

RG-S2300

RGOS 10.2(5)

©2009



RGOS®



Red-Giant®



锐捷®

RGOS®10.2(5)

»

»

»

1.

5

Courier New

5

2.

Arial

$[\] \qquad [\]$
 $\{x|y|\dots\}$
 $[x|y|\dots]$
 $//$

3.

&

&

CLI

alias

alias

no

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

mode
command-alias
original-command

EXEC

EXEC

h	help
p	ping
s	show
u	undebug
un	undebug

no alias exec**alias ?**

Ruijie(config)# **alias ?**

aaa-gs	AAA server group mode
acl	acl configure mode
bgp	Configure bgp Protocol
config	globe configure mode

*

**command-alias=original-command*

EXEC	"s"	"show"
"s?"	's'	

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"

Ruijieig)# 9ff)# **ia ?**

A.B.C.D IP address

dhcp IP Address via DHCP

Ruijieig)# 9ff)# **ip address**

"ip address"

show aliases

dhcp IP Address via DHCP

Ruijieig)# 9ff)#

```
*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
```



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

CLI 1 "test" reload

```
Ruijie(config)# enable secret level 1 0 test
Ruijie(config)# privilege exec level 1 reload
```

1 CLI reload

```
Ruijie> reload ?
<cr>
```

reload 1 all

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

1 CLI reload

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

enable secret	CLI

show aliases

EXEC

show aliases

show aliases [mode]

mode

EXEC

EXEC

Ruijie# **show aliases exec**

exec mode alias:

h	help
p	ping
s	show
u	undebug
un	undebug

alias	

CLI

- › **disable**
- › **enable**
- › **enable password**
- › **enable secret**
- › **password**
- › **login**
- › **login local**
- › **login authentication**
- › **username**
- › **lock**
- › **lockable**
- › **telnet**
- › **enable service**

disable

disable

disable [*privilege-level*]

privilege-level

&

disable

Ruijie# **disable 10**

enable	

enable

enable

enable password

enable password

no

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

no enable password

Password

EXEC

1 26
、
、

EXEC

```

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

pw10
Ruijie(config)# enable secret 0 pw10

```

enable password	

password

```

          line          line          password
no          line

password {password | [0|7] encrypted-password}
no password

password          line
0|7          0          7
encrypted-password

line

line

line          red

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

```

login	

login

```
AAA
    login      no
login
no login
```

line

```
AAA
    VTY      console

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

password	line

login local

```
AAA
```

line

AAA

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	

login authentication

AAA

AAA

no

login authentication {default | *list-name*}

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

default

list-name

line

AAA

VTY

radius

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

aaa new-model	AAA
aaa authentication login	

username

username

```
username name { nopassword | password { secret 6647431MBi0KAP%imZq@username
```

15

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

login local	

lock

EXEC

lock

lock

1. **lock**

2.

“ Locked ”

3.

line

lockable

line

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

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

Ruijie# **lock**

Password: <password>

Again: <password>

Locked

Password: <password>

Ruijie#

lockable	

lockable

	lock	line	lockable
	lock	no	
lockable			
no lockable			

line

EXEC **lock**

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

lock	

telnet

telnet telnet EXEC

telnet

telnet *host* [*port*] [*keyword*]

Host IP

Port TCP 23

Keyword

--	--

ssh-server	SSH Server
telnet-server	Telnet Server
web-server	Http Server
snmp-agent	Snmp Agent

Web

no ip http authentication

ip http authentication local,

Web

local

Ruijie(Config # **ip http authentication local**

enable service	

ip http port

HTTP

ip http port

ip http port *number*

number

HTTP Server

80

HTTP

no ip http port

HTTP

8080

Ruijie(Config # **ip http port 8080**

enable service	

- › **clock set**
- › **clock update-calendar**
- › **exec-timeout**
- › **hostname**
- › **session-timeout**
- › **show clock**
- › **show cpu**
- › **show cpu slot**
- › **show memory**
- › **show memory slot**
- › **show running-config**
- › **show startup-config**
- › **reload**
- › **show reload**
- › **prompt**
- › **banner motd**
- › **banner login**
- › **speed**
- › **show line**
- › **write**

clock set

clock set

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

clock set

2008 1 30 05 54 43

Ruijie# clock set 05:54:43 1 30 2008

Ruijie# show clock

05:54:43 CHN-BJ Wed 2008-01-30

show clock	

clock update-calendar

clock clock privileged EXEC clock
update-calendar clock clock
clock update-calendar

calendar

clock clock

Ruijie# clock update-calendar

exec-timeout

LINE	exec-timeout
no exec-timeout	LINE
exec-timeout <i>minutes</i> [<i>seconds</i>]	
no exec-timeout	
<i>minutes</i>	
<i>seconds</i>	
	10 min
LINE	
LINE	
line vty 0	5 30 :
Ruijie(config-line)# exec-timeout 5 30	

hostname

hostname
hostname <i>name</i>
<i>name</i>
63
Ruijie
CHAP

BeiJingAgenda

Ruijie(config)# **hostname** *BeiJingAgenda*
BeiJingAgenda(config)#

session-timeout

LINE
session-timeout **no session-timeout** LINE

session-timeout *minutes* [*seconds*]
no session-timeout

minutes
seconds

0 min

LINE

LINE

LINE

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

show clock

show clock

show clock [**detail**]

detail

detail

show clock

Ruijie# **show clock detail**
05:54:43 CHN-BJ Wed 2008-01-30
Clock read from calendar when system boot.

clock set	

show cpu

CPU

show cpu

CPU

show cpu

Ruijie# **show cpu**
CPU utilization in five seconds: 0%
CPU utilization in one minute : 35%
CPU utilization in five minutes: 33%
NO 5Sec 1Min 5Min Process
0 0% 0% 0% LISR INT
1 0% 0% 0% HISR INT
2 0% 0% 0% ktimer
3 0% 0% 0% atimer
4 0% 0% 0% printk_task

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%	35%	33%	gc_task
12	0%	0%	0%	Context
13	0%	0%	0%	kswapd
14	0%	0%	0%	bdflush
15	0%	0%	0%	kupdate
16	0%	0%	0%	bufcopy
17	0%	0%	0%	ll_mt
18	0%	0%	0%	ll main process
19	0%	0%	0%	ISDN MAIN
20	0%	0%	0%	tnet
21	0%	0%	0%	Tarptime
22	0%	0%	0%	gra_arp
23	0%	0%	0%	Ttcptimer
24	0%	0%	0%	gk process
25	0%	0%	0%	rl_con
26	100%	65%	67%	idle

show cpu

CPU utilization in five seconds	5 CPU
CPU utilization in one minute	1 CPU
CPU utilization in five minutes	5 CPU
NO	
Process	
5Sec	5 CPU
1Min	1 CPU
5Min	5 CPU

--	--

show cpu slot

CPU

show cpu slot [*slot-number*]

slot-number

CPU

CPU

1 1 CPU
Ruijie# **show cpu slot 1**
CPU utilization for five seconds: 3%
CPU utilization for one minute : 2%
CPU utilization for five minutes: 1%

2 CPU
Ruijie# **show cpu slot**
slot 1 CPU information
CPU utilization for five seconds: 3%
CPU utilization for one minute : 2%
CPU utilization for five minutes: 1%
slot 3 CPU information
CPU utilization for five seconds: 5%
CPU utilization for one minute : 2%
CPU utilization for five minutes: 1%

show cpu	CPU

show memory

show memory

725

0224

[

B

slot-number

1 1

Ruijie# **show memory slot 1**

Physical Memory: 256M total

Image: 45M

Application Memory: 211M (55M used 156M available)

Utilization: 39.1%

2

ruijie# **show memory slot**

slot 1 memory information

Physical Memory: 256M total

Image: 45M

Application Memory: 211M (55M used 156M available)

Utilization: 39.1%

slot 3 memory information

Physical Memory: 256M total

Image: 45M

Application Memory: 211M (57M used 154M available)

Utilization: 39.8%

show memory	

show running-config

show running-config

show running-config

show startup-config

NVRAM

show startup-config

show startup-config

NVRAM

startup-config

reload

reload

reload [*text* | **in** [*hh:*] *mm* [*text*] | **at** *hh:mm* [*month day* | *day month*]
[*text*] | **cancel**]

text 1-255

in [*hh:*] *mm* 24

at *hh:mm*

month 3 Mar

day 1 31

cancel

10

Ruijie# **reload in 10**

Router will reload in 600 seconds.

show reload

show

reload

show reload

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

prompt

prompt

no prompt

prompt *string*

string

32

EXEC

RGOS

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

RGOS

banner motd

banner motd

no banner motd

banner motd *c message c*

c

message

Ruijie(config)

Ruijie(config)# **banner motd** *\$ hello,world \$*

banner login

banner login

no banner login

banner login *c message c*

c

message

memory

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

show running-config	
copy	

LINE

LINE

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**

line vty

VTY VTY no

line vty *line-number*

no line vty *line-number*

VTY 5 0--4

VTY

VTY 20 VTY 0--19

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

VTY 10 VTY 0—9

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

transport input

Line transport input Line

default transport input LINE

transport input {all | ssh | telnet | none}

default transport input

all	Line
ssh	Line SSH
telnet	Line Telnet

LINE

none	Line
------	------

VTY TTY
NONE
default transport input

Line

Line VTY
VTY **show running** Line

default transport input **no transport inp**
ut LINE transpo
rt input none

	CLI	COPY
,	Xmodem	copy xmodem
,	Tftp	copy tftp

copy xmodem

xmodem	xmodem
--------	--------

copy flash: *filename* xmodem
copy xmodem flash: *filename*

filename

Xmodem	
Xmodem	
:	xmodem
	xmodem

:

Ruijie# **copy xmodem flash: *config.text***
Ruijie# **copy flash: *config.text* xmodem**

tftp

copy flash: *filename* **tftp://** *location / filename*

copy **tftp://** *location/filename* **flash:** *filename*

filename

TFTP

TFTP

```

: ip 192.168.12. 1
config.bak ; switch.bin
ip 192.168.12.1 :
```

```
Ruijie# copy tftp://192.168.12.1/config.bak flash:
config.text
```

```
Ruijie# copy flash: swhich.bin tftp://192.168.12.1/
```

-
- **ping**
 - **tracert**

ping

]

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

<i>ip-address</i>	IPv4
<i>length</i>	
<i>times</i>	
timeout	
<i>data</i>	
<i>source</i>	IPv4

2 5 100Byte
IP '!'
'.' ping
ping
ping
DNS

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
```

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
```

<i>ip-address</i>	IPv4
<i>number</i>	
<i>source-address</i>	IPV4
<i>seconds</i>	
<i>minimum maximum</i>	TTL

traceroute

DNS

traceroute

1 traceroute

Ruijie# **traceroute** 61.154.22.36

< press Ctrl+C to break >

Tracing the route to 61.154.22.36

```

1      192.168.12.1      0 msec  0 msec  0 msec
2      192.168.9.2       4 msec  4 msec  4 msec
3      192.168.9.1       8 msec  8 msec  4 msec
4      192.168.0.10      4 msec  28 msec 12 msec
5      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

```

Ruijie#

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

```

Ruijie#

```

                                     IP
202.108.37.42                        1 17
4

```

Ruijie# **traceroute** *www.ietf.org*

TranslatiniT2 1 Tf-0 1 Tf-0.0013 -6(84)Tj/TT4.org 84

- › **interface aggregateport**
- › **interface fastEthernet**
- › **interface giagbitEthernet**
- › **interface vlan**
- › **medium-type**
- › **descriptioin**
- › **shutdown**
- › **speed**
- › **duplex**
- › **flowcontrol**
- › **mtu**
- › **clear counters**
- › **clear interface**
- › **switchport**
- › **snmp trap link-status**
- › **line-detect**

interface aggregateport

no

interface aggregateport *port-number*

port-number Aggregate port

aggregate port

aggregate port

aggregate port
interfaces aggregateport

show interfaces show

```
no
show interfaces gigabitEthernet
```

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

show interfaces	

interface vlan

virtual interface SVI

SVI.

switch

no

```
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	
-----------------	--

medium-type

no

medium-type { fiber | copper }

no medium-type

fiber

copper

Ap SVI

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

Ruijie(config-if)# **medium-type copper**

show interfaces	

BASE-T

SFP

10/100/1000M

descriptioin

no

description *string*

no description

string

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

show interfaces	

duplex

no

duplex {auto | full | half}

no duplex

auto

full

half

show interfaces

```
Ruijie(config-if)# duplex full
```

show interfaces	

flowcontrol

no

flowcontrol {auto | off | on}

no flowcontrol

auto

off

on

1500

mtu

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

show interfaces	

carrier-delay

carrier-delay

no

carrier-delay [*seconds*]

no carrier-delay

seconds

1 60

2

DCD

DCD Down Up

DCD

DCD


```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config)# carrier-delay 5
```

clear counters

clear counters [*interface-id*]

interface-id

show interfaces

clear counters

```
Ruijie# clear counters gigabitethernet 1/1
```

show interfaces	

clear interface

clear interface *interface-id*

interface-id

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

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

shutdown	

switchport

2 switchport
3 no switchport
switchport
no switchport

2

switchport

2 3 2

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

show interfaces	

switchport mode

access port switch port
trunk port, 802.1Q **no**

switchport mode {access | trunk}
no switchport mode

access	switch port access port
trunk	switch port trunk port

switch port access

switch port access VLAN
switchport access vlan VLAN

switch port trunk VLAN
VLAN VLAN VLAN trunk
port VLAN VLAN **switchport**
trunk VLAN

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

switchport access	statics accessport VLAN
switchport trunk	trunkport native VLAN Trunk VLAN

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
VLAN ID      VLAN
      trunkport
      VLAN ID
VLAN

