



RGOS 10.3(4b6)p1

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III

■ <http://www.ruijie.com.cn/> III

III
III
III

■ <http://webchat.ruijie.com.cn>III

8:30 6 1 2 4 III
III 4 III

■ <http://www.ruijie.com.cn/service.aspx> III

III 4
III

■ 7 × 24 4008-111-000

■ <http://support.ruijie.com.cn>

■ service@ruijie.com.cn

	4 4 III
	III

RGOS®10.3 (4b6)p1 III

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1.

III

Courier New

5

III

2.

3.

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4.

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■ ㄅ Ⅲ
■ Ⅲ

1

1.1

1.1.1 bridge-group

1.1.2 carrier-delay

carrier-delay
no **III**
carrier-delay *seconds*
no carrier-delay

<i>seconds</i>	0 60 III

2 III

III

NULL III
DCD DOWN UP DCD
III 0 III
DCD
III DCD
III

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

-	-

clear counters [*interface-id*]

	<i>interface-id</i>	III

III

clear counters

show interfaces

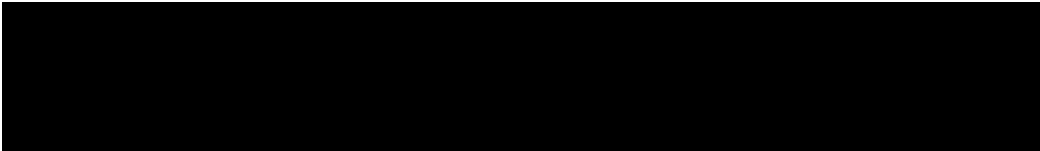
III

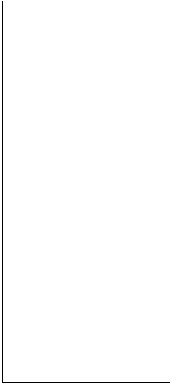
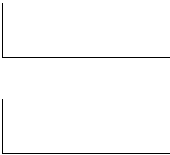
III

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

	show interfaces	III

	10.3(4b6)	





VLAN
IP III VLAN IP VLAN III
VLAN VLAN
IP III VLAN Bridge-Group
VLAN III
show interfaces **show interfaces vlan** III
VLAN VLAN
VLAN III



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



show interfaces	III



10.3(4b6)	

1.1.8 mtu

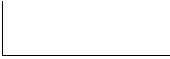
mtu III **no** III
mtu num



<i>num</i>	MTU III



1500III



III



MTU III

	VLAN	☑BVI	☑NULL	☑LOOPBACK
	III			

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

show interfaces		III

10.3(4b6)		

1.1.9 shutdown

	III	no	III
--	-----	----	-----

shutdown

no shutdown

-		-

	III	NULL	☑virtual-template	
				III
show interfaces		III		
		no shutdown		
		III		

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

--	--	--

	show interfaces	III
	10.3(4b6)	

1.1.10 snmp trap link-status

1.2

1.2.1 show interfaces

III

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

<i>interface-id</i>	VLAN 4 BVI
description	link III

III

III

```
Ruijie# show interfaces vlan 100
Index(dec):4196 (hex):1064
Vlan 100 is UP , line protocol is UP
Hardware is Firewall Interface Vlan, address is 001a.a987.654b (bia
001a.a987.654b)
Interface address is: no ip address
ARP type: ARPA,ARP Timeout: 3600 seconds
MTU 1500 bytes, BW 1000000 Kbit
Encapsulation protocol is Ethernet-II, loopback not set
Keepalive interval is 10 sec , set
Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: FIFO
  Output queue 0/40, 0 drops;
  Input queue 0/75, 0 drops
30 seconds input rate 0 bits/sec, 0 packets/sec
30 seconds output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer, 0 dropped
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
5462 packets output, 251252 bytes, 0 underruns , 0 dropped
```

0 output errors, 0 collisions, 0 interface resets	
F	
	carrier-delay III
	mtu MTU III
	interface vlan VLAN III
	interface bvi BVI III
	shutdown III
	10.3(4b6)

2 MAC

2.1

2.1.1 clear mac-address-table dynamic

III

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

dynamic	III
address <i>mac-addr</i>	III
interface <i>interface-id</i>	III
bridge-group <i>bridge-group-id</i>	III

