# RGOS 10.3(4b6)p2

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

http://webchat.ruijie.com.cn

8:30 6

http://www.ruijie.com.cn/service.aspx

7 24 4008-111-000

http://support.ruijie.com.cn

service@ruijie.com.cn

| | |
|---|---|
| | |
| web | web |

RGOS®10.3 (4b6)p2

## 1.

Arial

[ ] [ ]

{ x | y | ... }

[ x | y | ... ]

//

## 2.

**:**

**:**

## 3.

# 1

## 1.1.1 bridge-group

**bridge-group**

**no**

**bridge-group** *bridge-group-id*

**no bridge-group**

| | |
|---|---|
| *bridge-group-id* | ID |

| | |
|---|---|
| 10.3(4b6) | |

## 1.1.2 carrier-delay

**carrier-delay** **no**

**carrier-delay** *seconds*

**no carrier-delay**

| | |
|---|---|
| *seconds* | 0 60 |

2

NULL

DCD DOWN UP DCD

0

DCD

DCD

VLAN 100 5

```
Ruijie(config)# interface vlan 100
Ruijie(coinfig)# carrier-delay 5
```

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

### 1.1.3 clear counters

**clear counters**

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

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

*interface-id*

**shutdown** **no shutdown**

Ruijie# **clear interface** *vlan 100*

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

| | |
|---|---|
| 10.3(4b6) | |

## 1.1.5 descriptioin

no

**description** *string*

**no description**

| | |
|---|---|
| *string* | |

**show interfaces**

Ruijie(config)# **interface vlan** *100*

Ruijie(config-if)# **description** *GBIC-1*

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

| | |
|---|---|
| 10.3(4b6) | |

### 1.1.6 interface bvi

## 1.1.7 interface vlan

VLAN VLAN **no** VLAN

**interface vlan** *vlan-id*

**no interface vlan** *vlan-id*

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

VLAN

IP VLAN IP VLAN

VLAN VLAN IP VLAN Bridge-Group VLAN

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

VLAN VLAN VLAN

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

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

| | |
|---|---|
| 10.3(4b6) | |

## 1.1.8 mtu

mtu **no**

**mtu** *num*

| | |
|---|---|
| *num* | MTU |

1500

MTU

VLAN BVI NULL LOOPBACK

```
Ruijie(config)# interface dailer 100
Ruijie(config-if)# mtu 1000
```

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

```
Ruijie(config)# interface vlan 100
Ruijie(config-if)# no snmp trap link-status
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 1.2.1 show interfaces

**show interfaces** [*interface-id*] [**description**]

| | |
|---|---|
| *interface-id* | VLAN BVI |
| **description** | link |

```
Ruijie# show interfaces vlan 100
Index(dec):4196 (hex):1064
Vlan 100 is UP , line protocol is UP
Hardware is Firewall Interface Vlan, address is 001a.a987.654b (bia
001a.a987.654b)
Interface address is: no ip address
ARP type: ARPA,ARP Timeout: 3600 seconds
MTU 1500 bytes, BW 1000000 Kbit
```

```
Encapsulation protocol is Ethernet-II, loopback not set
Keepalive interval is 10 sec , set
Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: FIFO
  Output queue 0/40, 0 drops;
  Input queue 0/75, 0 drops
30 seconds input rate 0 bits/sec, 0 packets/sec
30 seconds output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer, 0 dropped
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
5462 packets output, 251252 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

F

| | |
|---|---|
| **carrier-delay** | |
| **mtu** | MTU |
| **interface vlan** | VLAN |
| **interface bvi** | BVI |
| **shutdown** | |

| | |
|---|---|
| 10.3(4b6) | |

# 2 MAC

## 2.1.1 clear mac-address-table dynamic

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

| | |
|---|---|
| **dynamic** | |
| **address** *mac-addr* | |
| **interface** *interface-id* | |
| **bridge-group** *bridge-group-id* | |

MAC

**show mac-address-table dynamic**

MAC 00d0.f800.0c0c

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

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

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

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

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| | |
|---|---|
| 10.3(4b6) | |

## 2.1.5 mac-limit

MAC **no**
MAC

**mac-limit** *limit-num*

**no mac-limit**

| | |
|---|---|
| *limit-num* | MAC |

MAC

MAC

**show mac-limit** MAC

```
Ruijie(config)# context vfw1
Ruijie(config-ctx)# mac-limit 2000
Ruijie(config-ctx)# end
Ruijie# show mac-limit
 Context         MAC Limit Num
 ------------    -------------
  vfw1            2000
```

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

| | |
|---|---|
| **show mac-limit** | MAC |

| | |
|---|---|
| 10.3(4b6) | |

## 2.1.6 mac-address-learning

MAC **no mac-address-learning**

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

MAC

VLAN 100

```
Ruijie(config)# interface vlan 100
Ruijie(config-if)# no mac-address-learning
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 2.2.1 show mac-address-table address

MAC

**show mac-address-table** [**address** *mac-addr*] [**interface** *interface-id*] [**bridge-group** *bridge-group-id*]

| | |
|---|---|
| *mac-addr* | MAC |
| *interface-id* | |
| *bridge-group-id* | ID |

MAC

```
Ruijie# show mac-address-table address 00d0.f800.1001
 Bridge Group   MAC Address      Type      Interface
 ------------   --------------  --------  -------------------
   1            00d0.f800.1001    DYNAMIC   VLAN 100
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 2.2.2 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** | |

| | |
|---|---|
| 10.3(4b6) | |

## 2.2.3 show mac-address-table count

MAC MAC

**show mac-address-table count**

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

```
Ruijie# show mac-address-table count
Dynamic Address Count  : 1000
Static  Address Count  : 0
Filter  Address Count  : 0
Total Mac Addresses    : 1000
Total Mac Address Space Available: 31768
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 2.2.4 show mac-address-table dynamic

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

| | |
|---|---|
| *mac-addr* | MAC |
| *bridge-group-id* | ID |
| *interface-id* | |

Bridge Group 100

MAC

```
Ruijie# show mac-address-table dynamic bridge-group 100

Bridge Group   MAC Address          Type     Interface

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

  100          0000.5e00.010c       DYNAMIC   VLAN 100

  100          00d0.f822.33aa       DYNAMIC   VLAN 100

  100          00d0.f822.a219       DYNAMIC   VLAN 200

  100          00d0.f8a6.5af7       DYNAMIC   VLAN 200
```

| | |
|---|---|
| **clear mac-address-table dynamic** | MAC |

MAC

MAC

```
Ruijie# show mac-address-table filtering

Bridge-Group   MAC Address     Type      Interface

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

    4          00d0.f800.1111    FILTER

    4          00d0.f800.2222    FILTER
```

MAC

VLAN 100 MAC

```
Ruijie# show mac-address-table interface vlan 100
Bridge Group   MAC Address     Type      Interface
-----------    --------------   -------   -------------------
   1           00d0.f800.1001   DYNAMIC   VLAN 100
   1           0001.960c.a740   DYNAMIC   VLAN 100
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 2.2.7 show mac-address-table static

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

| | |
|---|---|
| *mac-addr* | MAC |
| *bridge-group-id* | ID |
| *interface-id* | |

MAC

MAC

MAC

100 MAC

```
Ruijie# show mac-address-table bridge-group 100
Bridge Group   MAC Address     Type      Interface
-----------   --------------   -------  -------------------
  100          00d0.f800.1001   STATIC    VLAN 100
  100          0001.960c.a740   DYNAMIC   VLAN 200
  100          00d0.f800.1002   FILTER
```

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

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

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MAC

```
Ruijie# show mac-address-learning

Bridge Group    Interface         Learning Status


-------------   ---------------   --------------
  100             VLAN 101          ON
  100             VLAN 201          OFF
  200             VLAN 102          ON
  200             VLAN 202          OFF
```

| | |
|---|---|
| **mac-address-learning** | |

| | |
|---|---|
| 10.3(4b6) | |

# 3

## 3.1.2 http redirect

IP no IP

**http redirect** *ip-address*

**no http redirect**

| | |
|---|---|
| *ip-address* | We IP |

| | |
|---|---|
| *ip-address* | IP |
| *ip-mask* | IP |

Web Web

50

1 IP 172.16.0.1

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

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

| | |
|---|---|
| **10.2(5)** | / |

## 3.1.4 http redirect homepage

no

**http redirect homepage** *url-string*

**no http redirect homepage**

| | |
|---|---|
| *url-string* | “http://” “https://”<br>255 |

Web

1 *www.web-auth.net/login*

```
Ruijie(config)# http redirect homepage www.web-auth.net/login
```

| | |
|---|---|
| **show http redirect** | HTTP |
| **http redirect** | IP |

HTTP 1

1 HTTP 4

```
Ruijie(config)# http redirect session-limit 4
```

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

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

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 3.1.9 ip access-group

ACL ip

**ip access-group** *access-list*

**no ip access-group**

## 3.1.10 loose-inner-zone-access

ip

**loose-inner-zone-access**

**no loose-inner-zone-access**

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

1

```
Ruijie(config)#loose-inner-zone-access
```

| | |
|---|---|
| **loose-inter-zone-access** | security-level ip |

security-level ip

1

```
Ruijie(config)#loose-inter-zone-access
```

| | |
|---|---|
| **loose-inner-zone-access** | ip |

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.1.12 security-access

**security-access** *access-list* **from** *zone-name* **to** *zone-name* **[log]**
**no security-access** *access-list* **from** *zone-name* **to** *zone-name* **[log]**

| | |
|---|---|
| *access-list* | |
| *zone-name* | |
| **log** | access-list<br>/<br>RLOG |

1 aaa bbb ACL hello

```
Ruijie(config)#security-access hello from aaa to bbb
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.1.13 security-level

**security-level** *level-num*

**no security-level**

| | |
|---|---|
| *level-num* | 1~100 |

1

```
Ruijie(config-security-zone)#security-level 100
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.1.14 security-zone

**security-zone** *zone-name*

**no security-zone** *zone-name*

| | |
|---|---|
| *zone-name* | 1~32 |

1 hello

```
Ruijie(config)#security-zone hello
Ruijie(config-security-zone)#
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.1.15 security-zone-violation-log data-store

**security-zone-violation-log data-store** *days*

**no security-zone-violation-log data-store**

| | |
|---|---|
| days | 1~7 |

7

1

```
Ruijie(config)# security-zone-violation-log enable
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 3.1.16 security-zone-violation-log enable

**security-zone-violation-log enable**

**no security-zone-violation-log enable**

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

IP

1

```
Ruijie(config)#security-zone-base interface
```

2 IP

```
Ruijie(config)#no security-zone-base interface
```

| | |
|---|---|
| **global** | |
| *minutes* | 1-3600 min |
| **permanently** | |

threshlold 0

0

IP

clear blocking

1 *50*

```
Ruijie(config-security-zone)#violation blocking 50
Ruijie(config-security-zone)#violation blocking global
permanently
```

| | |
|---|---|
| *days* | 1<br>1~3650 |

1

IP

1

2

```
Ruijie(config-security-zone)#violation timeout 2
```

| | |
|---|---|
| *ip-mask* | IP |

Web

Web
50

web Web Web
standby
Web

1 IP 172.16.0.1

```
Ruijie(config)# web-auth direct-host 172.16.0.1
```

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

**show web-auth direct-host** web

**10.2(5)** / Web

Web PC HTTP WEB WEB

1 PC HTTP WEB WEB
web-auth

```
Ruijie(config)# web-auth portal key web-auth
```

| | |
|---|---|
| **http redirect** | IP |
| **http redirect homepage** | |
| **web-auth port-control** | Web |

| | |
|---|---|
| **10.2(5)** | / |

```
Ruijie# show http redirect
http redirect settings
 server        : 172.16.0.1
 port          : 80 8080
 homepage      : http://www.web-auth.net/index.html
 session-limit : 3
 timeout       : 3

direct-site
  Address          Mask
  ---------------- ----------------
  176.10.0.1     255.255.255.255
  176.10.5.0     255.255.255.128
```

| | |
|---|---|
| **http redirect** | IP |
| **http redirect direct-site** | |
| **http redirect homepage** | |
| **http redirect port** | PC HTTP WEB |
| **http redirect session-limit** | HTTP |
| **http redirect timeout** | |

| | |
|---|---|
| **10.2(5)** | / |

## 3.2.2 show security-access-blocking

**show security-access-blocking**

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

IP

1

```
Ruijie#show security-access-blocking
no ip blocked because of fail security-zone access
```

| | |
|---|---|
| **show security-access-rules** | |
| **show security-zone** | |

| | |
|---|---|
| **show security-access-blocking** | |
| **show security-zone** | |

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.2.4 show security-zone

**show security-zone** [ *zone-name* ]

| | |
|---|---|
| *zone-name* | |

| | |
|---|---|
| **show security-access-blocking** | |

| | |
|---|---|
| **show security-access-rules** | |

| | |
|---|---|
| **10.3(4b5)** | / |

## 3.2.5 show security-zone-host

**show security-zone-host** *ip-address*

| | |
|---|---|
| *ip-address* | ip |

IP

1

```
Ruijie#show security-zone-host 192.168.1.1
seczoneA
no violation information exists
```

| | |
|---|---|
| **show security-access-blocking** | |
| **show security-access-rules** | |

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 3.2.6 show security-zone-match

IP

**show security-zone-match {***ip-protocol* **| icmp | tcp | udp}** *source-ip dst-ip* **[***src-port dst-port***]**

**show security-zone-match {***ip-protocol* **| icmp | tcp | udp}** *source-ip dst-ip* **[***src-port dst-port***] from** *src-interface* **to** *dst-interface*

| | |
|---|---|
| i*p-protocol* | IP |
| *source-ip* | IP |
| *dst-ip* | IP |
| *src-port* | |
| *dst-port* | |
| *src-interface* | |
| *dst-interface* | |

Allowed for the destination ip is the server of web authentication ip web

Allowed for the source ip is a direct host ip

Allowed for the destination ip is a direct site. ip

Allowed for hitting a security zone rule

Allowed for permitted by inner zone accessing control

Allowed for the level of src_zone is greater than dst_zone's

Allowed for the level of dst_zone is equal to src_zone.

1

```
Ruijie#show security-zone-match udp 192.168.1.1 192.168.2.1 3456 80
Allowed for permitted by inner zone accessing control
```

| | |
|---|---|
| **show security-access-blocking** | |
| **show security-access-rules** | |

| | |
|---|---|
| **10.3(4b6)** | / |

## 3.2.7 show security-zone-violation-log

**show security-zone-violation-log [source-ip** *source-ip***] time-interval** *begin-year begin-mon begin-day begin-hour* **to** *end-year end-mon end-day end-hour* **[offset** *offset-number* **limit** *limit-number* ]

**show security-zone-violation-log status**

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

| | |
|---|---|
| *source-ip* | IP |
| *begin-year* | |
| *begin-mon* | |
| *begin-day* | |
| *begin-hour* | |
| *end-year* | |
| *end-mon* | |
| *end-day* | |
| *end-hour* | |
| *offset-number* | |
| *limit-number* | |

10M IP

| | |
|---|---|
| **show security-access-blocking** | |
| **show security-access-rules** | |

| | |
|---|---|
| **10.3(4b6)** | / |

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

1

```
Ruijie# show web-auth global
web authenticate is off
```

| | |
|---|---|
| **web-auth on** | Web |

| | |
|---|---|
| **10.2(5)** | / |

## 3.2.10 show web-auth user

IP

**show web-auth user** *[ip-address*]

| | |
|---|---|
| *ip-address* | IP |

1 web

```
Ruijie# show web-auth user
 Current user num  :  4

Address     Online   Time Limit(s) Time Used(s)  Status
----------- -------  ------------- ------------- --------
192.168.0.11    On    01:00:00      00:15:10     Active
192.168.0.13    On    0             00:00:59     Active
192.168.0.25   Off    0             0            Create
192.168.0.46   Off    01:00:00      01:00:00     Distroy


Ruijie# show web-auth user 192.168.0.11
Address      :  192.168.0.11
 Online       :  On
 Time Limit(s) :  01:00:00
 Time Used(s)  :  00:15:10
 Time Start    :  2009-02-22 20:05:10
 Status       :  Active
```

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

| | |
|---|---|
| **10.2(5)** | / |

# 4

## 4.1.1 clear firewall count

**clear firewall count [global]**

| | |
|---|---|
| [global] | |

1

```
Firewall#clear firewall count
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.2 clear non-blacklist-global-blocking

**clear non-blacklist-global-blocking**

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

1

```
Firewall#clear non-blacklist-global-blocking
```

| | |
|---|---|
| **firewall defend** scan | IP |

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.3 firewall auto-synproxy

syn flood syn proxy
syn

[ **no** ] **firewall auto-synproxy**

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

1

```
Firewall(config)# firewall auto-synproxy
```

| | |
|---|---|
| **firewall defend syn-flood** *acl-number rate-num* | SYN Flood SYN-Proxy |

| | |
|---|---|
| **10.3(4b6)** | |

## 4.1.4 firewall blacklist

[ **no** ] **firewall blacklist** *sour-addr*

| | |
|---|---|
| *sour-addr* | ip no |

| | |
|---|---|
| **10.3(4b5)** | / |

### 4.1.5 firewall defend fraggle

fraggle

[ **no** ] **firewall defend fraggle**

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

| | |
|---|---|
| **syn-flood** | SYN flood |
| *acl-num* | ACL acl IP |
| *acl-name* | ACL acl IP |
| *rate-num* | pps |
| **no** | |

1

```
Firewall(config)#firewall defend icmp-flood 10 100
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.7 firewall defend icmp-redirect

icmp ,icmp

[ **no** ] **firewall defend icmp-redirect**

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

1

```
Firewall(config)#firewall defend icmp-redirect
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.8 firewall defend icmp-unreachable

icmp icmp

[ **no** ] **firewall defend icmp-unreachable**

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

1

```
Firewall(config)#firewall defend icmp-unreachable
```

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

-

## 4.1.10 firewall defend route-record

route-record IP

[ **no** ] **firewall defend route-record**

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

1

```
Firewall(config)#firewall defend route-record
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.11 firewall defend scan counter-clear-interval sense-level

[ **no** ] **firewall defend scan counter-clear-interval sense-level {high | low | medium}** *time-interval*

| | |
|---|---|
| **{high \| low \| medium}** | |

| | |
|---|---|
| *time-interval* | second<br>1 2000 |
| **no** | |

1

```
Firewall(config)# firewall defend scan counter-clear-interval sense-level high 50
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.12 firewall defend scan ignored-protocol

[ **no** ] **firewall defend scan ignored-protocol {icmp | ip | tcp | udp}**

| | |
|---|---|
| **{icmp \| ip \| tcp \| udp}** | |
| **no** | |

1

```
Firewall(config)# firewall defend scan ignored-protocol icmp
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.13 firewall defend scan sense-level

ip

[ **no** ] **firewall defend scan sense-level {***high* | *low* | *medium***} [watch-ip-list** *acl* **] [block-term** *time-num]*

| | |
|---|---|
| **{high \| low \| medium}** | |
| *acl* | ip acl acl ip |
| *time-num* | ip |
| **no** | |

1

```
Firewall(config)# firewall defend scan sense-level high
watch-ip-list scan_list block-term 20
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.14 firewall defend scan tweak-sense-level

[ **no** ] **firewall defend scan tweak-sense-level protocol {icmp|ip|tcp|udp} sense-level {high|low|medium} connection-count** *con-num* **priority-count** *pri-num* **ip-count** *ip-num* **port-count** *port-num*

| | |
|---|---|
| **{icmp \| ip \| tcp \| udp}** | |
| **{high \| low \| medium}** | |
| *con-num* | |
| *pri-num* | ip *pri-num* |
| *ip-num* | ip |
| *port-num* | |
| **no** | |

1

```
Firewall(config)# firewall defend scan tweak-sense-level protocol tcp  sense-level high connection-count 50 priority-count 5 ip-count 10 port-count 20
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.15 firewall defend source-route

IP

[ **no** ] **firewall defend source-route**

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

1

```
Firewall(config)#firewall defend source-route
```

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

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.16 firewall defend winnuke

winnuke winnuke

[ **no** ] **firewall defend winnuke**

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

1

```
Firewall(config)#firewall defend winnuke
```

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

## 4.1.17 firewall defend large-icmp

1

```
Firewall(config)#firewall defend frag-flood 100
```

1 icmp flood

```
Firewall(config)# firewall log icmp-flood
```

2 1

```
Firewall(config)# no firewall log icmp-flood
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 4.1.20 firewall tcp-loose

TCP ACK

TCP

[ **no** ] **firewall tcp-loose**

| | |
|---|---|
| **no** | TCP ACK |

TCP ACK TCP SYN

1

```
Firewall(config)# firewall tcp-loose
```

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

| | |
|---|---|
| **10.3(4b6)** | / 10.3 4b5 |

## 4.1.21 firewall tcp-state-inspection-disable

TCP tcp
VRRP

[ **no** ] **firewall tcp-state-inspection-disable**

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

1

```
Firewall(config)# firewall tcp-state-inspection-disable
```

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

| | |
|---|---|
| **10.3(4b6)** | / 10.3 4b5 |

## 4.1.22 ip tcp-intercept

SYN PROXY SYN FLOOD

[ **no** ] **ip tcp-intercept list** *acl-num* { **in** | **out** } [ **log** ]

acl

/

**Ln**

```
        connection count is:50
        priority count is:10
        ip count is:5
        port count is:20
high
        connection count is:50
        priority count is:3
        ip count is:3
        port count is:10

icmp scan default config:
low
        connection count is:0
        priority count is:30
        ip count is:50
medium
        connection count is:20
        priority count is:10
        ip count is:5
high
        connection count is:10
        priority count is:3
        ip count is:3

ip scan default config:
low
        connection count is:0
        priority count is:100
        ip count is:50
        protocol count is:50
medium
        connection count is:30
        priority count is:15
        ip count is:15
        protocol count is:15
high
        connection count is:30
        priority count is:3
```

```
ip count is:3
protocol count is:7
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 4.1.24 show firewall global-blocking

**show firewall global-blocking**

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

## 4.1.25 show firewall count

**show firewall count [all | global]**

| | |
|---|---|
| [all \| global] | global |

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

| | |
|---|---|
| **10.3(4b6)** | / |

# 5

## 5.1.1 ip rate-control

IP

[ **no** ] **ip rate-control** { **in** | **out** } *acl-num* { **bandwidth** *rate-limit* | **session-rate** *rate-num* | **session-total** *total-num*}

| | |
|---|---|
| **in | out** | in IP |

```
Firewall(config)# no ip rate-control in 10 session-total 300
```