```

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

```
switchport mode
```

Protected is disabled
Vlan lists is
1,3-4094



show interfaces

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

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	

Aggregate Port

port-group

Aggregate Port no
Aggregate Port

port-group *port-group-number*
no port-group

Aggregate Port

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

AP VLAN trunk port
native VLAN AP

1/3 AP 3

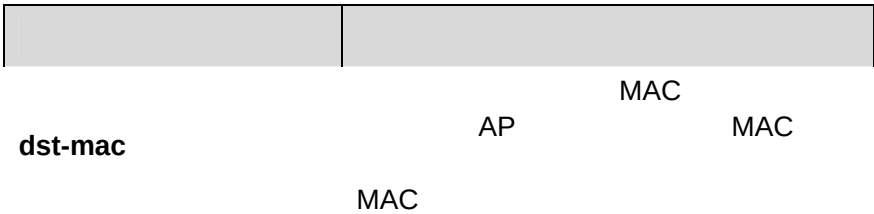
Ruijie(config)# **interface gigabitethernet 1/3**
Ruijie(config-if)# **port-group 3**

aggregateport load-balance

AP no

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

no aggregateport load-balance



no name

<i>vlan-name</i>	VLAN

VLAN

VLAN

show vlan vlan

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

show vlan	VLAN

switchport mode

access port switch port
trunk port, 802.1Q no

switchport mode {access | trunk}

no switchport mode

access	switch port access port
trunk	switch port trunk port

switch port access

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

switchport trunk

trunkport native VLAN Trunk VLAN
no trunk

```
switchport trunk {allowed vlan { all | [add | remove | except]
vlan-list }| native vlan vlan-id}
no switchport trunk {allowed vlan | native vlan }
```

	Trunk VLAN
	vlan-list VLAN
	VLAN ID VLAN ID
	10-20 -
	1-10,20-25,30,33 ,
allowed vlan vlan-list	all VLAN
	VLAN
	add \$ Ô

Native VLAN

Trunk native VLAN native VLAN
 UNTAG 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
Switchport is1 TUuSed
Mode is1trunk port
Access vlan is11,Native vlan is11
Protected is1disUuSed
Vlan lists is1
1,3-4094
```

show interfaces	
switchport access	statics accessport VLAN

show vlan

VLAN

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

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

PrivateVLAN

- › **private-vlan type**
- › **private-vlan association**
- › **private-vlan mapping**
- › **switchport mode private-vlan**
- › **switchport private-vlan host-association**
- › **switchport private-vlan mapping**

private-vlan type

VLAN VLAN

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

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

community community VLAN

isolated isolated VLAN

primary primary VLAN

no VLAN

VLAN

VLAN

Ruijie(config)# **vlan 22**

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

show vlan private-vlan

RGOS10.1

private-vlan association

secondary VLAN primary VLAN

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

no private-vlan association

svlist secondary VLAN list

no primary VLAN secondary VLAN

Primary VLAN

Ruijie(config)# **vlan 22**

Ruijie(config-vlan)# **private-vlan association add 24-26**

show vlan private-vlan

RGOS10.1

private-vlan mapping

secondary VLAN SVI

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

no private-vlan mapping

svlist 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

switchport mode private-vlan

private VLAN

switchport mode private-vlan{host|promiscuous}

no switchport mode

host VLAN

promiscuous VLAN

no VLAN

Ruijie(config)# **interface gigabitEthernet0/2**

Ruijie(config-if)# **switchport mode private-vlan host**

show vlan private-vlan

RGOS10.1

switchport private-vlan host-association

private VLAN

primary VLAN

secondary VLAN

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

no switchport private-vlan host-association

p_vid: primary VID

s_vid : secondary VID

no: VLAN

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

show vlan private-vlan

RGOS10.1

switchport private-vlan mapping

private VLAN

secondary VLAN

switchport private-vlan mapping *p_vid* {*svlist*|**add** *svist* |**remove** *svlist*}

no switchport private-vlan mapping

p_vid

primary VID

svlist

secondary VLAN list

no

secondaryVLAN

secondary VLAN

VLAN

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan
promiscuous
Ruijie(config-if)# switchport private-vlan mapping 22
add 23-25
```

show vlan private-vlan

RGOS10.1

, **show vlan private-vlan**

show vlan private-vlan

private VLAN

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

primary	primary VLAN
community	community VLAN
isolated	isolated VLAN

private VLAN

Ruijie# **show vlan private-vlan**

RGOS10.1

Hybrid

, **switchport mode hybrid**
, **switchport hybrid native vlan**
, **switchport hybrid allowed vlan**

switchport mode hybrid

switchport mode hybrid

no switchport mode

hybrid

no

hybrid

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

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

MAC

- › **mac-address-table aging-time**
- › **clear mac-address-table dynamic**
- › **clear mac-address-table filtering**
- › **clear mac-address-table static**
- › **mac-address-table static**
- › **mac-address-table filtering**
- › **mac-address-table notification**
- › **nmp trap mac-notification**
- › **address-bind**

mac-address-table aging-time

no

mac-address-table aging-time *seconds*

no mac-address-table aging-time

seconds

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 dynamic	

clear mac-address-table dynamic

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

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	

clear mac-address-table static

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

static	
address <i>mac-addr</i>	
interface <i>interface-id</i>	
vlan <i>vlan-id</i>	VLAN

show mac-address-table static

MAC 00d0.f800.073c

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

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

mac-address-table static

no

mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*

no mac-address-table static *mac-addr* **vlan** *vlan-id* **interface**
interface-id

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

[illegible]

show mac-address-table filtering

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

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

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
```

snmp-server enable traps	trap
show mac-address-table notification	MAC
snmp trap mac-notification	MAC

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-address-table notification	MAC
show mac-address-table notification	MAC

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
IP MAC IP
MAC

ip 3.3.3.3 mac 00d0.f811.1112

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

show address-bind	

address-bind ip-address

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	IP		MAC	IP
	MAC			

ip 3.3.3.3 mac 00d0.f811.1112

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



MAC

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

RGOS10.1

- › **show mac-address-table address**
- › **show mac-address-table aging-time**
- › **show mac-address-table count**
- › **show mac-address-table dynamic**
- › **show mac-address-table filtering**
- › **show mac-address-table interface**
- › **show mac-address-table notification**
- › **show mac-address-table static**
- › **show mac-address-table vlan**
- › **show address-bind**
- › **show mac-address-table mac-manage-learning**

show mac-address-table address

MAC

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

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

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

Vlan	MAC Address	Type	Interface
-----	-----	-----	-----
1	00d0.f800.1001	STATIC	Gi1/1

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

show mac-address-table aging-time

show mac-address-table aging-time

Ruijie# show mac-address-table aging-time

Aging time : 300

mac-address-table aging-time	

show mac-address-table count

show mac-address-table count

Ruijie# **show mac-address-table count**
Dynamic Address Count : 51
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses : 51
Total Mac Address Space Available: 8139

show mac-address-table static	

show mac-address-table filtering A>le*UAQ<q:#PAtP7Ä

Ruijie# **show mac-address-table dynamic**

Vlan	MAC Address	Type	Interface
----	-----	-----	-----
1	0000.0000.0001	DYNAMIC	gigabitethernet 1/1
1	0001.960c.a740	DYNAMIC	gigabitethernet 1/1
1	0007.95c7.dff9	DYNAMIC	gigabitethernet 1/1
1	0007.95cf.eee0	DYNAMIC	gigabitethernet 1/1
1	0007.95cf.f41f	DYNAMIC	gigabitethernet 1/1
1	0009.b715.d400	DYNAMIC	gigabitethernet 1/1
1	0050.bade.63c4	DYNAMIC	gigabitethernet 1/1

clear mac-address-table dynamic	

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

MAC

--	--

clear mac-address-table filtering

show mac-address-table count	
-------------------------------------	--

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

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

show address-bind

show address-bind

```
Ruijie# show address-bind
Total Bind Addresses in System : 2
IP Address      Binding MAC Addr
-----
3.3.3.3         00d0.f811.1112
3.3.3.4         00d0.f811.1117
```

address-bind	

show address-bind summary

address-bind install

show address-bind summary

```
Ruijie# show address-bind summary
Total Bind Addresses in System : 0
Max Bind Addresses limit in System : 1000
System Address bind status:SUCCESS
```

address-bind	

show address-bind [ip-address *ip* | mac-address *MAC*]

IP MAC

show address-bind [ip-address *ip* | mac-address *MAC*]

DHCP Snooping

DHCP snooping

DHCP snooping

- , **ip dhcp snooping**
- , **ip dhcp snooping bootp-bind**
- , **ip dhcp snooping verify mac-address**
- , **ip dhcp snooping binding**
- , **ip dhcp snooping database write-delay**
- , **ip dhcp snooping database write-to-flash**
- , **ip dhcp snooping information option**

ip dhcp snooping

DHCP Snooping

no

DHCP snooping

[no] ip dhcp snooping

DHCP snooping

DHCP snooping

show ip dhcp snooping

DHCP snooping

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


Ruijie# **show ip dhcp snooping**

```
Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                      Trusted
-----
FastEthernet0/11              yes
```

show ip dhcp snooping	DHCP snooping

ip dhcp snooping verify mac-address

MAC
no MAC

[no] ip dhcp snooping verify mac-address

MAC DHCP CLIENT
MAC DHCP CLIENT 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  DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                      Trusted
-----
FastEthernet0/11              yes
```

show ip dhcp snooping	DHCP snooping

ip dhcp snooping binding

DHCP snooping
no

[no] ip dhcp snooping binding *mac-address* **vlan** *vlan-id* **ip**
ip-address interface interface-id

<i>mac-address</i>	MAC
<i>vlan-id</i>	VLAN
<i>ip-address</i>	IP
<i>interface-id</i>	

DHCP snooping
DHCP

Ruijie# **configure terminal**
Ruijie(config)# **ip dhcp snooping binding** *00d0.f801.0101*

```
vlan 1 ip 192.168.4.243 interface fastethernet 0/1
Ruijie(config)# end
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1
MacAddress  IpAddress  Lease  Type  VLAN  Interface
-----
00d0.f801.0101 192.168.1.1 - static 1 fastethernet 0/1
```

--	--

```
DHCP snooping Support Bootp bind status: ENABLE
Interface                               Trusted
-----                               -
FastEthernet0/11                       yes
```

show ip dhcp snooping	DHCP snooping

ip dhcp snooping database write-delay

```
                                DHCP Snooping
FLASH                               no
                                FLASH
```

ip dhcp snooping database write-delay *time*

[no] ip dhcp snooping database write-delay

```
time           DHCP snooping           FLASH
```

FLASH

```
                                DHCP Snooping           FLASH
                                                                IP
```

```
                                flash           3600
```

```
Ruijie# configure terminal
```

```
Ruijie(config)# ip dhcp snooping database write-delay  
3600
```

```
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
-----                               -
FastEthernet0/11                       yes
```

show ip dhcp snooping	DHCP snooping

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
```

DHCP snooping

DHCP snooping

ip dhcp snooping trust

ip dhcp snooping address-bind

ip dhcp snooping trust

DHCP snooping TRUST
no UNTRUST

[no] ip dhcp snooping trust

UNTRUST

TRUST DHCP TRUST
DHCP UNTRUST

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

----- -----

FastEthernet0/11

yes

show ip dhcp snooping	DHCP snooping

ip dhcp snooping address-bind

no

[no] ip dhcp snooping address-bind

DHCP

Snooping
MAC

IP

IP
VLAN ID**fastethernet 0/1**Ruijie# **configure terminal**Ruijie(config)# **interface fastethernet 0/1**Ruijie(config-if)# **ip dhcp snooping address-bind**Ruijie(config-if)# **end**

DHCP snooping

- , **show ip dhcp snooping**
- , **show ip dhcp snooping binding**

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	Type	VLAN	Interface

00d0.f801.0101	192.168.1.1	-	static	1	fastethernet 0/1

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

DHCP snooping

DHCP Snooping

clear ip dhcp snooping binding

debug ip dhcp snooping

clear ip dhcp snooping binding

DHCP Snooping DHCing

DHCP snooping

DHCP snooping

Ruijie# **debug ip dhcp snooping event**

Ruijie# **debug ip dhcp snooping packet**

IGMP Snooping

deny

profile profile

deny

deny

deny	profile

profile deny

profile

profile range

profile profile

profile

deny permit

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	

permit

profile
profile

profile

permit

range

profile

profile

range

no

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

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

low-ip-address

high-ip-address

profile

deny

profile

profile
profile

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

ip igmp profile

profile-number

igmp profile

ip igmp profile *profile-number*
no ip igmp profile *profile-number*

profile-number profile 1-65535

profile

1 profile profile

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

range	profile
ip igmp snooping filter <i>profile-num</i>	

ip igmp snooping filter

profile no profile

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

Profile-number profile

profile filter

0/1 profile 1

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

ip igmp profile	profile

ip igmp snooping ivgl

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

disable

IGMP Snooping VLAN
VLAN

igmp snooping ivgl

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

--	--

ip igmp snooping max-groups

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

ip igmp snooping max-groups *number*

no ip igmp snooping max-groups

number 0 – 4294967294

IGMP Report

0/1 100

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

Ruijie(config-if)# **ip igmp snooping max-group 100**

ip igmp snooping filter	

ip igmp snooping vlan mrouter interface

ip igmp snooping vlan mrouter ,
interface **no**

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

ip igmp snooping source-check port	

ip igmp snooping vlan mrouter interface profile

VLAN

IGMP Profile

interface profile

ip igmp snooping vlan mrouter
ä

profile

profile

profile

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

ip igmp snooping vlan mrouter interface	

ip igmp snooping vlan mrouter learn pim-dvmrp

IGMP query/dvmrp PIM

ip igmp snooping vlan mrouter

learn no

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

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

vid

vlan id

igmp snooping

Ruijie(config)# **ip igmp snooping vlan 1 mrouter learn pim-dvmrp**

--	--

ip igmp snooping vlan *vid*

mrouter learr2w0 Td()Tj/58vmrp1 Tf0 Tc 0 Tw 10.617 0 Td19Td/TT1 1 Tf-2 Tr 10.5 re

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

vid vlan id

ip-addr

interface-id id

Ruijie(config)# **ip igmp snooping vlan 1 static 224.0.0.2**
interface fastEthernet 0/1

ip igmp snooping vlan mrouter interface	

ip igmp snooping fast-leave enable

 igmp snooping fast-leave **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

fast-leave

IGMP leave

igmp snooping fast-leave

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

ip igmp snooping suppression enable

igmp snooping suppression		ip igmp
snooping suppression enable	no	igmp snooping
suppression		

ip igmp snooping suppression enable

no ip igmp snooping suppression enable

disable

	suppression	IGMP v1/v2
report		

igmp snooping suppression

Ruijie(config)# **ip igmp snooping suppression**

ip igmp snooping query-max-resposne-time

query

ip igmp snooping query-max-resposne-time *time*
no ip igmp snooping query-max-resposne-time

time

10s

query

query

100s

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

ip igmp snooping	

- , **show ip igmp snooping** [*gda-table* | *interface* | *mrouter*]
- , **show ip igmp profile** [*profile-number*]
- , **debug igmp-snp**

MSTP

spanning-tree

MSTP

no

MSTP

spanning-tree

MSTP

no

spanning tree

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

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

forward-time *seconds*

hello-time *seconds*

BPDU

max-age *seconds* BPDU

spanning-tree

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

$2 * (\text{Hello Time} + 1.0\text{snd}) \leq \text{Max-Age Time} \leq 2 * (\text{Forward-Delay} - 1.0\text{snd})$

spanning-tree

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

BridgeForwardDelay

Ruijie(config)# **spanning-tree forward-time 10**

show spanning-tree STP

spanning-tree mst cost STP PathCost

spanning-tree tx-hold-count STP TxHoldCount

spanning-tree bpdufilter

disabled BPDU filter enabled
BPDU filter

spanning-tree bpdufilter [enabled | disabled]

enabled BPDU filter

Disabled

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

spanning-tree link-type

“ ” no

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

no spanning-tree link-type

pointit-to-point point-to-point.

Shared shared

 point-to-point
 shared

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

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

spanning-tree max-hops

Count	BPDU Instance	BPDU Region	Max-hops
		no	

