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RGOS 10.3(4b6)p1

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■ ˙ http://www.ruijie.com.cn/ Â

Л Лъ à ¦ à
ā à ˚ ` Â

■ ˙ http://webchat.ruijie.com.cn Â

Л Лъ 8:30 6 ˇ ľ Ł à à
˚ Â Ю ˇ Л Лъ¨ à ˚ ˇ Â

■ ˙ http://www.ruijie.com.cn/service.aspx Â

Л Лъ ѝ ╠ ā
Â à ˚ Лъ è ˇ
Ł Â

■ 7 × 24 Ł ˙ 4008-111-000

■ ˙ http://support.ruijie.com.cn

■ б Л ˙ service@ruijie.com.cn

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Ѧ	Ѧ è ˇ Â

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̒ Courier New ˘ ˘ 5 ˄˘
Â ÿ ˘ ╗ Â

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~ ˇ é ЛЪ ù Â

■ ЎĄ ˇ Ҷ ЬЖЮ ˇ ЛЪ
Ь Â

1

1.1

1.1.1 bridge-group

1.1.2 carrier-delay

Ю ‍ **carrier-delay** ˘ ‍

no Â

carrier-delay *seconds*

no carrier-delay

seconds	/ı ˘ Лъ ѝ æ˘ 0˙ 60 Â

2 Â

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Э˘ NULL a ˘ è /ıЛъ Â

/ı DCD ÿ DOWN UP ˘ DCD

/ı ˘ ж /ı a Э

Â ѝ 0 ˘ ˘ /ı Â

DCD ˘ ж ˘ /ıЛъ ╗ ˘ Лъ

/ıЛъ Â /ı˘ DCD ˘ ж

˘ Лъ Â

ЛъЮ ˘ Э˘ VLAN 100 ѝ 5 ‘

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

‍

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/ı

clear counters [*interface-id*]

interface-id	Â

Â

Â **show interfaces** Ю **clear counters** Â a ‡ Â

Ruijie# **clear counters** *vlan 100*

show interfaces	Â

10.3(4b6)	╗

ϡ

ϡ … ˆ Bridge-Group Virtual Interface˜ ˇ Â ϡ **no** BVI Â

interface bvi *bridge-group-id*

no interface bvi *bridge-group-id*

bridge-group-id	ID˘ ᾱ Â

ϡ

a˚ ˇ ˇ ѝ … Ь BVI ˇ з BVI Э IP ˇ Ь Â

show interfaces **show interfaces bvi** ϡ Â

Л Лъ Ю… BVI ’ BVI ǂ ѣ˘ Л Лъ Лъ Ю BVI Â

```
Ruijie(config)# interface bvi 100
Ruijie(config-if)# ip address 192.168.100.1 255.255.255.0
```

ϡ

ϡ	
show interfaces	Â

Л

ϡ

Л	
10.3(4b6)	╗

ϡ … VLAN ˇ VLAN Â ϡ **no** VLAN Â

interface vlan *vlan-id*

no interface vlan *vlan-id*

vlan-id	VLAN ID˘ ᾱ Â

ϡ

Э˘ VLAN … ł˘ Ь ˘ ˘ Л Лъ
IP Â VLAN Э IP ł˘ VLAN a Л ЛъЎ ∫ Â
VLAN ∫ ˘ VLAN Л ɣ ˘ ˘ a
Э Ў IP ÂЛ Лъ VLAN ∫ ^ Bridge-Group˜
˘ ˚ a˚ VLAN ˘ ɣ Â
show interfaces **show interfaces vlan** ϡ Â
Л Лъ Ю… VLAN ’ VLAN ∫ ł˘ Л Лъ
Лъ Ю VLAN Â

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

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ϡ	
show interfaces	Â

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10.3(4b6)	╗

1.1.8 mtu

Ю mtu Â ϡ **no** Â

mtu *num*

num	MTU ˘ έ έ Â

ѝ 1500Â

ϡ Â

MTU ^ ˜ Â

Э˘ a VLAN à BVI à NULL à LOOPBACK Э ˘ è Л Â

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

show interfaces	Â

10.3(4b6)	╗

1.1.9 shutdown

˘ Â **no** Â

shutdown

no shutdown

-	-

Э˘ NULL à virtual-template a ˘ è Л Л Â

˘ è Ÿ ˘ a Â

show interfaces Â

no shutdown ˘ Л Â

Ruijie(config)# **interface vlan** *100*
Ruijie(config-if)# **shutdown**

	show interfaces	Â

	10.3(4b6)	╗

1.1.10 snmp trap link-status

1.2 ৡ

1.2.1 show interfaces

˘ Л Ъ ˝I Â

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

interface-id	˙ VLAN ä BVI
description	˘ link Â

Â

ৡ

a ╗ ˘ ‡ Â

```
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

ƒ	
carrier-delay	Â
mtu	MTU Â
interface vlan	… VLAN ˘ Â
interface bvi	… BVI ˘ Â
shutdown	˘ ƒ Â

ƒ	
10.3(4b6)	╗

2 MAC ¾

2.1 ¾

2.1.1 clear mac-address-table dynamic

╠ Â

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

dynamic	╠ Â
address *mac-addr*	╠ Â
interface *interface-id*	╠ Â
bridge-group *bridge-group-id*	╠ Â

¾

Л Љ Э ˘ з Э MAC Â

Л Љ **show mac-address-table dynamic** ¾ ╠ Â

Ю ˘ Э˘ MAC й 00d0.f800.0c0c ╠ ‘

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

¾

¾	
show mac-address-table dynamic	╠ Â

Л

¾

Л	
10.3(4b6)	╗

2.1.2 mac-address-table aging-time

╟ MAC Â ৡ no Â

mac-address-table aging-time {*0* | *10-1000000*}

no mac-address-table aging-time

0	╟ MAC a Â
10-1000000	╟ MAC ˘ Лъ ѝ æ Â

300 Â

ৡ

Э ˘ MAC Â

show mac-address-table aging-time ৡ Â

show mac-address-table dynami ? –Ô ÐÐ@ Ä

mac-address	MAC Â
bridge-group-id	ID Â

Â

˘ source destination˘ ÿ Э
MAC MAC ѝ MAC ˘ Â

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Л Л Э ˘ з Э Â
а ѝ Â **show mac-address-table filtering** ʒ
Â

Ю ˘ Э˘ Â 4
ѝ 00d0.f800.073c ˘ Â

Ruijie# **configure terminalGò€#5dq<ßp ß-ÑqßµÄ**

mac-addr MAC

ʌ Л Ъ Â

MAC ˜ ˘ ″I ╕ Â

Ю ˘ Э˘ VLAN 100 ˜ ‘

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

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10.3(4b6)	╕

2.2 ঳

2.2.1 show mac-address-table address

MAC ˆ ╟ à ˜ Â

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

mac-addr	MAC Â
interface-id	ʌ
bridge-group-id	ID

঳

ʌ Л Ъ Э ˘ MAC Â

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

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mac-address-table static	Â
mac-address-table filtering	Â

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10.3(4b6)	╕

2.2.2 show mac-address-table aging-time

╟ Â

show mac-address-table aging-time

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

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mac-address-table aging-time	╟ Â

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10.3(4b6)	╕

2.2.3 show mac-address-table count

MAC ˘ MAC Â

show mac-address-table count

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Л Л Э ˘ Â

```
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
```

Л Љ Э ˇ Â

Ю Э˘ Bridge Group 100 Ю ╠
MAC Â

```
Ruijie# show mac-address-table dynamic bridge-group 100
Bridge Group   MAC Address          Type     Interface
------------   ----------------     -------   -------------------
  100          0000.5e00.010c       DYNAMIC   VLAN 100
  100          00d0.f822.33aa       DYNAMIC   VLAN 100
  100          00d0.f822.a219       DYNAMIC   VLAN 200
  100          00d0.f8a6.5af7       DYNAMIC   VLAN 200
```

clear mac-address-table dynamic	╠ MAC Â

Л	
10.3(4b6)	╗

2.2.5 show mac-address-table filtering

MAC

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

mac-addr	MAC Â
bridge-group-id	ID Â

Л Лъ Э ˘ MAC Â

Ю ˘ Э˘ MAC Â

```
Ruijie# show mac-address-table filtering
Bridge-Group   MAC Address     Type      Interface
-----------   --------------  ---------  ------------------
    4          00d0.f800.1111    FILTER
    4          00d0.f800.2222    FILTER
```

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¾	
mac-address-table filtering	Â

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10.3(4b6)	╕

2.2.6 show mac-address-table interface

ˆ ╟ ˘ ˜ Â

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

interface-id	Â
bridge-group-id	ID Â

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Л Лъ Э ˘ MAC Â

Ю ˘ Э˘ VLAN 100 Ю MAC ˙

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

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ৡ	
mac-address-table static	Â

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10.3(4b6)	╗

2.2.8 show mac-address-table bridge-group

MAC Â

show mac-address-table bridge-group *bridge-group-id*

bridge-group-id	IDÂ

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ʌЛъ Э ˘ MAC Â

Ю ˘ Э˘ 100 MAC ‘

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

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mac-address-table static	Â
mac-address-table filtering	Â

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10.3(4b6)	

2.2.9 show mac-address-learning

MAC

```
show mac-address-learning
```

-	-

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

- clear blocking
- http redirect
- http redirect direct-site
- http redirect homepage
- http redirect port
- http redirect session-limit
- http redirect timeout
- interface-security-zone
- ip access-group
- loose-inner-zone-access
- loose-inter-zone-access
- security-access
- security-level
- security-zone
- security-zone-violation-log data-store
- security-zone-violation-log enable
- security-zone-base interface
- interface-security-zone
- violation blocking
- violation notification
- violation timeout
- web-auth direct-host
- web-auth on
- web-auth portal key

3.1.1 clear blocking

ҳ IP

clear blocking [*ip-address*]

ip-address	IP

ˈ Л IP ĵ Â ҳ Л Лъ Ю Â

1ˈ IP й 192.168.1.3

```
Ruijie#clear blocking 192.168.1.3
```

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10.3(4b5)	ҳ / ҳ

3.1.2 http redirect

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3.1.3 http redirect direct-site

Â Л Ъ ϡ no Â

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

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

ip-address	IP Â
ip-mask	IP Â

Â

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˘ ж Л Ъ Â
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ϡ Л Ъ Ю Â

1ˈ IP й 172.16.0.1 й Â

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

ϡ	
show http redirect	HTTP Â

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10.2(5)	ϡ / ϡ

3.1.4 http redirect homepage

ў Â Л Љ ҕ no ў Â

http redirect homepage *url-string*

no http redirect homepage

url-string	ў ˘ Љ“http://” “https://” ˘ ў ‡ a ˘ и 255 Â

ў Â

ҕ Â

Web ˘ ў Â ҕ Л Љ Ю Â

1˙ ў и *www.web-auth.net/login* Â

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

ҕ	
show http redirect	HTTP Â
http redirect	Ь IP Â

Л

Л	
10.2(5)	ҕ / ҕ

3.1.5 http redirect port

PC ⊀ HTTP WEB ˘ http redirect port ϡ Â ⊀ЛЪ ϡ no ⊀ HTTP WEB Â

http redirect port *port-num*

no http redirect port *port-num*

port-num	HTTP WEB ⊀ Â

PC 80 HTTP Â

ϡ Â

˘ PC HTTP ˘ PC HTTP ˘ ŭ ˘ ˘ Â

ЮЎ PC ⊀ и 80 HTTP ˘ ŭ Â

PC ⊀ HTTP ˘ ϡ Â

10 a˚ ⊀˘ ⊀ 80 ≠ Â ϡ ⊀ЛЪ Ю Â

1ˈ PC ⊀ и 8080 HTTP WEB Â

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

1ˈ a PC ⊀ и 80 HTTP WEB Â

```
Ruijie(config)# no http redirect port 80
```

ϡ	
show http redirect	HTTP Â

⊀

⊀	
10.2(5)	ϡ/ ϡ

3.1.6 http redirect session-limit

HTTP no
HTTP

http redirect session-limit *session-num*

no http redirect session-limit

session-num	HTTP 1-255

HTTP

TCP
HTTP
HTTP HTTP
HTTP

HTTP

1
HTTP

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

show http redirect	HTTP

3.1.7 http redirect timeout

Â Л Ъ ҳ no

ѝ 3s Â

http redirect timeout *seconds*

no http redirect timeout

seconds	, *seconds˘* ч 1-10 Â

ѝ 3s Â

ҳ Â

Â ѝ Ь ╖ ł˘ HTTP
GET/HEAD ˘ ł HTTP ł Â 8 Л Ъ
a GET/HEAD ˘ . TCP Â
ҳ Л Ъ Ю Â

1ˈ ѝ 4 Â

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

ҳ	
show http redirect	HTTP Â

Л

Л	
10.2(5)	ҳ / ҳ

3.1.8 interface-security-zone

命令

interface-security-zone *zone-name*

no interface-security-zone

zone-name	

default

Â

Â

1 abcd

```
Ruijie(config-if)#interface-security-zone abcd
```

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10.3(4b6)	/

3.1.10 loose-inner-zone-access

a ip

loose-inner-zone-access

no loose-inner-zone-access

3.1.11 loose-inter-zone-access

a security-level ip

loose-inter-zone-access

no loose-inter-zone-access

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a security-level ip a Â

Ю Â

1

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

loose-inter-zone-access	a ip

10.3(4b5)	/

3.1.12 security-access

ÿ ↓ ˘ ˙

security-access *access-list* from *zone-name* to *zone-name* [log]

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

access-list	
zone-name	¨
log	˘ Ƃ access-list / ˘ Ћ RLOG

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ҳ Л Ћ Ю Â

1˙ ÿ aaa bbb ѝ ACL hello˙

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

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10.3(4b5)	ҳ / ҳ

3.1.13 security-level

security-level *level-num*

no security-level

level-num	1~100

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

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10.3(4b5)	/

3.1.14 security-zone

…

security-zone *zone-name*

no security-zone *zone-name*

zone-name	1~32

Ю

1 … hello

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

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

Â

3.1.17 security-zone-base interface

Л Ї

security-zone-base interface

Л IP Ї

no security-zone-base interface

Л IP Ї

Ї Ї Â Л

Л Ю Â

1 Л Ї

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

2 Л IP Ї

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

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10.3(4b6)	/

3.1.18 violation blocking

violation blocking *threshlold*

no violation blocking

violation blocking {global | zone } {timeout *minutes*| permanently }

no violation blocking {global | zone } {timeout *minutes* | permanently }

threshlold	1-65535
global	
minutes	1-3600 min
permanently	

threshlold 0

IP clear blocking

1 *50*

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

-	-

10.3 4b5	/

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3.1.20 violation notification

violation notification *threshlold*

no violation notification

violation notification { log | trap| log&trap }

no violation notification { log | trap| log&trap }

threshlold	1-65535
log	RLOG
trap	trap
log&trap	trap

threshlold 0 a

a trap

IP

50

```
rap
-security-zone)#violation notification 50
urity-zone)#violation notification log&trap
```

	-

3.1.21 web-auth direct-host

IP Â Л Ль ҳ no ч Â

web-auth direct-host *ip-address* [*ip-mask*]

no web-auth direct-host *ip-address*

ip-address	IP Â
ip-mask	IP Â

˘ ″I Web ˘ ч Â

ҳ Â

ѝ ˘ ж a Web ˘ ≠ Л Ль Л Â 50

ҳ Л Ль Ю Â

˘ web Ю Web ″I Web Â standby ў a ˘ ≠ a Web ˘ ѝ ╗ Â

1΄ IP ѝ 172.16.0.1 ѝ Â

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

ҳ	
show web-auth direct-host	web

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3.1.22 web-auth on

╟ Web Â Л Ц ҙ no Web Â

web-auth on

no web-auth on

-	-

Web Â

ҙ Â

Ґ Web Ґ ˘ ў Â
ҙ Л Ц Ю Â

1˙ ╟ Web Â

```
Ruijie(config)# web-auth on
```

3.1.23 web-auth portal key

PC HTTP WEB ł WEB б ┗ Â
Л Л┐ ъ no PC HTTP WEB ł WEB б
┗ Â

web-auth portal key *key-string*

no web-auth portal key

key-string	PC HTTP WEB ł WEB б ┗ ˇ ù 255 Â

PC HTTP WEB ł WEB б ┗
Â

Â
ъ Л Л┐ Ю Â

Web ╖ ˇ PC HTTP WEB ł WEB
б ┗ Â

1ˇ PC HTTP WEB ł WEB б ┗
ù web-auth Â

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

ъ	
http redirect	┗ IP Â
http redirect homepage	ў Â
web-auth port-control	Э ╠ Web

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Л	
10.2(5)	ъ / ъ

3.2

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- show http redirect
- show security-access-blocking
- show security-access-rules
- show security-zone
- show security-zone-host
- show security-zone-match
- show security-zone-violation-log
- show web-auth direct-host
- show web-auth global
- show web-auth user

3.2.1 show http redirect

HTTP Â

show http redirect

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Â

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1' HTTP Â

```
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 Â
http redirect direct-site	Â
http redirect homepage	Â
http redirect port	PC HTTP WEB Â

http redirect session-limit	HTTP
http redirect timeout	

10.2(5)

3.2.2 show security-access-blocking

show security-access-blocking

-	-

IP Â

Ю Â

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

show security-access-rules	
show security-zone	

10.3 4b5	/

3.2.3 show security-access-rules

show security-access-rules

-	-

3.2.5 show security-zone-host

ў ў

3.2.6 show security-zone-match

IP

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

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

i*p-protocol*	IP

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.

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1

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

show security-access-blocking	
show security-access-rules	

10.3(4b6)	/

3.2.7 show security-zone-violation-log

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

show security-zone-violation-log status

to

show security-access-rules	

10.3(4b6)	/

3.2.8 show web-auth direct-host

web Â

show web-auth direct-host

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ϡ /ʃ Ɉʊ Ю Â

1ˈ web Â

```
Ruijie# show web-auth direct-host
direct-host
  Address          Mask
  ---------------- ----------------
  192.168.0.1      255.255.255.255
  192.168.4.11     255.255.255.255
  192.168.5.0      255.255.255.0
```

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web-auth direct-host	IP Â

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/ʃ	
10.2(5)	ϡ/ ϡ

3.2.9 show web-auth global

web Â

show web-auth global

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

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web-auth on	╟ Web Â

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10.2(5)	ৡ / ৡ

3.2.10 show web-auth user

˘ IP à à

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

ip-address	IP Â

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1' web Â

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

Address         Online    Time Limit(s) Time Used(s)    Status
User Mode
----------- -------  ------------ ------------ -------- ----
192.168.0.11    On      01:00:00       00:15:10         Active
not redirect
192.168.0.13     On     0nBT/TT3 1QTime ctivs   247( )]TJ0 Tw 9 0
```

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10.2(5)	३ / ३

4

4.1

4.1.1 clear firewall count

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clear firewall count [global]

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

	10.3(4b6)	

4.1.4 firewall blacklist

[no] firewall defend fraggle

no	

Â

1

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

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10.3(4b5)	/

4.1.6 firewall defend {icmp-flood | udp-flood | syn-flood}

ICMP flood UDP flood SYN flood

[no] firewall defend { icmp-flood | udp-flood | syn-flood } {*acl-num* | *acl-name}* *rate-num*

icmp-flood	ICMP flood
udp-flood	UDP flood
syn-flood	SYN flood
acl-num	ACL acl IP
acl-name	ACL acl IP

	rate-num	pps
	no	

Â

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

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	10.3(4b5)	/

4.1.7 firewall defend icmp-redirect

icmp ,icmp

[no] firewall defend icmp-redirect

	no	

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

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10.3(4b5)	ã / ã

4.1.8 firewall defend icmp-unreachable

ã icmp a ñ ˘ icmp a ñ

[no] firewall defend icmp-unreachable

no	ñ

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

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4.1.9 firewall defend land

Land LAND

[no] firewall defend land

no	

Land

BFD IP IP

Land

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

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

1'

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

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10.3(4b6)	ʒ / ʒ

4.1.12 firewall defend scan ignored-protocol

ʒ ╖ a

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

{icmp | ip | tcp | udp}	ʌ ˘ й ╖ a ˘
no	ʌ

ʒ

1'

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

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-	-

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10.3(4b6)	ȝ / ȝ

4.1.13 firewall defend scan sense-level

ȝ ȶȶ ip

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

{high | low | medium}	
acl	ip acl ˘ a acl ip
time-num	ѝ ѝ ip ˘ ʌ ˘ a ‡ a Â Æ ˙ ˛
no	ʌ

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1˙

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

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10.3(4b6)	ȝ / ȝ

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}	

10.3(4b6)	/

4.1.15 firewall defend source-route

IP

[no] firewall defend source-route

no	

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

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10.3(4b5)	/

4.1.16 firewall defend winnuke

-	-

10.3(4b5)	/

4.1.18 firewall defend frag-flood

IP flood

[no] firewall defend frag-flood *rate-num*

rate-num	pps

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

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10.3(4b5)	/

4.1.19 firewall log

ৡ ŭ Â

[no] firewall log { icmp-flood | udp-flood | syn-flood | scan | frag-flood }

no	a
icmp-flood	icmp-flood
udp-flood	udp-flood
syn-flood	syn-flood
scan	
frag-flood	ĭ

a Â

ৡ

1' icmp flood

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

2' ʌ 1

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

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10.3(4b5)	ৡ / ৡ

4.1.20 firewall tcp-loose

TCP ACK Â æ Л Ъ
TCP Â

[no] firewall tcp-loose

no	a TCP ACK

a TCP ACK ˘ Л TCP SYN Â

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1˙

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

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-	-

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10.3(4b6)	ʒ / ʒ ˘ ʒ 10.3 4b5˜ ip session tcp-loose ʒ˘ ╖ ˚ Â

4.1.21

	in | out	
	log	ɔ access-list

```
Firewall(config)# show firewall scan-detect-conf default
scan tracker clear interval default:
       low:30 s
       medium:60 s
       high:300 s
tcp scan default config:
low
        connection count is:0
        priority count is:100
        ip count is:30
        port count is:50
medium
        connection count is:50
        priority count is:20
        ip count is:7
        port count is:10
high
        connection count is:50
        priority count is:3
        ip count is:3
        port count is:10

udp scan default config:
low
        connection count is:0
        priority count is:100
        ip count is:30
        port count is:50
medium
        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
```


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10.3(4b6)	/

4.1.24 show firewall global-blocking

show firewall global-blocking

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10.3(4b5)	/

4.1.25 show firewall count

show firewall count [all | global]

[all | global]	Â global IO

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5 ϡ

5.1 ip rate-control

IP ЭЮ ä ä ⁸ Â

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

in | out	ˇ in IP ˇ out IP
acl-num	⁸
rate-limit	IP ⁸ ^ 1-10000000kbps)
total-num	IP ⁸ (1-1000000)
rate-num	IP ⁸ (1-100000)
no	ʌ

Â

ϡ

1'

```
Firewall(config)# ip rate-control in 10 bandwidth 100
Firewall(config)# ip rate-control in 10 session-rate 200
Firewall(config)# ip rate-control in 10 session-total 300
Firewall(config)# no ip rate-control in 10 bandwidth 100
Firewall(config)# no ip rate-control in 10 session-rate 200
Firewall(config)# no ip rate-control in 10 session-total 300
```

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10.3(4b5)	/

5.2 session-limit

[no] session-limit access-group *acl-num* rate *rate-num* concurrent *session_count* { in | out } [log]

acl-num	
session_count	1-1000000
rate-num	1-100000
in | out	in out
log	
no	

```
Firewall(config-if)# session-limit access-group 100 rate 1000
concurrent 1000 in
```

-	-

10.3(4b5)	/

6

6.1

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
```

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10.3(4b6)	/

6.1.2 show firewall dynamic-filter

ALG

show firewall dynamic-filter

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1˙

```
Firewall# show firewall dynamic-filter
```

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10.3(4b6)	ã / ã

7

7.1

ЛЬЮ ЛЬЮ Л ў Ю è

- ace-limit
- changeto
- config-url
- context
- host-limit
- maximum routes
- password
- session-create-limit
- session-limit

7.1.1 ace-limit

ACE no

ace-limit *num*

no ace-limit

num	0-200000

a

Ю context

abc 10

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

7.1.2 changeto

б Â

changeto { *context-name* }

context-name	, root

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Ю changeto *context-name* è Â
context-name ù … Â
Ю changeto root Â
Л Л è Л root
Â Л Э
changeto root root Â

ù abc

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

-	-

10.3(4b5)	/

7.1.3 config-url

no

config-url *config-file-name*

no config-url *config-file-name*

config-file-name	1-31 config.text

context

abc abc.text

```
Ruijie(config)#context abc
Ruijie(config-ctx)#config-url abc.text
```

context	
context	…

10.3(4b5)	/

7.1.4 context

… ˘ context Â ¾ no ˘ Â

context *context-name*

no context *context-name*

ęxnEn6Ø01C4>Tj /T54094.cn484C061 .24T 61341 144.94.cn484C061

7.1.6 maximum routes

maximum routes limit {warn-threshold | warning-only }

no maximum routes

limit	<1-4294967295>
warn-threshold	<1-100>
warning-only	

context

	10.3(4b5)	३ / ३

7.1.7 password

no

password { *password1* | [0 | 7] *password2* }

no password

password1	
0 | 7	0 7
password2	

…

changeto

telnet/SSH

telnet/SSH

disable enable

contextA

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


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

7.1.9 session-limit

8 . Â ¾ no ˘ ¼ 8 Â

session-limit *num*

no session-limit

num	Â ¼ 0-

a 8

¾ context

‘ 8 ^ abc˜. й 100000

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

¾	
mac-limit	8 . MAC
ace-limit	8 . ACE
host-limit	8 . ў
session-create-limit	8
show ip fpm statstics	¾

¼

¼	
10.3(4b5)	¾ / ¾

8 failover ৡ

8.1 ৡ

8.1.1 failover

failover ╖ Â ৡ ł˘ ╟ failover ╖ Â

failover

no failover

ৡ Â

è failover ł˘ ł ৡ failover Â ł ⎱
╟ ɜ ў Â

ѝ ¨ ˘ no failover ৡ ⎱ ╖

ৡ	
failover standby	╟ ў ⁋
show failover	failover

⁄	
10.3(4b6)	ৡ

8.1.2 failover standby

failover standby ৡ ў ⁋ й ^ ў
Æ ⁋ й ~ Â ৡ Ю Â
failover standby

■ ৡ ⁄ ў Э ˘ ⁸ ў ⁋ Â⁋ ł˘ ў
Æ ł˘ ⁄ Â

1˙
```
Ruijie# failover standby
```

ৡ	

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३	10.3(4b6) ३

8.1.3 failover interface ip

failover ip Â

failover interface ip *<primary_address>* *<mask>* secondary *<secondary_address>*

no failover interface ip

primary_address	Primary failover Э Ipv4
mask	IP
secondary_address	Secondary failover Э IPv4 Â

३

IP failover ˘ ѝ Primary ˘ failover primary_address’ Secondary ˘ Secondary_address Â ч IP ˚ Э˘ ˚ Â

IP a ў ४ ४ Â

1˙

```
Ruijie (config)#failover interface ip 10.1.0.1 255.255.255.0 secondary
10.1.0.2
```

३	
failover lan interface *if*	ѝ failover

४

10.3(4b6)	३

8.1.4 failover lan interface

३ failover Â
failover lan interface *if*
no failover lan interface

if	Failover Â

३

३ failover Â Э VLAN Â ж
failover ˘ a Л Лъ è Â

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

३	
failover interface ip	failover IP

Л

10.3(4b6)	३

8.1.5 failover lan unit

३ ѝ ў (primary) ╠^ secondary˜ Â

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

primary	ѝ ў^ Primary˜
secondary	ѝ ╠^ Secondary˜

Secondary

٣

ᾱ ў ″I Â ч ﾉ ˚ ╟ ˘ Primary ″I Secondary ѝ Active Â ⁽ ч ﾉ ˘ ﾉ Primaryў ﾉ Secondary Â

٣ a ÿ ў ˚

Ruijie (config)# failover lan unit primary

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10.3(4b6)	٣

8.1.6 failover polltime

٣ failover
failover polltime msec *poll_time* [holdtime [msec] *holdtime*]
no failover polltime

poll_time	

	hold_time
	poll_time 50ms hold_time 2s
	pool_time hold_time

Ruijie(config)# failover polltime

Ruijie# failover reset

३	

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३	10.3(4b6) ३

8.2 б ३

8.2.1 clear failover statistic

failover

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failover

1

```
Ruijie# clear failover statistic
Ruijie#show failover heartbeat
Failover Lan Interface: NA
Heartbeat test: timeout
Drop packets:
   version error: 0, statement error: 0
```

Hold time: 2000 msec, poll time: 50 msec, window size: 0

Heartbeat statistics:
Req snd: 0, Ack rcv: 0
Req rcv: 0, Ack snd: 0
Req snd fail: 0, Ack snd fail: 0

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४	
10.3(4b6)	३

8.2.2 show failover

failover ˘ ä ƒ Â
show failover

Last switch:2010- 1- 3 21:45:48
This host:
Secondary -- Failover active
Other host:
Primary -- Standby ready

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

Э ⁋ ^ Failover on˜ ˘ з ⁋
ЛЬ Э ⁋ ^ Last switch˜ Â
ѝ ╠ ^ Secondary˜ ˘ ў ^ Active˜ Â
Failover ж ѝ vlan 4 Â

३	

/I

/I	
10.3(4b6)	३

8.2.3 show failover history

failover /I
show failover history

detail	/I

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failover /I Â /I ЛЬ Y˘ ЛЬ failover /I Â

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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
```

Л Э 2010-1-3 failover ˊ

3:19:4 failover enable ꝛ failover disable ѝ

ˆ Wait for negotiation˜ Â

3:19:8 Standby ˆ ¨ Failover ˜ ˘

ѝ Standby Â

5:19:38 Æ Â

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ꝛ 10.3(4b6)	ꝛ

8.2.4 show failover heartbeat

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show failover heartbeat

˘ Λ Ʃ Â

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

Hold time: 2000 msec, poll time: 50 msec, window size: 40
In last holdtime:
   My req echo ratio: 100%
   Peer req receive ratio: 100%

Heartbeat statistics:
   Req snd: 105,          Ack rcv: 105
   Req rcv: 105,          Ack snd: 105
   Req snd fail: 0, Ack snd fail: 0
```

9 CLI

9.1 alias

alias no

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

mode
command-alias
original-command

EXEC

h	help
p	ping
s	show
u	undebug
un	undebug

a no alias exec

alias ?

```
Ruijie(config)# alias ?
```

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

command-alias=original-command

EXEC

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

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

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

″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
```

show aliases

ð Ô

”def-route”

”ip route 0.0.0.0 0.0.0.0 192.168.1.1”

```
Ruijie# configure terminal
Ruijie(config)# alias config def-route ip route 0.0.0.0
0.0.0.0 192.168.1.1
```

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

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show aliases	¨

9.2 privilege

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privilege ꔷ Â ꔷ no Л Љ ꔷ

ѝ Â

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

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

ð Ô

mode ˙ ꔷ CLI ꔷ Â

[all] ˙ ꔷ ꔷ ˘ Л ѝ ˚ Â

level *level* ˙ ꔷ ꔷ ˘ 0-15 Â

reset ˙ ꔷ ѝ Â

command-string ˙ ꔷ Â

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ð ꔷ Ô

ð Ô

Ю ∫ privilege ꔷ Л CLI ꔷ ˘

a ˚ ˘ Л ꔷ Л Л ˘ Ю

Л Љ privilege ? Л CLI ꔷ Â

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

ð Ô

ЛЬЮ ˘ CLI 1 ৡ ѝ ”test”˝ reload ৡ ˘ Л Лъ Æ Â

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

˘ 1 CLI ˘ Л Лъ reload ৡ˙

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

reload ৡ 1 ˘ ‡ Л Лъ all ˙

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

˘ 1 CLI ˘ Л Лъ reload ৡ˙

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

ð ৡ Ô

ৡ	
enable secret	CLI ৡ

9.3 show aliases

show aliases [*mode*]

ð Ô

mode

ð Ô

ð Ô

EXEC

ð Ô

ð Ô

EXEC