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

-

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

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

**10.3(4b5)**

# 6

## 6.1.1 firewall alg

ALG

[ **no** ] **firewall alg [all|h323|ftp|mms|rtsp|sip]**

| | |
|---|---|
| **no** | |
| **[all\|h323\|ftp\|mms\|rtsp\|sip]** | ALG |

alg

1

```
Firewall(config-if)# firewall alg all
```

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

| | |
|---|---|
| **10.3(4b6)** | / |

## 6.1.2 show firewall dynamic-filter

ALG

**show firewall dynamic-filter**

# 7

## 7.1.1 ace-limit

ACE **no**

**ace-limit** *num*

**no ace-limit**

| | |
|---|---|
| *num* | 0-200000 |

context

abc 10

```
Ruijie(config)#ace-limit abc
Ruijie(config-ctx)#ace-limit 100000
```

| | |
|---|---|
| **session-limit** | |
| **host-limit** | |
| **mac-limit** | MAC |
| **session-create-limit** | |

| | |
|---|---|
| **10.3(4b5)** | / |

## 7.1.2 changeto

**changeto** { *context-name* }

| | |
|---|---|
| *context-name* | , root |

**changeto** *context-name*

context-name

**changeto root**

root

**changeto root** root

abc

```
Ruijie#changeto abc
Ruijie/abc#
```

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

| | |
|---|---|
| **10.3(4b5)** | / |

## 7.1.3 config-url

abc

```
Ruijie(config)#context abc
```

| | |
|---|---|
| **config-url** | |

```
Ruijie(config-ctx)#host-limit 26214
```

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

**session-limit**

abc 1000

```
Ruijie(config)# context abc
Ruijie(config-ctx)# maximum routes 1000 warning-only
```

| | |
|---|---|
| **session-limit** | |
| **ace-limit** | ACE |
| **host-limit** | |
| **session-creat-limit** | |

**Tc 2 Tr 1595.9524.96 re291.54 494.9 mh5.566f291.06 0 -2g/C2efQ852 g296.7g/C2_229**

disable enable enable

contextA

```
Ruijie/contextA(config)#password 0 mypass
```

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

| | |
|---|---|
| **10.3(4b5)** | **password** *password1* |
| **10.3(4b6)** | [**0|7**] *password2* |

## 7.1.8 session-create-limit

**no**

**session-create-limit** *rate*

**no session-create-limit**

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

| | |
|---|---|
| **session-limit** | |
| **ace-limit** | ACE |
| **host-limit** | |
| **mac-limit** | MAC |

| | |
|---|---|
| **10.3(4b5)** | / |

## 7.1.9 session-limit

**no**

**session-limit** *num*

**no session-limit**

| | |
|---|---|
| *num* | 0- |

context

abc 100000

```
Ruijie(config)#context abc
Ruijie(config-ctx)#session-limit 100000
```

| | |
|---|---|
| **mac-limit** | MAC |
| **ace-limit** | ACE |
| **host-limit** | |

| | |
|---|---|
| **session-create-limit** | |
| **show ip fpm statstics** | |

| | |
|---|---|
| **10.3(4b5)** | / |

# 8 failover

## 8.1.1 failover

failover failover

**failover**

**no failover**

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

failover failover

no failover
standby-zombie

failover

failover failover

```
Ruijie(config)# failover
```

| | |
|---|---|
| **failover standby** | |
| **show failover** | failover |

| | |
|---|---|
| 10.3(4b6) | |

## 8.1.2 failover standby

failover standby

**failover standby**

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

1

```
Ruijie# failover standby
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 8.1.3 failover interface ip

failover ip

**failover interface ip** <*primary_address*> <*mask*> **secondary** <*secondary_address*>
**no failover interface ip**

| | |
|---|---|
| primary_address | Primary failover Ipv4 |
| mask | IP |
| secondary_address | Secondary failover IPv4 |

IP failover Primary failover
primary_address Secondary Secondary_address IP

IP

1

```
R(config)# 10.1.0.1 255.255.255.0
10.1.0.2
```

| | |
|---|---|
| **failover lan interface** *if* | failover |

| | |
|---|---|
| 10.3(4b6) | |

## 8.1.4 failover lan interface

failover

**failover lan interface** *if*
**no failover lan interface**

| | |
|---|---|
| if | Failover |

failover VLAN
failover

Ruijie (config)# failover lan interface `vlan 10`

| | |
|---|---|
| **failover interface ip** | failover IP |

| | |
|---|---|
| 10.3(4b6) | |

## 8.1.5 failover lan unit

(primary) secondary

**failover lan unit <primary|secondary>**
**no failover lan unit**

| | |
|---|---|
| **primary** | Primary |

| | |
|---|---|
| **secondary** | Secondary |

Secondary

Primary

Secondary Active Primary

Secondary

pool_time hold_time

Ruijie(config)# failover polltime msec 10 holdtime msec 1000

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

| | |
|---|---|
| 10.3(4b6) | |

## 8.2.1

| | |
|---|---|
| 10.3(4b6) | |
| | |

## 8.2.2 show failover

failover
**show failover**

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

failover

1

```
Ruijie# show failover
show failover info:
   Failover on
   Failover create time:2010- 1- 3 22:54:17
   Last switch:2010- 1- 3 21:45:48
   This host:
      Secondary -- Failover active
   Other host:
      Primary -- Standby ready

   Failover link (Vl4): heartbeat normal
   Peer unit: heartbeat normal
```

Failover on
Last switch
Secondary Active
Failover vlan 4

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

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

| | |
|---|---|
| 10.3(4b6) | |

## 8.2.3 show failover history

failover

**show failover history** [ **detail** ]

| | |
|---|---|
| **detail** | |

failover failover

1

Ruijie# show failover history detail

```
==========================================================================
Time      FromState             ToState               Event
==========================================================================
<< 2010-1-3 >>
3:19: 4   Failover disabled     Wait for negotiation  Failover enable by command
3:19: 8   Wait for negotiation  Standby ready         Act as standby
5:19:38   Standby ready         Standby ready         Reload device
```

2010-1-3 failover

3:19:4 failover enable failover disable

Wait for negotiation

3:19:8 Standby Failover

Standby

5:19:38

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

| | |
|---|---|
| 10.3(4b6) | |

## 8.2.4 show failover heartbeat

**show failover heartbeat**

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

1

```
Ruijie# show failover heartbeat
Failover Lan Interface: Vlan 4
Heartbeat test: normal
Drop packets:
   version error:0,2 0dLement error:0

Hold time: 2000 msec, poll time: 50 msec, window size: 40
In last holdtime:
```

| | |
|---|---|
| 10.3(4b6) | |

## 8.2.5 show failover rdnd

**show failover rdnd <eid table |state | statistic >**

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

# show failover rdnd state
state: Pending,STOP (2012-6-25 9:53:32)

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

# 9 failover AA

## 9.1.1 failover lan manage interface

failover AA

**failover lan manage interface** *if*

**no failover lan manage interface**

| | |
|---|---|
| *if* | Failover AA |

Failover AA VLAN

Ruijie (config)# failover lan manage interface `vlan 10`

| | |
|---|---|
| **failover manage interface ip** | Failover AA IP |

| | |
|---|---|
| 10.3(4b6)p2 | |
| | |

## 9.1.2 failover manage interface ip

failover AA ip

**failover manage interface ip** *active_address mask* **standby** *standby_address*
**no failover manage interface ip**

| | |
|---|---|
| *active_address* | Active failover AA |

## 9.1.3 failover mode aa-forward

failover mode aa-forward AA AS

**failover mode aa-forward**

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

AA

1

```
Ruijie# failover mode aa-forward
```

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

# 10 CLI

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)#
```

```
bgp                  Configure bgp Protocol
config               globle 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”

```
Ruijie(config-if-GigabitEthernet 0/1)# ia ?
A.B.C.D  IP address
dhcp     IP Address via DHCP
Ruijie(config-if-GigabitEthernet 0/1)# ip address
```

**”ip address”**

**show aliases**

Ruijie address7FF-238.1.1 address

Ruijiernet 0/1)#

```
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>
```

un undebug

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

# 11

## 11.1.1 disable

disable

**disable** [ *privilege-level* ]

| | |
|---|---|
| *privilege-level* | |

**disable**

```
Ruijie# disable 10
```

| | |
|---|---|
| enable | |

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

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

| | |
|---|---|
| **0|7** | 0 7 |
| *encrypted-password* | |

1 26

EXEC

pw10

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

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

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

## 11.1.4 enable secret

**enable secret** **no**

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

**no enable secret**

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

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

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

pw10

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

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

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

## 11.1.5 enable service

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

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

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

**ssh-sesrver**

| | |
|---|---|
| **telnet-server** | Telnet Server IPv4 IPv6 |
| **web-server [http \| https \| all]** | Web Server IPv4 IPv6 |
| **snmp-agent** | Snmp Agent IPv4 IPv6 |

**no enable service**

enable service web-server 3 [http | https | all] all http https http http https https

enable service ssh-sesrver, SSH Server

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

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

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

## 11.1.6 execute

**execute**

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

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

| | |
|---|---|
| *filename* | |

PC

TFTP Flash

CLI

line_rcms_script.text

**Telnet**

```
configure terminal
line tty 1 16
transport input all
no exec
end
```

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

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

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

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

80

HTTP **no ip http port**

HTTP 8080

```
Ruijie(config)# ip http port 8080
```

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

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

## 11.1.9 ip http secure-port

HTTPS **ip http secure-port**

**ip http secure-port** *number*

| | |
|---|---|
| *number* | HTTPS Server 443 |

443

HTTPS **no ip http secure-port**

HTTPS 4443

```
Ruijie(config)# ip http secure-port 4443
```

| | |
|---|---|
| **enable service** | |
| **show web-server status** | web |

| | |
|---|---|
| **10.4 3** | |

## 11.1.10 ip telnet source-interface

IP Telnet **ip telnet source-interface**

**ip telnet source-interface** *interface-name*

| | |
|---|---|
| *interface-name* | IP Telnet |

IP Telnet telnet Telnet

**no ip telnet source-interface**

Loopback 1 IP Telnet

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

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

| | |
|---|---|
| **telnet** | Telnet |

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

## 11.1.11 lock

EXEC **lock**

**lock**

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

**lock**

Locked

line **lockable** line

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

| | |
|---|---|
| **lockable** | |

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

## 11.1.12 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
```

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

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

## 11.1.13 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 |

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

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

## 11.1.14 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** | |

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

## 11.1.15 login local

AAA **login**
**local** **no**

**login local**

**no login local**

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

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** | |

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

## 11.1.16 privilege mode

CLI

CLI

CLI

CLI

CLI

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

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

### 11.1.17 password

line

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

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

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

## 11.1.18 service password-encryption

service password-encryption no

**service password-encryption**

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

service password-encryption
password service password-encryption
show running write password
service password-encryption

```
Ruijie(config)# service password-encryption
```

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

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

## 11.1.19 telnet

Telnet EXEC **telnet**

**telnet** *host* [*port*] [**/source** {**ip** *A.B.C.D* **| ipv6** *X:X:X:X::X* **| interface** *interface-name}*] [**/vrf** *vrf-name*]

| | |
|---|---|
| *Host* | Telnet IPV4 IPV6 |
| *Port* | Telnet TCP 23 |
| **/source** | Telnet IP |
| **ip** *A.B.C.D* | Telnet IPV4 |
| **ipv6** *X:X:X:X::X* | Telnet IPV6 |
| **interface** *interface-name* | Telnet |
| **/vrf** *vrf-name* | VRF |

telnet

| | |
|---|---|
| **/vrf** | RSR |
| **/ipv6** | IPV6 S3760 S57 S86 |

1 telnet IPV4 192.168.1.1

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

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

## 11.1.20 username

username

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

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

**no username** *name*

| | |
|---|---|
| *Name* | |
| *Password* | |
| **0|7** | 0 7 |
| *encrypted-password* | |
| *privilege-level* | |
| *filename* | |

7

7

7

15

Ruijie(config)# **username** username(config)# username(config)# username7userna

| | |
|---|---|
| **web-auth** | web |

| | |
|---|---|
| 10.3(4t76) | |

## 11.1.22 username export

## 11.2.1 banner login

**banner login**

**no banner login**

**banner login** *c message c*

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

Ruijie(config)

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

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

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

## 11.2.2 banner motd

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

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

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

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

## 11.2.3 boot config

no

**service config** boot config
flash:/config.text boot network

**service config** boot network
boot config flash:/config.text

Boot ROM

flash:/config_main.text

```
Ruijie(config)# boot config flash:/config_main.text
```

| | |
|---|---|
| **boot network** | |
| **service config** | |
| **show boot** | |

TFTP IP

IP IP TFTP

**boot ip**

**boot network** **boot system** TFTP

Boot ROM

TFTP IP

```
Ruijie(config)# boot ip 192.168.7.11
```

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

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

## 11.2.5 boot network

no

**boot network tftp**:// l*ocation* / *filename*
**no boot network**

| | |
|---|---|
| *location* | TFTP |
| *filename* | TFTP |

**service config** **boot config**
/config.text **boot network**

no

**boot system** *priority* prefix:/[directory/]*filename*

**no boot system** [*priority*]

| | |
|---|---|
| *priority* | 1 10 1 |
| *prefix:* | 10.4 2 |
| */[directory/]filename* | prefix |

flash:/rgos.bin 5

1 10

**boot ip** IP
TFTP
TFTP

**no boot system** [*priority*]
*priority*

**no boot system**

/rgos.bin 5

Boot ROM

1 flash:/rgos.bin
flash:/rgos_bak.bin

```
Ruijie(config)# boot system 5 flash:/rgos.bin
Ruijie(config)# boot system 8 flash:/rgos_bak.bin
```

flash:/rgos.bin
flash:/rgos.bin
flash:/rgos_bak.bin

2 8

```
Ruijie(config)# no boot system 8
Delete boot system config: [Priority: 8; File Name:
flash:/rgos_bak.bin]? [no] yes
```

3

```
Ruijie(config)# no boot system
Clear ALL boot system config? [no] yes
```

| | |
|---|---|
| **boot ip** | TFTP IP |
| **show boot** | |

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

## 11.2.7 boot system

no

**boot system** url

**no boot system**

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

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

Ruijie#dir
Directory of flash:/
   11015744 2008-01-01 08:00:46  rgos.bin
   12019754 2008-02-01 08:00:46  s5750_10_4.bin
       399 2006-01-01 08:01:37  config.text
33,030,144 bytes total. (10,590,592 bytes free)

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

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

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

## 11.2.8 clock set

**clock set**

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

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

| | |
|---|---|
| *day* | 1-31 |
| *month* | 1-12 |
| *year* | 1993-2035 |

clock set

S2026G S2026F S2028 RSR10

2003 3 17 10 20 30

```
Ruijie# clock set 10:20:30 3 17 2003
Ruijie# show clock
clock: 2003-3-17 10:20:32
```

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

calendar

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

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

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

## 11.2.10 exec-timeout

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

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

**no exec-timeout**

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

10 min

LINE

LINE

line vty 0 5 30

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

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

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

## 11.2.11 hostname

**hostname**

**hostname** *name*

| | |
|---|---|
| *name* | 32 |

Ruijie

CHAP

BeiJingAgenda

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

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

**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.
```

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

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

## 11.2.14 service config

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

**boot config** **boot network**

| | |
|---|---|
| *Speed* | bps<br>9600 19200 38400 57600 115200<br>9600 |

9600

57600 bps

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

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

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

## 11.2.17 write

running-config

**write** [ **memory** | **network** | **terminal** ]

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

**boot config** **write** [**memory**]

**boot config**

Flash /config.text

**boot config**

**boot config**

```
Write to the default config file: [flash:config.text]
[OK]
```

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

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

## 11.3.1 show boot

**show boot** [**config** | **network** | **system** | **ip**]

| | |
|---|---|
| **config** | |
| **network** | |
| **system** | |
| **ip** | IP |

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

## 11.3.2 show boot system

**show boot system**

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

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

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

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

## 11.3.3 show clock

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

detail

**show clock**

```
Ruijie# show clock
clock: 2003-3-17 10:27:21
```

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

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

## 11.3.4 show line

**show line**

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

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

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

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

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

## 11.3.6 show running-config

**show running-config**

**show running-config**

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

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

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

## 11.3.7 show startup-config

NVRAM
**show startup-config**

**show startup-config**

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

NVRAM startup-config

**boot config** startup-config Flash /config.text

**boot config** startup-config

**boot config** startup-config
**boot config**

**boot config** **boot config**
startup-config Flash /config.text

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

# 12

## 12.1.1 cd

**cd** *DIRECTORY*

*DIRECTORY*

“..” “.”

**ls**

tmp

```
Ruijie# cd tmp
```

| | |
|---|---|
| **ls** | |

## 12.1.2 cp

,

**cp dest** {*DESTINE_FILE* | *DIRECTORY*} **sour** *SOURCE_FILE*

**cp sour** *SOURCE_FILE* **dest** {*DESTINE_FILE* | *DIRECTORY*}

*DESTINE_FILE*

```
Ruijie# ls
    tmp
Ruijie# ls tmp
```

### 12.1.4 mkdir

**mkdir** *DIRECTORY*

*DIRECTORY*

( )

test

```
Ruijie# mkdir test
```

### 12.1.5 mv

**mv sour** *SOURCE_FILE* **dest** {*DESTINE_FILE* | *DIRECTORY*}

**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
```

## 12.1.6 pwd

**pwd**

| | |
|---|---|
| **pwd** | |

## 12.1.7 rm

**rm** *FILE*

*FILE* ( )

,

log.txt

```
Ruijie# rm log.txt
```

| | |
|---|---|
| **rmdir** | , rm , |

## 12.1.8 rmdir

**rmdir** *DIRECTORY*

*DIRECTORY* ,

, , **rm**

tmp

```
Ruijie# rmdir tmp
Ruijie# ls
```

# 13

CLI COPY

Xmodem **copy xmodem**

Tftp **copy tftp**

## 13.1.1 copy xmodem

xmodem xmodem

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

注意:

**copy xmodeam flash:**”filename” **copy flash:**”filename” xmodeam

*filename*

Xmodem

Xmodem

: xmodem

xmodem

tftp tftp

**copy flash:** *filename* **tftp**:// l*ocation* / *filename*

**copy tftp**:// l*ocation*/*filename* **flash:** *filename*

**copy flash:** *filename* **tftp**:// l*ocation* / *filename* **vrf** vrfname

**copy tftp**:// l*ocation*/*filename* **flash:** *filename* **vrf** vrfname

**注意:**

tftp

**copy tftp:**"//location/filename" **flash:**filename **vrf** vrfname

**copy tftp:**//localT]TJ1 Tf-0.015 Tc 1577Cgtap filename

# 14 IP

## 14.1.1 ip address

IP no IP

IP IP
IP IP IP
IP IP

SLIP HDLC PPP LAPB Frame-relay
X.25

n »@œ±Ë —'»C¥1ðqP @

| | |
|---|---|
| **alias** | RGOS IP arp |

ARP

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 |

## 14.2.2 arp any-ip

AnyIP IP ARP IP no

**arp any-ip**

**no arp any-ip**

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

1 IP IP IP

2 IP

IP ARP
ARP ( )
ARP

1 ARP MAC clear arp
ARP

2 ARP MAC AnyIP

AnyIP ARP

ARP VRRP ARP AnyIP ARP
AnyIP

1 ARP AnyIP

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# arp any-ip
```

2 ARP AnyIP

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp any-ip
```

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

| | |
|---|---|
| 10.3(4t76) | 10.3(4t76) |

## 14.2.3 arp retry interval

arp IP
2 ARP no 1 ARP

**arp retry interval** *seconds*

**no arp retry interval**

ARP ARP

ARP

```
arp retry times 1
```

ARP 1

```
arp retry times 2
```

| | |
|---|---|
| **arp retry interval** *seconds* | arp |

## 14.2.5 arp trusted NUM

ARP no

**arp trusted** *number*

**no arp trusted**

| | |
|---|---|
| *number* | ARP , <10-4096> |

ARP ARP
ARP

1000 ARP

```
arp trusted 1000
```

| | |
|---|---|
| **service trustedarp** | ARP |

## 14.2.6 arp trusted aging

ARP no

**arp trusted aging**

**no arp trusted aging**

GSN ARP

ARP ARP
**arp timeout**

| | |
|---|---|
| **service trustedarp** | ARP |

## 14.2.7 arp unresolve

ARP no
8192

**arp unresolve** *number*

**no arp unresolve**

| | |
|---|---|
| *number* | ARP <<br>1-8192 > 8192 |

ARP 8192

ARP

500

```
arp unresolved 500
```

## 14.2.8 arp gratuitous-send interval

arp no

**arp gratuitous-send interval** *seconds*

**no arp gratuitous-send**

| | |
|---|---|
| *seconds* | ARP<br><1-3600> |

ARP

ARP

SVI 1 ARP

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

SVI 1 ARP

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

## 14.2.9 arp timeout

ARP ARP no

**arp timeout** *seconds*

**no arp timeout**

| | |
|---|---|
| *seconds* | 0-2147483 |

3600

ARP IP MAC
ARP ARP
ARP

vlan 1 ARP 120

```
interface vlan 1
arp timeout 120
```

| | |
|---|---|
| **clear arp-cache** | ARP |
| **show interface** | |

## 14.2.10 ip proxy-arp

ARP **ip proxy-arp** no
ARP

**ip proxy-arp**

**no ip proxy-arp**

ARP

ARP IP
MAC ARP ARP IP IP
IP ARP
MAC MAC ARP

vlan 1 ARP

```
interface vlan 1
ip proxy-arp
```

## 14.2.11 service trustedarp

ARP **service trustedarp** no
ARP

**service trustedarp**

**no service trustedarp**

ARP

ARP ARP GSN
GSN

STP MAC
MAC ARP

1) STP

2) root port design , updown

3) tc

service trustedarp

```
config
service trustedarp
```

## 14.3.1 ip broadcast-addresss

**ip broadcast-addresss** no

**ip broadcast-addresss** *ip-address*

**no ip broadcast-addresss** *ip-address*

| | |
|---|---|
| *ip-address* | IP |

IP 255.255.255.255

IP 1 255.255.255.255 RGOS
IP 1

IP 0.0.0.0

```
ip broadcast-address  0.0.0.0
```

## 14.3.2 ip directed-broadcast

IP **ip directed-broadcast**
no

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

**no ip directed-broadcast**

| | |
|---|---|
| *access-list-number* | 1-199 1300 - 2699<br>IP |

IP IP IP
172.16.16.255

IP

IP 1

**no ip directed-broadcast** RGOS

vlan 1

```
interface vlan 1
ip directed-broadcast
```

## 14.4.1 clear arp-cache

ARP ARP IP clear arp-cache

**clear arp-cache [vrf *vrf_name* | trusted ] [*ip* [*mask*] ] | interface *interface-name*]**

ARP

**注意:**

RNFP(Ruijie Network Foundation Protection, )
mac ( IP) ARP clear arp 1s
ARP

ARP

```
clear arp-cache
```

ARP 1.1.1.1

```
clear arp-cache 1.1.1.1
```

SVI1 ARP

```
clear arp-cache interface Vlan 1
```

| | |
|---|---|
| **arp** | ARP |

## 14.4.2 show arp

ARP

**show arp [[vrf *vrf-name*] [trusted] *ip* [*mask*] | static | complete | incomplete | *mac-address* ]**

| | |
|---|---|
| **vrf** *vrf_name* | VRF VRF ARP |

| | |
|---|---|
| **trusted** | ARP VRF<br>ARP |
| *ip* | ip ip ARP |
| *ip mask* | ip mask ARP |
| *mac-address* | mac ARP |
| **static** | arp |
| **complete** | arp |
| **incomplete** | arp |

show arp

```
Ruijie# show arp
Total Numbers of Arp: 7
Protocol  Address         Age(min)  Hardware
Type   Interface
Internet  192.168.195.68   0        0013.20a5.7a5f  arpa   VLAN 1
Internet  192.168.195.67   0        001a.a0b5.378d  arpa   VLAN 1
Internet  192.168.195.65   0        0018.8b7b.76( Tf0w2A7j )-6(  A)-6(gmP u
```

```
Ruijie# show arp 192.168.195.68
Protocol  Address    Age(min)  Hardware       Type   Interface
Internet  192.168.195.68   1   0013.20a5.7a5f  arpa   VLAN 1
```

