



**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

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

1.

Arial

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

2.

```
⚡:  
:
```

3.

---

# 1

## 1.1.1 bridge-group

**no**  
**bridge-group** *bridge-group-id*  
**no bridge-group**

|                        |    |
|------------------------|----|
|                        |    |
| <i>bridge-group-id</i> | 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**

**shutdown no**

Ruijie# **clear interface vlan 100**

|                 |  |
|-----------------|--|
|                 |  |
| <b>shutdown</b> |  |

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

## 1.1.5 descriptionin

**no**

**description string**

**no description**

|               |  |
|---------------|--|
|               |  |
| <i>string</i> |  |

**show interfaces**

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

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

|                        |  |
|------------------------|--|
|                        |  |
| <b>show interfaces</b> |  |



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

**1.1.6 interface bvi**

[illegible]

|         | mtu | no |
|---------|-----|----|
| mtu num |     |    |

---

|            |     |
|------------|-----|
|            |     |
| <i>num</i> | MTU |

1500

MTU  
VLAN BVI NULL LOOPBACK

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

|                        |  |
|------------------------|--|
|                        |  |
| <b>show interfaces</b> |  |



```
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]
```

| <i>interface-id</i> | VLAN      BVI |
|---------------------|---------------|
| <b>description</b>  | 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

| <b>carrier-delay</b>  |      |
|-----------------------|------|
| <b>mtu</b>            | MTU  |
| <b>interface vlan</b> | VLAN |
| <b>interface bvi</b>  | BVI  |
| <b>shutdown</b>       |      |

| 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]
```

|                                               |  |
|-----------------------------------------------|--|
|                                               |  |
| <b>dynamic</b>                                |  |
| <b>address</b> <i>mac-addr</i>                |  |
| <b>interface</b> <i>interface-id</i>          |  |
| <b>bridge-group</b><br><i>bridge-group-id</i> |  |

MAC

```
show mac-address-table dynamic
```

MAC 00d0.f800.0c0c

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

|                                       |  |
|---------------------------------------|--|
|                                       |  |
| <b>show mac-address-table dynamic</b> |  |





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

10.3(4b6)

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

2.1.5 mac-limit

MAC 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          |

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

|  |                       |     |
|--|-----------------------|-----|
|  | <b>show mac-limit</b> | MAC |
|  |                       |     |
|  |                       |     |
|  |                       |     |
|  | 10.3(4b6)             |     |

2.1.6 mac-address-learning

|  |                                                   |          |
|--|---------------------------------------------------|----------|
|  | MAC                                               | no       |
|  | <b>mac-address-learning</b>                       |          |
|  |                                                   |          |
|  | -                                                 | -        |
|  |                                                   |          |
|  |                                                   |          |
|  |                                                   |          |
|  | MAC                                               |          |
|  |                                                   | VLAN 100 |
|  | Ruijie(config)# <b>interface vlan 100</b>         |          |
|  | Ruijie(config-if)# <b>no mac-address-learning</b> |          |
|  |                                                   |          |
|  | -                                                 | -        |
|  |                                                   |          |
|  |                                                   |          |
|  |                                                   |          |
|  | 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*]

| <i>mac-addr</i>        | MAC |
|------------------------|-----|
| <i>interface-id</i>    |     |
| <i>bridge-group-id</i> | ID  |

MAC

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

| Bridge Group | MAC Address    | Type    | Interface |
|--------------|----------------|---------|-----------|
| -----        | -----          | -----   | -----     |
| 1            | 00d0.f800.1001 | DYNAMIC | VLAN 100  |

| <b>mac-address-table static</b>    |  |
|------------------------------------|--|
| <b>mac-address-table filtering</b> |  |

| 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*]

| <i>mac-addr</i>        | MAC |
|------------------------|-----|
| <i>bridge-group-id</i> | ID  |
| <i>interface-id</i>    |     |

## 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  |

|                                        |
|----------------------------------------|
| <b>clear mac-address-table dynamic</b> |
|----------------------------------------|

|     |
|-----|
| 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

MAC

---



MAC

MAC

MAC

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

no

**http redirect** *ip-address*

**no http redirect**

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

*ip-address*

We

IP

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

Web

Web

50

1 IP 172.16.0.1

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

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

|                |   |
|----------------|---|
|                |   |
| <b>10.2(5)</b> | / |

### 3.1.4 http redirect homepage

no

**http redirect homepage url-string**

**no http redirect homepage**

|                   |                          |
|-------------------|--------------------------|
|                   |                          |
| <i>url-string</i> | "http://" "https://" 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 | ip security-level |



|  |   |                                                |    |
|--|---|------------------------------------------------|----|
|  |   | security-level                                 | ip |
|  |   |                                                |    |
|  |   |                                                |    |
|  | 1 | Ruijie(config)# <b>loose-inter-zone-access</b> |    |
|  |   |                                                |    |
|  |   | <b>loose-inner-zone-access</b>                 | ip |
|  |   |                                                |    |
|  |   |                                                |    |
|  |   | <b>10.3(4b5)</b>                               | /  |

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]**

|  |            |                    |             |
|--|------------|--------------------|-------------|
|  |            |                    |             |
|  |            | <i>access-list</i> |             |
|  |            | <i>zone-name</i>   |             |
|  | <b>log</b> |                    | access-list |
|  |            | 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**

|                  |       |
|------------------|-------|
|                  |       |
| <i>level-num</i> | 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 |

### 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**

---

3



---

|  |             |        |
|--|-------------|--------|
|  |             |        |
|  | <i>days</i> | 1      |
|  |             | 1~3650 |

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

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

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

|                                                          |
|----------------------------------------------------------|
| 1                                                        |
| 2                                                        |
| Ruijie(config-security-zone)# <b>violation timeout 2</b> |

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



*ip-mask*

IP

Web

Web

50

web  
standby

Web

Web

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)

10.2(5)

41954 / Web37H21\$%a#bVd0r!T8JcrP.0r96w1#@1%@V00A



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          | WEB PC HTTP |
| 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*

|                   |    |
|-------------------|----|
| <i>ip-address</i> | 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>ip-protocol</i>   | IP |
|----------------------|----|
| <i>source-ip</i>     | IP |
| <i>dst-ip</i>        | IP |
| <i>src-port</i>      |    |
| <i>dst-port</i>      |    |
| <i>src-interface</i> |    |
| <i>dst-interface</i> |    |

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

|                                      |  |
|--------------------------------------|--|
|                                      |  |
| <b>show security-access-blocking</b> |  |
| <b>show security-access-rules</b>    |  |

|                  |          |
|------------------|----------|
|                  |          |
| <b>10.3(4b6)</b> | <b>/</b> |

### 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**

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

|                      |    |
|----------------------|----|
| <i>source-ip</i>     | IP |
| <i>begin-year</i>    |    |
| <i>begin-mon</i>     |    |
| <i>begin-day</i>     |    |
| <i>begin-hour</i>    |    |
| <i>end-year</i>      |    |
| <i>end-mon</i>       |    |
| <i>end-day</i>       |    |
| <i>end-hour</i>      |    |
| <i>offset-number</i> |    |
| <i>limit-number</i>  |    |

10M

IP

|                                      |  |
|--------------------------------------|--|
|                                      |  |
| <b>show security-access-blocking</b> |  |
| <b>show security-access-rules</b>    |  |

|                  |          |
|------------------|----------|
|                  |          |
| <b>10.3(4b6)</b> | <b>/</b> |



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

1

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

| <b>web-auth on</b> | Web |
|--------------------|-----|

| <b>10.2(5)</b> | / |
|----------------|---|

### 3.2.10 show web-auth user

IP

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

| <i>ip-address</i> | 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

---

# 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

syn proxy

[ no ] firewall auto-synproxy

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

1

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

|                                                                |                        |
|----------------------------------------------------------------|------------------------|
| <b>firewall defend syn-flood</b><br><i>acl-number rate-num</i> | SYN Flood<br>SYN-Proxy |
|----------------------------------------------------------------|------------------------|

|                  |  |
|------------------|--|
| <b>10.3(4b6)</b> |  |
|------------------|--|

#### 4.1.4 firewall blacklist

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

|                  |      |   |
|------------------|------|---|
| <i>sour-addr</i> | ip n | o |
|------------------|------|---|

---

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

#### 4.1.5 firewall defend fraggle

fraggle

[ no ] firewall defend fraggle

|                  |           |     |    |
|------------------|-----------|-----|----|
| <b>syn-flood</b> | SYN flood |     |    |
| <i>acl-num</i>   | ACL       | acl | IP |
| <i>acl-name</i>  | ACL       | acl | IP |
| <i>rate-num</i>  | pps       |     |    |
| <b>no</b>        |           |     |    |

1

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

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

|                  |   |
|------------------|---|
|                  |   |
| <b>10.3(4b5)</b> | / |

#### 4.1.7 firewall defend icmp-redirect

icmp ,icmp

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

|           |  |
|-----------|--|
|           |  |
| <b>no</b> |  |

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)# <b>firewall defend route-record</b> |    |
|  |                                                       |    |
|  | -                                                     | -  |
|  |                                                       |    |
|  |                                                       |    |
|  |                                                       |    |
|  | 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} <i>time-interval</i> |  |
|  |                                                                                                           |  |
|  | {high   low   medium}                                                                                     |  |

|  |                                                                                               |                  |
|--|-----------------------------------------------------------------------------------------------|------------------|
|  | <i>time-interval</i>                                                                          | second<br>1 2000 |
|  | <b>no</b>                                                                                     |                  |
|  |                                                                                               |                  |
|  |                                                                                               |                  |
|  |                                                                                               |                  |
|  | 1<br>Firewall(config)# <b>firewall defend scan counter-clear-interval sense-level high 50</b> |                  |
|  |                                                                                               |                  |
|  | -                                                                                             | -                |
|  |                                                                                               |                  |
|  |                                                                                               |                  |
|  | 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}                                              |  |
|  | <b>no</b>                                                            |  |
|  |                                                                      |  |

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*]

|                                              |                              |
|----------------------------------------------|------------------------------|
|                                              |                              |
| { <i>high</i>   <i>low</i>   <i>medium</i> } |                              |
| <i>acl</i>                                   | ip      ip      acl      acl |
|                                              | ip                           |
| <i>time-num</i>                              | ip                           |
|                                              |                              |
| <b>no</b>                                    |                              |

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)# <b>firewall defend winnuke</b> |         |
|  |                                                  |         |
|  | -                                                | -       |
|  |                                                  |         |

---

#### **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  
VRRP tcp

[ 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 |
|     |
| /   |

in

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



---

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* }



---

```
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**

|            |          |
|------------|----------|
|            |          |
| <i>num</i> | 0-200000 |

context

abc

10

Ruijie(config)#**context** *abc*

Ruijie(config-ctx)#**ace-limit** *100000*

|                             |     |
|-----------------------------|-----|
|                             |     |
| <b>session-limit</b>        |     |
| <b>host-limit</b>           |     |
| <b>mac-limit</b>            | MAC |
| <b>session-create-limit</b> |     |

---

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

7.1.2 changeto

**changeneto** { *context-name* }

|                     |        |
|---------------------|--------|
|                     |        |
| <i>context-name</i> | , root |

context-name                      **changeneto** *context-name*



---

abc  
Ruijie(config)#**context** abc

|                   |  |
|-------------------|--|
|                   |  |
| <b>config-url</b> |  |

---

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/C2ef0852 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   |    |
|  |                           |    |

|                      |     |
|----------------------|-----|
| <b>session-limit</b> |     |
| <b>ace-limit</b>     | ACE |
| <b>host-limit</b>    |     |
| <b>mac-limit</b>     | MAC |

|                  |   |
|------------------|---|
|                  |   |
| <b>10.3(4b5)</b> | / |

## 7.1.9 session-limit

no

**session-limit** *num*

**no session-limit**

|            |    |
|------------|----|
|            |    |
| <i>num</i> | 0- |

context

abc

100000

Ruijie(config)#**context** *abc*

Ruijie(config-ctx)#**session-limit** *100000*

|                   |     |
|-------------------|-----|
|                   |     |
| <b>mac-limit</b>  | MAC |
| <b>ace-limit</b>  | ACE |
| <b>host-limit</b> |     |