```
Ruijie# show aliases exec
exec mode alias:
h                   help
p                   ping
s                   show
u                   undebug
un                  undebug
```

ð Ô

alias	

10

10.1

10.1.1 disable

disable [*privilege-level*]

privilege-level	

enable	

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10.1.2 enable

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10.1.3 enable password

a ˇ ৡ ˇ ৡ enable password Â ৡ no ৡ Â

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

Password	EXEC ৡ Â
Level	Â
0|7	ৡ ╗ ˇ 0 ╗ ˇ 7 ╗ Â
encrypted-password	ৡ Â

ৡ

╗ Â ЮЎ /! ⁸ ╗ ʒ ˘
╗ Â
ʒ ЬЖ ЮЎ

- 1 26 Â
- ʒ /!Љ ˘ Â ‡ ѝ ʒ ǀ Â

╗ ˘ ɬ ʒ˘ ‡ a
EXEC Â a ╗ ʒ Â /!
ʒ Â

Ю ʒ ѝ pw10Ў

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

ҳ╢ и password security ҳ ч Âpassword и ╗ ҳ╜ /I и 15
ҳ Âsecurity ҳ и ╗ ҳ╜ /I Љ и 0· 15 ҳ Â ╜ ╛
╛ Љ Э ч ҳ╜ ‡ password ҳ a Â 15 password ҳ╜
‡ ╜ ╠ и security ҳ╕ 15 password ҳ security
ҳ ╛ ╜ ‡ ╕ ҳ Љ╗ ╜ password ҳ
╗ ╜ security ҳ ╗ Â

	enable service web-server ¾ ł 3 Ⅰ [http | https | all] Â ¾ ł a ˘ all ˘ ‡ ˚ http Ł https Ł’ http ˘ ‡ Ⅰ http Ł’ https ˘ ‡ Ⅰ https Ł Â

```
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
```

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ҳ Web Â no ip http authentication ҳ
ѝ Â

Ю ҳ˘ Web local ‘
Ruijie(config)# **ip http authentication local**

ҳ

ҳ	
enable service	б Ł Â

л

ҳ

л	
-	-

10.1.8 ip http port

HTTP Ł ˘ Ю Л Љ ip http port ҳ’

ip http port *number*

number	HTTP Server ˘ ѝ 80 Â

ѝ 80 Â

ҳ

ҳ HTTP Ł Â no ip http port ҳ ѝ Â

Ю ҳ˘ HTTP Ł ѝ 8080’
Ruijie(config)# **ip http port** *8080*

ҳ

ҳ	
enable service	б Ł Â

л

-	-

10.1.9 ip http secure-port

HTTPS

ip http secure-port

ip http secure-port *number*

number	HTTPS Server 443

443

no ip http secure-port

HTTPS 4443

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

enable service	
show web-server status	web

10.4 3	

10.1.10 ip telnet source-interface

IP Telnet

ip telnet source-interface

ip telnet source-interface *interface-name*

interface-name	Э IP й Telnet Â

ҳ

ҳ Э IP й Telnet Â telnet ҳ
л Telnet Ь ў й ў
Â no ip telnet source-interface ҳ й Â

Ю ҳў Loopback 1 Э IP й Telnet '

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

ҳ

ҳ	
telnet	л Telnet Ь Â

л

ҳ

л	
10.4(2)	ҳ

10.1.11 lock

Э ҳў EXEC ҳ lock Â

lock

-	-

ҳ

ҳ ў ў в Љ Â
ЉЮ в '

■ ' lock ҳў ҳ'

■ γ ‘ ϟ˘ ΛЛъ Â ł˘ ϟ˘
ł˘ ˘ Ľ Locked Ł ’

■ ˘ ϟ Â
Э в ℸ ˘ line Ю lockable ϟ˘
line Э в Â

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

ϟ

ϟ	
lockable	Э в Â

Λ

ϟ

Λ	
-	-

10.1.12 lockable

Э lock ϟ˘ ΛЛъ line Ю lockable ϟ˘
Ю a lock ϟ Â no ϟ ϒ Â

lockable

no lockable

-	-

ϟ line

ϟ Э в ˘ в ΛЛъ EXEC Ю

lock Â

Ю 8 Э в ˇ в 8 :

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

lock	в Â

-

-

10.1.13 login

AAA Ю Э ˇ
login Â no

login

no login

-

-

line

AAA ‡ Â
VTY console Â

Ю VTY Э Â

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

aaa new-model	AAA
aaa authentication login	

-	-

10.1.15 login local

AAA login local no

login local

no login local

-	-

line

AAA username

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

username	

	-	-

10.1.16 privilege mode

ê CLI ϡ Ì Â

	-	-

ê CLI ϡ Ì Â

ϡ ê CLI ϡ Ì Â

ê CLI ϡ Ì Â

ê CLI ϡ Ì Â

ϡ		
ϡ	-	-

/

ϡ	/	
ϡ	-	-

10.1.17 password

line ϡ˘ line ϡ password Â ϡ no line ϡ Â

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

no password

password	line ϡ Â
0|*7*	ϡ ╗ ˘ 0 ╗ ˘ 7 ╗ Â
encrypted-password	ϡ Â

line

ʒ line ʒ Â

Ю line ʒ ѝ red

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

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

enable password	a ˇ ¸ Â

-	-

2ʼ Ю ˘ telnet IPV6 ѝ 2AAA:BBBB::CCCCʼ

```
Ruijie# telnet 2AAA:BBBB::CCCC
```

ϡ

ϡ	
ip telnet so urce-interface	Э IP ѝ Telnet ʼ
show session	TTY ʼ
exit	ʼ

ϡ

ϡ	
-	-

10.1.20 username

¨ ˘ ϡ username Â

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

username *name* privilege *privilege-level*

no username *name*

Name	¨ Â
Password	ϡ Â
0|7	ϡ ╗ ˘ 0 ╗ ˘ 7 ╗ Â
encrypted-password	ϡ Â
privilege-level	Â
filename	˙ ¨

ϡ

ϡ ˘ Â

10.3(4t76)	

10.1.22 username export

Ю Ю

username export *filename*

filename	

web Â

"¼ã

Ю :

```
Ruijie#username export user.csv
```

web-auth	web Â

10.3(4t76)	

10.2

10.2.1 banner login

Ю banner login Â

no banner login Â

banner login *c message c*

c	a
message	

Ю

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

-	-

-	-

10.2.2 banner motd

Ю banner motd no banner motd

banner motd *c message c*

╖ /Л Лъ ў ˚ Â	
Boot ROM ˚ Â	ʒ ˘

ЛъЮ ╠ ˚ ¨ ѝ ľ flash:/config_main.text Ł'

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

ʒ	
boot network	╠ ˚ ¨
service config	″I ÿ Ł ╖ ╠ ˚
show boot	Â

/I

/I	
-	-

ʒ

10.2.4 boot ip

╠ TFTP IP˝ ʒ no Â

boot ip *local-ip*

no boot ip

local-ip	╠ TFTP IP Â

ʒ Â

ʒ /Л Лъ ╠ TFTP IP Â ╠ ˘ IP ѝ IP TFTP Â

/I boot ip Лъ ł˘ ╠ Ю boot network boot system ʒ TFTP ˚ Â	ʒ ˘ Boot ROM ˚ Â

	boot ip IP TFTP TFTP Boot ROM
	ЛЬЮ Ruijie(config)# **boot network tftp***://192.168.7.24/config.text*

	boot config	
	boot ip	TFTP IP
	service config	
	show boot	

	-	-

10.2.6 boot system

no

boot system *priority* prefix:/[directory/]*1614E323D94C3811C.802-29.54000E071>]TACB2C58 Tc80*

Л ў ˙ ¨ й ˙ ľ

-	-

10.2.7 boot system

no

boot system url

no boot system

url	Â

flash:/rgos.bin

Â

url

Â

1 flash URL flash

2 Boot ROM Â

```
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
```

ϡ

ϡ	
show clock	

ʌ

ϡ

ʌ	
-	-

10.2.9 clock update-calendar

˚ ѝ ˚ Â

clock update-calendar

-	-

ϡ

ʌ ˚ ε ˚ ˆ calendar˜ Â ˚ ╟˘ ¯

Ю ≠ Â

˚ ˚ a˘ ˘ ˚ ѝ ˘

ϡ ˚ 8 ˚ Â

Ю ϡ ʌ Лъ ˚ 8 ˚ Â

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

ϡ

ϡ	
-	-

ʌ

ϡ

ʌ	
-	-

LINE Ю ˘ exec-timeout ҄ Â no exec-timeout ҄˘ ʌ LINE Ю ˘ a Â

exec-timeout *minutes* [*seconds*]

no exec-timeout

minutes	ǂ ’
seconds	ˆ ʌ ~ ’

ѝ 10 min Â

҄ LINE

˘ ˘ ˘ LINE ѝ ʌ Â

Ю line vty 0 ѝ 5ǂ 30 ‘

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

҄	
-	-

ʌ

҄	
-	-

10.2.11 hostname

ў ¨ ˘ ҄ hostname Â

hostname *name*

name	ў ¨ ˘ ʌ à Л Â ѝ 32 Â

ʒ

ў ¨ ў Лъ л CHAP и ¨ Â

Ю ў ¨ и BeiJingAgenda˙

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

ʒ	
-	-

л

л	
-	-

10.2.12 prompt

ʒ ˘ Ю ʒ prompt Â л ʒ ˘ no prompt ʒ Â

prompt *string*

string	ʒ ˘ л Лъ 32

ʒ

ʒ ˘ ‡ ¨ и ˘ ¨ л л Â ʒ л EXEC Â

Ю ʒ и RGOS˙

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

ʒ	ʒ	

-	-

-	-

10.2.13 reload

reload Â

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

text	1-255 Â
in [*hh:*] *mm*	24 Â
at *hh:mm*	
month	3 Mar
day	1 31
cancel	

Â

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

-	-

-	-

10.2.14 service config

no

service config

no service config

-	-

Boot ROM

speed *speed*

Speed	bps 9600 19200 38400 57600 115200 9600

9600

Ю 57600 bps

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

-	-

-	-

10.2.17 write

running-config

write [memory | network | terminal]

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

ʒ

ʒ ʒ ʒ˘ è Ю

Â

boot config ʒ ╟ Э˘ write

[memory] ʒ é и Ю

- boot config ʒ ‡

Flash ext Ł Â

- boot config ʒ ˘ з ˘

‡

- boot config ʒ ˘ a

˘ ‡

- ˘ ˘ ˘

,

- ˘ a и ╟ ˘

5âÌÁFÄ • ¥•S µ°L @ @ SD Э˘

writeE ╪À ʒ

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

ʒ	
boot config	╟ ᵛ ᵃ
copy	ᵛ 8
show running-config	

ʃ
-

ʃ	
-	-

10.3 ʒ

10.3.1 show boot

Â

show boot [config | network | system | ip]

config	╟ ᵛ ᵃ Â
network	╟ ᵛ ᵃ Â
system	╟ ў ᵛ ᵃ Â
ip	╟ IP Â

ʒ Â

ʒ Â

æ TFTP Ł Э ˇ a è Â
ˇ ù ľ N/A Ł’
show boot system ʒ ў ˇ a ˘ ‡
ˇ ≠ ù ľ N/A Ł

1‘ ЛЬЮ ╟ ˇ ¨ ‘
```
Ruijie# show boot config
Boot config file: [/config_main.text]
Service config: [Disabled]
```
2‘ ЛЬЮ ╟ ˇ ¨ ‘
```
Ruijie# show boot network
Network config file: [tftp://192.168.7.24/config.text]
Service config: [Enabled]
```
3‘ ЛЬЮ ў ˇ ¨ ”I ‘
```
Ruijie# show boot system
Boot system config:
==================================================
Prio     Size             Modified  Name
---- --------- ------------------- ------------------
 1
 2
 3
 4
 5     3205120 2008-08-26 05:22:46 flash:/rgos.bin
 6
 7
 8     3205120 2008-08-26 05:25:09 flash:/rgos_bak.bin
 9         N/A                 N/A tftp://192.168.7.24/
                                   rgos.bin
10
==================================================
```
4‘ ЛЬЮ ╟ IP ‘
```
Ruijie# show boot ip
System boot ip: [192.168.7.11]
```

ʒ	
-	-

/I

	-	-

10.3.2 show boot system

	-	-

	-	-

	-	-

10.3.3 show clock

show clock

	-	-

```
CON     Type    speed   Overruns
* 0     CON     9600    45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape  Disconnect  Activation
               ^^x     none        ^M
Timeouts:      Idle EXEC    Idle Session
               never        never
History is enabled, history size is 10.
Total input: 53564 bytes
Total output:  395756 bytes
Data overflow:  27697 bytes
stop rx interrupt:  0 times
```

3	
-	-

1

3	
-	-

10.3.5 show reload

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

ã	
-	-

/

/	
-	-

10.3.6 show running-config

ã show running-config Â

show running-config

-	-

ã

ã	
-	-

/

/	
-	-

10.3.7 show startup-config

NVRAM ~ Э ˘
show startup-config Â

show startup-config

-	-

NVRAM ~ Э startup-config й ╠
Â

a boot config Э˘ startup-config Flash
˚ l' /config.text Ł Â

boot config ╠ ˚ Э˘ startup-config
Ю ‡˙

- boot config ╠ ˚ ¨ ˘ з ˚ ˘ ‡ startup-config
  boot config ˚ Â
- boot config ˚ a ˘ boot config
  ╠ ˚ ¨ ˘ ‡ startup-config Flash ˚
  l' /config.text Ł Â

boot config	╠ ˚ ¨

˘ Л Љ Ю show version ʒ Â

show version [slots | devices]

-	-

Web

```
Ruijie# show web-server status
http server status : enabled
http server port : 80
https server status:  enabled
https server port: 443
```

-	-

11

11.1

11.1.1 cd

cd *DIRECTORY*

DIRECTORY

“..” “.”

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

ð Ô

*DESTINE_*

DIRECTO

*SOURCE_*

注意:

cp a Â

ð Ô

log.txt

```
Ruijie# cp sour log.txt
```

11.1.3 ls

Â

ls *PATHNAME*

ð Ô

PATHNAME

Â

ð Ô

Ю

Ю Â

a .

ð Ô

Ю

```
Ruijie# ls
```

tmp Ю

```
Ruijie# ls tmp
```

ð Ô

11.1.4 mkdir

…

mkdir *DIRECTORY*

ð Ô

DIRECTORY …

ð Ô

Â

ð Ô

Â

ð Ô

… /( )Â

Э a … Â

ð Ô

Ю… test

```
Ruijie# mkdir test
```

ð Ô

11.1.5 mv

╠ ৄ ┘ ৄ

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

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

ð Ô

SOURCE_FILE ╠ ৄ

DESTINE_FILE/DIRECTORY ৄ

ð Ô

Â

ð ৡ Ô

Â

ð Ô

ৡ Э ৺ ৄ Â

ৎ a à (type file); b à '?' ╠

৺ a ж ৺ Л Ћ '? ' ৡ

,Ћ ৡ Â

ð Ô

Ю log.txt ╠ Э , ৃ й config.txt, ৺ ৃ

ৄ , ‡ ৺ ৃ ৄ ‹

```
Ruijie# mv sour tmp/log.txt dest ../config.txt
```

Ю log.txt ╠ tmp Ю

```
Ruijie# mv dest /mnt/tmp sour tmp/log.txt
```

ð ৡ Ô

ৡ

11.1.6 pwd

pwd

ð Ô

pwd	

ð Ô

Â

ð ३ Ô

Â

ð Ô

Æ Â

ð Ô

Ю Â

```
Ruijie# pwd
```

ð ३ Ô

३

11.1.7 rm

˚ Â

rm *FILE*

ð Ô

FILE ˚ ¨ ( )

ð Ô

Â

ð ३ Ô

Â

ð Ô

a , a ˚ ˚ Â ˘ ˘ a ˚ Â

ð Ô

Ю log.txt ˚ ‘

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

ð ¾ Ô

¾	
rmdir	, ù ¾ , Лъ rm ¾ ≠ Л Лъ

11.1.8 rmdir

Â

rmdir *DIRECTORY*

ð Ô

DIRECTORY ‘ ¨ , ù

ð Ô

Â

ð ¾ Ô

Â

ð Ô

a , ù Â ¾ ,
rm ¾˘ Л Лъ Â

ð Ô

Ю tmp ˘ з ý Â

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

ð ¾ Ô

¾

11.2

Â

12 ` ३

12.1 ३

ў CLI Ю COPY

३

12.1.2 copy tftp

tftp ` ३˘ tftp Э Ю Â

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

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

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

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

注意:

˚ ¨ ˘ tftp ╗ Э ∧˘ '

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

˚ ˘ ˚ ¨ ˘ ≠ ˚ ¨ ╗ Э ∧

copy tftp: //localtion/filename flash: ”filename” vrf vrfname

ð Ô

filename' Э ˚ ¨

vrfname' vrf ¨

ð Ô

Â

ð ३ Ô

ð Ô

╗ ˘ ‡ ˚ Â ŭ ‡˘ Â

TFTP ∧ Л˚ ˚ ˘ ў ˚ à ˚ Â TFTP

Â

ð Ô

Ю : ÿ ў ^ ip 192.168.12. 1˜˜

˚ ^ config.bak˜ ; ү ÿ ˚ ^ switch.bin˜

ў ^ ip 192.168.12.1˜ :

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

ð ३ Ô

३

13 IP ϟ

13.1 ϟ

ЛЬЮ ϟ'

- ip address
- ip unnumbered

13.1.1 ip address

ϟ IP ˘ Л Лъ no IP Â
ϟ Ю'

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

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

ð Ô

ip-address	32 Æ IP ˘ 8 Æ ˘ Лъ 8 ˘ Â
network-mask	32 Æ ˘ "1" Æ˘ "0" ў Æ Â 8 Æ ˘ Лъ 8 ˘ Â
secondary	IP Â

ð Ô

IP Â

ð ϟ Ô

ð Ô

Л IP ˘ Л Лъ IP ˘
IP ˘ IP Â

≠ 32 Æ ˘ IP й
ŕ Â ˘ й ľ 1 Ł IP Æ й
ŕ ˘ й ľ 0 Ł IP Æ й ў ŕ Â A
й ľ 255.0.0.0 Ł Â Л Лъ
ŕ ˘ ŕ ў ŕ Æ ≠

ѝ ∤ ˘ ў ˘ ╗ ˘ ѝ
Â

RGOS ˚ Л Љ IP ˘ ѐ ѝ ў IP ˘
ѐ ѝ IP Â IP Э ⁸˘ Л Љ
˘ Л Л ў IP ѣ IP Â IP Л Љ б
ў IP ˚ а˚ Â ˘ IP
˘ ЉЮ Ю IP ‘

- ў Â C
˘ Л∤ 254 Л ў Â ў 254 Л ˘ C
а ∤ ˘ ∤ Ы C Â
ч ˘ Љ IP Â
- ү ˘ ∤ Â IP
Л Љ ` IP Â
˘ IP Â
- ч Ы ˘ Л Љ…
˘ IP ˘ Â
а ч ч Љ Э Â

ð Ô

Љ Ю ˘ ў IP ѝ 10.10.10.1˘ ѝ
255.255.255.0 Â

```
ip address 10.10.10.1 255.255.255.0
```

ð ٪ Ô

٪	
show interface	

ð Л Ô

Â

13.1.2 ip unnumbered

٪ Л ˘ ѝ Л ѣ˘
Э IP ˘ Л Љ IP Â Л Љ no Ы
Â

ip unnumbered *interface-type interface-number*

no ip unnumbered *interface-type interface-number*

ð Ô

interface-type	
interface-number	⁄

ð Ô

Ю Â

ð ϟ Ô

ð Ô

⁄ ⁄ ╟ IP ˘ a IP ˘ ⁄
έ IP Â ⁄ IP ˘
IP ù IP Â⊿ ≠
IP ˘ ᾱ ΰ ⁄ Â ⁄ ˘
ЛЬЮ ʁ

- Лъ a ⁄ Â
- SLIP ä HDLC ä PPP ä LAPB ä Frame-relay ˘ ⁄Лъ ⁄ Â ˘ ⁄ ⁄ Â X.25 a ⁄ Â
- a ping ϟ ⁄ ΰ ˘ ù ⁄ IP Â SNMP ⁄Лъ ⁄ Â
- a ⁄ ╟ Â

ð Ô

ЛЬЮ ˘ ù ⁄ ˘ ù GigabitEthernet 0/1 Â IP Â

```
ip unnumbered vlan 1
```

ð ϟ Ô

ϟ	
show interface	

ð ⁄ Ô

ϟ ϒ Э a Â

13.2 ϟ

ϟ

- arp

- arp any-ip
- arp retry
- arp trusted
- arp unresolved
- arp gratuitous-send
- arp timeout
- ip proxy-arp
- service trustedarp

13.2.1 arp

ϟ˘ Л Ъ ARP ă ╗ IP MAC
Â ϟ no Л Ъ MAC Â

arp *ip-address MAC-address type* [alias]

no arp *ip-address MAC-address type* [alias]

ð Ô

ip-address	б MAC IP ˘ˀ ѝ ⁸ ˘ Â
MAC-address	˘ 48 Æ
type	ARP Â Ъ ˘ ѝ arpa Â
alias	ˆ Л ˜ Ж ɨ˘ RGOS IP arp Â

ð Ô

ARP ă Â

ð ϟ Ô

ð Ô

RGOS ARP ă ˘ 32 Æ IP 48 Æ MAC Â

ў ╠ ARP ˘ Ъ a ARP Â clear arp-cache ϟ Л Ъ ╠ ˉ ARP Â

ð Ô

ЛЬЮ ˘ ѝ Лъ Э ў ARP Â

```
arp 1.1.1.1 4e54.3800.0002 arpa
```

ð ٪ Ô

٪	
clear arp-cache	ARP ă

13.2.2 arp any-ip

٪ AnyIP ╖ Â ѝ IP a ≠ Э
˘ Ί ˘ ٪ ARP ˘ ѝ IP ╟
Â ٪ no ╖ Â

arp any-ip

no arp any-ip

-	-

Ю ╖ Â

٪ Â

Ю ч Э ‘
1 ã IP ˘ IP a Э IP’
2 ã IP a ˘ è ˘ ¯ ă
’

IP a ˘ è ╟ ARP ã ╟
”I ARP ˘ Ю (a Ю) a Э ˘
ARP ⌐ ‘
1 ã ٪ ARP ˘ ⌐ MAC ł˘ Э clear arp˘
╟ ARP ã ╟ ˘ ’
2 ã ٪ ARP ˘ ⌐ MAC ł˘ Э AnyIP ╖ ˘
ł Ą ’
‘ AnyIP ╖ ≠ ╟ ARP ã ╟ ˘ ÿ
Â

Ⅎ ˘ ARP VRRP ARP˝ AnyIP ╟ ARP ╗
˘ AnyIP ╖ a Â

IP ३

ð Ô

ЛЬЮ ˘ ARP ѝ 30s

```
arp retry interval 30
```

ð ʒ Ô

ʒ	
Arp retry times *number*	ARP

13.2.4 arp retry times

ʒ˘ Л Лъ arp ˘ ¨ ˚ IP
˘ ARP Â ʒ no Л Лъ
5 ARP Â

arp retry times *number*

no arp retry times

ð Ô

number	˚ ARP ˘ <1-100> Â ѝ 1 ˘ a ARP ˘ Л 1 ARP

ð Ô

ARP ˘ ARP 5 ˘ ł Â

ð ʒ Ô

ð Ô

ï Л

ð ¥ Ô

¥	
arp retry interval *seconds*	arp

13.2.5 arp trusted NUM

¥˘ /I Лъ /I ARP Â ¥ no Â

arp trusted *number*

no arp trusted

ð Ô

number	/I Лъ /I ARP , Ч <10-4096> Â

ð Ô

a˚ a˚ Â

ð ¥ Ô

ð Ô

¥ ˘ ”I /I ARP ╖ Â /I ARP è ˘ /I . ˘ /I ╠ ARP a Â ˘ a Â

ð Ô

ЛъЮ ˘ /I Лъ 1000 /I ARP Â

```
arp trusted 1000
```

ð ¥ Ô

¥	
service trustedarp	/I ARP ╖

13.2.6 arp trusted aging

٪˘ ʌЛъ ʌ ARP Â ٪ no
Â

arp trusted aging

no arp trusted aging

ð Ô

ð Ô

GSN ʌ ARP a Â

ð ٪ Ô

ð Ô

٪ ł ʌ ARP ˘ ╟ ARP ˚ Â
ʌЛъ Ю arp timeout ٪ Â

ð Ô

Â

ð ٪ Ô

٪	
service trustedarp	ʌ ARP ╖

13.2.7 arp unresolve

٪˘ ʌЛъ ARP Â ٪ no
ʌЛъ 8192 Â

arp unresolve *number*

no arp unresolve

ð Ô

number	ARP ˘ ʎ й < 1-8192 > Â й 8192

ð Ô

ARP ă ʌЛъ 8192 Â

ð ʒ Ô

ð Ô

ARP ˘ ɜ ɨ
˘ Л Лъ ʒ ⁸ Â

ð Ô

ЛъЮ ˘ ѝ 500 Â

```
arp unresolved 500
```

ð ʒ Ô

13.2.8 arp gratuitous-send interval

ʒ˘ Л Лъ arp Â ʒ no
Э ╖

arp gratuitous-send interval *seconds*

no arp gratuitous-send

ð Ô

	!‰ Ê я ARP Ą € ? @ @ GP

ЛЬЮ ˘ SVI 1 ARP

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

ð ٪ Ô

13.2.9 arp timeout

ARP ă ARP ˘ Л Ъ ٪ Â
٪ no Л Ъ Â

arp timeout *seconds*

no arp timeout

ð Ô

seconds	˘ Ъ и Æ˘ 0-2147483

ð Ô

и 3600 Â

ð ٪ Ô

ð Ô

ARP Л ╠ IP MAC Â
˘ ARP ă ˘ ARP
≠ ˘ Ъ Â ˘ ŭ ŭ ‡ a
ARP Â

ð Ô

ЛЬЮ ˘ vlan 1 ╠ ARP и 120 Â

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

ð ٪ Ô

٪	
clear arp-cache	ARP ă
show interface	

13.2.10 ip proxy-arp

Э ꝛ ARP ╖ ˘ ʌ Л ъ ip proxy-arp ꝛ Â ꝛ
no ʌ Л ъ ꝛ ARP ╖ Â

ip proxy-arp

no ip proxy-arp

ð Ô

ꝛ ARP Â

ð ꝛ Ô

ð Ô

ꝛ ARP ╖ ʌ Л ъ ╠ ў ˘ è
IP MAC Â ARP ˘

Л ARP ╖ ARP ╖ ˘ й GSN
ǀ ˘ GSN Â

ЛЬЮ Ь ˘ STP ╟ MAC ˘ ≠ ˚
Э Л ˘ Л MAC Л ARP Â

1) STP

2) Л root port ≠ design , Л Л updown ˘ ″I

3) tc ˘

ð Ô

ЛЬЮ ˘ Ю service trustedarp ╖ Â

```
config
service trustedarp
```

ð Л Ô

Â

13.3 ʒ

б ʒ ˙

- ip broadcast-addresss
- ip directed-broadcast

13.3.1 ip broadcast-addresss

Ь ˘ ʒ ip broadcast-addresss Â
ʒ no Л Л Ч Â

ip broadcast-addresss *ip-address*

no ip broadcast-addresss *ip-address*

ð Ô

ip-address	IP

ð Ô

IP й 255.255.255.255 Â

ð ʒ Ô

ð Ô

IP ù ľ 1 Ł˘ ù 255.255.255.255 Â
RGOS ˚ Л Љ Ж è IP ˘ з Л Љ˚
ľ 1 Ł Љ Ж Â

ð Ô

ЉЮ ˘ IP ù 0.0.0.0 Â

```
ip broadcast-address  0.0.0.0
```

ð Л Ô

ع ץ Э a Â

13.3.2 ip directed-broadcast

IP ˘ ع ip directed-broadcast Â ع no Л Â

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

no ip directed-broadcast

ð Ô

access-list-number	^ Л ~ Л˘ ÿ 1-199ˇ 1300 - 2699 Â Ж Л˘ Л Ƀ IP Â

ð Ô

Â

ð ع Ô

ð Ô

IP ù IP IP ˘
ù 172.16.16.255 ù Â
a Â

б IP ˘
Â ł˘
ù ^ IP ù ľ 1 Ł
~ ˘ ł Љ Э ў Â

Л Лъ Э˘ ╠ ╖ ˘
Л Лъ Â ʒ Л
ł ˘ a è Â

Э˘ Л Лъ ЬЖ ⁸ Â ЬЖ
˘ Л ЬЖ
Â

Э no ip directed-broadcast ˘ RGOS
Â

ð Ô

ЛЬЮ ˘ vlan 1 Â

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

ð Л Ô

ʒ ɣ Э a Â

13.4 IP ʒ

б IP ʒ ‘

- clear arp-cache
-

注意：

RNFP(Ruijie Network Foundation Protection,

complete	╟ arp
incomplete	╟ arp

ð ꝛ Ô

ð Ô

ꝛ Л Лъ Лъ

ð Ô

ЛъЮ ѝ 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.713e
arpa   VLAN 1
Internet  192.168.195.64    0          0018.8b7b.9106
arpa   VLAN 1
Internet  192.168.195.63    0          001a.a0b5.3990
arpa   VLAN 1
Internet  192.168.195.62    0          001a.a0b5.0b25
arpa   VLAN 1
Internet  192.168.195.5     --         00d0.f822.33b1
arpa   VLAN 1
```

ARP ă Ъ Ю

Protocol	˘ ѝ Internet Â
Address	б ˚ IP Â
Age (min)	ARP ă ˘ Лъ Â ˘ “-” Â
Hardware	б IP ˚ Â
Type	˚ ˘ Лъ ѝ ARPA Â
Interface	б IP Â

ЛЬЮ show arp 192.168.195.68

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

ЛЬЮ 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
```

ЛЬЮ 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
```

ð ⁄ Ô

Â

13.4.3 show arp counter

ARP arp

show arp counter

ð Ô

ð ৡ Ô

ð Ô

ꔷ ⁄ Л Ъ Л Ъ

ð Ô

ЛЪЮ ѝ show arp counter ꞌ

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

ARP ă Ъ Ж Ю ̓

ð ⁄ Ô

Â

13.4.4 show arp timeout

╟ ARP

show arp timeout

ð Ô

ð ꔷ Ô

ð Ô

ЛЪЮ ѝ show arp timeout ꞌ

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

ARP ă Ъ Ж Ю ̓

ð ⁄ Ô

Â

13.4.5 clear ip route

IP IP ˘ ⁄ Л Ъ

clear ip route ꔷ Â

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

*	
network	
netmask	ˆ Л ˜
vrf *vrf_name*	VRF

ð ৡ Ô

ð Ô

˘ ЛЪ ¯ 9 Â
˘ Â

ð Ô

ЛЬЮ ˘ Л 192.168.12.0 Â

```
clear ip route 192.168.12.0
```

ð ৡ Ô

ৡ	
show ip route	IP

ð Л Ô

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13.4.6 show ip arp

ˆ ARP˜ ă ˘ ৡ Â

show ip arp

ð Ô

ð ৡ Ô

ð Ô

ЛЬЮ ѝ 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 ă Ж Ю

Protocol	˘ ù Internet Â
Address	б ˚ IP Â
Age (min)	ARP ă ˘ Л Â ˘ “-” Â
Hardware	б IP ˚ Â
Type	˚ ˘ Л ù ARPA Â
Interface	б IP Â

ð Л Ô

Â

13.4.7 show ip interface

ʒ Л Л IP Â ʒ Ю

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

ð Ô

Interface-type	
Interface-number	Л

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ð Ô

Л ˘ RGOS … Â
Л RGOS ˚ Л Љ Â ÿ Л
Л ѝ a Л ˘ RGOS ˚ ÿ
Â

Л ˘ Ы ˘
Ľ UP Ł’ Л ˘ Ľ UP Ł Â

a˚ ˘ Л a ˘ ѝ
Â Đû

IP address is:	IP
IP address negotiate is:	IP ʊ̈
Forward direct-boardcast is:	ʊ̈
ICMP mask reply is:	ʊ̈ ICMP
Send ICMP redirect is:	ʊ̈ ICMP
Send ICMP unreachabled is:	ʊ̈ ICMP a ʌ
DHCP relay is:	ʊ̈ DHCP
Fast switch is:	ʊ̈ IP ╖
Route horizontal-split is:	ʊ̈ ˟ ˘ ᵻ
Help address is:	helper IP
Proxy ARP is:	ʊ̈ ʒ ARP
Outgoing access list is	ʊ̈
Inbound access list is	ʊ̈