MAC

III

show mac-address-table dynamic

III

MAC 00d0.f800.0c0c

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

show mac-address-table dynamic	III

10.3(4b6)

2.1.2 mac-address-table aging-time

MAC III no III

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

no mac-address-table aging-time

0	MAC	III
10-1000000	MAC	III

300 III

MAC III

show mac-address-table aging-time III

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

MAC

<i>mac-address</i>	MAC III
<i>bridge-group-id</i>	IDIII

III
source destination
MAC MAC MAC III

III
III **show mac-address-table filtering**

III

00d0.f800.073c III 4
III

Ruijie# **configure terminal** Go to the configuration mode.
Ruijie# **show mac-address-table** Display the MAC address table.

MAC

mac-addr

MAC

2.2

2.2.1 show mac-address-table address

	mac-address-table static	III
	mac-address-table filtering	III

	10.3(4b6)	

2.2.2 show mac-address-table aging-time

III

show mac-address-table aging-time

	-	-

III

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

	mac-address-table aging-time	III

	10.3(4b6)	

2.2.3 show mac-address-table count

MAC

MAC MAC
show mac-address-table count

III

	-	-

III

```
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
```

III

Bridge Group 100

MAC

III

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 III

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 III
bridge-group-id	IDIII

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

Bridge-Group	MAC Address	Type	Interface
4	00d0.f800.1111	FILTER	
4	00d0.f800.2222	FILTER	

mac-address-table filtering

III

10.3(4b6)

2.2.6 show mac-address-table interface

III

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

<i>interface-id</i>

III

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

IDIII

Ruijie# **show mac-address-table interface vlan 100**

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

mac-address-table static	III

10.3(4b6)	

2.2.8 show mac-address-table bridge-group

MAC III

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

<i>bridge-group-id</i>	IDIII

MAC III

```

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

```

mac-address-table static	III
mac-address-table filtering	III

10.3(4b6)	

2.2.9 show mac-address-learning

	MAC	III
	show mac-address-learning	
	-	-

--

--

	III	MAC	MAC	III
		MAC		

	MAC	III
	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

IP

```
clear blocking [ ip-address ]
```

<i>ip-address</i>	IP

	IP	III	III
--	----	-----	-----

```
1      IP      192.168.1.3
Ruijie#clear blocking 192.168.1.3
```

	-	-
--	---	---

10.3(4b5)	/

3.1.2 http redirect

IP III no μ IP ÅÅÅ€, QÎ ‡PÃ Ä,X ‡ ÅÅÅ€

3.1.3 http redirect direct-site

III

no

III

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

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

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

III

III

Web

Web

III

III

50

III

1

IP

172.16.0.1

III

Ruijie(config)# http redirect direct-site 172.16.0.1

show http redirect	HTTP	III	
--------------------	------	-----	--

10.2(5)	/		
---------	---	--	--

3.1.4 http redirect homepage

III

no

III

http redirect homepage *url-string*

no http redirect homepage

<i>url-string</i>	"http://" 255	"https://" III
	III	
	III	
Web		III
III		
1	<i>www.web-auth.net/login</i>	III
Ruijie(config)# http redirect homepage <i>www.web-auth.net/login</i>		
show http redirect	HTTP	III
http redirect	IP	III
10.2(5)	/	