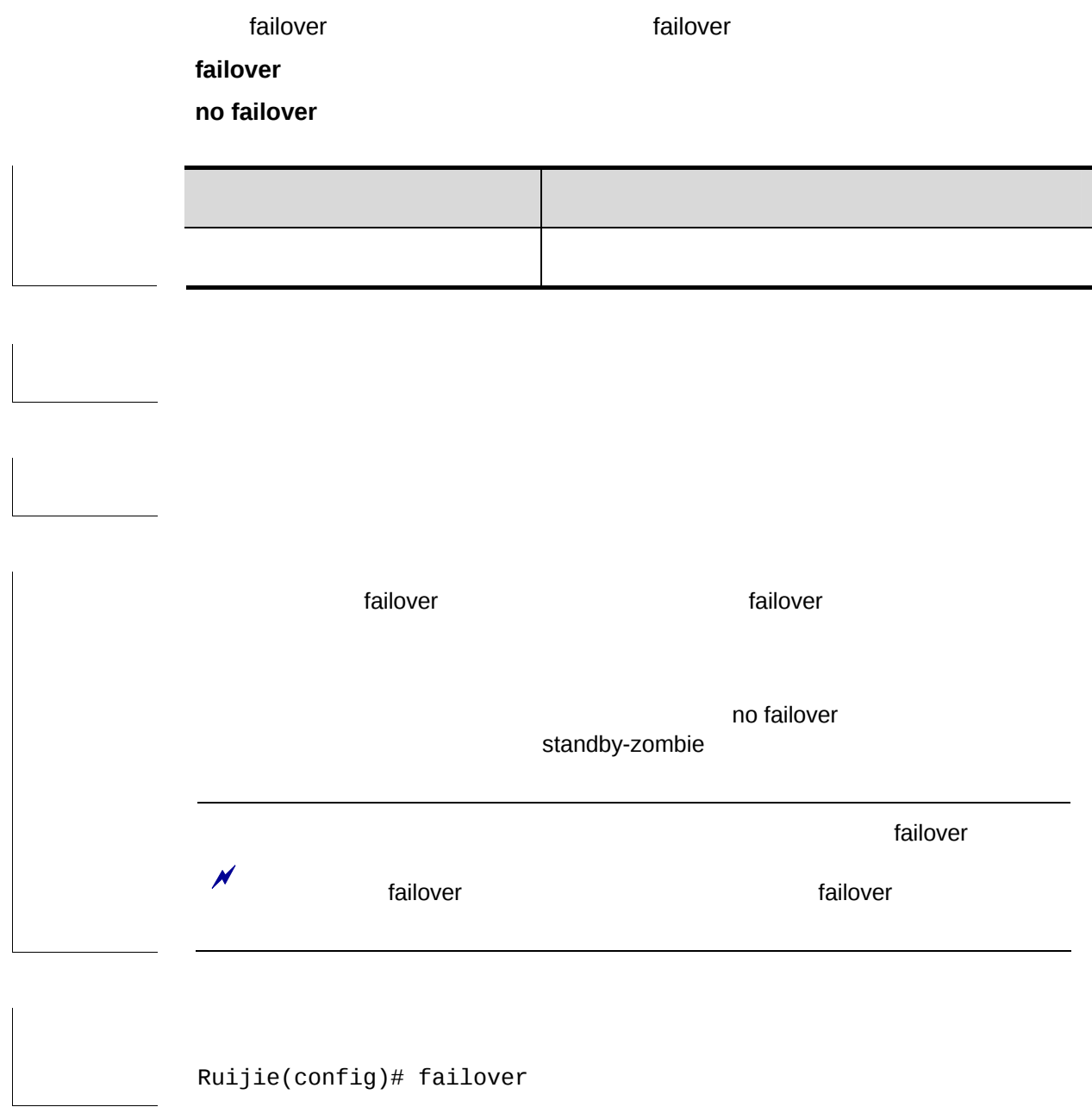
---

|  |                               |  |
|--|-------------------------------|--|
|  | <b>session-create-limit</b>   |  |
|  | <b>show ip fpm statistics</b> |  |

|  |                  |          |
|--|------------------|----------|
|  |                  |          |
|  |                  |          |
|  |                  |          |
|  | <b>10.3(4b5)</b> | <b>/</b> |

# 8 failover

## 8.1.1 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> ( ) #  
10.1.0.2 10.1.0.1 255.255.255.0

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

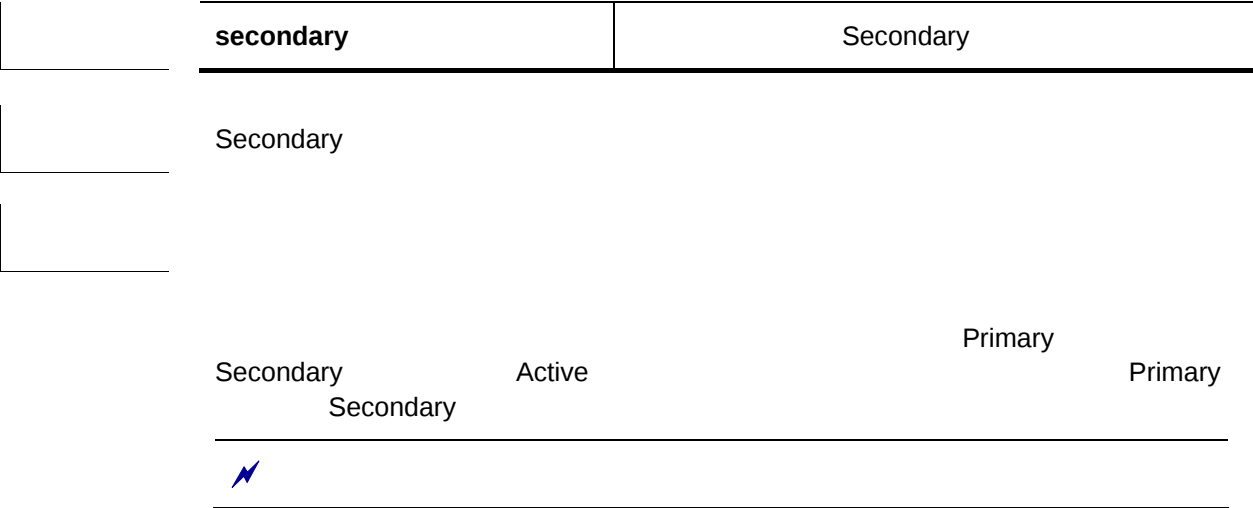
|           |  |
|-----------|--|
|           |  |
| 10.3(4b6) |  |

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 v1an 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   |



pool\_time

hold\_time

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

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

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

8.2.1



```
failover
show failover history [ detail ]
```

[illegible]

failover

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 OdLement error:0  
  
Hold time: 2000 msec, poll time: 50 msec, window size: 40  
In last holdtime:



```
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 v1an 10

|                              |                   |
|------------------------------|-------------------|
|                              |                   |
| failover manage interface ip | Failover AA<br>IP |

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

9.1.2 failover manage interface ip

|  |                                                                                                      |                    |
|--|------------------------------------------------------------------------------------------------------|--------------------|
|  | failover AA                                                                                          | ip                 |
|  | <b>failover manage interface ip</b> <i>active_address mask</i> <b>standby</b> <i>standby_address</i> |                    |
|  | <b>no failover manage interface ip</b>                                                               |                    |
|  | <div></div>                                                                                          |                    |
|  | <i>active_address</i>                                                                                | 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

| <b>h</b>  | <b>help</b>    |
|-----------|----------------|
| <b>p</b>  | <b>ping</b>    |
| <b>s</b>  | <b>show</b>    |
| <b>u</b>  | <b>undebug</b> |
| <b>un</b> | <b>undebug</b> |

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(config-if-GigabitEthernet 0/1)# ip address 7FF-238.1.1 address

```



```
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* ]

|                        |  |
|------------------------|--|
|                        |  |
| <i>privilege-level</i> |  |

**disable**

Ruijie# **disable 10**

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

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

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



|                           |   |   |
|---------------------------|---|---|
| 0 7                       | 0 | 7 |
| <i>encrypted-password</i> |   |   |

The diagram illustrates a bus system with a 26-bit data bus and a 1-bit EXEC signal. On the left, a vertical line represents the bus input, branching into two horizontal lines. The top horizontal line is labeled '1' and the bottom horizontal line is labeled '26'. These lines connect to a horizontal line representing the bus output. Below this horizontal line, there is a blue lightning bolt icon labeled 'EXEC'.

```
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**

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

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

```

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

```

```

pw10
Ruijie(config)# enable secret 0 pw10

```

|                        |  |
|------------------------|--|
|                        |  |
| <b>enable password</b> |  |

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

## 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**

|                                        |      |               |      |
|----------------------------------------|------|---------------|------|
| <b>telnet-server</b>                   | IPv6 | Telnet Server | IPv4 |
| <b>web-server [http   https   all]</b> | IPv6 | Web Server    | IPv4 |
| <b>snmp-agent</b>                      | IPv6 | Snmp Agent    | IPv4 |

| 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**

|                     |  |
|---------------------|--|
|                     |  |
| <b>show service</b> |  |

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

## 11.1.6 execute

### execute

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

|               |  |
|---------------|--|
|               |  |
| <b>flash:</b> |  |

|                 |  |
|-----------------|--|
| <i>filename</i> |  |
|-----------------|--|

TFTP  
CLI

Flash

PC

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
```

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



|                                          |             |                 |
|------------------------------------------|-------------|-----------------|
|                                          |             |                 |
| <i>number</i>                            | HTTP Server | 80              |
| 80                                       |             |                 |
|                                          |             |                 |
|                                          | HTTP        | no ip http port |
|                                          | HTTP        | 8080            |
| Ruijie(config)# <b>ip http port 8080</b> |             |                 |
|                                          |             |                 |
| <b>enable service</b>                    |             |                 |
|                                          |             |                 |
|                                          |             |                 |
| -                                        |             | -               |

11.1.9 ip http secure-port

|                                          |              |                        |
|------------------------------------------|--------------|------------------------|
|                                          | HTTPS        | ip http secure-port    |
| <b>ip http secure-port <i>number</i></b> |              |                        |
|                                          |              |                        |
| <i>number</i>                            | HTTPS Server | 443                    |
| 443                                      |              |                        |
|                                          |              |                        |
|                                          | HTTPS        | no ip http secure-port |

HTTPS 4443  
 Ruijie(config)# **ip http secure-port 4443**

|                               |     |
|-------------------------------|-----|
|                               |     |
| <b>enable service</b>         |     |
| <b>show web-server status</b> | web |

|               |  |
|---------------|--|
|               |  |
| <b>10.4 3</b> |  |

### 11.1.10 ip telnet source-interface

IP Telnet **ip telnet**  
**source-interface**  
**ip telnet source-interface** *interface-name*

|                       |           |
|-----------------------|-----------|
|                       |           |
| <i>interface-name</i> | IP Telnet |

IP Telnet **telnet**  
 Telnet  
**no ip telnet source-interface**

Loopback 1 IP Telnet  
 Ruijie(config)# **ip telnet source-interface** *Loopback 1*

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

|  |               |        |
|--|---------------|--------|
|  | <b>telnet</b> | Telnet |
|  |               |        |
|  |               |        |
|  | 10.4(2)       |        |

11.1.11 lock

|  |             |      |      |
|--|-------------|------|------|
|  |             | EXEC | lock |
|  | <b>lock</b> |      |      |
|  |             |      |      |
|  | -           |      | -    |

|  |
|--|
|  |
|  |

|  |             |        |                 |
|--|-------------|--------|-----------------|
|  | <b>lock</b> |        |                 |
|  |             | Locked |                 |
|  | line        | line   | <b>lockable</b> |

|  |
|--|
|  |
|  |

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



---

|             |  |
|-------------|--|
| <b>lock</b> |  |
|-------------|--|

---

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

### 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**

|                 |      |
|-----------------|------|
|                 |      |
| <b>password</b> | 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





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

```
service password-encryption
password
```

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

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



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

|                           |     |
|---------------------------|-----|
|                           |     |
| <i>Name</i>               |     |
| <i>Password</i>           |     |
| 0 7                       | 0 7 |
| <i>encrypted-password</i> |     |
| <i>privilege-level</i>    |     |
| <i>filename</i>           |     |



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

|  | no banner login                                                          | banner login |
|--|--------------------------------------------------------------------------|--------------|
|  | banner login c message c                                                 |              |
|  |                                                                          |              |
|  | c                                                                        |              |
|  | message                                                                  |              |
|  |                                                                          |              |
|  |                                                                          |              |
|  |                                                                          |              |
|  | Ruijie(config)<br>Ruijie(config)# banner login \$ enter your password \$ |              |
|  |                                                                          |              |
|  | -                                                                        | -            |
|  |                                                                          |              |
|  |                                                                          |              |
|  |                                                                          |              |
|  | -                                                                        | -            |
|  |                                                                          |              |

### 11.2.2 banner motd

---

|                |  |
|----------------|--|
|                |  |
| <i>c</i>       |  |
| <i>message</i> |  |

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**

|                       |  |
|-----------------------|--|
|                       |  |
| <b>boot network</b>   |  |
| <b>service config</b> |  |
| <b>show boot</b>      |  |



[illegible]

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

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

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

### 11.2.5 boot network

no