14 IP

14.1 IP

IP

- ip mask-reply
- ip mtu
- ip redirects
- ip source-route
- ip unreachables

14.1.1 ip mask-reply

RGOS ICMP ICMP ip mask-reply no ICMP

ip mask-reply

no ip mask-reply

ICMP

Э ICMP ICMP

vlan 1 ICMP

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

14.1.2 ip mtu

IP ^ MTU˜ ˘ ҳ ip mtu Â ҳ no Л Љ Â

ip mtu *bytes*

no ip mtu

ð Ô

bytes	IP ˘ Љ ѝ æ˘ 68~1500 Â

ð Ô

б ҳ mtu ˚ Â

ð ҳ Ô

ð Ô

IP IP MTU ˘ RGOS ˚ ¦ Â ˚ Э ˘ ѐ IP MTU Â

ҳ mtu ˘ IP MTU ╟ б MTU Â Л ˘ IP MTU ˘ MTU a Л Â

ð Ô

ЉЮ ˘ vlan 1 IP MTU ѝ 512 Â

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

ð ҳ Ô

ҳ	
mtu	Â

ð Л Ô

ҳ ү Э a Â

14.1.3 ip redirects

RGOS ICMP ip redirects no ICMP

ip redirects

no ip redirects

ð Ô

ð Ô

ð Ô

a ÿ ÿ ÿ ICMP

RGOS ICMP

ð Ô

vlan 1 ICMP

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

ð Ô

14.1.4 ip source-route

RGOS IP ip source-route no

ip source-route

no ip source-route

ð Ô

ð Ô

ð Ô

RGOS IP Â IP ˘ IP ш
à à ˘ RFC 791
Â è ˘
╟ ’ ˘ ICMP
˘ ł Â

RGOS ˚ Ю IP Â

ð Ô

ЛЬЮ ˘ IP Â

```
no ip source-route
```

ð Л Ô

Â

14.1.5 ip unreachables

RGOS ˚ ICMP a Л ˘ ҳ ip unreachables Â ҳ no Л Лъ ICMP a Л Â

ip unreachables

no ip unreachables

ð Ô

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ð ҳ Ô

ð Ô

RGOS ˚ ѝ ˘ a
Э ˘ ICMP a Л Â

RGOS ˚ ˘ a ˘
ICMP ў a Л Â

ҳ ICMP a Л Â

ð Ô

ЛЬЮ ˘ vlan 1 ICMP a Л Â

```
interface vlan 1
no ip unreachables
```

ð Л Ô

₹ γ Э a Â

15 Л

15.1 ҷ

Л ЛЬЮ ҷ˙

15.1.1 ip session timeout

˘ Л Лъ ip session timeout ҷ Â ҷ no Л Лъ Â

ip session timeout {icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-esta blished | 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-esta blished | 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	̀й ICMP й ˘ 10s
icmp-connected	̀й ICMP й ˘ 10s
icmp-started	̀й ICMP й ˘ 10s
rawip-closed	̀й ѐ ip й ˘ 10s
rawip-connected	̀й ѐ ip ̀й ˘ 300s
rawip-established	̀й ѐ ip ̀й ˘ 300s
rawip-started	̀й ѐ ip ̀й ˘ 300s

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

Л	Â

ҳ	Л	
	10.3(4b5)	-

15.1.2 ip session threshold

Ю ˘ Л Лъ ip session threshold ҳ Â ҳ no Л Лъ Ю Â

ip session threshold { icmp-closed | icmp-started | rawip-closed | udp-closed | tcp-closed | tcp-syn-receive | tcp-syn-sent } *threshold-num*

no ip session threshold { icmp-closed | icmp-started | rawip-closed | udp-closed | tcp-closed | tcp-syn-receive | tcp-syn-sent }

	icmp-closed	й ICMP й ˘ 10

1' ЛЬЮ ˘ tcp closed ѝ 100 Â

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

2' ЛЬЮ ˘ tcp closed ѝ Â

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

₹	
-	-

Â

Л	
10.3(4b5)	-
10.3(4b6)	tcp-closed

15.1.3 ip session log

… ŭ Â

ip session log

no ip session log

-	-

… a Â

1' ЛЬЮ ˘ … Â

Ruijie(config)# ip session log

2' ЛЬЮ ˘ … a Â

Ruijie(config)# no ip session log

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-	-

Л Â

Ъ

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10.3(4b5)	Ї
10.3(4b6)	

15.1.5 clear ip fpm counters

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clear ip fpm counters

-	-

Â

Ъ Â

Л Л Э ˇ з Э Л
Â

Л Л show ip fpm counters Ъ Э Л
Â

1˙
```
Ruijie#clear ip fpm counters
```

Ъ

Ъ	
show ip fpm counters-	Л

Л

Л	
10.3(4b5)	-

15.1.6 clear ip fragment-statistic

ŕ Â

clear ip fragment-statistic

-	-

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ŀO clear ip fragment-statistic ŗ ŕ Â

´Ä ŗ ł˘ ip fragment buffer peak value˜ . ă ˇ ˜

show ip fpm counters

-	-

Â

Л Л Э Л

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1

```
Ruijie#show ip fpm counters
Dropped packet counters:
Count     Reason
0         Non-IPv4 packet
0         Bad IPv4 header length
0         Bad IPv4 total length
0         IPv4 fragment with DF bit set
0         Too small IPv4 fragment
0         Bad IPv4 fragment control word
0         Bad IPv4 fragment offset
0         Bad IPv4 fragment offset (too long)
0         Bad IPv4 fragment in FPM context
0         IPv4 fragment timeout
0         IPv4 fragment reasm too long
0         Bad IPv4 checksum
0         Invalid IPv4 address
0         Invalid TCP flags
0         Invalid TCP initial flags
0         Invalid TCP initial ACK number
0         Invalid TCP initial window
0         Invalid TCP sequence
0         Invalid ICMP message type
0         Invalid ICMP initial message type
0         Exceptional connection state
0         ntrol coDencen yn firew(IPv4 )-10prev4 0        Bad yn prev4 t
```

```
0         Out of capability (exceed max ipfrag num per context)
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	

३	
clear ip fpm counters	/1

/1

/1	
10.3(4b5)	-
10.3(4b6)	

15.2.2 show ip fpm flows

Â

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

filter	˘ /1 ɕ
ip_protocol_number	/1
source_ip	IP

source_ip_mask_len	IP
dest_ip	IP
dest_ip_mask_len	IP

Â

Â

ﾉﾊ Э ˘ Â

1'

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

`

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

₹	
-	-

Л

Л	
10.3(4b5)	-
10.3(4b6)	

15.2.3 show ip fpm statistics

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show ip fpm statistics

-	-

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Л Л Э ˘ Л Â

1'

```
Ruijie#show ip fpm statistics
The capacity of the flow table:32000
The session limit number' NA
Number of active flows:0
Event counter' 2
```

'

The capacity of the flow table	Л
The session limit number	. Â NA , è Â
Number of active flows	
Event counter	Л ╟ Y ˚

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	-	-

ʃ

ʒ	ʃ	
	10.3(4b5)	-
	10.3(4b6)	

15.2.4 show ip fragment-buffer

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show ip fragment-buffer

	-	-

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ʒ

Ю show ip fragment-buffer † . ă ↘ Â

```
Ruijie#show ip fragment-buffer
  ip fragment buffer quota :2000
```

ip fragment buffer overflow number	
ip fragment contexts	¦ Э Ю

٦	
clear ip fragment-statistic	¦ Â

/I Â

/I	
10.3(4b5)	-
10.3(4b6)	

16 IP NAT ҃

16.1 ҃

16.1.1 address

NAT ˘ NAT ҃ address Â ҃
no Л Ъ Â

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*]

start-ip	IP Â
end-ip	IP Â
interface *interface*	NAT outside Â Pool Ж ˘ ˘ • Â б ł match interface interface ˘ з ч interface Â ŭ ‡ Л NAT а Â
match interface *interface*	NAT outside Â ā ł˘ NAT Ѫ Л pool б ѣ Â

Ж Â

ip nat pool	IP NAT

```
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat inside source list 1 pool net200
!
access-list 1 permit 192.168.12.0 0.0.0.255
```

¾

¾	
ip nat inside destination	NAT Â
ip nat inside source	NAT Â
ip nat outside source	NAT Â
ip nat pool	HX IP NAT
show ip nat translations	IP NAT Â

Á Â

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-	-

16.1.3 ip nat application

NAT ˘ Á Ê ¾ ip nat application Â ¾ no Á Ê Ñ Â

ip nat application source list *list-num* destination *dest-ip* { dest-change | src-change } *ip-addr*

ip nat application source list *list-num* destination { tcp | udp *dest-ip port-num*} { dest-change *ip-addr port-num* | src-change *ip-addr* }

no ip nat application source list *list-num* destination *dest-ip* { dest-change | src-change } *ip-addr*

no ip nat application source list *list-num* destination { tcp | udp *dest-ip port-num*} { dest-change *ip-addr port-num* | src-change *ip-addr* }

list-num	; ӧ ˚
dest-ip	ӧ ˘ ¨ ӧ ˚ ˘ /ӏ ӧ з ӧ ЊЖ ˘ … NAT Â
tcp *dest-ip port-num*	ӧ Лъ ˘ /ӏ tcp ӧ ЊЖ ˚ з ӧ ЊЖ ˘ … NAT Â
udp *dest-ip port-num*	ӧ Лъ ˘ /ӏ udp ӧ ЊЖ ˚ з ӧ ЊЖ ˘ … NAT Â
dest-change *ip-addr port-num*	˚ Лъ
src-change *ip-addr*	˚

ЊЖ ‡ Â

ҳ Â

NAT ˘ IP Â
/ӏ Лъ ҳ ÂЮ ҳ ¨ Ь(DNS relay) Â
ҳ Э Â

1˙ ЛъЮ 192.168.1.0 ў DNS Ь NAT inside
IP˙ 192.168.1.1˘ NAT ҂ ў DNS
DNS Ь 202.101.98.55˘ DNS ў Â ip nat
application ҳ ҂ ˘ ЊЖ ˙ access-list 1 à
192.168.1.1 à 53 UDP ˘ ‡ IP и
202.101.98.55 à и 53 Â é ҳ Ю˙

```
!
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
!
```

३	
address	HX
ip nat	HX NAT Â
ip nat inside destination	NAT Â
ip nat inside source	NAT Â
ip nat outside source	NAT Â
show ip nat translations	IP NAT Â

/I

/I	
10.3(4b6)	vrf a Ą

16.1.4 ip nat inside destination

NAT ˘ ३ ip nat inside destination Â

३ no NAT Â

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	HX ˘ ˘ pool HX Â ɔ IP ѝ IP 100-199

NAT ˇ ʌ ɅȢ ৡ ip nat inside source Â ৡ no ʌ ɅȢ ʌ ╟ NAT Â

ip nat inside source list *access-list-number* { interface *interface-type interface-number* | pool *pool-name* } [overload]

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

ip nat inside source static *local-ip global-ip* [match][permit-inside] [netmask *mask*]

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

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]

list access-list-number	Â ʌ ƀ ˘ … NAT Â

werface

३ Â

IP й ˘ б ˘ NAT˘
IP IP Â

ĭ æ˘ й Э ˘ à
˚ àЮ ˚ ˘ a ┗˘ Л Лъ outside IP
˘ Лъ NAPT Â a NAT˘ ↑
Э б ˘ a ˘ й
Â

┗ ў ˘ NAT NAPT Â ┗ Л ˘
a outside NAPT˘ й й б ISP ˘ Л
Л Â Ю˘ ў ┗˘ Л IP Л
Лъ Â ┗˘ Лъ IP ┗ Â
NAT NAPT ˘ ╗ permit-inside Â ≠
inside Э Э no ip redirects˘ inside Â

ʌ

ҳ

ʌ	
10.3(4b6)	vrf a Ą

16.1.6 ip nat outside source

NAT ʌ Ћ ҳ ip nat outside source Â ҳ no ʌ Ћ ʌ NAT Â

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

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

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

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

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

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

list access-list-number	Â ʌ ѣ ˘ … NAT Â
pool pool-name	NAT Â
static global-ip local-ip	Ћ NAT Â local-ip ѝ ˘ global-ip ѝ Â
static protocol	Ћ NAT protocol ʌ Ћ ѝ TCP UDP Â
local-port	Ь ʌ Â TCP UDP ʌ˘ Ь Ь Â ʌ ʌ Ћ б global-port а Â
global-port	Ь ʌ Â

NAT Â

ҳ Â

NAT ў Â ч ǂ ˚ IP ˘ Ω ǂ ˚ IP ˘ ѝ Â ч ў а ʌ ˘ ѝ ѝ ў Â NAT ж ˘ NAT˘ ў ѝ ѕ ў ˘ ʌ Â NAT ˘ ѐ ǂ ѝ ч ǂ ˈ 1˜ NAT ˈ 2˜

NAT ˘ Л б ˘
Л Лъ NAT ╟ NAT Â

ǀ ЎĄ IP ˘ б ˘
Â ¨ ў ˘ DNS
NAT Â

1ˈ ЛъЮ ˘ 92.168.12.0/24 б Â ł˘
ў Л Лъ 192.168.12.0/24 92.168.12.0/24 ў Â

```
interface vlan 2
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
```

ÿ inside outside ˘ ˝I ᾱ ŭ NAT˘
Â

३	
ip nat	ЬЖ NAT Â
ip nat inside destination	NAT Â
ip nat inside source	NAT Â
ip nat pool	ЬЖ IP NAT
show ip nat translations	IP NAT Â

Л

Л	
10.3(4b6)	vrf a ЎĄ

16.1.7 ip nat pool

НЖ NAT ˘ Л Лъ ҳ ip nat pool Â ҳ no Л Лъ Â

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

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

no ip nat pool *pool-name*

pool-name	NAT ¨ Â
start-ip	NAT IP Â
end-ip	NAT IP Â
netmask *netmask*	NAT Â
Prefix-length *prefix-length*	NAT Â
Type	NAT Â rotary ѝ ˘ ¦ Â rotary Â Лъ rotary б cisco ҳ Â

НЖ Â

ҳ Â

НЖ ˘ ‡ ˝I… ˘ ѣ НЖ Â

1˙ ЛъЮ ˘ … ¨ ѝ net192 ˘ ѝ 192.168.12.1˘ ѝ 192.168.12.254˘ ѝ 24 æ Â

```
ip nat pool net192 192.168.12.1 200.168.12.254 prefix-length 24
```

ҳ	
address	НЖ
ip nat	НЖ NAT Â
ip nat inside destination	NAT Â
ip nat inside source	NAT Â
ip nat outside source	NAT Â

	show ip nat translations	IP NAT Â

ʌ		

¾	ʌ	
	10.3(4b6)	vrf a Ą

16.1.8 ip nat translation

NAT ALG ╗ ˘ ¾ ip nat translation Â ¾ no ʌ Л Â ALG Â

ip nat translation { dns | ftp | pptp | tftp }

no ip nat translation { dns | ftp | pptp | tftp }

	dns	DNS ALG
	ftp	ftp ALG
	pptp	pptp ALG
	tftp	tftp ALG

> è Ю Æ ALG Â ú Ю ă Ţ Ţ

	10.3(4t90)	३

16.2 ৡ

16.2.1 show ip nat translations

NAT ˘ show ip nat translations ৡ Â

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

icmp	ʌ icmp nat Â
tcp	ʌ tcp nat Â
udp	ʌ udp nat Â
acl_num	acl ʌ , ʌ acl
verbose	NAT Â

ৡ Â

ৡ ʌ ЛЬ IP NAT ˘ ˘ ʌ à ʌ à ʌ à ʌ Â verbose ʌ ЛЬ ˘ timeout ˘ à Â

1 ЛЬЮ и show ip nat translations verbose ৡ Â

```
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
```

ЬЖ Ю

Pro	Â “udp” и UDP ’ “tcp” и TCP Â“icmp” и ICMP Â
Inside global	ʌ Â
Inside local	ʌ Â

Outside local	ㅅ Â
Outside global	ㅅ Â
timeout	NAT ˘ Æ Â
vrf	vrf

३ Q ,

17 é ¢

17.1 ¢

17.1.1 ping

¢ ˘ Л Ъ ╠ à Æ
Â ¢ Ю

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

ð Ô

vrf-name	VRF¨
ip-address	IPv4 Â
length	
times	
timeout	
data	Ί
source	IPv4

ð Ô

ˆ ù 2 ˜ ˘ 5 ù 100Byte
IP Â

ð ¢ Ô

ð Ô

Ping ¢ Ю Ю
Л ping ╖ ˘ Ю ‡ Л Ъ ping
╖ Â ping ╖ ˘ Л Ъ Ю
˘ ˆ ù 2 ˜ ˘ 5 ù 100Byte
IP ˘ ˘ ‡ ļ ! Ľ˘ ˘
‡ ļ . Ľ˘ ł Â ping ╖ ˘ Л
Ю ˘ ping ˘ Л Ъ à ˘

ˇ ping ╖ ˇ ɨ ≠ Â
˝ ╖ ˇ ‡ ″I ˝ ┕ ˇ é DNS
ǀ ÂVRF ╖ ʌ RSR Э Â

ð Ô

ping ʻ

```
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 ʻ

```
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
```

ð ʌ Ô

ɂ Э Â

17.1.2 Traceroute

traceroute ɂˇ ʌ Л Ъ

number	
source-address	IPV4
seconds	
minimum maximum	TTL

ð ę Ô

ð Ô

traceroute ę ў ˘ ˘
Æ Æ Â ¨ ╖ ˘ ‡ ˮI ¨ Ь ˘ é
DNS ┆ Â VRF ╖ Л RSR Э Â

ð Ô

ЛЬЮ й traceroute ч ˘ й ˘ й
a Â

1 à traceroute ‘

```
Ruijie# traceroute 61.154.22.36
< press Ctrl+C to break >
Tracing the route to 61.154.22.36

1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2     4 msec  4 msec 4 msec
3     192.168.9.1     8 msec  8 msec  4 msec
4     192.168.0.10    4 msec  28 msec  12 msec
5     202.101.143.130    4 msec  16 msec  8 msec
6     202.101.143.154   12 msec  8 msec  24 msec
7     61.154.22.36    12 msec  8 msec  22 msec
Ruijie#
```

ÿ Э ˘ Л Лъ ˘ ÿ IP й 61.154.22.36
ў ˘ ^ 1˙ 6˜ ˘ ˚
˘ ┆ ˘ Â

2 à a traceroute ‘

```
Ruijie# traceroute 202.108.37.42
< press Ctrl+C to break >
Tracing the route to 202.108.37.42

1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2       0 msec  4 msec 4 msec
3     192.168.110.1    16 msec  12 msec  16 msec
```

έ ३

¢ Э Â è VRF ¶ Л RSR Э Â

17.1.3 Line-detect

line-detect ¢ Л Ъ Â

line-detect

ð Ô

ð ¢ Ô

ð Ô

line-detect ¢ ў ˘ ^ ~
˘ Æ Æ Â

ð Ô

```
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 ˘ Л Â

State ˘ Ь OK ~ ˘ Short ~ ˘ Open ~ Â

Ю ”I Л A à B ч й OK C à D ч й Short Â ”I Л A à B à C à D й OK Â

Length: ˘ æ й Â Л state й OK Â Л ˘ Л ˘ Ль Л Â й Short Open length Â

18 DHCP ¾

18.1 DHCP ¾

18.1.1 bootfile

HK DHCP ╟ ˚ ¨ ˘ DHCP ¾
bootfile Â ¾ no Л Ъ Н HK Â

bootfile *file-name*

no bootfile

ð Ô

file-name	HK ╟ ˚ ¨ Â

ð Ô

HK ╟ ˚ ¨ Â

ð ¾ Ô

DHCP

ð Ô

DHCP ╟ Ю à ˚ ˘ DHCP
Ł ╟ ˚ ¨ ˘ DHCP Л Ъ
Ł ^ TFTP˜ Ю ˚ Â è Ł next-server ¾
HK Â

ð Ô

ЛЪЮ ˘ HK router.conf и ╟ ˚ ¨ Â

```
bootfile router.conf
```

ð ¾ Ô

¾	
ip dhcp pool	HK DHCP ¨ ˘ DHCP Â

next-server	DHCP ╟ Ю ┗ IP Â

18.1.2 client-identifier

Ня DHCP ^ Л Ω 8 ~ DHCP
঳ client-identifier Â ঳ no Л Л
Â

client-identifier *unique-identifier*

no client-identifier

ð Ô

client-identifier
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.65
74.302f.31

ð ٪ Ô

٪	
hardware-address	ЬЖ DHCP ˚ Â
host	ЬЖ IP Â DHCP Â
ip dhcp pool	ЬЖ DHCP ¨ ˘ DHCP Â

18.1.3 client-name

ЬЖ DHCP ¨ ˘ DHCP ٪ client-name Â
٪ no DHCP ¨ Â

client-name *client-name*

no client-name

ð Ô

client-name	ЬЖ DHCP ¨ Â Л Љ ASCII Â¨ a ł ¨ ˘ ЬЖ river ѝ DHCP ¨ ˘ a ЬЖ ѝ river.i-net.com.cn Â

ð Ô

ЬЖ ¨ Â

ð ٪ Ô

DHCP

ð Ô

Л DHCP ЬЖ ˘ Л Љ ٪ ЬЖ DHCP
¨ Â ¨ a ł ¨ Â

ð Ô

ЉЮ ˘ ЬЖ river ѝ ¨ Â

client-name river

ð ¾Ô

¾	
host	ЊЖ IP Â DHCP Â
ip dhcp pool	ЊЖ DHCP ¨ ˘ DHCP Â

18.1.4 default-router

ЊЖ DHCP ˘ DHCP ¾
default-router Â ¾ no Л Љ ЊЖ Â

default-router *ip-address* [*ip-address2…ip-address8*]

no default-router

ð Ô

ip-address	ЊЖ IP Â Â
ip-address2…ip-address8	ˆ Л ˜ Л Љ 8 Â

ð Ô

ЊЖ Â

ð ¾ Ô

DHCP

ð Ô

ЮЎ DHCP ÿ DHCP Ь Â
DHCP Ь ѝ IP ˘ б¦
˚ Â

ð Ô

ЉЮ ˘ ЊЖ 192.168.12.1 ѝ Â

```
default-router 192.168.12.1
```

ð ¾Ô

¾	

ip dhcp pool	ЊЖ DHCP ¨ ˘ DHCP Â

18.1.5 dns-server

ЊЖ DHCP DNS Ł ˘ DHCP ¾
dns-server Â ¾ no Л Љ DNS Ł ЊЖ Â

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

ð Ô

ip-address	ЊЖ DNS Ł IP Â Â
ip-address2…ip-address8	ˆ Л ˜ Л Љ 8 DNS Ł Â
use-dhcp-client *interface-type* *interface-number*	RGOS ˚ DHCP DNS Ł ˘ ù DHCP DNS Ł Â

ð Ô

ЊЖ DNS Ł Â

ð ¾ Ô

DHCP

ð Ô

ЊЖ DNS Ł ˘ ”I ˘ DHCP Л б
DNS Ł ˘ Ю DNS Ł Â

RGOS ˚ ˚ ≠ DHCP ˘ Л Љ DNS
Ł ˘ DHCP Â

ð Ô

ЉЮ ˘ ù DHCP DNS Ł 192.168.12.3 Â

```
dns-server 192.168.12.3
```

ð ¾ Ô

dns-server	

18.1.7 hardware-address

HÆ DHCP ° ˘ DHCP ¾
hardware-address Â ¾ no /ЛЬ ° HÆÂ

hardware-address *hardware-address type*

no hardware-address

ð Ô

hardware-address	HÆ DHCP MAC Â
type	DHCP ° / ˘ /ЛЬ HÆÂ ✧ ethernet ✧ ieee802 ✧ 1ˆ 10M ethernet˜ ✧ 6ˆ IEEE 802˜

ð Ô

° Â

HÆ ° ˘ ù ethernetÂ

ð ¾ Ô

DHCP

ð Ô

/ DHCP HÆ ˘ /ЛЬ ¾Â

ð Ô

ЛЬЮ ˘ HÆ ù ethernet MAC 00d0.f838.bf3dÂ

```
hardware-address 00d0.f838.bf3d
```

ð ¾Ô

host	ÐÞ IP Â DHCP Â
ip dhcp pool	ÐÞ DHCP ¨ ˘ DHCP Â

18.1.8 host

ÐÞ DHCP ÿ IP ˘ DHCP
¾ host Â ¾ no Ñ Ъ DHCP IP
ÐÞ Â

host *ip-address* [*netmask*]
no host DHCP

client-identifier	ⅈ DHCP ˆ ⅄ Ω ⁸ ˜ Â
hardware-address	ⅈ DHCP ˚ Â
ip dhcp pool	ⅈ DHCP ˝ ˘ DHCP Â

18.1.9 ip address dhcp

⅄ PPP ȁHDLC ȁFR DHCP IP ˘ ৡ ip address dhcp Â ৡ no ⁄ ⅄ ⁀ Â

ip address dhcp

no ip address dhcp

ð Ô

a DHCP IP Â

ð ৡ Ô

ð Ô

RGOS ˚ DHCP ˘ IP ˘ DHCP Ł ‘ 1˜ DHCP 1˜ ’ 2˜ DHCP 3˜ ˚ Э ’ 3˜ DHCP 6˜ DNS Ł ’ 4˜ DHCP 15˜ ў ł ˝ ’ DHCP 44˜ WINS Ł Â

RGOS ˚ PPP ȁ FR ȁ HDLC Э dhcp ˘ Ł ˘ Ł ℸ

ð Ô

⅄Ю ˘ GigabitEthernet 0 ˝

18.1.10 ip dhcp excluded-address

Ы IP ˘ DHCP ┺ a è¦ DHCP ˘
¾ ip dhcp excluded-address Â ¾ no Л Љ Н
Ы Â

ip dhcp excluded-address *low-ip-address* [*high-ip-address*]

no ip dhcp excluded-address *low-ip-address* [*high-ip-address*]

ð Ô

low-ip-address	IP ˘ IP IP Â
high-ip-address	IP Â

ð Ô

DHCP ┺ ¦ IP Â

ð ¾ Ô

ð Ô

IP ˘ DHCP ┺ ¦ DHCP
IP Â ¾ Л Љ й ў IP ˘
¦ DHCP Â Ы IP ˘ ≠ Л Љ DHCP
┺ ¦ ă Â

ð Ô

ЉЮ ˘ DHCP ┺ a ¦ 192.168.12.100~150
IP Â

```
ip dhcp excluded-address 192.168.12.100 192.168.12.150
```

ð ¾ Ô

¾	
ip dhcp pool	Ы DHCP ¨ ˘ DHCP Â
network^ DHCP~	Ы DHCP Л Â

18.1.11 ip dhcp ping packet

DHCP ┗ ă ˘ ping ˘
ৡ ip dhcp ping packet Â ৡ no Â

ip dhcp ping packet [*number*]

no ip dhcp ping packet

ð Ô

number	ˆ Л ˜ ÿ 0 10ˇ 0 ping Â ping ч Â

ð Ô

ping й 2Â

ð ৡ Ô

ð Ô

DHCP ┗ ÿ DHCP ĺ IP ˘ ping
ŭ è ў . ˘ . Ю ˘ .
ĺ DHCP ÂPing й ч ˘ Л Љ
10 Â

ð Ô

ЉЮ ˘ ping й 3 Â

```
ip dhcp ping packets 3
```

ð ৡ Ô

ৡ	
clear ip dhcp conflict	DHCP ă Â
ip dhcp ping timeout	DHCP ┗ ping Â ping ˘ Лĺ ’ ŭ ‡ ă Â
show ip dhcp conflict	DHCP ┗ ĺ ˘ ă Â

18.1.12 ip dhcp ping timeout

DHCP ৮ ping ă ˘ ˘
ৡ ip dhcp ping timeout Â ৡ no ʌ ɅЪ
Â

ip dhcp ping timeout *milli-seconds*

no ip dhcp ping timeout

ð Ô

Ы DHCP ¨ DHCP ˘
¾ ip dhcp pool Â ¾ no Л Љ DHCP Â

ip dhcp pool *pool-name*

no ip dhcp pool *pool-name*

ð Ô

pool-name	Л Љ Â mypool 1 Â

ð Ô

Ы DHCP Â

ð ¾ Ô

ð Ô

¾˘ DHCP ˘ и

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

˘ Л Љ IP ä DNS Ь ä
Â

ð Ô

ЉЮ ˘ Ы ¨ и mypool0 DHCP Â

```
ip dhcp pool mypool0
```

ð ¾ Ô

¾	
host	Ы IP Â DHCP Â
ip dhcp excluded-address	Ы DHCP Ь a ¦ IP Â

ЊЖ DHCP ┗ ┆ ˘ DHCP
ৡ lease Â ৡ no Â

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

no lease

ð Ô

days	ЊЖ ˘ Л৳ ѝ æ Â
hours	ˆ Л ~ ЊЖ ˘ Л৳ ѝ æ Â ЊЖ ЊЖ Â
minutes	ˆ Л ~ ЊЖ ˘ Л৳┆ ѝ æ Â ЊЖ┆ ЊЖ Â
infinite	ЊЖ ⁸ Â

DHCP NETBIOS WINS¨ ¦ ˘ DHCP ¢ netbios-name-server Â ¢ no /Ì Ì WINS ¦ Â

netbios-name-server *ip-address* [*ip-address2…ip-address8*]

no netbios-name-server

ð Ô

ip-address	ÐÆ WINS ¦ IP Â Â
ip-address2…ip-address8	ˆ / ~ /Ì Ì 8 WINS ¦ Â

ð Ô

ÐÆ WINS ¦ Â

ð ¢ Ô

DHCP

ð Ô

ÐÆ WINS WINS

WIN[PP/C2_0 1 Tf0 Tc 13.2 0 T6d[<1

netbios-node-type *type*

no netbios-node-type

ð Ô

type	Ƙ NetBIOS ˘ ч Â Ƙ˘ ÿ 0~FF˘ Ѽ ⁸ ˘ Ѝ Ѝ ЛЪЮ ʻ ✧ 1˘ ֽ b-node˙ ✧ 2˘ ֽ p-node˙ ✧ 4˘ ֽ m-node˙ ✧ 8˘ ֽ h-node Â Ƙ˙ ✧ b-node˘ ˙ ✧ p-node˘ ˙ ✧ m-node˘ ˙ ✧ h-node˘ Â

ð Ô

Ƙ NetBIOS Â

ð ֽ Ô

DHCP

ð Ô

DHCP NetBIOS ʻ 1˜ Broadcast˘
˘ NetBIOS¨ ˙ 2˜ Peer-to-peer˘
˘ WINS Ł NetBIOS¨ ˙ 3˜ Mixed˘
˘ ″I ¨ ˘ ł б WINS Ł
¨ ˙ 4˜ Hybrid˘ ˘ ″I WINS Ł
NetBIOS¨ ˘ ˘ NetBIOS
¨ Â

Ю˘ ѝ Â
WINS Ł ˘ ѝ ˙ WINS Ł ˘ ѝ
Â NetBIOS ѝ Hybrid Â

ð Ô

ЛЪЮ ˘ DHCP NetBIOS ѝ Â

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

ð ֽ Ô

٪	
ip dhcp pool	ЬЖ DHCP ¨ ˘ DHCP Â
netbios-name-server	DHCP NETBIOS WINS¨ Ь

18.1.17 network^ DHCP~

ЬЖ DHCP Л ˘ DHCP ٪ network Â ٪ no Л Лъ ЬЖ Â

network *net-number net-mask*

no network

ð Ô

net-number	DHCP IP Л Â
net-mask	DHCP IP Â ЬЖ ˘ ѝ Â

ð Ô

ЬЖ Л Â

ð ٪ Ô

DHCP

ð Ô

ЬЖ è ˘ ѝ DHCP Ь Л† Â ˘ ŭ ‡ Л † Â DHCP † ˘ ˘ DHCP ˘ Ю ˘ † Â

† Л show ip dhcp binding ٪ ˘ ă Л show ip dhcp conflict ٪ Â

ð Ô

ЛъЮ ˘ ЬЖ DHCP Л ѝ 192.168.12.0˝ ѝ 255.255.255.240 Â