3.1.5 http redirect port

PC HTTP WEB http
 redirect port III no HTTP WEB

http redirect port *port-num*

no http redirect port *port-num*

<i>port-num</i>	HTTP WEB III

PC 80 HTTP III

III

PC HTTP PC HTTP

III

PC 80 HTTP

III

PC HTTP III
 10 80 III

III

1 PC 8080 HTTP WEB
 Ruijie(config)# **http redirect port 8080**

III

1 PC 80 HTTP WEB
 Ruijie(config)# **no http redirect port 80**

III

show http redirect	HTTP III

10.2(5)	/

3.1.6 http redirect session-limit

HTTP 50 HTTP III no

http redirect session-limit session-num

no http redirect session-limit

session-num	HTTP
	1-255 III

HTTP 50 III

III

HTTP TCP
 HTTP III
 HTTP HTTP 1 III
 III

1 HTTP 4 III
 Ruijie(config)# http redirect session-limit 4

show http redirect	HTTP III

3.1.7 http redirect timeout

3sIII
no

http redirect timeout seconds

no http redirect timeout

seconds	seconds 1-10III

3sIII

III

GET/HEAD GET/HEAD HTTP TCP III HTTP
III

1 4III
Ruijie(config)# http redirect timeout 4

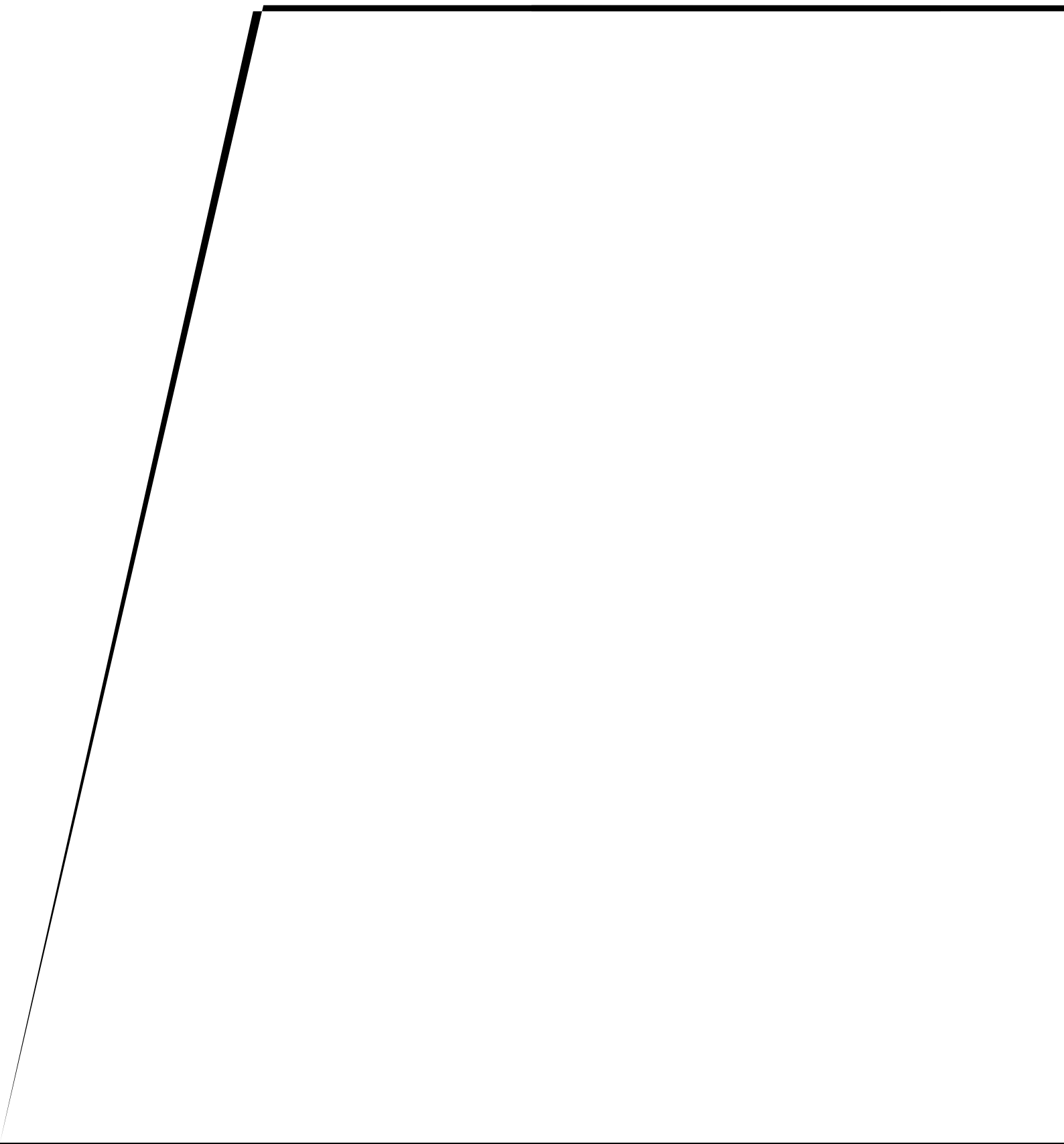
show http redirect	HTTP III

10.2(5)	/

3.1.8 interface-security-zone

interface-security-zone zone-name
no interface-security-zone

	zone-name	
	default	
		III
		III
	1 abcd	
	Ruijie(config-if)#interface-security-zone abcd	
	-	-
	10.3(4b6)	/