```
boot network tftp:// location / filename
no boot network
```

|                 |      |
|-----------------|------|
|                 |      |
| <i>location</i> | TFTP |
| <i>filename</i> | TFTP |

---

**service config**

/config.text **boot network**

**boot config**

no

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

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

|                              |        |
|------------------------------|--------|
|                              |        |
| <i>priority</i>              | 1 10 1 |
| <i>prefix:</i>               | 10.4 2 |
| <i>/[directory/]filename</i> | 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   | IP TFTP |
| 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*

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

---

|              |           |
|--------------|-----------|
| <i>day</i>   | 1-31      |
| <i>month</i> | 1-12      |
| <i>year</i>  | 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 LINE exec-timeout no  
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*

|             |    |
|-------------|----|
|             |    |
| <i>name</i> | 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** ]

|                                    |       |
|------------------------------------|-------|
|                                    |       |
| <i>text</i>                        | 1-255 |
| <b>in</b> [ <i>hh:</i> ] <i>mm</i> | 24    |
| <b>at</b> <i>hh:mm</i>             |       |
| <i>month</i>                       | 3 Mar |
| <i>day</i>                         | 1 31  |
| <b>cancel</b>                      |       |

10

Ruijie# **reload in 10**  
Router will reload in 600 seconds.

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

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

11.2.14 service config

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



|              |                                                 |
|--------------|-------------------------------------------------|
| <i>Speed</i> | bps<br>9600 19200 38400 57600<br>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<br>running-config startup-config |
| network  | TFTP copy<br>running-config tftp            |
| terminal | show running-config                         |



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

**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 |





---

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

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

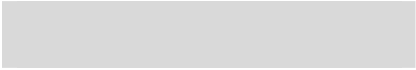
|   |   |
|---|---|
|   |   |
| - | - |





---

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



---

# 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*

| <b>rmdir</b> | , rm ' |
|--------------|--------|

### 12.1.8 rmdir

**rmdir** *DIRECTORY*

*DIRECTORY* ,

---

, , **rm**

tmp

Ruijie# **rmdir** tmp

Ruijie# **ls**

---

# 13

|        | CLI | COPY               |
|--------|-----|--------------------|
| Xmodem |     | <b>copy xmodem</b> |
| Tftp   |     | <b>copy tftp</b>   |

## 13.1.1 copy xmodem

| xmodem                                    | xmodem |
|-------------------------------------------|--------|
| <b>copy flash: <i>filename</i> xmodem</b> |        |
| <b>copy xmodem flash: <i>filename</i></b> |        |

⚡ 注意:

**copy xmodeam flash:"filename"**      **copy flash:"filename" xmodeam**

*filename*

|        | Xmodem | Xmodem |
|--------|--------|--------|
|        | Xmodem |        |
| :      | xmodem |        |
| xmodem |        |        |

---

tftp

tftp

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

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

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

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

⚡ 注意:

tftp

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

**copy tftp://localTJTJ1 Tf-0.015 Tc 1577CgtapDfilename**

## 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

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

ARP

RGOSARP32IP48MAC

arp-cacheARPARPARPclear

ARP

arp 1.1.1.1 4e54.3800.0002 arpa

|                 |     |
|-----------------|-----|
|                 |     |
| clear arp-cache | ARP |

14.2.2 arp any-ip

AnyIPIPARP

noIP

arp any-ip

no arp any-ip

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



|   |    |    |    |
|---|----|----|----|
| 1 | IP | IP | IP |
| 2 | IP |    |    |

```

      IP
      ARP
      ARP      (      ARP      )
1      ARP      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 ,<br><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 |

ARP8192

ARP

500

arp unresolved 500

14.2.8 arp gratuitous-send interval

arpno

arp gratuitous-send interval seconds  
no arp gratuitous-send

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

ARP

ARP

SVI 1ARP

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

```
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**

| <i>seconds</i> | 0-2147483 |
|----------------|-----------|

3600

ARP IP MAC  
ARP ARP ARP  
ARP

vlan 1 ARP 120

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

| <b>clear arp-cache</b> | ARP |
|------------------------|-----|
| <b>show interface</b>  |     |

## 14.2.10 ip proxy-arp

ARP ip proxy-arp no  
ARP

**ip proxy-arp**

**no ip proxy-arp**

ARP

MAC ARP  
MAC

ARP ARP  
IP MAC

IP IP  
ARP ARP  
ARP

vlan 1  
interface vlan 1  
ip proxy-arp

ARP

### 14.2.11 service trustedarp

ARP  
ARP

**service trustedarp**

**no**

**service trustedarp**

**no service trustedarp**

ARP

GSN ARP ARP GSN

STP  
MAC ARP MAC

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*

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

IP 255.255.255.255

IP IP 1 255.255.255.255 RGOS  
1

IP 0.0.0.0  
ip broadcast-address 0.0.0.0

### 14.3.2 ip directed-broadcast

IP

no

ip directed-broadcast

ip directed-broadcast [ access-list-number ]

no ip directed-broadcast

|                    |                    |
|--------------------|--------------------|
|                    |                    |
| access-list-number | 26991-199 1300 -IP |

IP

172.16.16.255

IP

IP

IP

1

IP

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 <i>vrf_name</i> | VRF VRF ARP |

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

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

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

```
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* ]

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

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 unreachableled 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.
```

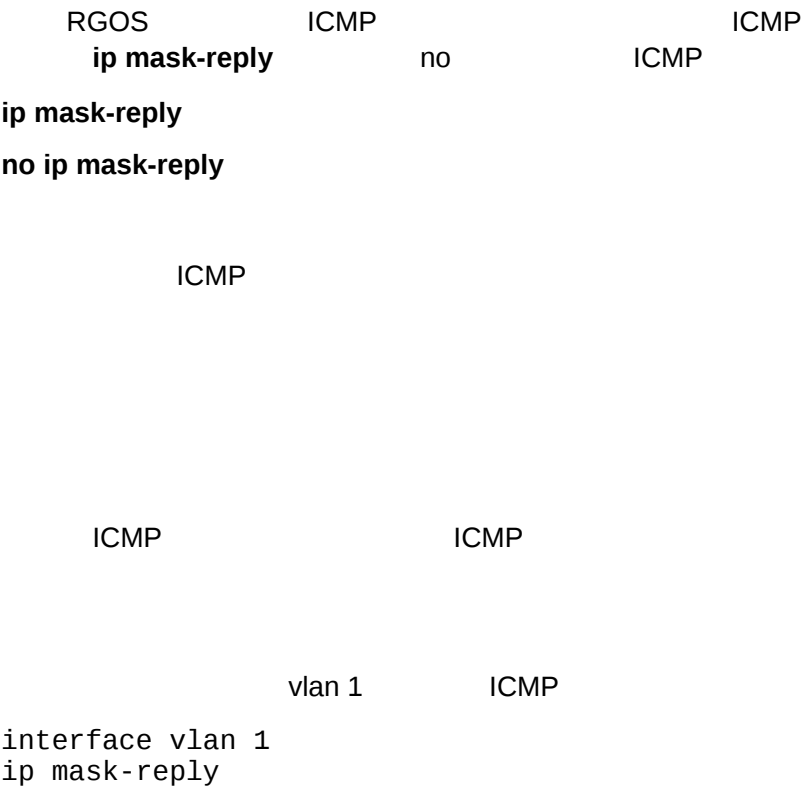
IP

---

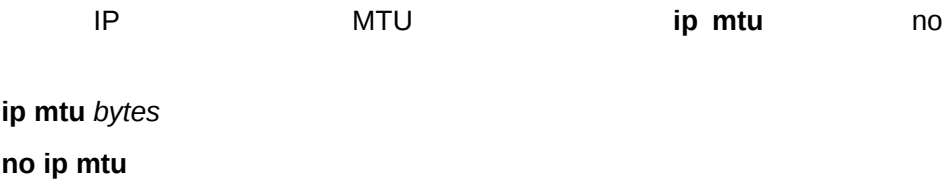
|  |  |
|--|--|
|  |  |
|--|--|

# 15 IP

## 15.1.1 ip mask-reply



## 15.1.2 ip mtu



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

mtu

IP IP MTU RGOS  
IP MTU  
mtu IP MTU IP MTU MTU  
MTU  
vlan 1 IP MTU 512  
interface vlan 1 ip 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
no
```

IP

**ip source-route**

```
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 unreachable

```
RGOS
no
```

ICMP  
ICMP**ip unreachable**

```
ip unreachable
no ip unreachable
```

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       | 10s  | ICMP |
|-------------------|------|------|
| icmp-connected    | 10s  | ICMP |
| icmp-started      | 10s  | ICMP |
| rawip-closed      | 10s  | ip   |
| rawip-connected   | 300s | ip   |
| rawip-established | 300s | ip   |
| rawip-started     | 300s | ip   |

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

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

| <i>quota_num</i> |  |
|------------------|--|

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]

| <b>filter</b>             |  |
|---------------------------|--|
| <i>ip_protocol_number</i> |  |
| <i>source_ip</i>          |  |
| <i>source_ip_mask_len</i> |  |

|                         |  |
|-------------------------|--|
| <i>dest_ip</i>          |  |
| <i>dest_ip_mask_len</i> |  |

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    |
| 100   | 100           | TCP_ESTABLISHED | 2       | 0       |

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    |
| 100   | 100           | TCP_ESTABLISHED | 2       | 0       |

| 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 ]
```



address 192.168.100.1 192.168.100.50

ip nat pool

IP NAT

-

-

17.1.2 ip nat

no

NAT  
NAT

ip nat

ip nat { inside | outside }

no ip nat { inside | outside }

inside

outside

NAT



|                                            |            |
|--------------------------------------------|------------|
| <i>dest-ip</i>                             | NAT        |
| <b>tcp</b> <i>dest-ip port-num</i>         | tcp<br>NAT |
| <b>udp</b> <i>dest-ip port-num</i>         | udp<br>NAT |
| <b>dest-change</b> <i>ip-addr port-num</i> |            |
| <b>src-change</b> <i>ip-addr</i>           |            |

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
192.168.1.1      53  UDP      IP      access-list 1
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
!

```

|                |  |
|----------------|--|
|                |  |
| <b>address</b> |  |

|                                  |        |
|----------------------------------|--------|
| <b>ip nat</b>                    | NAT    |
| <b>ip nat inside destination</b> | NAT    |
| <b>ip nat inside source</b>      | NAT    |
| <b>ip nat outside source</b>     | NAT    |
| <b>show ip nat translations</b>  | 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*



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 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*

|                                       |          |          |          |          |          |
|---------------------------------------|----------|----------|----------|----------|----------|
| <b>list</b> <i>access-list-number</i> | <b>p</b> | <b>l</b> | <b>o</b> | <b>b</b> | <b>p</b> |
|---------------------------------------|----------|----------|----------|----------|----------|

```

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

```



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

timeout verbose

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 |

|                  |     |
|------------------|-----|
|                  |     |
| <b>10.3(4b6)</b> | 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
```

ping

```
Ruijie# ping 192.168.5.197 length 1500 ntimes 100 timeout 3 data
ffff source 192.168.4.10
```

```
Sending 100, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3
seconds:
 < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max =
2/2/3 ms
```

## 18.1.2 Traceroute

traceroute

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

|                   |      |
|-------------------|------|
|                   |      |
| <i>vrf-name</i>   | VRF  |
| <i>ip-address</i> | IPv4 |

---

tracert

VRF

RSR

DNS

tracert

---

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    |
|  |  |  |  | OK     |   | Short |   |      |
|  |  |  |  | state  |   | OK    |   |      |
|  |  |  |  | length |   |       |   |      |
|  |  |  |  | Short  |   | Open  |   |      |

## 19 DHCP

### 19.1.1 bootfile

DHCP

19.1.2 client-identifier

DHCP client-identifier no DHCP

client-identifier unique-identifier

no client-identifier

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

DHCP

DHCP DHCP IP MAC

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



DHCP

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

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

DHCP

DHCP

DHCP

DHCP

IP

192.168.12.1

default-router 192.168.12.1

| <b>ip dhcp pool</b> | DHCP<br>DHCP |
|---------------------|--------------|

## 19.1.5 dns-server

DHCP  
**no**

DNS  
DNS

DHCP

**dns-server**

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

| <i>ip-address</i>                | DNS IP |
|----------------------------------|--------|
| <i>ip-address2...ip-address8</i> | 8 DNS  |

|                         |      |      |
|-------------------------|------|------|
| <b>use-dhcp-client</b>  | RGOS | DHCP |
| <i>interface-type</i>   | DNS  | DHCP |
| <i>interface-number</i> | DNS  |      |

## DNS

## DHCP

## DNS

## DHCP

## DNS

## DNS

RGOS  
DI

## DHCP

## DNS

## 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**

|                    |      |
|--------------------|------|
|                    |      |
| <i>domain-name</i> | DHCP |

DHCP

DHCP

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

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

19.1.7 hardware-address

DTdP



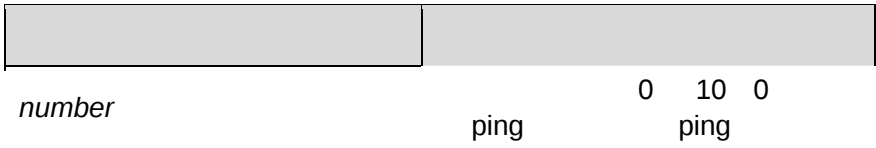
IP 192.168.12.91 255.255.255.240  
host 192.168.12.91 255.255.255.240