```
network 192.168.12.0 255.255.255.240
```

ð ¾ Ô

¾	
ip dhcp excluded-address	ÐÆ DHCP Ì a ¸ IP Â
ip dhcp pool	ÐÆ DHCP ¨ ˘ DHCP Â

18.1.18 next-server

ÐÆ DHCP ╟ ╟ Ì ˘ DHCP ¾ next-server Â ¾ no Л Ц ╟ Ì ÐÆ Â

next-server *ip-address* [*ip-address2…ip-address8*]

no next-server

ð Ô

ৡ	
bootfile	⊮ DHCP ╟ ˚ ¨
ip dhcp pool	⊮ DHCP ¨ ˘ DHCP Â
ip help-address	⊮ Helper
option	RGOS ˚ DHCP ⊨ Â

18.1.19 option

DHCP ⊨ ˘ DHCP ৡ option Â ৡ no ∧ Л option ⊮ Â

option *code* { ascii *string* | hex *string* | ip *ip-address* }

no option

ð Ô

code	⊮ DHCP ৡ Â
ascii *string*	⊮ ASCII Â
hex *string*	⊮ Ω ⁸ Â
ip *ip-address*	⊮ IP Â

ð Ô

Â

ð ৡ Ô

ð Ô

DHCP ⁸˘ TCP/IP ў Â
DHCP ж option ˘ ↑ й ∧ ∧ ˘ ∧ Л
⊮˝ DHCP 312 option
DHCP Â↵ DHCP ≠ й Â
DHCP option ⊮˝ RFC 2131 Â

ð Ô

ЛЬЮ ˘ ꝛ 19 ЬЖ˜ ᾱ DHCP
ў IP Â0 IP ’ 1 IP ÂЛЬ
Ю ˘ DHCP IP Â

```
option 19 hex 1
```

ЛЬЮ ˘ ꝛ 33 ЬЖ˜ DHCP
˘ DHCP ч ‘ 1˜
172.16.12.0˜ 192.168.12.12’ 2˜ 172.16.16.0˜
192.168.12.16Â

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

ð ꝛ Ô

ꝛ	
ip dhcp pool	ЬЖ DHCP ¨ ˘ DHCP Â

18.1.20 service dhcp

Э DHCP Ł ꝛ ˘ ꝛ service
dhcpÂ ꝛ no Л Лъ DHCP Ł ꝛ Â

service dhcp

no service dhcp

ð Ô

ð Ô

DHCP Ł ꝛ Â

ð ꝛ Ô

ð Ô

DHCP Ł Л Лъ ╠ ˀ IP ˘ DNS Ł à
ÂDHCP Л Лъ DHCP è
Ł ˘ DHCP < Л

show ip dhcp binding DHCP Â

clear ip dhcp server statistics

ð Ô

ù Â

ð ٪ Ô

ð Ô

DHCP ٰ ˘ DHCP à ╟ à
˘ DHCP Âclear
ip dhcp server statistics ٪ Л Ъ ˘ ÿ Â

ð Ô

ЛЪЮ ˘ DHCP ٰ Â

```
clear ip dhcp server statistics
```

ð ٪ Ô

٪	
show ip dhcp server statistics	DHCP ٰ Â

18.2.4 debug ip dhcp client

DHCP Client ˘ debug ip dhcp client
٪ Â

debug ip dhcp client

no debug ip dhcp client

ð Ô

ð Ô

ð ٪ Ô

ð Ô

٪ dhcp client ٰ ў ˘ Л Ъ
Â

ð Ô

ЛЬЮ ˘ Э dhcp Â

ù Â

ð ع Ô

ð Ô

ЊЖ IP ˘ Â ЊЖ IP ˘
Л IP Â

ð Ô

ЛЬЮ ù show dhcp lease Â

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

18.2.7 show ip dhcp binding

DHCP ˘ EXEC ع show ip dhcp binding Â

show ip dhcp binding [*ip-address*]

ð Ô

ð Ô

ЛЬЮ ù show ip dhcp binding Â

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

ЬЖ ЮÂ

ð Ô

ЛЬЮ ù show ip dhcp conflict ˢ Â

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

dhcpd excluded ipaddress
192.168.12.100
```

ЬЖ Ю Â

IP address	a Л† DHCP IP Â
Detection Method	ă Â
dhcpd excluded ipaddress	Â

ð ˢ Ô

ˢ	
clear ip dhcp confict	DHCP ă

18.2.9 show ip dhcp server statistics

DHCP Ł ˘ EXEC ˢ show ip dhcp server statistics Â

show ip dhcp server statistics

ð Ô

ð Ô

ù Â

ð ˢ Ô

ð Ô

ˢ Л Лъ DHCP Ł Â

ð Ô

ЛЬЮ ѝ show ip dhcp server statistics ҃ Â

```
Ruijie# show ip dhcp server statistics
Address pools           4
Automatic bindings       4
Manual bindings          0
Expired bindings         0
Malformed messages 2

Message                 Received
BOOTREQUEST              216
DHCPDISCOVER             33
DHCPREQUEST              25
DHCPDECLINE              0
DHCPRELEASE              1
DHCPINFORM               150

Message                 Sent
BOOTREPLY                16
DHCPOFFER                9
DHCPACK                  7
DHCPNAK                  0
```

НЖ ЮÂ

Address pools	
Automatic bindings	╟ Â
Manual bindings	Â
Expired bindings	Â
Malformed messages	DHCP ∧ a Â
Message Received or Sent	DHCP ╘ Â

ð ß

19 DNS ৡ

19.1 ৡ

19.1.1 ip domain-lookup

╟ DNS ¨ Â ৡ no ‡ DNS ¨ ╖ Â

ip domain-lookup

no ip domain-lookup

ð Ô

ѝ DNS ¨ ╖ Â

ð ৡ Ô

ð Ô

ৡ ѝ DNS ¨ ╖ ˘ ৡˇ ‡ ╟ DNS ¨ Â

ð Ô

Ю DNS ¨ ╖ ‘

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

ð ৡ Ô

ৡ	
show hosts	DNS Â

ð Ô

ৡ RGNOS10.1 Э Â

19.1.2 ip name-server

ৡ ¨ Ł IP Â /ʌ ¨ Ł ╟ ¨ Â ৡ no ¨ Ł Â

ip name-server *ip-address*

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

ð Ô

ip-address	¨ Ł IP

ð Ô

¨ Ł

ð ৡ Ô

ð Ô

╗ DNS Server IP Â ৡˇ ╗ DNS Server Â ÿ Server ∧ ¨ ˇ ł Server DNS ˇ и Â

6 Ł Â DNS Server ˇ ip-address ˇ ‡ ∧ Ł ˇ ŭ ‡ DNS Ł Â

ð Ô

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

ð ৡ Ô

ৡ	
show hosts	DNS Â

ð Ô

ৡ RGNOS10.1 Э Â

19.1.3 ip host

ৡ ў ¨ IP Â ৡ no ў Â

ip host *host-name ip-address*

no ip host *host-name ip-address*

ð Ô

host-name	ў ¨
ip-address	IP

ð ৡ Ô

ð Ô

ў ˇ Л Ъ no ip host host-name ip-address ৡ

ð Ô

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

ð ৡ Ô

ৡ	
show hosts	DNS Â

ð Ô

ৡ RGNOS10.1 Э Â

ЛЬЮ ˘ ў ¨ -IP ă ╟ ¯ Â

clear host *

ð ৡ Ô

ৡ	
show hosts	ў ¨ ă

ð Ô

ৡ RGNOS10.1 Э Â

19.1.5 show hosts

DNS Â

show hosts

ð ৡ Ô

ð Ô

DNS Â

ð Ô

```
Ruijie# show hosts
Name servers are:
static
host           type        address
switch         static      192.168.5.243
www.ruijie.com   dynamic     192.168.5.123
```

ð ৡ Ô

ৡ	
ip host	ў ¨ IP
ip name-server	DNS ┺

ð Ô

ৡ RGNOS10.1 Э Â

20 NTP ३

20.1 NTP ३

20.1.1 no ntp

ntp ˇ ᴸˇ б ᴸ ˇ ˇ ntp Â

no ntp

ð Ô

Â

ð Ô

Ю NTP ᴸ Â

ð ३ Ô

Â

ð Ô

ЮЎ NTP ╖ ˇ ∧ NTP ᴸ NTP
⁸ˇ NTP ╖ Â

ð Ô

ЛЬЮ ˇ NTP ᴸ Â

no ntp

ð ३ Ô

३	
ntp server	NTP ᴸ

20.1.2 ntp access-group

NTP ᴸ ⁸ ˇ ३ no ∧ ⁸
Â

ntp access-group {peer|serve|serve-onl

access-list-number| *access-list-name*

ð Ô

peer	NTP Ł 8 ˘ ≠ б ˚ ^ ~ Â
serve	NTP Ł 8 ˘ a б ˚ Â
serve-only	NTP Ł Â
query-only	NTP Ł 8 Â
access-list-number	IP 8 ﾊ’ й 1˙ 99 1300˙ 1999
access-list-name	IP 8 ¨ Â

ð Ô

Ю NTP 8 ‡ Â

ð ৡ Ô

Â

ð Ô

NTP Ł 8 Â
˘ NTP 8 Â

˘ NTP Ł ÿ 8 8
ƀ ‡˘ Лъ ƀ ‡ й Â ƀ й peer à
serve à serve-only à query-only Â

注意:

8 ℼ Â Э ‡ ƀ ˘
б 8 Â

8 ‡˘ ‡ Â
8 ‡˘ ‡ ‡ Â

ð Ô

ЛЬЮ 1 л
à ¸ ¸ ¸ 2 л
Â

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

ð ¾ Ô

¾	
ip access-list	… IP ¸ Â

20.1.3 ntp authenticate

NTP Ł NTP ¸ Â

ntp authenticate

no ntp authenticate

ð Ô

Â Ł 7.549 g 175.32 614.11 T2_0 iSD•qÿTã , m ´ Ä NTP1FF5j4E3
´ Ä

३	
ntp authentication-key	
ntp trusted-key	Â

20.1.4 ntp authentication-key

ỳ NTP Ł NTP Â

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

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

ð Ô

key-id	ID’
key-string	’
enc-type	ˆ Л ˜ ў ╗ ˇ 0 ╗ ˇ 7 ╗ ’

ð Ô

Â

ð ३ Ô

Â

ð Ô

ˇ md5 ╗ ˇ key-id ˇ Л Љ ntp trusted-key key-id ỳ Â

Э ỳ 1024 ˇ Ł

ð Ô

ЉЮ ID ỳ 6

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

ð ३ Ô

३	
ntp authenticate	8

ntp trusted-key	
ntp server	NTP Ŀ

20.1.5 ntp disable

NTP ╖ Â

ntp disable

ð Ô

Â

ð Ô

Ю Л Љ Н NTP Â

ð ৡ Ô

Â

ð Ô

Ю Э Н NTP Л Љ
˘ ╖ ˘ Л Љ Э NTP Â

注意:

IP ˘ è

Э ৡ Â

ð Ô

ЉЮ ˘ NTP Â

```
no ntp
```

ð ৡ Ô

Â

20.1.6 ntp master

й NTP ў ^ Л ~ ˘ й è
˘ Â ৡ no й Н NTP ў Â

ntp master *[stratum]*
no ntp master

ð Ô

no ntp server *ip-addr*

ð Ô

ip-addr	NTP Ł IP ˘ IPv4 IPv6’
version	ˆ /1 ˜ NTP ˆ 1-3˜˘ NTPv3 ,
if-name	ˆ /1 ˜ NTP ˆ Ь ˜’
keyid	ˆ /1 ˜ б Ł ╗
prefer	ˆ /1 ˜ Ł й Prefer Ł

ð Ô Ă " Ê ںÒ Ł

20.1.8 ntp synchronize

NTP ˚

ntp synchronize

no ntp synchronize

ð Ô

Â

ð Ô

Â

ð ֳ Ô

Â

ð Ô

NTP б Ł ˚ ѝ 8 ˘ ѣ ѝ ˚ ˘ ╟˚ ˘ ¯ ˚ ˘ ‡ Л Љ

ֳ

ð Ô

ЉЮ ˘ NTP ˚ Â

```
Ntp synchronize
```

ð ֳ Ô

ֳ	
ntp server	NTP Ł ˚

20.1.9 ntp trusted-key

ID ѝ

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

ð Ô

key-id	ID Â

ð Ô

Ю Â

ð ֽ Ô

Â

ð Ô

NTP ˇ ˘ ˘ ID ˘
a ˘ Лъ ,

ð Ô

ЛъЮ ˘ ѝ Ь Â

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

ð ֽ Ô

ֽ	
ntp authenticate	⁸ Â
ntp authentication-key	NTP Â
ntp server	NTP Ь Â

20.1.10 ntp update-calendar

NTP ÿ ˘
˙ Â ֽ no ˄ ˙ ╖ Â

ntp update-calendar
no ntp update-calendar

ð Ô

ð Ô

˙ ╖ Â

ð ֽ Ô

Â

ð Ô

NTP

Â

Ю Â

Ю NTP Â NTP

б Â

ð Ô

ЛЬЮ NTP

```
Ruijie(config)# ntp update-calendar
```

ð Ô

20.2 б

20.2.1 debug ntp

NTP Â

debug ntp

no debug ntp

ð Ô

Â

ð Ô

Â

ð Ô

Â

ð Ô

NTP Â

ð Ô

ЛЬЮ NTP Â

```
debug ntp
```

ð Ô

Â

20.2.2 show ntp status

NTP Â

show ntp status

ð Ô

Â

ð Ô

ѝ Â

ð ৡ Ô

ð Ô

NTP ㄴ ˘ ㅒ ╖ 9

21 SNTP ৡ

21.1 ৡ

21.1.1 sntp enable

ৡ SNTP ╖ ˘ ৡ no ѝ
—Disable Â

[no] sntp enable

ð Ô

ð Ô

SNTP Disable

ð ৡ Ô

ð Ô

show sntp ৡ SNTP

ð Ô

```
RedGiant(config)# sntp enable
```

ð ৡ Ô

ৡ	
show sntp	SNTP
clock update-calendar	˚ ˚ ˚
clock set	˚

ð ⁄ Ô

˚ RGOS10.0 Љ Э

21.1.2 sntp server

ৡ SNTP Server˘ SNTP NTP ˘ Љ

Server /Л internet Э Ω NTP Server Â

sntp server ip-addr

no sntp server

ð Ô

ip-addr ' NTP/SNTP Ł IP

ð Ô

NTP/SNTP Ł

ð ¾ Ô

ð Ô

show sntp ¾ SNTP

ð Ô

```
RedGiant(config)# sntp server 192.168.4.12
```

ð ¾ Ô

¾	
show sntp	SNTP
sntp enable	SNTP

ð / Ô

˚ RGOS10.0 Л Э

21.1.3 sntp interval

¾ SNTP Client NTP/SNTP Server˘ Â

sntp interval *seconds*

no sntp interval

ð Ô

seconds ' ˘ ˘ æ й ľ Ł й 60 --65535 Â

ð Ô

й 1800s

ð ৡ Ô

ð Ô

show sntp ৡ SNTP Â

ð Ô

```
RedGiant(config)# sntp interval 3600
```

ð ৡ Ô

ৡ	
sntp enable	SNTP
show sntp	SNTP
clock update-calendar	˚ ˘ ˚

ð / Ô

˚ RGOS10.0 Л Э

注意:

a ¨ ˘ ¨ ˘ ł sntp enable ৡ Â

21.2 ৡ

21.2.1 show sntp

ৡ SNTP Â

ð Ô

ð ৡ Ô

ð Ô

sho ´SNTP

ð Ô

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

ð ¾Ô

¾	
sntp enable	SNTP
show sntp	SNTP

ð Ø Ô

RGOS10.0 Л Э

ð ¯ Ô

¯	
show ip ssh	SSH Server Â
crypto key zeroize {rsa | dsa }	DSA б RSA ˘ SSH Server ¶ Â

ð Ô

˚ RGOS10.1 Лъ Э

22.1.2 crypto key zeroize

SSH Ь Ω ˘ Ю ¯˙

crypto key zeroize {rsa | dsa}

ð Ô

rsa	RSA
dsa	DSA

ð Ô

ð ¯ Ô

ð Ô

¯ Ь Ω Â ы˘ SSH Server ù ù DISABLE Â SSH Server˘ no enable service ssh-server ¯ Â

ð Ô

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

ð ¯ Ô

¯	
show ip ssh	SSH Server Â

crypto key generate {rsa|dsa}	DSA б RSA Â

ð Ô

˚ RGOS10.1 Љ Э

22.1.3 ip ssh version

show ip ssh	SSH Server Â

ð Ô

˚ RGOS10.1 Љ Э

22.1.4 ip ssh time-out

SSH Server Â ৡ no
ѝ Â

ip ssh time-out *time*

no ip ssh time-out

ð Ô

22.1.5 ip ssh authentication-retries

SSH Server Â ҃ no
ѝ Â

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

ð Ô

retry times	Â

ð Ô

Ю ѝ 3 Â ѣ˘ no ip ssh authentication-retries ҃ ≠ Л Љ ѝ Â

ð ҃ Ô

ð Ô

҃ SSH Server Â SSH Server
˘ Ÿ ╖˘ ‡ ѝ Â show ip ssh ҃ SSH Server Â

ð Ô

ѝ 2′

Ruijie# configure terminal
Ruijie(config)# ip ssh ssh authentication-retries *2*

ð ҃ Ô

҃	
show ip ssh	SSH Server Â

ð Ô

˚ RGOS10.1 Љ Э

22.2 SSH б ҃

22.2.1 show ip ssh

SSH Server

show ip ssh

ð Ô

ð Ô

ð Ô

ð Ô

SSH Server Â ' à ŭ SSH Server à à

' ¨ SSH Ł ˘

Ÿ SSH ù a Л

ð Ô

Ruijie# show ip ssh

þTd [(sho)10Ô(w)13-54205B51Tjr1veÂĞ Ք

ð ৡ Ô

ð Ô

SSH Â ‘ VTY ৶ à

SSH à ╗ à à à ‟ Â

ð Ô

Ruijie# show ssh

ð ৡ Ô

ð Ô

‟ RGOS10.1 Л Э

22.2.3 show crypto key mypubkey

SSH Server Ѽ Ѽ ǀ Â

show crypto key mypubkey {***rsa***/***dsa***}

ð Ô

rsa	RSA Ѽ ǀ
dsa	DSA Ѽ ǀ

ð Ô

ð ৡ Ô

ð Ô

SSH Server Ѽ Ѽ ǀ Â ‘

à ‟ à Ѽ ǀ Â

ð Ô

Ruijie# show crypto key mypubkey rsa

ð ৡ Ô

¾	
crypto key generate {rsa | dsa}	DSA б RSA Â

ð Ô

˚ RGOS10.1 Лъ Э

22.2.4 disconnect ssh

SSH Â

disconnect ssh [vty] *session-id*

ð Ô

session-id	SSH ˄ Â

ð Ô

ð ¾ Ô

ð Ô

SSH ˄˘ SSH Â
VTY ˄˘ SSH Â /\ SSH
Â

ð Ô

Ruijie# disconnect ssh *1*
Ruijie# disconnect ssh vty *1*

ð ¾ Ô

¾	
show ssh	SSH Â
Clear line vty *line_number*	VTY Â

ð Ô

˚ RGOS10.1 Лъ Э

23 UDP-Helper ৡ

23.1 ৡ

23.1.1 udp-helper enable

udp-helper enable ৡ ╟ UDP ╖ Â no
udp-helper enable ৡ UDP ╖ Â

Ю UDP Â

udp-helper enable

no udp-helper enable

ð Ô

ð Ô

UDP

ð ৡ Ô

ð Ô

UDP-Helper ╖ ˘ ‡ 69,53,37,137,138,49
UDP Â

ð Ô

Ю ╟ UDP ╖ :

```
Ruijie(config)# udp-helper enable
```

ð ৡ Ô

ৡ	
ip forward-protocol	UDP

ð Ô

ৡ RGNOS10.1 Э Â

23.1.2 ip helper-address

UDP ┗ Â no UDP
┗ Â

ip helper-address *address*

no ip helper-address *address*

ð Ô

address	UDP ┗ ˘ ѝ ˀ ⁸ ˘ 20 ┗ Â

ð Ô

UDP ┗

ð ৡ Ô

ð Ô

Л Лъ ѝ 20 ┗ Â ┗
Э , ‡ ╟ UDP-Helper ╖ ѧ˘ ÿ
UDP ˘ Лъ Э
┗ Э Â

no ip helper-address Л ┗ Â

ð Ô

Ю UDP ┗ :

```
Ruijie(config-if)# ip helper-address 192.168.100.1
```

ð ৡ Ô

ৡ	
ip forward-protocol	UDP

ð Ô

ৡ RGNOS10.1 Э Â

23.1.3 ip forward-protocol

ৡ UDP Â ৡ no ‡
Л UDP ╖ Â

ৡ	
udp-helper enable	UDP
ip forward-protocol	UDP

ð Ô

ৡ RGNOS10.1 Э Â

24

24.1

24.1.1 ip policy route-map

ð Ô

ЛЬЮ ˘ vlan 1 ˘ ѝ
10.0.0.1˜ ‡ Ю ѝ 196.168.4.6˝ ѝ 20.0.0.1 ‡
Ю ѝ 196.168.5.6˝ ŭ ‡ Â

```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
exit
route-map lab1 permit 20
match ip address 2
set ip next-hop 196.168.5.6
exit
interface vlan 1
ip policy route-map lab1
exit
```

ð ҳ Ô

ҳ	
access-list	Ня ‡ Â
route-map	Ня Â
set ip next-hop	Ня Ю
set ip default next-hop	Ня Ю
set interface	Ня
set default interface	Ня
set ip tos	IP TOS
set ip dscp	IP DSCP
set ip precedence	IP ”I
match ip address	‡
match length	ѓ

˙ route-map ҳ ê ҳ Ì

24.1.2 ip local policy route-map

ip local policy route-map Â no Â

ip local policy route-map *route-map*

no ip local policy route-map

ð Ô

route-map	Â

ð Ô

Â

ð Ô

Â

ð Ô

Э Â

Â

Â

1 Â

Â

Â

Â

set interface a , set interface Â

ð Ô

ЛЬЮ ЛЬ 192.168.217.10 Â

vlan 1 Â

```
access-list 1 permit 192.168.217.10
route-map lab1 permit 10
match ip address 1
set interface vlan 1
exit
```

ð Ô

ã	
access-list	Ð¾ ‡
route-map	Ð¾
set ip next-hop	Ð¾ Ю
set ip default next-hop	Ð¾ Ю
set interface	Ð¾
set default interface	Ð¾
set ip tos	IP TOS
set ip dscp	IP DSCP
set ip precedence	IP ”I
match ip address	‡
match length	ɔ

‘ route-map ã ê ã Ì

24.1.3 ip policy

set ip nexthop ˘
Ю ip policy Â ã no
Â

ip policy {load-balance|redundance }

no ip policy

ð Ô

load-balance|redundance	

ð Ô

Â

ð ã Ô

Â

ð Ô

set ip next-hop ˘ Л Љ Ю ˘
˘ Л Л Љ Ю ,
˘ Ю ˘ WCMP Л Љ
4 Ю ˘ ECMP Л Љ 32 Ю Â Ю
˝ ARP Ю Â

ð Ô

ЉЮ ˘ nexthop, Ю
ł˘ ‡ vlan 1 Э Л
nexthop ˘ Â

```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
set ip next-hop 196.168.4.7
set ip next-hop 196.168.4.8
exit
route-map lab1 permit 20
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
```

25 RIP ꔷ

25.1 ꔷ

25.1.1 address-family ^ RIP˜

RIP ˘ ꔷ
address-family ˘ ˘ ꔷ
no Â

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

ð Ô

vrf *vrf-name*	ꔷ VRF ¨ Â

ð Ô

a RIP Â

ð ꔷ Ô

Â

ð Ô

address-family ꔷ ^ ѝ'
(config-router-af)#˜ Â VRF ˘ RIP …
VRF RIP Â Ю˙ Л Лъ VRF RIP
Â

˘

exit-address-family exit ꔷ Â

ð Ô

ЛъЮ ˘ … ¨ ѝ vpn1 VRF˜ ѝ vrf …
RIP Â

```
Ruijie(config)# ip vrf vpn1
Ruijie(config-vrf)# exit
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip vrf forwarding vpn1
```

RIP

- RIP ˘ ˘ Â
- ∧ έ ˘ a ∧ ł ˘ ╟ ╖ Â ∧ RIPv2 ˘ ∧Ъ ╟ ╖ ˘ RIPv1 ╟ Â

ð Ô

ЛЬЮ ˘ RIPv2 ╟ Â

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

ð ৡ Ô

[illegible] a [illegible] Â [illegible] ЬЖ
[illegible] RIP Â [illegible]
ЬЖ [illegible] RIP default-metric ЬЖ [illegible]
ЬЖ [illegible] default-metric ЬЖ Â a
ҳ ‡ default-metric [illegible] й 1 Â

ð Ô

ЛЬЮ [illegible] RIP OSPF
[illegible] [illegible] RIP й 3 Â

```
Ruijie(config)# router rip
Ruijie(config-router)# default-metric 3
Ruijie(config-router)#  redistribute ospf 100
```

ð ҳ Ô

ҳ	
redistribute	ÿ [illegible] ┘ Â

ð Л Ô

ð Ô

25.1.4 default-information originate(RIP)

RIP [illegible] Л ЛЬ ҳ default-information originate ҳ [illegible] ҳ no Н Â

default-information originate [always] [metric *metric-value*] [route-map *map-name*]

no default-information originate [always] [metric] [route-map *map-name*]

ð Ô

always	^ Л ~ RIP ˇ a ŭ Â
metric *metric-value*	^ Л ~ [illegible] *metric-value* Н ‘ 1-15 Â
route-map *map-name*	^ Л ~ route-map ¨ , route-map

ð Ô

25.1.5 distance

RIP

8 ˘ Л ˘ ¾

distribute-list in Â ¾ no ЊЖ Â

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

no distribute-list {[*access-list-number* | *name*] | prefix *prefix-list-name* [gateway *prefix-list-name*]} in [*interface-type interface-number*]

ð Ô

access-list-number	Â Л ˘ Л Л Л Â
prefix *prefix-list-name*	Â
gateway *prefix-list-name*	Â
interface-type interface-number	(Л) ↑ ˘ Л Â

ð Ô

ЊЖ Â

ð ¾ Ô

Â

ð Ô

ù ˘ Л Л Л ↑ 8 ˘

access-list	‡ Â
prefix-list	Â

ð /

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ð

Ô

25.1.7 distribute-list out ^ RIP˜

8 ˘ Л ˘ ٣

distribute-list out Â ٣ no Â

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*]]

ð

Ô

access-list-number	Â / ˘ / Л Â
prefix *prefix-list-name*	Â
interface	(/) ˘ 8 / Â
protocol	(/) ˘ Â
process-id	(/) *protocol* и OSPF ˘ OSPF id Â

ð

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8 Â

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ð

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٣ a / ˘ 8 , ˘ 8 / , è ˘ ‡ 8 / Â

ð

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ЛЬЮ ˘ RIP /I 192.168.12.0/24 Â

```
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
```

ð ¾ Ô

¾	
access-list	Н‰ ‡ Â
prefix-list	Н‰ Â
redistribute	¦ Â

ð /I Ô

ð Ô

25.1.8 exit-address-family

˘ Ю exit-address-family

¾ Â

exit-address-family

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ð Ô

¾ ù Â

ð ¾ Ô

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ð Ô

Ю ¾ Â

¾ /I ЛЬ ù exit Â

ð Ô

ЛЬЮ ˘ ‘

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

ð ¾ Ô

¾	
address-family	Â

ð / Ô

ð Ô

25.1.9 ip rip authentication key-chain

RIP ˘ RIP ˘ ¾ ip rip authentication key-chain Â ¾ no Â

ip rip authentication key-chain *name-of-keychain*

no ip rip authentication key-chain

ð Ô

name-of-keychain	¨ ˘ RIP Â

३	
ip rip authentication mode	⊠ RIP ق

ৡ	
ip rip authentication key-chain	RIP ˘ RIP Â ʌ RIPv2 RIP Â
ip rip authentication text-password	RIP Â

ð ʌ Ô

ð Ô

25.1.11 ip rip authentication text-password

RIP ˘ ৡ ip rip authentication text-password Â ৡ no Â

ip rip authentication text-password *password-string*

no ip rip authentication text-password

ð Ô

password-string	˘ 1 16 Â

ð Ô

Â

ð ৡ Ô

Â

ð Ô

RIP ╖ ˘ ʌЛЪ ৡ ˘ ≠ ʌЛЪ ʌ ˘ ł ″I Â

RIPv1 a RIP ˘ ʌ RIPv2 Â

ð Ô

ЛЪЮ ˘ Serial 0 RIP ˘ ѝ ruijie Â

```
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication text-password
ruijie
```

ð ৡ Ô

ʒ	
ip rip authentication mode	Ⱨ RIP Â
ip rip authentication key-chain	RIP ˘ RIP Â ʌ RIPv2 RIP Â

ð ʌ Ô

ð Ô

25.1.12 ip rip default-information

ÿ RIP ˘ ʒ ip rip default-information Â ʒ no ʌ Â

ip rip default-information ¸ only originate ' [metric *metric-value*]

no ip rip default-information

ð Ô

only	˘ a è Â
originate	˘ ≠ è Â
metric *metric-value*	˘ ʌ ' 1-15 Â

ð Ô

Â

╟ ł˘ *metric* и 1 Â

ð ʒ Ô

Â

ð Ô

ʒ ł˘ ÿ Â

˘ Ю ip rip default-information RIP default-information originate ˘ ‡ ʌ Â

注意:

1 à ʌ ip rip default-information ˘ RIP a Ą ¯ Â ¯ ˘ Â

2 à Э ip rip default-information ˘ a ¨ ˘

Ю Â

ð Ô

ЛЬЮ ˘ ethernet0/0 Э… ˘ /Ì Â

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

ð ¾Ô

¾	
default-information originate	RIP

ð /Ì Ô

ð Ô

25.1.13 ip rip receive enable

RIP Э RIP ˘ ¾ ip rip receive enable Â ¾ no RIP Э RIP Â

ip rip receive enable

no ip rip receive enable

ð Ô

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ð Ô

RIP Â

ð ¾ Ô

Â

ð Ô

RIP ˘ Ю ¾ no Â ¾ ¾ Â/Ì ¾ default RIP Â

ð Ô

ЛЬЮ ˘ GigabitEthernet 0/0 RIP Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip receive enable
```

ð ¾ Ô

¾	
ip rip send enable	RIP
passive-interface	RIP ╟

ð Л Ô

ð Ô

25.1.14 ip rip receive version

ЬЖ RIP Э RIP ˘
¾ ip rip receive version Â ¾ no Â

ip rip receive version [1] [2]

no ip rip receive version

ð Ô

1	ˆ Л ˜ Л RIPv1 Â
2	ˆ Л ˜ Л RIPv2 Â

ð Ô

ù Л ¤ version ¾ Â

ð ¾ Ô

Â

ð Ô

¾ ˘ Л Лъ vesion RIPv2 Ó]X

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip receive version 1 2
```

ð ¢ Ô

¢	
version	ЬЖ RIP Â

ð / Ô

ð Ô

25.1.15 ip rip send enable

RIP Э RIP ˘ ¢ ip rip send enable Â ¢ no RIP Э RIP Â

ip rip send enable

no ip rip send enable

ð Ô

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ð Ô

RIP

ð ¢ Ô

ð Ô

RIP ˘ Ю ¢ no Â ¢ ¢ Â / ¢ default RIP Â

ò Ô

ЛЪЮ ˘ GigabitEthernet 0/0 RIP Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip send enable
```

ð ¢ Ô

¢	

ð ⁄ Ô

ð Ô

25.1.17 ip rip v2-broadcast

RIP version 2 Лъ Э ˘ ⁄
Лъ ٪ ip rip v2-broadcast ٪ Â ٪ no
Â

ip rip v2-broadcast

no ip rip v2-broadcast

ð Ô

Â

ð Ô

ѝ ∧ ᾱ version ٪ Â

ð ٪ Ô

Â

ð Ô

٪ ˘ ⁄ Лъ vesion ٪ Â ٪ ⁄
RIP ѝ˘ ⁄ Лъ ˘ RIPv1 RIPv2
Â ٪ a ‡ ѝ ∧ ᾱ version Â

ð Ô

ЛъЮ ˘ GigabitEthernet 0/0 Лъ RIPv2 Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip v2-broadcast
```

