key generate

crypto key generate {rsa | dsa}

rsa	RSA



<i>retry times</i>	

3 no ip ssh

authentication-retries

SSH Server SSH Server

show ip ssh SSH Server

2

Ruijie# **configure terminal**

Ruijie(config)# **ip ssh ssh authentication-retries 2**

show ip ssh	SSH Server

RGOS10.1

-	-

45.1.4 ip ssh time-out

SSH Server no

ip ssh time-out *time*

no ip ssh time-out

<i>time</i>	

120s no ip ssh time-out

|

|

SSH Server
120s
show ip ssh SSH server

|

100s
Ruijie# **configure terminal**
Ruijie(config)# **ip ssh time-out 100**

|

show ip ssh	ssh-server

|

RGOS10.1

|

-	-

45.1.5 ip ssh version

SSH server no
ip ssh version {1 / 2}

2

Ruijie# **configure terminal**

Ruijie(config)# **ip ssh version 2**

show ip ssh	SSH Server

RGOS10.1

	Clear line vty <i>line_number</i>	VTY
	RGOS10.1	
	-	-

45.2.2 show crypto key mypubkey

SSH Server

show crypto key mypubkey {rsa/dsa}

	rsa	RSA
	dsa	DSA

SSH Server

Ruijie# **show crypto key mypubkey rsa**

	crypto key generate {rsa dsa}	DSA RSA
	RGOS10.1	
	-	-

45.2.3 show ip ssh

SSH Server

show ip ssh

-	-

└───┘

└───┘

SSH Server	SSH Server
r	SSH
SSH	

└───┘

Ruijie# **show ip ssh**

ip ssh version {1 2}	SSH Server
ip ssh time-out time	SSH Server
ip ssh authentication-retries retry times	SSH Server

└───┘

RGOS10.1

-	-

45.2.4 show ssh

SSH

show ssh

-	-

└───┘

|

|

SSH

VTY

SSH

|

Ruijie# **show ssh**

|

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|

RGOS10.1

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46 CPU

46.1

46.1.1 `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`

CPU

CPU

```

S9610 CPU
Ruijie# show cpu-protect mboard
type      Pps      Total    Drop
-----
arp       500      19       0
bpdu      200      24       0
dhcp      0         0       0
gvrp      0         0       0
ipv6-mc   0         0       0
dvmrp     0         0       0
igmp      0         0       0
ospf      0         0       0
pim       0         0       0
rip       0         0       0
vrrp      0         0       0
unknow-ipmc 0         0       0
ttl1     0         0       0
...

```

show cpu-protect slot <i>slot-num</i>	CPU

-	-

46.2.2 show cpu-protect slot

CPP

<i>slot_num</i>	1-16
-----------------	------

CPP

2 CPU

Ruijie(config)# **show cpu-protect slot 2**

Type	Pps	Total	Drop
arp	200	200	15
bpdu	200	8	0
dhcp	200	0	0
gvrp	200	0	0
ipv6-mc	200	0	0
dvmrp	200	0	0
igmp	200	0	0
ospf	200	0	0
pim	200	0	0
rip	200	0	0
vrrp	200	0	0
unknow-ipmc	200	0	0
ttl1	20	3	0

show cpu-protect mboard	CPU
--------------------------------	-----

-	-
---	---

46.2.3 show cpu-protect type

show cpu-protect type { arp | bpdu | dhcp | ipv6mc | igmp | rip | ospf | vrrp | pim | ttl1 | unknown-ipmc | dvmrp | ...} *dvmrp*

<i>slot_num</i>	1-16

|

|

|

```

show cpu-protect type bpdu          BPDU
Ruijie(config)# show cpu-protect type arp
Slot      Type      Pps      Total    Drop
-----
MainBoard bpdu      100      30       0
Slot-2    bpdu      100      30       0

```

show cpu-protect type <i>packet-type</i>	CPU

-

-	-

r

47 DoS

47.1

47.1.1 ip deny invalid-l4port

no

ip deny invalid-l4port

no ip deny invalid-l4port

	-	-

|

|

|

1
Ruijie(config)# ip deny invalid-l4port

2
Ruijie(config)# no ip deny invalid-l4port

	show ip deny invalid-l4port	

	-	-

47.1.2 ip deny invalid-tcp

TCP

no

TCP

ip deny invalid-tcp

no ip deny invalid-tcp



1

	-	-

47.2.2 show ip deny invalid-tcp

TCP

show ip deny invalid-tcp

-	-
---	---

┌

┌

┌

```
Ruijie# show ip deny land
DoS Protection Mode          State
-----
protect against land attack  On
```

(no) ip deny land	Land
-------------------	------

┌

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---	---

48 GSN

48.1

48.1.1 security address-bind enable

security address-bind enable

no security address-bind enable

	-	-

┌

┌

AP AP

┌

GSN

┌

Ruijie(config-if)# **security address-bind enable**

┌

	security gsn enable	GSN

┌

RGOS10.1

security { [

| 5

|

|

show security event interval

|

Ruijie(config)# **security event interval 10**

|

show security event interval	

|

RGOS10.1

|

-	-

48.1.4 security gsn enable

GSN no

security gsn enable

no security gsn enable

|

-	-

|

|

|

GSN

GSN

|

Ruijie# **configure terminal**

|

Ruijie(config)# **security gsn enable**

|

--	--

	-	-
	RGOS10.1	
	-	-

48.1.5 smp-server host

smp-server ip

smp-server host *ip-address*

no smp-server host

	<i>ip-address</i>	smp server ip

smp server

show smp-server

Ruijie(config)#**smp-server host** 192.168.4.243

	show smp-server	smp server

RGOS10.1

	-	-

48.2

48.2.1 show security evnet interval

	-	-

└───┘

└───┘

└───┘

└───┘ Ruijie# **show security event interval**
Event sending interval(Seconds):5

	security event interval <i>interval</i>	

SMP-Server IP 192.168.20.30

smp-server host	smp server ip

RGOS10.1

-	-

49 DAI

49.1 VLAN DAI

49.1.1 ip arp inspection vlan

vlan-id VLAN DAI *vlan-id* no VLAN
DAI

ip arp inspection vlan *vlan-id*

no ip arp inspection vlan [*vlan-id*]



49.2

49.2.1 ip arp inspection trust

ip arp inspection trust no

ip arp inspection trust

no ip arp inspection trust

-	-

┌

┌

ARP	DAI
NFPP(NFPP
DAI) show ip arp inspection interface

┌
Ruijie(config)# interface gigabitEthernet 0/19
Ruijie(config-if)# ip arp inspection trust

show ip arp inspection interface	DAI

┌

-	-

49.3 DHCP Snooping

	VLAN	DAI	ARP	DHCP Snooping	.
ARP				DHCP Snooping	DHCP
Snooping					

50

arp

50.1 arp

50.1.1 anti-arp-spoofing ip

arp no

anti-arp-spoofing ip *ip-address*

no anti-arp-spoofing ip *ip-address*

<i>ip-address</i>	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

-	-

50.2 arp

50.2.1 show anti-arp-spoofing

arp

show anti-arp-spoofing

|

|

|

```
Ruijie#show anti-arp-spoofing
      port      ip
      -----
      Fa0/1     192.168.1.1
```

anti-arp-spoofing ip	arp

|

-	-

51 IP Source Guard

51.1 IP Source Guard

51.1.1 ip source binding

IP no

[no] ip source binding *mac-address* **vlan** *vlan-id* *ip-address* **interface** *interface-id*