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

## **19.1.10 ip dhcp excluded-address**

IP

**no ip dhcp ping packet**



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

500

ping

ping

600ms

ip dhcp ping timeout 600

|                               |           |
|-------------------------------|-----------|
|                               |           |
| <b>clear ip dhcp conflict</b> | DHCP      |
| <b>ip dhcp ping packets</b>   | DHCP ping |
| <b>show ip dhcp conflict</b>  | DHCP      |

### 19.1.13 ip dhcp pool

**pool** DHCP **no**

DHCP  
DHCP

ip dhcp

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

|                  |          |
|------------------|----------|
|                  |          |
| <i>pool-name</i> | mypool 1 |

DHCP

## DHCP

Ruijie(dhcp-config)#

IP

DNS

mypool0

DHCP

ip dhcp pool mypool0



DHCP

DHCP

DHCP

lease 0 1 DHCP 1

lease 0 0 1 DHCP 1

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

19.1.15 netbios-name-server

netbios-name-server DHCP NETBIOS WINS DHCP

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

WINS

DHCP

WINS

|                     | DHCP         | WINS | 192.168.12.3 |
|---------------------|--------------|------|--------------|
| netbios-name-server | 192.168.12.3 |      |              |

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

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

### 19.1.17 network DHCP

|                   |         |
|-------------------|---------|
|                   |         |
| <i>net-number</i> | DHCP IP |
| <i>net-mask</i>   | DHCP IP |

## DHCP

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

255.255.255.240                      DHCP                      192.168.12.0  
network 192.168.12.0 255.255.255.240

| <b>ip dhcp excluded-address</b> | DHCP<br>IP   |
|---------------------------------|--------------|
| <b>ip dhcp pool</b>             | DHCP<br>DHCP |

### 19.1.18 next-server

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

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

DHCP

DHCP

                DHCP                      192.168.12.4  
**next-server** 192.168.12.4

|                        |           |
|------------------------|-----------|
|                        |           |
| <b>bootfile</b>        | DHCP      |
| <b>ip dhcp pool</b>    | DHCP DHCP |
| <b>ip help-address</b> | Helper    |
| <b>option</b>          | RGOS DHCP |

### 19.1.19 option

DHCP  
option

DHCP

**option**

**no**

**option** *code* { **ascii** *string* | **hex** *string* | **ip** *ip-address* }  
**no option**

|                            |             |
|----------------------------|-------------|
|                            |             |
| <i>code</i>                | DHCP        |
| <b>ascii</b> <i>string</i> | ASCII ASCII |

```
option 19 hex 1
33 DHCP 1 DHCP 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

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

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* }



|                   |    |
|-------------------|----|
| <i>ip-address</i> | 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
```

|                                       |      |
|---------------------------------------|------|
|                                       |      |
| <b>show ip dhcp server statistics</b> | 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

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

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/<br>Hardware address | DHCP | client identifier |
| Lease expiration               | IDLE | Infinite          |
| Type                           | DHCP | 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

DNSnoDNS

ip domain-lookup

no ip domain-lookup

DNS

DNSDNS

DNS

Ruijie(config)# ip domain-lookup

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

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

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

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

|                   |     |
|-------------------|-----|
|                   |     |
| <b>show hosts</b> | DNS |

RGNOS10.1

20.1.3 ip host

|  |    |    |
|--|----|----|
|  | IP | no |
|--|----|----|

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

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

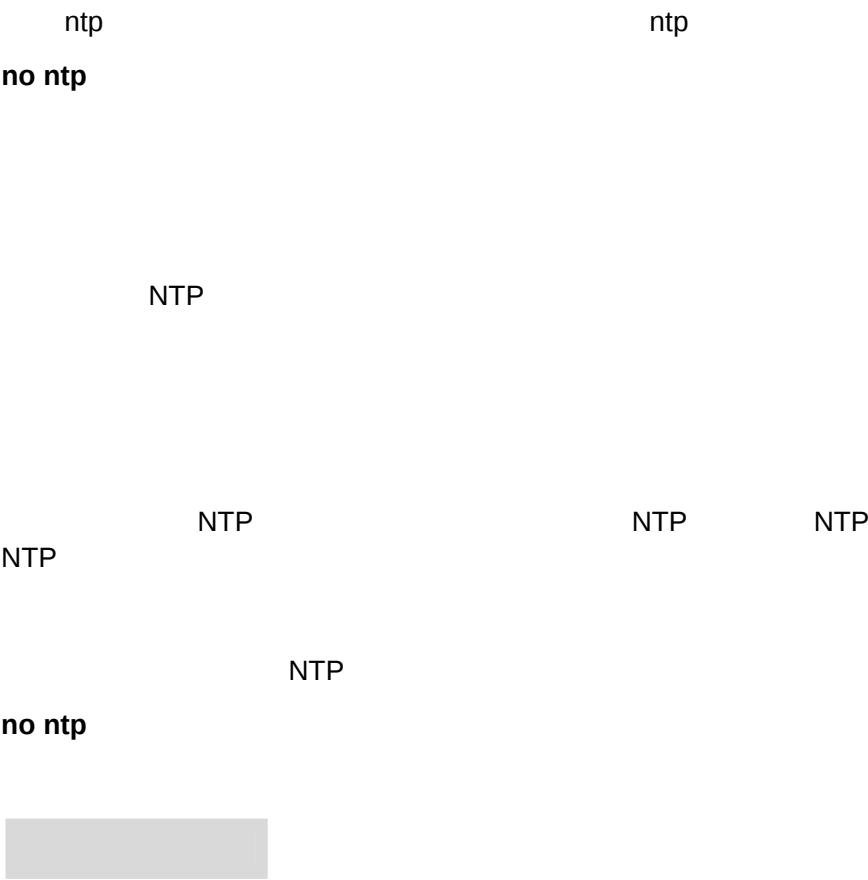
**no ip host host-name ip-address**

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



# 21 NTP

## 21.1.1 no ntp



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

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 woooooop
ntp trusted-key 6
ntp authenticate
```

|                               |  |
|-------------------------------|--|
|                               |  |
| <b>ntp authentication-key</b> |  |
| <b>ntp trusted-key</b>        |  |

### 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

no NTP  
NTP  
ntp master [stratum]  
no ntp master

| stratum | 1581 |
|---------|------|

NTP

---

⚡ 注意:

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*

| <i>ip-addr</i> | NTP    | IP  | IPv4  | IPv6 |
|----------------|--------|-----|-------|------|
| <i>version</i> | NTP    | 1-3 | NTPv3 |      |
| <i>if-name</i> | NTP    |     |       |      |
| <i>keyid</i>   |        |     |       |      |
| <b>prefer</b>  | 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*

| <i>key-id</i> | ID |
|---------------|----|

NTP

ID

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

| <b>ntp authenticate</b>       |     |
|-------------------------------|-----|
| <b>ntp authentication-key</b> | NTP |
| <b>ntp server</b>             | 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 SNTF

### 22.1.1 sntp enable

SNTP **no** —Disable

**[no] sntp enable**

SNTP Disable

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

```
RedGiant(config)# snmp 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**

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

RGOS10.0

---

⚡ 注意:

enablesntp

---

### 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

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

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

RGOS10.0

## **23 SSH**

### **23.1.1 crypto key generate**

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

RGOS10.1

### 23.1.2 crypto key zeroize

SSH

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

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

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

Ruijie# **configure terminal**  
Ruijie(config)# **crypto key zeroize rsa**

|                                      |            |
|--------------------------------------|------------|
|                                      |            |
| <b>show ip ssh</b>                   | SSH Server |
| <b>crypto key generate {rsa dsa}</b> | 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 1 SSH 2 SSH Ser

ver SSH1 SSH2 SSH 1 SSH 2

1 2 SSH

**ssh** SSH Server **show ip**

2

Ruijie# **configure terminal**  
Ruijie(config)# **ip ssh version 2**

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

RGOS10.1

**23.1.4 ip ssh time-out**

SSH Server no

**ip ssh time-out time**  
**no ip ssh time-out**

|             |  |
|-------------|--|
|             |  |
| <i>time</i> |  |

120s

no ip ssh time-out

SSH Server  
120s

show ip 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**

| <b>ip ssh version {1   2}</b>                        | SSH Server |
|------------------------------------------------------|------------|
| <b>ip ssh time-out time</b>                          | SSH Server |
| <b>ip ssh authentication-retries<br/>retry times</b> | SSH Server |

RGOS10.1

**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 {rsaldsa}**



SSH

SSH

SSH

SSH

VTY

```
Ruijie# disconnect ssh 1
Ruijie# disconnect ssh vty 1
```

|                                   |     |
|-----------------------------------|-----|
|                                   |     |
| show ssh                          | SSH |
| Clear line vty <i>line_number</i> | VTY |

RGOS10.1

## 24 UDP-Helper

### 24.1.1 udp-helper enable

**udp-helper enable** 15>-7003DF4D362C58055F11241C030A03087C1 Tf 0.00006 Tc 0.5

UDP

no

UDP

**ip helper-address** *address*  
**no ip helper-address** *address*

| <i>address</i> | UDP<br><br>20 |
|----------------|---------------|

**no ip forward-protocol udp** [*port* | **tftp** | **domain** | **time** | **netbios-ns** | **netbios-dgm** | **tacacs**]

| <i>port</i> | 69,53,37,137,138,49                       |
|-------------|-------------------------------------------|
| <b>tftp</b> | 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
                                1 permit 10.0.0.1
                                2 permit 20.0.0.1
route-map lab1 permit 10
                                1
                                196.168.4.6

route-map lab1 permit 20
                                2
                                196.168.5.6

interface vlan 1
    route-map lab1

```

| access-list |  |
|-------------|--|
| route-map   |  |
|             |  |
|             |  |

set interface

---

|                  |  |
|------------------|--|
|                  |  |
| <i>route-map</i> |  |

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
```

|                                |             |
|--------------------------------|-------------|
|                                |             |
| <b>access-list</b>             |             |
| <b>route-map</b>               |             |
| <b>set ip next-hop</b>         |             |
| <b>set ip default next-hop</b> |             |
| <b>set interface</b>           |             |
| <b>set default interface</b>   |             |
| <b>set ip tos</b>              | 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
no
address-family
address-family ipv4 vrf vrf-name
```



|                |                    |
|----------------|--------------------|
|                |                    |
| <b>version</b> | RIP v1 v2<br>v1&v2 |

### 26.1.3 default-metric (RIP)

RIP

**default-metric****no****default-metric** *metric***no default-metric**

|               |                         |
|---------------|-------------------------|
|               |                         |
| <i>metric</i> | 16 16 metric<br>16 RGOS |

1

**redistribute**

RIP

RIP

RIP

default-metric

default-metric

default-metric

1

RIP  
RIPOSPF  
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 <i>metric-value</i>   | <i>metric-value</i><br>1-15 |
| route-map<br><i>map-name</i> | route-map ,<br>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

**no**

**distribute-list in**

**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

```

| <b>access-list</b> |  |
|--------------------|--|
| <b>prefix-list</b> |  |

## 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*]]

| <i>access-list-number</i>             |                                               |
|---------------------------------------|-----------------------------------------------|
| <b>prefix</b> <i>prefix-list-name</i> |                                               |
| <i>interface</i>                      | (    )                                        |
| <i>protocol</i>                       | (    )                                        |
| <i>process-id</i>                     | (    ) <i>protocol</i> OSPF<br>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
```

|                       |  |
|-----------------------|--|
|                       |  |
| <b>address-family</b> |  |

## 26.1.9

|                                                      |     |
|------------------------------------------------------|-----|
| <b>ip rip authentication</b><br><b>text-password</b> | RIP |
| <b>key chain</b>                                     |     |

**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**

|             |         |
|-------------|---------|
|             |         |
| <b>text</b> | RIP     |
| <b>md5</b>  | 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

|                        |      |
|------------------------|------|
|                        |      |
| <i>password-string</i> | 1 16 |

RIP

RIPv1

RIP

RIPv2

Serial 0

RIP

ruijie

Ruijie(config)# interface serial 0/0

Ruijie(config-if)# ip rip authentication text-password *ruijie*

|                                 |                      |
|---------------------------------|----------------------|
|                                 |                      |
| ip rip authentication mode      | RIP                  |
| ip rip authentication key-chain | RIP RIP<br>RIPv2 RIP |

### 26.1.12 ip rip default-information

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



|   |       |
|---|-------|
| 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                      RIP                      ip rip send enable  
no                      RIP                      RIP                      ip rip send enable  
ip rip send enable  
no ip rip send enable

RIP

RIP

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 Tf6482C9 Tc 7.82AFC>]T/T5 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 ripno

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 ripRIP

RIPv2GigabitEthernet1/0172.16.0.0/16

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)

RIPnetworkno  
network

**no network** *network-number* [*wildcard*]

|                       |           |
|-----------------------|-----------|
|                       |           |
| <i>network-number</i> | IP<br>RIP |
| <i>wildcard</i>       | IP01      |

|                   |    |
|-------------------|----|
| <i>ip-address</i> | 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]**

|                           |                             |
|---------------------------|-----------------------------|
|                           |                             |
| <i>access-list-number</i> | acl                         |
| <b>in</b>                 | acl                  metric |
| <b>out</b>                | acl                  metric |
| <i>offset</i>             | metric                      |
| <i>interface-type</i>     | acl                         |
| <i>interface-number</i>   |                             |

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}
```



|                              |     |
|------------------------------|-----|
| <b>ip rip receive enable</b> | RIP |
| <b>ip rip send enable</b>    | 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* ]

| <b>ospf   connected   static</b> |        |
|----------------------------------|--------|
| <b>metric</b>                    | metric |
| <b>route-map</b>                 |        |
| <b>match</b>                     | ospf   |
| <i>process-name</i>              | ISIS   |
| <1-65535>                        | OSPF   |