```
spanning-tree max-hops hop-count
```

```
no spanning-tree max-hops
```

hop-count	BPDU	1	40
-----------	------	---	----

hop-count	20
-----------	----

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

MST Instance	Max-hops	10
--------------	----------	----

```
Ruijie(config)# spanning-tree max-hops 10
```

```
show spanning-tree mst
```

```
show spanning-tree MSTP
```

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

spanning-tree mst configure

	MST	MSTP Region	
no	name	revision	vlan map

spanning-tree mst configuration

no spanning-tree mst configuration

instance	vlan	Vlan	Instance 0
name			
revision	0		

.

end Ctrl+C
exit

MST

instance	instance-id	vlan	vlan-range	Vlan	MST Instance
	instance-id		0 64	vlan	1 4095
	vlan-range	vlan		VLAN ID	
	VLAN ID	' '		VLAN ID	

0 115

7 -1.9. Tc 0.36spanning-tree mst configuration)0

```
Ruijie(config-mst)# exit
Ruijie(config)#
      VLAN 3   Instance 1           MST
```

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

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

```
show spanning-tree mst           MST region
instance instance-id vlan vlan-range   Vlan           MST Instance
```

```
name           MST
revision       MST
show          MST           MST
```

spanning-tree mst cost

Instance no

```
spanning-tree [mst instance-id] cost cost
no spanning-tree [mst instance-id] cost
```

```
instance-id   Instance           0  64
cost           1  200  000  000
```

```
Instance-ID           0
      Interface
```

- 1000 Mbps—20000
- 100 Mbps—200000
- 10 Mbps—2000000

.

cost

Instance 3

400

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

Ruijie(config-if)# **spanning-tree mst 3 cost 400**

show spanning-tree mst interface interface-id

show spanning-tree mst

MSTP

spanning-tree mst port-priority

spanning-tree mst priority

instance

spanning-tree mst port-priority

Instance

Region

no

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

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

Instance-id Instance 0 64

priority 0 16 32 48 64 80 96 112

128 144 160 176 192 208 224 240 16 16

Instance-id 0

priority 128

Region

```
Instance 20    Gigabitethernet 1/1
10
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 20 port-priority
0
```

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

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

spanning-tree mst priority

Instance	no
----------	----

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

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

<i>instance-id</i>	Instance	0	64
<i>priority</i>		0, 4096, 8192, 12288, 16384, 20480,	
		24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344	
61440	16	4096	

<i>instance-id</i>	0
<i>priority</i>	32768

Instance 20 8192

Ruijie(config-if)# **spanning-tree mst 20 priority 8192**

show spanning-tree mst instance interface interface-id

show spanning-tree mst MSTP

spanning-tree mst cost

spanning-tree mst port-priority Instance

spanning-tree reset

spanning-tree no

spanning-tree reset

Ruijie(config)# **spanning-tree reset**

show spanning-tree STP

show spanning-tree interface STP

spanning-tree tx-hold-count

STP TxHoldCount BPDU

no

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

no spanning-tree tx-hold-count

tx-hold-count TxHoldCount 1 10

3

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

show spanning-tree MSTP

spanning-tree pathcost method

no

spanning-tree pathcost method [long | short]

no spanning-tree pathcost method

long 802.1t path-cost

short 802.1d path-cost

802.1T Path-cost

Ruijie(config-if)# **spanning-tree pathcost method long**

show spanning-tree interface STP

spanning-tree portfast

Portfast disabled
Portfast

spanning-tree portfast [disabled]

disabled Portfast

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

show spanning-tree interface STP

spanning-tree portfast bpduguard default ②

BPDU guard no

BPDUs guard
error-disabled **show spanning-tree** BPDUs

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

show spanning-tree interface STP

spanning-tree portfast bpduguard default

filter BPDUs filter no BPDUs

spanning-tree portfast bpduguard default

no spanning-tree portfast bpduguard default

BPDUs filter

BPDUs Filter BPDUs **show**
spanning-tree

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

show spanning-tree interface STP

spanning-tree portfast default

	Portfast	no
Portfast		

spanning-tree portfast default

no spanning-tree portfast default

Portfast

Ruijie(config)# **spanning-tree portfast default**

show spanning-tree interface STP

spanning-tree tc-protection tc-guard

tc- guard	no	tc- guard
tc-guard	tc	

spanning-tree tc-protection tc-guard

Ruijie(config)# **spanning-tree tc-protection tc-guard**

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**

spanning-tree guard root

root guard no root guard
root guard
spanning-tree guard root
no spanning-tree guard root

root guard

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

spanning-tree loopguard default

loop guard	no	loop guard
loop guard		bpdu

spanning-tree loopguard default

no spanning-tree loopguard default

loop guard


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

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

bpdu src-mac-check

```
                bpdu    mac                no
            bpdu    mac
bpdu src-mac-check H.H.H
no bpdu src-mac-check
```

```
H.H.H                mac                bpdu
no                    bpdu
```

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

clear spanning-tree detected-protocols

```
                RSTP BPDU    BPDU
clear spanning-tree detected-protocols [interface interface-id]

interface-id
```

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

show spanning-tree interface

STP

spanning-tree compatible enable

MSTI

spanning-tree compatible enable

no spanning-tree compatible enable

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

show spanning-tree

```
show spanning-tree [summary | forward-time | hello-time |  
max-age | inconsistentports| tx-hold-count | pathcost method |  
max_hops]
```

summary MSTP instance

Inconsistentports

show spanning-tree interface

STP

show spanning-tree interface *interface-id* [{**bpdufilter** | **portfast** | **bpduguard** | **link-type** }]

interface-id

bpdufilter bpdufilter

portfast portfast

bpduguard bpduguard

link-type linktype

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

spanning-tree bpdufilter BPDU filter

spanning-tree portfast portfast

spanning-tree bpduguard BPDU guard

spanning-tree link-type

Instance

switch	
--------	--

switch port	routed port		SPAN
port	SPAN		disabled

show monitor	SPAN
--------------	------

SPAN	1.	
1		1

8

Ruijie(config)# no monitor session

show monitor

SPAN 1

```
Ruijie# show monitor session 1
sess-num: 1
src-intf:
GigabitEthernet 3/1 frame-type Both
dest-intf:
GigabitEthernet 3/8
```

monitor session	SPAN

IP

ip address

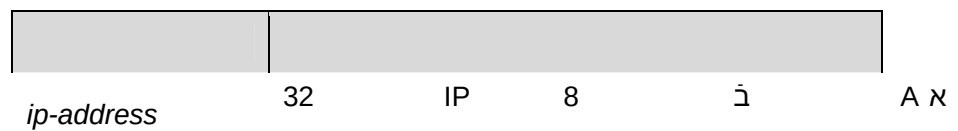
IP

no

IP

ip address *ip-address network-mask*

no ip address *ip-address network-mask*



255.255.255.0 IP 10.10.10.1

ip address 10.10.10.1 255.255.255.0



show interface

RGOS ARP 32 IP 48
 MAC

ARP ARP
clear arp-cache ARP

ARP
 arp 1.1.1.1 4e54.3800.0002 arpa

clear arp-cache	ARP

arp retry interval

arp IP
 2 ARP no
 1 ARP

arp retry interval *seconds*
no arp retry interval

<i>seconds</i>	<1-3600>,ARP 1 —3600 1

ARP 1

ARP ARP ARP

ARP

30s

arp retry interval 30

Arp retry times <i>number</i>	ARP

arp retry times

arp

IP

ARP

no

5 ARP

arp retry times *number*

no arp retry times

<i>number</i>	ARP 1 ARP
	ARP
	<1-100>

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

arp trusted NUM

ARP

no

arp trusted *number***no arp trusted**

<i>number</i>	ARP <10-4096>

ARP

ARP
ARP

1000

ARP

arp trusted 1000

service trusted arp	ARP

arp trusted aging

ARP

no

arp trusted aging

no arp trusted aging

GSN ARP

ARP

arp timeout

ARP

service trustedarp	ARP

arp unresolve

ARP
8192

no

arp unresolve *number*

no arp unresolve

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

ARP

8192

IP

ARP

500

arp unresolved 500

arp gratuitous-send interval

arp

no

arp gratuitous-send interval *seconds*

no arp gratuitous-send




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

arp timeout

```
ARP      ARP
no
```

```
arp timeout seconds
```

```
no arp timeout
```

seconds	0-2147483

3600

```
ARP      IP      MAC
      ARP
ARP
```

```
FastEthernet 0/0      ARP
```

120

```
interface fastEthernet 0/0
arp timeout 120
```

--	--

IP

clear arp-cache

ARP

ARP

IP

clear arp-cache

clear arp-cache [*A.B.C.D*] | **interface** *interface-name*

RGOS
RGOS
RGOS

“ UP ”

“ UP ”

show ip interface

```
Ruijie# show ip interface FastEthernet 0/1  
IP interface state is: UP  
IP interface type is: BROADCAST
```

IP address is:	IP
IP address negotiate is:	IP
Forward direct-boardcast is:	
ICMP mask reply is:	ICMP
Send ICMP redirect is:	ICMP
Send ICMP unreachable is:	ICMP
DHCP relay is:	DHCP
Fast switch is:	IP
Route horizontal-split is:	
Help address is:	helper IP
Proxy ARP is:	ARP
Outgoing access list is	
Inbound access list is	

show ip redirects

show ip redirects

show ip redirects

Ruijie# **show ip redirects**

Default Gateway: 192.168.195.1

--	--

ip default-gateway	
---------------------------	--

ip default-gateway

ip default-gateway

no

ip default-gateway

no ip default-gateway

✓

DHCP Relay

DHCP Relay

```
DHCP
, service dhcp
, ip helper-address
```

service dhcp

```
dhcp DHCP service
no DHCP
service dhcp
no service dhcp
```

DHCP

```
DHCP DHCP DHCP
DHCP DHCP DHCP
DHCP
service dhcp
```

ip helper-address <i>A.B.C.D</i>	DHCP server

ip helper-address

DHCP

no

DHCP

/

dhcp

DHCP

61.154.26.49

ip helper-address 61.154.26.49

service dhcp	DHCP

ip dhcp relay information option dot1x

dhcp option dot1x

no

dhcp option dot1x

DHCP relay

802.1x

Ip dhcp relay information option dot1x

service dhcp	DHCP
ip dhcp relay information option dot1x access-group	option dot1x acl

ip dhcp relay information option dot1x access-group

dhcp option dot1x acl no
dhcp option dot1x acl

ACL

ACL ACE

Ip dhcp relay information option dot1x access-group
acl-name

service dhcp	DHCP
ip dhcp relay information option dot1x	DHCP option dot1x

ip dhcp relay information option82

no ip dhcp relay information option82
ip dhcp relay information option82

option dot1x

ip dhcp relay suppression

	DHCP	no
DHCP	DHCP relay	

	DHCP request	relay
--	--------------	-------

1 relay

```
Ruijie#  
Ruijie# configure terminal  
Ruijie(config)# interface fastEthernet 0/1  
Ruijie(config-if)# ip dhcp relay suppression  
Ruijie(config-if)# exit  
Ruijie(config)#
```

0/1

DNS

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

RGOS10.1

ip name-server

IP

no

ip name-server *ip-address*

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

<i>ip-address</i>	IP

DNS Server IP
DNS Server Server
Server DNS
6 DNS Server
ip-address DNS

Ruijie(config)# **ip name-server** 192.168.5.134

show hosts	DNS

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

no ip host host-name ip-address

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

show hosts	DNS

RGOS10.1

clear host

clear host [*host-name*]

<i>host-name</i>	“*”

DNS

1 ip host 2
DNS DNS

SNTP

- ```

, sntp enable
, sntp server
, sntp interval

```

**sntp enable**

SNTP **no**  
—Disable  
**[no] sntp enable**

SNTP      Disable

|                  |      |
|------------------|------|
| <b>show sntp</b> | SNTP |
|------------------|------|

```
RedGiant(config)# snmp enable
```

|                              |      |
|------------------------------|------|
|                              |      |
| <b>show sntp</b>             | SNTP |
| <b>clock update-calendar</b> |      |
| <b>clock set</b>             |      |



RGOS10.0

## **sntp server**

Server      SNTP Server      SNTP      NTP  
                         internet

“ ” 60 --65535

|                              |      |
|------------------------------|------|
|                              |      |
| <b>sntp enable</b>           | SNTP |
| <b>show sntp</b>             | SNTP |
| <b>clock update-calendar</b> |      |