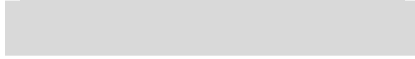


3.1.10 loose-inner-zone-access

ip

loose-inner-zone-access

no loose-inner-zone-access



3.1.11 loose-inter-zone-access

```
security-level      ip
```

loose-inter-zone-access

no loose-inter-zone-access

	-	-
--	---	---

security-level ip III

III

1

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

loose-inner-zone-access	ip
-------------------------	----

10.3(4b5)	/

3.1.12 security-access

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

	<i>access-list</i>	
	<i>zone-name</i>	
	log	<i>access-list</i>
		RLOG /
	III	
		III
	1 aaa bbb ACL hello	
	Ruijie(config)# security-access <i>hello</i> from <i>aaa</i> to <i>bbb</i>	
	-	-
	10.3(4b5)	/

3.1.13 security-level

security-level *level-num*
no security-level

	<i>level-num</i>	1~100 III
	III	
	III	III
	1 Ruijie(config-security-zone)# security-level 100	
	-	-
	10.3(4b5)	/

3.1.14 security-zone

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

	zone-name	1~32
	III	
		III
	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

III

3.1.17 security-zone-base interface

security-zone-base interface

IP

no security-zone-base interface

	IP	
		III
	1 Ruijie(config)#security-zone-base interface	
	2 IP Ruijie(config)#no security-zone-base interface	
	-	-
	10.3(4b6)	/

3.1.20 violation notification

violation notification *threshold*

no violation notification

violation notification { log | trap| log&trap }

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

<i>threshold</i>	1-65535
log	RLOG
trap	trap
log&trap	trap

threshold 0 III
trapIII

IP III
III

50

rap

-security-zone)#violation notification 50

urity-zone)#violation notification log&trap

	-

	IP	III	no	III
web-auth direct-host	<i>ip-address</i>	[<i>ip-mask</i>]		
no web-auth direct-host	<i>ip-address</i>			

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

III

Web

50

III

web

Web

Web

III Web

III

```
1 IP 172.16.0.1 III
uijie(config)# web-auth direct-host 172.16.0.1
```

show web-auth direct-host	web

Ц ђ

3.1.22 web-auth on

Web III no Web III
web-auth on
no web-auth on

-	-

Web III
III
Web III III

1 Web III
Ruijie(config)# web-auth on



3.1.23 web-auth portal key

PC HTTP WEB WEB III
no WEB WEB
III

web-auth portal key *key-string*

no web-auth portal key

<i>key-string</i>	PC HTTP WEB WEB 255 III

PC HTTP WEB WEB
III

III
III

Web PC HTTP WEB WEB
III

1 PC HTTP WEB WEB
web-authIII
Ruijie(config)# **web-auth portal key** *web-auth*

http redirect	IP III
http redirect homepage	III
web-auth port-control	Web

10.2(5)	/

3.2

- 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 III

show http redirect

-	-

III

III

III

1 HTTP III

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 III
http redirect direct-site	III
http redirect homepage	III
http redirect port	PC HTTP WEB III

	http redirect session-limit	HTTP	III
	http redirect timeout	III	
	10.2(5)	/	

3.2.2 show security-access-blocking

show security-access-blocking

-	-

IP III III

1
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

3.2.6 show security-zone-match

IP

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

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

<i>ip-protocol</i>	IP

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.

III

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

h^f F^A~YR,, Ž R Ex\$ Y^ 9p...!G6W'aD0 h^,(Œ Â “E...D @da'@

3.2.8 show web-auth direct-host

web III

show web-auth direct-host

-	-

III

III

1 web III
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

web-auth direct-host	IP III

10.2(5)	/

3.2.9 show web-auth global

web III

show web-auth global

	-	-
III		
III		
		III
1		
Ruijie# show web-auth global		
web authenticate is off		
web-auth on	Web	III
10.2(5)	/	

3.2.10 show web-auth user

IP 4 4

III

show web-auth user [ip-address]

ip-address	IP III

III

III

III

1 web III

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	

-	-

10.2(5)	/

4

4.1

4.1.1 clear firewall count

III

clear firewall count [global]



	firewall	defend	syn-flood		
	acl-number	rate-num			

--	--

	10.3(4b6)				