OSPF

metric 1

route-map

RIP

RIP

OSPF

**ospf**

match match  
match no match

ospf

RIP

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

no

120

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

version RIP ip rip receive version ip rip send  
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

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
```

```
[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*]

|                            |            |
|----------------------------|------------|
|                            |            |
| <b>vrf</b> <i>vrf-name</i> | 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: Registered
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
  Passive interface:    A7uitting Enabled
  Enabled
  V26(ef)Broadcace:    A    Mu6(ef)stord:
  In6(ef)ce
    ing
  IP
  2.112.1.1/24, next update due in 24 seconds  Tf1 wVLAM ,
```

# 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  
OSPF

area authenticationno

area area-id authentication [message-digest]  
no area area-id authentication

|         |            |
|---------|------------|
|         |            |
| area-id | OSPF<br>IP |

message-dige reTf0 Tc a8 46 595.2 -841.98 reW n0.852 g142.26 471.56 152. 10.5 0 0 10.5 147.

```
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
                area default-cost      no      OSPF

area area-id default-cost cost
no area area-id default-cost
```

| area-id | STUB      NSSA |
|---------|----------------|
| cost    | STUB      NSSA |





|                   |                   |
|-------------------|-------------------|
| <b>no-summary</b> | (ABR)<br>nssa LSA |
|-------------------|-------------------|

NSSA

**default-information-originate** Type-7 LSA nssa Type-7  
 ABR ASBR ABR  
 LSA ASBR ( ABR)  
 Type-7 LSA  
**no-redistribution** ASBR OSPF redistribute  
 NSSA NSSA ASBR ABR  
 nssa  
 NSSA LSA ABR  
 no-summary ABR NSSA summary LSAs Type-3 LSA  
**area default-cost** NSSA ABR  
 NSSA NSSA  
 1 NSSA

1

```

Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255 area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 1
Ruijie(config-router)# area 1 nssa
  
```

|                          |              |
|--------------------------|--------------|
|                          |              |
| <b>area default-cost</b> | NSSA<br>OSPF |

## 27.1.6 area range

OSPF  
**no** **no** **cost** **area range**

**area** *area-id* **range** *ip-address net-mask* [**advertise** | **not-advertise**] [**cost** *cost*]  
**no** **area** *area-id* **range** *ip-address net-mask* [**cost**]

| <i>area-id</i>                          | OSPF |
|-----------------------------------------|------|
| <i>ip-address</i>                       | IP   |
| <b>advertise</b>   <b>not-advertise</b> |      |
| <b>cost</b> <i>cost</i>                 |      |

cost RFC1583 RFC1583 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  
**no**  
**area *area-id* stub**

**area 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 md5 key*]]

**no** **area** *area-id* **virtual-link** *router-id*

| <i>area-id</i>                                  | OSPF<br>IP                                     |
|-------------------------------------------------|------------------------------------------------|
| <i>router-id</i>                                | show ip ospf                                   |
| <b>dead-interval</b> <i>seconds</i>             | 40                                             |
| <b>hello-interval</b> <i>seconds</i>            | OSPF Hello<br>10                               |
| <b>retransmit-interval</b> <i>seconds</i>       | OSPF LSA<br>5                                  |
| <b>transmit-delay</b> <i>seconds</i>            | OSPF LSA<br>LSA 1 LSA<br>LSA                   |
| <b>authentication-key</b> <i>key</i>            | OSPF<br>service password-encryption            |
| <b>message-digest-key</b> <i>key-id md5 key</i> | OSPF MD5<br>MD5 service<br>password-encryption |
| <b>authentication</b>                           |                                                |
| <b>message-digest</b>                           | MD5                                            |
| <b>null</b>                                     |                                                |

**dead-interval** 40

**hello-interval** 10

**transmit-interval**

|              |      |
|--------------|------|
| show ip ospf | OSPF |
|--------------|------|

## 27.1.9 auto-cost

no

auto-cost [reference-bandwidth *ref-bw*]

no auto-cost [reference-bandwidth]

|               |                     |
|---------------|---------------------|
|               |                     |
| <i>ref-bw</i> | 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**

| <i>process-id</i> | OSPF |
|-------------------|------|
|                   | OSPF |

RFC2328

OSPF

OSPF

RFC1583

rfc 2328

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no compatible 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 2<br>1 2<br>2  |
| route-map map-name | route-map ,<br>route-map |

```

ASBR redistribute default-information OSPF
ASBR ASBR ASBR OSPF
default-information originate

always OSPF

show ip ospf database OSPF 0.0.0.0
show ip route

default-information originate
default-metric
OSPF 1 2
2 show ip route 1 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

```



|               |      |
|---------------|------|
|               |      |
| <i>metric</i> | 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
```

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

|                           |     |
|---------------------------|-----|
| <b>inter-area</b> <1-255> | 110 |
| <b>external</b> <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]
```

| <i>listname</i>                  | acl         |
|----------------------------------|-------------|
| <b>gateway</b> <i>plist-name</i> | gateway     |
| <b>prefix</b> <i>plist-name</i>  | prefix-list |
| <b>interface-type</b> <i>num</i> | 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**]

| <i>listname</i>                                                                      | acl         |
|--------------------------------------------------------------------------------------|-------------|
| <b>gateway</b> <i>plist-name</i>                                                     | gateway     |
| <b>prefix</b> <i>plist-name</i>                                                      | prefix-list |
| [ <b>connected</b>   <b>ospf</b><br><i>process-id</i>   <b>rip</b>   <b>static</b> ] |             |

**distribute-list out**    **redistribute route-map**

**redistribute**

OSPF

```
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

ospf

snmp-server

snmp-server enable traps

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
```

27.1.25 ip ospf hello-interval

OSPFHello

no

ip ospf hello-intervalseconds

no ip ospf hello-interval

ip ospf hello-interval



OSPF MD5  
no

OSPF MD5

**ip ospf message-digest-key**

**ip ospf message-digest-key** *key-id* **md5** *key*

**no ip ospf message-digest-key**

| <i>Key</i>    | 16  |
|---------------|-----|
| <i>Key-id</i> | 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-broadcast ] point-to-point**

**no ip ospf network broadcast non-broadcast point-to-multipoint [ non-broadcast ] point-to-point**

| <b>broadcast</b>                               | OSPF                 |
|------------------------------------------------|----------------------|
| <b>non-broadcast</b>                           | OSPF<br>NBMA         |
| <b>point-to-multipoint<br/>[non-broadcast]</b> | OSPF , non-broadcast |
| <b>point-to-point</b>                          | OSPF                 |

NBMA PPP SLIP X.25

OSPF 1-9000

## 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
```

|                        |                              |
|------------------------|------------------------------|
|                        |                              |
| <b>dialer map ip</b>   | IP                           |
| <b>frame-relay map</b> | IP                      DLCI |
| <b>neighbor</b> OSPF   | IP                      NBMA |
| <b>X25 map</b>         | IP                      X.25 |

### 27.1.29 ip ospf priority

[illegible]

```
ip ospf priority          no
```

no





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*

| <i>ip-address</i>                      | IP                                           |
|----------------------------------------|----------------------------------------------|
| <b>poll-interval</b><br><i>seconds</i> | Non-broadcast(NBMA) 120                      |
| <b>priority</b><br><i>priority</i>     | Non-broadcast(NBMA)                          |
| <b>Cost</b> <i>cost</i>                | , cost point-to-multipoint [ non-broadcast ] |

|                  |      |
|------------------|------|
|                  |      |
| ip ospf priority | OSPF |
| ip ospf network  | OSPF |

27.1.35 network area

areanoOSPFOSPFnetwork

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 |

```
soft OSPF hard OSPF

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**

| <i>max-dbsize</i> | external lsa AS<br>0-2147483647 |
|-------------------|---------------------------------|
| <i>wait-time</i>  | 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*]

|                    |  |
|--------------------|--|
|                    |  |
| <i>type number</i> |  |
| <b>default</b>     |  |

OSPF

serial 1/0

Ruijie(config)# **router** -15.06 -1.69i1920EDB801F0282751DD197909B3E7F41r02

|                                            |               |
|--------------------------------------------|---------------|
|                                            |               |
| <b>ospf</b> <i>process-id</i>   <b>rip</b> | <b>static</b> |
| <b>metric</b> OSPF extern2 LSA             | metric        |
| <b>match</b>                               | OSPF<br>OSPF  |
| <b>metric-type</b> E-1 E-2                 |               |
| <b>route-map</b>                           |               |
| <b>tag</b> OSPF                            | tag           |
| <b>subnets</b>                             |               |

type-5 LSA                      ASBR                      OSPF  
                                  OSPF  
                  **ospf**                      match                      ospf  
                                  match                      match  
                                  no                      match  
                                  route-map                      route-map                      match  
                                  OSPF                      ISIS                      match  
                                  route-map                      match

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  
OSPF

**router ospf**                      **no**

**router ospf** *process-id* [**vrf** *vrf-name*]

**no router ospf** *process-id*



| <i>router-id</i> | 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**

| <b>show ip protocols</b> |  |
|--------------------------|--|

### 27.1.43 summary-address

OSPF

**summary-address** **no****summary-address** *ip-address net-mask* [**not-advertise** | **tag**  
<0-4294967295> |]

| <i>ip-address</i> | IP |
|-------------------|----|
| <i>net-mask</i>   |    |

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

|                |                  |
|----------------|------------------|
| <i>seconds</i> | 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  
timers spf

no

SPF

**timers spf** *spf-delay* *spf-holdtime*  
**no timers spf**

|                     |                                               |
|---------------------|-----------------------------------------------|
|                     |                                               |
| <i>spf-delay</i>    | <div>SPF</div> <div>OSPF</div> <div>SPF</div> |
| <i>spf-holdtime</i> | <div>SPF</div> <div>SPF</div>                 |

```
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*]

|                   |      |
|-------------------|------|
| <i>process-id</i> | ospf |
|-------------------|------|

**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 is enabled
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 incoming 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 Adjacency 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 is elected
```

| Router ID                 |                           |
|---------------------------|---------------------------|
| Process uptime            | OSPF router-id<br>0.0.0.0 |
| Bound to VRF              | OSPF VRF                  |
| Conforms to RFC2328       | RFC2328                   |
| RFC1583Compatibility flag | RFC2328 RFC1583<br>ASBR   |

|                                                              |                         |
|--------------------------------------------------------------|-------------------------|
| Support Tos                                                  | TOS0                    |
| Supports opaque LSA                                          | opaque-LSA              |
| Router Type                                                  | OSPF normal<br>ABR ASBR |
| SPF Delay                                                    | SPF                     |
| SPF-holdtime                                                 | SPF                     |
| LsaGroupPacing                                               | LSA                     |
| Incomming current DD exchange neighbors                      | incomming<br>exstart    |
| Outgoing current DD exchange neighbors                       | outgoing<br>exstart     |
| Number of external LSA                                       | LSA                     |
| External LSA Checksum Sum                                    | LSA                     |
| Number of opaque LSA                                         | opaque-LSA              |
| Opaque LSA Checksum Sum                                      | opaque-LSA              |
| Number of non-default external LSA                           | external-LSA            |
| External LSA database limit                                  | external-LSA            |
| Exit database overflow state interval                        | overflow                |
| Database overflow state                                      | OSPF overflow           |
| Number of LSA originated                                     | LSA                     |
| Number of LSA received                                       | LSA                     |
| Log Neighbor Adjency Changes                                 |                         |
| Number of 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        | LSA<br>OSPF      |
|                              | NSSA LSA<br>NSSA |
|                              | External<br>ABR  |

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 |

OSPF ABR ASBR 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             |
| I                   |               |
| 1.1.1.1             | OSPF          |
| [2]                 | cost          |
| via 10.0.0.1        |               |
| GigabitEthernet 0/1 |               |
| ABR, ASBR           | 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**]

| <i>Area-id</i>        |      |
|-----------------------|------|
| <b>adv-router</b>     |      |
| <i>link-state-id</i>  | OSPF |
| <b>self-originate</b> |      |
| <b>maxage</b>         | LSA  |
| <b>router</b>         | OSPF |
| <b>network</b>        | OSPF |
| <b>summary</b>        | OSPF |
| <b>asbr-summary</b>   | ASBR |
| <b>external</b>       | OSPF |
| <b>nssa-external</b>  | OSPF |
| <b>opaque-area</b>    | LSA  |
| <b>opaque-as</b>      | LSA  |
| <b>opaque-link</b>    | LSA  |

|                  |      |  |
|------------------|------|--|
| database-summary | OSPF |  |
|                  | 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 |
|--------------|------------|-----|------------|--------|-------|
| 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                | 0.0.0.0 IP   |
| External Route Tag             | OSPF 32 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*]

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

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 | DownUP            |
|---------------------------|-------------------|
| 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 (*|0|-|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                                         | ( Hello DR )      |
| BDR                                        | ( Hello BDR )     |
| Options                                    | Hello E 0<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*]

|                   |           |
|-------------------|-----------|
|                   |           |
| <i>process-id</i> | ospf ospf |
| <b>count</b>      | 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
summary-address
show ip ospf
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<br>Retransmit |
| Adjacency State               | FULL                          |





---

OSPF

OSPF

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
```