<i>mac-address</i>	M-@,X*!X

	show ip source binding	IP
	-	-

51.2 IP Source Guard

51.2.1 ip verify source

IP Source Guard **no**

[no] ip verify source [port-security]

	port-security	IP Source Guard IP+MAC

└──

└──

└──

└──

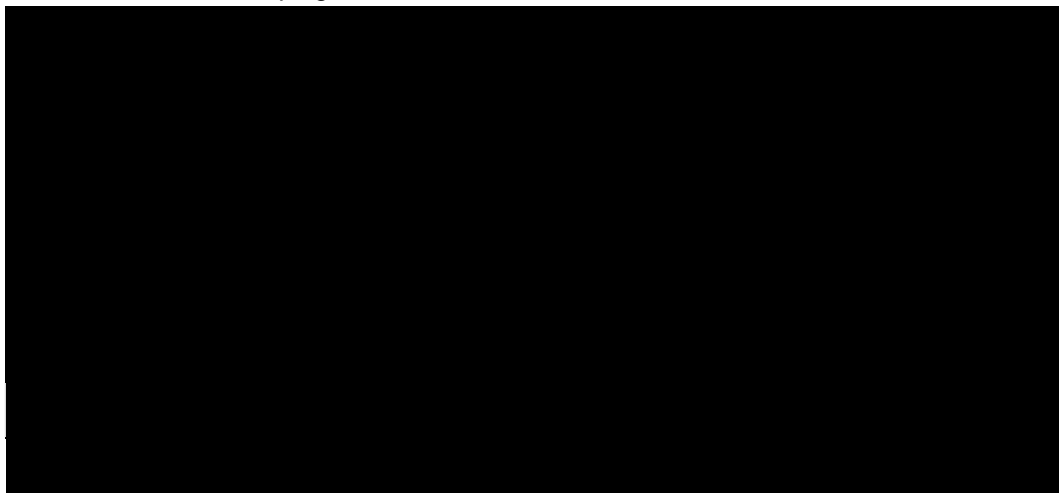
└──

IP Source Guard IP

IP+MAC

IP Source Guard DHCP Snooping Trust

DHCP Snooping IP Source Guard IP Source Guard



-	-

51.3 IP Source Guard

51.3.1 show ip source binding

IP

show ip source binding [*ip-address*] [*mac-address*] [**dhcp-snooping**] [**static**] [**vlan** *vlan-id*] [**interface** *interface-id*]

<i>ip-address</i>	ip
<i>mac-address</i>	mac
dhcp-snooping	
static	
<i>vlan-id</i>	vlan
<i>interface-id</i>	

└───

└───

└───

└───

```
Ruijie# show ird--urce binding static
MacAddress   IpAddress  Lease(sec)  Type   VLAN  Interface
-----
0000.0000.0001 1.0.0.1   infinite    static  1    FastEthernet 0/1
Total number of bindings: 1
```

ird--urce binding	IP

|

|

-	-

|

|

-	-

cpu-protect sub-interface {manage|protocol|route} percent percent_vaule

<i>percent_vaule</i>	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	

┌

52.3 ARP

52.3.1 arp-guard attack-threshold

arp-guard attack-threshold {per-src-ip | per-src-mac | per-port} pps

per-src-ip	IP
per-src-mac	MAC
per-port	
<i>pps</i>	[1,9999]

IP MAC 8 0 0
 200 0

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 *P % av ø `! ^Ä

52.3.2 arp-guard enable

ARP

arp-guard enable

-	-

ARP

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard enable
```

nfp arp-guard enable	ARP
show nfp arp-guard summary	

-	-

52.3.3 arp-guard isolate-period

arp-guard isolate-period {seconds | permanent}

<i>seconds</i>	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	

-	-

52.3.4 arp-guard monitor-period

arp-guard monitor-period *seconds*

<i>seconds</i>	[180, 86400]

600

NFPP

```

■ 0
0
■

```

```
Ruijie(config)# nfpp
```

```
Ruijie(config-nfpp)# arp-guard monitor-period 180
```



show nfpp arp-guard summary

	-	-

52.3.7 arp-guard scan-threshold

arp-guard scan-threshold *pkt-cnt*

<i>pkt-cnt</i>		[1,9999]

	15	10
--	----	----

10 15 ARP MAC IP
 MAC IP IP

```

jia(config)# nfpp
jia(config-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

	-	-

clear nfpp arp-guard hosts [vlan *vid*] [interface *interface-id*] [*ip-address* | *mac-address*]



|

|

|

Ruijie# **clear nfpp arp-guard scan**

|

arp-guard scan-threshold	
nfpp arp-guard scan-threshold	
show nfpp arp-guard scan	ARP

|

|

-	-

52.3.10 nfpp arp-guard enable

ARP

nfpp arp-guard enable

|

-	-

|

ARP

|

|

ARP

ARP

|

Ruijie(config)# **interface G0/1**
 Ruijie(config-if)# **nfpp arp-guard enable**

|

arp-guard enable	ARP
show nfpp arp-guard summary	

└───┘

10.4	

52.3.11 nfpp arp-guard isolate-period

nfpp arp-guard isolate-period {*seconds* | **permanent**}

<i>seconds</i>	0 [30, 86400]
permanent	0

└───┘

└───┘

└───┘

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard isolate-period 180
```

arp-guard isolate-period	
show nfpp arp-guard summary	

└───┘

10.4	

52.3.12 nfpp arp-guard policy

nfpp arp-guard policy {per-src-ip | per-src-mac | per-port} *rate-limit-pps*
attack-threshold-pps

per-src-ip	IP
per-src-mac	MAC
per-port	
<i>rate-limit-pps</i>	1 9999
<i>attack-threshold-pps</i>	1 9999

```
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	
------	--

52.3.13 nfpp arp-guard scan-threshold

nfpp arp-guard scan-threshold *pkt-cnt*

<i>pkt-cnt</i>	[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	

52.4 DHCP

52.4.1 dhcp-guard attack-threshold

dhcp-guard attack-threshold { per-src-mac | per-port} *pps*

per-src-mac	MAC
per-port	

	<i>pps</i>	[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	

-	-

52.4.2 dhcp-guard enable

DHCP

dhcp-guard enable

-	-

DHCP

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard enable
```

nfpp dhcp-guard enable	DHCP
show nfpp dhcp-guard summary	

-	-

52.4.3 dhcp-guard isolate-period

dhcp-guard isolate-period {seconds | permanent}

<i>seconds</i>	0 [30, 86400]
permanent	0

0

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard isolate timeout 180
```

nfpp dhcp-guard isolate-period	

	show nfpp dhcp-guard summary	
	-	-

52.4.4 dhcp-guard monitor-period

dhcp-guard monitor- period *seconds*

	<i>seconds</i>	[180, 86400]

600

NFPP

- 0
- 0
-

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitor-period 180
```

	show nfpp dhcp-guard summary	
	show nfpp dhcp-guard hosts	
	clear nfpp dhcp-guard hosts	

--	--	--

NFPP

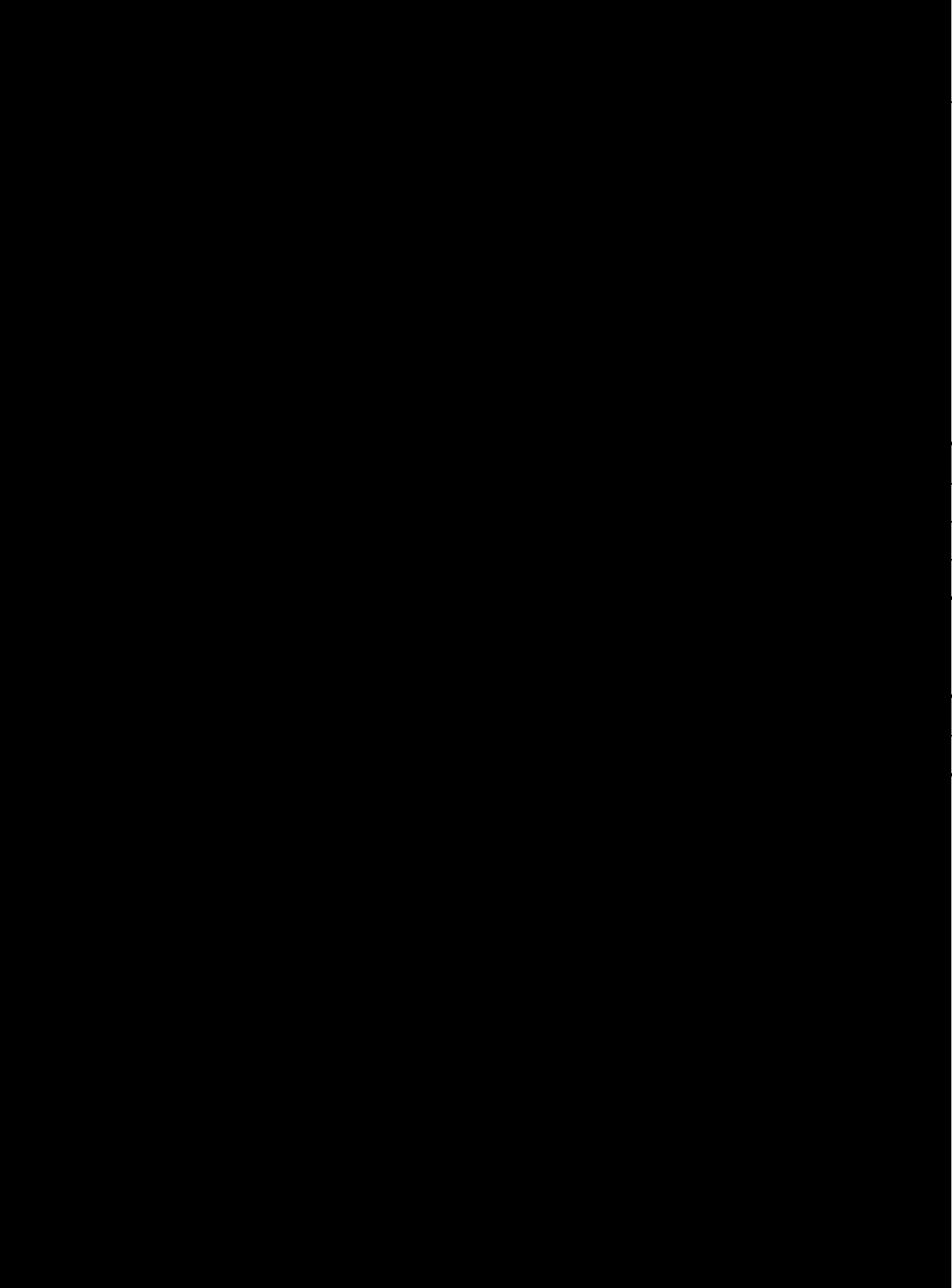
dhcp-guard rate-limit { per-src-mac | per-port} pps

per-src-mac	MAC	
per-port		
<i>pps</i>	[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
```