**show arp** *192.168.195.0 255.255.255.0*

```
Ruijie# show arp 192.168.195.0 255.255.255.0
Protocol  Address    Age(min)  Hardware   Type   Interface
Internet  192.168.195.64   0   0018.8b7b.9106  arpa   VLAN 1
Internet  192.168.195.2    1   00d0.f8ff.f00e  arpa   VLAN 1
Internet  192.168.195.5    --   00d0.f822.33b1  arpa   VLAN 1
Internet  192.168.195.1    0   00d0.f8a6.5af7  arpa   VLAN 1
Internet  192.168.195.51   1   0018.8b82.8691  arpa   VLAN 1
```

**show arp** *001a.a0b5.378d*

```
Ruijie# show arp 001a.a0b5.378d
Protocol  Address  Age(min)  Hardware  Type   Interface
Internet  192.168.195.67   4   001a.a0b5.378d  arpa   VLAN 1
```

## 14.4.3 show arp counter

ARP arp

**show arp counter**

**show arp counter**

```
Ruijie# show arp counter
The Arp Entry counter:0
The Unresolve Arp Entry:0
```

ARP

## 14.4.4 show arp timeout

ARP

**show arp timeout**

**show arp timeout**

```
Ruijie# show arp timeout
Interface             arp timeout(sec)
----------------------  ----------------
VLAN 1                3600
```

ARP

## 14.4.5 clear ip route

IP IP **clear ip route**

**clear ip route { * | *network* [ *netmask* ] | vrf *vrf_name* }**

| | |
|---|---|
| * | |
| *network* | |
| *netmask* | |
| **vrf** *vrf_name* | VRF |

192.168.12.0

```
clear ip route 192.168.12.0
```

| | |
|---|---|
| **show ip route** | IP |

## 14.4.6 show ip arp

ARP

**show ip arp**

**show ip arp**

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

ARP

| | |
|---|---|
| Protocol | Internet |
| Address | IP |
| Age (min) | ARP<br>“-” |
| Hardware | IP |
| Type | ARPA |
| Interface | IP |

## 14.4.7 show ip interface

IP

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

| | |
|---|---|
| *Interface-type* | |
| *Interface-number* | |

RGOS

RGOS RGOS

UP

UP

**show ip interface**

```
Ruijie# show ip interface vlan 1
IP interface state is: UP
IP interface type is: BROADCAST
IP interface metric is: 0
IP interface MTU is: 1500
IP address is:
192.168.5.133/24 (primary)
IP address negotiate is: OFF
Forward direct-boardcast is: ON
ICMP mask reply is: ON
Send ICMP redirect is: ON
Send ICMP unreachabled is: ON
DHCP relay is: OFF
Fast switch is: ON
Route horizontal-split is: ON
Help address is: 0.0.0.0
Proxy ARP is: ON
Outgoing access list is not set.
Inbound access list is not set.
```

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

# 15 IP

## 15.1.1 ip mask-reply

RGOS ICMP ICMP
**ip mask-reply** no ICMP

**ip mask-reply**

**no ip mask-reply**

ICMP

ICMP ICMP

vlan 1 ICMP

```
interface vlan 1
ip mask-reply
```

## 15.1.2 ip mtu

IP MTU **ip mtu** no

**ip mtu** *bytes*

**no ip mtu**

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

| | |
|---|---|
| *bytes* | IP<br>68~1500 |

mtu

IP IP MTU RGOS
IP MTU

mtu IP MTU
MTU IP MTU MTU

vlan 1 IP MTU 512

```
interface vlan 1ip mtu 512
```

| | |
|---|---|
| | |
| **mtu** | |

## 15.1.3 ip redirects

RGOS ICMP **ip redirects**
no ICMP

**ip redirects**

**no ip redirects**

ICMP

RGOS ICMP

vlan 1 ICMP

```
interface vlan 1
no ip redirects
```

## 15.1.4 ip source-route

RGOS IP **ip source-route** no

**ip source-route**

**no ip source-route**

RGOS IP IP IP RFC 791

ICMP

RGOS IP

IP

```
no ip source-route
```

## 15.1.5 ip unreachables

RGOS ICMP **ip unreachables** no ICMP

**ip unreachables**

**no ip unreachables**

RGOS
ICMP

RGOS ICMP

ICMP

# 16

## 16.1.1 ip session timeout

ip session timeout **no**

**ip session timeout** {**icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait | tcp-last-ack | tcp-syn-receive | tcp-syn-sent | tcp-time-wait | udp-closed | udp-connected | udp-established | udp-started** } *num*

**no ip session timeout** {**icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait | tcp-last-ack | tcp-syn-receive | tcp-syn-sent | tcp-time-wait | udp-closed | udp-connected | udp-established | udp-started** }

| | |
|---|---|
| **icmp-closed** | ICMP<br>10s |
| **icmp-connected** | ICMP<br>10s |
| **icmp-started** | ICMP<br>10s |
| **rawip-closed** | ip<br>10s |
| **rawip-connected** | ip<br>300s |
| **rawip-established** | ip<br>300s |
| **rawip-started** | ip<br>300s |

| | |
|---|---|
| **tcp-close-wait** | TCP close-wait 60s |
| **tcp-closed** | TCP closed 10s |
| **tcp-established** | TCP established 1800s |
| **tcp-fin-wait** | TCP fin-wait 60s |
| **tcp-last-ack** | TCP last-ack 30s |
| **tcp-syn-receive** | TCP syn-receive 10s |
| **tcp-syn-sent** | TCP syn-send 10s |
| **tcp-time-wait** | TCP time-wait 10s |
| **udp-closed** | UDP 10s |
| **udp-connected** | UDP 30s |
| **udp-established** | UDP 600s |
| **udp-started** | UDP 60s |
| *num* | |

tcp established 600s

```
Ruijie(config)# ip session timeout tcp-established 600
```

tcp closed 100

Ruijie(config)# **ip session threshold tcp-closed** *100*

tcp closed

Ruijie(config)# **no ip session threshold tcp-closed** *100*

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

Ruijie(config)# **ip session log**

Ruijie(config)# **no ip session log**

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

| | |
|---|---|
| **10.3(4b5)** | - |

## 16.1.4 ip fragment-quota

**ip fragment-quota** *quota_num*

**no ip fragment-quota**

| | |
|---|---|
| *quota_num* | |

3000

2000

Ruijie(config)# **ip fragment-quota** *2000*

Ruijie(config)# **no ip fragment-quota**

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

| | |
|---|---|
| **10.3(4b5)** | |
| **10.3(4b6)** | |

## 16.1.5 clear ip fpm counters

**clear ip fpm counters**

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

show ip fpm counters

1

```
Ruijie#clear ip fpm counters
```

| | |
|---|---|
| **show ip fpm counters-** | |

| | |
|---|---|
| **10.3(4b5)** | - |

## 16.1.6 clear ip fragment-statistic

**clear ip fragment-statistic**

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

clear ip fragment-statistic

ip fragment buffer peak value

ip fragment buffer overflow number

show ip fragment-buffer

1

```
Ruijie#clear ip fragment-statistic
```

| | |
|---|---|
| **show ip fragment-buffer** | |

| | |
|---|---|
| **10.3(4b6)** | |

```
0         Out of capability (exceed ipfrag buffer quota)
0         Out of capability (no reasm context)
0         Out of capability (allocate reasm buffer failed)
<end>
Rejected or terminated connection counters:
Count     Reason
0         Out of life time
0         Flow Terminated
0         Exceptional TCP connection
0         Exceptional UDP connection
0         Exceptional ICMP connection
0         Exceptional RawIP connection
0         Rejected by policy
```

| | |
|---|---|
| Count | |
| Reason | |

| | |
|---|---|
| clear ip fpm counters | |

| | |
|---|---|
| **10.3(4b5)** | - |
| **10.3(4b6)** | |

## 16.2.2 show ip fpm flows

**show ip fpm flows** [**filter** ip_protocol_number source_ip source_ip_mask_len dest_ip dest_ip_mask_len]

| | |
|---|---|
| **filter** | |
| *ip_protocol_number* | |
| *source_ip* | |
| *source_ip_mask_len* | |

| | |
|---|---|
| *dest_ip* | |
| *dest_ip_mask_len* | |

1

```
Ruijie#show ip fpm flows
Pro  SrcAddr          DstAddr          SrcPort     DstPort
Cntxt       SendBytes  RecvBytes  State Bridge
TCP  192.168.52.68    192.168.52.67     5          2048        0
100       100       TCP_ESTABLISHED   2
Ruijie#show ip fpm flows filter 1 192.168.52.0 24 192.168.52.67 24
Pro  SrcAddr          DstAddr          SrcPort     DstPort
Cntxt       SendBytes  RecvBytes  State Bridge
TCP  192.168.52.68    192.168.52.67     5          2048        0
100       100       TCP_ESTABLISHED   2
```

| | |
|---|---|
| Pro | |
| SrcAddr | IP |
| DstAddr | IP |
| SrcPort | |
| DstPort | |
| Cntxt | ID |
| SendBytes | |
| RecvBytes | |
| State | |
| Bridge | |

| | |
|---|---|
| Number of active flows | |
| Event counter | |

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

| | |
|---|---|
| **10.3(4b5)** | - |
| **10.3(4b6)** | |

## 16.2.4 show ip fragment-buffer

**show ip fragment-buffer**

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

**show ip fragment-buffer**

```
Ruijie#show ip fragment-buffer
  ip fragment buffer quota :2000
  ip fragment buffer used  :0
  ip fragment buffer peak value :2
  ip fragment buffer overflow number :0
  ip fragment contexts : 0
```

| | |
|---|---|
| ip fragment buffer quota | |
| ip fragment buffer used | |
| ip fragment buffer peak value | |
| ip fragment buffer overflow number | |
| ip fragment contexts | |

| | |
|---|---|
| **clear ip fragment-statistic** | |

| | |
|---|---|
| **10.3(4b5)** | - |
| **10.3(4b6)** | |

# 17 IP NAT

## 17.1.1 address

NAT NAT address **no**

**address** *start-ip end-ip* [ **match interface** *interface* ]

**no address** *start-ip end-ip* [ **match interface** *interface* ]

**address interface** *interface* [ **match interface** *interface* ]

**no address interface** *interface* [ **match interface** *interface* ]

| | |
|---|---|
| | **ÆU(ÀÇE¾8R@F2¤5GC¢4y68Ò@e** |

```
address 192.168.100.1 192.168.100.50
```

| | |
|---|---|
| **ip nat pool** | IP NAT |

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

## 17.1.2 ip nat

NAT **ip nat**

**no** NAT

**ip nat** { **inside** | **outside** }

**no ip nat** { **inside** | **outside** }

| | |
|---|---|
| inside | |
| outside | |

NAT

| | |
|---|---|
| *dest-ip* | NAT |
| **tcp** *dest-ip port-num* | tcp NAT |
| **udp** *dest-ip port-num* | udp NAT |
| **dest-change** *ip-addr port-num* | |
| **src-change** *ip-addr* | |

NAT IP (DNS relay)

1 192.168.1.0 DNS NAT inside IP 192.168.1.1 NAT DNS DNS 202.101.98.55 DNS ip nat application access-list 1 192.168.1.1 53 UDP IP 202.101.98.55 53

```
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
interface vlan 2
ip address 192.168.1.1 255.255.255.0
ip nat inside
!
interface vlan 3
ip address 200.168.12.1 255.255.255.0
ip nat outside
!
ip nat pool net200 200.168.12.2 200.168.12.10 netmask 255.255.255.0
!
ip nat inside source list 1 pool net200
ip nat application source list 1 destination udp 192.168.1.1 53
dest-change 202.101.98.55 53
!
```

| | |
|---|---|
| **address** | |

| | |
|---|---|
| **ip nat** | NAT |
| **ip nat inside destination** | NAT |
| **ip nat inside source** | NAT |
| **ip nat outside source** | NAT |
| **show ip nat translations** | IP NAT |

| | |
|---|---|
| | |
| **10.3(4b6)** | vrf |

## 17.1.4 ip nat inside destination

NAT **ip nat inside destination**
**no** NAT

**ip nat inside destination list** *access-list-number* **pool** *pool-name*

**no ip nat inside destination list** *access-list-number* **pool** *pool-name*

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

**list** access-list-number pool
IP E¢¼\@

1

**ip nat inside source static** *protocol local-ip local-port global-ip global-port* [match ] [**permit-inside**]

**no ip nat inside source static** *protocol local-ip local-port global-ip global-port* [match ] [**permit-inside**]

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

IP NAT

**ip nat outside source list** *access-list-number* **pool** *pool-name*

**no ip nat outside source list** *access-list-number*

**ip nat outside source static** *global-ip local-ip*

**no ip nat outside source static** *global-ip local-ip*

**ip nat outside source static** *protocol global-ip global-port local-ip local-port*

**no ip nat outside source static** *protocol global-ip global-port local-ip local-port*

| | |
|---|---|
| **list** access-list-number | p l o b p |

```
ip address 92.168.12.55 255.255.255.0
ip nat inside
!
interface vlan 3
ip address 92.168.100.1 255.255.255.0
ip nat outside
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat pool net192 192.168.12.1 192.168.12.254 prefix-length 24
ip nat inside source list  1 pool net200
ip nat outside source list 1 pool net192
access-list 1 permit 92.168.12.0 0.0.0.255
!
ip route 192.168.12.0 255.255.255.0 92.168.100.2
```

inside outside NAT

| | |
|---|---|
| ip nat | NAT |
| ip nat inside destination | NAT |
| ip nat inside source | NAT |
| ip nat pool | IP NAT |
| show ip nat translations | IP NAT |

| | |
|---|---|
| **10.3(4b6)** | vrf |

## 17.1.7 ip nat pool

NAT **ip nat pool** no

**ip nat pool** *pool-name start-ip end-ip* { **netmask** *netmask* | **prefix-length** *prefix-length* } [ **type rotary** ]

**ip nat pool** *pool-name* { **netmask** *netmask* | **prefix-length**

*prefix-length* } [ **type rotary** ]
**no ip nat pool** *pool-name*

| | | |
|---|---|---|
| | **10.3(4b6)** | vrf |

## 17.1.8 ip nat translation

## 17.2.1 show ip nat translations

NAT show ip nat translations

**show ip nat translations** [*acl_num*] [**icmp** | **tcp** | **udp** ] [ **verbose** ]

| | |
|---|---|
| icmp | icmp nat |
| tcp | tcp nat |
| udp | udp nat |
| acl_num | acl , acl |
| verbose | NAT |

IP NAT

**verbose**

timeout

1 show ip nat translations verbose

```
Ruijie# show ip nat translations verbose
Pro Inside global     Inside local      Outside local     Outside
global timeout vrf
tcp   192.168.5.103:1987   192.168.211.21:1987   211.67.71.7:80
211.67.71.7:80 timeout=85139 1
udp  192.168.5.103:1041  192.168.211.183:1041  202.101.98.55:53
202.101.98.55:53 timeout=38 1
```

| | |
|---|---|
| Outside local | |
| Outside global | |
| timeout | NAT |
| vrf | vrf |

| | |
|---|---|
| ip nat | NAT |
| ip nat inside destination | NAT |
| ip nat inside source | NAT |
| ip nat outside source | NAT |
| ip nat pool | IP NAT |
| show ip nat translations | IP NAT |

| | |
|---|---|
| **10.3(4b6)** | vrf |

# 18

### 18.1.1

ping

DNS VRF RSR

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
```

```
ng 192.168.5.197 length 1500 ntimes 100 timeout 3 data
e 192.168.4.10

, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3

trl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!
te is 100 percent (100/100), round-trip min/avg/max =
```

## 18.1.2 Traceroute

traceroute

.

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

| | |
|---|---|
| *vrf-name* | VRF |

*Ip-address* IPv4

traceroute

DNS

VRF RSR

traceroute

```
Ruijie#
```

IP 202.108.37.42

1 17 4

```
Ruijie# traceroute www.ietf.org

Translating " www.ietf.org "...[OK]
< press Ctrl+C to break >
Tracing the route to 64.170.98.32

1     192.168.217.1   0 msec  0 msec  0 msec
2     10.10.25.1        0 msec  0 msec  0 msec
3     10.10.24.1        0 msec  0 msec  0 msec
4     10.10.30.1        10 msec 0 msec  0 msec
5     218.5.3.254       0 msec  0 msec  0 msec
6     61.154.8.49       10 msec 0 msec  0 msec
7     202.109.204.210    0 msec  0 msec  0 msec
8     202.97.41.69      20 msec 10 msec 20 msec
9     202.97.34.65      40 msec 40 msec 50 msec
10    202.97.57.222     50 msec 40 msec 40 msec
11    219.141.130.122    40 msec 50 msec 40 msec
12    219.142.11.10     40 msec 50 msec 30 msec
13    211.157.37.14     50 msec 40 msec 50 msec
14    222.35.65.1       40 msec 50 msec 40 msec
15    222.35.65.18      40 msec 40 msec 40 msec
16    222.35.15.109     50 msec 50 msec 50 msec
17    *       *       *
18   64.170.98.32     40 msec 40 msec 40 msec
```

VRF RSR

## 18.1.3 Line-detect

line-detect

**line-detect**

line-detect

```
Ruijie(config)#int gigabitEthernet 3/1
Ruijie(config-if-GigabitEthernet 3/1)#line-detect
start cable-diagnoses,please wait...
```

```
cable-daignoses end!this is result:
4 pairs
pair state     length(meters)
---- ---------- --------------
A      Ok          2
B      Ok          1
C      Short       1
D      Short       1
```

pairs

State OK Short Open

A B OK C D Short

A B C D OK

Length: state OK

Short Open length

# 19 DHCP

## 19.1.1 bootfile

DHCP

## 19.1.2 client-identifier

DHCP DHCP
**client-identifier** **no**

**client-identifier** *unique-identifier*
**no client-identifier**

| | |
|---|---|
| *unique-identifier* | DHCP<br><br>0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 |

DHCP

DHCP DHCP IP
MAC MAC
00d0.f822.33b4 GigabitEthernet 0/1
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 01

67.6967.6162.6974.4574.6865.726e.6574.302f.31
GigabitEthernet0/1 RFC1700
Address Resolution Protocol Parameters

DHCP

MAC 00d0.f822.33b4 DHCP

```
client-identifier
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31
```

| | |
|---|---|
| **hardware-address** | DHCP |
| **host** | IP<br>DHCP |

DHCP

**default-router** *ip-address* [ *ip-address2…ip-address8* ]
**no default-router**

| | |
|---|---|
| *ip-address* | IP |
| *ip-address2…ip-address8* | 8 |

DHCP

DHCP DHCP DHCP
IP

192.168.12.1

```
default-router 192.168.12.1
```

| | |
|---|---|
| **ip dhcp pool** | DHCP<br>DHCP |

## 19.1.5 dns-server

DHCP DNS DHCP **dns-server**
**no** DNS

**dns-server** { *ip-address* [ *ip-address2…ip-address8* ] |
**use-dhcp-client** *interface-type interface-number* }
**no dns-server**

| | |
|---|---|
| *ip-address* | DNS IP |
| *ip-address2…ip-address8* | 8 DNS |

| | |
|---|---|
| **use-dhcp-client** *interface-type interface-number* | RGOS DHCP DNS DHCP DNS |

DNS

DHCP

DNS DHCP DNS DNS

RGOS DHCP DNS DHCP

DHCP DNS 192.168.12.3

```
dns-server 192.168.12.3
```

| | |
|---|---|
| **domain-name** | DHCP |
| **ip address dhcp** | DHCP IP |
| **ip dhcp pool** | DHCP DHCP |

## 19.1.6 domain-name

DHCP DHCP **domain-name** **no**

**domain-name** *domain-name*
**no domain-name**

| | |
|---|---|
| *domain-name* | DHCP |

DHCP

DHCP

DHCP i-net.com.cn

```
domain-name i-net.com.cn
```

| | |
|---|---|
| **dns-server** | DHCP DNS |
| **ip dhcp pool** | DHCP DHCP |

## 19.1.7 hardware-address

IP 192.168.12.91 255.255.255.240

```
host 192.168.12.91 255.255.255.240
```

| | |
|---|---|
| **client-identifier** | DHCP |
| **hardware-address** | DHCP |
| **ip dhcp pool** | DHCP |

## 19.1.10 ip dhcp excluded-address

IP

**no ip dhcp ping packet**

| | |
|---|---|
| *number* | 0 10 0<br>ping ping |

| | |
|---|---|
| *milli-seconds* | DHCP ping<br>100 10000 |

500

ping

ping 600ms