---

## 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* ]

| <i>prefix-lis-name</i> |                      |
|------------------------|----------------------|
| <i>seq-number</i>      | 2147483647<br>5<br>5 |

---

|        |  |
|--------|--|
| deny   |  |
| permit |  |

*ip-prefix*

IP

IVY

---

|                        |  |
|------------------------|--|
|                        |  |
| <i>prefix-lis-name</i> |  |
| <i>descripton-text</i> |  |

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*]

---

0.0.0.0 GigabitEthernet 0/0  
GigabitEthernet 0/0

ip route 0.0.0.0

ARP CPU

track track track

track track

Track

---

|      |      |    |
|------|------|----|
| VOIP | RGOS | IP |
| RGOS | IP   |    |

|      |    |
|------|----|
| RGOS | IP |
|------|----|

Ruijie(config)# no ip routing

**c route-limit**

|                              |    |
|------------------------------|----|
| <b>ip static route-limit</b> | 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 ]

```

|                        |                                                      |
|------------------------|------------------------------------------------------|
|                        |                                                      |
| <i>prefix-lis-name</i> |                                                      |
| <i>seq-number</i>      | <div>1    2147483647</div> <div>5</div> <div>5</div> |
| <b>deny</b>            |                                                      |
| <b>permit</b>          |                                                      |

*ipv6-prefix*

IP

```

RIP
IP
IPV6
OSPF
1
(
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
no
ipv6 prefix-list description
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
no
ipv6 prefix-list description
ipv6 prefix-list sequence-number

```

---

IPv6

Ruijie# **configure terminal**  
Ruijie(config)# **ipv6 prefix-list sequence-number**

### 28.1.13 match as-path

**as-path** **no** AS\_PATH **match**

**match as-path** *as-path-acl-list-num as-path-acl-list-num.....*

**no match as-path** *as-path-acl-list-num.....*

|                             |         |
|-----------------------------|---------|
|                             |         |
| <i>as-path-acl-list-num</i> | 1...500 |

**match as-path**

**match** 1 **match** 1 **set**

**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

community                      no                      match

**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**] ...]

|                              |                 |
|------------------------------|-----------------|
|                              |                 |
| <i>community-list-number</i> | 1-99<br>100-199 |
| <i>communitys-list-name</i>  | 80              |
| <b>exact-match</b>           |                 |

**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
```

| <b>ip community-list</b>    |         |
|-----------------------------|---------|
| <b>match as-path</b>        | AS_PATH |
| <b>match metric</b>         |         |
| <b>match origin</b>         |         |
| <b>set as-path prepend</b>  | AS_PATH |
| <b>set comm-list delete</b> |         |
| <b>set community</b>        |         |
| <b>set metric</b>           |         |

## 28.1.15 match interface

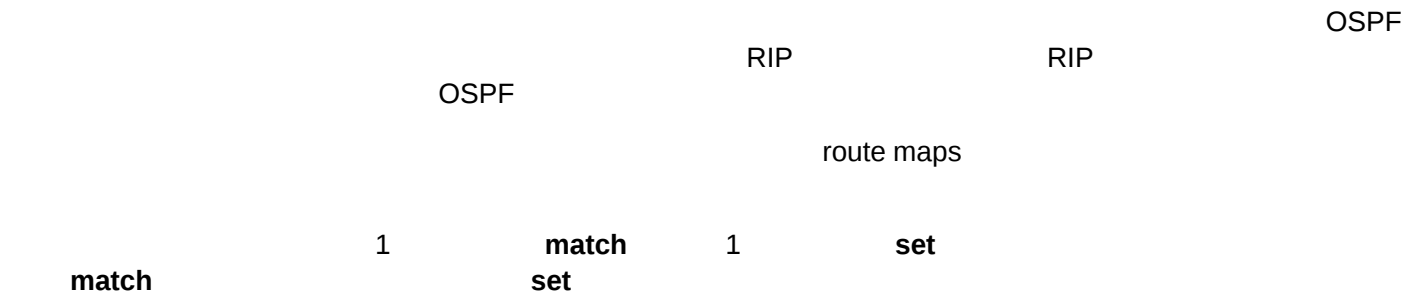
### match interface

**no**

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

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

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



```

GigabitEthernet 0/0  OSPF      RIP
j1e(config)# router ospf
j1e(config-router)# redistribute rip subnets route-map redrip
j1e(config-router)# network 192.168.12.0 0.0.0.255 area 0
j1e(config-router)# exit
j1e(config)# route-map redrip permit 10
j1e(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       |  |

---

**address**                      **no**

**match ip**

**match ip address** {*access-list-number* [*access-list-number...* |  
*access-list-name...*] [*access-list-n* 8.394 0ss-li



---

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

**match ip next-hop**

È ¼ ±`HI(P @Ø

---

|                              |  |
|------------------------------|--|
| <b>match ip route-source</b> |  |
| <b>match metric</b>          |  |
| <b>match route-type</b>      |  |
| <b>match tag</b>             |  |
| <b>set metric</b>            |  |
| <b>set metric-type</b>       |  |
| <b>set tag</b>               |  |

---

OSPF

RIP

RIP  
IP

OSPF

|                    |    |
|--------------------|----|
| match ipv6 address | no |
|--------------------|----|

**no match ipv6 address**

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

```

graph LR
    OSPF1[OSPF] --> match1[match]
    match1 --> 1[1]
    1 --> match2[match]
    match2 --> IP[IP]
    IP --> 1[1]
    1 --> set[set]
    set --> OSPF2[OSPF]
    RIP1[RIP] --> match1
    RIP2[RIP] --> match2
    route_maps[route maps] --> match1
    route_maps --> match2
  
```

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

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

OSPF

RIP

RIP  
IP

OSPF

## route maps

match 1 match 1 set

RIP OSPF RIP 10  
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 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*

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

```

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

```

| <b>route-map</b>               |    |
|--------------------------------|----|
| <b>match ip address</b>        |    |
| <b>set default interface</b>   |    |
| <b>set interface</b>           |    |
| <b>set ip default next-hop</b> | IP |
| <b>set ip next-hop</b>         | IP |
| <b>set ip precedence</b>       | IP |

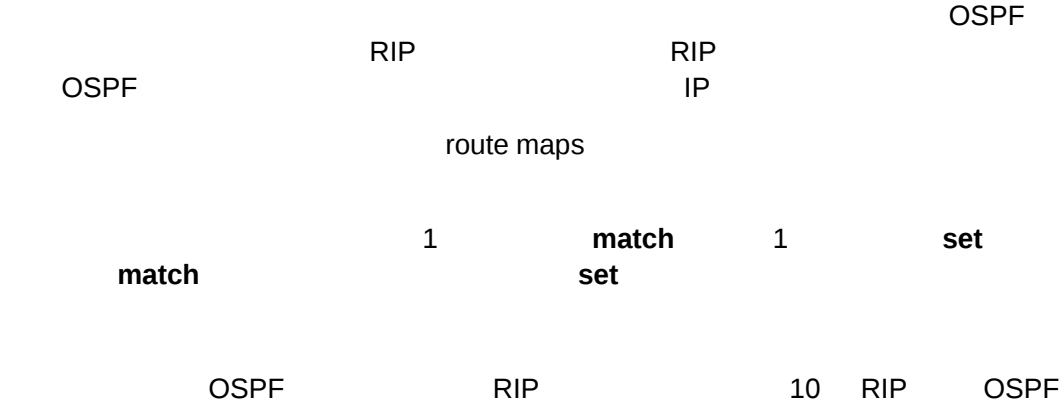
### 28.1.23 match metric

**match metric**      **no**

**match metric** *metric*  
**no match metric**

---

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



```
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
```



---

|                        |  |
|------------------------|--|
| <b>set metric</b>      |  |
| <b>set metric-type</b> |  |
| <b>set tag</b>         |  |

## 28.1.24 match origin

**match origin**

**no**

**match origin {egp | igp | incomplete}**

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

| <b>egp</b>        | EGP |
|-------------------|-----|
| <b>igp</b>        | IGP |
| <b>Incomplete</b> |     |

```
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 |
|-----|------|-----|------|

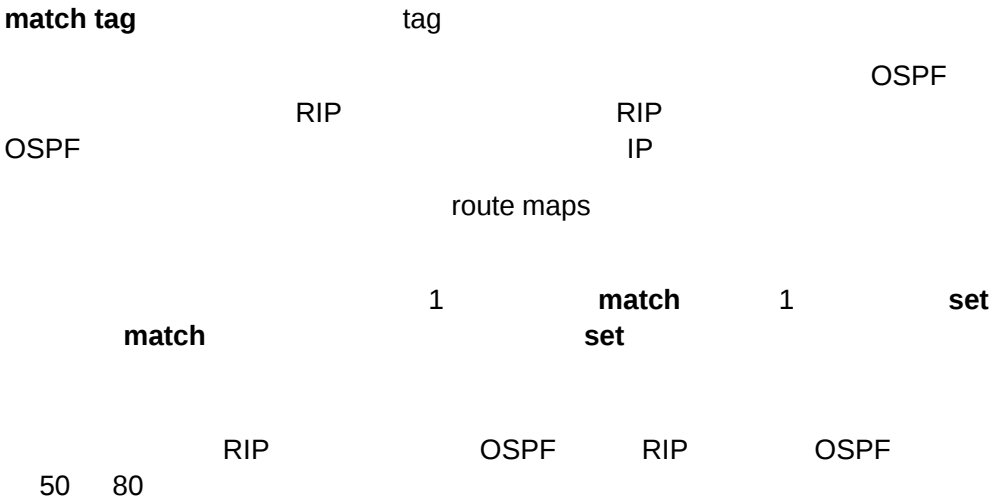
```
Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match route-type internal
```



access-list

PÂ ðÀ 5BÊ }i=x— G£Ê Ô<2°P

|            |  |
|------------|--|
| <i>tag</i> |  |
|------------|--|



```

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
  
```

| <b>access-list</b>           |  |
|------------------------------|--|
| <b>match ip address</b>      |  |
| <b>match interface</b>       |  |
| <b>match ip route-source</b> |  |
| <b>match metric</b>          |  |
| <b>match ip next-hop</b>     |  |
| <b>match route-type</b>      |  |
| <b>set metric</b>            |  |

---

|                 |  |
|-----------------|--|
| set metric-type |  |
| set tag         |  |

28.1.27 maximum-paths

maximum-paths no

maximum-paths *number*  
no maximum-paths

|               |      |
|---------------|------|
|               |      |
| <i>number</i> | 1-32 |

32

maximum-paths

show running config

ipv4    ipv6    ipv6    ipv4

S8600/S5750/S7600

---

# 28.1.28 route-map

no

route-map

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

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

RGIOS

---

OSPF

C&C<2P[R&K&C&A&K&C&A&G&P&WpCÎ

---

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

BGP

as,ip-addr

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

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

### 28.1.30 set as-path prepend

```

match
as-path prepend          no          AS_PATH          set
set as-path prepend as-number
```

---

|                  |            |
|------------------|------------|
| <i>as-number</i> | 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
```

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

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

```

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

```

|                             |         |
|-----------------------------|---------|
|                             |         |
| <b>ip community-list</b>    |         |
| <b>match as-path</b>        | AS_PATH |
| <b>match community</b>      |         |
| <b>match metric</b>         |         |
| <b>match origin</b>         |         |
| <b>set as-path prepend</b>  | AS_PATH |
| <b>set comm-list delete</b> |         |

|                      |  |
|----------------------|--|
| 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**}

| 5a5nARŽ(yB       |                                                                                                                            |
|------------------|----------------------------------------------------------------------------------------------------------------------------|
| community-number | AA:NN( :2<br>)<br>0-4294967295<br>internet Internet<br>local-as AS<br>no-advertise<br>BGP peers<br>no-export<br>EBGP peers |
| <b>additive</b>  | community                                                                                                                  |
| <b>none</b>      |                                                                                                                            |