dhcp-guard enable	DHCP
show nfpp dhcp-guard summary	

└───┘

10.4	

52.4.9 nfpp dhcp-guard isolate-period

nfpp dhcp-guard isolate-period {*seconds* | **permanent**}

<i>seconds</i>	0 [30, 86400]
permanent	

└───┘

└───┘

└───┘

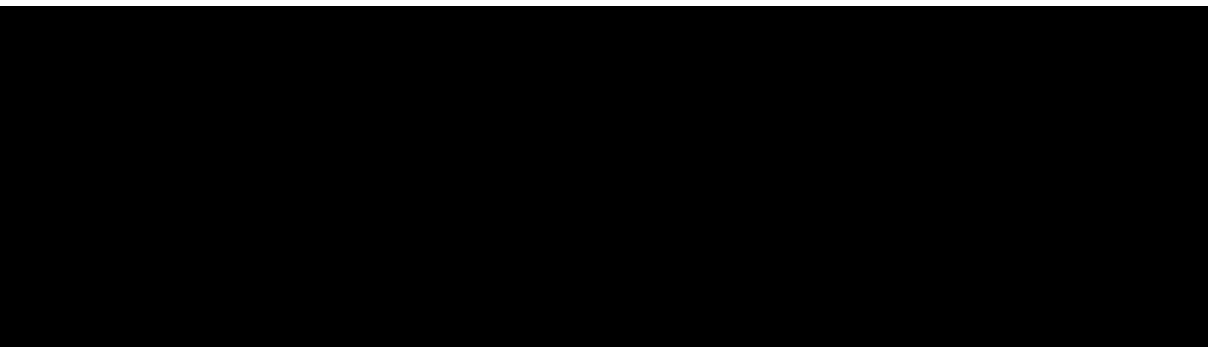
```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard isolate-period 180
```

dhcp-guard isolate-period	
show nfpp dhcp-guard summary	

└───┘

10.4	

52.4.10 nfpp dhcp-guard policy

	
	<i>attack-threshold-pps</i> 1 9999

52.5.1 dhcpv6-guard attack-threshold

guard attack-threshold { per-src-mac | per-port} pps

-src-mac

MAC

-port

4

	-	-

DHCPv6

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard enable
```

nfpp dhcpv6-guard enable		DHCPv6
show nfpp dhcpv6-guard summary		

	10.4	

52.5.3 dhcpv6-guard isolate-period

dhcpv6-guard isolate-period {*seconds* | **permanent**}

<i>seconds</i>	0	[30, 86400]
permanent		

0

NFPP



	show nfpp dhcpv6-guard summary	
	show nfpp dhcpv6-guard hosts	
	clear nfpp dhcpv6-guard hosts	

	10.4	

52.5.5 dhcpv6-guard monitored-host-limit

dhcpv6-guard monitored-host-limit *number*

	<i>number</i>	1
		4294967295

1000

NFPP

1000 %ERROR The value that you

┌

┌

10.4	

52.5.6 dhcpv6-guard rate-limit

dhcpv6-guard rate-limit { per-src-mac | per-port} pps

┌

per-src-mac	MAC
per-port	
<i>pps</i>	[1,9999]

┌

MAC 5 150

┌

NFPP

┌

┌

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-port 100
```

┌

nfpp dhcpv6-guard policy	
show nfpp dhcpv6-guard summary	

┌



clear nfpp dhcpv6-guard hosts [*vlan vid*] [**interface** *interface-id*] [*mac-address*]

<i>vid</i>	
<i>interface-id</i>	
<i>mac-address</i>	MAC

└───┘

└───┘

└───┘

└───┘

VLAN 1 g 0/1

Ruijie# **clear nfpp dhcpv6-guard hosts vlan 1 interface g0/1**

dhcpv6-guard attack-threshold	
nfpp dhcpv6-guard policy	
show nfpp dhcpv6-guard hosts	

└───┘

10.4	

52.5.8 nfpp dhcpv6-guard enable

DHCPv6

nfpp dhcpv6-guard enable

-	-

└───┘

DHCPv6

|

|

DHCPv6

DHCP

|

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcpv6-guard enable
```

|

dhcpv6-guard enable	DHCPv6
show nfpp dhcpv6-guard summary	

|

|

10.4	

52.5.9 nfpp dhcpv6-guard isolate-period

nfpp dhcpv6-guard isolate-period {seconds | permanent}

|

--	--	--

seconds c<17EA35D9>1 Tf 0.0001 Tc 7.1412 T- 2 3198 -0.0 ()Tj ET [30, 86400]0 1 Tf 0 Tc 0 Tw 25.

NFPP

dhcpv6-guard isolate-period

show nfpp dhcpv6-guard summary

dhcpv9852r7Td[<477)052r7Td1.5 1.2 239.4 20.64 efQ0.85.2 15

└──

10.4	

52.6 ICMP

52.6.1 icmp-guard attack-threshold

icmp-guard attack-threshold { per-src-ip | per-port} pps

per-src-ip	IP
per-port	
<i>pps</i>	[1,9999]

-	-

52.6.2 icmp-guard enable

ICMP

icmp-guard enable

-	-

ICMP

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard enable
```

nfpp icmp-guard enable	ICMP
show nfpp icmp-guard summary	

-	-

52.6.3 icmp-guard isolate-period

icmp-guard isolate-period {seconds | permanent}

--	--

<i>seconds</i>	0	[30, 86400]
permanent		

0

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard isolate-period 180
```

nfpp icmp-guard isolate-period	
show nfpp icmp-guard summary	

-	-
---	---

52.6.4 icmp-guard monitor-period

icmp-guard monitor-period *seconds*

<i>seconds</i>	[180, 86400]
----------------	--------------

600

NFPP

■ 0

exceed limit of 1000 monitored hosts.

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitored-host-limit 200
```

show nfpp icmp-guard summary	

-	-

52.6.6 icmp-guard rate-limit

icmp-guard rate-limit { per-src-ip | per-port} pps

per-src-ip	IP
per-port	
<i>pps</i>	[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	