```
ip dhcp ping timeout 600
```

| | |
|---|---|
| **clear ip dhcp conflict** | DHCP |
| **ip dhcp ping packets** | DHCP<br>ping |
| **show ip dhcp conflict** | DHCP |

## 19.1.13 ip dhcp pool

DHCP DHCP **ip dhcp pool** **no** DHCP

**ip dhcp pool** *pool-name*
**no ip dhcp pool** *pool-name*

| | |
|---|---|
| *pool-name* | mypool 1 |

DHCP

DHCP

```
Ruijie(dhcp-config)#
```

IP DNS

mypool0 DHCP

```
ip dhcp pool mypool0
```

DHCP

DHCP DHCP

DHCP 1

```
lease 0 1
```

DHCP 1

```
lease 0 0 1
```

| | |
|---|---|
| **ip dhcp pool** | DHCP DHCP |

## 19.1.15 netbios-name-server

DHCP NETBIOS WINS DHCP
**netbios-name-server** no WINS

**netbios-name-server** *ip-address* [ *ip-address2…ip-address8* ]
**no netbios-name-server**

| | |
|---|---|
| *ip-address* | WINS IP |
| *ip-address2…ip-address8* | 8 WINS |

WINS

DHCP

WINS DHCP WINS
WINS

DHCP WINS 192.168.12.3

```
netbios-name-server 192.168.12.3
```

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

NetBIOS NetBIOS

WINS
WINS NetBIOS
Hybrid

DHCP NetBIOS

```
netbios-node-type h-node
```

| | |
|---|---|
| **ip dhcp pool** | DHCP DHCP |
| **netbios-name-server** | DHCP NETBIOS WINS |

## 19.1.17 network DHCP

DHCP DHCP **network** **no**

**network** *net-number net-mask*
**no network**

| | |
|---|---|
| *net-number* | DHCP IP |
| *net-mask* | DHCP IP |

DHCP

DHCP

DHCP
DHCP

**show ip dhcp binding** **show ip dhcp conflict**

DHCP 192.168.12.0 255.255.255.240

```
network 192.168.12.0 255.255.255.240
```

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

## 19.1.18 next-server

DHCP DHCP **next-server** **no**

**next-server** *ip-address* [ *ip-address2…ip-address8* ]
**no next-server**

| | |
|---|---|
| *ip-address* | IP TFTP |
| *ip-address2…ip-address8* | 8 |

DHCP

DHCP

DHCP 192.168.12.4

```
next-server 192.168.12.4
```

| |
|---|
| |
| DHCP |
| lper |
| DHCP |

HCP **option** **no**

*ring* | **ip** *ip-address* }

| |
|---|
| DHCP |

ASCII ASCII

```
option 19 hex 1
```

33 DHCP
DHCP 1 172.16.12.0 192.168.12.12
2 172.16.16.0 192.168.12.16

```
option 33 ip 172.16.12.0 192.168.12.12 172.16.16.0 192.168.12.16
```

| | |
|---|---|
| **ip dhcp pool** | DHCP<br>DHCP |

## 19.1.20 service dhcp

DHCP **service dhcp**
**no** DHCP

**service dhcp**
**no service dhcp**

DHCP

DHCP IP DNS
DHCP DHCP DHCP
DHCP DHCP

DHCP

DHCP

```
service dhcp
```

| | |
|---|---|
| **show ip dhcp server statistics** | DHCP |

## 19.2.1 clear ip dhcp binding

DHCP **clear ip dhcp binding**

**clear ip dhcp binding** { * | *ip-address* }

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

| | |
|---|---|
| *ip-address* | IP |

DHCP ping DHCP
ARP **clear ip dhcp conflict**

```
clear ip dhcp conflict *
```

| | |
|---|---|
| **ip dhcp ping packets** | DHCP<br>ping |
| **show ip dhcp conflict** | DHCP |

## 19.2.3 clear ip dhcp server statistics

DHCP **clear ip dhcp server statistics**

**clear ip dhcp server statistics**

DHCP DHCP
DHCP **clear ip dhcp server statistics**

DHCP

```
clear ip dhcp server statistics
```

| | |
|---|---|
| **show ip dhcp server statistics** | DHCP |

## 19.2.4 debug ip dhcp client

DHCP Client **debug ip dhcp client**

**debug ip dhcp client**
**no debug ip dhcp client**

dhcp client

dhcp

```
debug ip dhcp client
```

## 19.2.5 debug ip dhcp server

DHCP Server **debug ip dhcp server**

**debug ip dhcp server**
**no debug ip dhcp server**

dhcp server

dhcp

```
debug ip dhcp server
```

## 19.2.6 show dhcp lease

DHCP EXEC **show dhcp lease**

**show dhcp lease**

IP IP
IP

**show dhcp lease**

```
Ruijie# show dhcp lease
Temp IP addr: 192.168.5.71 for peer on Interface:
GigabitEthernet0/0
Temp sub net mask: 255.255.255.0
DHCP Lease server: 192.168.5.70, state: 3 Bound
DHCP transaction id: 168F
Lease: 600 secs, Renewal: 300 secs, Rebind: 525 secs
Temp default-gateway addr: 192.168.5.1
Next timer fires after: 00:04:29
Retry count: 0 Client-ID: redgaint-00d0.f8fb.5740-Fa0/0
```

## 19.2.7 show ip dhcp binding

DHCP EXEC **show ip dhcp binding**

**show ip dhcp binding** [ *ip-address* ]

| | |
|---|---|
| *ip-address* | IP |

IP IP
IP

**show ip dhcp binding**

```
Ruijie# show ip dhcp binding
IP address    Client-Id/        Lease expiration  Type
              Hardware address
192.168.1.2   00d0.f866.4777    IDLE              Manual
```

| | |
|---|---|
| IP address | DHCP IP |
| `Client-Id/` Hardware address | DHCP client identifier |
| Lease expiration | Infinite<br>IDLE<br>DHCP |

Type Automatic DHCP

DHCP

**show ip dhcp conflict**

```
Ruijie# show ip dhcp conflict
IP address    Detection Method
192.168.12.1    Ping

dhcpd excluded ipaddress
192.168.12.100
```

| | |
|---|---|
| IP address | DHCP IP |

# 20 DNS

## 20.1.1 ip domain-lookup

DNS no DNS

**ip domain-lookup**

**no ip domain-lookup**

DNS

DNS DNS

DNS

Ruijie(config)# **ip domain-lookup**

| | |
|---|---|
| **show hosts** | DNS |

| | |
|---|---|
| *ip-address* | 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 |

RGNOS10.1

## 20.1.3 ip host

IP no

**ip host** *host-name ip-address*

**no ip host** *host-name ip-address*

| | |
|---|---|
| *host-name* | |
| *ip-address* | IP |

**no ip host host-name ip-address**

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

# 21 NTP

## 21.1.1 no ntp

ntp ntp

**no ntp**

NTP

NTP NTP NTP
NTP

NTP

**no ntp**

| | |
|---|---|
| **peer** | NTP |
| **serve** | NTP |
| **serve-only** | NTP |
| **query-only** | NTP |
| *access-list-number* | IP 1 99 1300 1999 |
| *access-list-name* | IP |

NTP

NTP

NTP
NTP

NTP

peer serve serve-only query-only

**注意:**

1
2

```
Ruijie(config)# ntp access-group peer 1
Ruijie(config)# ntp access-group serve-only 2
```

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

| | |
|---|---|
| **ip access-list** | IP |

## 21.1.3 ntp authenticate

NTP NTP

**ntp authenticate**

**no ntp authenticate**

NTP

**ntp authentication-key** **ntp trusted-key**

```
ntp authentication-key 6 md5 wooooop
ntp trusted-key 6
ntp authenticate
```

| | |
|---|---|
| **ntp authentication-key** | |
| **ntp trusted-key** | |

## 21.1.4 ntp authentication-key

NTP NTP

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

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

NTP

NTP

**注意：**

IP

NTP

```
no ntp
```

## 21.1.6 ntp master

NTP

no NTP

**ntp master** *[stratum]*
**no ntp master**

| | |
|---|---|
| *stratum* | 1<br>15 8 |

NTP

**注意：**

12

```
Ruijie(config)# ntp master 12
```

## 21.1.7 ntp server

NTP NTP

**ntp server** *ip-addr* [ **version** *version* ] [ **source** *if-name* ] [ **key** *keyid*][**prefer**]

**no ntp server** *ip-addr*

| | |
|---|---|
| *ip-addr* | NTP IP IPv4 IPv6 |
| *version* | NTP 1-3 NTPv3 |
| *if-name* | NTP |
| *keyid* | |
| **prefer** | Prefer |

NTP

prefer

NTP IP
NTP

NTP server

IPv4 `Ruijie(config)# ntp server 192.168.210.222`

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

| | |
|---|---|
| **no ntp** | NTP |

## 21.1.8 ntp synchronize

NTP

**ntp synchronize**

**no ntp synchronize**

NTP 8

NTP

`Ntp synchronize`

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

## 21.1.9 ntp trusted-key

ID

**ntp trusted-key** *key-id*

**no ntp trusted-key** *key-id*

| | |
|---|---|
| *key-id* | ID |

NTP ID

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

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

## 21.1.10 ntp update-calendar

NTP
no

**ntp update-calendar**
**no ntp update-calendar**

NTP

NTP NTP

NTP

```
Ruijie(config)# ntp update-calendar
```

## 21.2.1 debug ntp

NTP

**debug ntp**

**no debug ntp**

NTP

NTP

```
debug ntp
```

## 21.2.2 show ntp status

NTP

**show ntp status**

NTP NTP

NTP

```
show ntp status
```

# 22 SNTP

## 22.1.1 sntp enable

SNTP **no** —Disable

[**no**] **sntp enable**

SNTP Disable

**show sntp** SNTP

```
RedGiant(config)# sntp enable
```

| | |
|---|---|
| **show sntp** | SNTP |
| **clock update-calendar** | |
| **clock set** | |

RGOS10.0

## 22.1.2 sntp server

SNTP Server

**no sntp server**

```
RedGiant(config)# sntp interval 3600
```

| | |
|---|---|
| **sntp enable** | SNTP |
| **show sntp** | SNTP |
| **clock update-calendar** | |

RGOS10.0

---

**注意:**

sntp enable

---

## 22.2.1 show sntp

SNTP

**show sntp** SNTP

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

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

| | |
|---|---|
| **sntp enable** | SNTP |
| **show sntp** | SNTP |

RGOS10.0

# 23 SSH

## 23.1.1 crypto key generate

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

RGOS10.1

## 23.1.2 crypto key zeroize

SSH

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

| | |
|---|---|
| **rsa** | RSA |
| **dsa** | DSA |

SSH Server

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

Ruijie# **configure terminal**
Ruijie(config)# **crypto key zeroize rsa**

| | |
|---|---|
| **show ip ssh** | SSH Server |
| **crypto key generate {rsa|dsa}** | DSA RSA |

RGOS10.1

## 23.1.3 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 SSH Server SSH1 SSH2 SSH 1 SSH 2
1 2 SSH **show ip ssh** SSH Server

2

Ruijie# **configure terminal**
Ruijie(config)# **ip ssh version** *2*

| | |
|---|---|
| **show ip ssh** | SSH Server |

RGOS10.1

## 23.1.4 ip ssh time-out

SSH Server **no**

**ip ssh time-out** *time*
**no ip ssh time-out**

| | |
|---|---|
| *time* | |

120s **no ip ssh time-out**

SSH Server

120s **show ip cC20 1 400 1 Tf0 Tc 0 Tw ( )Tj/C**

SSH Server SSH Server
**show ip ssh** SSH
Server

2

Ruijie# **configure terminal**
Ruijie(config)# **ip ssh ssh authentication-retries** *2*

| | |
|---|---|
| **show ip ssh** | SSH Server |

Ruijie# **show ip ssh**

| | |
|---|---|
| **Ip ssh version** {**1** | **2**} | SSH Server |
| **ip ssh time-out time** | SSH Server |
| **Ip ssh authentication-retries retry times** | SSH Server |

RGOS10.1

## 23.2.2 show ssh

SSH

**show ssh**

SSH VTY SSH

Ruijie# **show ssh**

RGOS10.1

## 23.2.3 show crypto key mypubkey

SSH Server

**show crypto key mypubkey** {***rsa***|***dsa***}

SSH SSH VTY
SSH SSH

Ruijie# **disconnect ssh** *1*
Ruijie# **disconnect ssh vty** *1*

| | |
|---|---|
| **show ssh** | SSH |
| **Clear line vty** *line_number* | VTY |

RGOS10.1

# 24 UDP-Helper

## 24.1.1 udp-helper enable

**udp-helper enable** UDP **no udp-helper enable** UDP

UDP

**udp-helper enable**

**no udp-helper enable**

UDP

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

UDP :

```
Ruijie(config)# udp-helper enable
```

| | |
|---|---|
| **ip forward-protocol** | UDP |

RGNOS10.1

## 24.1.2 ip helper-address

UDP no UDP

**ip helper-address** *address*
**no ip helper-address** *address*

| | |
|---|---|
| *address* | UDP<br>20 |

**no ip forward-protocol udp** [*port* | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

| | |
|---|---|
| *port* | 69,53,37,137,138,49 |
| **tftp** | Trivial File Transfer Protocol(69)<br>UDP |

RGNOS10.1

# 25

## 25.1.1 ip policy route-map

**ip policy route-map** **no**

**ip policy route-map** *route-map*
**no ip policy route-map**

| | |
|---|---|
| *route-map* | |

1

ACL ACL ACL

注意:

vlan 1 10.0.0.1

196.168.4.6 20.0.0.1 196.168.5.6

```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
exit
route-map lab1 permit 20
match ip address 2
set ip next-hop 196.168.5.6
exit
interface vlan 1
ip policy route-map lab1
exit
```

| | |
|---|---|
| **access-list** | |
| **route-map** | |
| **set ip next-hop** | |
| **set ip default next-hop** | |

**set interface**

| | |
|---|---|
| *route-map* | |

1

set interface , set interface

192.168.217.10 **vlan 1**

```
access-list 1 permit 192.168.217.10
route-map lab1 permit 10
match ip address 1
set interface vlan 1
exit
```

| | |
|---|---|
| **access-list** | |
| **route-map** | |
| **set ip next-hop** | |
| **set ip default next-hop** | |
| **set interface** | |
| **set default interface** | |
| **set ip tos** | IP TOS |

| | |
|---|---|
| **set ip dscp** | IP DSCP |
| **set ip precedence** | IP |

**match ip address**

```
match ip address 2
set ip next-hop 196.168.5.6
set ip next-hop 196.168.5.7
set ip next-hop 196.168.5.8
exit
interface vlan 1
ip policy route-map lab1
exit
ip policy redundance
```

# 26 RIP

## 26.1.1 address-family RIP

RIP **address-family**

**no**

**address-family ipv4 vrf** *vrf-name*

| | |
|---|---|
| **version** | RIP v1 v2<br>v1&v2 |

## 26.1.3 default-metric (RIP)

RIP **default-metric** **no**

**default-metric** *metric*
**no default-metric**

| | |
|---|---|
| *metric* | 1 16 metric<br>16 RGOS |

1

**redistribute**
RIP
RIP
RIP default-metric
default-metric
default-metric 1

RIP OSPF
RIP 3

```
Ruijie(config)# router rip
Ruijie(config-router)# default-metric 3
Ruijie(config-router)#  redistribute ospf 100
```

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

| | |
|---|---|
| **redistribute** | |

## 26.1.4 default-information originate(RIP)

RIP **default-information originate** **no**

**default-information originate** [**always**] [**metric** *metric-value*] [**route-map** *map-name*]

**no default-information originate** [**always**] [**metric**] [**route-map** *map-name*]

| | |
|---|---|
| **always** | RIP |
| **metric** *metric-value* | *metric-value* 1-15 |
| **route-map** *map-name* | route-map , route-map |

**1-15**

RIP

```
Ruijie(config-router)# default-information originate always
```

```
Ruijie(config)# router rip
Ruijie(config-router)# distance 160
Ruijie(config-router)# distance 123 192.168.12.1
0.0.0.0
```

## 26.1.6 distribute-list in RIP

**distribute-list in**

**no**

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

**no distribute-list** {[*access-list-number* |

```
Ruijie(config-router)# distribute-list 10 in
GigabitEthernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config)#access-list 10 permit 172.16.0.0
0.0.255.255
```

| | |
|---|---|
| **access-list** | |
| **prefix-list** | |

## 26.1.7 distribute-list out RIP

**distribute-list out**

**no**

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

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

| | |
|---|---|
| *access-list-number* | |
| **prefix** *prefix-list-name* | |
| *interface* | ( ) |
| *protocol* | ( ) |
| *process-id* | ( ) *protocol* OSPF OSPF id |

RIP 192.168.12.0/24

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.4.4.0
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# distribute-list 10 out
Ruijie(config-router)# version 2
Ruijie(config)# access-list 10 permit 192.168.12.0
0.0.0.255
```

| | |
|---|---|
| **access-list** | |
| **prefix-list** | |
| **redistribute** | |

## 26.1.8 exit-address-family

**exit-address-family**

**exit-address-family**

**exit**

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

| | |
|---|---|
| **address-family** | |

## 26.1.9

| | |
|---|---|
| **ip rip authentication text-password** | RIP |
| **key chain** | |

## 26.1.10 ip rip authentication mode

RIP **ip rip authentication mode** **no** RIP

**ip rip authentication mode** {**text** | **md5**}
**no ip rip authentication mode**

| | |
|---|---|
| **text** | RIP |
| **md5** | RIP MD5 |

RIP RIP RIP RIP

## 26.1.11 ip rip authentication text-password

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

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

| | |
|---|---|
| *password-string* | 1 16 |

RIP

RIPv1 RIP RIPv2

Serial 0 RIP ruijie

```
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication text-password ruijie
```

| | |
|---|---|
| **ip rip authentication mode** | RIP |
| **ip rip authentication key-chain** | RIP RIP<br>RIPv2 RIP |

## 26.1.12 ip rip default-information

RIP **ip rip default-information** **no**

**ip rip default-information only originate** [**metric** *metric-value*]
**no ip rip default-information**

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

## 26.1.13 ip rip receive enable

RIP RIP **ip rip receive enable** **no** RIP RIP

**ip rip receive enable**
**no ip rip receive enable**

RIP

RIP **no** **default** RIP

GigabitEthernet 0/0 RIP

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip receive enable
```

| | |
|---|---|
| **ip rip send enable** | RIP |
| **passive-interface** | RIP |

## 26.1.14 ip rip receive version

RIP RIP **ip rip receive version** **no**

**ip rip receive version** [**1**] [**2**]
**no ip rip receive version**

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

| | |
|---|---|
| **1** | RIPv1 |
| **2** | RIPv2 |

**version**

**vesion** RIP
RIPv1 RIPv2
version

GigabitEthernet 0/0 RIPv1 RIPv2

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip receive version 1 2
```

| | |
|---|---|
| **version** | RIP |

## 26.1.15 ip rip send enable

RIP RIP **ip rip send enable**
**no** RIP RIP

**ip rip send enable**
**no ip rip send enable**

RIP

RIP **no**
**default** RIP

GigabitEthernet 0/0 RIP

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip send enable
```

| | |
|---|---|
| **ip rip receive enable** | RIP |

GigabitEthernet 0/0 RIPv1 RIPv2

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip send version 1 2
```

| | |
|---|---|
| **version** | RIP |

## 26.1.17 ip rip v2-broadcast

RIP version 2
**ip rip v2-broadcast** no

**ip rip v2-broadcast**
**no ip rip v2-broadcast**

**version**

**ve4721354201C4>Tj/TT0 1 Tf64B2C9 Tc 7.82AFC>]TJ/TT5 1 T472**

## 26.1.18 ip split-horizon (RIP)

RIP **ip split-horizon** no RIP

**ip split-horizon**
**no ip split-horizon**

IP

X.25

IP

RIP

RIP **ip summary-address rip** no

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

| | |
|---|---|
| *ip-address* | IP |
| *ip-network-mask* | IP |

RIP

**ip summary-address rip** RIP

RIPv2 GigabitEthernet 1/0 172.16.0.0/16

```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip summary-address rip 172.16.0.0 255.255.0.0
Ruijie(config-if)# ip address 172.16.1.1 255.255.255.0
Ruijie(config)# router rip
Ruijie(config-router)# network 172.16.0.0
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

| | |
|---|---|
| **auto-summary** | RIP |

## 26.1.20 network (RIP)

RIP **network**

**no**

**network**

**no network** *network-number* [*wildcard*]

| | |
|---|---|
| *network-number* | IP<br>RIP |
| *wildcard* | IP 0 1 |

| | |
|---|---|
| *ip-address* | IP |

RIPv1 IP 255.255.255.255 RIPv2 224.0.0.9

**passive-interface** RIP passive

## 26.1.22 offset-list(RIP)

RIP metric **offset-list** **no** offset

**offset-list access-list-number** {**in** | **out**} *offset* [*interface-type interface-number]*
**no offset-list access-list-number** {**in** | **out**} *offset* [*interface-type interface-number*]

| | |
|---|---|
| *access-list-number* | acl |
| **in** | acl metric |
| **out** | acl metric |
| *offset* | metric |
| *interface-type* | acl |
| *interface-number* | |

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

acl 7 RIP metric 7

```
Ruijie(config-router)# offset-list 7 out 7
```

GigabitEthernet1/0 acl 8 RIP metric 7

```
Ruijie(config-router)# offset-list 7 in 7
Ruijie(config-router)# offset-list 8 in 7 GigabitEthernet 1/0
```

## 26.1.23 output-delay

RIP

**output-delay** **no**

**output-delay** *delay*

**no output-delay**

| | |
|---|---|
| *delay* | <8-50> |

RIP 30

```
Ruijie(config)# router rip
Ruijie(config-router)# output-delay 30
```

## 26.1.24 passive-interface

**passive-interface**

**no**

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

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

passive

**passive-interface default** passive **no passive-interface** *intface-type interface-num* passive

**ip rip send enable** **ip rip receive enable**
passive

| | |
|---|---|
| **ip rip receive enable** | RIP |
| **ip rip send enable** | RIP |

## 26.1.25 redistribute RIP

**redistribute**

**no**

**redistribute** {**ospf** *<1-65535>* | **connected** | **static**}[**metric** *value* ] [**route-map** *route-map-name* ][ **match internal** | **external** *type* | **nssa-external** *type* ]

**no redistribute** {**ospf** *<1-65535>* | **connected** | **static**}[**metric** *value* ] [**route-map** *route-map-name* ] [ **match internal** | **external** *type* | **nssa-external** *type* ]

| | |
|---|---|
| **ospf** | **connected** | **static** | |
| **metric** | metric |
| **route-map** | |
| **match** | ospf |
| *process-name* | ISIS |
| *<1-65535>* | OSPF |

OSPF

metric 1

route-map

RIP

RIP OSPF

**ospf** match ospf
match match
no match

RIP