4.1.4 firewall blacklist

= # F

[no] firewall defend fraggle

	no	
	III	
	1	
	Firewall(config)# firewall defend fraggle	
	-	-
	10.3(4b5)	/

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

ICMP flood 或 UDP flood 或 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

	<i>rate-num</i>		pps
	no		
	III		
	1		
	Firewall(config)# firewall defend icmp-flood 10 100		
	-		-
	10.3(4b5)		/

4.1.7 firewall defend icmp-redirect

icmp ,icmp

[no] firewall defend icmp-redirect

	no		
	III		
	1		
	Firewall(config)# firewall defend icmp-redirect		

	-	-
	10.3(4b5)	/

4.1.8 firewall defend icmp-unreachable

icmpicmp

[no] firewall defend icmp-unreachable

	no	
	III	
	1	
	Firewall(config)# firewall defend icmp-unreachable	
	-	-

GÄ& A'@QPA. Ed02CaQ.cNE8888;Ä.d\$s...Y7"#~8RA. @p2CaPE#"BÄa%08PE!f1Q < %a2@, @GQ

4.1.9 firewall defend land

Land LAND III

[no] firewall defend land

no		

Land III

Land BFD IP IP

1
Firewall(config)#**firewall defend land**

III

1

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

└─

└─

1
Firewall(config)# **firewall defend scan counter-clear-interval
sense-level high 50**

└─

-	-

└─

└─

10.3(4b6)	/

4.1.12 firewall defend scan ignored-protocol

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

└─

{icmp ip tcp udp}	
no	

└─

└─

└─

└─

1
Firewall(config)# **firewall defend scan ignored-protocol icmp**

└─

-	-

10.3(4b6)	/

4.1.13 firewall defend scan sense-level

ip

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

{high low medium}		
acl	ip	acl
	ip	
time-num		ip
		III
no		

III

1
Firewall(config)# firewall defend scan sense-level high
watch-ip-list scan_list block-term 20

-	-

10.3(4b6)	/

4.1.14 firewall defend scan tweak-sense-level

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

	{icmp ip tcp udp}	
	{high low medium}	

	10.3(4b6)	/
--	-----------	---

4.1.15 firewall defend source-route

IP

[no] firewall defend source-route

	no	

--

III

--

--

	1
	Firewall(config)# firewall defend source-route

	-	-

--

	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

III

1

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

	-	-

	10.3(4b5)	/

4.1.19 firewall log

III

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

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

III

1 icmp flood
Firewall(config)# **firewall log icmp-flood**

2 1
Firewall(config)# **no firewall log icmp-flood**

-		-

10.3(4b5)		/

4.1.20 firewall tcp-loose

TCP ACK III
TCP III

[no] firewall tcp-loose

no	TCP ACK	

TCP ACK TCP SYN III

1
Firewall(config)# **firewall tcp-loose**

-	-	

10.3(4b6)	/ tcp-loose	10.3 4b5 III	ip session
-----------	----------------	-----------------	------------

4.1.21

	in out		
	log		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



-

	10.3(4b6)	/

4.1.24 show firewall global-blocking

show firewall global-blocking

	-	-

III

	-	-

	10.3(4b5)	/

4.1.25 show firewall count

show firewall count [all | global]

	[all global]	IIIglobal
		III

└──────────

III

└──────────

└──────────

└──────────

--	--	--

└──────────

-

-

└──────────

5

5.1 ip rate-control

IP Ⅱ Ⅱ III

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

in out	in IP out IP
<i>acl-num</i>	
<i>rate-limit</i>	IP 1-10000000kbps)
<i>total-num</i>	IP (1-1000000)
<i>rate-num</i>	IP (1-100000)
no	