52.6.8 clear nfpp icmp-guard hosts

```
clear nfpp icmp-guard hosts [vlan vid] [interface interface-id] [ip-address]
```



|

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	

52.6.10 nfpp icmp-guard isolate-period

nfpp icmp-guard isolate-period {seconds | permanent}

|

seconds	0 [30, 86400]
permanent	0

|

|

|

|

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp icmp-guard isolate-period 180
```



icmp-guard isolate-period

	clear nfpp icmp-guard hosts	
	10.4	

52.7 IP

		IP	IP	IP	IP	IP	IP
r	IP	IP	IP	IP	CPP	CPU Protect	Policy
		IP			IP		

52.7.1 ip-guard attack-threshold

ip-guard attack-threshold {per-src-ip | per-port} pps

	per-src-ip	IP
	per-port	
	<i>pps</i>	[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	

52.7.2 ip-guard enable

IP

ip-guard enable

	-	-

IP

NFPP

Ruijie(config)# **nfpp**

Ruijie(config-nfpp)# **ip-guard enable**

nfpp ip-guard enable

ip-guard isolate-period {*seconds* | **permanent**}

<i>seconds</i>	0 [30, 86400]
permanent	

0

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard isolate-period 180
```

nfpp ip-guard isolate-period	
show nfpp ip-guard summary	

10.4	

52.7.4 ip-guard monitor-period

ip-guard monitor-period *seconds*

<i>seconds</i>	[180, 86400]

600

NFPP

```

    ■                               0
                                     0
    ■
  
```

```

Ruijie(config)# nfpp
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	

52.7.5 ip-guard monitored-host-limit

ip-guard monitored-host-limit *number*

<i>number</i>	1
	4294967295

1000

NFPP

```

    1000                               1000
    1000                               "%ERROR The value that you
configured is smaller than current monitored hosts 1000
please clear a part of monitored hosts."
  
```

exceed limit of 1000

% NFPP_IP_GUARD-4-SESSION_LIMIT: Attempt to
monitored hosts.

ip-guard trusted-host *ip mask*

no ip-guard trusted-host {**all** | *ip mask*}

<i>ip</i>		IP	
<i>mask</i>			
all			

|

|

|

|

```
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	

52.7.10 nfpp ip-guard enable

IP

nfpp ip-guard enable

|

-	-

|

IP

|

|

IP

|

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp ip-guard enable
```


NFPP

nfpp ip-guard scan-threshold *pkt-cnt*



	30	/	30	/	30
	NFPP				
	<pre>Ruijie(config)# nfpp Ruijie(config-nfpp)# nd-guard attack-threshold per-port ns-na 20 Ruijie(config-nfpp)# nd-guard attack-threshold per-port rs 10 Ruijie(config-nfpp)# nd-guard attack-threshold per-port ra-redirect 10</pre>				
	nfpp nd-guard policy				
	show nfpp nd-guard summary				
	10.4				

52.8.2 nd-guard enable

	ND				
	nd-guard enable				
	-		-		
	ND				
	NFPP				
	<pre>Ruijie(config)# nfpp</pre>				

```
Ruijie(config-nfpp)# nd-guard enable
```

nffp nd-guard enable	ND
show nffp nd-guard summary	

10.4	

52.8.3 nd-guard rate-limit

nd-guard rate-limit per-port {ns-na | rs | ra-redirect} pps

ns-na	
rs	
ra-redirect	
<i>pps</i>	[1,9999]

```
15 / 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 per-port {ns-na | rs | ra-redirect} rate-limit-pps attack-thresh
old-pps**



(oldgu)4(pa)TJ/C2_0 1 Tc 147906 -0.006 Td1B0F07CF2208349316>62C809AA16>661038D70CC88F

	10.4	
--	------	--

52.9 NFPP

52.9.1 clear nfpp log

NFPP

clear nfpp log

	-	-

└───

└───

└───

```
Ruijie# clear nfpp log
32 log-buffer entries were cleared.
```

	show nfpp log	NFPP

└───

	10.4	

52.9.2 log-buffer entries

NFPP

log-buffer entries *number*

--	--	--

<i>number</i>	[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

```
number_of_message      1 length_in_seconds      30
```

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# log-buffer logs 2 interval 12
```

log-buffer entries <i>number</i>	NFPP
show nfpp log summary	NFPP

10.4	

52.9.4 logging

NFPP VLAN

logging vlan *vlan-range*

logging interface *interface-id*

<i>vlan-range</i>	VLAN 1-3,5
<i>interface-id</i>	

NFPP

VLAN

```

                VLAN 1  VLAN 2  VLAN 3  VLAN 5
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging vlan 1-3,5

                G 0/1
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging interface G 0/1
    
```

show nfpp log summary	NFPP

10.4	

52.9.5 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
■ DHCPv6   DHCPv6
■ NS-NA    ND
    
```

- RS ND
- RA-REDIRECT ND

Reason 5

- DoS
- ISOLATED
- ISOLATE_FAILED
- SCAN
- PORT_ATTACKED

clear nfpp log	NFPP

10.4	

52.10 ARP

52.10.1 show nfpp arp-guard hosts

show nfpp arp-guard hosts [**statistics** | [[*vlan vid*] [**interface** *interface-id*] [*ip-address* | *mac-address*]]]

statistics	
<i>vid</i>	
<i>interface-id</i>	
<i>ip-address</i>	IP
<i>mac-address</i>	MAC

```

1
Ruijie# show nfpp arp-guard hosts statistics
success   fail    total
-----   ----   -----
100        20     120
          120           100           20

```

```

2
Ruijie# show nfpp arp-guard hosts
If column 1 shows '*', it means "hardware do not isolate user" .
VLAN interface IP address  MAC address  remain-time(s)
----  -
1     Gi0/1    1.1.1.1     -            110
2     Gi0/2    1.1.2.1     -            61
*3    Gi0/3    -            0000.0000.1111 110
4     Gi0/4    -            0000.0000.2222 61
Total 4 hosts

```

clear nfpp arp-guard hosts	

-	-

52.10.2 show nfpp arp-guard scan

ARP

```

show nfpp arp-guard scan [statistics | [[vlan vid] [interface interface-id] [ip-address] [mac-address]]]

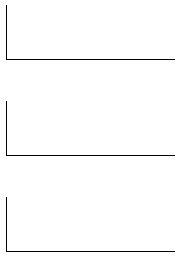
```

statistics	ARP

vid

interface-id

arp-guard scan-threshold	
nfpp arp-guard scan-threshold	
clear nfpp arp-guard scan	ARP



Ruijie# **show nfpp dhcp-guard hosts statistics**

```

success    fail    total
-----    -
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	

52.11.2 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

Maximum count of monitored hosts: 1000

Monitor period 300s

- 1 Interface Global
- 2 Status
- 3 Rate-limit IP / MAC
- / Attack-threshold -

dhcp-guard attack-threshold	
dhcp-guard enable	DHCP
dhcp-guard isolate-period	
dhcp-guard monitor-period	
dhcp-guard monitored-host-limit	
dhcp-guard rate-limit	
nfpp dhcp-guard enable	DHCP
nfpp dhcp-guard isolate-period	
nfpp dhcp-guard policy	

```

┌
└

```

10.4	

52.12 DHCPv6

52.12.1 show nfpp dhcpv6-guard hosts

show nfpp dhcpv6-guard hosts [**statistics** | [[**vlan** *vid*] [**interface** *interface-id*] [*mac-address*]]]

```

┌
└
┌
└
┌
└

```

statistics	
<i>vid</i>	
<i>interface-id</i>	
<i>mac-address</i>	MAC

```
Ruijie# show nfpp dhcpv6-guard hosts statistics
```

```

success  fail  total
-----  ----  -----
100      20    120
          120          100          20

                               remain-time(seconds)

```

```

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 dhcpv6-guard hosts	

10.4	

52.12.2 show nfpp dhcpv6-guard summary

show nfpp dhcpv6-guard summary

-	-

```
Ruijie# show nfpp dhcpv6-guard summary
```

```

Format of column Rate-limit and Attack-threshold is per-src-ip
/per-src-mac/per-port.
    
```

```

Interface  Status  Isolate-period  Rate-limit  Attack-threshold
Global     Enable  300             -/5/150    -/10/300
Gi 0/1     Enable  180             -/6/-      -/8/-
Gi 0/2     Disable 200             -/5/30     -/10/50
    
```

```
Maximum count of monitored hosts: 1000
```

Monitor period 300s

```

1      Interface  Global
2      Status
3      Rate-limit      IP      /      MAC
      /      Attack-threshold      -
    
```

dhcpv6-guard attack-threshold	
dhcpv6-guard enable	DHCPv6
dhcpv6-guard isolate-period	
dhcpv6-guard monitor-period	
dhcpv6-guard monitored-host-limit	
dhcpv6-guard rate-limit	
nfpp dhcpv6-guard enable	DHCPv6
nfpp dhcpv6-guard isolate-period	
nfpp dhcpv6-guard policy	

10.4	

52.13 ICMP

52.13.1 show nfpp icmp-guard hosts

show nfpp icmp-guard hosts [**statistics** | [[**vlan** *vid*] [**interface** *interface-id*] [*ip-address*]]]

statistics	
<i>vid</i>	

<i>interface-id</i>	
<i>ip-address</i>	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	

52.13.2 show nfpp icmp-guard summary

show nfpp icmp-guard summary

--	--

-	-
---	---

Ruijie# show nfpp icmp-guard summary

Format of column Rate-limit and Attack-threshold is per-src-ip /per-src-mac/per-port.