```
Ruijie(config-router)# redistribute static
```

| | |
|---|---|
| **network (RIP)** | RIP |

## 26.1.27 timers basic

RIP **timers basic** no

**timers basic** *update invalid flush*
**no timers basic**

| | |
|---|---|
| *update* | *update* *invalid* *Flush* 30 |
| *invalid* | *invalid* *invalid* *invalid* *Invalid* 180 |
| *flush* | RIP *invalid* *flush* *invalid* *Flush* 120 |

30 180 120

RIP RIP

RIP **show ip rip**

RIP 10 30
invalid invalid 90

```
Ruijie(config)# router rip
Ruijie(config-router)# timers basic 10 30 90
```

注意:

2Mbps

## 26.1.28 validate-update-source

RIP
**validate-update-source** **no**

**validate-update-source**

**no validate-update-source**

RIP RIP
IP

RIP
**validate-update-source**

ip unnumbered RIP
**validate-update-source**

```
Ruijie(config)# router rip
Ruijie(config-router)# no validate-update-source
```

| | |
|---|---|
| **ip split-horizon** | RIP |
| **ip unnumbered** | IP |
| **neighbor (RIP)** | RIP IP |

## 26.1.29 version (RIP)

RIP **version** **no**

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

| | |
|---|---|
| **1** | RIP 1 |
| **2** | RIP 2 |

RIPv1 RIPv2 RIPv1

RIP **ip rip receive version** **ip rip send version** RIP

RIP 2

```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
```

| | |
|---|---|
| **ip rip receive version** | RIP<br>RIP |

| | |
|---|---|
| **ip rip send version** | RIP<br>RIP |
| **show ip rip** | **rip** |

## 26.2.1 show ip rip

RIP **show ip rip**

**show ip rip** [**vrf** *vrf-name*]

| | |
|---|---|
| **vrf** *vrf-name* | VRF RIP |

RIP rip

rip metric distance

VRF VRF VRF-id

RIP

```
Ruijie# show ip rip
Routing Protocol is "rip"
Sending updates every 10 seconds
Invalid after 20 seconds, flushed after 10 seconds
Outgoing update filter list for all interface is: not set
Incoming update filter list for all interface is: not set
Default redistribution metric is 2
Redistributing: connected
Default version control: send version 2, receive version 2
Interface            Send  Recv
GigabitEthernet 1/1      2    2
GigabitEthernet 1/0      2    2
Routing for Networks:
192.168.26.0 255.255.255.0
```

```
192.168.64.0 255.255.255.0
Distance: (default is 50)
```

vrf RIP

```
Ruijie(config-router)# sh ip rip vrf 1
VRF 1  VRF-id:1
Routing Protocol is "rip"
Sending updates every 30 seconds
Invalid after 180 seconds, flushed after 120 seconds
Outgoing update filter list for all interface is: not set
Incoming update filter list for all interface is: not set
Default redistribution metric is 1
Redistributing:
Default version control: send version 1, receive any version
Routing for Networks:
Distance: (default is 120)
```

## 26.2.2 show ip rip database

RIP **show ip rip database**

**show ip rip database** [**vrf** *vrf-name*] [*network-number* {*network-mask*}]

| | |
|---|---|
| **vrf** *vrf-name* | VRF RIP |
| *network-number* | |
| *network-mask* | |

RIP

RIP

```
Ruijie# show ip rip database
```

```
192.168.1.0/24    auto-summary
192.168.1.0/30    directly connected, Loopback 3
192.168.1.8/30    directly connected, GigabitEthernet 0/0
192.168.121.0/24    auto-summary
192.168.121.0/24    redistributed
[1] via 192.168.2.22, GigabitEthernet 0/1
```

RIP 192.168.121.0/24

```
Ruijie# show ip rip database 192.168.121.0 255.255.255.0
192.168.121.0/24    redistributed
[1] via 192.168.2.22, GigabitEthernet 0/1
```

| | |
|---|---|
| **show ip rip** | |

## 26.2.3 show ip rip external

RIP **show ip rip external**

**show ip rip external** [**bgp** | **connected** | **isis** [*process-name*] | **ospf** <*1-65535*>| **static**] [**vrf** *vrf-name*]

| | |
|---|---|
| **bgp \| connected \| isis \| ospf \| static** | |
| **vrf** *vrf-name* | VRF RIP |
| *process-name* | ISIS |
| <*1-65535*> | OSPF |

RIP

```
Ruijie# show ip rip external connected
Protocol connected route:
```

```
[connected] 1.0.0.0/8 metric=0
nhop=0.0.0.0, if=2
[connected] 3.0.0.0/8 metric=0
nhop=0.0.0.0, if=16391
[connected] 4.4.0.0/16 metric=0
nhop=0.0.0.0, if=16388
[connected] 5.0.0.0/8 metric=0
nhop=0.0.0.0, if=16386
[connected] 192.168.195.0/24 metric=0
nhop=0.0.0.0, if=1
```

| | |
|---|---|
| **show ip rip** | |

## 26.2.4 show ip rip interface

RIP **show ip rip interface**

**show ip rip interface** [**vrf** *vrf-name*]

| | |
|---|---|
| **vrf** *vrf-name* | VRF RIP |

RIP

```
Ruijie# show ip rip interface
GigabitEthernet 1/1 is down, line protocol is down
  RIP is not enabled on this interface
GigabitEthernet 1/0 is up, line protocol is up
  Routing Protocol: RIP
  Receive RIPv2 packets only
  Send RIPv2 packets only
  Passive interface: Disabled
  Split horizon: Enabled
```

```
V2 Broadcast: Disabled
Multicast register: Registed
Interface Summary Rip:
  Not Configured
Authentication mode: Text
Authentication key-chain: ripk1
Authentication text-password: ruijie
Default-information: only, metric 5
IP interface address:
  192.168.64.100/24, next update due in 14 seconds
  2.2.1.1/24, next update due in 24 seconds
    neighbor 2.2.1.6, next update due in 3 seconds
    neighbor 2.2.1.77, next update due in 13 seconds
  2.2.2.57/24, next update due in 16 seconds
```

RIP BFD , :

```
Ruijie#show ip rip interface
VLAN 1 is up, line protocol is up
  Routing Protocol: RIP
    Receive RIPv1 and RIPv2 packets
    Send RIPv1 packets only
    Receive RIP packet: Enabled
    Send RIP packet: Enabled
    Send RIP supernet routes: Enabled
```

# 27 OSPF

## 27.1.1 area

**no** OSPF

**area** area-id

**no area** area-id

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

| | |
|---|---|
| **network area** | OSPF<br>OSPF |

## 27.1.2 area authentication

OSPF **area authentication** **no** OSPF

**area** *area-id* **authentication** [**message-digest**]
**no area** *area-id* **authentication**

| | |
|---|---|
| area-id | OSPF<br>IP |

message-dige reTf0 Tc aDB30224 refe reTf0 Tc aDB30224 ref.82 684.98 0.48 41.16 re. 147.42

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip address 192.168.12.1
255.255.255.0
Ruijie(config-if)# ip ospf message-digest-key 1 md5 backbone

#     OSPF

Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0
0.0.0.255 area 0
Ruijie(config-router)# area 0 authentication
message-digest
```

| | |
|---|---|
| **ip ospf authentication-key** | OSPF |
| **ip ospf message-digest-key** | OSPF MD5 |
| **area virtual-link** | |

## 27.1.3 area default-cost

STUB NSSA OSPF
**area default-cost** **no**

**area** *area-id* **default-cost** *cost*
**no area** *area-id* **default-cost**

| | |
|---|---|
| *area-id* | STUB NSSA |
| *cost* | STUB NSSA |

OSPF

| | |
|---|---|
| **no-summary** | nssa<br>(ABR) LSA<br>nssa |

NSSA

**default-information-originate** Type-7 LSA nssa ABR ASBR ABR Type-7 LSA ASBR ( ABR) Type-7 LSA

**no-redistribution** ASBR OSPF redistribute NSSA NSSA ASBR ABR nssa

NSSA LSA ABR no-s mmary ABR NSSA summary LSAs Type-3 LSA

**area default-cost** NSSA ABR NSSA NSSA 1

1

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255area 1
Ruijie(config-router)# area 1 nssa
```

| | |
|---|---|
| **area default-cost** | NSSA<br>OSPF |

## 27.1.6 area range

OSPF **area range**

**no** **no** **cost**

**area** *area-id* **range** *ip-address net-mask* [**advertise** | **not-advertise**] [**cost** *cost*]
**no area** *area-id* **range** *ip-address net-mask* [**cost**]

| | |
|---|---|
| *area-id* | OSPF<br>IP |
| *ip-address* | |
| **advertise** \| **not-advertise** | |
| **cost** *cost* | |

RFC1583 RFC1583
cost cost

ABR

advertise not-advertise

OSPF

172.16.16.0/20

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.15.255 area 0
Ruijie(config-router)# network 172.16.17.0 0.0.15.255area 1
Ruijie(config-router)# area 1 range 172.16.16.0 255.255.240.0
```

## 27.1.7 area stub

OSPF **area stub**
**no**

**area** *area-id* **stub**

## 27.1.8 area virtual-link

OSPF **area virtual-link** **no**

**area** *area-id* **virtual-link** *router-id* [**authentication** [**message-digest** | **null**]] [**dead-interval** *seconds*] [**hello-interval** *seconds*] [**retransmit-interval** *seconds*] [**transmit-delay** *seconds*] [[**authentication-key** *key*] | [**message-digest-key** *key-id* **md 5** *key*]]
**no area** *area-id* **virtual-link** *router-id*

| | |
|---|---|
| *area-id* | OSPF<br>IP |
| *router-id* | show ip ospf |
| **dead-interval** *seconds* | 40 |
| **hello-interval** *seconds* | OSPF Hello<br>10 |
| **retransmit-interval** *seconds* | OSPF LSA<br>5 |
| **transmit-delay** *seconds* | OSPF LSA<br>1<br>LSA LSA<br>LSA |
| **authentication-key** *key* | OSPF<br>service password-encryption |
| **message-digest-key** *key-id* **md5** *key* | OSPF MD5<br>MD5<br>service<br>password-encryption |
| **authentication** | |
| **message-digest** | MD5 |
| **null** | |

**dead-interval** 40

**hello-interval** 10

**retransmit-interval** 10

| | |
|---|---|
| **show ip ospf** | OSPF |

## 27.1.9 auto-cost

**no**

**auto-cost** [**reference-bandwidth** *ref-bw*]
**no auto-cost** [**reference-bandwidth**]

| | |
|---|---|
| *ref-bw* | Mbps<br>: 1-4294967 |

100Mbps

, ,
. ( )
. **default auto-cost** **no auto-cost**

**ip ospf cost** cost cost

10M

```
Ruijie(config)# router  ospf 1
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# auto-cost reference-bandwidth 10
```

| | |
|---|---|
| **show ip ospf** | ospf |

## 27.1.10 clear ip ospf process

OSPF

**clear ip ospf** (*process-id*) **process**

| | |
|---|---|
| *process-id* | OSPF<br>OSPF |

RFC2328

OSPF OSPF

RFC1583

rfc 2328

```
Ruijie(config)# router  ospf 1
Ruijie(config-router)# no commpatible rfc1583
```

| | |
|---|---|
| **show ip ospf** | ospf |

## 27.1.12 default-information originate OSPF

OSPF

**default-information originate** **no**

**default-information originate** [**always**] [**metric** *metric*] [**metric-type** *type*] [**route-map** *map-name*]

**no default-information originate** [**always**] [**metric** *metric*] [**metric-type** *type*] [**route-map** *map-name*]

| | |
|---|---|
| **always** | OSPF |
| **metric** *metric* | 1 |
| **metric-type** *type* | OSPF<br>1<br>2<br>1 2<br>2 |
| **route-map** *map-name* | route-map ,<br>route-map |

**redistribute** **default-information** OSPF ASBR ASBR OSPF ASBR **default-information originate**

always OSPF

**show ip ospf database** OSPF 0.0.0.0 OSPF **show ip route**

**default-information originate** **default-metric**

OSPF 1 2 1 2 **show ip route** 1

STUB

OSPF OSPF 1 50

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.24.0 0.0.0.255 area 0
Ruijie(config-router)#  default-information  originate  always
metric 50 metric-type 1
```

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

| | |
|---|---|
| *metric* | OSPF |

20

**default-metric** **redistribute**

**default-metric** **default-information originate** OSPF

OSPF 50

```
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# router  ospf
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# default-metric 50
Ruijie(config-router)#redistribute rip subnets
```

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

| | |
|---|---|
| **inter-area** <*1-255*> | 110 |
| **external** <*1-255*> | 110 |

110

OSPF

OSPF

OSPF 160

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# distance ospf external 160
```

## 27.1.15 distribute-list in

LSA

**distribute-list** {*listname* | **gateway** *plist-name* | **prefix** *plist-name* } **in** [**interface-type** *num*]

**no distribute-list** {*listname* | **gateway** *plist-name* | **prefix** *plist-name* } **in** [**interface-type** *num*]

| | |
|---|---|
| *listname* | acl |
| **gateway** *plist-name* | gateway |
| **prefix** *plist-name* | prefix-list |
| **interface-type** *num* | LSA |

LSA SPF

OSPF

ABR ASBR

```
Ruijie(config)# access-list 3 permit 172.16.0.0
0.0.127.255
Ruijie(config)# router ospf 25
Ruijie(config-router)# redistribute rip metric 100
Ruijie(config-router)# distribute-list 3 in ethernet 1/0
Ruijie(config-router)# distribute-list 3 in ethernet 1/1
```

## 27.1.16 distribute-list out

**redistribute**

**distribute-list** {*listname* | **gateway** *plist-name* | **prefix** *plist-name*} **out** [**bgp** | **connected** | **isis** *area-tag* | **ospf** *process-id* | **rip** | **static**]

**no distribute-list** {*listname* | **gateway** *plist-name* | **prefix** *plist-name* } **out** [**connected | ospf** *process-id*| **rip** | **static**]

| | |
|---|---|
| *listname* | acl |
| **gateway** *plist-name* | gateway |
| **prefix** *plist-name* | prefix-list |
| [**connected | ospf** *process-id* | **rip** | **static**] | |

**distribute-list out** **redistribute route-map** OSPF

**redistribute**

ACL prefix-list ,
ACL , prefix-list

```
Ruijie(config)# router ospf 1
Ruijie(config)# redistribute static subnets
Ruijie(config-router)# distribute-list 22 out static
Ruijie(config-router)# distribute-list prefix jjj out static
% There already has filter configured. Please re-configure.
```

## 27.1.17 enable mib-binding

**enable mib-binding** MIB OSPFv2 **no**

**enable mib-binding**

**no enable mib-binding**

| | |
|---|---|
| retransmit | retransmit traps<br>retransmit traps<br>iftxretransmit<br>virtiftxretransmit |
| state-change | state-change traps<br>state-change traps<br>ifstatechange<br>nbrstatechange<br>virtifstatechange<br>virtnbrstatechange |

TRAP

**snmp-server** **snmp-server enable traps ospf**

MIB TRAP

OSPFv2 100 TRAP

```
Ruijie(config)# router ospf 100
Ruijie(config)# enable traps
```

| | |
|---|---|
| **show ip ospf** | OSPF |
| **enable mib-binding** | OSPFv2 MIB |

## 27.1.19 ip ospf authentication

**no**

**ip ospf authentication** [**message-digest** | **null**]
**no ip ospf authentication**

| | |
|---|---|
| *Key* | 8 |

**ip ospf authentication-key** OSPF

OSPF

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

, LSA

LSA , .

LSA serial 1/0

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf database-filter all out
```

## 27.1.23 ip ospf dead-interval

OSPF **ip ospf dead-interval** **no**

**ip ospf dead-interval** *seconds*

**no ip ospf dead-interval**

hello

serial 1/0 OSPF 30

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf dead-interval 30
```

| | |
|---|---|
| **ip ospf hello-interval** | OSPF Hello |

## 27.1.24 ip ospf disable all

ospf

**ip ospf disable all**
**no ip ospf disable all**

ospf ospf

## 27.1.25 ip ospf hello-interval

OSPF Hello **ip ospf hello-interval** **no**

**ip ospf hello-interval** *seconds*
**no ip ospf hello-interval**

| | |
|---|---|
| *seconds* | OSPF hello |

OSPF MD5 **ip ospf message-digest-key**
no OSPF MD5

**ip ospf message-digest-key** *key-id* **md5** *key*
**no ip ospf message-digest-key**

| | |
|---|---|
| *Key* | 16 |
| *Key-id* | 255 |

MD5

**ip ospf message-digest-key** OSPF
OSPF

OSPF **area authentication**
, **ip ospf authentication**
, .

RGOS MD5
OSPF MD5
OSPF

GigabitEthernet 0/0 OSPF
hello5

```
Ruijie(config)# interface Serial 1/0
Ruijie(config-if)# ip address 172.16.24.2
255.255.255.0
Ruijie(config-if)# ip ospf authentication
message-digest
Ruijie(config-if)# ip ospf message-digest-key 10 md5
hello10
Ruijie(config-if)# ip ospf message-digest-key 5 md5
hello5
```

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# no ip ospf message-digest-key 10 md5 hello10
```

**ip ospf network broadcast non-broadcast point-to-multipoint** [ **non-br oadcast** ] **point-to-point**

**no ip ospf network broadcast non-broadcast point-to-multipoint** [ **non-broadcast** ] **point-to-point**

| | |
|---|---|
| **broadcast** | OSPF |
| **non-broadcast** | OSPF<br>NBMA |
| **point-to-multipoint** [**non-broadcast**] | OSPF<br>, non-broadcast |
| **point-to-point** | OSPF |

PPP SLIP X.25

NBMA

OSPF

X.25 IP broadcast .

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# ip address 172.16.24.4
255.255.255.0
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network broadcast
```

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# ip address 172.16.24.4
255.255.255.0
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network point-to-multipoint
```

DR/RDR

DR/BDR

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)#ip address 172.16.24.4 255.255.255.0
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network broadcast
Ruijie(config-if)# ip ospf priority 0
```

| | |
|---|---|
| **dialer map ip** | IP |
| **frame-relay map** | IP DLCI |
| **neighbor** OSPF | IP NBMA |
| **X25 map** | IP X.25 |

## 27.1.29 ip ospf priority

OSPF **ip ospf priority** **no**

OSPF

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

*Seconds* LSU

1

LSU LSAs Age
**ip ospf transmit-delay**

LSU **area virtual-link** **retransmit-interval**

RGOS Age 3600 LSA
LSA

serial1/ 0 5

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf transmit-delay 10
```

| | |
|---|---|
| **area virtual-link** | OSPF |

## 27.1.32 log-adj-changes

**no** **default**

**log-adj-changes** [**detail**]
**no log-adj-changes** [**detail**]

| | |
|---|---|
| **detail** | |

**detail** Full Full

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# log-adj-changes detail
```

| | |
|---|---|
| **show ip ospf** | ospf |

## 27.1.33 max-concurrent-dd

DD

**max-concurrent-dd** <*1-65535*>

| | |
|---|---|
| <*1-65535*> | DD |

5

OSPF DD

DD 4

```
Ruijie(config)# router ospf 10
Ruijie(config-router)# max-concurrent-dd 4
```

## 27.1.34 neighbor

OSPF **neighbor** **no**

**neighbor** *ip-address* [**poll-interval** *seconds*] [**priority** *priority*] [**cost** *cost*]

**no neighbor** *ip-address*

| | |
|---|---|
| *ip-address* | IP |
| **poll-interval** *seconds* | 120<br>Non-broadcast(NBMA) |
| **priority** *priority* | Non-broadcast(NBMA) |
| **Cost** *cost* | , cost point-to-multipoint [ non-broadcast ] |

| | |
|---|---|
| **ip ospf priority** | OSPF |
| **ip ospf network** | OSPF |

## 27.1.35 network area

OSPF OSPF **network** **area** **no** OSPF

**network** *ip-address wildcard* **area** *area-id*
**no network** *ip-address wildcard* **area** *area-id*

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

```
0.0.15.255 area 172.16.16.0
Ruijie(config-router)# network 192.168.12.0
0.0.0.255 area 1
Ruijie(config-router)# network 0.0.0.0 255.255.255.255 area 0
```

| | |
|---|---|
| **router ospf** | OSPF |

## 27.1.36 overflow database

OSPF LSA

**overflow database** <*0-4294967294*> **hard** | **soft**
**no overflow database**

| | |
|---|---|
| <*1-4294967294*> | LSA |
| **hard** | **soft** | hard LSA OSPF<br>soft LSA |

OSPF **hard** OSPF **soft**

LSA 10 OSPF 10

```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database 10 hard
```

## 27.1.37 overflow database external

external LSA

**overflow database external** *max-dbsize wait-time*
**no overflow database external**

| | |
|---|---|
| *max-dbsize* | external lsa AS<br>0-2147483647 |
| *wait-time* | 0-65535 |

external-LSA

external-LSA external-LSA

external-LSA *max-dbsize*
external-LSA external-LSA *wait-time*
external-LSA

```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database external 10 3
```

## 27.1.38 overflow memory-lack

OSPF OVERFLOW no

**overflow memory-lack**

**no overflow memory-lack**

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

no

**no**

**passive-interface** [**default** | *type number*]
**no passive-interface** [**default** | *type number*]

| | |
|---|---|
| *type number* | |
| **default** | |

, OSPF

serial 1/0

```
Ruijie(config)# router -15.06 -1.69i1920EDB8C1F02822751DD197909B3E7F41r02
```

| | |
|---|---|
| **ospf** *process-id* \| **rip** \| | \| **static** |
| **metric** OSPF extern2 LSA | metric |
| **match** | OSPF<br>OSPF |
| **metric-typ** E-1 | E-2 |
| **route-map** | |
| **tag** OSPF | tag |
| **subnets** | |

ASBR OSPF type-5 LSA OSPF

**ospf** match ospf match match no match

route-map route-map match OSPF ISIS match level route-map

OSPF

```
Ruijie(config-router)# redistribute static subnets
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute ospf 2 subnets
Ruijie(config-router)# redistribute ospf 2 match
external 1 internal
```

Show run

```
router ospf 1
redistribute ospf 2 match external 1 internal subnets
```

## 27.1.41 router ospf

OSPF **router ospf** **no**
OSPF

**router ospf** *process-id* [**vrf** *vrf-name*]
**no router ospf** *process-id*

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

| | |
|---|---|
| *router-id* | ID, IP |

OSPF ip

ip

,

LSA .