ð ٪ Ô "#Ie Ð¥ K€` #Ie !€P €e ‘ Ï G ÄAÈ â Ðip rip v2-broa75.56 253.88 m h 263.500 T0.4 ˆ8 Bp2t!'¥

RIP ǂ ╖ ˘ ৡ ip split-horizon Â
ৡ no RIP ǂ ╖ Â

ip split-horizon

no ip split-horizon

ð Ô

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ð Ô

Ю ǂ Э Â

ð ৡ Ô

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ð Ô

ʌ IP Э˘ ˘
ǂ ⁸ Ћ Â ǂ ʌ Ћ
ÿ ¯ ˘ ѝ
Â

ˆ à rip(orizon)]TJ/C2_0 1 Tf0 T5.174f1.913 0 T2051

25.1.19 ip summary-address rip

Ю RIP ˘ Ю ३ ip summary-address rip Â ३ no Â

ip summary-address rip *ip-address ip-network-mask*

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

ð Ô

ip-address	IP
ip-network-mask	ù IP

ð Ô

RIP ╟ Â

ð ३ Ô

Â

ð Ô

३ ip summary-address rip Ю Â RIP ╟ Â Л Â

ð Ô

ЛЬЮ ˘ RIPv2 ╟ Â ˘ GigabitEthernet 1/0 ł 172.16.0.0/16 Â

```
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
```

ð ३ Ô

३	
auto-summary	RIP ╟

ð Л Ô

ð Ô

25.1.20 network (RIP)

Ћ RIP ˘ ҳ
network Â ҳ no Ћ Â

network *network-number* [*wildcard*]

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

ð Ô

network-number	ѧ Â ѧ ѝ ѧ˘ IP ѧ RIP Â
wildcard	Ћ IP Æ˘ 0 ѣ ˘ 1 a Â

ð Ô

ð ҳ Ô

Â

ð Ô

ѧ Лъ̌ *network-number* *wildcard* ˘ б RIP Â

wildcard ˘ RGOS ˘ б RIP Â

ѧ RIP Ћ ˘ ѧ Лъ RIP ˘ RIP Â

ð Ô

Лъ Ю ˘ Ћ б RIP ч ѧ˘
192.168.12.0/24 172.16.0.0/24 б RIP ‘

```
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# network 172.16.0.0 0.0.0.255
```

ð ҳ Ô

ð ѧ Ô

ð Ô

25.1.21 neighbor (RIP)

HK RIP IP ˇ Л ¾ neighbor Â
¾ no HK Â

neighbor *ip-address*

no neighbor

ð Ô

ip-address	IP Â Â

ð Ô

HK Â

ð ¾ Ô

Â

ð Ô

RIPv1 IP ^

ð Ô

delay	˘ æ ѝ ˘ <8-50>

ð Ô

ѝ Â

ð ҳ Ô

Â

ð Ô

ЮЃ RIP ѝ 512 ˘ Л Љ 25 ˘
25˜ ˘ Ю
Л Â
˘ æ ˘ æ Л a
˘ Â ˘ output-delay
ҳ ╗ ˘ æ
Â

ð Ô

ЉЮ ˘ RIP ѝ 30

```
Ruijie(config)# router rip
Ruijie(config-router)# output-delay 30
```

ð ҳ Ô

ð Л Ô

ð Ô

25.1.24 passive-interface

Н Э ╗ ˘ ҳ
passive-interface ҳ Â ҳ no ╗
Â

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

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

ð Ô

default	ѝ passive

interface-type interface-num	б л

ð Ô

Ю ù passive Â

ð ҳ Ô

Â

ð Ô

passive-interface default ҳ ù passive ˘ л Лъ no passive-interface *intface-type interface-num* ҳ ù passive Â

ip rip send enable ҳ ip rip receive enable ҳ ù RIP Ю˘ ҳ ù passive ˘ a Ą RIP ˘ л Лъ RIP ’ ŭ ˘ ip rip send enable ҳ ip rip receive enable ҳ ⁸ Â

ð Ô

ЛъЮ ù passive ˘ ł ethernet0/0 ù passive

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

ð ҳ Ô

ҳ	
ip rip receive enable	RIP
ip rip send enable	RIP

ð л Ô

ð Ô

25.1.25 redistribute ^ RIP˜

ƒ ˘ Ю redistribute ҳ Â ʌ ƒ ˘ ҳ no Â

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*]

ð Ô

ÆuBQ ¸ ৡPöà„•9e•(A‚˜à…!uVgg R¶%nð…% nh •=ñaVï°Â1hð W‚˜á R)thB`0¥ K€ Du… hdð – D

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

ò ৡ Ô

ð Ô

25.1.27 timers basic

RIP ˘ ʒ timers basic Â ʒ
no Â

timers basic *update invalid flush*
no timers basic

ð Ô

update	˘ Лъ Â*update* Њ˝ ˘ ˘ *invalid Flush* æ Â 30 Â
invalid	˘ Лъ ˘ ÿ Â*invalid* Њ˝ л ѝ Â ѝ Ь ˘ ˘ л ѝ ˘ *invalid* ’ *invalid* ˘ æ Â *Invalid* ѝ 180 Â
flush	˘ Лъ ˘ ÿ RIP *invalid* Â *flush* ˘ *invalid* Â *Flush* ѝ 120 Â

ð Ô

Ю˝ ѝ 30 ˘ ѝ 180 ˘ ѝ 120 Â

ð ʒ Ô

Â

ð Ô

Лъ Э ˘ л ╕ Лъ Â
ˇ Э ˘ RIP Â a RIP
˘ Â

RIP ˘ лЛъ show ip rip ʒ Â

ð Ô

ЛъЮ ˘ RIP 10 Â 30
˘ л ѝ ˘ invalid ’
invalid ћ˘ 90 ˘ Â

```
Ruijie(config)# router rip
```

Ruijie(config-router)# **timers basic** *10 30 90*

注意:

æ Э ˘ ˘ и
Â Л Лъ 2Mbps Лъ Э ˘ Л Лъ
˘ Л Лъ Â

ð ٪ Ô

ð Л Ô

ð Ô

25.1.28 validate-update-source

RIP ˘ ˘
٪ validate-update-source Â ٪ no
Â

validate-update-source

no validate-update-source

ð Ô

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ð Ô

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ð ٪ Ô

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ð Ô

Л Лъ RIP ˘ Â и
RIP ˘ Л ˘ IP Â

Э ˛ ˘ RIP ˘
a ў ٪ validate-update-source Â

Л ip unnumbered ˘ RIP a
˘ a ў ٪ validate-update-source Â

ð Ô

ЛъЮ ˘ Â

Ruijie(config)# **router rip**

```
Ruijie(config-router)# no validate-update-source
```

ð ¾ Ô

¾	
ip split-horizon	RIP ¦ Â
ip unnumbered	Ħ IP ʌ Â
neighbor (RIP)	Ħ RIP IP Â

ð ʌ Ô

ð Ô

25.1.29 version (RIP)

Ħ RIP ʌ˘ ¾ version Â
¾ no Â

version {1 | 2}

no version

ð Ô

1	Ħ RIP ʌ ù 1 Â
2	Ħ RIP ʌ ù 2 Â

ð Ô

ʌ Л RIPv1 RIPv2 ˘ ʌ RIPv1
Â

ð ¾ Ô

Â

ð Ô

Ħ RIP ʌ Â ʌ Л ip rip receive version à
ip rip send version ¾˘ RIP
Ħ Â

ð Ô

ЛЮ ˘ RIP ʌ ù 2 Â

```
Ruijie(config)# router rip
```

```
Ruijie(config-router)# version 2
```

ð ¾ Ô

¾	
ip rip receive version	HX RIP Э RIP Â
ip rip send version	HX RIP Э RIP Â
show ip rip	rip Â

ð / Ô

ð Ô

25.2 ¾

25.2.1 show ip rip

RIP ˘ show ip rip Â

show ip rip [vrf *vrf-name*]

ð Ô

vrf *vrf-name*	^ / ~ VRF 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)
```

ЛЬЮ ˘ 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)
```

ð ३ Ô

ð /1 Ô

ð Ô

25.2.2 show ip rip database

RIP ˘ show ip rip database Â

show ip rip database [vrf *vrf-name*] [*network-number* {*network-mask*}]

ð Ô

vrf *vrf-name*	ˆ ˃ ˜ VRF RIP
network-number	ˆ ˃ ˜ ˃ Â
network-mask	Â ˃ ˘

ð Ô

Â

ð ʒ Ô

à à Â

ð Ô

˘ RIP

Â ł ˃ ѝ ˘

≠ ÿ Â

ð Ô

ЛЬЮ ˘ RIP Â

4redistributed **Ruijiewectlyk -103(onnectedk -103(oopbackk -103(k 10.7439 w 4195.13**

ð Ô

25.2.3 show ip rip external

RIP ¶ ˘ show ip rip external ¾ Â

show ip rip external [bgp | connected | isis [*process-name*] | ospf *<1-65535>*| static] [vrf *vrf-name*]

ð Ô

bgp | connected | isis | ospf | static	^ Ä ~ ¶
vrf *vrf-name*	^ Ä ~ VRF RIP
process-name	ISIS ¨
<1-65535>	OSPF Ä

३	

```
  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 б BFD ╟, ж ¾ Ю :

```
Ruijie#show ip rip interface
VLAN 1 is up, line protocol is up
  Routing Protocol: RIP
    Receive RIPv1 and RIPv2 packets
    Send RIPv1 packets only
    Receive RIP packet: Enabled
    Send RIP packet: Enabled
    Send RIP supernet routes: Enabled
    Passive interface: Disabled
    Split horizon: Enabled
    BFD: Enabled
    V2 Broadcast: Disabled
    Multicast registe: Registed
    Interface Summary Rip:
      Not Configured
    IP interface address:
      2.2.2.111/24, next update due in 24 seconds
```

ð ¾ Ô

¾	
show ip rip	Â

ð / Ô

ð Ô

26 OSPF ३

26.1 ३

26.1.1 area

ऄ ˘ ३ no OSPF ऄ Â

area area-id

no area area-id

ð Ô

area-id	OSPF ऄ ㅓ Â ऄ ㅓ ㅣ Ⴎ 8 ˘ ≠ ㅣ Ⴎ IP Â

ð Ô

OSPF ऄ Â

ð ३ Ô

Â

ð Ô

ㅣ Ⴎ ३ no ˘ OSPF ऄ ऄ
˘ area authentication à area default-cost à area filter-list à
area nssa ऄ ३ Â

Ю Ю OSPF ऄ ·

1. ў ऄ ˘ Â ”I
˘ ў ऄ Â
2. ऄ ˘

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ʒ /! ABR˘ ʲ ~ Э ˘ з ABR
STUB ʲ ^ й ~ NSSA Â ABR
˘ ʲ ˘ ˩ ʲ Â

OSPF ʲ й STUB NSSA ч Ь ʒ area stub˘ area nssa area default-cost Â STUB Э˘ area stub ʒ˘ NSSA ʲ area nssa ʒ˘ area default-cost ʒ /! ABR Э Â

ð Ô

ЛЬЮ ʒ˘ й 50 Â

```
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 stub
Ruijie(config-router)# area 1 default-cost 50
```

ð ʒ Ô

ð Ô

area-id	¼ ¤ Â
acl-name	acl¨
prefix-name	prefix-list¨
access | prefix	prefix list ACL
in | out	¯ | ¼

ð Ô

ð ¢ Ô

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ð Ô

¢ ¤ ABR¼ ¯ ~ Э Â

ABR Э a¯ ¼ ¯ ¯ ¢ Â

ð Ô

ЛЬЮ ¢¯ area 1 ¤ ¯ 172.22.0.0/8 ¼ Â

```
Ruijie# configure terminal
Ruijie(config)# access-list 1 permit 172.22.0.0/8
Ruijie(config)# router ospf 100
Ruijie(config-router)# area 1 filter-list access 1 in
```

ð ¢ Ô

ð ¤ Ô

ð Ô

26.1.5 area nssa

OSPF ¼ й nssa¯ ¢ area nssa Â

¢ no nssa ¼ nssa ¼ Â

area *area-id* nssa [no-redistribution] [default-information-originate [metric *<0-16777214>* | metric-type *<1-2>*]] [no-summary]

no area *area-id* nssa [no-redistribution][default-information-orig inate] [no-summary]

ð Ô

area-id	NSSA ৮ ৮ ৸ Â
no-redistribution	ˆ ৸ ˜ nssa ABR ˘ ৸ ৲ ৡ ৮ a nssa ৮ ˘ ৸ Л Э Â
default-information-originate	ˆ ৸ ˜ 7 LSA nssa ৮ ˘ ৸ NSSA ABR ASBR Э Â
no-summary	ˆ ৸ ˜ nssa (ABR) Ь LSA nssa ৮ Â

ð Ô

Ⱨ NSSA ৮ Â

ð ৡ Ô

Â

ð Ô

default-information-originate Type-7 LSA˘ nssa ABR ASBR Э ˘ ABR Э ŭ ˘ Type-7 LSA ˘ ASBR Э(≠ a ABR) ˘ Type-7 LSA Â

no-redistribution ASBR Э OSPF redistribute ৡ è a NSSA ৮ Â NSSA ASBR ABR

OSPF ३

Ŗ W

no-summary	ˆ Л ˜ ABR ˇ Л ѝ ÂЛ ABR Â

ð Ô

Ж Â

ð ҃ Ô

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ð Ô

OSPF area stub ҃ Â ABR Л
Ь (LSA)ʼ 1˜ 1˘ LSAʼ 2˜ 2˘
LSAʼ 3˜ 3˘ LSA Â ÿ ˇ
Л ˉ OSPF ˇ ABR
Â a ˉ OSPF ҃ Â æ
ˇ Л ABR Э area stub ҃ ˇ

26.1.8 area virtual-link

ꟾ OSPF ˘ ꝛ area virtual-link Â
ꝛ no ꟾ Â

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*

ð Ô

area-id	OSPF ꓘ ⁄ Â ꓘ ⁄ ⁄ Ꙗ ⁸ ˘ ≠ ⁄ Ꙗ IP Â
router-id	Â ⁄ Ꙗ show ip ospf ꝛ Â
dead-interval *seconds*	ˆ ⁄ ˜ ꟾ ˘ Ꙗ ѝ æ˘ ѝ 40 Â б Â
hello-interval *seconds*	ˆ ⁄ ˜ OSPF Hello ˘ Ꙗ ѝ æ˘ ѝ 10 Â б Â
retransmit-interval *seconds*	ˆ ⁄ ˜ OSPF ˆ LSA˜ ˘ Ꙗ ѝ æ˘ ѝ 5 Â Э Â
transmit-delay *seconds*	ˆ ⁄ ˜OSPF ˆ LSA˜ ˘ Ꙗ ѝ æ˘ ѝ 1 Â ╗ LSA ˘ LSA ˘ LSA ⁹ Â
authentication-key *key*	ˆ ⁄ ˜ ꟾ OSPF Â Â service password-encryption ꝛ ⁄ Ꙗ Ꙗ╗ Â
message-digest-key *key-id* md5 *key*	ˆ ⁄ ˜ ꟾ OSPF MD5 Â MD5 Â service password-encryption ꝛ ⁄ Ꙗ Ꙗ╗ Â
authentication	˘ Â

message-digest	ѝ MD5 Â
null	ѝ a Â

ð Ô

dead-interval ‘ 40 ’

hello-interval ‘ 10 ’

retransmit-interval ‘ 5 ’

transmit-delay ‘ 1 ’

a ;

è Â

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ð Ô

OSPF ˘ Ҁ б ˘ ˘
˘ ŏ ‡ Â
ч Ҁ ˆ ABR˜ … ˘ ч ABR ˚
Ҁ ѝ Ҁ Â ˆ Stub Area˜ NSSA а ѝ Ҁ
Â ≠ Л Љ è Ҁ Â

router-id ѝ OSPF ˘ a router-id ˘
show ip ospf neighbor ʒ ÂЛ Љ Loopback
Â

area virtual-link ʒ Л Ж ˘
Ҁ OSPF ˘ ʒ area authentication Â

ð Ô

ЉЮ ˘ ЉҀ 1 ѝ Ҁ ˘ б 2.2.2.2 Â E94-r220.158090

```
Ruijie(config-router)# network 172.16.17.0 0.0.15.255
area 1
Ruijie(config-router)# network 172.16.252.0 0.0.0.255
area 10
Ruijie(config-router)# area 0 authentication message-
digest
Ruijie(config-router)# area 1 virtual-link 1.1.1.1 me
ssage-digest-key 1 md5 hello
```

ð ʒ Ô

ʒ	
area authentication	OSPF ˂ Â
show ip ospf	OSPF ˘ Â

ð Ʌ Ô

ð Ô

26.1.9 auto-cost

ʒ ╟ ʒ˙ ╖ ł ˘ ╟ ʒ˙ ˘ ʒ no Ʌ Ɬ ╟ ʒ˙ ╖ ˘ Ʌ Ɬ Â

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

no auto-cost [reference-bandwidth]

ð Ô

ref-bw	Â Ɬ Mbps ѝ Æ˘ : 1-4294967

ð Ô

ѝ 100Mbps Â

ð ʒ Ô

Â

ð Ô

ʒ ╟ ʒ' , a Λ ╟ʒ
' ╥ , . Э Λ ‡ ╟ʒ'
( )˚ . default auto-cost no
auto-cost a˚ ˘ ¯ ╟ʒ' ╥ ˘ ɨ
╟ʒ' ╥ Â

ʒ ip ospf cost cost‡ ╟ʒ'
cost Â

ð Ô

ЛЬЮ ˘ ù 10M Â

```
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
```

ð ʒ Ô

ʒ	

show 03D

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ð Ô

Æ OSPF ˘ ˘ ’ Лъ
ʒ ˘ ΰ ’

ð Ô

ЛъЮ ʒ OSPF 1

```
Ruijie# clear ip ospf 1 process
```

ð ʒ Ô

ð ⁄ Ô

ð Ô

26.1.11 compatible rfc1583

show ip ospf	ospf

always ˘ OSPF a ŭ ˘
Â a ˘
ŭ ˘ ʌЛь show ip ospf database OSPF
˘ ù 0.0.0.0 ÂOSPF
show ip route ʒ˘ ʌЛь Â

˘ ʌ default-information originate
ʒ ЬЖ˘ a ʒ default-metric Â

OSPF ч ˘ 1 ʌ˘ 2
a ʌ Â ч ˘ ˚
˘ 1 2 ˝I ˘ Ль show ip route ʌ
1 Â

STUB ˂ a ʌЛь Â

ð Ô

ЛЬЮ ˘ OSPF ˘ OSPF
˘ ù 1˘ ù 50Â

```
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
```

ð ʒ Ô

ʒ	
show ip ospf database	OSPF Â
show ip route	IP Â

ð ʌ Ô

ð Ô

26.1.13 default-metric

OSPF ˛ ˘ ʒ
default-metric Â ʒ no Â

default-metric *metric*

no default-metric

ð Ô

metric	ЬЖ OSPF ǂ Â

ð Ô

ѝ 20 Â

ð ҳ Ô

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ð Ô

default-metric ҳ б redistribute ҳ ˘ Л Лъ ǂ Â

default-metric ҳ ˘ Лъ default-information originate OSPF a Â

ð Ô

ЛъЮ ˘ OSPF ǂ ѝ 50 Â

```
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
```

ð ҳ Ô

ҳ	
redistribute	ǂ è Â
show ip ospf	ospf

ð Л Ô

ð Ô

26.1.14 distance ospf

a˘ OSPF

distance ospf {intra-area < *1-255*> | inter-area <*1-255*> | external <*1-255*>}

no distance ospf

ð Ô

intra-area < *1-255*>	ˇ ˘ й 110
inter-area <*1-255*>	ˇ ˘ й 110
external <*1-255*>	˘ й 110

ð Ô

й 110Â

ð ҃ Ô

OSPF Â

ð Ô

OSPF a˚ a˚ ˘ ҃Â

ð Ô

ЛЬЮ ˘ OSPF й 160

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# distance ospf external 160
```

ð ҃Ô

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ð Ô

26.1.15 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*]

ð Ô

listname	acl ‡

gateway *plist-name*	gateway ‡
prefix *plist-name*	prefix-list ‡
interface-type *num*	ʌ LSA

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ð Ô

LSA ˘ ˚ б SPF ˘
Â a ˘ ≠ a
˘ ʌ OSPF Â ╖ ABR
ASBR˘ ʌЛъ ® Â

ð Ô

```
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
```

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ð ʌ Ô

ð Ô

26.1.16 distribute-list out

ǂ ˘ ╖ redistribute ৡ

distribute-list {l*istname* | gateway *plist-name* | prefix *plist-name*} out [bgp | connected | isis *area-tag* | ospf *process-id* | rip | static]

no distribute-list {l*istname* | gateway *plist-name* | prefix *plist-name* } out [connected | ospf *process-id*| rip | static]

ð Ô

listname	acl ‡
gateway *plist-name*	gateway ‡
prefix *plist-name*	prefix-list ‡

[connected | ospf *process-id* | rip | static]

ð Ô

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ð Ô

Ю MIB Л OSPFv2 Э Â

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OSPFv2 MIB OSPFv2 ˘ Лъ SNMP
OSPFv2 ˘ Л Â Ю OSPFv2 MIB
Л OSPFv2 Э˘ Â

SNMP OSPFv2 ˘ Л Лъ
¢ MIB Э Â

ð Ô

ЛъЮ ˘ SNMP Л й 100 OSPFv2 '

```
Ruijie(config)# router ospf 100
Ruijie(config-router)# enable mib-binding
```

ð ¢ Ô

¢	
show ip ospf	OSPF
enable traps	OSPF TRAP ╖

ð Л Ô

[ifstatechange | nbrstatechange | virtifstatechange | virtnbrstatechange]]

no enable traps [error [ifauthfailure | ifconfigerror | ifrxbadpacket | virtifauthfailure | virtifconfigerror | virtifrxbadpacket] | lsa [lsdbapproachoverflow | lsdboverflow | maxagelsa | originatelsa] | retransmit [iftxretransmit | virtiftxretransmit] |

state-change	б state-change traps Ю state-change traps ifstatechange nbrstatechange virtifstatechange virtnbrstatechange

ð Ô

TRAP Â

ð Ô

Â

ð Ô

snmp-server snmp-server enable traps ospf Â

MIB TRAP Â

ð Ô

OSPFv2 100 TRAP

```
Ruijie(config)# router ospf 100
Ruijie(config)# enable traps
```

ð Ô

show ip ospf	OSPF
enable mib-binding	OSPFv2 MIB

ð Ô

ð Ô

26.1.19 ip ospf authentication

no Â

ip ospf authentication [message-digest | null]

no ip ospf authentication

ð Ô

message-digest	Э MD5 ╗ Â
null	a Â

ð Ô

Э , Э ↖
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ʒ ł a .
no ˘ ŭ ↖
Э ᾱ ˘ и null ‡ ⁸ и
a , Э ↖ ,
″I Э Â

ð Ô

ЛЬЮ ˘ GigabitEthernet 0/0 OSPF и MD5
Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip address 172.16.10.0
255.255.255.0
Ruijie(config-if)# ip ospf authentication
message-digest
```

ð ʒ Ô

ʒ	
area authentication	OSPF ↖ Ж Â
ip ospf authentication-key	OSPF Â
ip ospf message-digest-key	OSPF MD5 Â

ð Л Ô

ð Ô

26.1.20 ip ospf authentication-key

OSPF ˘ ҳ ip ospf authentication-key Â ҳ no Â

ip ospf authentication-key *key*

no ip ospf authentication-key

ð Ô

Key	˘ Л Ъ 8 Â

ð Ô

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ð ҳ Ô

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ip ospf authentication-key ҳ ˘ OSPF Â
a ˘ ч Л a OSPF ˘
≠ a Â

a˚ Л Ъ a ˘ ˚ Э
˘ Â

OSPF ϟ ŭ ˘ ҳ area authentication Â

Э ≠ Л Ъ , Ю ҳ ip ospf authentication , ϟ ″I ∧
.

ð Ô

ЛЪЮ ˘ ,X№Ê70Ã,ü2#AxAðy

ð /I Ô

ð Ô

26.1.21 ip ospf cost

OSPF ^ OSPF ~ ˘
٪ ip ospf cost Â ٪ no Â

ip ospf cost *cost*

no ip ospf cost

ð Ô

cost	OSPF Â

ð Ô

ỳ /Bandwidth˜ ỳ 100Mbps˜ Â

ð ٪ Ô

Â

ð Ô

ЮЎ OSPF ỳ 100Mbps/Bandwidth˜ è Bandwidth
ỳ ˘ ٪ bandwidth Â

ỳ OSPF ỳ'

- 64K ˘ cost ỳ 1562'
- E1 ˘ cost ỳ 48'
- 10M Лъ ˘ cost ỳ 10'
- 100M Лъ ˘ cost ỳ˝ Â

ip ospf cost ٪ OSPF ˘ Â

ð Ô

ЛЪЮ ˘ serial 1/0 OSPF ỳ 100 Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf cost 100
```

ð ٪ Ô

٪	

bandwidth	Â a Â
show ip ospf	Ospf

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ð Ô

26.1.22 ip ospf database-filter all out

ৡ a LSA ˘ a Э LSA , ৡ no ʌЛъ

ip ospf database-filter all out

no ip ospf database-filter

ð Ô

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╖ , ʌЛъ Э LSA Â

ð ৡ Ô

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ð Ô

Э LSA , ʌЛъ Э ╖ .

ð Ô

ЛъЮ ˘ LSA serial 1/0 Э Â

```
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
```

ð ʌ Ô

ð Ô

26.1.23 ip ospf dead-interval

OSPF ˘ ৡ ip ospf dead-interval Â ৡ no Â

ip ospf dead-interval *seconds*

no ip ospf dead-interval

ð Ô

seconds

ð /Ì Ô

ð Ô

26.1.24 ip ospf disable a

a ¨Ą ospf

ip ospf disable all

no ip ospf disable all

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o ŸÂ Ëó• N s

seconds	OSPF hello ˘ Лъ ѝ Æ Â

ð Ô

- Лъ 10 ’
- PPP à HDLC 10 ’
- 10 ’
- à .25 30 Â

ð ৡ Ô

Â

ð Ô

hello hello Â ˘ OSPF
ﾉ ≠ ˘ ╕ Ã˘ Э
hello Â ˘
hello a Â

ð Ô

ЛъЮ ˘ serial 1/0 OSPF Hello
ѝ 15 Â

```
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 hello-interval 15
```

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ৡ	
ip ospf dead-interval	OSPF Â

ð ﾉ Ô

ð Ô

26.1.26 ip ospf message-digest-key

OSPF MD5 ˘ ৡ ip ospf message-digest-key Â ৡ no OSPF MD5 Â

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

no ip ospf message-digest-key

ð Ô

Key	˘ Л Ъ 16 Â
Key-id	˘ ÿ˝ 255 Â

ð Ô

MD5 Â

ð ϧ Ô

Â

ð Ô

ip ospf message-digest-key ϧ ˘ OSPF
Â a ˘ ч Л a OSPF
˘ ≠ a Â

a˚ Л Ъ a ˘ ˚ Э
˘ Â ˚
Â

OSPF ϰ ŭ ˘ ϧ area
authentication Â Э ≠ Л Ъ ,
Ю ϧ ip ospf authentication , ϰ
˝I Ϟ .

RGOS ˚ MD5 ˘ ˝I ╗
ł ‡ Â ╗ OSPF MD5 ˘
ϳ è ˘ ĺ a˚
OSPF ˘ Â
ł˘ Л Ъ Â

ð Ô

ЛЪЮ ˘ GigabitEthernet 0/0 ╗ OSPF
˘ Л ϳ˜ ˘ ϳ hello5 Â

```
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
```

area authentication	OSPF
ip ospf authentication	

26.1.27 ip ospf mtu-ignore

mtu

no

ip ospf mtu-ignore

no ip ospf mtu-ignore

mtu

a , MTU

MTU,

ЛЬЮ ˘ serial 1/0 MTU ╖ Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf mtu-ignore
```

ð /ı Ô

ð Ô

26.1.28 ip ospf network

OSPF ˘ ҷ ip ospf network Â ҷ no Â

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 ’

ð Ô

broadcast	OSPF й Â
non-broadcast	OSPF й ˘ NBMA Â
point-to-multipoint [non-broadcast]	OSPF й Â , non-broadcast й Â
point-to-point	OSPF й Â

ð Ô

- ‘ PPP à SLIP à à X.25 ,
- NBMA ‘ ^ ~ à X.25 ^ ~ ,
- ‘ Лъ ’
- й Â

ð ҷ Ô

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ð Ô

a˘ ˘ OSPF ƒ й Ь ‘

- ˆ Лъ ˘ ʒ ˘ FDDI˜
- ˆ ˘ X.25˜
- ˆ HDLC˜ PPP˜ SLIP˜

è ˘ OSPF a˚ ˛ ѝ ч ˙

- (NBMA) ÂNBMA
˘ Л ˘ SVC
ˆ X.25˜ ˘ PVC˜ ˜
ÂOSPF NBMA Э б Э ˘
ˆ Designated Router˜ ˘ NBMA
Â

- Â a ˘
OSPF Â
˘ OSPF ˘ Лъ
Â ˛ ѝ ,
.

a жˇ Л Лъ ѝ Â Л Лъ
ˆ ˘ X.25˜ ˘ OSPF
˘ Â X.25 map
frame-relay map ʒˇ Л Лъ X.25 é ˘
OSPF Л Лъ X.25 Â

Л Лъ ˘ OSPF
˘ ў Â б
ЛъЮ ˙

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- ʒ˙ ˘ a Â

л à Лъ X.25 ˘ IP ˘
broadcast .

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ЛъЮ ˘ ѝ ˘
Â

```
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
```

ЛъЮ ˘ ѝ ˘
Â

```
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
```

ЛЬЮ ˘ й ˘ DR/RDR˜
ˆ ÂЛЬЮ ↑
a Э ^ ⁸ й DR/BDR˜ Â

```
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
```

ð ч Ô

ч	
dialer map ip	НЖ IP б л л Â
frame-relay map	НЖ IP б DLCI Â
neighbor ^ OSPF˜	НЖ IP ˘ л NBMA Â
X25 map	НЖ IP б X.25 Â

ð л Ô

ð Ô

26.1.29 ip ospf priority

OSPF ″I ˘ ч ip ospf priority Â
ч no Â

ip ospf priority *priority*

no ip ospf priority

ð Ô

Priority	OSPF ″I Â

ð Ô

″I й″ Â

ð ৡ Ô FAN0 € F ð Ô FOSPF ″I ‾ Ɔ DR/BDRF ˘ ѝ

ð Ô

ѝ 5 Â

ð ҳ Ô

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ð Ô

LSU ˘ LSU ă ˘
ip ospf retransmit-interval ҳ Ҳ ˘
˘ LSA Â

˘ Л a ˘ Э˘
Л Л Â LSU area
virtual-link ҳ retransmit-interval Ҳ Â

ð Ô

ЛЮ ˘ serial 1/0 LSU ѝ 10 Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf retransmit-interval 10
```

ð ҳ Ô

ѝ 1 Â

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Â

ð Ô

LSU ˘ LSAs˜ Age

╗˘ ╗ ৡ

Ⅶ ˘ a detail ˘ /ǀ Full
Full Â

```
Ruijie(config)# router ospf 10
Ruijie(config-router)# max-concurrent-dd 4
```

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ð / Ô

ð Ô

26.1.34 neighbor

Ж OSPF ˘ ¢ neighbor Â ¢ no Â

neighbor *ip-address* [poll-interval *seconds*] [priority *priority*] [cost *cost*]

no neighbor *ip-address*

ð Ô

ip-address	IP Â
poll-interval *seconds*	^ / ~ ˘ Лъ ù æ˘ 120 ÂNon-broadcast(NBMA) Â
priority *priority*	^ / ~ ″I ˘ ù° Â Non-broadcast(NBMA)
Cost *cost*	^ / ~ ˘ Ж, Э cost Âpoint-to-multipoi nt [non-broadcast] Â

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RGOS ˚ ù ˘ Â
IP ˘ ù ў IP Â

NBMA Э / ù a ˘
Hello ˘ OSPF Hello ˘ Hello
ù Â OSPF ˘ / ″I
a ù 0 Hello ˘ ″I ù 0 a

б DR/BDR Â DR/BDR Лъ ѣ˘ DR/BDR
Hello Â

Э, ѝ а é Лъ ╟
, ꝛ ѝ è , ↓
Л Лъ cost .