Interface	Status	Isolate-period	Rate-limit	Attack-threshold
Global	Enable	300	4/-/60	8/-/100
Gi 0/1	Enable	180	5/-/-	8/-/-
Gi 0/2	Disable	200	4/-/60	8/-/100

Maximum count of monitored hosts: 1000

Monitor period 300s

1	Interface	Global				
2	Status					
3	Rate-limit		IP	/	MAC	/
			Attack-threshold		-	

icmp-guard attack-threshold	
icmp-guard enable	ICMP
icmp-guard isolate-period	
icmp-guard monitor-period	
icmp-guard monitored-host-limit	
icmp-guard rate-limit	
nfpp icmp-guard enable	ICMP
nfpp icmp-guard isolate-period	
nfpp icmp-guard policy	

|

|

10.4	

52.13.3 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	

52.14 IP

52.14.1 show nfpp ip-guard hosts

show nfpp ip-guard hosts [**statistics** | [[**vlan** *vid*] [**interface** *interface-id*] [*ip-address*]]]

statistics	
<i>vid</i>	
<i>interface-id</i>	
<i>ip-address</i>	IP

Ruijie#**show nfpp ip-guard hosts statistics**

success fail total

100 20 120

120

100

20

Ruijie#**show nfpp ip-guard hosts**

If column 1 shows '*', it means "hardware do not isolate host".

VLAN interface IP address Reason remain-time(s)

1 Gi0/1 1.1.1.1 ATTACK 110

2 Gi0/2 1.1.2.1 SCAN 61

Total 2 hosts 100% 120 100% 20 100% 3.605 0

NFPP

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	

```
1.1.2.0      255.255.255.0
Total 2 record(s)
```

ip-guard trusted-host	

10.4	

52.15 ND

52.15.1 show nfpp nd-guard summary

show nfpp nd-guard summary

-	-

```
Ruijie# show nfpp nd-guard summary
```

```
Format of column Rate-limit and Attack-threshold is NS-NA/RS/R
A-REDIRECT.
```

Interface	Status	Rate-limit	Attack-threshold
Global	Enable	20/5/10	40/10/20
Gi 0/1	Enable	15/15/15	30/30/30
Gi 0/2	Disable	-/5/30	-/10/50

```
1 Interface Global
```

2	Status			
3	Rate-limit	/	/	Attack-threshold
		/	/	
	-			
	-/5/30	G 0/2	/	
	5	/		30

nd-guard attack-threshold	
nd-guard enable	ND
nd-guard rate-limit	
nfpp nd-guard enable	ND
nfpp nd-guard policy	

10.4	

53 ACL

id	IP ACL 1-99 1300-1999 IP ACL 100-199 2000-2699 MAC ACL 700-799 ACL 2700-2899
name	ACL
sn	ACL ()
start-sn	
inc-sn	
deny	
permit	
prot	IPv6 ipv6 icmp tcp udp 0-255 IPv4 eigrp gre ipinip igmp nos ospf icmp udp tcp ip IP 0-255 icmp/tcp/udp
interface idx	
src	
src-wildcard	0.255.0.32
src-ipv6-pfix	IPv6
dst-ipv6-pfix	IPv6
pfix-len	
src-ipv6-addr	IPv6
dst-ipv6-addr	IPv6
dscp dscp	, 0-63
flow-label flow-label	0-1048575
dst	
dst-wildcard	0.255.0.32

precedence precedence	0-7
range	
time-range tm-rng-name	tm-rng-name
tos tos	0-15
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

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				

4) Expert 2700 - 2899

access-list *id* {deny | permit} [protocol | [ethernet-type][cos [out][inner in]]] [VID [out][inner in]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [[precedence precedence] [tos tos] [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]] {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

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} 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)

access-list *id* {deny | permit} tcp [VID [out][inner in]] {source source-wildcard | host Source | any} {host source-mac-address | any } [operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragments] [range lower upper] [time-range time-range-name] [match-all tcp-flag]

User Datagram Protocol (UDP)

access-list *id* {deny | permit} udp [VID [out][inner in]] {source source -wildcard | host source | any} {host source-mac-address | any } [operator port [port]] {destination destination-wildcard | host destination | any}{host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragments] [range lower upper] [time-range time-range-name]

5)

access-list *list-remark text*

<i>Id</i>	1-99 100-199 1300-1999 2000-2699 2700 – 2899 700 - 799
Deny	
Permit	
<i>Source</i>	
<i>source-wildcard</i>	0.255.0.32
<i>protocol</i>	IP EIGRP GRE IPINIP IGMP NOS OSPF ICMP UDP TCP IP IP 0-255 ICMP/TCP/UDP
<i>Destination</i>	
<i>destination-wildcard</i>	0.255.0.32
fragments	

precedence 0.0 Tc 0.98<01C3D9.4SPF XE\$

match-all	<i>tcp flag</i>
<i>tcp-flag</i>	tcp flag

ACL

access-list

- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable
- host-unknown
- host-unreachable
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- router-advertisement
- router-solicitation
- source-quench
- source-route-failed
- time-exceeded
- timestamp-reply
- timestamp-request

- ttl-exceeded
- unreachable
- TCP TCP
- bgp
- chargen
- 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
                                     r          $
```

53.1.2 deny

(deny)

1 IP

[sn] deny {source source-wildcard 1

[sn] d{ } [(s)-8((s)8(du/C2)5-01007 T300000 Td (,)0571028(11P)4/02_637.786)1j341p600-246

destination-wildcard | **host** *destination* | **any** {**host** *destination-mac-address* | **any**}
[time-range *time-range-name*]

b) protocol

[*sn*] **deny protocol** [[**VID** [*out*][*inner in*]]] {*source source-wildcard* | **host** *source* | **any**}
 {**host** *source-mac-address* | **any**} {*destination destination-wildcard* | **host** *destination* | **any**}
 {**host** *destination-mac-address* | **any**} [**precedence** *precedence*] [**tos** *tos*] [**fragments**]
 [**range** *lower upper*] [**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**] [**range** *lower upper*] [**time-range** *name*]

[[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**time-range** *time-range-name*]

■ **Transmission Control Protocol (TCP)**

[*sn*] **deny tcp** {*source-ipv6-prefix* / *prefix-length* | **host** *source-ipv6-address* | **any**}[*operator* **port**[*port*]] {*destination-ipv6-prefix* /*prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator* **port** [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag*]

■ **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*]

<i>Sn</i>	ACL
<i>source-ipv6-prefix</i>	IPv6
<i>destination-ipv6-prefix</i>	IPv6
<i>prefix-length</i>	
<i>source-ipv6-address</i>	IPv6
<i>destination-ipv6-address</i>	IPv6
dscp	
<i>dscp</i>	0-63.
flow-label	
<i>flow-label</i>	0-1048575
<i>protocol</i>	IPV6 <0-255> IPV6 icmp tcp udp

1

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

show access-lists	
ipv6 traffic-filter	IPV6
ip access-group	IP ACL
mac access-group	MAC ACL
ip access-list	IP ACL
mac access-list	MAC ACL
expert access-list	ACL
ipv6 access-list	IPV6 ACL
permit	

V10.0	V10.0 arp V10.2(3)
-------	-----------------------

53.1.3 expert access-group

EXPERT ACL

no

expert access-group {id | name} {in | out}

no expert access-group {id | name} {in | out}

<i>id</i>	Expert	2700-2899
<i>name</i>	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

53.1.5 ip access-group

ip access-group no

ip access-group {*id* | *name*} {**in** | **out**}

no ip access-group { *id* | *name*} {**in** | **out**}

<i>id</i>	IP 1-199 1300-2699
<i>name</i>	IP
in	
out	È È

|
|

|
|

ip access-group

fastEthernet0/0

120

Ruijie(config)# **interface fastEthernet**