```

3 show snmp

```

SNTP

3 4 <http://www.ruijie.com.cn>

```
RedGiant# show sntp
SNTP state : Enable
SNTP server : 192.168.4.12
SNTP sync interval : 60
Time zone : +8
```

| <b>sntp enable</b> | SNTP |
|--------------------|------|
| <b>show sntp</b>   | SNTP |

RGOS10.0



NTP

---

|            |     |
|------------|-----|
|            |     |
| ntp server | NTP |

## ntp authenticate

NTP

NTP

## **ntp authentication-key**

NTP

NTP

## ntp disable

NTP

ntp disable

NTP

NTP

NTP

IP

NTP

no ntp

## ntp server

NTP

NTP

**ntp server** *ip-addr* [ **version** *version* ] [ **source** *if-name* ] [ **key** *keyid* ] [ **prefer** ] **8c903 T6 2.129 Td[(p1(-add)-5(r))T2\_0 1 Tf0 Tc 0 Tf2 Tr 4 2.128 -2.143**

|                |               |
|----------------|---------------|
| <i>version</i> | NTP 1-3 NTPv3 |
| <i>if-name</i> | NTP           |
| <i>keyid</i>   |               |
| <b>prefer</b>  | Prefer        |

NTP

20

prefer

NTP  
IP

NTP

NTP server

ntp server 192.168.210.222

|               |     |
|---------------|-----|
|               |     |
| <b>no ntp</b> | NTP |

## ntp synchronize

NTP

**ntp synchronize**

**no ntp synchronize**



ž

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

| ntp authenticate       |     |
|------------------------|-----|
| ntp authentication-key | NTP |
| ntp server             | NTP |

- › debug ntp
- › show ntp status

## debug ntp

NTP

**debug ntp**

**no debug ntp**

NTP

NTP

NTP

---

debug ntp

**show ntp status**

NTP

**show ntp status**

NTP

NTP

NTP

show ntp status

# SNMP

SNMP

```
, no snmp-server
, show snmp
, snmp-server chassis-id
, snmp-server community
, snmp-server contact
, snmp-server enable traps
, snmp-server host
, snmp-server location
, snmp-server packetsize
, snmp-server queue-length
, snmp-server system-shutdown
, snmp-server trap-source
, snmp-server trap-timeout
```

**no snmp-server**

SNMP

**no snmp-server**

**no snmp-server**

SNMP

SNMP

SNMP

Ruijie(config)# **no snmp-server**

## snmp-server chassis-id

SNMP  
chassis-id no snmp-server

snmp-server chassis-id *text*

no snmp-server chassis-id

*text*

60FF60

SNMP

show snmp

SNMP

123456:

Ruijie(config)# snmp-server chassis-id 123456

|           |      |
|-----------|------|
|           |      |
| show snmp | SNMP |

## snmp-server community

SNMP  
community no SNMP snmp-server

snmp-server community *string* [view *view-name*] [[ro | rw] [host  
*ipaddr*] [ *number* ]

no snmp-server community *string*

*string* NMS SNMP

*view-name*

**ro** NMS MIB  
**rw** NMS MIB  
*number* 0-99  
MIB NMS  
*ipaddr* NMS MIB NMS

SNMP  
MIB NMS  
SNMP **no snmp-server**

MIB  
192.168.12.1 NMS MIB  
Ruijie(config)# **access-list 2 permit 192.168.12.1**  
Ruijie(config)# **access-list 2 deny any**  
Ruijie(config)# **snmp-server community public ro 2**

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

## snmp-server contact

SNMP **snmp-server**  
**contact no** SNMP  
**snmp-server contact** *text*  
**no snmp-server contact**  
  
*text*

SNMP

i-net800@i-net.com.cn

```
Ruijie(config)# snmp-server contact i-net800@i-net.com.cn
```

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

SNMP

NMS

Trap

**snmp-server enable traps****snmp-server enable traps****snmp-server enable traps [snmp ]****no snmp-server enable traps****snmp**

SNMP

**snmp-server**

SNMP

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

```
Ruijie(config)# snmp-server host public 2.219
```

**show snmp-server**

SNMP

<http://www.ruijie.com.cn>

**snmp**

|                         |      |
|-------------------------|------|
|                         |      |
| <b>snmp-server host</b> | SNMP |

**snmp-server host**

SNMP NMS

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

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

**no snmp-server host** *host-addr*

*host-addr* SNMP

**version** snmp V1 V2C V3

**auth** | **noauth** | **priv** V3

*community-string* V3

*port-num* snmp

*notification-type* snmp

SNMP

**snmp-server enable traps**

NMS

SNMP

vrf

[ vrf ]



SNMP

SNMP

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

**no snmp-server packetsize**

*byte-count*                      484            17876

1500

SNMP

1492

Ruijie(config)# **snmp-server packetsize 1492**

|                                 |      |
|---------------------------------|------|
|                                 |      |
| <b>snmp-server queue-length</b> | SNMP |

**snmp-server queue-length**

**snmp-server**

**queue-length**

**snmp-server queue-length** *length*

*length*                      1    1000

10

```
Ruijie(config)# snmp-server queue-length 4
```





**md5** *authpassstr* **priv** **des56** *despassstr*

| <b>show snmp user</b> | SNMP |
|-----------------------|------|

## snmp-server group

SNMP  
**no**

**snmp-server group**

**snmp-server group** *groupname* {**v1** | **v2c** | **v3** {**auth** | **noauth** | **priv**}}  
[**read** *readview*][**write** *writeview*] [**access** {*num* | *name*}]

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

**v1** | **v2c** | **v3** /TTTt(SNMP)/CZ\_c0C30722C1838206015074736280B0430298019E/C92E03623F

|                        |      |
|------------------------|------|
|                        |      |
| <b>show snmp group</b> | SNMP |

## snmp-server view

SNMP  
no

**snmp-server view**

**snmp-server view** *view-name* *oid-tree* {**include** | **exclude**}

**no snmp-server view** *view-name* [*oid-tree*]

*view-name*

*oid-tree* MIB MIB

**include** MIB

**exclude** MIB

default MIB

MIB-2 oid 1.3.6.1

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

|                       |      |
|-----------------------|------|
|                       |      |
| <b>show snmp view</b> | SNMP |

## show snmp

SNMP

**show snmp**

**show snmp** [**mib** | **user** | **view** | **group**]

|                        |          |
|------------------------|----------|
| <b>show snmp</b>       | SNMP     |
| <b>show snmp mib</b>   | snmp mib |
| <b>show snmp user</b>  | snmp     |
| <b>show snmp view</b>  | snmp     |
| <b>show snmp group</b> | snmp     |

#### 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
```

|                                      |      |
|--------------------------------------|------|
|                                      |      |
| <b>snmp-server</b> <i>chassis-id</i> | SNMP |



# RMON

## RMON

```

, rmon collection stats index [owner owner-string]
, rmon collection history index [owner owner-string] [buckets
bucket-number] [interval seconds]
, rmon alarm number variable interval {absolute | delta }
rising-threshold value [event-number rmon f0/TT131 Tf21(w)9(w)2(w)69(.)-9(ru49 Tc 3

```

Ruijie(config-if)# **rmon collection stats 1 zhansan**

| <b>rmon collection history</b><br><i>index [owner owner-name]</i><br><b>buckets</b> <i>bucket-number</i><br><b>interval</b> <i>seconds</i> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------|--|

## rmon collection history

**no**

**rmon collection history** *index [owner ownername] [buckets*  
*bucket-number] [interval seconds]*  
**no rmon collection history** *index*

owner    buckets    interval  
RGOS

1

Ruijie(config)# **interface fast-Ethernet 0/1**  
Ruijie(config-if)# **rmon collection history 1 zhansan**  
**buckets 10 interval 10**

| <b>rmon collection stats</b> <i>index</i><br><i>[owner owner-name]</i> |  |
|------------------------------------------------------------------------|--|

no

RGOS

MIB

ifInNUcastPkts.6

```
Ruijie(config)# rmon alarm 10 1.3.6.1.2.1.2.2.1.12.6 30
delta rising-thresh 1000 51078 -1Tf9.315 0 Td00 Td(rising-t30.377 -1.4
```

trap

```
Ruijie(config)# rmon event 1 log trap rmon description
"ifInNUcastPkts is too much " owner zhangsan
```

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

```
rmon alarm number variable interval
{absolute | delta } rising-threshold value
[event-number] falling-threshold value
[event-number] [owner ownername]
```

```

Octets : 1884085
Pkts : 3096
BroadcastPkts : 161
MulticastPkts : 97
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 1200
Fragments : 0
Jabbers : 0
Collisions : 0
Pkts64Octets : 128
Pkts65to127Octets : 336
Pkts128to255Octets : 229
Pkts256to511Octets : 3
Pkts512to1023Octets : 0
Pkts1024to1518Octets : 1200
Owner : zhangsan

```

| <b>rmon collection stats</b> <i>index</i><br>[owner owner-string] |  |
|-------------------------------------------------------------------|--|

## show rmon history

```
show rmon history
```

```

Ruijie# show rmon history
Entry : 1
Data source : Gi1/1
Buckets requested : 65535

```

```

Buckets granted : 10
Interval : 1
Owner : zhangsan
Sample : 198
Interval start : 0d:0h:15m:0s
DropEvents : 0
Octets : 67988
Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0

```

| <b>rmon collection history</b> <i>index</i><br><b>[owner</b> <i>ownername</i> <b>]</b> <b>[buckets</b><br><i>bucket-number</i> <b>]</b> <b>[interval</b><br><i>seconds</i> <b>]</b> |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

## show rmon alarm

```
show rmon alarm
```

```

Ruijie# show rmon alarm
Event : 1

```

Description : firstevent  
Event type : log-and-trap  
Community : public  
Last time sent : 0d:0h:0m:0s  
Owner : zhangsan  
Log : 1  
Log time : 0d:0h:37m:47s  
Log description : ipttl  
Log : 2  
Log time : 0d:0h:38m:56s  
Log description : ipttl

Rising threshold : 10  
Falling threshold : 22  
Rising event : 0  
Falling event : 0  
Owner : zhangsan

| <b>rmon event</b> <i>number</i> [ <b>log</b> ] [ <b>trap</b><br><i>community</i> ] [ <i>description-string</i> ] |  |
|------------------------------------------------------------------------------------------------------------------|--|



- 
- › **storm-control**
  - › **switchport protected**
  - › **switchport port-security**
  - › **switchport port-security aging**
  - › **switchport port-security mac-address**
  - › **port-security arp-check**

## **storm-control**

**no**

**storm-control** {**broadcast** | **multicast** | **unicast**} [{**level** *percent* | **pps** *packets* | *rate-bps*}]

**no storm-control** {**broadcast** | **multicast**}



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

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

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 |

IP(    )

MAC  
(

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

## switchport port-security aging

no

```
switchport port-security aging {static | time time }
no switchport port-security aging {static | time }
```

| Static    |          |
|-----------|----------|
| time time | 0 1440 0 |

```
no switchport port-security aging
time
port-security aging static
no switchport
```

---

## show port-security

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport port-security aging time
8
Ruijie(config-if)# switchport port-security aging
static
```

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

## switchport port-security mac-address

no

**switchport port-security** [**mac-address** *mac-address* [**ip-address** *ip-address*]] | [**maximum** *value*]

**no switchport port-security** [ **mac-address** *mac-address* ] | [**maximum**]

| <b>mac-address</b> <i>mac-address</i> |    |
|---------------------------------------|----|
| <b>ip-address</b> <i>ip-address</i>   | IP |
| <b>maximum</b> <i>value</i>           |    |

ACL                      IP                      MAC

ACL                      802.1x                      IP

                                 IP

---

```

 gigabitethernet 1/1
00d0.f800.073c IP 192.168.12.202

Ruijie# configure terminal
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport mode access
Ruijie(config-if)# switchport port-security
Ruijie(config-if)# switchport port-security
mac-address 00d0.f800.073c ip-address 192.168.12.202

```

|                           |  |
|---------------------------|--|
|                           |  |
| <b>show port-security</b> |  |

## arp-check

```

 ARP no

[no | default] arp-check [cpu | auto]

```

```

cpu CPU
auto

```

```

Arp-check

 Arp arp

```

```

Ruijie(config-if)# arp-check

```

|                           |  |
|---------------------------|--|
|                           |  |
| <b>show port-security</b> |  |

- 
- **show storm-control**
  - **show port-security**

## **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
```

| <b>storm-control</b> |  |
|----------------------|--|

## **show port-security**

---

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

| <b>address</b>                       |  |
|--------------------------------------|--|
| <b>interface</b> <i>interface-id</i> |  |

```
Ruijie# show port-security
Secure Port MaxSecureAddr(count) CurrentAddr(count)
Security Action

Gi1/1 128 1 Restrict
Gi1/2 128 0 Restrict
Gi1/3 8 1 Protect
```

| <b>switchport port-security</b>             |  |
|---------------------------------------------|--|
| <b>switchport port-security aging</b>       |  |
| <b>switchport port-security mac-address</b> |  |



# 802.1X

## dot1x

dot1x

- dot1x auto-req
- dot1x auto-req p

Packet-Num : 0  
Req-Interval: 30 Second

|                     |  |
|---------------------|--|
|                     |  |
| show dot1x auto-req |  |

## dot1x auto-req packet-num

no

**dot1x auto-req packet-num** *num*  
**no dot1x auto-req packet-num**

*num*

num = 0;

**show dot1x**

**auto-req**

802.1x

```
Ruijie# configure terminal
Ruijie(config)# dot1x auto-req packet-num 0
Ruijie(config)# end
Ruijie# show dot1x auto-req
```

Auto-Req: Enabled  
User-Detect : Enabled  
Packet-Num : 0  
Req-Interval: 30 Second

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

|                     |  |
|---------------------|--|
| show dot1x auto-req |  |
|---------------------|--|

## dot1x auto-req req-interval

no

dot1x auto-req req-interval *interval*

no dot1x auto-req req-interval

## 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

|                            |  |
|----------------------------|--|
|                            |  |
| <b>show dot1x auto-req</b> |  |

## dot1x

dot1x

, **dot1x timeout quiet-period**

```
dot1x timeout re-authperiod
dot1x timeout server-timeout
dot1x timeout supp-timeout
dot1x timeout tx-period
```

## dot1x timeout quiet-period

**no**

**dot1x timeout quiet-period** *seconds*

**no dot1x timeout quiet-period**

*seconds*

0 65535 s

10

**show dot1x**

1000s

Ruijie# **configure terminal**

Ruijie(config)# **dot1x timeout quiet-period 1000**

Ruijie(config)#

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

## dot1x timeout re-authperiod

no

\$"

t

Y

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 Request: 3 times  
Filter Non-RG Supp: Disabled  
Client Oline Probe: Disabled  
Eapol Tag Enable: Disabled  
Authorization Mode: Group Server

| <b>show dot1x</b> | 802.1x |
|-------------------|--------|

## **dot1x timeout server-timeout**

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: 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 |
|------------|--------|