OSPF

loopback ospf

router-id 0.0.0.36

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# router-id 0.0.0.36
```

| | |
|---|---|
| **show ip protocols** | |

## 27.1.43 summary-address

OSPF

**summary-address** **no**

**summary-address** *ip-address net-mask* [**not-advertise | tag** *<0-4294967295>* | ]

| | |
|---|---|
| *ip-address* | IP |
| *net-mask* | |

| | |
|---|---|
| **not-advertise** | |

OSPF

OSPF

**area rang** area range OSPF summary-address OSPF

NSSA **summary-address** NSSA ABR

100.100.0.0/16

```
redRuijie(config)# router ospf 20
Ruijie(config-router)# summary-address 100.100.0.0 255.255.0.0
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# network 200.2.2.0 0.0.0.255 area 1
Ruijie(config-router)# network 172.16.24.0 0.0.0.255 area 0
Ruijie(config-router)# area 1 nssa
```

| | |
|---|---|
| **area range** | OSPF |

## 27.1.44 timers lsa-group-pacing

LSA

| | |
|---|---|
| *seconds* | LSA<br>: 10-1800 |

: 240

LSA
4
LSA 10000 LSA
40~100 10~20

120

```
Ruijie(config)#router ospf  20
Ruijie(config-router)#timers lsa-group-pacing 120
```

| | |
|---|---|
| **show ip ospf** | ospf |

## 27.1.45 timers spf

OSPF SPF SPF
**timers spf** no

**timers spf** *spf-delay spf-holdtime*
**no timers spf**

| | |
|---|---|
| *spf-delay* | SPF<br>OSPF<br>SPF |
| *spf-holdtime* | SPF<br>SPF |

*spf-delay* 5 *spf-holdtime* 10

*spf-delay* *spf-holdtime* OSPF
CPU

OSPF 3 9

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 3 9
```

| | |
|---|---|
| **show ip ospf** | ospf |

## 27.2.1 show ip ospf

OSPF **show ip ospf**

**show ip ospf** [*process-id*]

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

**show ip ospf**

```
Ruijie# show ip ospf
Routing Process "ospf 1" with ID 1.1.1.1
Process uptime is 4 minutes
Process bound to VRF default
Conforms to RFC2328, and RFC1583Compatibility flag isenabled
Supports only single TOS(TOS0) routes
Supports opaque LSA
This router is an ASBR (injecting external routing information)
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
LsaGroupPacing: 240 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 4. Checksum 0x0278E0
Number of opaque AS LSA 0. Checksum 0x000000
Number of non-default external LSA 4
External LSA database is unlimited.
Number of LSA originated 6
Number of LSA received 2
Log Neighbor Adjency Changes : Enabled
Number of areas attached to this router: 1
Area 0 (BACKBONE)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 1
Area has no authentication
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
Number of LSA 3. Checksum 0x0204bf
Area 1 (NSSA)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 0
Number of fully adjacent virtual neighbors through this area is 0
Area has no authentication
SPF algorithm last executed 02:09:23.040 ago
SPF algorithm executed 4 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State iselected
```

| | |
|---|---|
| Router ID | |
| Process uptime | OSPF router-id 0.0.0.0 |
| Bound to VRF | OSPF VRF |
| Conforms to RFC2328 | RFC2328 |
| RFC1583Compatibility flag | RFC1583 RFC2328 ASBR |

| | |
|---|---|
| Support Tos | TOS0 |
| Supports opaque LSA | opaque-LSA |
| Router Type | OSPF normal ABR ASBR |
| SPF Delay | SPF |
| SPF-holdtime | SPF |
| LsaGroupPacing | LSA |
| Incomming current DD exchange neighbors | incomming exstart |
| Outgoing current DD exchange neighbors | outgoing exstart |
| Number of external LSA | LSA |
| External LSA Checksum Sum | LSA |
| Number of opaque LSA | opaque-LSA |
| Opaque LSA Checksum Sum | opaque-LSA |
| Number of non-default external LSA | external-LSA |
| External LSA database limit | external-LSA |
| Exit database overflow state interval | overflow |
| Database overflow state | OSPF overflow |
| Number of LSA originated | LSA |
| Number of LSA received | LSA |
| Log Neighbor Adjency Changes | |
| Number of areas attached to this router | |
| Area type | , Default, Stub,NSSA |
| Number of interfaces in this area | |
| Number of fully adjacent neighbors in this area | Full |
| Number of fully adjacent virtual neighbors through this area | Full |

| | |
|---|---|
| Area authentication | |
| SPF algorithm last executed | SPF |
| SPF algorithm executed times | SPF |
| Number of LSA | LSA |
| Checksum Sum | LSA |
| NSSA Translator State | NSSA LSA External LSA NSSA ABR OSPF |

## 27.2.2 show ip ospf border-routers

ABR/ASBR OSPF **show ip ospf border-routers**

**show ip ospf** [*process-id*] **border-routers**

| | |
|---|---|
| *process-id* | ospf |

ABR ASBR OSPF OSPF **show ip route** OSPF OSPF

**show ip ospf border-routers**

```
Ruijie# show ip ospf border-routers
OSPF internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 1.1.1.1 [2] via 10.0.0.1, GigabitEthernet 0/1, ABR, ASBR, Area
0.0.0.1 select
```

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

| | |
|---|---|
| Codes | i<br>I |
| I | |
| 1.1.1.1 | OSPF |
| [2] | cost |
| via 10.0.0.1 | |
| GigabitEthernet 0/1 | |
| ABR, ASBR | ABR<br>ASBR ABR ASBR |
| Area 0.0.0.1 | |
| select | ASBR select |

## 27.2.3 show ip ospf database

OSPF **show ip ospf database**

LSAs

**show ip ospf** [*process-id area-id*] **database**

**show ip ospf** [*process-id area-id*] **database** [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**self-originate** | **max-age**]

**show ip ospf** [*process-id area-id*] **database** [**router**] [*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**router**] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**router**] [**self-originate**]

**show ip ospf** [*process-id area-id*] **database** [**network**][*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**network**] [*link-state-id*] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**network**] [*link-state-id*] [**self-originate**]

**show ip ospf** [*process-id area-id*] **database** [**summary**] [*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**summary**] [*link-state-id*] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**summary**] [*link-state-id*] [**self-originate**]

**show ip ospf** [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*] [**self-originate**]

**show ip ospf** [*process-id area-id*] **database** [**external**] [*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**external**] [*link-state-id*] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*] **database** [**external**] [*link-state-id*] [**self-originate**]

**show ip ospf** [*process-id area-id*] **database** [**nssa-external**] [*link-state-id*]

**show ip ospf** [*process-id area-id*] **database** [**nssa-external**] [*link-state-id*] [**adv-router** *ip-address*]

**show ip ospf** [*process-id area-id*]**database** [**nssa-external**] [*link-state-id*] [**self-originate** | **maxage**]

**show ip ospf** [*process-id area-id*]**database** [**database-summary**]

| | |
|---|---|
| *Area-id* | |
| **adv-router** | |
| *link-state-id* | OSPF |
| **self-originate** | |
| **maxage** | LSA |
| **router** | OSPF |
| **network** | OSPF |
| **summary** | OSPF |
| **asbr-summary** | ASBR |
| **external** | OSPF |
| **nssa-external** | OSPF |
| **opaque-area** | LSA |
| **opaque-as** | LSA |
| **opaque-link** | LSA |

| | |
|---|---|
| **database-summary** | OSPF<br>LSA |

OSPF
OSPF

**show ip ospf database**

```
Ruijie# show ip ospf database
          OSPF Router with ID (1.1.1.1) (Process ID 1)

                Router Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum  Link count
1.1.1.1         1.1.1.1         2    0x80000011 0x6f39 2
3.3.3.3         3.3.3.3         120  0x80000002 0x26ac 1

                Network Link States (Area 0.0.0.0)

Link ID         ADV Router      Age  Seq#       CkSum
192.88.88.27    1.1.1.1         120  0x80000001 0x5366

                Summary Link States (Area 0.0.0.0)

Link ID         ADV Router      Age  Seq#       CkSum  Route
10.0.0.0        1.1.1.1         2    0x80000003 0x350d 10.0.0.0/24
100.0.0.0       1.1.1.1         2    0x8000000c 0x1ecb 100.0.0.0/16

            Router Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum  Link count
1.1.1.1         1.1.1.1         2    0x80000001 0x91a2 1

            Summary Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum  Route
100.0.0.0       1.1.1.1         2    0x80000001 0x52a4 100.0.0.0/16
192.88.88.0       1.1.1.1             2      0x80000001  0xbb2d
192.88.88.0/24

          NSSA-external Link States (Area 0.0.0.1 [NSSA])

Link ID           ADV Router       Age   Seq#         CkSum   Route
Tag
20.0.0.0           1.1.1.1           1     0x80000001  0x033c  E2
20.0.0.0/24     0
100.0.0.0          1.1.1.1           1     0x80000001  0x9469  E2
100.0.0.0/28    0

                    AS External Link States
```

```
TOS: 0  Metric: 1
```

**show ip ospf database asbr-summary**

| | |
|---|---|
| OSPF Router with ID | OSPF |
| AS Summary Link States | AS |

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Type-5 AS External Link States | |
| LS age | |
| Options | |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |
| Length | |
| Network Mask | |
| Metric Type | |
| TOS | TOS 0 |
| Metric | |
| Forward Address | IP 0.0.0.0 |
| External Route Tag | 32 OSPF OSPF |

| | |
|---|---|
| OSPF Router with ID | OSPF |
| Router Link States | |
| LS age | |
| Options | |
| Flag | router |
| LS Type | |
| Link State ID | |
| Advertising Router | |
| LS Seq Number | |
| Checksum | |
| Length | |
| Number of Links | |
| Link connected to | |
| (Link ID) | |
| (Link Data) | |
| Number of TOS metrics | TOS TOS0 |
| TOS 0 Metrics | TOS |

**show ip ospf database summary**

```
Ruijie# show ip ospf database summary
OSPF Router with ID (1.1.1.1) (Process ID 1)
Summary Link States (Area 0.0.0.0)
LS age: 499
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: summary-LSA
Link State ID: 10.0.0.0 (summary Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 80000004
Checksum: 0x330e
Length: 28
Network Mask: /24
TOS: 0  Metric: 11
```

**show ip ospf database summary**

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

OSPF Router with ID OSPF

### show ip ospf database external

| | |
|---|---|
| OSPF Process | |
| Router Link | OSPF LSA |
| Network Link | OSPF LSA |
| Summary Link | OSPF LSA |
| ASBR-Summary Link | OSPFASBR LSA |
| AS External Link | OSPF LSA |
| NSSA-external Link | ,OSPF NSSA LSA |

## 27.2.4 show ip ospf interface

OSPF **show ip ospf interface**

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

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

OSPF OSPF

**show ip ospf interface GigabitEthernet** *1/0*

```
Ruijie# show ip ospf interface fa 1/0

GigabitEthernet 1/0 is up, line protocol is up
Internet Address 192.88.88.27/24, Ifindex 4, Area 0.0.0.0, MTU 1500
Matching network config: 192.88.88.0/24
Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 1.1.1.1, Interface Address 192.88.88.27
```

```
Backup Designated Router (ID) 3.3.3.3, Interface Address
192.88.88.72
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit
5
Hello due in 00:00:03
Neighbor Count is 1, Adjacent neighbor count is 1
Crypt Sequence Number is 70784
Hello received 1786 sent 1787, DD received 13 sent 8
LS-Req received 2 sent 2, LS-Upd received 29 sent 53
LS-Ack received 46 sent 23, Discarded 1
```

**show ip ospf interface serial** *1/0*

| | |
|---|---|
| GigabitEthernet 0/0 State | UP<br>Down |
| Internet Address | IP |
| Area | OSPF |
| MTU | MTU |
| Matching network config | OSPF network area |
| Process ID | |

Router ID OSPF

| | |
|---|---|
| Crypt Sequence Number | md5 |

```
Neighbor ID     Pri   State                Dead Time   Address
Interface
3.3.3.3          1   Full/BDR           00:00:32    192.88.88.72
GigabitEthernet 1/0

Ruijie# show ip ospf neighbor detail
Neighbor 3.3.3.3, interface address 192.88.88.72
In the area 0.0.0.0 via interface GigabitEthernet 1/0
Neighbor priority is 1, State is Full, 11 state changes
DR is 192.88.88.27, BDR is 192.88.88.72
Options is 0x52 (*|O|-|EA|-|-|E|-)
Dead timer due in 00:00:32
Neighbor is up for 05:11:27
Database Summary List 0
Link State Request List 0
Link State Retransmission List 0
Crypt Sequence Number is 0
Thread Inactivity Timer on
Thread Database Description Retransmission off
Thread Link State Request Retransmission off
Thread Link State Update Retransmission off
Thread Poll Timer on
```

**show ip ospf neighbor**

| | |
|---|---|
| Neighbor ID | |
| Pri | DR |
| State | |
| Dead Time | Dead |
| Address | |
| Interface | |
| interface address | |
| In the area | |
| via interface | |
| Neighbor priority | OSPF |
| State | OSPF FULL<br>DR<br>BDR<br>DROTHER<br>DR/BDR<br>DR BDR |
| State changes times | |

| | |
|---|---|
| Dead Time | |
| DR | DR<br>( Hello DR ) |
| BDR | BDR<br>( Hello BDR ) |
| Options | Hello E 0<br>STUB<br>STUB |
| Dead timer due in | |
| Neighbor up time | |
| Database Summary List | DD |
| Link State Request List | LS |
| Link State Retransmission List | |
| Crypt Sequence Number | MD5 |
| Thread Inactivity Timer | |
| Thread Database Description Retransmission | DD |
| Thread Link State Request Retransmission | LS |
| Thread Link State Update Retransmission | LS |
| Thread Poll Timer | Poll Timer |

## 27.2.6 show ip ospf route

ospf

**show ip ospf** [*process-id*] **route**[**count**]

| | |
|---|---|
| *process-id* | ospf ospf |
| **count** | ospf |

```
Ruijie# show ip ospf route
OSPF process 1:
Codes: C - connected, D - Discard, O - OSPF,
IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA
external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
E2 100.0.0.0/24 [1/20] via 192.88.88.126, GigabitEthernet 1/0
C  192.88.88.0/24 [1] is directly connected, GigabitEthernet 1/0,
Area 0.0.0.1
```

**show ip ospf route**

| | |
|---|---|
| codes | |
| 100.0.0.0/24 | |
| [1] | cost |
| via | |

## 27.2.7 show ip ospf summary-address

OSPF **show ip ospf summary-address**

**show ip ospf summary-address**

NSSA ABR

**show ip ospf summary-address**

```
Ruijie# show ip ospf summary-address
Summary Address Summary Mask    Advertise    Status   Aggregated
subnets
---------------    ---------------    -------------    --------
202.101.0.0    255.255.0.0    advertise       Inactive 0
Ruijie#
```

```
Ruijie# show ip ospf virtual-links
Virtual Link VLINK0 to router 1.1.1.1 is up
Transit area 0.0.0.1 via interface GigabitEthernet 0/1
Local address 10.0.0.37/32
Remote address 10.0.0.27/32
Transmit Delay is 1 sec, State Point-To-Point,
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit
5
Hello due in 00:00:05
Adjacency state Full
```

| | |
|---|---|
| Virtual Link VLINK0 to router | |
| Virtual Link state | . |
| Transit area | |
| via interface | |
| Local address | |
| Remote Address | |
| Transmit Delay | |
| State | |
| Time intervals configured | Hello Dead Wait Retransmit |
| Adjacency State | FULL |

OSPF OSPF

*Ruijie(co22.8-router# **network** (conf-*

RIP 192.168.12.0/24

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.4.4.0
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# distribute-list network
```

**default-network**

“*” connected

192.168.100.0

```
Ruijie(config)# ip route 192.168.100.0 255.255.255.0 serial  0/1
Ruijie(config)# ip default-network 192.168.100.0
```

200.200.200.0 200.200.200.0

```
Ruijie(config)# ip default-network 200.200.200.0
```

| | |
|---|---|
| **show ip route** | IP |

## 28.1.4 ip prefix-list

**ip prefix-list**

**no**

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

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

| | |
|---|---|
| *prefix-lis-name* | |
| *seq-number* | 1<br>2147483647<br>5<br>5 |

| | |
|---|---|
| **deny** | |
| **permit** | |

*ip-prefix* IP

| | |
|---|---|
| *prefix-lis-name* | |
| *descripton-text* | |

IP **Deny routes from Net-A**

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre description Deny
routes from Net-A
```

## 28.1.6 ip prefix-list sequence-number

**ip prefix-list description** **no**

**ip prefix-list sequence-number**

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list sequence-number
```

## 28.1.7 ip route

ip route no

**ip route** [**vrf** *vrf_name*] *network net-mask* {*ip-address* | *interface* [*ip-address*]} [*distance*] [**tag** *tag*] [*permanent* **| track** *object-number*] [**weight** *number*] [*disabled* | *enabled*]

ip route 0.0.0.0 0.0.0.0 GigabitEthernet 0/0
GigabitEthernet 0/0 ARP CPU

track track track track track track track Track permanent

172.16.100.0/24 192.168.12.1 115

```
ip route 172.16.100.0 255.255.255.0 192.168.12.1 115
```

172.16.100.0/24 GigabitEthernet 0/0

```
Ruijie(config)# ip route 172.16.100.0 255.255.255.0
GigabitEthernet 0/0 192.168.12.1
```

| | |
|---|---|
| **show ip route** | IP |

## 28.1.8 ip routing

RGOS IP no IP

**ip routing**

**no ip routing**

IP

VOIP RGOS IP
RGOS IP

RGOS IP

```
Ruijie(config)# no ip routing
```

## ic route-limit

**ip static route-limit** no

**ip static route-limit** *number*

**no ip static route-limit**

**Ipv6 prefix-list** *prefix-lis-name* [ **seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*][ **le** *maximum-prefix- length*]

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

| | |
|---|---|
| *prefix-lis-name* | |
| *seq-number* | 1 2147483647<br>5<br>5 |
| **deny** | |
| **permit** | |

*ipv6-prefix* IP

RIP OSPF 1
IP IPv6 (
IP 2222::/64 )

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre permit 2222::/64
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# redistribute ospf 1
Ruijie(config-router)# distribute-list prefix pre out
Ruijie(config-router)# end
```

## 28.1.11 ipv6 prefix-list description

IPv6 **ipv6 prefix-list description**
**no**

**ipv6 prefix-list** *prefix-lis-name* **description** *descripton-text*

| | |
|---|---|
| *prefix-lis-name* | IPv6 |
| *descripton-text* | IPv6 |

IPv6 pre **Deny routes from Net-A**

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

## 28.1.12 ipv6 prefix-list sequence-number

IPv6 **ipv6 prefix-list description**
**no**

**ipv6 prefix-list sequence-number**

IPv6

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list sequence-number
```

## 28.1.13 match as-path

AS_PATH **match as-path** **no**

**match as-path** *as-path-acl-list-num* *as-path-acl-list-num…..*

**no match as-path** *as-path-acl-list-num……*

| | |
|---|---|
| *as-path-acl-list-num* | 1…500 |

**match as-path**

1 **match** 1 **set** **match** **set**

```
Ruijie(config)# route-map ROUTEMAP2IBGP
Ruijie(config-route-map)# match as-path 20 30
```

| | |
|---|---|
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set metric-type** | |

## 28.1.14 match community

COMMUNITY **match community** **no**

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

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

| | |
|---|---|
| *community-list-number* | 1-99<br>100-199 |
| *communitys-list-name* | 80 |
| **exact-match** | |

**match community**
6

**exact-match**

1 **match** 1 **set**
**match** **set**

```
Ruijie(config)# ip community-list 1 permit 100:2 100:30
```

```
Ruijie(config)# route-map set_lopref
Ruijie(config-route-map)# match community 1 exact-match
Ruijie(config-route-map)# set  local-preference 20
```

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

## 28.1.15 match interface

**match interface**

**no**

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

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

| | |
|---|---|
| *interface-type* | |

*interface-number]*

OSPF

RIP RIP

OSPF

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP

abitEthernet 0/0 RIP

```
jie(config)# router ospf
jie(config-router)# redistribute rip subnets route-map redrip
jie(config-router)# network 192.168.12.0 0.0.0.255 area 0
jie(config-router)# exit
jie(config)# route-map redrip permit 10
jie(config-route-map)# match interface GigabitEthernet 0/0
```

| | |
|---|---|
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |

**set metric-type**

**match ip address** **no**

**match ip address** {*access-list-number* [*access-list-number...* | *access-list-name...*]

| | |
|---|---|
| *access-list-number* | 1-99<br>1300-1999<br>100-199<br>2000-2699 |
| *access-list-name* | |
| **prefix-list** *prefix-list-name* | |

**match ip next-hop**

| | |
|---|---|
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

OSPF

RIP RIP

OSPF IP

IPv6

**match ipv6 address** **no**

**match ipv6 address** { *access-list-name* | **prefix-list** *prefix-list-name* }

**no match ipv6 address**

| | |
|---|---|
| *access-list-name* | |
| **prefix-list** *prefix-list-name* | IPv6 |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP 10

RIP OSPF type-1 40

```
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 2620::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 address v6acl
Ruijie(config-route-map)# set metric 30
```

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

| | |
|---|---|
| **ipv6 access-list** | IPv6 |
| **match interface** | |
| **match ipv6 next-hop** | IPv6 |
| **match ipv6 route-source** | IPv6 |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.20 match ipv6 next-hop

IPv6

**match ipv6 address** **no**

**match ipv6 next-hop** { *access-list-name* | **prefix-list** *prefix-list-name* }

**no match ipv6 next-hop**

| | |
|---|---|
| *access-list-name* | |
| **prefix-list** *prefix-list-name* | IPv6 |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**
**match** **set**

OSPF RIP 10
RIP OSPF type-1 40

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

| | |
|---|---|
| **ipv6 access-list** | IPv6 |
| **match interface** | |
| **match ipv6 address** | IPv6 |
| **match ipv6 route-source** | IPv6 |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.21 match ipv6 route-source

IPv6

**match ipv6 address** **no**

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

**no match ipv6 route-source**

| | |
|---|---|
| *access-list-name* | |
| **prefix-list** *prefix-list-name* | IPv6 |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP 10

RIP OSPF type-1 40