```

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

53.1.7 ip access-list resequence

ip ACL ACL

ACL

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

53.1.8 ipv6 traffic-filter

IPV6 ACL

no

ipv6 traffic-filter *name* {in | out}

no ipv6 traffic-filter *name* {in | out}

<i>name</i>	IPV6
in	
out	

IPV6 ACL

|

|

ACL
traffic-filter

show ipv6

|

```

access-list v6-acl Gigabit 1
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
    
```

|

show access-group	ACL

|

|

V10.0	V10.0

53.1.9 ipv6 access-list

|

IPV6 ACL

no

ACL

ipv6 access-list *name*

no ipv6 access-list *name*

|

<i>name</i>	ACL

|

|

|

show access-lists

|

```

IPV6 ACL
Ruijie(config)# ipv6 access-list v6-acl
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)#
    
```

	show ipv6 access-lists	IPV6
	V10.0	V10.0

53.1.10 list-remark text

	ACL	no
	list-remark text	
	<i>Text</i>	
	ACL	
		ACL
	<pre> Ruijie# ip access-list extended 102 Ruijie(config-ext-nacl)# list-remark this acl is to filter the host 192.168.4.12 Ruijie(config-ext-nacl)# show access-lists ip access-list extended 102 deny ip host 192.168.4.12 any 1000 hits this acl is to filter the host 192.168.4.12 Ruijie(config-ext-nacl)# </pre>	



V10.0	V10.0

53.1.11 MAC access-group

MAC ACL

no

mac access-group {*id* | *name*}{**in** | **out**}

no mac access-group {*id* | *name*} {**in** | **out**}

<i>id</i>	MAC 700-799
<i>name</i>	MAC
in	
out	

A"O/507#92P1r AD4

MAC ACL

no

ACL

mac access-list extended {*id* | *name*}

no mac access-list extended {*id* | *name*}

<i>id</i>	MAC	700-799
<i>name</i>	MAC	

<i>sn</i>		ACL
ACL		
ACL	ACL	ACL
		<pre>Ruijie(config)# ipv6 access-list extended v6-acl Ruijie(config-ipv6-nacl)# permit ipv6 host ::192.168.4.12 any Ruijie(config-ipv6-nacl)# 12 deny ipv6 host any any Ruijie(config-ipv6-nacl)# show access-lists ipv6 access-list extended v6-acl 10 permit ipv6 host ::192.168.4.12 any 12 deny ipv6 any any Ruijie(config-ipv6-nacl)# no 12 Ruijie(config-ipv6-nacl)# show access-lists ipv6 access-list extended v6-acl 10 permit ipv6 host ::192.168.4.12 any Ruijie(config-ipv6-nacl)#</pre>

1) IP

[sn] **permit** {*source source-wildcard* | **host source** | **any**}

2) IP

[sn] **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence precedence**] [**tos tos**] [**fragments**] [**range lower upper**] [**time-range time-range-name**]

IP

■ **Internet Control Message Protocol (ICMP)**

[sn] **permit icmp** {*source source-wildcard* | **host source** | **any**} {*destination destination-wildcard* | **host destination** | **any**} [*icmp-type*] [[*icmp-type icmp-code*]] | [*icmp-message*] [**precedence precedence**] [**tos tos**] [**fragments**] [**time-range time-range-name**]

■ **Transmission Control Protocol (TCP)**

[sn] **permit tcp** {*source source-wildcard* | **host source** | **any**} [*destination destination-wildcard* | **host destination** | **any**] [*port port*] [*port port*] [**precedence precedence**] [**tos tos**] [**fragments**] [**time-range time-range-name**]

[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 time-range-name] [match-all tcp-flag]

■ **User Datagram Protocol (UDP)**

[sn] **permit udp** [VID [out][inner in]] {source source-wildcard | **host** source | **any**} {**host** source-mac-address | **any**} [operator port [port]] {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [operator port [port]] [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**}

5) IPV6

[sn] **permit protocol** {source-ipv6-prefix / prefix-length | **any** | **host** source-ipv6-address} {destination-ipv6-prefix / prefix-length | **any** | hostdestination-ipv6-address} [dscp dscp] [flow-label flow-label] [fragments] [range lower upper] [time-range time-range-name]

IPV6

■ **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*]



```

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 aarp702
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 192.168.4.12,X)

```

ip access-group	IP ACL
mac access-group	MAC ACL
ip access-list	IP ACL
mac access-list	MAC ACL
expert access-list	ACL
ipv6 access-list	IPV6 ACL
deny	ACL

V10.0	V10.0 arp V10.2(3)
-------	-----------------------

53.2

53.2.1 show access-group

ACL

show access-group [interface <interface>]

<interface>	
-------------	--

ACL

ACL

```
Ruijie# show access-group
ip access-list standard ipstd3
Applied On interface GigabitEthernet 0/1.
ip access-list standard ipstd4
Applied On interface GigabitEthernet 0/2.
ip access-list extended 101
```

```
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
```

ip access-group	ip
mac access-group	MAC
expert access-group	Expert
ipv6 traffic-filter	IPV6

V10.0	V10.0

53.2.2 show access-lists

ACL ACL

show access-lists [*id* | *name*]

<i>id</i>	
<i>name</i>	

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
```

ACL

|

<code><interface></code>	

└──

└──

└──

IPv6 ACL

IPv6 ACL

└──

```
Ruijie# show ipv6 traffic-filter interface gigabitethernet 0/4
ipv6 traffic-filter v6 in
Applied On interface GigabitEthernet 0/4.
```

ipv6 access-list	IPV6 ACL

└──

└──

--	--

```
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

mac access-list	MAC ACL

V10.0	V10.0

53.3

53.3.1 security access-group

security access-group {*id*|*name*}

no security access-group

<i>id</i>	ACL id
<i>name</i>	ACL

```
Ruijie(config-if)#security access-group 1
```

show secu-acl	

	V10.2	V10.2

53.3.2 security global access-group

security global access-group {*id*|*name*}

no security global access-group

<i>id</i>		ACL id
<i>name</i>		ACL

|

|

|

|

Ruijie(config)#**security global access-group 1**

|

--	--

show secu-acl

Fa0/6 uplink --

security global access-group	
security access-group	
security uplink enable	

V10.2	V10.2

54 VACL

54.1

```

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
4      map      6553      map
      VACL
  
```

- action forward/drop/redirect
- Match ip/mac address
- vlan access map
- vlan filter

54.1.1 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*}



<i>acl_id</i>	numbered acl;
---------------	---------------

Config-access-map vacl

r	+	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 match
Ruijie(config)# vlan access-map dd
Ruijie(config-access-map)# match ip address 10 20 sp1 30 sp2
Ruijie(config-access-map)# exit
Ruijie(config)# vlan access-map dd 20
Ruijie(config-access-map)# match mac address 710 720 m1 760
Ruijie(config-access-map)# exit
Ruijie(config)#

```

VACL

<i>map_name</i>	map
<i>vlan_id</i>	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
    
```

-	-

┌

-	-

54.2

54.2.1 show vlan access map

```

map
show vlan access map
map
show vlan access map map_name
    
```

<i>map_name</i>	map

┌

┌

```
1          show vlan access map  
Ruijie(config)# show vlan access-map  
Vlan access-map aa 10  
match mac address: 700, 710, m1, 720,  
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)#
```

```
2 Tc 10.5 0 0 10.5 1gc 0 Tw 0 Ts 1000 1 TfET2 7 .36 548.0603 Tm24/TT0ET0lan/TT0 1 Tf0 Tc 2.007 1
```

|

|

|

|

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	map vlan

|

|

-	-

55 QoS

55.1

- QoS 1 policy-map
- policy-map class-map
- class-map 1 ACL ACL ACE
- ACE “ ACL”

QoS Policy Map
 QoS QoS Off
 QoS Policy Map
 QoS

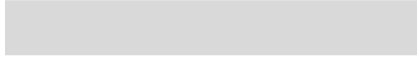
CoS	0
	8
	WRR
QueueWeight	1:1:1:1:1:1:1
WRR Weight Range	1:15
DRR Weight Range	1:15
	No Trust

Cos

Cos

CoS	
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8

CoS to DSCP



55.2

55.2.1 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*}

ipv6 access-list extended *acl-name*

```
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	-
------------------------------	---

QoS

	-	-
--	---	---

55.2.4 mls qos cos

CoS

mls qos cos *default-cos*

no mls qos cos



	dscp	
	no	

|

|

|

| Ruijie(config)# **mls qos map cos-dscp 8 10 16 18 24 26 32 34**