## dot1x timeout supp-timeout

no

**dot1x timeout supp-timeout** *seconds*  
**no dot1x timeout supp-timeout**

*seconds* 0  
65535

3

**show dot1x**



10s

```
Ruijie# configure terminal
Ruijie(config)# dot1x timeout supp-timeout 10
Ruijie(config)# end
Ruijie# show dot1x
```

```
802.1X Status: Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled: Disabled
Re-authen Period: 1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period: 3 sec
Supplicant Timeout: 10 sec
Server Timeout: 10 sec
Re-authen Max: 3 times
Maximum Request: 3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable: Disabled
Authorization Mode: Group Server
```

| show dot1x | 802.1x |
|------------|--------|

## dot1x timeout tx-period

no

```
dot1x timeout tx-period seconds
no dot1x timeout tx-period
```

```
seconds 0 65535
```

**show dot1x**

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
```

|                   |        |
|-------------------|--------|
|                   |        |
| <b>show dot1x</b> | 802.1x |

**dot1x**

- , **dot1x re-authentication**
- , **dot1x reauth-max**

**dot1x re-authentication**

no

**[no] dot1x re-authentication**

**show dot1x**

```
Ruijie# configure terminal
Ruijie(config)# dot1x re-authentication
Ruijie(config)# end
Ruijie# show dot1x
```

```
802.1X Status: Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled: Enabled
Re-authen Period: 1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period: 10 sec
Supplicant Timeout: 10 sec
Server Timeout: 10 sec
Re-authen Max: 3 times
Maximum Request: 3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable: Disabled
Authorization Mode: Group Server
```

|                   |        |
|-------------------|--------|
|                   |        |
| <b>show dot1x</b> | 802.1x |

## dot1x reauth-max

**no**

**dot1x reauth-max** *count*

**no dot1x reauth-max**

*count*

3

**show dot1x**

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 |

## dot1x

- dot1x probe-timer
- dot1x client-probe enable

### dot1x probe-timer

**dot1x probe-timer**{interval | alive}*interval*  
**no dot1x probe-timer**

**no**

**alive**

**interval**

*interval* hello

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**



Server Timeout: 10 sec  
Re-authen Max: 5 times  
Maximum Request: 3 times  
Filter Non-RG Supp: Disabled  
Client Oline Probe: Enabled  
Eapol Tag Enable: Disabled  
Authorization Mode: Group Server

*list-name*

AAA

AAA

AAA

dot1x

enable      AAA      **aaa domain**  
              **dot1x authentication** *auth*      *auth*  
 “                   AAA                   ”

group radius

```
Ruijie# configure terminal
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authentication dot1x default group
radius
Ruijie(config)# dot1x authentication default
Ruijie(config)# end
Ruijie#
```

| aaa new-model            | AAA |
|--------------------------|-----|
| aaa authentication dot1x |     |

## dot1x accounting

AAA

AAA  
no

**dot1x accounting** {default | *list-name*}  
**no dot1x accounting** {default | *list-name*}

**default**

*list-name*



AAA default

AAA dot1x

enable AAA aaa domain  
dot1x accounting “  
AAA ”

group radius

```
Ruijie# configure terminal
Ruijie(config)# aaa new-model
Ruijie(config)#aaa accounting network
```

**auth-address table**                      802.1X                      **show dot1x**

```
Ruijie# configure terminal
Ruijie(config)# dot1x auth-address-table address
00d0f8000000 interface ethernet 1/1
Ruijie(config)# end
Ruijie#
```

| <b>show dot1x auth-address-table</b> | 802.1X |
|--------------------------------------|--------|

## **dot1x auth-mode**

802.1x

**dot1x auth-mode {eap-md5 | chap | pap}**  
**no dot1x auth-mode**

**eap-md5** 802.1x      EAP-MD5

**chap** 802.1x      CHAP

**pap** 802.1x      PAP

EAP-MD5

**show dot1x**

802.1x

802.1x

## dot1x dynamic-vlan enable

vlan

no

**dot1x dynamic-vlan enable****no dot1x dynamic-vlan enable****show dot1x dynamic-vlan**

802.1x      vlan

Ruijie# **configure terminal**Ruijie(config)# **dot1x dynamic-vlan enable**Ruijie(config)# **end**

Ruijie#

| <b>show dot1x</b> | 802.1x |
|-------------------|--------|

## dot1x eapol-tag

EAPOL      TAG

**dot1x eapol-tag****no dot1x eapol-tag**

**show dot1x**

802.1X tag

```
Ruijie# configure terminal
Ruijie(config)# dot1x eapol-tag
Ruijie(config)# end
Ruijie#
```

| <b>show dot1x</b> | 802.1x |
|-------------------|--------|

## **dot1x max-req**

DOT1X

DOT1X

DOT1X

**no**

```
dot1x max-req count
no dot1x max-req
```

*count*

3

**show dot1x**

802.1x 7

Ruijie# **configure terminal**



```
Ruijie(config)#
```



## 802.1x

```
Ruijie# configure terminal
Ruijie(config)# dot1x stationarity enable
Ruijie(config)# end
Ruijie#
```

**dot1x**

```
, show dot1x
, show dot1x auth-address-table
, show dot1x auto-req
, show dot1x private-supPLICANT-only
, show dot1x max-req
, show dot1x port-control
, show dot1x probe-timer
, show dot1x re-authentication
, show dot1x reauth-max
, show dot1x summary
, show dot1x timeout
, show dot1x user id
```

**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
```

802.1X timeout server-timeout  
A5B011500156

|                                     |  |
|-------------------------------------|--|
| <b>dot1x re-authentication</b>      |  |
| <b>dot1x timeout quiet-period</b>   |  |
| <b>dot1x timeout re-authperiod</b>  |  |
| <b>dot1x timeout server-timeout</b> |  |
| <b>dot1x timeout supp-timeout</b>   |  |
| <b>dot1x timeout tx-period</b>      |  |

## **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  
Ruijie#

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



| <b>dot1x auth-mode</b>              | 802.1x |
|-------------------------------------|--------|
| <b>dot1x max-req</b>                |        |
| <b>dot1x port-control auto</b>      |        |
| <b>dot1x reauth-max</b>             |        |
| <b>dot1x re-authentication</b>      |        |
| <b>dot1x timeout quiet-period</b>   |        |
| <b>dot1x timeout re-authperiod</b>  |        |
| <b>dot1x timeout server-timeout</b> |        |
| <b>dot1x timeout supp-timeout</b>   |        |
| <b>dot1x timeout tx-period</b>      |        |

## show dot1x max-req

**show dot1x max-req**

```
Ruijie# show dot1x max-req
max-req: 2 times
```

| <b>dot1x auth-mode</b>              | 802.1x |
|-------------------------------------|--------|
| <b>dot1x max-req</b>                |        |
| <b>dot1x port-control auto</b>      |        |
| <b>dot1x reauth-max</b>             |        |
| <b>dot1x re-authentication</b>      |        |
| <b>dot1x timeout quiet-period</b>   |        |
| <b>dot1x timeout re-authperiod</b>  |        |
| <b>dot1x timeout server-timeout</b> |        |
| <b>dot1x timeout supp-timeout</b>   |        |
| <b>dot1x timeout tx-period</b>      |        |

## show dot1x port-control

**show dot1x port-control** [*interface interface*]

*interface*

```
Ruijie# show dot1x port-control
interface dyn-user static-user max-user qos
```





Ruijie# **show dot1x probe-timer**

Hello Interval: 20 Seconds

Hello Alive: 250 Seconds

Ruijie#

| <b>dot1x auth-mode</b>              | 802.1x |
|-------------------------------------|--------|
| <b>dot1x max-req</b>                |        |
| <b>dot1x port-control auto</b>      |        |
| <b>dot1x reauth-max</b>             |        |
| <b>dot1x re-authentication</b>      |        |
| <b>dot1x timeout quiet-period</b>   |        |
| <b>dot1x timeout re-authperiod</b>  |        |
| <b>dot1x timeout server-timeout</b> |        |
| <b>dot1x timeout supp-timeout</b>   |        |
| <b>dot1x timeout tx-period</b>      |        |

## **show dot1x re-authentication**

**show dot1x re-authentication**

```
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      |        |

**show dot1x reauth-max**

**show dot1x reauth-max**

```
Ruijie# show dot1x reauth-max
reauth-max: 2 times
Ruijie#
```

---

| <b>dot1x auth-mode</b>         | 802.1x |
|--------------------------------|--------|
| <b>dot1x max-req</b>           |        |
| <b>dot1x port-control auto</b> |        |
| <b>dot1x reauth-max</b>        |        |

```
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      |        |

## show dot1x user id

802.1X



|                                     |  |
|-------------------------------------|--|
| <b>dot1x port-control auto</b>      |  |
| <b>dot1x reauth-max</b>             |  |
| <b>dot1x re-authentication</b>      |  |
| <b>dot1x timeout quiet-period</b>   |  |
| <b>dot1x timeout re-authperiod</b>  |  |
| <b>dot1x timeout server-timeout</b> |  |
| <b>dot1x timeout supp-timeout</b>   |  |
| <b>dot1x timeout tx-period</b>      |  |

## **show dot1x timeout**

802.1X

**show dot1x timeout quiet-period**  
**show dot1x timeout re-authperiod**  
**show dot1x timeout server-timeout**  
**show dot1x timeout supp-timeout**  
**show dot1x timeout tx-period**

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

|                                   |        |
|-----------------------------------|--------|
|                                   |        |
| <b>dot1x auth-mode</b>            | 802.1x |
| <b>dot1x max-req</b>              |        |
| <b>dot1x port-control auto</b>    |        |
| <b>dot1x reauth-max</b>           |        |
| <b>dot1x re-authentication</b>    |        |
| <b>dot1x timeout quiet-period</b> | Ä ¤    |

802.1x  
802.1x



HTTP IP 172.16.0.1

Ruijie# **configure terminal**

Ruijie(config)# **http redirect 172.16.0.1**

Ruijie(config)# **end**

|                           |      |
|---------------------------|------|
|                           |      |
| <b>show http redirect</b> | HTTP |

## http redirect direct-site

**no**

**http redirect direct-site** *ip-address* [*ip-mask*] [**arp**]

**no http redirect direct-site** *ip-address* [*ip-mask*] [**arp**]

*ip-address* IP

*ip-mask* IP

**arp** ARP CHECK

ARP **arp**

802.1x

50

IP 172.16.0.1

Ruijie# **configure terminal**

Ruijie(config)# **http redirect direct-site 172.16.0.1**

|                           |      |
|---------------------------|------|
|                           |      |
| <b>show http redirect</b> | HTTP |

**http redirect port** *port-num*

**no http redirect port** *port-num*

80 HTTP

HTTP

HTTP

80 HTTP

PC

HTTP

10

80

PC

8080 HTTP

Ruijie# **configure terminal**

Ruijie(config)# **http redirect port 8080**

| show http redirect | HTTP |
|--------------------|------|

**http redirect session-limit**

*session-num*

HTTP

1-10

HTTP

3

HTTP

TCP

HTTP

HTTP

HTTP

HTTP

1

HTTP

4

Ruijie# **configure terminal**Ruijie(config)# **http redirect session-limit 4**

| <b>show http redirect</b> | HTTP |
|---------------------------|------|

## http redirect timeout

**no**

3

**http redirect timeout** *seconds***no http redirect timeout***seconds*

1-10

3

HTTP GET/HEAD  
TCP

HTTP  
GET/HEAD

4

```
Ruijie# configure terminal
Ruijie(config)# http redirect timeout 4
```

|                    |      |
|--------------------|------|
|                    |      |
| show http redirect | HTTP |

## show http redirect

HTTP

```
show http redirect
```

HTTP

```
Ruijie# show http redirect
HTTP redirection settings:
 server: 192.168.32.123
 port: 80 8000
 homepage: http://192.168.32.123:8888/ePortal/index.jsp
 session-limit: 10
 timeout: 5
```

Direct sites:

| Address | MASK | ARP Binding |
|---------|------|-------------|
| -----   |      |             |

|               |                 |     |
|---------------|-----------------|-----|
| 61.233.3.215  | 255.255.255.255 | On  |
| 61.233.3.220  | 255.255.255.255 | Off |
| 192.168.5.140 | 255.255.255.255 | Off |
| 218.30.66.101 | 255.255.0.0     | Off |
| 218.30.66.101 | 255.255.255.255 | Off |



default

**aaa authentication {dot1x | enable | ppp | login} default group  
radius**

AAA

AAA

**aaa authentication**

RDS\_D1X    AAA

RADIUS

RADIUS

Ruijie(config)# **aaa authentication dot1x rds\_d1x group  
radius local**

| <b>aaa new-model</b>        | AAA   |
|-----------------------------|-------|
| <b>dot1x authentication</b> | DOT1x |
| <b>ppp authentication</b>   | PPP   |
| <b>login authentication</b> | Login |
| <b>username</b>             |       |

RGOS





RGOS

RADIUS

- › **aaa accounting network**
- › **aaa accounting update**
- › **aaa accounting update periodic**
- › **show aaa method-list**
- › **debug aaa**

## aaa accounting network

**aaa accounting network** no

**aaa accounting network** {default | *list-name*} **start-stop group**  
**radius**

**no aaa accounting network** {default | *list-name*}

**network** DOT1X PPP

**resource**

*list-name*

**start-stop**

**group**

**radius** RADIUS

RGOS

**start-stop**

## RADIUS

Ruijie(config)# **aaa accounting network start-stop group radius**

| <b>aaa new-model</b>             | AAA |
|----------------------------------|-----|
| <b>aaa authorization network</b> | AAA |
| <b>aaa authentication</b>        | AAA |
| <b>username</b>                  |     |

**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

## show aaa method-list

|                      |      |          |
|----------------------|------|----------|
|                      | EXEC | show aaa |
| method-list          |      |          |
| show aaa method-list |      |          |