III

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
```

-	-

10.3(4b5)	/

5.2 session-limit

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

<i>acl-num</i>	
<i>session_count</i>	1-1000000
<i>rate-num</i>	1-100000
in out	in out
log	
no	

Ⅲ

1
 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 III

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

	no	
	[all h323 ftp mms rtsp sip]	ALG
	alg	
1	Firewall(config-if)# firewall alg all	
	-	-
	10.3(4b6)	/

6.1.2 show firewall dynamic-filter

ALG

III

show firewall dynamic-filter

--	--	--

III

1
Firewall# show firewall dynamic-filter

	-	-

	10.3(4b6)	/

7

7.1

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

7.1.1 ace-limit

ACE III no III

ace-limit *num*

no ace-limit

	<i>num</i>	0-200000

context

abc 10

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

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

7.1.2 changeto

III

changeneto { context-name }

	context-name	, root

--	--

	q
--	---

	changeneto context-name	III
context-name	III	
	changeneto root	III
		root
III	changeneto root	root
	III	

	abc
Ruijie# changeneto abc	
Ruijie/abc#	

	-	-

--	--

10.3(4b5)	/	

7.1.3 config-url

III no III

config-url *config-file-name*

no config-url *config-file-name*

	<i>config-file-name</i>	1-31 III
		config.text
	context	
	abc	abc.text
	Ruijie(config)# context <i>abc</i>	
	Ruijie(config-ctx)# config-url <i>abc.text</i>	
	context	
	10.3(4b5)	/

7.1.4 context

context III no
III

context *context-name*

no context *context-name*

example 1: `<Tj /T54094.cn484C061 .24T 61341 144.94.cn484C061`

7.1.6 maximum routes

III no III

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

no maximum routes

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

context

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

7.1.7 password

III no III

password { password1 | [0 | 7] password2 }

no password

password1	
0 7	0 7
password2	0
	7

	III	telnet/SSH
	changeto	III
	telnet/SSH	III
	disable	enable
III		enable

contextA
Ruijie/contextA(config)#password 0 mypass

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

7.1.9 session-limit

III no III

session-limit num

no session-limit

num	III	0-

--

context

--

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

mac-limit	MAC
ace-limit	ACE
host-limit	
session-create-limit	
show ip fpm statistics	

--

10.3(4b5)	/

8 failover

8.1

8.1.1 failover

failover

III

failover

III

failover

no failover

III

failover

failoverIII

III

no failover

	failover standby	
	show failover	failover

--	--

	10.3(4b6)	

8.1.2 failover standby

failover standby

III

III

failover standby

--	--

--	--

	■	III
		III

1

Ruijie# failover standby

10.3(4b6)	

8.1.3 failover interface ip

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

primary_address	Primary failover Ipv4
mask	IP
secondary_address	Secondary failover IPv4 III

IP failover Primary failover primary_address Secondary Secondary_addressIII IP III	
IP	III

1
Ruijie (config)#failover interface ip 10.1.0.1 255.255.255.0 secondary
10.1.0.2

failover lan interface if	failover