```
Ruijie(config)# mls qos ml_eos qos
```

55.2.8 mls qos scheduler

mls qos scheduler [sp | rr | wrr | drr]

no mls qos scheduler

sp	
rr	
wrr	
drr	
no	

wrr

cos	Qos	CoS
dscp	Qos	DSCP
<i>ip-precedence</i>	Qos	IP-PRE
no		

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mls qos trust cos
```



no policy-map <i>policy-map-name</i>	policy map
<i>class-map-name</i>	class map
no class <i>class-map-name</i>	
<i>new-dscp</i>	DSCP
<i>rate-bps</i>	kbps
<i>burst-byte</i>	kbyte
<i>drop</i>	
<i>dscp-value</i>	DSCP

priority-queue	SP
no priority-queue	WRR

WRR

Ruijie(config)# **no priority-queue**

show mls qos queueing	-

-	-

55.2.12 priority-queue cos-map

CoS

priority-queue cos-map *qid* *cos0* [*cos1* [*cos2* [*cos3* [*cos4* [*cos5* [*cos6* [*cos7*]]]]]]]]]

no priority-queue cos-map

<i>qid</i>	id
<i>cos7</i>	<i>cos0 ...</i> CoS
<i>no</i>	

```
Ruijie(config)# priority-queue cos-map 1 0 1
```

show mls qos queueing	-

-	-

55.2.13 service-policy

policy map

service-policy {input | output} *policy-map-name*

no service-policy {input | output}

<i>policy-map-name</i>	polycymap
no	policy map

```
Ruijie(config)# interface fastEthernet 0/1
```

```
Ruijie(config-if)# service-policy input po
```

show mls qos interface	-

-	-

55.2.14 wrr-queue bandwidth

WRR

wrr-queue bandwidth *weight1 ... weightn*

no wrr-queue bandwidth

<i>weight1...weightn</i>	n	n
no		

weight1: ...: weightn = 1:::1

Ruijie(config)# **wrr-queue bandwidth 1 2 3 4 5 6 7 8**

show mls qos queueing	-

-	-

55.3

55.3.1 show class-map

class map

show class-map [*class-name*]

<i>class-name</i>	class map

class map

Ruijie# **show class-map**

-	-
-	-

55.3.2 show policy-map

QoS policy map [class class-name]

show policy-map [*policy-name* **class** *class-name*]

<i>policy-name</i>	policy name
<i>class-name</i>	class map

policy name

Ruijie# **show policy-map**

-	-

ip-prec-dscp	ip-prec-dscp maps
---------------------	-------------------

dscp-cos maps dscp-cos maps ip-prec-dscp maps

┌

┌

Ruijie# **show mls qos maps**

-	-

┌

-	-

55.3.5 show mls qos queueing

QoS (cos-to-queue map,wrr weight,drr weight)

show mls qos queueing

-	-	-	-

	-	-

55.3.6 show mls qos rate-limit

show mls qos rate-limit [interface *interface-id*]

interface	interface-id	rate-limit

|

|

|

Ruijie# **show mls qos rate-limit**

	-	-

|

	-	-

55.3.7 show mls qos scheduler

show mls qos scheduler

	-	-

|

|

|

|

Ruijie# **show mls qos scheduler**

|

-	-

|

-	-

56 Voice VLAN

56.1

56.1.1 voice vlan

Voice VLAN VLAN Voice VLAN **no**
Voice VLAN
voice vlan *vlan-id*
no voice vlan

<i>vlan-id</i>	Voice VLAN	ID

└───

└───

 Voice VLAN Voice VLAN ID
 1 Voice VLAN

r

show voice vlan

Voice VLAN
56-2

56.1.3 voice vlan cos

Voice VLAN CoS **no**

voice vlan cos *cos-value*

no voice vlan cos

	<i>cos-value</i>	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	

56.1.4 voice vlan dscp

Voice VLAN DSCP **no**

voice vlan dscp *dscp-value*

no voice vlan dscp

--	--

<i>dscp-value</i>	Voice VLAN	DSCP
-------------------	------------	------

dscp-value 46

Voice VLAN CoS DSCP

1 Voice VLAN DSCP 40

Ruijie(config)# **voice vlan dscp 40**

show voice vlan	Voice VLAN
------------------------	------------

10.4	
------	--

56.1.5 voice vlan enable

Voice VLAN Voice VLAN **no**

voice vlan enable

no voice vlan enable

--	--

Voice VLAN


Voice VLAN Voice VLAN

Access Port Trunk Port Hybrid Port Private VLAN Private 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
```

r

1	Voice VLAN		
	Voice VLAN	Voice VLAN	
2			
	native VLAN	Voice VLAN	
3	Trunk Port/Hybrid Port		VLAN
	Voice VLAN	VLAN	Voice
	VLAN		Voice VLAN

Voice VLAN OUI	MAC	MAC
	Voice VLAN	
	Voice VLAN	
	untagged	Voice VLAN tag
	MAC VLAN	Voice VLAN tag Voice VLAN /

1 Voice VLAN
Ruijie(config)# voice vlan security enable

show voice vlan	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	Voice VLAN
voice vlan <i>vlan-id</i>	Voice VLAN VLAN	Voice VLAN
voice vlan aging <i>minutes</i>	Voice VLAN	
voice vlan cos <i>cos-value</i>	Voice VLAN	CoS
voice vlan dscp <i>dscp-value</i>	Voice VLAN	DSCP
voice vlan enable	Voice VLAN	
voice vlan mode auto	Voice VLAN	
voice vlan security enable	Voice VLAN	

10.4	
------	--

56.2.2 show voice vlan oui

OUI OUI

show voice vlan oui

Voice VLAN

--	--	--

└───

└───

57

57.1

57.1.1 rgos-security compatible

	RGOS	rgos-security
compatible	RGOS	no
rgos-security compatible		
no rgos-security compatible		
	RGOS	
	r	
	1	RGOS
	Ruijie(config)#no gos-security compatible	
	10.4	

58 RLDP

58.1

58.1.1 rldp detect-interval

RLDP

rldp detect-interval *interval*

no rldp detect-interval

		BA CXS-b9BNF9Ee2FV5DhjqCVFSBA0
<i>interval</i>		2-15

3

!ð Á €Pðm •X•XIX•R@ ÿQNöañÀ9v Ô ^ Zæh@°Â 9 ð PÒù`

rldp detect-max *num*

no rldp detect-max

<i>num</i>	,	2-10

2

5
Ruijie(config)# **rldp detect-max** 5

rldp detect-interval	

-	-

58.1.3 rldp enable

RLDP

rldp enable

no rldp enable

	RLDP	RLDP
	Ruijie(config)# rldp enable	
	rldp port	RLDP
	-	-

58.1.4 rldp port

rldp

rldp port { unidirection-detect | bidirection-detect | loop-detect } { warning | shutdown-svi | shutdown-port | block }

no rldp port { unidirection-detect | bidirection-detect | loop-detect }

unidirection-detect	
bidirection-detect	
loop-detect	
warning	
shutdown-svi	shutdown svi
shutdown-port	shutdown
block	

```
Ruijie(config)# interface fas 0/1  
Ruijie(config-if)# rldp port loop-detect block
```

rldp enable	rldp

58.2

58.2.1 show rldp

rldp

show rldp [**interface** *interface-id*]

	<i>Interface-id</i>	
	EXEC	
	-	-
	-	-

58.2.2 debug rldp

rldp

no

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

undebug rldp [**packet** | **event** | **error**]

	packet	rldp
	event	
	error	

└──

└── EXEC

└──

└──

	-	-

└──

	-	-

59 TPP

59.1

59.1.1 topology guard

topology guard

no

[no] topology guard

-	-

┌

┌

┌

cpu topology-limit

┌
Ruijie(config)# topology guard
Ruijie(config)# no topology guard

tp-guard port enable	
cpu topology-limit	CPU

┌

-	-

59.1.2 tp-guard port enable

no

[no] tp-guard port enable



|

|

tpp

|

Ruijie# **show tpp**

|

topology guard	

|

|

-	-

60.1.2 copy

copy *source-url destination-url*

<i>source-url</i>	URL
<i>destination-url</i>	URL

copy

URL

flash:	flash URL flash flash
tftp:	TFTP
xmodem:	xmodem
slave:	flash
usb0:	usb
usb1:	usb
sd0:	sd

r



URL

1 tftp

```

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	

60.1.3 delete

delete url

<i>url</i>	<i>url</i>



```

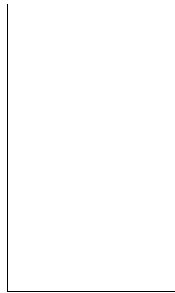
url                                URL    flash:/
usb0:/  usb1:/slave/              url

```

```

r                                .

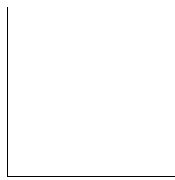
```



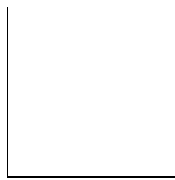
```

1                                tmpfile
Ruijie# delete tmpfile
2                                rgos.bin.bak
Ruijie# delete slave:/rgos.bin.bak
3    sd    aaa.bin
Ruijie# delete sd0:/aaa.bin

```



copy	
dir	



60.1.4 dir

dir [*filesystem*][: *directory*]



<i>filesystem</i>	","
<i>directory</i>	.

r

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.