```
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
no
```

**set dampening**

```
set dampening half-life reuse suppress max-suppress-time
no set dampening
```

| <i>half-life</i>         | 1..45(    )    15               |
|--------------------------|---------------------------------|
| <i>reuse</i>             | 750    1..20000                 |
| <i>suppress</i>          | 1..20000    2000                |
| <i>max-suppress-time</i> | 1..255(    )    4*<br>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

```

| <b>match as-path</b>        | AS_PATH |
|-----------------------------|---------|
| <b>match community</b>      |         |
| <b>match metric</b>         |         |
| <b>match origin</b>         |         |
| <b>set as-path prepend</b>  | AS_PATH |
| <b>set metric</b>           |         |
| <b>set local-preference</b> |         |

### 28.1.34 set default interface

```

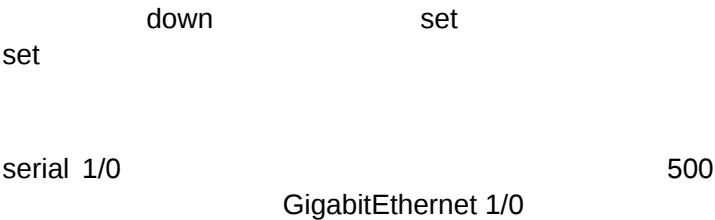
match
set default interface no
set default interface interface-type interface-number [...interface-type interface-number]
no set default interface interface-type interface-number [...interface-type interface-number]

```

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

set default interface

1



```
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

no

set interface

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

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

set interface

1

downset

setnull 0

serial 1/0500  
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*

| <b>route-map</b>               |    |
|--------------------------------|----|
| <b>match ip address</b>        |    |
| <b>match length</b>            |    |
| <b>set default interface</b>   |    |
| <b>set ip default next-hop</b> | IP |
| <b>set ip next-hop</b>         | IP |
| <b>set ip precedence</b>       | IP |

### 28.1.37 set ip default next-hop

**match** **no** **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*] ]

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

---

```

set                                     WCMP                                     WCMP
                                     weight                                     WCMP

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

set ip next-hop    set ip default next-hop                set ip next-hop
set ip default next-hop                set ip default next-hop

                                     (nexthop)

                                     1

                                     set

                                     1
    6.6.6.6                1.1.1.1
    7.7.7.7                2.2.2.2

```

---

|                  |  |
|------------------|--|
|                  |  |
| 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  
next-hop no IP set ip  
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 |
|-------------------|----|



---

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
level no set
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  
 OSPF RIP  
 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  
metric-type no set  
set metric-type type  
no set metric-type

|      |  |
|------|--|
|      |  |
| type |  |

OSPF type-2

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

---

|                  |  |
|------------------|--|
| match metric     |  |
| match route-type |  |
| match tag        |  |
| set metric       |  |
| set tag          |  |

## 28.1.47 set next-hop

```

match
next-hop no IP set
set next-hop ip-address
no set next-hop ip-address

```

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

```

OSPF
RIP
RIP IP
OSPF
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  
no

set origin

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
originator-id no set
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* ]

| <i>prefix-name</i> |  |
|--------------------|--|

---

```
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 [maskcountw 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* ]

| <i>prefix-name</i> | 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<br>udp 0-255 IPv4 eigrp gre<br>ipinip igmp nos ospf icmp udp tcp ip<br>IP 0-255<br>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

|               |                                                           |
|---------------|-----------------------------------------------------------|
|               |                                                           |
| <i>Id</i>     | 1-99 100-199<br>1300-1999 2000-2699 2700 – 2899 700 - 799 |
| <b>deny</b>   |                                                           |
| <b>permit</b> |                                                           |
| <i>source</i> |                                                           |

source-wildcard 5.0.0.0 0.0.0.0 255.255.255.0 10.10.10.0 0.0.0.0 255.255.255.0 192.168.1.0 0.0.0.0 255.255.255.0 172.16.0.0 0.0.0.0 255.255.0.0 10.0.0.0 0.0.0.0 255.0.0.0 0.0.0.0 255.255.255.255

|                             |                                     |
|-----------------------------|-------------------------------------|
| <i>icmp-code</i>            | ICMP0-255                           |
| <i>icmp-message</i>         | ICMP                                |
| <i>operator</i>             | lt-    eq-    gt-    neq-    range- |
| <b>port</b> [ <i>port</i> ] | <i>range</i>                        |
| <i>text</i>                 |                                     |

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 |

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

|                          |     |
|--------------------------|-----|
| <b>show access-lists</b> | ACL |
| <b>ip access-group</b>   | 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]

|                    |                    |
|--------------------|--------------------|
|                    |                    |
| <b>access-list</b> | <b>access-list</b> |

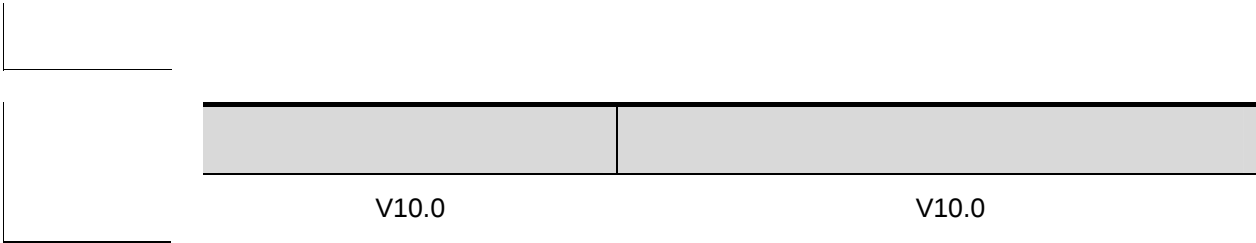
ACL

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 |

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

ACL

IP ACLIP ACLno

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* }

|                 |     |
|-----------------|-----|
|                 |     |
| <i>id</i>       | ACL |
| <i>name</i>     | ACL |
| <i>start-sn</i> |     |
| <i>inc-sn</i>   |     |

*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#

|                          |     |
|--------------------------|-----|
|                          |     |
| <b>show access-lists</b> | ACL |

|       |       |
|-------|-------|
|       |       |
| V10.0 | V10.0 |

### 29.1.7 list-remark

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

|             |  |
|-------------|--|
|             |  |
| <i>text</i> |  |

ACL

ACL

```
Ruijie# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark this acl is to filter the host
192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

|                          |     |
|--------------------------|-----|
|                          |     |
| <b>show access-lists</b> | ACL |

|  |                       |        |
|--|-----------------------|--------|
|  | <b>ip access-list</b> | IP ACL |
|--|-----------------------|--------|

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

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

## ACL

- [sn] **permit** {*source source-wildcard* | **host** *source* | **any**}

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

IP

```
[sn] permit icmp {source source-wildcard | host source-ip} {destination destination-wildcard | host destination-ip}
```

## Transmission Control Protocol (TCP)

## User Datagram Protocol (UDP)

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

|  | access-list                                                      | access-list                                    |
|--|------------------------------------------------------------------|------------------------------------------------|
|  |                                                                  |                                                |
|  | ACL                                                              |                                                |
|  | ACL                                                              | ACL                                            |
|  | 1 IP ACL 100                                                     | IP 192.168.4.12 TCP ACL<br>gigabitethernet 1/1 |
|  | Ruijie(config)# ip access-list extended 102                      |                                                |
|  | Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100 any |                                                |
|  | Ruijie(config-ext-nacl)# show access-lists                       |                                                |
|  | ip access-list extended 102                                      |                                                |
|  | 10 permit tcp host 192.168.4.12 eq 100 any                       |                                                |
|  | Ruijie(config-ext-nacl)# exit                                    |                                                |
|  | Ruijie(config)# interface gigabitethernet 1/1                    |                                                |
|  | Ruijie(config-if)# ip access-group 102 in                        |                                                |
|  | Ruijie(config-if)#                                               |                                                |
|  | 2 IP ACL                                                         | IP 192.168.4.12<br>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>]

|             |  |
|-------------|--|
|             |  |
| <interface> |  |

ACL

ACL

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

|  |                    |
|--|--------------------|
|  | a49211f1B0 g[<03CC |
|--|--------------------|



**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 |
| G!50 | Ruijie(config)# control-plane data                    |            |               |        |
|      | Ruijie(config-cp)# acpp bw-rate 200 bw-burst-rate 300 |            |               |        |



---

### 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<br>telnet snmp<br>Ruijie(config)# control-plane manage<br>Ruijie(config-cp)# management-interface vlan 100 allow snmp telnet |               |
|  |                                                                                                                                                   |               |
|  | Ruijie(config)# control-plane<br>{protocol   manage   data}                                                                                       | control-plane |
|  |                                                                                                                                                   |               |
|  |                                                                                                                                                   |               |
|  | -                                                                                                                                                 | -             |

### 30.1.6 port-filter

|  |                |                           |
|--|----------------|---------------------------|
|  | Port-Filter    |                           |
|  | port-filter    | Port-Filter control-plane |
|  | 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<br>{protocol   manage   data} | control-plane |
|-------------------------------------------------------------|---------------|

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

### 30.1.7 scpp

SCPP

control-plane

scpp

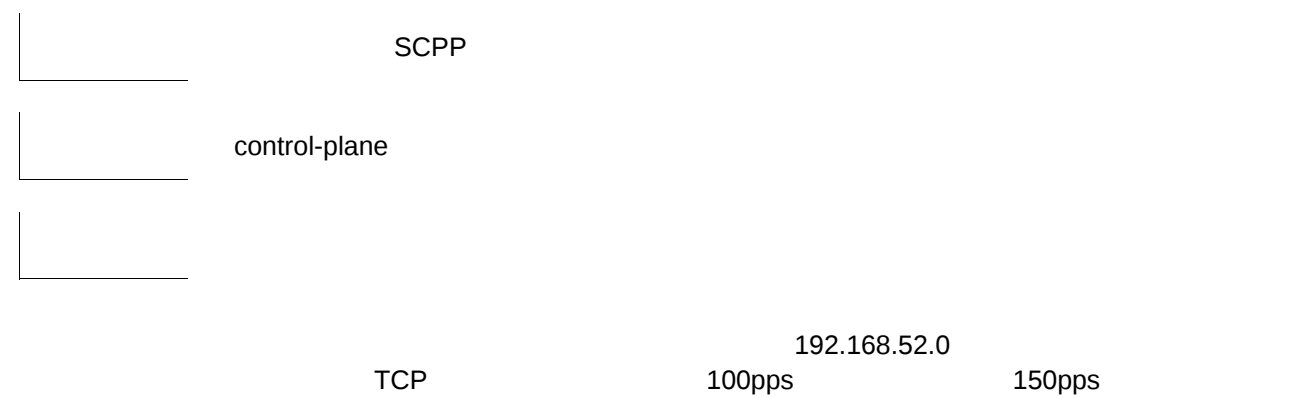
no

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*

| <i>acl_no</i>                 |     |
|-------------------------------|-----|
| <i>bw-rate</i>                | pps |
| <i>bw-burst-rate</i>          | pps |
| <i>conn-num</i>               |     |
| <i>conn-create-rate</i>       | /s  |
| <i>conn-create-burst-rate</i> | /s  |



# 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)# <b>vrrp group ip</b><br><i>ipaddress</i> [ <b>secondary</b> ] | VRRP<br>IP |

## 31.1.2 vrrp delay

```
VRRP

vrrp delay { minimum min-seconds | reload reload-seconds }
```

**no vrrp delay**

|                       |      |                    |
|-----------------------|------|--------------------|
| <i>min-seconds</i>    | VRRP | <i>min-seconds</i> |
| <i>reload-seconds</i> | VRRP | <i>min-seconds</i> |
| <i>reload-seconds</i> | VRRP | <i>min-seconds</i> |

*group* VRRP  
*text* VRRP

VRRP

VRRP

VRRP

| secondary<br>VRRP | IP<br>IP  | no   | IP<br>VRRP<br>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
```

ðœ° Á...a•øá'T7! —P"ÂlàÀĬÀÓÁĭ,] ðĀ|Œ72 •„m ðlÖ !" FÜ"ðÉÃÉÝ ™a'@A¹É—

VRRP (200)

15

```
vrrp 1 preempt delay 15
vrrp 1 priority 200
```

|                                                                           |            |
|---------------------------------------------------------------------------|------------|
|                                                                           |            |
| Ruijie(config-if)# <b>vrrp group ip</b><br><i>ipaddress [ secondary ]</i> | VRRP<br>IP |
| Ruijie(config-if)# <b>vrrp group priority</b><br><i>level</i>             | VRRP       |

31.1.6 vrrp priority

VRRP no