```
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 5200::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 route-source v6acl
Ruijie(config-route-map)# set metric 50
```

| | |
|---|---|
| **ipv6 access-list** | IPv6 |
| **match interface** | |
| **match ipv6 address** | IPv6 |
| **match ipv6 route-source** | IPv6 |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.22 match length

IP **match length**

**no**

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

| | |
|---|---|
| *min-length* | IP |
| *max-length* | IP |

1

serial 1/0 500
GigabitEthernet 1/0

```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)# set interface GigabitEthernet 0/0
```

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **set default interface** | |
| **set interface** | |
| **set ip default next-hop** | IP |
| **set ip next-hop** | IP |
| **set ip precedence** | IP |

## 28.1.23 match metric

**match metric** **no**

**match metric** *metric*
**no match metric**

| | |
|---|---|
| *metric* | 0-4294967295 |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

OSPF RIP 10 RIP OSPF

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

| | |
|---|---|
| **set metric** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.24 match origin

**match origin**

**no**

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

| | |
|---|---|
| **egp** | EGP |
| **igp** | IGP |
| **Incomplete** | |

```
Ruijie(config)# route-map MY_MAP 10 permit
Ruijie(config-route-map)# match origin egp
Ruijie(config-route-map)# set community 109
Ruijie(config-route-map)# exit
Ruijie(config)# route-map MAP20 20 permit
Ruijie(config-route-map)# match origin incomplete
Ruijie(config-route-map)# set community no-export
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set origin** | |

## 28.1.25 match route-type

**match route-type** **no**

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

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

OSPF

RIP RIP
OSPF IP

route maps

1 **match** 1 **set**
**match** **set**

RIP OSPF RIP OSPF

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

| | |
|---|---|
| **access-list** | PÂ ðÀ 5BÊ }¡=x— G£Ê Ô<2°P |

| | |
|---|---|
| *tag* | |

**match tag** tag

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

RIP OSPF RIP OSPF

50 80

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

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

| | |
|---|---|
| **set metric-type** | |
| **set tag** | |

## 28.1.27 maximum-paths

**maximum-paths** no

**maximum-paths** *number*

**no maximum-paths**

| | |
|---|---|
| *number* | 1-32 |

32

**maximum-paths**

**show running config**

ipv4 ipv6 ipv4
ipv6

S8600/S5750/S7600

## 28.1.28 route-map

**route-map**

**no**

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

| | |
|---|---|
| *route-map-name* | |
| **permit** | permit<br>match set<br>set<br>permit match<br>set |
| **deny** | deny<br>match<br>deny match<br>set |
| *sequence-number* | |

RGIOS

| | |
|---|---|
| *as-number* | AS |
| *ip_addr* | |

BGP

as,ip-addr

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

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

## 28.1.30 set as-path prepend

match AS_PATH **set as-path prepend** **no**

**set as-path prepend** *as-number*

]

| | |
|---|---|
| *as-number* | AS_PATH AS |

AS_PATH

as-path 15 as

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set as-path prepend 100 101 102
```

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

## 28.1.31 set comm-list delete

match COMMUNITY_LIST community
**set comm-list delete** **no**

**set comm-list** *community-list-number* | *community-list-name* **delete**
**no comm-list** *community-list-number* | *community-list-name* **delete**

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

| | |
|---|---|
| *community-list-number* | 1-99<br>100-199 |
| *community-list-name* | 80 |

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

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

| | |
|---|---|
| **set local-preference** | |

## 28.1.32 set community

match COMMUNITY **set community** **no**

**set community** {*community-number*[*community-number …*] **additive** | **none**}
**no set community** { *community-number*[*community-number …*] **additive** | **none**}

| **5a5nAR2(yE** | |
|---|---|
| *community-number* | AA:NN( :2 )<br>0-4294967295<br><br>internet Internet<br><br>local-as AS<br><br><br>no-advertise<br>BGP peers<br>no-export<br>EBGP peers |
| **additive** | community |
| **none** | |

```
Ruijie(config)# route-map SET_COMMUNITY 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set community 109:10
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_COMMUNITY 20 permit
```

```
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set community no-export
```

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

## 28.1.33 set dampening

match **set dampening**
**no**

**set dampening** *half-life reuse suppress max-suppress-time*
**no set dampening**

| | |
|---|---|
| *half-life* | 1..45( ) 15 |
| *reuse* | 1..20000 750 |
| *suppress* | 1..20000 2000 |
| *max-suppress-time* | 1..255( ) 4* half-life |

```
Ruijie(config)# route-map tag
Ruijie(config-route-map)# match as path 10
Ruijie(config-route-map)# set dampening 30 1500 10000 120
Ruijie(config-route-map)# exit
Ruijie(config)# router bgp 100
Ruijie(config-router)# neighbor 172.16.233.52 route-map tag in
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match community** | |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set local-preference** | |

## 28.1.34 set default interface

match

**set default interface** **no**

**set default interface** *interface-type interface-number* [*…interface-type interface-number*]

**no set default interface** *interface-type interface-number* [*…interface-type interface-number*]

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

**set default interface**

1

down set
set

serial 1/0 500
GigabitEthernet 1/0

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)# set default interface GigabitEthernet
1/0
```

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **match length** | |
| **set interface** | |
| **set ip default next-hop** | IP |
| **set ip next-hop** | IP |
| **set ip precedence** | IP |

| | |
|---|---|
| **set metric** | |
| **set metric-type** | |

## 28.1.36 set interface

match **set interface**

**no**

**set interface** *interface-type interface-number* [*…interface-type interface-number*]

**no set interface** *interface-type interface-number* [*…interface-type interface-number*]

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

**set interface**

1

down set

set

null 0

serial 1/0 500

GigabitEthernet 0/0

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

```
Ruijie(config-if)#ip policy route-map smallpak

Ruijie(config)#route-map smallpak permit 10
Ruijie(config-route-map)#match length 0 500
Ruijie(config-route-map)#set interface GigabitEthernet 0/0
```

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **match length** | |
| **set default interface** | |
| **set ip default next-hop** | IP |
| **set ip next-hop** | IP |
| **set ip precedence** | IP |

## 28.1.37 set ip default next-hop

match IP **set ip next-hop** **no**

**set ip default next-hop** *ip-address* [*weight*] [*…ip-address* [*weight*] ]
**no set ip default next-hop** *ip-address* [*weight*] [*…ip-address* [*weight*] ]

| | |
|---|---|
| *ip-address* | IP |
| *weight* | |

set WCMP WCMP
weight WCMP

**set ip default next-hop** IP 32

ip address weight 4 nexthop

next-hop weight set
WCMP WCMP
weight nexthop weight 1

**set ip next-hop** **set ip default next-hop** **set ip next-hop**
**set ip default next-hop**

(nexthop)

1

set

1 1.1.1.1
6.6.6.6 2.2.2.2
7.7.7.7

| | |
|---|---|
| **route-map** | |
| **match ip address** | |

**set default interface**

| | |
|---|---|
| **match ip address** | |
| **set default interface** | |
| **set default interface** | |
| **set interface** | |
| **set ip default next-hop** | IP |
| **set ip precedence** | IP |

## 28.1.39 set ip next-hop

match IP **set ip next-hop** **no**

**set ip next-hop**

next-hop weight **set**
WCMP WCMP
weight nexthop weight 1

1

set

serial 1/0 10.0.0.0/8

| | |
|---|---|
| **set ip precedence** | IP |

```
Ruijie(config-route-map)#set ip  next-hop 172.16.100.1

Ruijie(config)#route-map load-balance permit 30
Ruijie(config-route-map)#set interface Null 0
```

| | |
|---|---|
| **route-map** | |
| **match ip address** | |
| **set default interface** | |
| **set default interface** | |
| **set interface** | |
| **set ip default next-hop** | IP |
| **set ip precedence** | IP |

GigabitEthernet 0/0 192.168.217.68

precedence 4

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip precedence 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map name
```

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

IP TOS

GigabitEthernet 0/0 192.168.217.68
tos 4

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip tos 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map name
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |
| **set ip precedence** | IP |

## 28.1.43 set level

match **set level** **no**

**set level** {**level 1**| **level 2** | **level 1-2** | **stub-area** | **backbone**}
**no set level**

OSPF RIP backbone

```
Ruijie(config)#
```

local-preference local-preference

```
Ruijie(config)# route-map SET_PREF permit 10
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set local-preference 6800
```

set metric + - metric
RIP metric 1-16

OSPF
RIP RIP
OSPF IP

route maps

1 **match** 1 **set**
**match** **set**

OSPF RIP
40

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set metric 40
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.46 set metric-type

match **set**
**metric-type** **no**

**set metric-type** *type*
**no set metric-type**

| | |
|---|---|
| *type* | |

OSPF type-2

OSPF
RIP RIP
OSPF IP

route maps

1 **match** 1 **set**
**match** **set**

OSPF

| | |
|---|---|
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric** | |
| **set tag** | |

## 28.1.47 set next-hop

match IP **set next-hop** **no**

**set next-hop** *ip-address*
**no set next-hop** *ip-address*

| | |
|---|---|
| i*p-address* | IP |

OSPF

RIP RIP

OSPF IP

route maps

1 **match** 1 **set**

**match** **set**

192.168.1.2

```
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip address 1
Ruijie(config-route-map)# set next-hop 192.168.1.2
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | |
| **set metric-type** | |
| **set tag** | |

## 28.1.48 set origin

match **set origin**
**no**

**set origin** {**egp** | **igp** | **incomplete**}
**no set origin**

| | |
|---|---|
| **egp** | EGP |
| **igp** | IGP |
| **incomplete** | |

```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set origin igp
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set origin egp
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set local-preference** | |

## 28.1.49 set originator-id

match **set originator-id** **no**

**set originator-id** *ip-addr*

**no originator-id** [*ip-addr*]

| | **[** |
|---|---|

```
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set originator-id 5.5.5.6
```

| | |
|---|---|
| **match as-path** | AS_PATH |
| **match metric** | |
| **match origin** | |
| **set as-path prepend** | AS_PATH |
| **set metric** | |
| **set local-preference** | |

## 28.1.50 set tag

match **set tag** **no**

**set tag** *tag*
**no set tag**

| | |
|---|---|
| *tag* | |

OSPF RIP 100

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set tag 100
```

| | |
|---|---|
| **match interface** | |
| **match ip address** | |
| **match ip next-hop** | |
| **match ip route-source** | |
| **match metric** | |
| **match route-type** | |
| **match tag** | Tm[(match route-t)-10(y)13(pe )-223( )]TJ/C |

BGP

BGP in 1.1.1.1
100

```
Ruijie(config)# router bgp 1
Ruijie(config-router)# neighbor 1.1.1.1 route-map nei-rmap-in in
Ruijie(config-router)# exit
Ruijie(config)# route-map nei-rmap-in permit 10
Ruijie(config-route-map)# set weight 100
```

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

## 28.2.1 show ip prefix-list

**show ip prefix-list**

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

| | |
|---|---|
| *prefix-name* | |

```
Ruijie# show ip prefix-list
ip prefix-list pre: 2 entries
seq 5 permit 192.168.64.0/24
seq 10 permit 192.2.2.0/24
```

## 28.2.2 show ip route

IP **show ip route**

**show ip route** [[**vrf** *vrf_name*] [*network* [*mask*countw 1.086 0 Td(Td(vr6[)Tj/T5FC>] Tf30Tj/T

**show ip route**

```
Ruijie# show ip route
```

```
Ruijie# show ip route 30.0.0.0
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
*192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
```

**show ip route** *network*

| | |
|---|---|
| Routing Descriptor Blocks | IP BGP |

**show ip route count**

```
Ruijie# show ip route count
--------- route info ----------
the num of active route: 5
```

**show ip route weight**

```
Ruijie# show ip route weight
------------[distance/metric/weight]-----------
S    23.0.0.0/8 [1/0/2] via 192.1.1.20
S    172.0.0.0/16 [1/0/4] via 192.0.0.1

    0.0.0.0/0       192.168.1.2              track          show
ip route track-table    track
Ruijie#show ip route track-table
ip route 0.0.0.0 0.0.0.0 192.168.1.2 track 1 state is [undefined]
```

## 28.2.3 show ipv6 prefix-list

IPv6 **show ipv6 prefix-list**

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

| | |
|---|---|
| *prefix-name* | IPv6 |

IPv6

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

# 29 ACL

| | |
|---|---|
| id | IP ACL 1-99 1300-1999<br>IP ACL 100-199 2000-2699<br>MAC ACL 700–799<br>ACL 2700–2899 |
| name | ACL |
| sn | ACL ( ) |
| start-sn | |
| inc-sn | |
| deny | |
| permit | |
| port | IPv6 ipv6 icmp tcp udp 0-255 IPv4 eigrp gre ipinip igmp nos ospf icmp udp tcp ip IP 0-255 icmp/tcp/udp |
| interface idx | |
| src | |
| src-wildcard | 0.255.0.32 |
| dscp | , 0-63 |
| dst | |
| dst-wildcard | 0.255.0.32 |
| precedence | 0-7 |

| | |
|---|---|
| range | |
| time-range tm-rng-name | tm-rng-name |
| tos | 0-15 |
| cos | cos (0-7) |

icmp-type ICMP

**access-list** *id* {**deny** | **permit**} **tcp** {*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*] ] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

**User Datagram Protocol** (UDP)

**access-list** *id* {**deny** | **permit**} **udp** {*source source –wildcard* | **host** *source* | **any**} [ **operator port** [*port*] ] {*destination destination-wildcard* | **host** *destination* | **any**} [**operator port** [*port*] ] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

3)

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

| | |
|---|---|
| *Id* | 1-99 100-199<br>1300-1999 2000-2699 2700 – 2899 700 - 799 |
| **deny** | |
| **permit** | |
| *source* | |

*source-wildcard* È Ê Ê 010f 0(ca)7(f ( )Tj E291182 456.62 0.24 0.48 re f 291182 456.62 394.98 0.48 re

| | |
|---|---|
| *icmp-code* | ICMP 0-255 |
| *icmp-message* | ICMP |
| *operator* | lt- eq- gt- neq- range- |
| **port** [ *port* ] | *range* |
| *text* | |

ACL

**access-list**

| | | |
|---|---|---|
| | echo-reply | |
| | fragment-time-exceeded | |
| | general-parameter-problem | |
| | host-isolated | |
| | host-precedence-unreachable | |
| | host-redirect | |
| | host-tos-redirect | |
| | host-tos-unreachable | |
| | host-unknown | |
| | host-unreachable | |
| | information-reply | |
| | information-request | |
| | mask-reply | |
| | mask-request | |
| | mobile-redirect | |
| | net-redirect | |
| | net-tos-redirect | |
| | net-tos-unreachable | |
| | net-unreachable | |
| | network-unknown | |
| | no-room-for-option | |
| | option-missing | |
| | packet-too-big | |
| | parameter-problem | |
| | port-unreachable | |
| | precedence-unreachable | |
| | protocol-unreachable | |
| | redirect | |
| | router-advertisement | |
| | router-solicitation | |
| | source-quench | |
| | source-route-failed | |
| | time-exceeded | |
| | timestamp-reply | |
| | timestamp-request | |
| | ttl-exceeded | |
| | unreachable | |
| TCP | TCP | TCP |

bgp (179)
chargen (19)
cmd (514)
daytime (13)
discard (9)
domain (53)
echo (7)
exec (512)
finger (79)
ftp (21)
ftp-data (20)
gopher (70)
hostname (101)
ident (113)
irc (194)
klogin (543)
kshell (544)
login (513)
nntp (119)
pim-auto-rp (496)
pop2 (109)
pop3 (110)
smtp (25)
sunrpc (111)
tacacs (49)
syslog (514)
talk (517)
telnet (23)
time (37)
uucp (540)
whois (43)
www (80)

UDP UDP

biff (512)
bootpc (68)
bootps (67)

discard (9)
dnsix (195)
domain (53)
echo (7)
isakmp (500)
mobile-ip (434)
nameserver (42)
netbios-dgm (138)
netbios-ns (137)
netbios-ss (139)
ntp (123)
pim-auto-rp (496)
rip (520)
snmp (161)
snmptrap (162)
sunrpc (111)
syslog (514)
tacacs (49)
talk (517)
tftp (69)
time (37)
who (513)
xdmcp (177)

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
```

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

| | |
|---|---|
| **show access-lists** | ACL |
| **ip access-group** | ACL |

| | |
|---|---|
| V10.0 | V10.0 |

## 29.1.2 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*] [**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*]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**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*]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

**User Datagram Protocol** (UDP)

[*sn*] deny udp {*source source –wildcard* | **host** *source* | **any**} [ *operator* **port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**} [*operator* **port** [*port*]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

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

ACL

ACL ACL

1 IP ACL IP 192.168.4.12 TCP 100 gigabitethernet 1/1

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

2 IP ACL IP 192.168.4.12 gigabitethernet 1/1

```
Ruijie(config)# ip access-list standard 34
Ruijie(config-ext-nacl)# deny host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 34 in
```

| | |
|---|---|
| V10.0 | V10.0 |

| | |
|---|---|
| V10.0 | V10.0 |

## 29.1.4 ip access-group

ACL **ip access-group**

**no**

**ip access-group** {*id* | *name*} {**in** | **out**}

**no ip access-group** { *id* | *name*} {**in** | **out**}

| | |
|---|---|
| *id* | IP 1-199 1300-2699 |
| *name* | IP |
| **in** | |
| **out** | |

ACL

**ip access-group**

fastEthernet0/0 120

```
Ruijie(config)# interface fastEthernet 0/0
Ruijie(config-if)#ip access-group 120 in
```

| | |
|---|---|
| **access-list** | |
| **show access-lists** | |

| | | |
|---|---|---|
| | V10.0 | V10.0 |

## 29.1.5 ip access-list

IP ACL IP ACL **no** ACL

**ip access-list** {**extended** | **standard**} {*id* |

| | |
|---|---|
| V10.0 | V10.0 |

## 29.1.6 ip access-list resequence

ip ACL **no**

**ip access-list resequence** { *id* | *name* } *start-sn inc-sn*
**no ip access-list resequence** { *id* | *name* }

| | |
|---|---|
| *Id* | ACL |
| *name* | ACL |
| *start-sn* | |
| *inc-sn* | |

*start-sn* 10

*inc-sn* 10

**show access-lists**

# ACL

```
M8600-FW# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
M8600-FW # config
M8600-FW(config)# ip access-list resequence 1 21 43
M8600-FW(config)# end
M8600-FW# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
M8600-FW#
```

| | |
|---|---|
| **show access-lists** | ACL |

| | |
|---|---|
| V10.0 | V10.0 |

## 29.1.7 list-remark

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)#
```

| | |
|---|---|
| **show access-lists** | ACL |

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

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

| | |
|---|---|
| **deny** | ACL |
| **permit** | ACL |

| | |
|---|---|
| V10.0 | V10.0 |

## 29.1.9 permit

(**permit**) ACL
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* ]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

**Transmission Control Protocol** (TCP)

[*sn*] **permit tcp** {*source source-wildcard* | **host** *Source* | **any**} [*operator*
**port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**}
[*operator* **port** [*port*]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]]
[**time-range** *time-range-name*]

**User Datagram Protocol** (UDP)

[*sn*] **permit udp** {*source source -wildcard*|**host** *source* |**any**} [ *operator*
**port** [*port*]] {*destination destination-wildcard* |**host** *destination* | **any**} [**operator port** [*port*]] [[**dscp** *dscp*] | [[**precedence** *precedence*][ **tos** *tos*]]] [**time-range** *time-range-name*]

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

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

ACL

ACL ACL

1 IP ACL IP 192.168.4.12 TCP 100 gigabitethernet 1/1 ACL

```
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)#
```

2 IP ACL IP 192.168.4.12 gigabitethernet 1/1 ACL

```
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
```

| | |
|---|---|
| **show access-lists** | |
| **ip access-group** | ACL |
| **ip access-list** | IP ACL |

| | |
|---|---|
| **deny** | ACL |

| | |
|---|---|
| V10.0 | V10.0 arp<br>V10.2(3) |

## 29.2.1 show access-group

ACL

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

| | |
|---|---|
| ACL | ~~ACL12 238 Td 2rfaw 22F0E197900 aaa [in 27 -1.7 È ¢VB— • ª¢¯ÂÅ€~~<br><*interface*> |

ACL ACL

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

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

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

| | |
|---|---|
| <*interface*> | |

ACL ACL

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

| | |
|---|---|
| **ip access-group** | ACL |

| | |
|---|---|
| V10.0 | V10.0 |

# 30

## 30.1.1 acpp

ACPP control-plane acpp

no acpp

**acpp bw-rate** *rate* **bw-burst-rate** *burst-rate*

**no acpp**

| | |
|---|---|
| *rate* | pps |
| *burst-rate* | pps |

ACPP

control-plane

1 200pps 300pps

```
Ruijie(config)# control-plane data
Ruijie(config-cp)# acpp bw-rate 200 bw-burst-rate 300
```

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

## 30.1.2 arp-car

ARP Glean-CAR control-plane arp-car

no arp-car

**arp-car** *packet_rate_per_group* [**total-bw-rate** *rate*]

**no arp-car**

| | |
|---|---|
| *packet_rate_per_group* | pps |
| *rate* | Arp pps |

ARP-CAR ARP 5pps

control-plane

1 ARP 10pps

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# arp-car 10
```

| | |
|---|---|
| Ruijie(config)# control-plane {protocol \| manage \| data} | control-plane |

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

## 30.1.3 control-plane

control-plane control-plane

exit control-plane

**control-plane** {**protocol** | **manage** | **data**}

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

protocol

| | |
|---|---|
| *Interface* | |

MPP

control-plane

1 interface vlan 100
telnet snmp

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# management-interface vlan 100 allow snmp telnet
```

| | |
|---|---|
| Ruijie(config)# control-plane {protocol \| manage \| data} | control-plane |

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

## 30.1.6 port-filter

Port-Filter

Port-Filter control-plane

port-filter

no Port-Filter

**port-filter**

**no port-filter**

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

Port-Filter

control-plane

1 Port-Filter

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# port-filter
```

| | |
|---|---|
| Ruijie(config)# control-plane {protocol \| manage \| data} | control-plane |

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

## 30.1.7 scpp

SCPP

control-plane

scpp

no scpp

**scpp list** *acl_no* {**bw-rate** *bw-rate* **bw-burst-rate** *bw-burst-rate* | **conn-total** *conn-num* | **conn-create-rate** *conn-create-rate* **conn-create-burst-rate** *conn-create-burst-rate*}