2

Ruijie# **dir**

Directory of temp:/

Mode	Link	Size	MTime	Name
1		399	2008-01-01 00:17:58	a.dat

1 Files (Total size 399 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB) available.

pwd	
cd	

60.1.5 mkdir

mkdir *directory*

	<i>directory</i>	

rename url1 url2

<i>url1</i>	URL
<i>url2</i>	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	

60.1.7 rmdir

rmdir *directory*



	1	
	Ruijie# pwd	
	flash:/	
	cd	

60.2.2 show file systems

show file systems

61

61.1 CPU

61.1.1 cpu-log

```

CPU                                     ,      cpu-log
cpu-log log-limit low_num high_num

```

<i>log-limit</i>	
<i>low_num</i>	CPU
<i>high_num</i>	CPU

```

100%      90%

```

```

CPU CPU CPU CPU CPU CPU
CPU CPU CPU CPU CPU CPU

```

```

CPU CPU 70% CPU
80%
ruijie(config)# cpu-log log-limit 70 80
CPU 80%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU utilization in one
minute : 95% Using most cpu's task is ktimer : 94%
CPU 70%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute :68% Using most cpu's task
is ktimer : 60%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: The CPU
using rate has down!

```

	-	-
	-	-

61.1.2 show cpu

CPU

show28184121()10.5 0 0 10.5 104.34 541.1003 T

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%	dlx_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_daemon
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_rcv_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

bgp



1 BGP
Ruijie(config)# **memory-lack exit-policy bgp**

		£
show memory		

-

10.3(4b3)	

61.2.2 show memory

show memory

show memory



Free pages: 1079

watermarks : min 379, lower 758, low 1137, high 1516

System Total Memory : 128MB, Current Free Memory : 5283KB

Used Rate : 96%

1. 4k

2.

min	
lower	memory-lack exit-policy
low	OVERFLOW
high	OVERFLOW

3.

-	-

-	-

61.2.3 show memory protocols

show memory protocols

62

62.1

62.1.1 clear logging

clear logging

	-	-

|

|

|

|

Ruijie# clear logging

	logging on	
	show logging	
	logging buffered	

|

	-	-

62.1.2 more flash

FLASH

more flash:filename



<i>levell</i>	0 7
---------------	-----

4k Bytes
7

show logging
clear logging
FLASH

Syslog Server
8

Emergencies	0	
Alerts	1	
Critical	2	
Errors	3	
warnings	4	
Notifications	5	
informational	6	
Debugging	7	

0

6 6 10000

Ruijie(config)# **logging buffered 10000 6**

logging on	
show logging	
clear logging	

	-	-

62.1.4 logging console

no

logging console level

no logging console

<i>level</i>		0 7
		1

Debugging (7)

show logging

6
Ruijie(config)# **logging console informational**

logging on		
show logging		

	-	-

62.1.5 logging count

no

logging count

no logging count

	-	-

|

|

|

no logging count

|

Ruijie(config)# **logging count**

	show logging count	
	show logging	

|

	-	-

62.1.6 logging facility

no

(23)

logging facility *facility-type*

no logging facility

<i>facility-type</i>	Syslog
----------------------	--------

Local7(23)

2 Syslog

Numerical Code	Facility
0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslogd
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon
10	security/authorization messages
11	FTP daemon
12	NTP subsystem
13	log audit
14	log alert
15	clock daemon
16	local use 0 (local0)
17	local use 1 (local1)
18	local use 2 (local2)
19	local use 3 (local3)
20	local use 4 (local4)
21	local use 5 (local5)
22	local use 6 (local6)
23	local use 7 (local7)

(local7) 23

Syslog kernel

Ruijie(config)# logging facility kern

logging console	

-	-

62.1.7 logging file flash

FLASH

FLASH

no

logging file flash:filename [*max-file-size*] [*level*]

no logging file

<i>Filename</i>	txt
<i>max-file-size</i>	128K 6M bytes
	128K
<i>level</i>	FLASH 6
	1

FLASH

Syslog Server

FLASH

txt

r

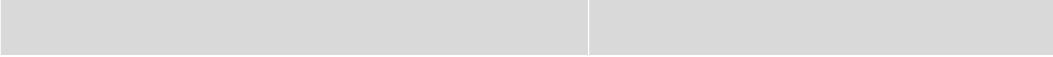
FLASH
FLASH logging file flash

FLASH

VTY

6

Ruijie(config)# **logging monitor informational**



logging	Syslog Server
logging file flash:	FLASH
logging console	
logging monitor	VTY (telnet)
logging trap	Syslog Server

-	-

62.1.10 logging rate-limit

no

logging rate-limit {*number* | *all number* | *console* {*number* | *all number*}} [*except severity*]

no logging rate-limit

<i>number</i>	1—10000
<i>all</i>	0—7
<i>console</i>	
<i>except</i>	error(3) error
<i>severity</i>	0—7

debug 10 warning

Ruijie(config)#**logging rate-limit all 10 except warnings**

show logging count	
show logging	



```

2                IPV6      AAAA:BBBB::FFFF
Ruijie(config)# logging server ipv6 AAAA:BBBB::FFFF

```

logging on	
show logging	
logging trap	syslog server

-	-

62.1.12 logging source ip| ipv6

no

logging source {ip *ip-address* | ipv6 *ipv6-address*}

no logging source {ip | ipv6}

<i>ip-address</i>	IPV4	IPV4
<i>ipv6-address</i>	IPV6	IPV6

Syslog Server



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62.1.14 logging synchronous

no

logging synchronous

no logging synchronous

	-	-

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```
Ruijie(config)#line console 0
Ruijie(config-line)#logging synchronous
                        UP-DOWN
Ruijie#configure terminal
Oct  9 23:40:55 %LINK-5-CHANGED: Interface GigabitEthernet 0/1,
changed state to down
Oct  9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet 0/1, changed state to DOWN
Ruijie# configure terminal      //
```

	show running-config	

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	-	-

62.1.15 logging trap

Syslog Server

service sequence-numbers

no service sequence-numbers

	-	-

└───┘

└───┘

└───┘

1

└───┘

Ruijie(config)# **service sequence-numbers**

	logging on	
	service timestamps	

└───┘

	-	-

62.1.17 service sysname

no

service sysname

no service sysname

	-	-

└───┘

Mar 22 15:28:02 %SYS-5-CONFIG: Configured from console by console
Ruijie# **config terminal**
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#



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

Trap logging	Syslog Server
Log Buffer	

logging on	
clear logging	

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62.2.2 show logging count

show logging count

-	-

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logging count **lunt** **logging count** **show**
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	logging count	
	show logging	
	clear logging	
	-	-

63

63.1

63.1.1 device-priority

device-priority [*member*] *priority*

<i>member</i>	ID member 1
<i>priority</i>	[1, 10]

┌

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┌

1 10 10

1

write

8d()Tj4TT0 1 Tf-0.0053 Tf-281784 67.761 (Ruijie(config

member <i>member</i>	ID member 1
<i>description</i>	31

└───

└───

└───

write

└───

2 red-giant

Ruijie(config)# **device-description member 2 red-giant**

show member	

└───

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63.2

63.2.1 show member

show member [*member*]

<i>member</i>	ID

└───

└───

└───

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
```

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