EXEC

Ruijie# show aaa method-list

## AAA

|                                                  |
|--------------------------------------------------|
| AAA                                              |
| , aaa domain enable                              |
| , aaa domain {default   <i>WORD</i> }            |
| , authentication                                 |
| , accounting                                     |
| , authorization                                  |
| , state {block   active}                         |
| , username-format {without-domain   with-domain} |
| , access-limit <1-1024>                          |
| , show aaa domain [ <i>word</i> ]                |

## aaa domain enable

|                      |     |    |
|----------------------|-----|----|
| AAA                  | AAA | no |
| aaa domain enable    |     |    |
| no aaa domain enable |     |    |



Ruijie(config-domain)#

|                 |  |
|-----------------|--|
| Show aaa domain |  |
|-----------------|--|

## accounting

no

**accounting { update | network } { default | *methodlist* }**

**no accounting { update | network }**

**default:**

*methodlist*

default

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

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

| aaa new-model     | AAA |
|-------------------|-----|
| aaa domain enable | AAA |
| Show aaa domain   |     |

## authorization

no

**authorization { ip-auth-mode | network } { default | *methodlist* }**

**no authorization { ip-auth-mode | network }**





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

| <b>aaa new-model</b>     | AAA |
|--------------------------|-----|
| <b>aaa domain enable</b> | AAA |
| <b>Show aaa domain</b>   |     |

## username-format

NAS

no

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

**no username-format**

**without-domain:**

**with-domain**

NAS

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-domain)# username-domain without-domain
```

| aaa new-model     | AAA |
|-------------------|-----|
| aaa domain enable | AAA |
| Show aaa domain   |     |

**access-limit <1-1024>**

1X

no

**access-limit <1-1024>****no access-limit**

&lt;1-1024&gt;:

802.1X

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-domain)# access-limit 20
```

| aaa new-model     | AAA |
|-------------------|-----|
| aaa domain enable | AAA |
| Show aaa domain   |     |

## show aaa domain

EXEC      **show aaa domain**

**show aaa domain {Domain name|Default}**

Domain name

**Default:**

EXEC

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

```
=====Domain ruijie.com=====
```

```
State: Active
```

```
Username format: Without-domain
```

```
Access limit: No limit
```

```
802.1X Access statistic: 0
```

```
Selected method list:
```

```
authentication login default
```

```
Ruijie(config)#
```

## AAA

- ， **show aaa group**
- ， **aaa group server**
- ， **server ip-addr authen-port port1 acct-port port2**
- ， **ip vrf forwarding**

## show aaa group

AAA

**show aaa group**

AAA

```
Ruijie# show aaa group
Group Name: ss
Group Type: radius
Referred: 2
Server List:
IP Address: 192.168.217.64
Authentication Port: 1812
Accounting Port: 1813
Referred: 1
Ruijie#
```

| aaa group server | AAA |
|------------------|-----|

## aaa group server

AAA

no

**aaa group server radius *name***

**no aaa group server radius *name***

AAA

---

*name*

"radius" "tacacs+"

AAA

Radius

Ruijie(config)#

```
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
Ruijie#
```

| <b>aaa group server</b> | aaa |
|-------------------------|-----|
| <b>show aaa group</b>   | aaa |

## ip vrf forwarding

AAA vrf no

**ip vrf forwarding** *vrf\_name*

**no ip vrf forwarding**

*vrf\_name* 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
Ruijie#
```

| <b>aaa group server</b> | aaa |
|-------------------------|-----|
| <b>show aaa group</b>   | aaa |

## AAA

- › **aaa new-model**
- › **debug aaa**
- › **show aaa method-list**
- › **aaa local authentication attempts**
- › **aaa local authentication lockout-time**
- › **show aaa user lockout**
- › **clear aaa local user lockout**

### aaa new-model

RGOS     AAA



AAA

---

AAA  
**aaa new-model**      AAA      AAA      AAA

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

|                           |  |
|---------------------------|--|
|                           |  |
| <b>aaa authentication</b> |  |

## **debug aaa**

AAA      no  
**debug aaa**  
**no debug aaa**

EXEC

## **show aaa method-list**

AAA  
**show aaa method-list**

AAA

AAA

```
Ruijie# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local group angel group
rain none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorizing network default group radius
Ruijie#
```



login

Ruijie#**configure terminal**

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

Ruijie0(config)#

| Show running-config |       |
|---------------------|-------|
| Show aaa logout     | login |

## aaa local authentication logout-time

login

**aaa local authentication logout-time** <1-2147483647>

<1-2147483647>

15

login



|                     |       |
|---------------------|-------|
| Show running-config |       |
| Show aaa logout     | login |

## show aaa user logout

**show aaa user logout {all | user-name <word>}**

ID

Ruijie# **clear aaa local user logout all**

| <b>Show running-config</b> |       |
|----------------------------|-------|
| <b>Show aaa logout</b>     | login |

# RADIUS

## RADIUS

RADIUS

- , **ip radius source-interface**
- , **radius-server host**
- , **radius-server key**
- , **radius-server retransmit**
- , **radius-server timeout**
- , **radius-server dead-time**
- , **radius attribute**
- , **radius set qos cos**
- , **radius vendor-specific extend**

## ip radius source-interface

|                                   |                  |                  |
|-----------------------------------|------------------|------------------|
| radius                            |                  | <b>ip radius</b> |
| <b>source-interface</b>           | <b>no</b>        | RADIUS           |
| <b>ip radius source-interface</b> | <i>interface</i> |                  |
| <b>no radius source-interface</b> |                  |                  |

*Interface*     radius

radius

|        |     |    |
|--------|-----|----|
| radius | nas |    |
| radius |     | ip |
| radius |     |    |

```

radius
radius
radius
Ruijie(config)# ip radius source-interface
fastEthernet 0/0

```

| radius-server host | RADIUS |
|--------------------|--------|
| ip address         | ip     |

## radius-server host

```

RADIUS
no
RADIUS
radius-server
radius-server host {hostname | ip-address} [auth-port port-number]
[acct-port port-number][key 0|7 text]
no radius-server host {hostname | ip-address}

```

```

hostname: RADIUS DNS
ip-address: RADIUS IP
auth-port: RADIUS UDP
port-number: RADIUS UDP 0

acct-port: Radius UDP
port-number: RADIUS UDP 0

text
0
7

```

RADIUS

RADIUS

AAA

radius-server

RADIUS

RADIUS

7

0

7

0

0

service password-encryption



RADIUS

RADIUS

RADIUS

RADIUS

radius-server host ip key

0 7 0 7

0

service password-encryption RADIUS

7 show running RADIUS

show running RADIUS

RADIUS aaa

Ruijie(config)#radius-server key aaa

| radius-server host       | RADIUS |
|--------------------------|--------|
| radius-server retransmit | RADIUS |
| radius-server timeout    | RADIUS |

radius-server retransmit

RADIUS

radius-server retransmit no

radius-server retransmit retries

no radius-server retransmit

*retries* RADIUS

3

AAA

RADIUS

4

Ruijie(config)# **radius-server retransmit 4**

| <b>radius-server host</b>    | RADIUS |
|------------------------------|--------|
| <b>radius-server key</b>     | RADIUS |
| <b>radius-server timeout</b> | RADIUS |

## radius-server timeout

RADIUS

**radius-server timeout no**

**radius-server timeout** *seconds*

**no radius-server timeout**

*seconds*

1-1000

5

```
Ruijie(config)# radius-server timeout 10
```

|                          |        |
|--------------------------|--------|
|                          |        |
| radius-server host       | RADIUS |
| radius-server retransmit | RADIUS |
| radius-server key        | RADIUS |

## radius-server deadtime

no radius-server deadline minutes

|                 |        |
|-----------------|--------|
| <i>minnutes</i> | 1-1000 |
|-----------------|--------|

5

10

```
Ruijie(config)# radius-server deadtime 10
```

|                          |        |
|--------------------------|--------|
| radius-server host       | RADIUS |
| radius-server retransmit | RADIUS |
| radius-server key        | RADIUS |
| radius-server timeout    | RADIUS |

## radius attribute

radius ttribute{<*id*> | down-rate-limit | dscp | mac-limit |  
up-rate-limit}

RADIUS

---

|    |             |    |
|----|-------------|----|
| 15 | file-name-4 | 15 |
|----|-------------|----|

|    |                      |    |
|----|----------------------|----|
| 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 211

Ruijie(config)# radius attribute 16 vendor-type 211

| radius set qos cos | radius qos<br>cos |
|--------------------|-------------------|

## radius set qos cos

radius qos cos

**radius set qos cos**

**no radius set qos cos**

qos dscp

qos

cos

dscp

Ruijie(config)# **radius set qos cos**

| <b>radius vendor-specific extend</b> | Radius<br>id |
|--------------------------------------|--------------|

## radius vendor-specific extend

id

**radius vendor-specific extend****no radius vendor-specific extend**

id

id

Ruijie(config)# **radius vendor-specific extend**

| <b>radius attribute</b> |              |
|-------------------------|--------------|
| <b>radius set</b>       | qos      cos |

## RADIUS

- **debug radius [event | detail]**
- **show radius server**
- **show radius parameter**
- **show radius vendor-specific**

### debug radius

RADIUS no RADIUS

**debug radius [event | detail]**  
**no debug radius [event | detail]**

EXEC

### show radius server

RADIUS

**show radius server**

radius

```
Ruijie# show radius server
server ip : 192.168.4.12
acct port: 23
```



authen port: 77

|                          |        |
|--------------------------|--------|
| radius-server host       | RADIUS |
| radius-server retransmit | RADIUS |
| radius-server key        | RADIUS |
| radius-server timeout    | RADIUS |

## show radius vendor-specific

RADIUS

### show radius vendor-specific

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
9 file-directory 9
10 file-count 10
11 file-name-0 11
12 file-name-1 12
13 file-name-2 13
14 file-name-3 14
15 file-name-4 15
```

|    |                      |    |
|----|----------------------|----|
| 16 | max up-rate          | 75 |
| 17 | version to server    | 17 |
| 18 | flux-max-high32      | 18 |
| 19 | flux-max-low32       | 19 |
| 20 | proxy-avoid          | 20 |
| 21 | dailup-avoid         | 21 |
| 22 | ip privilege         | 22 |
| 23 | login privilege      | 42 |
| 24 | limit to user number | 50 |

| <b>radius-server host</b>       | RADIUS |
|---------------------------------|--------|
| <b>radius-server retransmit</b> | RADIUS |
| <b>radius-server key</b>        | RADIUS |
| <b>radius-server timeout</b>    | RADIUS |

# TACACS+

## TACACS+

TACACS+

```
, aaa group server tacacs+
, ip tacacs source-interface
, ip vrf forwarding(TACACS+)
, server(TACACS+)
, tacacs-server host
, tacacs-server key
, tacacs-server timeout
```

## aaa group server tacacs+

TACACS+

TACACS+

```
aaa group server tacacs+ group-name
no aaa group server tacacs+ group-name
```

```
group-name TACACS+
```

TACACS+

TACACS+

```
tac1 TACACS+
1.1.1.1 TACACS+
```

```
Ruijie(config)# aaa group server tacacs+ tac1
```

Ruijie(config-gs-tacacs+)# **server 1.1.1.1**

| <b>server</b>            | TACACS+ | server |
|--------------------------|---------|--------|
| <b>ip vrf forwarding</b> | TACACS+ | VRF    |

**server(TACACS+)**

TACACS+

**server** *ip-address*

**no server** *ip-address*

*ip-address*      TACACS+

TACACS+

**aaa group server tacacs+**

TACACS+

TACACS+

**tacacs-server host**

Ö O k

|                   |         |     |
|-------------------|---------|-----|
| ip vrf forwarding | TACACS+ | VRF |
|-------------------|---------|-----|

## ip vrf forwarding(TACACS+)

```

TACACS+ vrf (VRF
)

```

```
ip vrf forwarding vrf-name
```

```
no ip vrf forwarding
```

```
vrf-name 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+<br>server |

*Interface* TACACS+

TACACS+

TACACS+ nas  
TACACS+  
ip TACACS+

TACACS+ fastEthernet 0/0 ip  
TACACS+

Ruijie(config)# **ip tacacs source-interface fastEthernet**  
**0/0**

R06D! r T R06A c s c r

TACACS+    AAA  
**tacacs-server**

TACACS+  
TACACS+





|                          |         |
|--------------------------|---------|
| <b>tacacs-server key</b> | TACACS+ |
|--------------------------|---------|

## TACACS+

， **debug tacacs+**

，

Socket Closes: 0  
Total Packets Sent: 0  
Total Packets Recv: 0  
Reference Count: 0

| <b>tacacs-server host</b> | TACACS+ |
|---------------------------|---------|



---

**no crypto key generate**

**crypto key zeroize**

---

Ruijie# **configure terminal**

Ruijie(config)# **crypto key generate rsa**

| <b>show ip ssh</b>                    | SSH Server                 |
|---------------------------------------|----------------------------|
| <b>crypto key zeroize {rsa   dsa}</b> | DSA      RSA<br>SSH Server |

RGOS10.1

## crypto key zeroize

SSH

**crypto key zeroize {rsa | dsa}**

| <b>rsa</b> | RSA |
|------------|-----|
| <b>dsa</b> | DSA |

DISABLE                      SSH Server                      SSH Server  
**service ssh-server**                      **no enable**

```
Ruijie(config)# crypto key zeroize rsa
```

|                                      |            |
|--------------------------------------|------------|
|                                      |            |
| <b>show ip ssh</b>                   | SSH Server |
| <b>crypto key generate {rsa dsa}</b> | DSA    RSA |

RGOS10.1

## ip ssh version

SSH server

no

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

**no ip ssh version**

|   |            |      |
|---|------------|------|
|   |            |      |
| 1 | SSH Server | SSH1 |
| 2 | SSH Server | SSH2 |

|     | SSH | 1 | 2                 |
|-----|-----|---|-------------------|
| SSH |     |   | no ip ssh version |