ð Ô

ЛъЮ ˘ OSPF ˘ è IP ѝ
172.16.24.2˝ ″I ѝ 1˝ ѝ 150 Â

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# network 172.16.24.0 0.0.0.255
area 0
Ruijie(config-router)# neighbor 172.16.24.2 priority 1
poll-interval 150
```

ð ꝛ Ô

ꝛ	
ip ospf priority	OSPF ″I Â
ip ospf network	OSPF

ð Л Ô

ð Ô

26.1.35 network area

Ьж OSPF˝ Лъ OSPF ↖ ˘
ꝛ network area Â ꝛ no OSPF ↖ Ьж Â

network *ip-address wildcard* area *area-id*

no network *ip-address wildcard* area *area-id*

ð Ô

ip-address	IP Â
wildcard	Ьж IP Æ˘ ° ѕ ˘ ″ a Â
area-id	OSPF ↖ Â OSPF ↖ ˘ ѝ ˘ ≠ Л Лъ ѝ OSPF ↖ Â

ð Ô

OSPF ৲ Â

ð ৡ Ô

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ð Ô

ip-address *wildcard*

ð Ô

<1-4294967294>	LSA
hard | soft	hard LSA ˘ OSPF ’ soft LSA ˘ Â

ð Ô

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ð Ô

OSPF ˘ hard ˘ a OSPF˘
Л ˘ soft

ð Ô

ЛЬЮ ч LSA 10 ˘ OSPF 10 Â

```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database 10 hard
```

ð ч Ô

ð Л Ô

ð Ô

26.1.37 overflow database external

ч external LSA б ÿ
Â

overflow database external *max-dbsize wait-time*

no overflow database external

ð Ô

max-dbsize	external lsa ^ ˚ AS ˚ ~ ˘ Л ‘ 0-2147483647 Â
wait-time	ÿ ˘ Л ‘ 0-65535 Â

ð Ô

a ⁸ external-LSA Â

⁸ external-LSA ˘ external-LSA
ł˘ a Ą Â

ð ৡ Ô

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ð Ô

external-LSA *max-dbsize* ˘ ˘
Ю a Ą╗ external-LSA

Ą Â

Ⅱ ˘ OSPF OVERFLOW ˘ Л

Â ѝ ˘ OSPF NULL

˘ ÿ æ ˘ OVERFLOW Ю Â

Л Л clear ip ospf process ʒ Æ OSPF ˘ OSPF OVERFLOW Â

no a OSPF a OVERFLOW ˘ Л

˘ ˘ OSPF ˘

Â

1ˈ OSPF a Ю a OVERFLOW ˛

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no overflow memory-lack
```

match	/ʃ ʃ OSPF ˘ ʃ ˘ OSPF ʃ ’
metric-typ	ѝ E-1 E-2 Â
route-map	ʃ ‡ Â
tag	ʃ OSPF tag Â
subnets	/ʃ ʃ Â

ð Ô

ð ʒ Ô

ð Ô

ʒ ł˘ /ʃ ѝ ASBR˘ OSPF ˘ Љ type-5 LSA è OSPF Â

ʃ ospf ˘ a match ˘ ʃ ospf ’ ł match ѝ match ˘ ʃ /ʃ ƀ ʃ ’ no ʒ match ѝ Â Â

ʃ ˘ route-map ˘ route-map match ‡ ʃ ƀ ’ ʃ OSPF ISIS ˘ /ʃ ʃ match level ‡˘ Ą route-map Â

ð Ô

ЉЮ ʒ ʃ 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 Ю˙

```
router ospf 1
redistribute ospf 2 match external 1 internal subnets
```

ð ʒ Ô

ð /ʃ Ô

ð Ô

26.1.41 router ospf

… OSPF ˘ ৡ router ospf Â ৡ
no Ьж OSPF Â

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

no router ospf *process-id*

ð Ô

process-id	ospf ﾉ
vrf-name	VRF ˘ OSPF VRF

ð Ô

a OSPF Â

ð ৡ Ô

Â

ð Ô

RGOS10.1 Э ╗ ‘ ﾉ˘ ѝ ospf Â
a˚ ospf ˘ ﾉЉ ѝ ч a Â

ð Ô

ЉЮ ˘ vrf *vpn_1* … OSPF 10 Â

```
Ruijie(config)# router ospf 10 vrf vpn_1
```

ð ৡ Ô

ৡ	
show ip protocols	Â
show ip ospf	ospf Â

ð ﾉ Ô

ð Ô

26.1.42 router-id

OSPF ३

summary-address *ip-address net-mask* [not-advertise | tag *<0-4294967295>* |]

ð Ô

ip-address	IP Â
net-mask	Â
not-advertise	a Ὼ ˘ ‡ ὶ Ὼ Â

ð Ô

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ð ʒ Ô

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ð Ô

ÿ è ƚ ˘ OSPF ˘
ƚ Лъ OSPF Â
˘ Л Лъ Л
˘ ÿ Â

б area rang ʒ a˚ ˘ area range OSPF ʏ ˘
summary-address OSPF Â

NSSA ʏ˘ summary-address ʒ Л NSSA ABR Э
˘ з Л ƚ Â

ð Ô

ЛъЮ ʒ˘ 100.100.0.0/16 Â

```
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
```

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ʒ	
area range	OSPF ʏ Э Â

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26.1.44 timers lsa-group-pacing

ҳ LSA ↑ ł 9 Лъ
˘ ҳ no Â

timers lsa-group-pacing *seconds*

no timers lsa-group-pacing

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seconds	LSA ˘ ˘ Â : 10-1800

ð Ô

: 240 Â

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ˆ LSA˜ ˘ ˘ ˘
Лъ Â ѝ 4 ↑ Â a
Â б LSA ʌ Â ˘
10000 LSA˜ æ Â ʌ 40~100
˘ ‡ 10~20↑ ʌ Â

ð Ô

ЛъЮ ˘ ѝ 120 Â

```
Ruijie(config)#router ospf 20
Ruijie(config-router)#timers lsa-group-pacing 120
```

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ҳ	
show ip ospf	ospf

ð ʌ Ô

ð Ô

26.1.45 timers spf

OSPF ˅ SPF ˅ Лъ
ч SPF ˅ ч timers spf Â
ч no Â

timers spf *spf-delay spf-holdtime*

no timers spf

ð Ô

spf-delay	Нж SPF ˅ Лъ ѝ æ Â OSPF ˅ ł˅ SPF Â
spf-holdtime	Нж ч SPF ˅ Лъ ѝ æ Â ˅ ч ˅ a SPF Â

ð Ô

spf-delay 5 ' *spf-holdtime* 10 Â

ð ч Ô

Â

ð Ô

spf-delay *spf-holdtime* ˅ OSPF ≠ ˅ ≠ ˅ . CPU Â

ð Ô

ЛъЮ ˅ OSPF ѓ ѝ 3 9 Â

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 3 9
```

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26.2 ч

26.2.1 show ip ospf

OSPF ˘ ч show ip ospf Â

show ip ospf [*process-id*]

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process-id	ospf л

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ч л Лъ OSPF Â

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ЛъЮ ий show ip ospf ч

```
Ruijie# show ip ospf
Routing Process "ospf 1" with ID 1.1.1.1
Process uptime is 4 minutes
Process bound to VRF default
Conforms to RFC2328, and RFC1583Compatibility flag
isenabled
Supports only single TOS(TOS0) routes
Supports opaque LSA
This router is an ASBR (injecting external routing
information)
SPF schedule delay 5 secs, Hold time between two SPFs
10 secs
LsaGroupPacing: 240 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 4. Checksum 0x0278E0
Number of opaque AS LSA 0. Checksum 0x000000
Number of non-default external LSA 4
```

```
External LSA database is unlimited.
Number of LSA originated 6
Number of LSA received 2
Log Neighbor Adjency Changes : Enabled
Number of areas attached to this router: 1
Area 0 (BACKBONE)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 1
Area has no authentication
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
Number of LSA 3. Checksum 0x0204bf
Area 1 (NSSA)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 0
Number of fully adjacent virtual neighbors through this
area is 0
Area has no authentication
SPF algorithm last executed 02:09:23.040 ago
SPF algorithm executed 4 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State iselected
```

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Router ID	Â
Process uptime	OSPF ˆ router-id и 0.0.0.0 a ˜
Bound to VRF	OSPF VRF
Conforms to RFC2328	б RFC2328
RFC1583Compatibility flag	RFC1583 ‡ RFC2328 ‡ ASBR ‡
Support Tos	/l TOS0
Supports opaque LSA	opaque-LSA
Router Type	OSPF normal à ABR à ASBR Â
SPF Delay	ˊ SPF

SPF-holdtime	ч SPF
LsaGroupPacing	LSA ˘ ˘
Incomming current DD exchange neighbors	˘ incomming exstart
Outgoing current DD exchange neighbors	˘ outgoing ÿ 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 ⁸
Exit database overflow state interval	overflow
Database overflow state	OSPF ŭ overflow
Number of LSA originated	LSA
Number of LSA received	LSA
Log Neighbor Adjency Changes	ʌ ŭ
Number of areas attached to this router	Э ϰ
Area type	ϰ , Default, Stub,NSSA
Number of interfaces in this area	ϰ
Number of fully adjacent neighbors in this area	ϰ Full
Number of fully adjacent virtual neighbors through this area	ϰ Full ’ ʌ ϰ ’
Area authentication	ϰ
SPF algorithm last executed	Э SPF

SPF algorithm executed times	SPF
Number of LSA	ꝟ LSA
Checksum Sum	ꝟ LSA
NSSA Translator State	ŭ NSSA LSA ù External LSA’ NSSA ꝟˇ ɜ ABR OSPF ’

ð ʌ Ô

ð Ô

26.2.2 show ip ospf border-routers

ABR/ASBR OSPF ˇ ꝛ
show ip ospf border-routers Â

show ip ospf [*process-id*] border-routers

ð Ô

process-id	ospf ʌ

ò ꝛ Ô

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ꝛˇ ʌ Лъ ABR ASBR OSPF
ÂOSPF aˇ show ip route ˇ OSPF
ù OSPF ˇ a Â

ð Ô

ЛъЮ ù show ip ospf border-routers ꝛ ’

```
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
```

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Codes	ʒ HЖ Âi ٧ ˘ I ٧ Â
I	ѝ ٧ Â
1.1.1.1	OSPF Â
[2]	ˆ cost˜ Â
via 10.0.0.1	Ю Â
GigabitEthernet 0/1	Â
ABR, ASBR	˘ ABR ASBR ч ˘ Л Лʊ˚ ABR ASBR Â
Area 0.0.0.1	ˉ ٧ Â
select	ASBR ˘ select Â

ð Л Ô

ð Ô

26.2.3 show ip ospf database

OSPF ˘ ʒ show ip ospf database Â

ʒ a˚ a˚ ˆ LSAs˜ Â

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]

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Area-id	^ Ä ~ ¼ Ä
adv-router	^ Ä ~ ¸Ω
link-state-id	^ Ä ~ Ä OSPF Â
self-originate	^ Ä ~
maxage	^ Ä ~ LSA
router	^ Ä ~ OSPF Â

network	ˆ ⁄ ˜ OSPF Â
summary	ˆ ⁄ ˜ OSPF Â
asbr-summary	ˆ ⁄ ˜ ASBR Â
external	ˆ ⁄ ˜ OSPF Â
nssa-external	ˆ ⁄ ˜ OSPF Â
opaque-area	ˆ ⁄ ˜ LSA
opaque-as	ˆ ⁄ ˜ LSA
opaque-link	ˆ ⁄ ˜ LSA
database-summary	ˆ ⁄ ˜ OSPF LSA

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OSPF ˘ ∫ ∫ Â
҃˘ ╠ OSPF Â

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ЛЬЮ ы show ip ospf database ҃ ‘

```
Ruijie# show ip ospf database
    OSPF Router with ID (1.1.1.1) (Process ID 1)

         Router Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum
Link count
1.1.1.1         1.1.1.1         2    0x80000011 0x6f39 2
3.3.3.3         3.3.3.3         120  0x80000002 0x26ac 1

         Network Link States (Area 0.0.0.0)

Link ID         ADV Router      Age  Seq#       CkSum
192.88.88.27    1.1.1.1         120  0x80000001 0x5366

         Summary Link States (Area 0.0.0.0)
```

```
Link ID         ADV Router      Age  Seq#       CkSum
Route
10.0.0.0        1.1.1.1         2    0x80000003 0x350d
10.0.0.0/24
100.0.0.0       1.1.1.1         2    0x8000000c 0x1ecb
100.0.0.0/16

      Router Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum
Link count
1.1.1.1        1.1.1.1        2    0x80000001 0x91a2 1

      Summary Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum
Route
100.0.0.0       1.1.1.1         2    0x80000001 0x52a4
100.0.0.0/16
192.88.88.0     1.1.1.1         2    0x80000001 0xbb2d
192.88.88.0/24

   NSSA-external Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum
Route            Tag
20.0.0.0       1.1.1.1        1    0x80000001 0x033c E2
20.0.0.0/24     0
100.0.0.0      1.1.1.1         1    0x80000001 0x9469 E2
100.0.0.0/28    0

              AS External Link States

Link ID         ADV Router      Age  Seq#       CkSum
Route            Tag
20.0.0.0        1.1.1.1         380  0x8000000a 0x7627
E2 20.0.0.0/24     0
100.0.0.0       1.1.1.1         620  0x8000000a 0x0854
E2 100.0.0.0/28    0
```

show ip ospf database ҃ ЮÂ

OSPF Router with ID	OSPF б OSPF л
Router Link States	ЛЬЮ ѝ Â
Net Link States	ЛЬЮ ѝ Â

Summary Net Link States	ЛЬЮ ѝ Â
NSSA-external Link States	ЛЬЮ ѝ
AS External Link States	ЛЬЮ ѝ Â
Link ID	Â
ADV Router	Â
Age	Â
Seq#	ѧ˘ LSA Â
Cksum	Â
Link-Count	
Route	LSA

LS age	Â
Options	Â
LS Type	Â
Link State ID	Â
Advertising Router	Â
LS Seq Number	ﾉ Â
Checksum	Â
Length	˘ Љ й æ Â
Network Mask	Â
TOS	TOS ˘ ﾊ й 0Â
Metric	Â

ЉЮ й show ip ospf database external ҄

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.35) (Process ID 1)
AS External Link States
LS age: 752
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external ҄ ЮÂ

OSPF Router with ID	ЉЮ б OSPF ﾉ Â Â

Type-5 AS External Link States	ЛЬЮ ѝ Â
LS age	Â
Options	Â
LS Type	Â
Link State ID	Â
Advertising Router	Â
LS Seq Number	ѧ Â
Checksum	Â
Length	˘ ЛЬ ѝ æ Â
Network Mask	Â
Metric Type	Â
TOS	TOS ˘ ѧ ѝ 0 Â
Metric	Â
Forward Address	˘ IP Â ѝ 0.0.0.0 ‡ Â
External Route Tag	˘ 32 Â OSPF a ˘ è ¦ OSPF Â

ЛЬЮ ѝ show ip ospf database network ҄

```
Ruijie# show ip ospf database network
OSPF Router with ID (1.1.1.1) (Process ID 1)
Network Link States (Area 0.0.0.0)

LS age: 572
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: network-LSA
Link State ID: 192.88.88.27 (address of Designated
Router)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x5366
Length: 32
Network Mask: /24
```

```
Attached Router: 1.1.1.1
Attached Router: 3.3.3.3
```

show ip ospf database network ३ ЮÂ

OSPF Router with ID	ЛЬЮ б

```
Network Mask: /24
TOS: 0  Metric: 11
```

show ip ospf database summary ҄ Ю Â

OSPF Router with ID	ЛЬЮ б OSPF ѓ Â
Summary Net Link States	ЛЬЮ ѝ Â
LS age	Â
Options	Â
LS Type	Â
Link State ID	Â
Advertising Router	Â
LS Seq Number	ѓ Â
Checksum	Â
Length	˘ Лъ ѝ Æ Â
Network Mask	Â
TOS	TOS ˘ Ѓ ѝ 0 Â
Metric	Â

ЛЬЮ ѝ show ip ospf database nssa-external ҄ ‘

```
Ruijie# show ip ospf database nssa-external
OSPF Router with ID (1.1.1.1) (Process ID 1)
   NSSA-external Link States (Area 0.0.0.1 [NSSA])
LS age: 1
Options: 0x0 (*|-|-|-|-|-|-|-)
LS Type: AS-NSSA-LSA
Link State ID: 20.0.0.0 (External Network Number For
NSSA)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x033c
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
```

```
Metric: 20
NSSA: Forward Address: 100.0.2.1
External Route Tag: 0
```

show ip ospf database nssa-external ҄
ЮÂ

OSPF Router with ID	ЛЬЮ б OSPF ѓ Â
NSSA-external Link States	ЛЬЮ ѝ Â
LS age	Â
Options	Â
LS Type	Â
Link State ID	Â
Advertising Router	Â
LS Seq Number	ѓ Â
Checksum	Â
Length	˘ Лъ ѝ æ Â
Network Mask	Â
Metric Type	Â
TOS	TOS ˘ ѓ ѝ 0Â
Metric	Â
NSSA:Forward Address	˘ IP Â ѝ 0.0.0.0ґ ‡ Â
External Route Tag	˘ 32 Â OSPF a ˘ ѐ ѣ OSPF Â

ЛЬЮ ѝ show ip ospf database external ҄

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.1) (Process ID 1)
AS External Link States
LS age: 1290
```

```
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external ҳ Ю Â

OSPF Router with ID	ЛЬЮ б OSPF л Â
Type-7 AS External Link States	ЛЬЮ ѝ Â
LS age	Â
Options	Â
LS Type	Â
Link State ID	Â
Advertising Router	Â
LS Seq Number	л Â
Checksum	Â
Length	˘ Лъ ѝ æ Â
Network Mask	Â
Metric Type	Â
TOS	TOS ˘ Л ѝ 0 Â
Metric	Â
Forward Address	˘ IP Â ѝ 0.0.0.0ѓ ‡ Â

External Route Tag	˘ 32 Â OSPF a ˘ è ↑ OSPF Â

ЛЬЮ ѝ show ip ospf database database-summary ʒ ˙

```
Ruijie# show ip ospf database database-summary
OSPF process 1:
Router Link States      : 4
Network Link States     : 2
Summary Link States     : 4
ASBR-Summary Link States : 0
AS External Link States  : 4
NSSA-external Link States: 2
```

show ip ospf database database-summary ʒ
ЮÂ

OSPF Process	ЛЬЮ ⁄
Router Link	˂ ˘ OSPF LSA Â
Network Link	˂ ˘ OSPF LSA Â
Summary Link	˂ ˘ OSPF LSA Â
ASBR-Summary Link	˂ ˘ OSPFASBR LSA Â
AS External Link	˂ ˘ OSPF LSA
NSSA-external Link	,OSPF NSSA LSA

interface-number	ˆ Л ˜ л Â

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ʒ˘ Л Лъ OSPF˝ Лъ OSPF
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ЛъЮ ѝ show ip ospf interface GigabitEthernet *1/0* ʒ

```
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
Transmiie88.2726e                    ϱ
```

Area	OSPF ৲ Â
MTU	MTU
Matching network config	OSPF network area
Process ID	ﾉ
Router ID	OSPF Â
Network Type	OSPF Â
Cost	OSPF Â
Transmit Delay is	OSPF Â
State	DR/BDR Â
Priority	″I
Designated Router(ID)	DR
DR's Interface address	DR
Backup designated router(ID)	BDR
BDR's Interface address	BDR
Time intervals configured	Hello˘ Dead˘ Wait˘ Retransmit
Hello due in	Э HELLO
Neighbor count	
Adjacent neighbor count	Full
Crypt Sequence Number	md5 ﾉ
Hello received send	б HELLO Â
DD received send	б DD Â
LS-Req received send	б LS Â
LS-Upd received send	б LS Â
LS-Ack received send	б LS Â
Discard	OSPF Â

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ð Ô

26.2.5 show ip ospf neighbor

OSPF ˘ ৡ ospf BT /Cm.8.65>]TJ 1 Tf-24.829 -

```
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 ३ Ю'

Neighbor ID	Â
Pri	″I ^ DR ~
State	
Dead Time	Dead
Address	
Interface	
interface address	
In the area	⁻ ↖
via interface	Â
Neighbor priority	OSPF ″I Â
State	OSPF ÂFULL ’ DR и ’ BDR и
State changes times	1
Dead Time	‘

DR

Neighbor up time	
Database Summary List	DD
Link State Request List	LS

1 Tf0 Tc 0 Tw 14.434 0.006 Td<468F1219>Tj090E0DB3Tf-0.0019 Tc 2.25105 Td(LS)Tj/

ЛЬЮ ѝ show ip ospf summary-address ҳ

```
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#
```

Summary Address	
Summary Mask	Â
Advertise	ӳ Ω
Status	ӳ
Aggregated subnets	

ð /ı Ô

ð Ô

26.2.8 show ip ospf virtual-link

OSPF ˘ ҳ show ip ospf virtual-link Â

show ip ospf [*process-id*] virtual-link

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Â show ip ospf neighbor ҳ a Â

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ЛъЮ ѝ show ip ospf virtual-links ҳ

```
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
```

ЮÂ

Virtual Link VLINK0 to router	Лъ
Virtual Link state	.
Transit area	↖ Â
via interface	Â
Local address	
Remote Address	
Transmit Delay	Â
State	

« Ч

Time intervals configured

27

27.1

27.1.1 distribute-list in

ỳ ˘ Л Љ ǂ ⁸ ˘
Â ꝛ OSPF ˘ ỳ
OSPF a ɛ ˘ Â
˘ Â

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ЛЊЮ ˘ RIP ÿ GigabitEthernet 0/0 ˘
⁸ ˘ Л 172.16 Â

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
Ruijie(config-router)# distribute-list 10 in
GigabitEthernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit 172.16.0.0
0.0.255.255
```

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ꝛ	
access-list	Ⱨ ‡
prefix-list	Ⱨ

ð Л Ô

ð Ô

27.1.2 distribute-list out

⁸ ˘ Љ ˘ ꝛ
distribute-list out Â ꝛ no Ⱨ Â

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

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

ð Ô

access-list-number	ʌ ʌ ' 1-99˘ 1300-1999 ʌ ' 100-199˘ 2000-2699
access-list-name	¨
prefix *prefix-list-name*	
Interface	(ʌ) ↑ ˘ 8 Ո
protocol	(ʌ) ↑ ˘ ↑

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8 Â

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˘ ‡ ↑ ˘ è
a 8 Â

OSPF 8 ˘ a ˘ з Ո
OSPF Â

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ЛЬЮ ˘ RIP Ո 192.168.12.0/24 Â

```
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-router)# exit
Ruijie(config)# access-list 10 permit 192.168.12.0
0.0.0.255
```

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ʒ	
access-list	ЬЖ ‡

prefix-list	
redistribute	

27.1.3 ip default-network

ip default-network Â

no Â

ip default-network *network*

no ip default-network *network*

ϡ	
show ip route	IP Â

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ϡ γ Э a Â

27.1.4 ip prefix-list

… ╗ ˘ ip prefix-list
ϡ Â ϡ no Â

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*]

ð Ô

prefix-lis-name	¨
seq-number	Лъ ⁄ Âè 1 2147483647 Â ϡ ⁄˘ ‡ ѝ † ⁄ Â ⁄ 5˜ ł ⁄ ⁄ 5
deny	ѳ
permit	ѳ
ip-prefix	Лъ Â ⁄ Лъ IP Â ÿ 0 32
minimum-prefix-length	ˆ ⁄ ~ (¯) ˋ ge ϡ
maximum-prefix-length	ˆ ⁄ ~ (¯) ˋ le ϡ

ð Ô

… Â

ð ϛ Ô

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ð Ô

ip prefix-list ϛ IP Â permit deny
ᾱ ϬϬ Ю ϰ ╟ Â

ЊЖ ϬϬ ϬϬ Âge le
ЊЖ ϬϬ ˘ ip-prefix
╗ ϬϬ Â ϛ ge le ˘ ‡ ip-prefix
ϬϬ Â ge˘ ‡ ϬϬ
minimum-prefix-length 32 Â le˘ ‡ ϬϬ ip-prefix
maximum-prefix- length Â ɣ ˘ ‡ ϬϬ
ÿ minimum-prefix-length maximum-prefix- length Â¯ ˘ ip-prefix
à minimum-prefix-length maximum-prefix-length ‘
ip-prefix < minimum-prefix-length < maximum-prefix-length
<= 32 Â

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ЛЪЮ ѝ ϯ ˘ OSPF ϯ RIP
ϯ IP ˘ ‡ IP
I Ȯ ˬ ˜ P ě

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ЛЬЮ ù IP Deny routes from Net-A
Ruijie# **configure terminal**
Ruijie(config)# **ip prefix-list pre description Deny routes from Net-A**

27.1.6 ip prefix-list sequence-number

ù ip prefix-list description Â
no Â

ip prefix-list sequence-number

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ЛЬЮ ù
Ruijie# **configure terminal**
Ruijie(config)# **ip prefix-list sequence-number**

27.1.7 ip route

ip route Â no
Â

ip route [vrf *vrf_name*] *network net-mask* {*ip-address* | *interface* [*ip-address*]} [*distance*] [tag *tag*] [*permanent* | track *object-number*] [weight *number*] [*disabled* | *enabled*]

ð Ô

vrf_name	VRF
network	
net-mask	
ip-address	Ю
Interface	ˆ Л ˜ Ю
distance	ˆ Л ˜
tag	ˆ Л ˜ Tag
permanent	ˆ Л ˜
object-number	(Л) б track ╠ ,object-number track id
number	ˆ Л ˜
disabled/enabled	ˆ Л ˜

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˘ Л ╠ a ˘ Â
Л Љ ˘ ˘
ѝ ╠ Â OSPF ѝ 110˘ Л Љ
ѝ 125˘ OSPF ˘
Л Љ Э Â

Л Љ vrf˘ ‡ ╕ vrf Â

ѝ 1˘ Л Љ show ip route weight ҳ
Â weight WCMP ╖ ˘
Л ˘ ǂ
˘ weight ǂ ˘ ǂ

Â WCMP ⁸ ѝ 32˝ ‡
a˚ ˘ Лъ è WCMP ⁸ б л ’
⁸ ˘ ⁸ a Â
⁸ ŭ ˘ ‡ a Â
˘ ˘ ŭ ‡ Â

Лъ ˘ Ю ѝ ˆ ip
route 0.0.0.0 0.0.0.0 GigabitEthernet 0/0˜ Â
˘ GigabitEthernet 0/0 ˘ ў
ARP ˘ . CPU Â Лъ a
Лъ Â

л Лъ б track ╟ Â б track
╟˘ track ÍB5¬ Ÿ &Bsñ C2%À^¢0ðXCÃ+ò#ùÑÄBsRV±Û W Ší Ú‡€õa× »A¼

no ip routing

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IP Â

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Л ù VOIP ˘ Л Љ a
RGOS ˚ IP ╖ Â Л Љ RGOS IP ╖ Â

ð Ô

ЉЮ ˘ RGOS ˚ IP ╖ Â

```
Ruijie(config)# no ip routing
```

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27.1.9 ip static route-limit

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ЛЬЮ ˘ Э й 900 ˘ ł Â

```
Ruijie(config)# ip static route-limit 900
Ruijie(config)# no ip static route-limit
```

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27.1.10 ipv6 prefix-list

… IPv6 ╗ ˘ ipv6 prefix-list ϟ Â ϟ no Â

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*]

ð Ô

prefix-lis-name	¨ Â Лъ Л Âè 1 2147483647 Â ϟ Л˘ ‡ й
seq-number	ř˘

…

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ð Ô

ipv6 prefix-list IPv6 permit
deny

ge le

ge le

ipv6-prefix ge le

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ЛЬЮ й IPv6

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

ð Ô

as-path-acl-list-num	ㄴ Â ㄴ 1…500

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

ð Ô

community-list-number

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

27.1.15 match interface

Ð Ю ѝ ˘ ҂ match interface Â ҂ no Â

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

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

ð Ô

interface-type	

‡ ˘ ʌ Лъ 1 match ꝛ 1
set ꝛ Â match ꝛ˘ ‡ ƀ ’ set ꝛ˘
‡ a Â

ð Ô

ǂ ˘ ʌ Лъ ǂ Э Â a
˘ è ˘ ʌ ꝛ a˚ Â
¯ ˚ ǂ Э˘ a˚ ˘ è
ꝛ ≠ a ˚ Â

ЛъЮ ˘ OSPF ǂ RIP ˘ ʌ ǂ Ю
ѝ GigabitEthernet 0/0 RIP Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match interface
GigabitEthernet 0/0
```

ð ꝛ Ô

ꝛ	
match ip address	ƀ
match ip next-hop	ƀ Ю
match ip route-source	ƀ
match metric	ƀ
match route-type	ƀ
match tag	ƀ
set metric	ǂ
set metric-type	ǂ
set tag	ǂ

ð ʌ Ô

ð Ô

27.1.16 match ip address

ꝛ match ip address Â ꝛ no Â

match ip address {*access-list-number* [*access-list-number...* | *access-list-name...*] |*access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

no match ip address {*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

ð Ô

access-list-number	1-99 1300-1999 100-199 2000-2699
access-list-name	
prefix-list *prefix-list-name*	

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Â

ð ꝛ Ô

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match ip address ꝛ Л Â

Л OSPF RIP RIP

OSPF Â Л

IP Â

route maps

8 Â

1 match ꝛ 1

set ꝛ Â match set

a Â

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ϯ ⅠO IP ‡ ˘
ৡ match ip next-hop Â ৡ no Â

match ip next-hop {*access-list-number* [*access-list-number...* |
access-list-name...] |*access-list-name* [*access-list-num 0 Td0*|| |

ЛЬЮ ˘ OSPF ϯ RIP Â Λ RIP Ю
10 20˝ OSPF è ϯ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit host 192.168.10.1
Ruijie(config)# access-list 20 permit host 172.16.20.1
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip next-hop 10 20
```

ð ϡ Ô

ϡ	
access-list	ЬЖ ‡
match ip address	ѕ
match interface	ѕ Ю
match ip route-source	ѕ
match metric	ѕ
match route-type	ѕ
match tag	ѕ
set metric	ϯ
set metric-type	ϯ
set tag	ϯ

ð Λ Ô

ð Ô

27.1.18 match ip route-source

ϯ IP ‡ ˘
ϡ match ip route-source Â ϡ no
Â

match ip route-source {*access-list-number* [*access-list-number...* | *access-list-name...*] |*access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

no match ip route-source {*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

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```
Ruijie(config-route-map)# match ip route-source 5
```

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ó	
access-list	Hx ‡

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Л Лъ ÿ ǀ ┘ ╖ Â Л
Лъ OSPF ǀ ł RIP ˘ ≠ Л Лъ RIP
ǀ ł OSPF Â ǀ Л
Лъ IP Â

ǀ ˘ ^ route maps˜ ˘ ч
ǀ ˚ ⁸ Â

‡ ˘ Л Лъ 1 match ʒ 1
set ʒ Â match ʒ˘ ‡ Ð ’ set ʒ˘
‡ a Â

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˘ è ˘ Л ʒ a˚ Â
¯ ˚ ǀ Э˘ a˚ ˘ è
ʒ ≠ a ˚ Â

ЛъЮ ˘ OSPF ǀ RIP ˘ Л ǀ
10 RIP ˘ OSPF ˘ ѝ
type-1˜ ѝ 40 Â

```
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
```