```
vrrp group priority level
no vrrp group priority
```

group VRRP ÖVRRP 5 VRR8

### 31.1.7 vrrp timers advertise

VRRP

no

**vrrp group timers advertise interval**

**no vrrp group timers advertise**

group

VRRP

interval

VRRP

(

)

1

VRRP

VRRP

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
                                IP
                                VRRP
                                VRRP

( Routed Port SVI Loopback Tunnel )      IP
ping

VRRP          VRRP  1  Routed Port Fa1/1  Fa1/1
              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
```

```
IP      ,      VRRP                                VRRP 1
      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

|              |      |
|--------------|------|
| <i>group</i> | 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 , priority 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)# <b>vrrp group ip</b><br><i>ipaddress</i> [ <b>secondary</b> ] | 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% | dvmpd                   |
| 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_rcv_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
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

CPU CPU 3 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}**

| <b>cpu   memory   temperature</b> | CPU temperature      memory      cpu                                 |
|-----------------------------------|----------------------------------------------------------------------|
| <b>M1   M2   slot <i>n</i></b>    | <i>n</i>                                                             |
| <b>member <i>n</i></b>            | <i>n</i>                                                             |
| <i>warning_value</i>              | 1 ~ 100      cpu      memory<br>2147483647      temperature      0 ~ |
| <i>critical_value</i>             | memory      1 ~ 100      cpu<br>0 ~ 2147483647      temperature      |
| <b>no</b>                         |                                                                      |

|     |    |      |
|-----|----|------|
| 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 | memory      cpu    CPU<br>temperature |



## 34.1.1 shođSmoryn

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

PIM-SM

FW

BGP

|           |  |
|-----------|--|
|           |  |
| 10.3(4b3) |  |
|           |  |

34.1.3 show memory protocols

show memory protocols

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



---

# 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 |
| level                                  | 0 7           |
| 4k Bytes                               |               |



---

### 35.1.4 logging server

|                          |               |    |        |
|--------------------------|---------------|----|--------|
|                          | Syslog Sever  |    |        |
| server                   | Syslog Server | no | Syslog |
| logging server {ng (vrf) |               |    |        |

**logging file flash:***filename* [*max-file-size*] [*level*]

**no logging file**

|                      |       |      |          |      |
|----------------------|-------|------|----------|------|
| <i>filename</i>      |       |      | txt      |      |
| <i>max-file-size</i> |       | 128K | 6M bytes | 128K |
| <i>level</i>         |       |      |          |      |
|                      | FLASH | 6    |          | 1    |

FLASH

Syslog Server  
FLASH  
txt

⚡ 注意:

- 1.
  - 2.
  - 3. 15  
FLASH FLASH 16
- 6 FLASH trace.txt 64K,

Ruijie(config)# **logging file flash:trace**

| logging on   |  |
|--------------|--|
| show logging |  |

## Debugging (7)

6

|              |  |
|--------------|--|
|              |  |
| logging on   |  |
| show logging |  |

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**}

|                     |      |      |
|---------------------|------|------|
| <i>ip-address</i>   | IPv4 | IPv4 |
| <i>ipv6-address</i> | IPv6 | IPv6 |

Syslog Server

Loopback 0 Syslog

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

|         |               |
|---------|---------------|
|         |               |
| logging | Syslog server |

### 35.1.11 logging facility

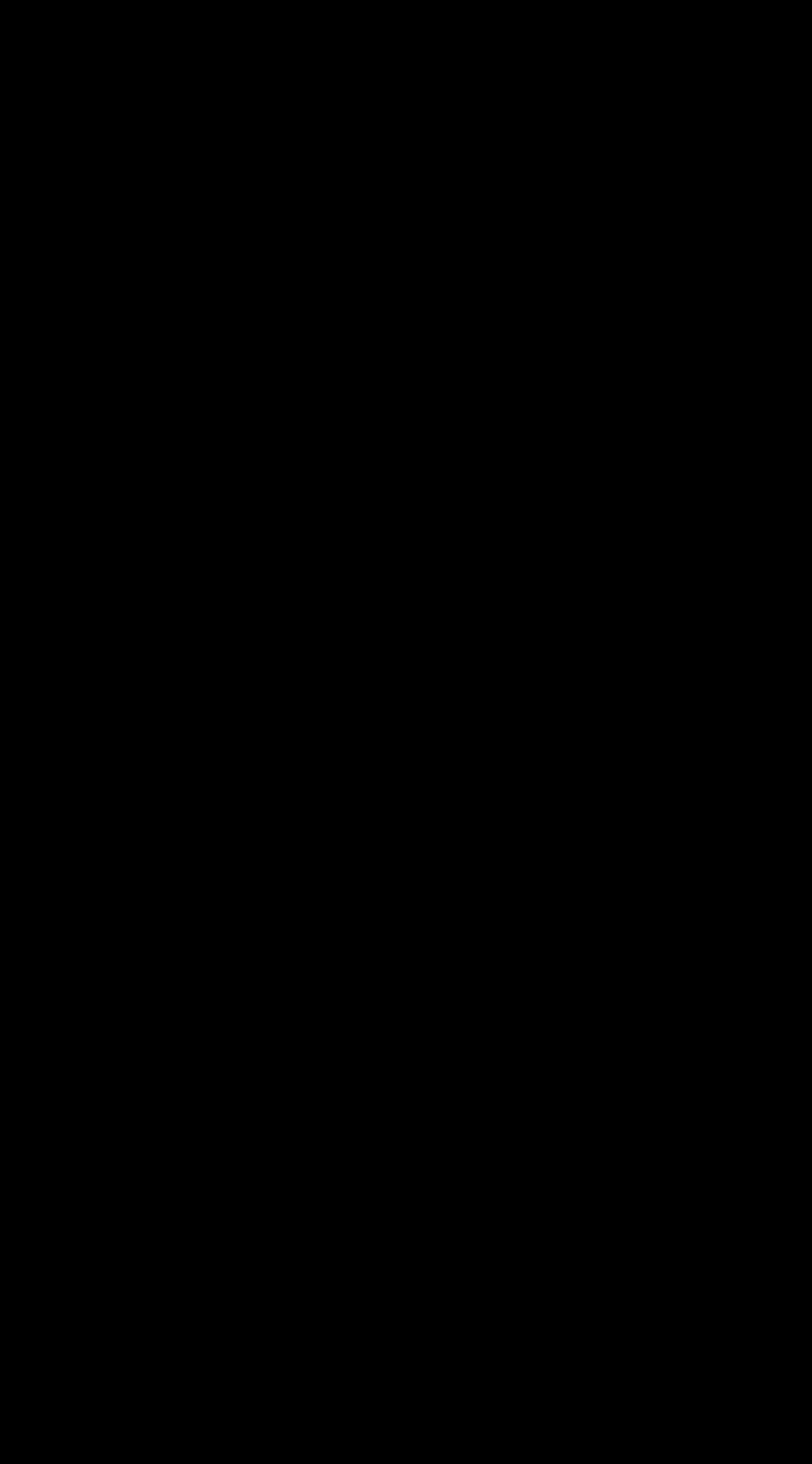
no

(23)

**logging facility** *facility-type*

**no logging facility**

*facility-type* Syslog



d

---

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

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*

|                     |       |     |       |     |   |                 |
|---------------------|-------|-----|-------|-----|---|-----------------|
| <i>message-type</i> | debug | log | debug | log | 0 | 6               |
|                     |       |     | 7     |     |   |                 |
| <i>uptime</i>       |       | *   | *     | *   | * | 07:00:10:41     |
| <i>datetime</i>     |       |     |       |     |   | Jul 27 16:53:07 |
| <i>msec</i>         |       |     |       |     | : | : . Jul 27      |
| 16:53:07.299        |       |     |       |     |   |                 |
| <i>year</i>         |       |     |       |     | : | : 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           | disabled enabled, |
|--------------------------|-------------------|
| 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

logging count

show

show logging count

Ruijie# show logging count

| Module Name | Message Name | Sev | Occur          | Last Time |
|-------------|--------------|-----|----------------|-----------|
| CONFIG_I    | 5 1          |     | Jul 6 10:29:57 |           |
|             |              |     |                | -----SYS  |
|             |              |     |                | -----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

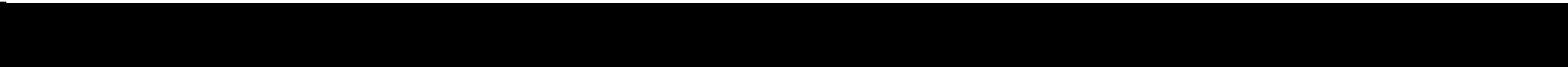
36.1.2 rlog filter

|                           |     |
|---------------------------|-----|
| rlog filter <i>number</i> |     |
| no rlog filter            |     |
|                           |     |
| number                    | ACL |
| ACQ5                      | 5   |

|  |                                      |  |
|--|--------------------------------------|--|
|  | <i>number</i>                        |  |
|  | 1500                                 |  |
|  |                                      |  |
|  |                                      |  |
|  | Ruijie(config)# <b>rlog mtu 1200</b> |  |
|  |                                      |  |
|  | -                                    |  |
|  |                                      |  |
|  |                                      |  |
|  |                                      |  |
|  | -                                    |  |

Ruijie(config)# **rlog port 11000**

[illegible]



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

36.2.1 show rlog

Show rlog

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

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

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

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

36.2.2 show rlog-type

Show rlog-type

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

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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 |

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

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

36.2.3 show rlog-status

Show rlog-status

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

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

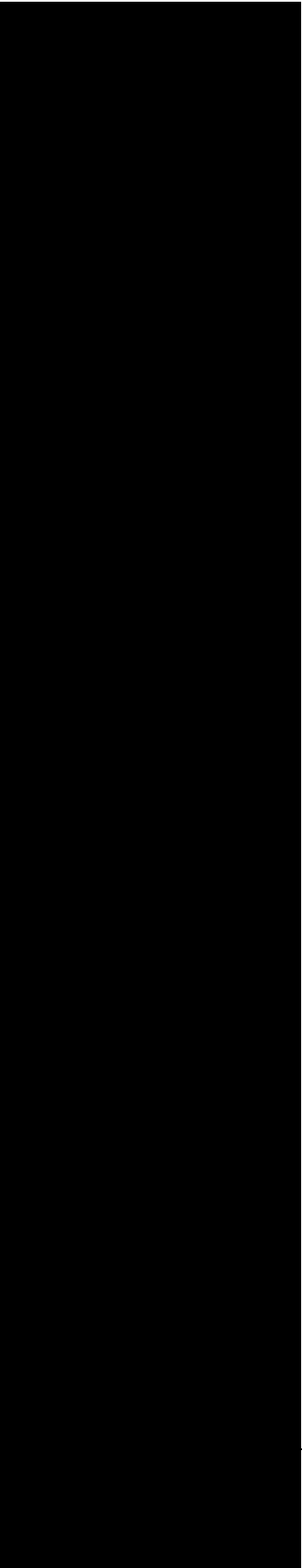
|  |
|--|
|  |
|--|

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

```
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
SNMP
```

```
SNMP
```

```
SNMP
Ruijie(config)# no snmp-server
```

### 37.1.2 snmp-server chassis-id

```
SNMP
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**

|                                 |  |
|---------------------------------|--|
|                                 |  |
| <b>snmp-server enable traps</b> |  |

**37.1.7 snmp-server location**

SNMP  
no SNMP  
**snmp-server location text**  
**no snmp-server location**

text

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

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

|                    |      |
|--------------------|------|
| snmp-sever contact | SNMP |
|--------------------|------|

37.1.8 snmp-server packetsize

SNMPno

snmp-sever packetsize

snmp-server packetsize byte-count

no snmp-server packetsize

byte-count48417876

1500

SNMP1492

Ruijie(config)# snmp-server packetsize 1492

€

4

4

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

|                        |      |
|------------------------|------|
|                        |      |
| snmp-server packetsize | SNMP |

37.1.10 snmp-server system-shutdown

SNMP

snmp-server

system-shutdownnoSNMP

snmp-server system-shutdown

no snmp-server system-shutdown

SNMP

SNMPRGOSreload/rebootNMS

SNMP

Ruijie(config)#

SNMP IP

SNMP IP IP SNMP

0 IP SNMP

Ruijie(config)# **snmp-server trap-source GigabitEthernet 0**

|                                 |     |
|---------------------------------|-----|
|                                 |     |
| <b>snmp-server enable traps</b> |     |
| <b>snmp-server enable host</b>  | 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**

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

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

SHA

16

20

MD5

**auth****md5**

MD5

**sha**

SHA

*auth-password:*

32

**priv****des56**  
32

56

DES

*priv-password*

snmpV3

md5

DES

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

|                       |      |
|-----------------------|------|
|                       |      |
| <b>show snmp user</b> | 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 trap0 Trap PDUs
```