```

SSH Server
SSH Server
SSH 2
SSH
er

SSH
SSH1
SSH2
1
2
show ip ssh
SSH Serv

```



|                    |            |
|--------------------|------------|
|                    |            |
| <b>show ip ssh</b> | ssh-server |

RGOS10.1

**ip ssh authentication-retries**

SSH Server

no

**ip ssh authentication-retries** *retry times***no ip ssh authentication-retries**

|                    |  |
|--------------------|--|
|                    |  |
| <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**

|                    |            |
|--------------------|------------|
|                    |            |
| <b>show ip ssh</b> | SSH Server |



RGOS10.1

## SSH

SSH

- › **show ip ssh**
- › **show ssh**
- › **show crypto key mypubkey**
- › **disconnect ssh**

## show ip ssh

SSH Server

**show ip ssh**

SSH Server  
Server

SSH

SSH

Ruijie# **show ip ssh**

| <b>ip ssh version {1   2}</b> | SSH Server |
|-------------------------------|------------|
| <b>ip ssh time-out time</b>   | SSH Server |

|                                                      |            |
|------------------------------------------------------|------------|
| <b>Ip ssh authentication-retries<br/>retry times</b> | SSH Server |
|------------------------------------------------------|------------|

RGOS10.1

**show ssh**

SSH

**show ssh**

SSH

VTY

SSH

Ruijie# **show ssh**

RGOS10.1

**show crypto key mypubkey**

SSH Server

**show crypto key mypubkey {rsaldsa}**

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

|            |     |
|------------|-----|
| <b>rsa</b> | RSA |
| <b>dsa</b> | DSA |

## SSH Server

Ruijie# **show crypto key mypubkey rsa**

|                                        |            |
|----------------------------------------|------------|
|                                        |            |
| <b>crypto key generate {rsa   dsa}</b> | DSA    RSA |

RGOS10.1

**disconnect ssh**

SSH

**disconnect ssh [vty] *session-id***

|                   |     |
|-------------------|-----|
|                   |     |
| <i>session-id</i> | SSH |



# DAI

## VLAN DAI

, ip arp inspection vlan

### ip arp inspection vlan vlan-id

no *vlan-id* VLAN DAI  
no *vlan-id* VLAN DAI  
*vlan-id* VLAN DAI

**ip arp inspection vlan *vlan-id***

**no ip arp inspection vlan [*vlan-id*]**

|                |      |
|----------------|------|
|                |      |
| <i>vlan-id</i> | vlan |

VLAN DAI

DAI

VLAN 1 ARP

Ruijie(config)# **ip arp inspection**

Ruijie(config)# **ip arp inspection vlan 1**

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

|                             |      |     |
|-----------------------------|------|-----|
| show ip arp inspection vlan | VLAN | DAI |
|-----------------------------|------|-----|

## ip arp inspection trust

ip arp inspection

trust no

ip arp inspection trust

no ip arp inspection trust

ARP

DAI

ARP

gigabitEthernet 0/19

Ruijie(config)# **interface gigabitEthernet 0/19**

Ruijie(config-if)# **ip arp inspection trust**

|                                  |     |
|----------------------------------|-----|
|                                  |     |
| show ip arp inspection interface | DAI |

## ARP

, ip arp inspection limit-rate

## ip arp inspection limit-rate limit-rate

```

 ARP ip arp
inspection limit-rate no
ip arp inspection limit-rate {limit-rate | none }
no ip arp inspection limit-rate

```

| none       |        |
|------------|--------|
| limit-rate | 2048 1 |

```

 15 ARP /
0

```

DAI

```

 VLAN 2 gigabitEthernet 0/2
10 ARP /
Ruijie(config)# ip arp inspection
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if)# ip arp inspection limit-rate 10

```

## DHCP Snooping

```

 VLAN DAI ARP
 ARP
DHCP Snooping
Snooping DHCP Snooping DHCP

```

arp

---

**arp**

**arp**

arp

**anti-arp-spoofing ip**

**anti-arp-spoofing ip**





**Ruijie(config)#tag-support enable**

# ACL

|                        |                                             |
|------------------------|---------------------------------------------|
| 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-<br>gt- neq- range-<br>port |
| src-mac-addr           |                                             |
| dst-mac-addr           |                                             |
| VID vid                | vlan id                                     |
| VID inner vid          | tag vid                                     |
| ethernet-type          | 0x                                          |
| match-all tcpf         | tcp flag                                    |

text

|   |            |    |    |              |    |
|---|------------|----|----|--------------|----|
| E | DSAP(<br>) | 18 | S  | ip           | 42 |
| F | SSAP(<br>) | 19 | T  | TCP          | 46 |
| G | Ctrl       | 20 | U  | TCP          | 48 |
| H | Org Code   | 21 | V  |              | 50 |
| I |            | 24 | W  |              | 54 |
| J | IP         | 26 | XY | IP           | 58 |
| K | TOS        | 27 | Z  | flags        | 59 |
| L | IP         | 28 | a  | Windows size | 60 |
| M | ID         | 30 | b  |              | 62 |
| N | Flags      | 32 |    |              |    |

SNAP tag 802.3

- › **access-list**
- › **ip access-list**
- › **mac access-list**
- › **ipv6 access-list**
- › **ip access-list resequence**

## ACL

- › **deny**
- › **permit**
- › **list-remark text**
- › **no sn**
- › **ip access-group**
- › **mac access-group**
- › **ipv6 traffic-filter**

## **access-list**

**no**

1) 1 IP

1 - 99 1300 - 1999

**access-list**

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

5)

**access-list** *list-remark text*

*id* 1-99 100-199 1300-1999  
2000-2699 2700 – 2899 700 - 799

**deny**

**permit**

**source**

*source-wildcard* 0.255.0.32

*protocol* IP EIGRP GRE IPINIP IGMP  
NOS OSPF ICMP UDP TCP IP IP  
0-255 ICMP/TCP/UDP

**destination**

*destination-wildcard*  
0.255.0.32

**fragments**

**precedence**

ACL

- urg
- ack
- psh
- rst



- › **syn**
- › **fin**

- › **critical**
- › **flash**
- › **flash-override**
- › **immediate**
- › **internet**
- › **network**
- › **priority**
- › **routine**

- › **max-reliability**
- › **max-throughput**
- › **min-delay**
- › **min-monetary-cost**
- › **normal**

#### ICMP

- › **administratively-prohibited**
- › **dod-host-prohibited**
- › **dod-net-prohibited**
- › **echo**

›

, 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
- , appletalk
- , decnet-iv
- , diagnostic
- , etype-6000
- , etype-8042
- , lat
- , lavc-sca
- , mop-console
- , mop-dump
- , mumps
- , netbios
- , vines-echo
- , xns-idp

1) IP

IP 192.168.1.64 - 192.168.1.127

```
Ruijie(config)# access-list 1 permit 192.168.1.64
0.0.0.63
```

2) IP

IP DNS ICMP

```
Ruijie(config)# access-list 102 permit tcp any any eq
domain
```

```
Ruijie(config)# access-list 102 permit udp any any eq
domain
```

```
Ruijie(config)# access-list 102 permit icmp any any echo
```

```
Ruijie(config)# access-list 102 permit icmp any any
```

**echo-reply**

## 3) MAC

```

MAC 00d0f8000c0c
100 1
Ruijie(config)# access-list 702 deny host 00d0f8000c0c
any arp
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in

```

## 4) Expert

```

Expert Extended ACL ACL
IP 192.168.12.3 MAC 00d0.f800.0044
TCP
Ruijie(config)# access-list 2702 deny tcp 02Tst
192.168.12.3 mac 00d0.f800.0044 any any
Ruijie(config)# access-list 2702 permit any any any any
Ruijie(config)# show access-lists
expert access-list extended 2702
10 deny tcp 2Tst 192.168.12.3 mac 00d0.f800.0044 any
any
10 permit any any any any

```

| show access-lists |     |
|-------------------|-----|
| mac access-group  | MAC |

S2300

ACL

ACL

**ip access-list**

```

IP ACL IP ACL
no ACL
ip access-list {extended | standard} {id | name}
no ip access-list {extended | standard} {id | name}

```

*id* IP 1-99 1300-1999 100-199  
2000-2699  
*name* IP

ACL

ACL deny permit ACL  
access-lists show ip  
ACL

ACL

```
Ruijie(config)# ip access-list extended 123
Ruijie(config-ext-nacl)# show ip access-lists
ip access-list extended 123
Ruijie(config-ext-nacl)#
```

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)#
```

|                      |    |
|----------------------|----|
|                      |    |
| show ip access-lists | IP |

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## MAC access-list

MAC ACL no  
ACL

```
mac access-list extended {id | name}
no mac access-list extended {id | name}
```

*id*    MAC                      700-799

*name*    MAC

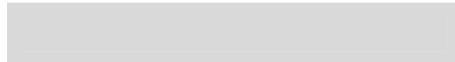
MAC ACL

*name*     ACL

**show access-lists**             ACL

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 access-lists**

ACL

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
Ruijie#
```

|                   |  |
|-------------------|--|
|                   |  |
| show access-lists |  |

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## deny

(deny)

ACL

ACL

1) IP

```
[sn] deny {source source-wildcard | host source | any}
```

2) IP

```
[sn] deny protocol source source-wildcard destination
destination-wildcard [precedence precedence] [tos tos] [fragments]
[time-range time-range-name]
```

IP

**Internet Control Message Protocol (ICMP)**

```
[sn] deny icmp {source source-wildcard | host source | any}
```

{*destination destination-wildcard* | **host** *destination* | **any**} [*icmp-type*]  
[[*icmp-type icmp-code*]] | [*icmp-message*] [**precedence** *precedence*]  
[**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

### Transmission Control Protocol (TCP)

[*sn*] **deny tcp** {*source source-wildcard* | **host** *Source* | **any**} [*operator*  
**port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**}  
[*operator* **port** [*port*]] [**precedence** *precedence*] **ip** **source** *10.89.1.0/24* **tcp** **port** *80* **match-all**

*destination-wildcard* | **host** *destination* | **any** } {**host**  
*destination-mac-address* | **any** } [*icmp-type*] [[*icmp-type* [*icmp-code* ]] |  
[*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**]  
[**time-range** *time-range-name*]

#### **Transmission Control Protocol (TCP)**

[*sn*] **deny tcp** [[**VID** [*out*][*inner in*]]]{*source source-wildcard* | **host**  
*Source* | **any** } {**host** *source-mac-address* | **any** } [*operator* **port** [*port*]]  
{*destination destination-wildcard* | **host** *destination* | **any** } {**host**  
*destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence**  
*precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]  
[**match-all** *tcp-flag*]

#### **User Datagram Protocol (UDP)**

[*sn*] **deny udp** [[**VID** [*out*][*inner in*]]]{*source source-wildcard* | **host**  
*source* | **any** } {**host** *source-mac-address* | **any** } [*operator* **port** [*port*]]  
{*destination destination-wildcard* | **host** *destination* | **any** } {**host**  
*destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence**  
*precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

#### 5) 5 IPV6

[*sn*] **deny 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**] [**time-range** *time-range-name*]

#### IPV6

#### **Internet Control Message Protocol (ICMP)**

[*sn*]**deny icmp** {*source-ipv6-prefix / prefix-length* | **any**  
*source-ipv6-address* | **host**} {*destination-ipv6-prefix / prefix-length*  
| **host** *destination-ipv6-address* | **any**} [*icmp-type*] [[*icmp-type*  
[*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** ] [**flow-label** ] [**flow-la**

**any** [*operator* **port** [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*]  
[**fragments**] [**time-range** *time-range-name*]

#### **access-list**

*Sn* **ACL**

*source-ipv6-prefix* IPv6 .

*destination-ipv6-prefix* IPv6

*prefix-length*

*source-ipv6-address* IPv6

*destination-ipv6-address* IPv6

#### **dscp**

*dscp* 0-63.

#### **flow-label**

*flow-label* 0-1048575.

*protocol* IPV6 IPV6 | icmp | tcp | udp <0-255>

ACL

ACL

ACL

Expert Extended ACL ACL  
IP 192.168.4.12 MAC 001300498272  
TCP

```
Ruijie(config)# expert access-list extended 2702
Ruijie(config-exp-nacl)# deny tcp host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# permit any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2702
10 deny tcp host 192.168.4.12 host 0013.0049.8272 any
any
20 permit any any any any
Ruijie(config-exp-nacl)#
```

|     |     |    |              |
|-----|-----|----|--------------|
| IP  | ACL | IP | 192.168.4.12 |
| TCP | 100 |    | 1            |



| <b>show access-lists</b>   |          |
|----------------------------|----------|
| <b>ipv6 traffic-filter</b> | IPv6     |
| <b>ip access-group</b>     | IP ACL   |
| <b>mac access-group</b>    | MAC ACL  |
| <b>ip access-list</b>      | IP ACL   |
| <b>mac access-list</b>     | MAC ACL  |
| <b>expert access-list</b>  | ACL      |
| <b>ipv6 access-list</b>    | IPv6 ACL |
| <b>permit</b>              |          |

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## permit

ACL (permit) ACL

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**]

[**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**

**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**] [**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]] [**precedence precedence**] [**tos tos**] [**fragments**] [**time-range time-range-name**]

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**] [ ] [ ]

Internet CoT0 1ntr0 TM-0.age Pr Tf 0 0026 Tc 0.00



deny

ACL

ACL

ACL

```
Expert Extended ACL ACL
IP 192.168.4.12 MAC 001300498272
TCP

Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# permit tcp host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# deny any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
10 permit tcp host 192.168.4.12 host 0013.0049.8272 any
any
20 deny any any any any any
Ruijie(config-exp-nacl)#
```

```
IP ACL IP 192.168.4.12
TCP 100 1

Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12
eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#
```

```
MAC ACL MAC 0013.0049.8272
1

Ruijie(config)# ip access-list ethernet
102
host ig-ext-nacl# 8.6-0.0019 18.56 0 any 1019 arp 0.6 0 102 100 any
Rmacie(config-ext-nacl)#
```

```
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

 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

 IPV6 ACL IP 192.168.4.12
 1

Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 permit ipv6
host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
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 |
| deny                | ACL           |

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**list-remark text**ACL                      **no****list-remark text***Text*

ACL

ACL

```
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)#
```

|                          |    |
|--------------------------|----|
|                          |    |
| <b>show access-lists</b> |    |
| <b>ip access-list</b>    | IP |

RGOS10.0

**no sn**

ACL

**no sn**

*sn*      ACL

ACL

ACL

ACL

```
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)#
```

| <b>show access-lists</b> |               |
|--------------------------|---------------|
| <b>ip access-list</b>    | ip ACL        |
| <b>ipv6 access-list</b>  | IPV6      ACL |
| <b>deny</b>              | ACL           |
| <b>permit</b>            | ACL           |