ð ʒ Ô

ʒ	
ipv6 access-list	ЬЖ IPv6 ‡
match interface	Ð Ю
match ipv6 next-hop	Ð IPv6 Ю
match ipv6 route-source	Ð IPv6
match metric	Ð
match route-type	Ð

match tag	Ð
set metric	†
set metric-type	†
set tag	†

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¨ ˚ ǂ Э˘ a˚ ˘ è

ȝ ≠ a ˚ Â

ЉЮ ˘ OSPF ǂ RIP ˘ Л ǂ

10 RIP ˘ OSPF ˘ ѝ

† IO IPv6

set interface	
set ip default next-hop	Ю IP ˘
set ip next-hop	Ю IP
set ip precedence	IP ˝I

27.1.23 match metric

ѳ ˘ ϡ match metric Â ϡ no Â

match metric *metric*

no match metric

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metric	∧ ‘ 0-4294967295

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Â

ð ϡ Ô

Â

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∧Љ ÿ ł ⅃ ℸ Â ∧ Љ OSPF ł ɨ RIP ˘ ≠ ∧Љ RIP ł ɨ OSPF Â ł ∧ Љ IP Â

ł ˘ ^ route maps˜ ˘ ч ł ˚ ⁸ Â

‡ ˘ ∧Љ 1 match ϡ 1 set ϡ Â match ϡ˘ ‡ ѳ ’ set ϡ˘ ‡ a Â

ð Ô

ЉЮ ˘ OSPF ł RIP Â∧ й 10 RIP ˘ OSPF ł Â

```
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
```

ð ϡ Ô

ϡ	
access-list	ЊЖ ‡
match ip address	ѓ
match interface	ѓ ЊО
match ip next-hop	ѓ ЊО
match ip route-source	ѓ
match route-type	ѓ
match tag	ѓ
set metric	ϡ
set metric-type	ϡ
set tag	ϡ

ð / Ô

ð Ô

27.1.24 match origin

ϡ ˘ ϡ match origin Â ϡ no Â

match origin {egp | igp | incomplete }

no match origin {egp | igp | incomplete| }

ð Ô

egp	EGP
igp	IGP

Incomplete	a

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ৡ ɒ ˚ Â

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```
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
```

ð ৡ Ô

ৡ	
match as-path	ɒ AS_PATH
match metric	ɒ
match origin	ɒ
set as-path prepend	ɬ AS_PATH
set metric	ɬ
set origin	ɬ

27.1.25 match route-type

ɒ ˘ ৡ match route-type Â

ৡ no Â

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 }

ð Ô

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

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Л Лъ ÿ ǀ ǰ ╗ Â Л Лъ OSPF ǀ ł RIP ˘ ≠ Л Лъ RIP ǀ ł OSPF Â ǀ Л Лъ IP Â

ǀ ˘ ^ route maps˜ ˘ ч ǀ ˚ ª Â

‡ ˘ Л Лъ 1 match ϗ 1 set ϗ Â match ϗ˘ ‡ Ð ’ set ϗ˘ ‡ a Â

ð Ô

ЛъЮ ˘ RIP ǀ OSPF ÂRIP Л ǀ OSPF Â

```
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
```

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

27.1.26 match tag

match tag Â no

Â

match tag *tag* [*…tag*]

no match tag *tag* [*…tag*]

tag	

Â

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ϳ ł OSPF Â ϳ ʌЛ
IP Â

ϳ ˘ ˆ route maps˜ ˘ ч
ϳ ˚ ¸ Â

‡ ˘ ʌЛ 1 match ϗ 1
set

ΗЖ ˘ ˘ ϟ route-map Â

ϟ no ΗЖ Â

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

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

ð Ô

route-map-name	ΗЖ ¨ Â ǂ ϟ Â ʌ ЛЪ ΗЖ ˘ ʌ
permit	ˆ ʌ ~ ΗЖ permit ˘ match ΗЖ Ƌ ‡ Â ‡ set ϟ ǂ ϐ ’ ˘ set ϟ ϐ Â Â ΗЖ permit ˘ a match ΗЖ Ƌ ‡ Â ‡ ɣ Â set ϟ
deny	ˆ ʌ ~ ΗЖ deny ˘ match ΗЖ Ƌ ‡ Â ‡ a ˘ a ǂ ˘ ɜ Â ΗЖ deny ˘ a match ΗЖ Ƌ ‡ Â ‡ ΗO Â set ϟ Â
sequence-number	ʌ Â æ ʌ ˮI ˘ ʌ Â

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RGIOS ¨ ў ч ‘ ˝ ~ ǂ ϐ ’ ˘ ~

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˝ ~ ǂ ϐ

ʌ ЛЪ ÿ ǂ ┘ ╖ Â ʌ

ЛЪ OSPF ǂ ł RIP ˘ ≠ ʌ ЛЪ RIP

OSPF Â IP Â

route maps Â match 1 set Â match a Â

1) … *sequence-number* 10

2) *sequence-number* a …

Â

Â

OSPF RIP

ৠ match ‡ AS ˘
ৡ set aggregator as Â ৡ no Â
ৡ Â

set aggregator as *as-num ip_addr*

no set aggregator as [*as-num ip_addr*]

ð Ô

as-number	AS ﾊ
ip_addr	

ð Ô

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ð Ô

ৡ BGP ˘ Â

ৡ ﾊ ˆ as,ip-addr˜ ˘ a ˚

ð Ô

```
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
```

ð ৡ Ô

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

27.1.30 set as-path prepend

ৠ match ‡ ৭ AS_PATH ˘
ৡ set as-path prepend Â ৡ no Â
ৡ Â

set as-path prepend *as-number*

no set as-path prepend [*as-number*]

ঌ Ô

ৡ match ‡ COMMUNITY_LIST community ˘ ৡ set comm-list delete Â ৡ no Â ৡ Â

set comm-list *community-list-number* | *community-list-name* delete

no comm-list

community-number	Â ù AA:NN(ʌ:2)˘ ˘ 0-4294967295˘ ЛЬЮ НЖ ‘ internet˘ Internet ˘ Â local-as˘ a AS ˘ ˘ a è Â no-advertise˘ a BGP peers Â no-export˘ a EBGP peers Â

match origin	ɔ
set as-path prepend	ɬ AS_PATH
set origin	ɬ
set metric-type	ɬ

27.1.33 set dampening

ɔ match ‡ ˘ ɝ set dampening Â ɝ no Â

set dampening *half-life reuse suppress max-suppress-time*

no set dampening

ð Ô

half-life	/ı a /ı Â 1..45(ʃ) ˇ ѝ 15 ɬ
reuse	æ ˘ ⁸ Â 1..20000ˇ ѝ 750 Â
suppress	˘ ⁸ Â 1..20000ˇ 2000 Â
max-suppress-time	⁸ Â 1..255(ʃ) ˇ ѝ 4* half-life

ð Ô

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```
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
```

ð ৡ Ô

ৡ	
match as-path	৳ AS_PATH
match community	৳
match metric	৳
match origin	৳
set as-path prepend	৲ AS_PATH
set metric	৲
set local-preference	৲ ″I

27.1.34 set default interface

৳ match ‡ ৩ ˘
ৡ set default interface Â ৡ no
Â

set default interface *interface-type interface-number* [*…interface-type interface-number*]

no set default interface *interface-type interface-number* [*…interface-type interface-number*]

ð Ô

interface-type	
interface-number	

ð Ô

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ð ৡ Ô

ð Ô

a

27.1.35 set extcommunity

match

set extcommunity no

set extcommunity {rt *extend-community-value* | soo *extend-community-value*}

no set extcommunity {rt | soo}

ð Ô

rt	RT
soo	SOO
extend-community-value	

ð Ô

ð Ô

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

27.1.36 set interface

Ð match Ò ª ⁄¦ يحي

˘ Ж

Â

Ж ѵ й

ϱ match ‡ Ю IP ˘
ϡ set ip next-hop Â ϡ no Â

set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

no set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

ð Ô

ip-address	Ю IP
weight	Ю /C2_7DF03D443C7>Tj /TTB>1.92 r

˘ ЬЖ

Â

Л Лъ set Â

ð Ô

ЛЬЮ ч a˚ ∫ a˚ Э Â

˚ 1 Э ÿ 1.1.1.1 ˘ ˚ a

˘ 6.6.6.6 ’ ÿ 2.2.2.2 ˘

˚ a ˘ 7.7.7.7 Â è

˚ a Â

```
Ruijie(config)#access-list 1 permit ip 1.1.1.1 0.0.0.0
Ruijie(config)#access-list 2 permit ip 2.2.2.2 0.0.0.0

Ruijie(config)#interface async 1
Ruijie(config-if)#ip policy route-map equal-access

Ruijie(config)#route-map equal-access permit 10
Ruijie(config- route-map)#match ip address 1
Ruijie(config-route-map)#set ip default next-hop
6.6.6.6
Ruijie(config)#route-map equal-access permit 20
Ruijie(config-route-map)#match ip address 2
Ruijie(config-route-map)#set ip default next-hop
7.7.7.7
Ruijie(config)#route-map equal-access permit 30
Ruijie(config- route-map)#set default interface null 0
```

ð ϡ Ô

ϡ	
route-map	ЬЖ
match ip address	ƀ
set default interface	˘
set default interface	˘
set interface	
set ip next-hop	Ю IP ˘
set ip precedence	IP ″I

27.1.38 set ip dscp

ɒ match ‡ DSCP ˘ ৡ set ip dscp Â ৡ no Â

set ip dscp *dscp_value*

no set ip dscp

ð Ô

dscp_value	IP IP DSCP

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ৡ	
route-map	ЬЖ
match ip address	ɒ
set default interface	˘
set default interface	˘
set interface	
set ip default next-hop	Ю IP ˘
set ip precedence	IP ″I

ð Л Ô

ð Ô

27.1.39 set ip next-hop

ϬÂ match ‡ Ю IP ˘
ϟ set ip next-hop Â ϟ no Â ϟ
Â

set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]
no set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

ð Ô

ip-address	Ю IP
weight	Ю

ð Ô

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ð ϟ Ô

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set ϟ ч ' WCMP ˘ WCMP
Â Ю weight
WCMP Â

set ip next-hop ϟ ł Л Л IP ˘ a 32 Â

ip address ł ╗ weight ˘ ‡ Л Л a 4
nexthop Â

˘ next-hop ł weight ˘ set ϟ
╠Ґ ѝ WCMP Â WCMP
Ю weight nexthop ˘ ѐ weight
ѝ 1Â

╗
ϐ Â ˘ ᾱ
˘ ᾱ Ю Â

˘ ˘ з … Â
˘ ЊЌ 1 Ϭ

set ip precedence	IP ″I

ð Л Ô

ð Ô

27.1.40 set ip next-hop verify-availability

Ю IP Л ˘ ҳ set ip next-hop verify-availability Â ҳ no Â ҳ Â

set ip next-hop verify-availability *ip-address* track *track-obj-num*

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

ð Ô

ip-address	Ю IP
track-obj-num	Л

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ЛЬЮ ˘ serial 1/0 Э Â
10.0.0.0/8 ˘ 192.168.100.1’
ù 172.16.0.0/16 ˘ 172.16.100.1’ è
Â

```
Ruijie(config)#interface serial 1/0
Ruijie(config-if)#ip policy route-map load-balance

Ruijie(config)#access-list 10 permit 10.0.0.0
0.255.255.255
```

```
Ruijie(config)#access-list  20  permit  172.16.0.0
0.0.255.255

Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#set     ip          next-hop
192.168.100.1

Ruijie(config)#route-map load-balance permit 20
Ruijie(config--route-map)#match ip address 20
Ruijie(config-route-map)#set ip  next-hop 172.16.100.1

Ruijie(config)#route-map load-balance permit 30
Ruijie(config-route-map)#set interface Null 0
```

ð ϡ Ô

ϡ	
route-map	ЬЖ
match ip address	ɒ
set default interface	˘
set default interface	˘
set interface	
set ip default next-hop	ЬO IP ˘
set ip precedence	IP ″I

ð ʌ Ô

ð Ô

27.1.41 set ip precedence

ɒ match ‡ IP ″I ,
ϡ set ip precedence Â ϡ no ˘ ″I
Â

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

no set ip precedence {*<0-7>* | *critical* | *flash* | *flash-override*

| *immediate* | *internet* | *network* | *priority* | *routine* }

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IP ˝I IP a˚

˝I Â

27.1.42 set ip tos

- match

match route-type	Ð
match tag	Ð
set metric-type	¦
set tag	¦
set ip precedence	IP ″I

27.1.43 set level

Ð

match metric	Ð
match route-type	Ð
match tag	Ð
set metric-type	¦
set tag	¦

27.1.44 set local-preference

Ð match ‡ LOCAL_PREFERENCE ˘
ꝛ set local-preference Â ꝛ no Â

set local-preference *number*

no set local-preference

ð Ô

number	″I Â ‘ 0-4294967295

ð Ô

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ð Ô

/ı local-preference ˘ a local-preference Â

ꝛ Ð ″I Â

ð Ô

```
Ruijie(config)# route-map SET_PREF permit 10   1T3101 12TC TfO.0G01(
```

ǂ ˘ ^ route maps˜ ˘ ч
ǂ ˚ ⁸ Â

‡ ˘ Л Лъ 1 match ҳ 1
set ҳ Â match ҳ˘ ‡ ƀ ’ set ҳ˘
‡ a Â

ð Ô

ЛъЮ ˘ OSPF ǂ RIP ˘ ǂ
ѝ 40 Â

```
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
```

§ ɻ ƀ

ð ҳ Ô

ҳ	
match interface	ƀ Ю
match ip address	ƀ
match ip next-hop	ƀ Ю
match ip route-source	ƀ
match metric	ƀ
match route-type	ƀ

match tag

set metric-type *type*

match ip next-hop	৳ Ю
match ip route-source	৳
match metric	৳
match route-type	৳
match tag	৳
set metric	৲
set tag	৲

ð Ô

ð Ô

27.1.47 set next-hop

৳ match ‡ Ю IP ˘
ৡ set next-hop Â ৡ no Â ৡ
Â

set next-hop *ip-address*

no set next-hop *ip-address*

ð Ô

‡ ˘ Л Лъ 1 match ҳ 1
set ҳ Â match ҳ˘ ‡ ѣ ’ set ҳ˘
‡ a Â

ð Ô

Лъ Ю ˘ ѣ ⁸ ″ Ю ѝ
192.168.1.2 Â

```
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
```

ð ҳ Ô

ҳ	
match interface	ѣ Ю
match ip address	ѣ
match ip next-hop	ѣ Ю
match ip route-source	ѣ

ð Ô

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```
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
```

ð Ô

match as-path	AS_PATH
match metric	
match origin	
set as-path prepend	AS_PATH
set metric	
set local-preference	

27.1.49 set originator-id

match

set originator-id Â no Â

set originator-id *ip-addr*

no originator-id [*ip-addr*]

ð Ô

ip-addr	

ð Ô

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```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set originator-id 5.5.5.5
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set originator-id 5.5.5.6
```

ð ৡ Ô

ৡ	
match as-path	৕ AS_PATH
match metric	৕
match origin	৕
set as-path prepend	৲ AS_PATH
set metric	৲
set local-preference	৲ ˝I

27.1.50 set tag

৕ match ‡ ˘ ৡ set tag Â

ৡ no Â

set tag *tag*

no set tag

ð Ô

tag	৲

ð Ô

a ⁄ Â

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ꝛ ⁄ ⁄ Â ꝛ˘
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ЛЬЮ ˘ OSPF ¦ RIP ˘ ¦
ѝ 100 Â

```
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
```

ð ꝛ Ô

ꝛ	
match interface	ѳ Ю
match ip address	ѳ
match ip next-hop	ѳ Ю
match ip route-source	ѳ
match metric	ѳ
match route-type	ѳ
match tag	ѳ
set metric	¦
set metric-type	¦

ð ⁄ Ô

ð Ô

27.1.51 set weight

ѓ match ‡ BGP ˘ ֽ
set weight Â ֽ no Â

set weight *number*

no set weight

ð Ô

number	Â ' 0-65535

ð Ô

Â

ð ֽ Ô

Â

ð Ô

ֽ /\ BGP Â

Ю ÿ ˘ neighbor weight
, 32768 Â

/\ Лъ ֽ BGP ĵ Â

ð Ô

ЛъЮ ˘ BGP in Э ˘ ÿ
1.1.1.1 ù 100 Â

```
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
```

ð ֽ Ô

ֽ	
match as-path	ѓ AS_PATH
match community	ѓ
match metric	ѓ
match origin	ѓ

set community	COMMUNITY
set metric	
set metric-type	

27.2

27.2.1 show ip prefix-list

show ip prefix-list

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

IP ˘ show ip route ¸ Â

show ip route [[vrf *vrf_name*] [*network* [*mask*] | count | protocol [*process-id*] | weight | track-table]]

ð Ô

vrf *vrf_name*	^ Л ~ Л VRF
network	^ Л ~ Л
mask	^ Л ~ Л
count	^ Л ~
protocol	^ Л ~ ' connected , static ' ˘ Ю ' bgp , isis , ospf , rip
process-id	^ Л ~ л
weight	^ Л ~ Л
track-table	Л б track ╟

ð Ô

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¸ Л Лъ ˘ Â

¸ Л Лъ Лъ ˘
vrf *vrf_name* Â

ð Ô

ЛъЮ й show ip route ¸ '

```
Ruijie# show ip route
Codes:  C - connected, S - static, R - RIP, B - BGP
```

```
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2
- IS-IS level-2
ia - IS-IS inter area, * - candidate default

Gateway of last resort is no set
S    20.0.0.0/8 is directly connected, VLAN 1
S    22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN
1
R    40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN
1
B    50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C    192.1.1.0/24 is directly connected, VLAN 1
C    192.1.1.254/32 is local host.
```

show ip route

ЛЬЮ й show ip route *network* ч

```
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* ч Ю

	ч Ruijie#
Routing Descriptor Blocks	Ю IP à à à à à à BGP

ЛЬЮ й show ip route count ч

Ruijie#

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IPv6 Â

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

27.2.4 show route-map

ৡ show route-map Â

show route-map *route-map-name*

ð Ô

route-map-name	

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```
Ruijie# show route-map
```

```
route-map AAA, permit, sequence 10
Match clauses:
ip address 2
Set clauses:
metric 10
```

28 ACL ¾

ЛЬЮ ¾ /1 ЛЬЮ ¾

	ЬЖ

/1 Â /1

IP ACL˙ 1-99

id

icmp-message	ICMP ¨
operator port[port]	Operator и ^ lt- ˘ eq- ˘ gt- ˘ neq- a ˘ range- ~ port ˅ ɣ ч ˅ ˘ è ˅ ˅
text	

28.1 ৡ

ৡ

- access-list
- ip access-list
- ip access-list resequence
- firewall default-policy-permit

ACL ৡ

- deny
- permit
- list-remark text
- no sn

ৡ

- ip access-group

28.1.1 access-list

ৡ … ‡˘ Â ৡ no Â

1) IP ^ 1 - 99˝ 1300 - 1999˜

access-list *id* {deny | permit } {*source source-wildcard* | host *source* | any}

2) IP ^ 100 - 199˝ 2000 - 2699˜

access-list *id* {deny | permit } protocol {*source source-wildcard* | host *source* | any} {*destination destination-wildcard* | host *destination* | any} [[dscp *dscp*] | [[precedence *precedence*][tos *tos*]]] [time-range *time-range-name*]

IP ‘

Internet Control Message Protocol (ICMP)

access-list *id* {deny | permit } icmp {*source source-wildcard* | host *source* | any} {*destination destination-wildcard* | host *destination* | any} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [[dscp *dscp*] | [[precedence *precedence*][tos *tos*]]] [time-range *time-range-name*]

Transmission Control Protocol (TCP)

access-list *id* {deny | permit } tcp {*source source-wildcard* | host *Source* | any} {host *source-mac-address* | any } [operator port [*port*]] {*destination destination-wildcard* | host *destination* | any} {host *destination-mac-address* | any} [operator port [*port*]] [[dscp *dscp*] | [[precedence *precedence*][tos *tos*]]] [time-range *time-range-name*]

User Datagram Protocol (UDP)

access-list *id* {deny | permit } udp {*source source –wildcard* | host *source* | any} [operator port [*port*]] {*destination destination-wildcard* | host *destination* | any} [operator port [*port*]] [[dscp *dscp*] | [[precedence *precedence*][tos *tos*]]] [time-range *time-range-name*]

3)

access-list *list-remark text*

Id	˄ Â ˄ ˆ 1-99˝ 100-199˝ 1300-1999˝ 2000-2699˝ 2700 – 2899˝ 700 - 799˜ Â
deny	ɒ ˇ ‡ Â
permit	ɒ ˇ ‡ Â
source	ˆ ў ˜
source-wildcard	Â ˄ Ɓ a ˇ 0.255.0.32
s o u r c e *protocol*	pr5ocTM||ɒ¢V0P˚ ˄˘ ˄ Ɓ EIGRP ãGRE ãIPINIP ãIGMP ã NOS ã OSPF ã ICMP ã UDP ã TCP ã IP ˇ ≠ ˄ Ɓ ȝ IP 0-255 ˄ Â ICMP/TCP/UDP Â

ACL ३

- normal

ICMP

- administratively-prohibited
- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable
- host-unknown
- host-unreachable
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- router-advertisement
- router-solicitation
- source-quench
- source-route-failed
- time-exceeded

- timestamp-reply
- timestamp-request
- ttl-exceeded
- unreachable

Ю TCP ‥ б л ˇ TCP Л Љ ‥ л é
‘

- 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)
- Ю UDP ‥ б л ˇ UDP Л Љ ‥ л

- 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

IO IP 192.168.1.64 - 192.168.1.127

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

2. IP

IO IP DNS ICMP

```
Ruijie(config)# access-list 102 permit tcp any any eq domain
Ruijie(config)# access-list 102 permit udp any any eq domain
Ruijie(config)# access-list 102 permit icmp any any echo
Ruijie(config)# access-list 102 permit icmp any any echo-reply
```

port [*port*]] {*destination destination-wildcard* | host *destination* | any} [*operator* port [*port*]] [[dscp *dscp*] | [[precedence *precedence*][tos *tos*]]] [time-range *time-range-name*]

access-list	access-list

ACL Ю

ACL Ю ACL

1˙ Ю IP ACL ˘ IP й 192.168.4.12 ў TCP й 100 ┗˘ gigabitethernet 1/1Â

```
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
```

ip access-group	ACL б
ip access-list	IP ACL Њ
permit	Њ ҳ

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л	
V10.0	V10.0 Љ Э Â

ҳ

28.1.3 firewall default-policy-permit

ACL Â ҳ no
Â

firewall default-policy-permit
no firewall default-policy-permit

-	-

ACL й

ҳ

ACL‡ б ҳ Â
л a Â

Ю

```
M8600-FW# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
M8600-FW(config)# firewall default-policy-permit
       M8600-FW(config)# end
```

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-	-

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¾	ʌ	
	V10.0	˚ V10.0 Л Э

28.1.4 ip access-group

é ACL б ˘ ¾ ip access-group Â
¾ no ʌ Â

ip access-group {*id* | *name*} {in | out}

no ip access-group { *id* | *name*} {in | out}

id	IP ʌ^ 1-199˝ 1300-2699˘
name	IP ¨
in	
out	ÿ

б ACL

¾

ip access-group ¾ б ˘ ¨ Â

Ю fastEthernet0/0 б 120 ˘ ‘

```
Ruijie(config)# interface fastEthernet 0/0
Ruijie(config-if)#ip access-group 120 in
```

¾	
access-list	Ж Â
show access-lists	

ʌ

¾	ʌ	
	V10.0	˚ V10.0 Л Э

28.1.5 ip access-list

… IP ACL IP ACL Â no ACL

ip access-list {extended | standard } {*id* | *name*}

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

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

ACL

ACL a ACL Â deny permit Â show access-lists ACL Â

1 … ACL

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

2 … ACL

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

show access-lists	IP

V10.0	V10.0

28.1.6 ip access-list resequence

ip ACL no

ip access-list resequence { *id* | *name* } *start-sn inc-sn*

no ip access-list resequence { *id* | *name* }

Id	ACL
name	ACL
start-sn	
inc-sn	

start-sn 10

inc-sn 10

show access-lists

#

ACL

```
M8600-FW# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
M8600-FW # config
M8600-FW(config)# ip access-list resequence 1 21 43
M8600-FW(config)# end
M8600-FW# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
M8600-FW#
```

show access-lists	ACL

V10.0	V10.0

28.1.7 list-remark

no

list-remark *text*

text	

ACL

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

show access-lists	ACL
ip access-list	IP ACL

V10.0	V10.0

28.1.8 no sn

ACL

no *sn*

sn	ACL

ACL

ACL

ACL

```
Ruijie(config)# ip access-list extended 100
Ruijie(config-ext-nacl)# permit ip host 192.168.4.12 any
Ruijie(config-ext-nacl)# 12 deny ip any any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 100
10 permit ip host 192.168.4.12 any
12 deny ip any any
Ruijie(config-ext-nacl)# no 12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 100
10 permit ip host 192.168.4.12 any
```

show access-lists	ACL
ip access-list	IP ACL
deny	ACL
permit	ACL

V10.0	V10.0

28.1.9 permit

access-list	access-list

٩ ACL Ю

ACL Ю ACL ˚

1˙ Ю IP ACL ˘ IP й 192.168.4.12 ў TCP й 100 Ь˘ gigabitethernet 1/1 б ACL Â

```
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˙ Ю IP ACL ˘ IP й 192.168.4.12 ў ˘ gigabitethernet 1/1 б ACL Â ˙

```
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
```

٩

٩	
show access-lists	
ip access-group	б ACL
ip access-list	IP ACL Нж
deny	Нж ACL

/1

V10.0	V10.0 arp V10.2(3)

28.2

28.2.1 show access-group

ACL

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

<*interface*>	

ACL a 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

28.2.2 show access-lists

ACL ACL

show access-lists [*id* | *name*]

id	
name	

acl *id* *name* ACL

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
```

access-list	ACL
ip access-list	IP ACL

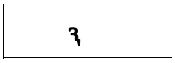
V10.0	V10.0

28.2.3 show ip access-group

IP ACL

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

<*interface*>	



Э ACL˘ a ACL

```
Ruijie#
```

29.1.2 arp-car

ARP ˘ Glean-CAR ˘ control-plane
Ю ҂ arp-car

҂ no arp-car ‡

arp-car *packet_rate_per_group* [total-bw-rate *rate*]

no arp-car

packet_rate_per_group	ˆ Æ ѝ pps˜
rate	Arp 8ˆ Æ ѝ pps˜

Ю ARP-CAR ˘ ˚ ˆ ˜ ARP ѝ 5pps Â

҂ control-plane ˘ Л

Â

1 ЛЬЮ ˘ Э˘ ˚ ˆ ˜ ARP ѝ 10pps

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# arp-car 10
```

҂

҂	
Ruijie(config)# control-plane {protocol | manage | data}	control-plane ˘ Л Лъ

Л

҂

Л	
-	-

29.1.3 control-plane

control-plane ˘ Л Лъ ҂ control-plane

exit control-plane

control-plane {protocol | manage | data}

protocol	8
manage	
data	Ь

Â

1' ЛЬЮ ˘ control-plane ˘ 8 '

```
Ruijie(config)# control-plane protocol
Ruijie(config-cp)#
```

-	-

Â

-	-

29.1.4 glean-car

ł Ē IP ˘ Glean-CAR ˘

control-plane Ю glean-car

no glean-car ‡

glean-car *packet_rate_per_group* [total-bw-rate *rate*]

no glean-car

packet_rate_per_group	^ Æ й pps˜
rate	glean 8^ Æ й pps˜

	ЮЎ Glean-CAR ˘ ˚ ^ ~ ɔ Glean ѝ 5pps Â
ꝛ	control-plane ˘ /ı ⊾
	Â

	1ˈ ЛЬЮ ˘ ˚ ^ ~ ɔ Glean
	ѝ 10ppsˈ
	`Ruijie(config)# control-plane data`
	`Ruijie(config-cp)# glean-car 10`

ꝛ	ꝛ	
	Ruijie(config)# control-plane {protocol | manage | data}	control-plane ˘ /ı Лъ

/ı	Â

ꝛ	/ı	
	-	-

29.1.5 management-interface

^ MPP˜ ╖ ѝ ^
˘ ⊾ ~ Â MPP ╖ Лъ ł˘ /ı
Â MPP˘

control-plane Ю ꝛ management-interface

ꝛ no

management-interface *interface* allow {ftp | http | https | ssh | snmp | telnet | tftp }

no management-interface *interface*

	Interface	

	ЮЎ MPP ╖

ϡ control-plane ˘ /I

Â

1˙ ЛЬЮ ˘ interface vlan 100 ѝ ˘ /I
telnet˘ snmp ˙

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# management-interface vlan 100 allow snmp telnet
```

ϡ

ϡ	
Ruijie(config)# control-plane {protocol | manage | data}	control-plane ˘ /I Лъ

/I

ϡ

/I	
-	-

29.1.6 port-filter

Port-Filter ╖ /I Лъ ˘
Â Port-Filter ╖ control-plane Ю
ϡ port-filter

ϡ no Port-Filter ╖

port-filter

no port-filter

-	-

Ю˘ Port-Filter

ϡ control-plane ˘ /I

1˙ ЛЬЮ ˘ Э˘ Port-Filter ╖ ˙

1ˈ ЛЬЮ ˘ Э˘ 192.168.52.0
Э TCP ˘ ѝ 100pps˘ ѝ 150ppsˈ
ѝ 30 ˘ ѝ 5 ˘ ѝ 7 ˋ

```
Ruijie(config)# access-list 100 permit tcp 192.168.52.0 0.0.0.255
any
Ruijie(config)# control-plane manage
Ruijie(config-cp)# scpp list 100 bw-rate 100 bw-burst-rate 150
conn-total 30 conn-create-rate 5 conn-create-burst-rate 7
```

ϡ

ϡ	
Ruijie(config)# control-plane {protocol | manage | data}	control-plane ˘ Л Лъ

Л

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ϡ

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-	-

ʒ Э VRRP ╟ Â

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

no vrrp delay

ð Ô

min-seconds ˙ ʎ й ź ` ł

30.1.3 vrrp description

ৡ ѝ VRRP ˘ è no Â

vrrp *group* description *text*

no vrrp group description

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group ˙ VRRP ʌ

text ˙ VRRP

ð Ô

Ю Э VRRP ╖ Â¨ VRRP ╖
˘ ≠ VRRP Â

ð ৡ Ô

ð Ô

ѝ VRRP ˘ ʌЛъ ↖↑ VRRP Â

ð Ô

Ю Лъ E0 Э VRRP 1 ѝ Building A – Marketing and Administration Â

```
interface GigabitEthernet 0/0
ip address 10.0.1.1 255.255.255.0
vrrp 1 ip 10.0.1.20
vrrp 1 description “Building A - Marketing and Administration”
```

ð ৡ Ô

ৡ	
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	VRRP ╖ IP

30.1.4 vrrp ip

¾ Э VRRP IP ˘ è no
Э VRRP ╖ ∧ IP Â

vrrp *group* ip *ipaddress* [secondary]

no vrrp *group* ip *ipaddress* [secondary]

ð Ô

group ˙ VRRP ∧

ipaddress ˙

VRRP

group ˙ VRRP ʌ

level ˙ VRRP ˝I

ð Ô

ЮЃ Э VRRP ╖ Â VRRP ╖ ˘ VRRP è ˝I ѝ 100 Â

ð ꝛ Ô

ð Ô

ꝛ ╟ VRRP ˝I Â

ð Ô

Ю VRRP 1 ˝I ѝ 254 Â

```
vrrp 1 priority 254
```

ð ꝛ Ô

ꝛ	
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	VRRP ╖ IP
Ruijie(config-if)# vrrp *group* preempt [delay *seconds*]	VRRP .