**no scpp list** acl_no

| | |
|---|---|
| *acl_no* | |
| *bw-rate* | pps |
| *bw-burst-rate* | pps |
| *conn-num* | |
| *conn-create-rate* | /s |
| *conn-create-burst-rate* | /s |

SCPP

control-plane

192.168.52.0

TCP 100pps 150pps

# 31 VRRP

## 31.1.1 vrrp authentication

VRRP **no**

**vrrp group authentication** *string*
**no vrrp** *group* **authentication**

*group* VRRP

*string* VRRP ( 8 )

VRRP VRRP

VRRP
/ VRRP

VRRP 1

```
vrrp 1 authentication x30dn78k
```

| | |
|---|---|
| Ruijie(config-if)# **vrrp** *group ip ipaddress* [ **secondary** ] | VRRP<br>IP |

## 31.1.2 vrrp delay

VRRP

**vrrp delay** { **minimum** *min-seconds* | **reload** *reload-seconds* }

**no vrrp delay**

*min-seconds* VRRP *min-seconds*

*reload-seconds* VRRP *min-seconds*
*reload-seconds* VRRP *min-seconds*

*group* VRRP

*text* VRRP

VRRP VRRP

VRRP

secondary IP IP
VRRP IP no VRRP IP
IP

0 VRRP VRRP 1
IP 10.0.1.20 IP 10.0.2.20

```
interface GigabitEthernet 0/0
no switchport
ip address 10.0.1.1 255.255.255.0
ip address 10.0.2.1 255.255.255.0 secondary
vrrp 1 ip 10.0.1.20
vrrp 1 ip 10.0.2.20 secondary
```

ü < /,Ì G cPâÍQi• =ôA K<ü t· Þ"u *üÂ ð | s6Ñ ÄA¹

VRRP (200)
15

```
vrrp 1 preempt delay 15
vrrp 1 priority 200
```

| | |
|---|---|
| Ruijie(config-if)# **vrrp** *group* **ip** *ipaddress* [ **secondary** ] | VRRP IP |
| Ruijie(config-if)# **vrrp** *group* **priority** *level* | VRRP |

## 31.1.6 vrrp priority

VRRPVRRP **no** VRRP

**vrrp** *group* **priority** *level*
**no vrrp** *group* **priority**

*group* VRRP

## 31.1.7 vrrp timers advertise

VRRP no

**vrrp** *group* **timers advertise** *interval*
**no vrrp** *group* **timers advertise**

*group* VRRP

*interval* VRRP ( )

VRRP VRRP
1

VRRP VRRP
VRRP

VRRP 4

```
vrrp 1 timers advertise 4
```

| | |
|---|---|
| Ruijie(config-if)# **vrrp** *group* **ip** *ipaddress* [ | **vrrp** |

retry-value: *retry-value*
1

*priority* VRRP
10

VRRP VRRP
IP

( Routed Port SVI Loopback Tunnel ) IP
ping

VRRP 1 Routed Port Fa1/1 Fa1/1
VRRP 30 Fa1/1 VRRP 1

```
vrrp 1 track GigabitEthernet 1/1 30
```

# VRRP BFD 192.168.1.3

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface GigabitEthernet 0/1
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.1.1 255.255.255.0
Ruijie(config-if)#bfd interval 50 min_rx 50 multiplier 3
Ruijie(config)#interface GigabitEthernet 0/2
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.201.17 255.255.255.0
Ruijie(config-if)#vrrp 1 priority 120
```

Ruijie# **debug vrrp events** VRRP

## 31.2.4 debug vrrp packets

VRRP **no**

**debug vrrp packets**
**no debug vrrp packets**

VRRP

VRRP VRRP 1

```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
```

, VRRP VRRP 1
IP VRRP 1

```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
```

## 31.2.5 debug vrrp state

VRRP no

**debug vrrp state**
**no debug vrrp state**

VRRP

VRRP

```
Ruijie# debug vrrp state
Ruijie#
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Master ->
Backup
```

```
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Backup ->
Master
Ruijie# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no shutdown
Ruijie(config-if)# end
Ruijie#
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Master -> Init
Ruijie#
```

## 31.3.1 show vrrp

VRRP

**show vrrp** [ **brief** | *group* ]

**brief** VRRP

*group* VRRP

VRRP

VRRP

```
Ruijie# show vrrp
GigabitEthernet 0/0 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
GigabitEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
```

```
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
Ruijie#
```

VRRP

```
Ruijie# show vrrp brief
Interface        Grp Pri Time  Own Pre State   Master addr     Group
addr
GigabitEthernet 0/0   1   100   -    -   P  Backup  192.168.201.213
192.168.201.1
GigabitEthernet 0/0   2   120   -    -   P  Master  192.168.201.217
192.168.201.2
Ruijie#
```

| | |
|---|---|
| Ruijie(config-if)# **vrrp** *group ip ipaddress* [ **secondary** ] | VRRP<br>IP |

## 31.3.2 show vrrp interface

VRRP

**show vrrp interface** *type number* [ **brief** ]

*type*

*number*

**brief**

E1/0 VRRP

```
Ruijie# show vrrp interface GigabitEthernet 0/0
GigabitEthernet 0/0 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
```

```
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
GigabitEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
```

| | |
|---|---|
| Ruijie(config-if)# **vrrp** *group* **ip** *ip address* [ **secondary** ] | |

| | | | | |
|---|---|---|---|---|
| 11 | 0% | 0% | 0% | gc_task |
| 12 | 0% | 0% | 0% | Context |
| 13 | 0% | 0% | 0% | kswapd |
| 14 | 0% | 0% | 0% | bdflush |
| 15 | 0% | 0% | 0% | kupdate |
| 16 | 0% | 3% | 1% | ll_mt |
| 17 | 0% | 0% | 0% | ll main process |
| 18 | 0% | 0% | 0% | bridge_relay |
| 19 | 0% | 0% | 0% | d1x_task |
| 20 | 0% | 0% | 0% | secu_policy_task |
| 21 | 0% | 0% | 0% | dhcpa_task |
| 22 | 0% | 0% | 0% | dhcpsnp_task |
| 23 | 0% | 0% | 0% | igmp_snp |
| 24 | 0% | 0% | 0% | mstp_event |
| 25 | 0% | 0% | 0% | GVRP_EVENT |
| 26 | 0% | 0% | 0% | rldp_task |
| 27 | 0% | 2% | 1% | rerp_task |
| 28 | 0% | 0% | 0% | reup_event_handler |
| 29 | 0% | 0% | 0% | tpp_task |
| 30 | 0% | 0% | 0% | ip6timer |
| 31 | 0% | 0% | 0% | rtadvd |
| 32 | 0% | 0% | 0% | tnet6 |
| 33 | 2% | 0% | 0% | tnet |
| 34 | 0% | 0% | 0% | Tarptime |
| 35 | 0% | 0% | 0% | gra_arp |
| 36 | 0% | 0% | 0% | Ttcptimer |
| 37 | 8% | 1% | 0% | ef_res |
| 38 | 0% | 0% | 0% | ef_rcv_msg |
| 39 | 0% | 0% | 0% | ef_inconsistent_daemon |
| 40 | 0% | 0% | 0% | ip6_tunnel_rcv_pkt |
| 41 | 0% | 0% | 0% | res6t |
| 42 | 0% | 0% | 0% | tunrt6 |
| 43 | 0% | 0% | 0% | ef6_rcv_msg |
| 44 | 0% | 0% | 0% | ef6_inconsistent_daemon |
| 45 | 0% | 0% | 0% | imid |
| 46 | 0% | 0% | 0% | nsmd |
| 47 | 0% | 0% | 0% | ripd |
| 48 | 0% | 0% | 0% | ripngd |
| 49 | 0% | 0% | 0% | ospfd |
| 50 | 0% | 0% | 0% | ospf6d |
| 51 | 0% | 0% | 0% | bgpd |
| 52 | 0% | 0% | 0% | pimd |
| 53 | 0% | 0% | 0% | pim6d |
| 54 | 0% | 0% | 0% | pdmd |
| 55 | 0% | 0% | 0% | dvmrpd |
| 56 | 0% | 0% | 0% | vty_connect |
| 57 | 0% | 0% | 0% | aaa_task |
| 58 | 0% | 0% | 0% | Tlogtrap |
| 59 | 0% | 0% | 0% | dhcp6c |
| 60 | 0% | 0% | 0% | sntp_recv_task |
| 61 | 0% | 0% | 0% | ntp_task |
| 62 | 0% | 0% | 0% | sla_deamon |
| 63 | 0% | 3% | 1% | track_daemon |
| 64 | 0% | 0% | 0% | pbr_guard |
| 65 | 0% | 0% | 0% | vrrpd |
| 66 | 0% | 0% | 0% | psnpd |

5Min 5 CPU

2 LISR CPU HISR CPU
3 CPU idle CPU
Windows System Idle Process
idle 5 CPU 75% CPU 75%

## 32.1.2 cpu-log

CPU , **cpu-log**

**cpu-*log*** *log-limit low_num high_num*

*log-limit*

*low_num* CPU

*high_num* CPU

100% 90%

CPU CPU
CPU , CPU
, , CPU
CPU

CPU 70% CPU
80%

```
ruijie(config)# cpu-log log-limit 70 80
```

CPU 80%

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU utilization in one
minute : 95%  Using most cpu's task is ktimer : 94%
```

CPU 70%

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute :68%  Using most cpu's task
is ktimer : 60%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: The CPU
using rate has down!
```

# 33

## 33.1.1 threshold set

3 CPU
CPU MIB
CPU syslog
syslog

**no**

**threshold set {cpu | memory | temperature} [M1 | M2 | slot** *n* | **member** *n***]** *warning_value critical_value*

**no threshold set {cpu | memory | temperature}**

| | |
|---|---|
| **cpu | memory | temperature** | **cpu** CPU **memory** **temperature** |
| **M1 | M2 | slot** *n* | *n* |
| **member** *n* | *n* |
| *warning_value* | **cpu** **memory** 1 ~ 100 **temperature** 0 ~ 2147483647 |
| *critical_value* | **cpu** **memory** 1 ~ 100 **temperature** 0 ~ 2147483647 |
| **no** | |

CPU 90 100.

90 100.

90 100.

1 M1

```
Ruijie(config)# threshold set memory M1 70 90
```

2 CPU

```
Ruijie(config)# threshold set cpu member 2 70 90
```

| | |
|---|---|
| **show threshold** | |

**M1 | M2 | slot** *n* | **member** *n*] **FW**

| | |
|---|---|
| **10.3(4b3)** | |

## 33.2.1 show threshold

**show threshold {cpu | memory | temperature} [M1 | M2 | slot** *n* **| member** *n***]**

| | |
|---|---|
| **cpu | memory | temperature** | **cpu** CPU<br>**memory**<br>**temperature** |

# 34

### 34.1.1 shoaSmoryn

| | |
|---|---|
| | OVERFLOW |
| high | OVERFLOW |

3.

## 34.1.2 memory-lack exit-policy

worsen
BGP OSPF RIP PIM-SM

**memory-lack exit-policy** (**bgp**|**ospf**|**pim-sm**|**rip**)

**no memory-lack exit-policy**

| | |
|---|---|
| **bgp|ospf|pim-sm|rip** | BGP OSPF PIM RIP |
| **no** | |

lower ( show memory lower )

BGP
bgp

1 BGP

```
Ruijie(config)# memory-lack exit-policy bgp
```

| | |
|---|---|
| **show memory** | |

FW BGP

PIM-SM

| | |
|---|---|
| 10.3(4b3) | |
| | |

## 34.1.3 show memory protocols

**show memory protocols**

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

BGP,OSPF,RIP<8121 0 0 1LDP,PIM,ISIS 1 Tf0 Tc 0 Tw 10.5  4872TjET1<3Tc 00 1 Tf

# 35

## 35.1.1 logging on

no

**logging on**

**no logging on**

RGOS Console VTY
FLASH Syslog Server

1 Log

```
Ruijie(config)# no logging on
```

| | |
|---|---|
| **logging buffered** | |
| **logging** | Syslog Server |
| **logging file flash:** | FLASH |
| **logging console** | |
| **logging monitor** | VTY ( telnet ) |

| | |
|---|---|
| **logging trap** | Syslog Server |

## 35.1.2 terminal monitor

VTY VTY
no

**terminal monitor**

**terminal no monitor**

VTY VTY

VTY VTY

---

**说明:**

RGOS no ,
0 1

---

VTY

```
Ruijie# terminal monitor
Ruijie#
```

## 35.1.3 logging buffered

no

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

**no logging buffered**

*buffer-size* 4K 128K Bytes

*levell* 0 7

4k Bytes

## 35.1.4 logging server

**Syslog Sever** **Syslog server** **Syslog Server** no

**logging server** {ng (vrf)

**logging file flash:***filename* [*max-file-size*] [*level*]

**no logging file**

*filename* txt

*max-file-size* 128K 6M bytes 128K

levelI

FLASH 6 1

FLASH

Syslog Server

FLASH

txt

**注意:**

1.
2. _ txt
3. 15
FLASH FLASH 16

FLASH trace.txt 64K,
6

```
Ruijie(config)# logging file flash:trace
```

| | |
|---|---|
| **logging on** | |
| **show logging** | |

## 35.1.6 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** | |

## 35.1.7 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** | |

## 35.1.8 logging trap

Syslog Server
no Syslog Server

**logging trap** *level*

**no logging trap**

*level*
1

Informational(6)

Syslog Server logging Syslog Server logging trap

**show logging**

6 202.101.11.22 Syslog Server

```
Ruijie(config)# logging 202.101.11.22
Ruijie(config)# logging trap informational
```

| | |
|---|---|
| **logging on** | |
| **logging** | Syslog Server |
| **show logging** | |

## 35.1.9 logging source interface

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
```

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

| | |
|---|---|
| **logging** | Syslog Server |

## 35.1.10 logging source ip| ipv6

no

**logging source** {**ip** *ip-address* | **ipv6** *ipv6-address*}

**no logging source** {**ip** | **ipv6**}

*ip-address* IPV4 IPV4

*ipv6-address* IPV6 IPV6

Syslog Server

Loopback 0 Syslog

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

| | |
|---|---|
| **logging** | Syslog server |

## 35.1.11 logging facility

no

(23)

**logging facility** *facility-type*

**no logging facility**

*facility-type* Syslog

| | |
|---|---|
| 21 | local use 5 (local5) |
| 22 | local use 6 (local6) |
| 23 | local use 7 (local7) |

RGOS (local7) 23

Syslog kernel

```
Ruijie(config)# logging facility kern
```

| | |
|---|---|
| **logging console** | |

## 35.1.12 logging count

no

**logging count**

**no logging count**

**no logging count**

```
Ruijie(config)# logging count
```

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

| | |
|---|---|
| **show logging count** | |
| **show logging** | |

## 35.1.13 logging rate-limit

no

**logging rate-limit** {*number* | *all number* | *console* {*number* | *all number*}} [*except severity*]

**no logging rate-limit**

*number* 1—10000

*all* 0—7

*console*

*except* error(3)
error

*severity* 0—7;

debug 10 warning

```
Ruijie(config)#logging rate-limit all 10 except warnings
```

| | |
|---|---|
| **show logging count** | |
| **show logging** | |

## 35.1.14 logging synchronous

no

**logging synchronous**

**no logging synchronous**

1

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

| | |
|---|---|
| **logging on** | |
| **service timestamps** | |

## 35.1.16 service timestamps

no

default

**service timestamps** *message-type* [*uptime* | *datetime* [*msec* | *year*]]

**no service timestamps** *message-type*

**default service timestamps** *message-type*

*message-type* log debug log 0 6 debug 7

*uptime* * * * * 07:00:10:41

*datetime* Jul 27 16:53:07

*msec* : : . Jul 27 16:53:07.299

*year* : : 2007 Jul 27 16:53:07

RTC

Uptime
Datetime

Log Debug Datetime

```
Ruijie(config)# service timestamps debug datetime msec
Ruijie(config)# service timestamps log datetime msec
Ruijie(config)# end
Ruijie(config)# Oct  8 23:04:58.301 %SYS-5-CONFIG_I: Configured
from console by console
```

| | |
|---|---|
| **logging on** | |
| **service sequence-numbers** | |

## 35.1.17 service sysname

no

**service sysname**

**no service sysname**

**clear logging**

```
Ruijie# clear logging
```

| | |
|---|---|
| **logging on** | |
| **show logging** | |
| **logging buffered** | |

## 35.2.1 show logging

**show logging**

**show logging**

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
```

```
Sequence log messages: enable
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 | enabled, disabled |
| 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** | |

## 35.2.2 show logging count

**show logging count**

**logging count** **show logging count**

**show logging**

**show logging count**

```
Ruijie# show logging count
Module Name   Message Name Sev Occur     Last Time
==================================================SYS
CONFIG_I        5   1        Jul 6 10:29:57
--------------------------------------------------SYS   TOTAL
1
```

| | |
|---|---|
| **logging count** | |
| **show logging** | |
| **clear logging** | |

# 36 RLOG

## 36.1.1 rlog export-rate

**rlog export-rate** *number*

**no rlog export-rate**

| | |
|---|---|
| number | |

1000

## 36.1.2 rlog filter

**rlog filter** *number*

**no rlog filter**

| | |
|---|---|
| number | ACL |

ACL

1 ACL 2000

```
Ruijie(config)# rlog filter 2000
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 36.1.3 rlog mtu

**rlog mtu** *number*

**no rlog mtu**

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

| | |
|---|---|
| *number* | |

1500

Ruijie(config)# **rlog mtu** *1200*

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

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

```
Ruijie(config)# rlog port 11000
```

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

| | |
|---|---|
| 10.3(4b6) | vrf |

## 36.1.6 rlog type

**rlog type** *n* **priority** *prio*

**no rlog type**

| | |
|---|---|
| n | |
| prio | |

1

```
Ruijie(config)# rlog type 24 priority 5
```

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

show rlog-type 0-7

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

| | |
|---|---|
| 10.3(4b6) | |

## 36.2.1 show rlog

**Show rlog**

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

1

```
Ruijie# show rlog
rlog server is enable
 mtu 1200  port 13000  server 10.1.1.1
rlog export-rate 0 rlog queue remain 2048
send log count : 5244 error count : 0 errorno : 0
recv buf: 5244 poll buf err: 0 push buf: 5244
```

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

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

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

## 36.2.2 show rlog-type

**Show rlog-type**

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

```
  1
Ruijie# show rlog-type
XLOG_TYPE_FLOW              16
XLOG_TYPE_CPU_MEM           17
XLOG_TYPE_DISC              18
XLOG_TYPE_DEV_LOG           19
XLOG_TYPE_URL_AUDIT         20
XLOG_TYPE_IP_APP            21
XLOG_TYPE_IP                22
XLOG_TYPE_CHANNEL           23
XLOG_TYPE_INTERFACE         24
XLOG_TYPE_IP_OFFLINE        25
```

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

| | |
|---|---|
| 10.3(4b6) | |

## 36.2.3 show rlog-status

**Show rlog-status**

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

```
  1
Ruijie# show rlog-status
type                        status    prio
XLOG_TYPE_FLOW               off
XLOG_TYPE_CPU_MEM            off
XLOG_TYPE_DISC               off
XLOG_TYPE_DEV_LOG            off
XLOG_TYPE_URL_AUDIT          off
XLOG_TYPE_IP_APP             on       2
XLOG_TYPE_IP                 off
XLOG_TYPE_CHANNEL            off
XLOG_TYPE_INTERFACE          off
XLOG_TYPE_IP_OFFLINE         off
```

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

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

# 37 SNMP

## 37.1.1 no snmp-server

SNMP **no snmp-server**

**no snmp-server**

SNMP

SNMP

SNMP

SNMP

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

## 37.1.2 snmp-server chassis-id

SNMP **snmp-server chassis-id**
no

**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 |

## 37.1.3 snmp-server community

SNMP **snmp-server community** no SNMP

**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)#
```

```
Ruijie(config)# snmp-server community public ro 2
```

**snmp-server**

**snmp-server enable traps** NMS

SNMP
vrf [ vrf ]

SNMP SNMP

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

| | |
|---|---|
| **snmp-server enable traps** | |

## 37.1.7 snmp-server location

SNMP **snmp-server location**
no SNMP

**snmp-server location** *text*

**no snmp-server location**

*text*

```
Ruijie(config)# snmp-server location start-technology-city 4F o
f A Buliding
```

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

| | |
|---|---|
| **snmp-sever contact** | SNMP |

## 37.1.8 snmp-server packetsize

SNMP **snmp-sever packetsize** no

**snmp-server packetsize** *byte-count*

**no snmp-server packetsize**

*byte-count* 484 17876

1500

SNMP 1492

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

ç €

4

4

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

| | |
|---|---|
| **snmp-server packetsize** | SNMP |

## 37.1.10 snmp-server system-shutdown

SNMP **snmp-server system-shutdown** no SNMP

**snmp-server system-shutdown**

**no snmp-server system-shutdown**

SNMP

SNMP RGOS reload/reboot NMS

SNMP

```
Ruijie(config)#
```

SNMP IP

SNMP IP
IP SNMP

0 IP SNMP

```
Ruijie(config)# snmp-server trap-source GigabitEthernet 0
```

| | |
|---|---|
| **snmp-server enable traps** | |
| **snmp-server enable host** | NMS |

## 37.1.12 snmp-server trap-timeout

**snmp-server trap-timeout**

no

**snmp-server trap-timeout** *seconds*

**no snmp-server trap-timeout**

*seconds*

30

60

```
Ruijie(config)# snmp-server trap-timeout 60
```

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

| | |
|---|---|
| **snmp-server enable host** | NMS |

## 37.1.13 snmp-server user

SNMP **snmp-server user** no

**snmp-server user** *username groupname* {**v1** | **v2** | **v3** [**encrypted**] [**auth** {**md5** | **sha**} *auth-password* ] [**priv des56** *priv-password*]} [**access** {*num* | *name*}]

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

*username*

*groupname*

**v1** | **v2** | **v3** SNMP v3

**encrypted**
16 MD5
16 SHA 20

**auth** **md5** MD5 **sha** SHA

*auth-password*: 32

**priv** **des56** 56 DES *priv-password*
32

snmpV3 md5 DES

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

| | |
|---|---|
| **show snmp user** | SNMP |

### 37.1.14 snmp-server group

**include** MIB

**exclude** MIB

default MIB

MIB-2 oid 1.3.6.1

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

## 37.2.1 show snmp

SNMP **show snmp**

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

**show snmp** SNMP

**show snmp mib** snmp mib

**show snmp user** snmp

**show snmp view** snmp

**show snmp group** 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/1 TD23 vaTrap PDUs
```