RGOS10.0

## 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>1-1BT</i> |
|-----------|----|-------|-----------|--------------|

|             |     |         |
|-------------|-----|---------|
| <i>id</i>   | MAC | 700-799 |
| <i>name</i> | MAC |         |
| <b>in</b>   |     |         |
| <b>out</b>  |     |         |



*name*

| acl | id | name | ACL |
|-----|----|------|-----|
|-----|----|------|-----|

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
mac access-list extended mac-acl
expert access-list extended exp-acl
ipv6 access-list extended v6-acl
```

| ip access-list     | IP ACL     |
|--------------------|------------|
| mac access-list    | MAC ACL    |
| expert access-list | Expert ACL |
| ipv6 access-list   | IPv6 ACL   |

RGOS10.0

## show ip access-group

IP ACL

**show ip access-group**[interface *<interface>*]

*<interface>*



## ACL

```
Ruijie# show ip access-group interface gigabitethernet
0/1
ip access-group aaa in
Applied On interface GigabitEthernet 0/1.
```

| ip access-list | IP ACL |
|----------------|--------|

RGOS10.0

**show mac access-group**

## MAC

```
show mac access-group[interface <interface>]
```

```
<interface>
```

## MAC ACL

## MAC ACL

```
Ruijie# show mac access-group interface gigabitethernet
0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

mac access-list	MAC    ACL

RGOS10.0

```
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.
```

<b>ip access-group</b>	ip
<b>mac access-group</b>	MAC
<b>expert access-group</b>	Expert
<b>ipv6 traffic-filter</b>	IPV6

RGOS10.0

# QoS

QoS

QoS

1 policy-map

## IP-Precedence to DSCP

IP-Precedence	0	1	2	3	4	5	6	7
DSCP	0	8	16	24	32	40	48	56

## DSCP to CoS

DSCP	0	8	16	24	32	40	48	56
CoS	0	1	2	3	4	5	6	7

**mls qos trust**

Qos

**mls qos trust** [**cos** | **dscp** | *ip-precedence*]**no mls qos trust**

<b>cos</b>	Qos	CoS
<b>dscp</b>	Qos	DSCP
<i>ip-precedence</i>	Qos	IP-PRE
<b>no</b>		

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mls qos trust cos
```

```
show mls qos interface interface-id
```

## mls qos cos

CoS

**mls qos cos** *default-cos*

**no mls qos cos**

*default-cos*      0   7

**no**

CoS      0

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

Ruijie(config-if)# **mls qos cos** *7*

**show mls qos interface** *interface-id*

## Class Maps

ACL

```
acl-id ACL id
class-map-name class map
no class-map class-map-name class map
no match access-group acl-name| acl-id
```

```
MAC ACL, me
Ruijie(config)# mac access-list extended me
ACL
Ruijie(config-ext-macl)# permit host 1111.2222.3333 any
ACL
Ruijie(config-ext-macl)# exit
class-map, cm
Ruijie(config)# class-map cm
ACL
Ruijie(config-cmap)# match access-group me
class-map
Ruijie(config-cmap)# exit

show mac access-lists
show ip access-lists
show class-map
```

## Policy Maps

```
policy map pollicymap
[no] policy-map policy-map-name
policy map class-map ,

[no] class class-map-name
```

```
set ip dscp new-dscp
no set ip dscp
```

**police** *rate-bps burst-byte*[**exceed-action** {**drop** | **dscp** *dscp-value*}]

**no police**

<i>policy-map-name</i>	policy-map
<b>no policy-map</b> <i>policy-map-name</i>	policy map
<i>class-map-name</i>	class map
<b>no class</b> <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



## service-policy

policy map

**service-policy** {input | output} *policy-map-name*

**no service-policy** {input | output}

*policy-map-name*                      policymap

**no**                      policy map

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

Ruijie(config-if)# **service-policy input po**

**show mls qos interface**

## priority-queue

**[no] priority-queue**

WRR

Ruijie(config)# **no priority-queue**

**show mls qos queueing**

## 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>cos0 ... cos7</i>	CoS
<i>no</i>	

Ruijie(config)# **priority-queue cos-map 1 0 1**

**show mls qos queueing**

## 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**

## **mls qos map cos-dscp**

CoS

DSCP

**mls qos map cos-dscp** *dscp1...dscp8*

**no mls qos map cos-dscp**

**dscp**

**no**

Ruijie(config)# **mls qos map cos-dscp** *8 10 16 18 24 26 32 34*

**show mls qos maps** *dscp-cos maps,dscp-cos maps*

*p cos-dsp ( J/cos-dsp) 13.0000 0.0000 10.006 0 Td<1173.88 679.4003 Tm2741801.)1mmj*



wrr

Ruijie(config)# **mls qos scheduler wrr**

**show mls qos scheduler**

## **mls qos map ip-prec-dscp**

ipprec                      DSCP

**mls qos map ip-prec-dscp dscp1...dscp8**

**no mls qos map ip-prec-dscp**

**dscp**

**no**

Ruijie(config)# **mls qos map ip-prec -dscp 8 10 16 18 24  
26 32 34**

**show mls qos maps**                      dscp-cos maps,dscp-cos maps  
ip-prec-dscp maps

## show class-map

class map

**show class-map** [*class-name*]

*class-name*      class map

class map

Ruijie# **show class-map**

## show policy-map

QoS policy map      [      class class-name]

**show policy-map** [*policy-name* [**class** *class-name*]]

*policy-name*      policy name

*class-name*      class map

policy name

Ruijie# **show policy-map**

## show mls qos interface

QoS

**show mls qos interface** *interface-id* [**policers**]

*interface-id*

**policers**

police

QoS

Ruijie# **show mls qos interface fastEthernet 0/1**

## show mls qos queueing

QoS (cos-to-queue map, wrr weight, drr weight)

**show mls qos queueing**

Ruijie# **show mls qos queueing**

## show mls qos scheduler

**show mls qos scheduler**

Ruijie# **show mls qos scheduler**

## show mls qos maps

dscp-cos maps, dscp-cos maps    ip-prec-dscp maps

**show mls qos maps [cos-dscp | dscp-cos]**

**cos-dscp**            cos-dscp maps

**dscp-cos**            dscp-cos maps

dscp-cos maps    dscp-cos maps

Ruijie# **show mls qos maps**

## show mls qos rate-limit

**show mls qos rate-limit [interface *interface-id*]**

**interface**    interface-id    rate-limit

Ruijie# **show mls qos rate-limit**



# RLDP

RLDP

```
<?zipper2_01Id05749TM20Tn1610.3073idre2t0-8de+717A>[f[s8]TF09+c<1Bd1-C81B
```

```
Ruijie(config)# rldp enable
```



**no rldp detect-max**

*num* , 2-10

2

5 :

Ruijie(config)# **rldp detect-max 5**

<b>rldp detect-interval</b>	

## **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**

RLDP

RLDP

fas 0/1

rldp

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

```
Ruijie(config-if)# rldp port loop-detect block
```

rldp enable	rldp

## rldp reset

**rldp shutdown    disable**

rldp

**rldp reset**

```
Ruijie# rldp reset
```

rldp enable	Rldp

RLDP

# TPP

## 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

```

## tp-guard port enable

```

no

```

**[no] tp-guard port enable**

CPU

( AP )

Ruijie(config-if)# **tp-guard port enable**

Ruijie(config-if)# **no tp-guard port enable**

**topology guard**

## **TPP**

**show tpp**

**show tpp**

tpp

Ruijie# **show tpp**

**topology guard**



- 
- › **cat**
  - › **cd**
  - › **cp**
  - › **ls**
  - › **makefs**
  - › **mkdir**
  - › **mv**
  - › **pwd**
  - › **rm**
  - › **rmdir**

## **cat**

**cat type {bin | text} file path**

**cat file path type {bin | text}**

<b>bin</b>	
<b>text</b>	
<b>path</b>	(            )

---

---

## cp

**cp dest** {*DESTINE\_FILE* | *DIRECTORY*} **sour** *SOURCE\_FILE*  
**cp sour** *SOURCE\_FILE* **dest** {*DESTINE\_FILE* | *DIRECTORY*}

*DESTINE\_FILE*

*DIRECTORY*

*SOURCE\_FILE* ( )

---

**cp**

---

log.txt :

Ruijie# **cp sour** *log.txt* **dest** ../log\_bak.txt

## ls

**ls** *PATHNAME*

---

*PATHNAME*

Ruijie# **ls**

tmp

Ruijie# **ls tmp**

## **makefs**

**makefs dev** *DEVNAME* **fs** *FSNAME*

**makefs fs** *FSNAME* **dev**

---

b

---

**mv dest** {*DESTINE\_FILE* | *DIRECTORY*} **sour** *SOURCE\_FILE*

*SOURCE\_FILE*

*DESTINE\_FILE/DIRECTORY*

a ( type file); b '?'  
'? '  
,  
log.txt , config.txt,  
,  
Ruijie# mv sour tmp/log.txt dest ../config.txt  
log.txt tmp  
Ruijie# mv dest /mnt/tmp sour tmp/log.txt

**pwd**

**pwd**

pwd	

---

Ruijie# **pwd**

**rm**

**rm** *FILE*

---

**rmdir**

**rmdir** *DIRECTORY*

*DIRECTORY* ,



---

# logging on

no

logging on  
no logging on

RGOS Console VTY  
Server FLASH Syslog  
1 Log

Ruijie(config)# no logging on

logging buffered	
logging	Syslog Server
logging file flash:	FLASH

---

**logging console**

---

**logging buffered** [*buffer-size* | *level*]

**no logging buffered**

<i>buffer-size</i>	4K	128K Bytes
<i>level</i>	0	7

4k Bytes  
7

± 0 3 é 8 8 4 • î 0 D 0





---

```

64K, FLASH trace.txt
6
Ruijie(config)# logging file flash:trace

```

logging on	
show logging	
more flash	FLASH

## logging console

```

no
logging console level
no logging console

level 0 7
1

```

Debugging (7)

**show logging**

```

6
Ruijie(config)# logging console informational

```

--	--

---

logging on	
show logging	

**logging monitor**

VTY telnet SSH no VTY

**logging monitor** *level*  
**no logging monitor**

*level* 1

Debugging (7)

VTY terminal  
**monitor** VTY  
**logging monitor**  
**Logging monitor** VTY

VTY 6  
Ruijie(config)# **logging monitor informational**

logging on	
show logging	

---

## logging trap

Syslog Server  
no

Syslog Server

**logging trap** *level*

**no logging trap**

*level*

1

Informational(6)

Syslog Server      Syslog Server  
Syslog Server      logging trap

logging

**show logging**

6

202.101.11.22

Syslog Server

Ruijie(config)# **logging** 202.101.11.22

Ruijie(config)# **logging trap informational**



---

**no**

**logging source interface** *interface-type interface-number*

**no logging source interface**

*interface-type*

*interface-number*

Syslog Server

Loopback 0

Syslog

Ruijie(config)# **logging source interface loopback 0**

<b>logging</b>	Syslog Server

## logging source ip

**no**

**logging source ip** *A.B.C.D*

**no logging source ip**

*A.B.C.D* IP

---

## Syslog Server

Loopback 0

Syslog

```
Ruijie(config)# logging source ip 192.168.1.1
```

logging	Syslog server

**logging facility**

---

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

---

---

**no service sequence-numbers**

1

Ruijie(config)# **service sequence-numbers**

logging on	
service timestamps	

**service timestamps**

no default

**service timestamps** *message-type* [*uptime* | *datetime*]  
**no service timestamps** *message-type* [*uptime* | *datetime*]  
**default service timestamps** *message-type* [*uptime* | *datetime*]

<i>message-type</i>	Log	Debug	Log
0 6	Debug		7
<i>uptime</i>	* *	* *	07:00:10:41

---

*datetime*  
16:53:07

Jul 27

RTC

Uptime

Datetime

Log

Debug

Datetime

Ruijie(config)# **service timestamps debug datetime**

Ruijie(config)# **service timestamps log datetime**

logging on	
service sequence-numbers	

## **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)# service sysname
Ruijie(config)# end
Ruijie#
Mar 22 15:35:57 S3250 %SYS-5-CONFIG: Configured from
console by console
```

<b>show logging</b>	

## more flash

FLASH

**more flash:filename**

*Filename*

FLASH

*"/f2/" "/f3/*

FLASH

```
Ruijie# more flash://f2/log.txt
look up file in the extended flash://f2/log.txt
```

---

00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by Administrator. Reload Reason :Reload command

logging file flash:	FLASH

## clear logging

clear logging

Ruijie# clear logging

logging on	
show logging	
logging buffered	

## show logging



---

## show logging

### show logging

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
Sequence log messages: enable
Trap logging: level debugging, 2 message lines logged, 0
reserved, 0 fail
logging to 202.101.11.22
logging to 192.168.200.112
Log Buffer (Total 4096 Bytes) : have written 680
00001 2004-11-17 10:20:59 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/0, changed state to up
00002 2004-11-17 10:20:59 Ruijie: %7:%LINE PROTOCOL
CHANGE: Interface FastEthernet 0/0, changed state to UP
00003 2004-11-17 10:57:18 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to
administratively down
00004 2004-11-17 10:57:21 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to down
00005 2004-11-17 10:57:41 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to
administratively down
00006 2004-11-17 10:57:43 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to down
```

Syslog logging	<b>disabled</b> <b>enabled,</b>
Console logging	

---

Monitor logging	VTY
Buffer logging	
Timestamp debug messages	Debug
Timestamp log messages	Log
Sequence log messages	
Trap logging	Syslog Server
Log Buffer	

logging on	
clear logging	

**show logging count**

**show logging count**

**count      show logging count      logging**

---

```
=====
SYS CONFIG_I 5 1 Jul 6 10:29:57

SYS TOTAL 1
```

logging count	
show logging	
clear logging	

- 
- , **device-priority**
  - , **device-description**
  - , **show member**

## device-priority

**device-priority** [*member*] *priority*

<i>member</i>	ID member 1
<i>priority</i>	[1, 10]

```
10 1 10
1
write
2 8
Ruijie(config)# device-priority 2 8
```

<b>show member</b>	

---

## device-description

**device-description** [**member** *member*] *description*

<b>member</b> <i>member</i>	ID member 1
<i>description</i>	31