30.1.7 vrrp timers advertise

ꝛ ў VRRP ˘ è no Â

vrrp *group* timers advertise *interval*

no vrrp *group* timers advertise

ð Ô

group ˙ VRRP ʌ

interval ˙ VRRP (Л ѝ Æ)

ð Ô

ЮЃ Э VRRP ╖ Â VRRP ╖ ˘ ў ѝ 1 Â

ð ꝛ Ô

VRRP 1 Э ˜ ╖ Â

```
vrrp 1 timers learn
```

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ৡ	ë
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	VRRP ╖ ë IP
Ruijie(config-if)# vrrp *group* timers advertise [msec] *interval*	VRRP

30.1.9 vrrp track

VRRP vrrp *group* track *interface-type number* ৡˇ VRRP ë IP ˇ vrrp *group*

Ю Э VRRP ╖ Ã VRRP ╖ ˘
IP Â

ð ٪ Ô

ð Ô

Л Лъ ٪ ˘ Л Ь
Л (Routed Port ˘ SVI ˘ Loopback Tunnel) ’
IP ў Л ˘ ¯ ў ping Â

ð Ô

Ю ˘ VRRP 1 Routed Port Fa1/1 Â Fa1/1
˘ VRRP ″I 30’ Fa1/1 ł˘ VRRP
1 ″I Â

```
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(config-if)#vrrp 1 ip 192.168.201.1
Ruijie(config-if)#vrrp 1 track bfd GigabitEthernet
0/1 192.168.1.3 30
Ruijie(config-if)#end
```

ð ٪ Ô

٪	
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	VRRP ╖ IP
Ruijie(config-if)# vrrp *group* priority level	VRRP ″I

30.2 VRRP б ꝛ

30.2.1 debug vrrp

ꝛ VRRP à VRRP Y˘ à VRRP Лъ
˘ è no ╖ Â

debug vrrp

no debug vrrp

ð Ô

ЮЃ Â

ð ꝛ Ô

ð Ô

Ю ˘ VRRP Â

```
Ruijie# debug vrrp
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr
192.168.201.213
VRRP: Grp 1 Event - Advert higher or equal priority
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state
Master -> Backup
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state
Backup -> Master
Ruijie#
```

ð ꝛ Ô

ꝛ	
Ruijie# debug vrrp errors	VRRP ѳ Ḡ

debug vrrp errors

no debug vrrp errors

ð Ô

Ю VRRP Â

ð ৡ Ô

ð Ô

Ю ˘ VRRP Â

```
Ruijie# debug vrrp errors
Ruijie#
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
```

30.2.3 debug vrrp events

ৡ VRRP Y˚ ˘ è no Â

debug vrrp events

no debug vrrp events

ð Ô

Ю VRRP Y˚ Â

ð ৡ Ô

ð Ô

Ю ˘ VRRP Y˚ Â

```
Ruijie# debug vrrp events
Ruijie#
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
```

30.2.4 debug vrrp packets

ৡ VRRP ˘ è no Â

debug vrrp packets

no debug vrrp packets

ð Ô

ЮƠ VRRP Â

ð ৡ Ô

ð Ô

Ю ˘ VRRP ˘ è
VRRP 1 Â

```
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
```

Ю , VRRP ˘ è
VRRP 1 IP Ль VRRP 1 ″I Â

```
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
```

30.2.5 debug vrrp state

ৡ VRRP ˘ è no Â

debug vrrp state

no debug vrrp state

ð Ô

ЮƠ VRRP Â

ð ৡ Ô

ð Ô

Ю ˘ VRRP Â

```
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#
```

30.3 ৡ

30.3.1 show vrrp

ৡ VRRP Â

show vrrp [brief | *group*]

ð Ô

brief ‘ ʌ ˘ VRRP

group ‘ VRRP ʌ

ð ৡ Ô

ð Ô

a ʌ ˘ VRRP Â

ð Ô

VRRP

```
Ruijie# show vrrp
```

```
GigabitEthernet 0/0 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
GigabitEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is
120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
Ruijie#
```

VRRP

```
Ruijie# show vrrp brief
Interface        Grp Pri TiTiTiTi
```

ৡ Э VRRP Â

show vrrp interface *type number* [brief]

ð Ô

type ‘

number ’ ⁄

brief ‘ ⁄ Â

ð ৡ Ô

ð Ô

Ю Л Ъ E1/0 Э 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
```

ð ৡ Ô

ৡ	
Ruijie(config-if)# vrrp *group* ip *ip address* [secondary]	VRRP ╖ IP

3	0%	0%	0%	atimer
4	0%	0%	0%	printk_task
5	0%	0%	0%	waitqueue_process
6	0%	0%	0%	tasklet_task
7	0%	0%	0%	kevents
8	0%	0%	0%	snmpd
9	0%	0%	0%	snmp_trapd
10	0%	0%	0%	mtdblock
11	0%	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

47	0%	0%	0%	ripd
48	0%	0%	0%	ripngd
49	0%	0%	0%	ospfd
50	0%	0%	0%	ospf6d
51	0%	0%	0%	bgpd
52	0%	0%	0%	pimd
53	0%	0%	0%	pim6d
54	0%	0%	0%	pdmd
55	0%	0%	0%	dvmrpd
56	0%	0%	0%	vty_connect
57	0%	0%	0%	aaa_task
58	0%	0%	0%	Tlogtrap
59	0%	0%	0%	dhcp6c
60	0%	0%	0%	sntp_recv_task
61	0%	0%	0%	ntp_task
62	0%	0%	0%	sla_deamon
63	0%	3%	1%	track_daemon
64	0%	0%	0%	pbr_guard
65	0%	0%	0%	vrrpd
66	0%	0%	0%	psnpd
67	0%	0%	0%	igsnpd
68	0%	0%	0%	coa_recv
69	0%	0%	0%	co_oper
70	0%	0%	0%	co_mac
71	0%	0%	0%	radius_task
72	0%	0%	0%	tac+_acct_task
73	0%	0%	0%	tac+_task
74	0%	0%	0%	dhcpd_task
75	0%	0%	0%	dhcps_task
76	0%	0%	0%	dhcpping_task
77	0%	0%	0%	dhcpc_task
78	0%	0%	0%	uart_debug_file_task
79	0%	0%	0%	ssp_init_task
80	0%	0%	0%	rl_listen
81	0%	0%	0%	ikl_msg_operate_thread
82	0%	0%	0%	bcmDPC
83	0%	0%	0%	bcmL2X.0
84	3%	3%	3%	bcmL2X.0
85	0%	0%	0%	bcmCNTR.0
86	0%	0%	0%	bcmTX
87	0%	0%	0%	bcmXGS3AsyncTX
88	0%	2%	1%	bcmLINK.0
89	0%	0%	0%	bcmRX
90	0%	0%	0%	mngpkt_rcv_thread

```
 91     0%     0%     0%    mngpkt_recycle_thread
 92     0%     0%     0%    stack_task
 93     0%     0%     0%    stack_disc_task
 94     0%     0%     0%    redun_sync_task
 95     0%     0%     0%    conf_dispatch_task
 96     0%     0%     0%    devprob_task
 97     0%     0%     0%    rdp_snd_thread
 98     0%     0%     0%    rdp_rcv_thread
 99     0%     0%     0%    rdp_slot_change_thread
100     4%     2%     1%    datapkt_rcv_thread
101     0%     0%     0%    keepalive_link_notify
102     0%     0%     0%    rerp_msg_recv_thread
103     0%     0%     0%    ip_scan_guard_task
104     0%     0%     0%    ssp_ipmc_hit_task
105     0%     0%     0%    ssp_ipmc_trap_task
106     0%     0%     0%    hw_err_snd_task
107     0%     0%     0%    rerp_packet_send_task
108     0%     0%     0%    idle_vlan_proc_thread
109     0%     0%     0%    cmic_pause_detect
110     1%     1%     1%    stat_get_and_send
111     0%     1%     0%    rl_con
112    75%    80%    90%    idle
```

Э ˘ 3 ↑ 5 à 1↑ à 5↑ CPU ^ LISR à HISR Ł˜ ÂЮ ‡ é CPU ↑ Â è ˘ ЂЖ Ю˙

- No˙ ∧
- 5Sec˙ Ł 5 CPU
- 1Min˙ Ł 1↑ CPU
- 5Min˙ Ł 5↑ CPU

2 ˘↑ LISR CPU HISR CPU ˘ ÿ 3 ˘ Ł CPU Â ł idle CPU ˘ Windows Ю Ї System Idle Process Ł ˘ Â Э ˘ idle 5 CPU ù 75%˘ CPU 75% Â

31.1.2 cpu-log

CPU , ∧ Л cpu-log Â

cpu-***log*** *log-limit low_num high_num*

ð Ô

log-limit ˷

low_num CPU æ

high_num CPU

ð Ô

Ю ù 100%˜ æ ù 90%Â

ð ˷ Ô

Â

ð Ô

˷ Л Ъ CPU æ ˘ CPU
Ю ˘ CPU ,
Л ' CPU æ æ ł , ,
CPU Ю ˘ Л CPU
л ù æ æ Â

ð Ô

Ю CPU æ ù 70%˜ CPU
ù 80%Â

```
ruijie(config)# cpu-log log-limit 70 80
```

CPU 80% Ю '

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute : 95%˘ Using most cpu's task
```

32

32.1

ЛЬЮ

- threshold set

32.1.1 threshold set

3 CPU

CPU

MIB CPU syslog

syslog

no

threshold set {cpu | memory | temperature} [M1 | M2 | slot *n* | member *n*] *warning_value*

ù Â

CPU ù 90˝ γ ù 100.

ù 90˝ γ ù 100.

ù 90˝ γ ù 100.

ʒ Â

1˙ M1 Â

```
Ruijie(config)# threshold set memory M1 70 90
```

2˝ γ ∕ CPU Â

```
Ruijie(config)# threshold set cpu member 2 70 90
```

ʒ	
show threshold	ʒ

∕ M1 | M2 | slot *n* | member *n*] FW a

∕	
10.3(4b3)	ʒ

32.2 ʒ

MSTP ЛЬЮ ʒ˙

- show threshold

32.2.1 show threshold

Â

show threshold {cpu | memory | temperature} [M1 | M2 | slot *n* | member *n*]

cpu | memory | temperature	˘ Ь ˘ cpu ù CPU ˘ memory ù ˘ temperature ù

M1 | M2 | slot *n*	
member *n*	

1. M1 CPU

```
Ruijie# show threshold cpu M1
```

2.

```
Ruijie# show threshold memory
```

threshold set	

M1 | M2 | slot *n* | member *n*]

10.3(4b3)	

33

33.1

33.1.1

min	a ˘ ˘ ˘ Э a Л Â
lower	ш a ˘ ˘ Э ╟ ˘ Â ⁸ **memory-lack exit-policy** ҳ Â
low	a ˘ ˘ Э OVERFLOW ˘ Ю a Ѫ ⁻ Â a ˘ ⁸ Л a ҳ Â
high	Ґ ˘ Љ Э˘ Ґ ˘ ÿ OVERFLOW Â

3. ˘ Л ˘ Љ Â

33.1.2 memory-lack exit-policy

ҳ worsen ѣ˘ Э ˘ Э BGP ã OSPF ã RIP ã PIM-SM Â

memory-lack exit-policy (bgp |ospf |pim-sm| rip)

no memory-lack exit-policy

ò Ô

bgp|ospf|pim-sm|rip	ѝ BGP OSPF PIM RIP Â
no	ѝ Â

ò Ô

ѝ . Â

ò ҳ Ô

ò Ô

lower (show memory ҳ Л Љ lower ѝ Â ў ѝ є ˘ ˘ Â

є ў Ы a Ю a ˘ Љ Ю ў Ы Â

BGP ⁻ б Ы ˘ ‡ Л Љ a ѝ bgp Â

˘ ѝ Ґ ˘ a ╠ Â

Э a

Ł˘ ˘ Â

ł ч˙ ł ╟ Â

ò Ô

1˙ ЛЬЮ ѝ BGP ѝ ˝I Â

```
Ruijie(config)# memory-lack exit-policy bgp
```

ò ʒ Ô

ʒ	
show memory	

ò ʌ Ô

a˚ a˚ ˘ FW Э a BGP ả PIM-SM

ò ʒ Ô

ʌ	
10.3(4b3)	ʒ

33.1.3 show memory protocols

ʒ . Â

show memory protocols

ò Ô

ò ʒ Ô

ò Ô

ʒ . Â

a˚ a˚ ˘ ў

protocol	memory(byte)
BGP	102000000
OSPF	24000000
RIP	10000000
PIM	50000000
LDP	20000000
Total	206000000

show memory	

-

10.3(4b3)	

34

34.1

34.1.1 logging on

logging on

no logging on

RGOS

FLASH Sys lo Server

logging console	⁸ ʌ Э
logging monitor	VTY (telnet)Э
logging trap	Syslog Server

34.1.2 terminal monitor

ϡ VTY Э Â VTY Э ˘ ϡ no Â

terminal monitor

terminal no monitor

ð Ô

Ю VTY Э a VTY Э Â

ð ϡ Ô

ð Ô

ϡ ʌ VTY Â й ˘ a Â VTY ł˘ Â

📖 **说明:**

й ˘ RGOS ⁸ ʌ Э ϡ Â ⁸ ʌ Э ϡ no , ʌ ш й 0 1 Â

ð Ô

Ю ˘ VTY Â

```
Ruijie# terminal monitor
Ruijie#
```

34.1.3 logging buffered

ă ϰ ^ ш à ă ϰ ~ ˘
ϟ Â ϟ no ă ϰ
Â

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

no logging buffered

ð Ô

buffer-size ˙ ă ϰ ˘ ϡ ÿ 4K 128K Bytes Â

0 *levell* ˙ ш ˘ ÿ 0 7 Â ΛЉ ¨ ˘ ≠ ΛЉ
Â

ð Ô

ă ϰ ѝ 4k Td(122>6<0ytes)Tj/C2_0 1 Tf0114 0 Td<01C4>Tj/TT0 1 Tytes7ЯBĐ

˘ ˘ ¯ 0 Â

Л ł ˘ æ

Â

ð Ô

Ю Л ù 6 Л æ 6 ù 10000

ă ˂ ˙

```
Ruijie(config)# logging buffered 10000 6
```

ð ϡ Ô

ϡ	
logging on	
show logging	ă ˂
clear logging	ă ˂

34.1.4 logging server

Syslog Sever ˘ Ю ϡ Â

Syslog server

Syslog Server

ð Ô

Debugging (7)

ð ϡ Ô

ð Ô

ш Лъ ѣ˘ Э æ ш
⁸ Л Э Â

show logging ϡ Л Лъ Â

ð Ô

Ю ⁸ Л йѓ 6ѓ

```
Ruijie(config)# logging console informational
```

ð ϡ Ô

ϡ	
logging on	
show logging	ă ↖ ˘ Лъ

34.1.7 logging monitor

VTY ˆ telnet à SSH ˜ Э
˘ Ю ϡ Â ϡ no VTY
Э Â

logging monitor *level*

no logging monitor

ð Ô

level ‘ ш Â Л Лъ ¨ ˘ ≠ Л Лъ Â
ш ˘ 1 Â

ð Ô

Debugging (7)

ð ϡ Ô

ð Ô

VTY Э ˘ ″I ϟ terminal monitor VTY Â ‡ logging monitor ЊЖ Â

Logging monitor ЊЖ VTY Â

ð Ô

Ю VTY Э ѝ б΄

```
Ruijie(config)# logging monitor informational
```

ð ϟ Ô

ϟ	
logging on	
show logging	ă ϰ ˘ Лъ

34.1.8 logging trap

Syslog Server ˘ Ю ϟ Â ϟ no Syslog Server Â

logging trap *level*

no logging trap

ð Ô

level ‘ ш Â Л Лъ ¨ ˘ ≠ Л Лъ Â ш ˘ 1 Â

ð Ô

Informational(6)

ð ϟ Ô

ð Ô

Syslog Server″ ″I ϟ logging Syslog Server Â ѣ˘ logging trap ш Â

show logging ϟ Л Лъ Â

ð Ô

Ю ù 6 ù 202.101.11.22 Syslog Serverʻ

```
Ruijie(config)# logging 202.101.11.22
Ruijie(config)# logging trap informational
```

ð ҳ Ô

ҳ	
logging on	
logging	Syslog Server
show logging	ă ˂ ˘ Л

34.1.9 logging source interface

˘ Ю ҳ Â ҳ no ʌ Â

logging source interface *interface-type interface-number*

no logging source interface

ð Ô

interface-type ʻ

interface-number ʻ ʌ

ð Ô

ð ҳ Ô

ð Ô

ЮЎ Syslog Server Âù ˘ ʌЛ ҳ ù ˘ ÿ ʌ Â

ð Ô

Ю Loopback 0 ù Syslog ʻ

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

ð ৡ Ô

ৡ	
logging	Syslog Server

34.1.10 logging source ip| ipv6

ˇ IO ৡ Â ৡ

no ∧ Â

logging source {ip *ip-address* | ipv6 *ipv6-address*}

no logging source {ip | ipv6}

ð Ô

ip-address IPV4 ў IPV4 ’

ipv6-address IPV6 ў IPV6 ’

ð Ô

ð ৡ Ô

ð Ô

’ ls Ṽ سخ Ь ˚ ɋ C ę

˘ Ю ҳ Â ҳ

no ˘ ѝ (23) Â

logging facility *facility-type*

no logging facility

ð Ô

facility-type ‘ Syslog ˘ έ Â

ð Ô

Local7(23)

ð ҳ Ô

ð Ô

Ю ^ 2˜ Syslog /1 ‘

2

Numerical Code	Facility
0	kernel messages

Ones3.-15 Facility

16	local use 0 (local0)
17	local use 1 (local1)
18	local use 2 (local2)
19	local use 3 (local3)
20	local use 4 (local4)
21	local use 5 (local5)
22	local use 6 (local6)
23	local use 7 (local7)

RGOS (local7) 23

Syslog kernel

```
Ruijie(config)# logging facility kern
```

logging console	

34.1.12 logging count

logging count

no logging count

ʒ ╖ Âÿ ʒ Â no logging count ʒ ˘ ╖ ˘ з Â

ð Ô

╖ ‘

```
Ruijie(config)# logging count
```

ð ʒ Ô

ʒ	
show logging count	
show logging	б ă ↘

34.1.13 logging rate-limit

ˢ ╖ ˘ ˢ ˘

Ю ʒ Â ˢ ╖ ˘ ʒ no Â

logging rate-limit {*number* | *all number* | *console* {*number* | *all number*}} [*except severity*]

no logging rate-limit

ð Ô

number ˘ й 1—10000’

all ˢ˘ 0—7 ’

console (}})3)5(0)]TJ/C2_0 1 Tf0/Tw 2 0.6 0 T<64302-CD>81411E3>462316<04628C0>

ҳ ⁸ Â ҳ˘ Л Љ
Â

ð Ô

ˆ debug˜ ѝ 10 ˘
warning ш a ⁸ʻ

```
Ruijie(config)#logging rate-limit all 10 except
warnings
```

ð ҳ Ô

ҳ	
show logging count	
show logging	б ă ʹ˂

34.1.14 logging synchronous

б ˚ ℸ ˘
˘ Ю ҳ Â б ˚
ℸ ˘ ҳ no Â

logging synchronous

no logging synchronous

ð Ô

ð Ô

Ю б ˚ ℸ Â

ð ҳ Ô

ð Ô

ҳ б ˚ ℸ ˘ Л Љ
Â

ð Ô

```
Ruijie(config)#
Ruijie(config)#line console 0
Ruijie(config-line)#logging synchronous
```

ৡ ˘ UP-DOWN ˘ ‡ ৡ

Ruijie#**configue terminal**
Oct 9 23:40:55 %LINK-5-CHANGED: Interface GigabitEthernet 0/1, changed state to down
Oct 9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet 0/1, changed state to DOWN
Ruijie#configue terminal ---- ৡ ˘
a

ð ৡ Ô

ৡ	
show running-config	

34.1.15 service sequence-numbers

╗ Э ﾊ˘ Ю ৡ Â ৡ
no ﾍ ﾊ Â

service sequence-numbers

no service sequence-numbers

ð Ô

ð Ô

a ﾊ Â

ð ৡ Ô

ð Ô

╗ Э Лъ ˘ ﾊ Лъ ╗ Э ﾊ˘
ﾊ ÿ 1 Â ╗ Э ﾊ Лъ ł˘ ﾊ Лъ
˘ Лъ ″I ł Â

ð Ô

Ю ╗ Э ﾊ˙

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

ð ৡ Ô

ҳ	
logging on	
service timestamps	

34.1.16 service timestamps

╗ Э ˘ Ю ҳ Â
ҳ no ∧ Э Âdefault
ѝ Â

service timestamps *message-type* [*uptime* | *datetime* [*msec* | *year*]]

no service timestamps *message-type*

default service timestamps *message-type*

ð Ô

message-type ‘ ˘ ч log debug Â log ш
0 6 ˘ debug ш ѝ 7
Â

uptime ‘ ╟ ˘ ‘ * * *¶ * ˘ ‘ 07:00:10:41

datetime ˘ ‘ ‘ ¦ ‘ ˘ ‘ Jul 27 16:53:07

msec ˘ ‘ :¦ : . ‘
Jul 27 16:53:07.299

year ˘ ‘ :¦ : ‘ 2007
Jul 27 16:53:07

ð Ô

˘ ѝ Â RTC ‡ ╟
ѝ ╟ Â

ð ҳ Ô

ð Ô

Uptime ÿ Э ╟ ˘
æ ѝ Â Datetime ѝ ˘ . .
‘ ¦ ‘ Â

ð Ô

Ю Log Debug ˘ ѝ Datetime˘ ˘
ɜ ‘

```
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
```

ð ϡ Ô

ϡ	
logging on	
service sequence-numbers	⁄

34.1.17 service sysname

╗ Э ¨ ˘ Ю ϡ Â ϡ

no service s y nme

ð

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

show logging	б ă

34.1.18 more flash

FLASH Ю

more flash:filename

Filename

FLASH ”//f2/” ”//f3/” Â a è Â

Ю FLASH

Ruijie# **more flash***://f2/log.txt*
look up file in the extended flash://f2/log.txt
00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by Administrator. Reload Reason :Reload command

ă ϰ ˘ Ю ϡ Â

clear logging

ð ϡ Ô

ð Ô

ϡ ϶ ă ϰ Â a
Â

ð Ô

Ю ă ϰ Â

```
Ruijie# clear logging
```

ð ϡ Ô

```
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

Log Buffer	ă ϟ

ð ϗ Ô

ϗ	
logging on	
clear logging	ă ϟ

34.2.2 show logging count

˘ Л ł

˘ Ю ϗ Â

show logging count

ð Ô

ð ϗ Ô

ð Ô

ѝ ╖ ˘ Ю˘ logging count ϗ Âshow logging count ϗ˘ Л Л ˘ ˘ ł Â

show logging ϗ˘ Л Л ╖ ў Â

ð Ô

Ю show logging count ‘

```
Ruijie# show logging count
Module Name   Message Name Sev Occur     Last Time
==================================================
SYS           CONFIG_I       5   1        Jul 6 10:29:57
--------------------------------------------------
SYS TOTAL                          1
```

ð ϗ Ô

ϗ	
logging count	╖

show logging	б ă Ϟ
clear logging	ă Ϟ

35 RLOG ৡ

35.1 ৡ

35.1.1 rlog export-rate

Ь

rlog export-rate *number*

no rlog export-rate

number	Ь ^ ~

Ь ѝ 1000

ৡ Â

˘ Ь ˘ Л Лъ ѝ

1' Ю Ь '

```
Ruijie(config)# rlog export-rate 10000
```

ৡ	
-	-

rlog filter *number*

no rlog filter

number	ACL

a ACL

Â

1' HO ACL
á ' t –h sCph s#)n22–ãCpAh 47 • €,–i €,–i CpA…!u h@•D bï´Ph s#,! T &•8 !š4\@

¾ Â

Â

1' Ю '

```
Ruijie(config)# rlog mtu 1200
```

¾	
-	-

¾ Â

¾	
-	-

35.1.4 rlog port

Ь ⁄ Â

rlog port *number*

no rlog port

number	Ь ⁄

Ь ⁄ й 10000

¾ Â

Â

1' Ю Ь ⁄'

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

¾	¾	

	-	-
	Â	

RLOG

rlog vrf-rate number

no rlog vrf-rate

number	1~100

20

Ю Â

Â

1 Ю vrf 30

```
Ruijie(config)#content vrf
Ruijie(config-ctx)# rlog vrf-rate 30
```

2 vrf 20

```
Ruijie(config)#content vrf
Ruijie(config-ctx)# no rlog vrf-rate
```

-	-

Â

Â

1' Ю

```
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
```


S% Fp fFF&fFF&b L @ Li&tsƒO "Eri$D ï#‡c N@')╡W!UF ï2CA ò,n$6rW!Q

1. I/O

```
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
```


-	-

1' IO

```
Ruijie# show rlog-status
```

36 SNMP ৡ

36.1 ৡ

36.1.1 no snmp-server

SNMP ৡ ╖ ˘ ৡ no snmp-server Â

no snmp-server

ð Ô

SNMP ৡ ╖

ð ৡ Ô

ð Ô

ৡ SNMP ৡ Ŀ Â

ð Ô

Ю SNMP ৡ Ŀ'

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

36.1.2 snmp-server chassis-id

SNMP ﾊ˘ ৡ snmp-server chassis-id Â ৡ no ѝ Â

snmp-server chassis-id *text*

no snmp-server chassis-id

ð Ô

text ' ﾊ ˘ ﾊЛъ Â

ð Ô

ﾊ 60FF60

ð ৡ Ô

ð Ô

SNMP ʎ ʎ˘ Ɬь Â
ʎ ʌʎЬ show snmp ϟ Â

ð Ô

Ю SNMP ʎ ѝ 123456:

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

ð ϟ Ô

ϟ	
show snmp	SNMP

36.1.3 snmp-server community

SNMP ˘ ϟ snmp-server community Â ϟ no ʌ SNMP Â

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

no snmp-server community *string*

ð Ô

string ˙ ˘ NMS SNMP ϟ Â

view-name ˙ ¨ ˘ Â

ro ˙ NMS MIB ʎ ʌ ˘ a Â

rw ˙ NMS MIB ʎ ʌ ʌ Â

number ˙ ʎˆ 0-99˜ ˘ ˘
MIB NMS Â

ipaddr ˙ NMS ˘ MIB NMS Â

ð Ô

ѝ ʌ

ð ϟ Ô

ð Ô

ϟ ѝ SNMP ϟ ╖ ϟ˘
à MIB NMS Â

SNMP ϵ ˇ no snmp-server ϵ Â

ð Ô

Ю ¸ MIB ˇ Л ù 192.168.12.1 NMS MIB ˙

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

ð ϵ Ô

ϵ	
access-list	Ы

36.1.4 snmp-server contact

SNMP ˇ ϵ snmp-server contact Â ϵ no SNMP Â

snmp-server contact *text*

no snmp-server contact

ð Ô

text ˙

ð Ô

ù Â

ð ϵ Ô

ð Ô

Ю SNMP ù i-net800@i-net.com.cn ˙

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

ð ϵ Ô

ϵ	
show snmp-server	SNMP
no snmp-server	SNMP ϵ

36.1.5 snmp-server enable traps

SNMP ў ╠ NMS Trap ˘
Y˚ ˘ ৡ snmp-server enable trap s Â ৡ
no SNMP NMS ў ╠ Trap Â

snmp-server enable traps [snmp]

no snmp-server enable traps

ð Ô

snmp ‘ SNMP Y˚ Â

ð Ô

Ю

ð ৡ Ô

ð Ô

ৡ б ৡ snmp-server ˘ Â

ð Ô

Ю ў ╠ SNMP Y˚ ‘

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

ð ৡ Ô

ৡ	
snmp-server host	SNMP ў

36.1.6 snmp-server host

SNMP ў ^ NMS˜ ˘ ৡ
snmp-server host Â ৡ no ৻ SNMP ў Â

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

no snmp-server host *host-addr*

ð Ô

host-addr ʻ SNMP ў

ipv6-addr ʻ SNMP ў ^ ipv6˜

vrfname ʻ vrf ¨

version ʻ snmp ˘ V1 ă V2C ă V3

auth | noauth | priv ʻ V3 Â

community-string ʻ ¨ ^ V3 ˜ Â

port-num ʻ snmp ў

notification-type ʻ V2C Å 1vq µ C !ð WÂ@AÐ® 0 ¹G! îà?à0ž I ™3Â 13 S

SNMP Æ ˘ ৡ snmp-server location Â ৡ no ʌ SNMP Æ Â

snmp-server location *text*

no snmp-server location

ð Ô

text ˙ Â

ð Ô

ѝ

ð ৡ Ô

ð Ô

Ю ˙

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

ð ৡ Ô

SNMP ╗ ˘ ֽ snmp-server system-shutdown Â ֽ no ʌ SNMP ╗ Â

snmp-server system-shutdown

no snmp-server system-shutdown

ð Ô

SNMP ╗

ð ֽ Ô

ð Ô

ֽ SNMP ╗ ˘ RGOS reload/reboot Лъ NMS Â

ð Ô

Ю SNMP ╗ ˈ

```
Ruijie(config)# snmp-server system-shutdown
```

36.1.11 snmp-server trap-source

SNMP ˘ ֽ snmp-server trap-source Â ֽ no Â

snmp-server trap-source *interface*

no snmp-server trap-source

ð Ô

interface ˈ й SNMP

ð Ô

SNMP ÿ ˘ IP й Â

ð ֽ Ô

ð Ô

Ю SNMP ÿ ˘ IP й ˘ й ˘ Л Лъ ֽ IP й SNMP Â

ð Ô

Ю Лъ 0 IP й SNMP ˈ

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

ð ٪ Ô

٪	
snmp-server enable traps	ў ╟
snmp-server enable host	NMS ў

36.1.12 snmp-server trap-timeout

Ж ˘ ٪ snmp-server trap-timeout Â ٪ no Â

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

ð Ô

seconds ‘ ˘ æ и Â

ð Ô

30

ð ٪ Ô

ð Ô

Ю и 60 ‘

```
Ruijie(config)# snmp-server trap-timeout 60
```

ð ٪ Ô

٪	
snmp-server queue-length	
snmp-server enable host	NMS ў

36.1.13 snmp-server user

SNMP ˘ ٪ snmp-server user Â ٪ no Â

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 }

ð Ô

username ‘ ¨ Â

groupname‘ ¨

v1 | v2 | v3 ‘ SNMP Â Л v3 ł Â

encrypted ‘ ˘ ˘ ‡ Â Љ ˘ ‡ 16 ⁸ Â MD5 й 16 ˘ SHA й 20 Â Љ ч Â ╗ Â

auth ‘ ў Âmd5 MD5 Âsha SHA Â

auth-password: ϟ ^ a 32 ~ Â ϟ Â

priv ‘ ў Â des56 56 Æ DES ╗ Â *priv-password* ‘ й ╗ ϟ ^ a 32 ~ Â ϟ ╗ Â

ð Ô

Â

ð ϟ Ô

ð Ô

Ю snmpV3 ˘ md5 ˘ DES ╗ ‘

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

ð ϟ Ô

ϟ	
show snmp user	SNMP

36.1.14 snmp-server group

SNMP ˘ ¾ snmp-server group Â
¾ no Â

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

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

ð Ô

v1 | v2c |v3 ' SNMP Â

auth' a ˘ /I v3 Â

noauth' a ≠ a ˘ /I v3 Â

priv' ˘ ˘ /I v3 Â

readview' /I Â

writeview' Â

ð Ô

ð ¾ Ô

ð Ô

IO '

```
Ruijie(config)# snmp-server group mib2user v3 priv read mib2
```

ð ¾ Ô

¾	
show snmp group	SNMP

36.1.15 snmp-server view

SNMP ˘ ¾ snmp-server view Â ¾ no Â

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

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

ð Ô

view-name ‘ ¨ Â

oid-tree ‘ MIB ˘ MIB Â

include ‘

ð ¾ Ô

¾	
show run	

36.2 ¾

36.2.1 show snmp

SNMP ˘ ¾ show snmp Â

show snmp [mib | user | view | group]

ð ¾ Ô

ð Ô

show snmp ¾ SNMP ’

show snmp mib snmp mib ’

show snmp user snmp ’

show snmp view

```
0 Bad values errors
0 General errors
0 Response PDUs
0 Trap PDUs
SNMP global trap: disabled
SNMP logging: disabled
SNMP agent: enabled
```

snmp-server *chassis-id*	SNMP