	10.3(4b6)	

8.1.4 failover lan interface

failover III
failover lan interface if
no failover lan interface

	if	Failover III

	failover III	VLAN III
failover	III	

Ruijie (config)# failover lan interface vlan 10

	failover interface ip	failover IP

--

	10.3(4b6)	

8.1.5 failover lan unit

(primary) secondary III

failover lan unit <primary|secondary>

no failover lan unit

	primary	Primary
	secondary	Secondary

	Secondary
--	-----------

--	--

		III		Primary
	Secondary	ActiveIII		Primary
	SecondaryIII			

	Ruijie (config)# failover lan unit primary
--	--

--	--

	10.3(4b6)	

8.1.6 failover polltime

failover

failover polltime msec *poll_time* [holdtime [msec] *holdtime*]

no failover polltime

	poll_time	

failover

	hold_time	
	poll_time 50ms	hold_time 2s
	pool_time	hold_timeIII

Ruijie(config)# failover polltime

Ruijie# failover reset

10.3(4b6)	

8.2

8.2.1 clear failover statistic

failover

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

10.3(4b6)	

8.2.2 show failover

failover 4 III
show failover



Peer unit: heartbeat normal

III

8.2.3 show failover history

1

Ruijie# show failover history detail

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

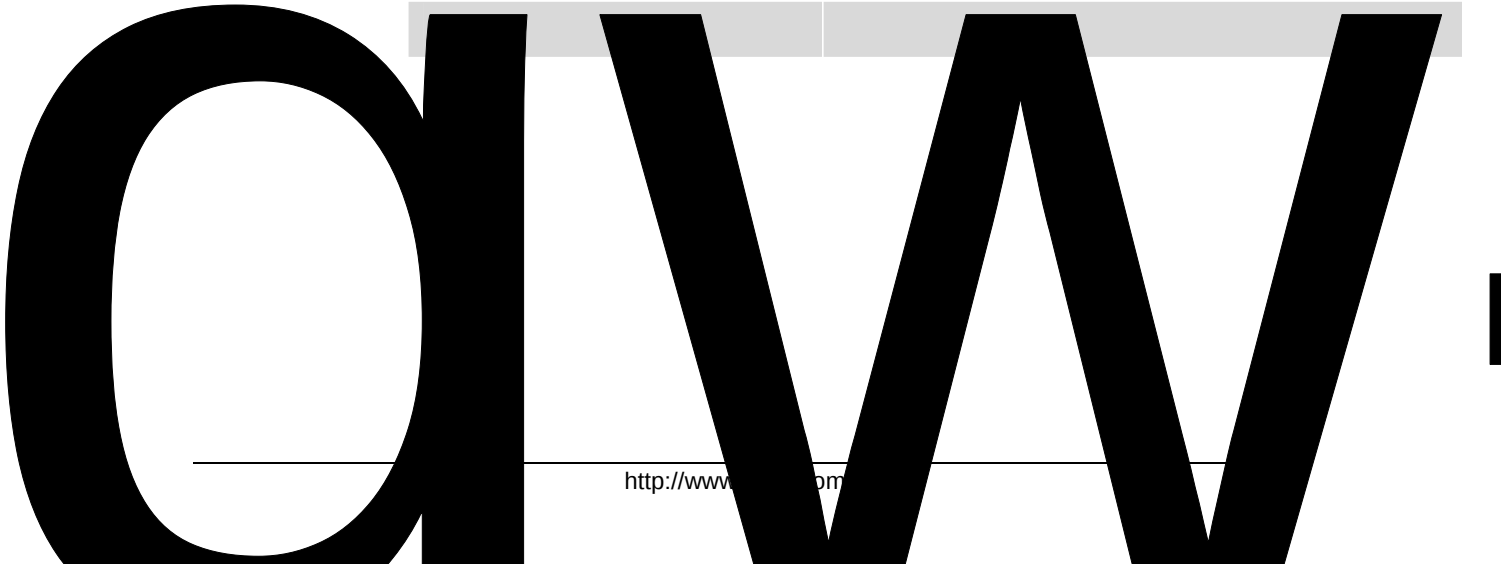
	2010-1-3	failover	
3:19:4	failover enable	failover	disable
	Wait for negotiation	III	
3:19:8	Standby	Failover	
	StandbyIII		
5:19:38		III	

10.3(4b6)	

8.2.4 show failover heartbeat

III
show failover heartbeat

--	--



1

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

failover

--	--	--

9 CLI

9.1 alias

alias III

no
III

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

Г Д

mode III
command-alias III
original-command III

Г Д

EXEC III

Г Д

Г Д

EXEC III

h	help
p	ping
s	show
u	undebug
un	undebug

no alias exec III

III

III

alias ?

Ruijie(config)# **alias ?**

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

*

**command-alias=original-command*

EXEC	"s"	"show"	III	"s?"
'S'				

Ruijie# **s?**

*s=show show start-chat start-terminal-service

III

EXEC	"sv"	"show version "
------	------	-----------------

Ruijie# **s?**

*s=show *sv="show version" show start-chat
start-terminal-service

III

Ruijie# **s?**

show start-chat start-terminal-service

"ia" "ip address"

Ruijie(config-if-GigabitEthernet 0/1)# **ia ?**

A.B.C.D IP address

dhcp IP Address via DHCP

Ruijie(config-if-GigabitEthernet 0/1)# **ip address**

"ip address"

III

III

show aliases

III

Г Д

"def-route"

"ip route 0.0.0.0 0.0.0.0 192.168.1.1"

Ruijie# **configure terminal**

Ruijie(config)# **alias config** def-route ip route 0.0.0.0
0.0.0.0 192.168.1.1

```

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

```

Г Д

show aliases	

9.2 privilege

```

privilege  III      no
           III

```

```

privilege mode [all] {level level | reset} command-string
no privilege mode [all] [level level ] command-string

```

Г Д

```

mode          CLI      III

[all]                      III

level level          0-15III

reset              III

command-string      III

```

Г Д

Г Д

Г Д

privilege CLI

privilege ? CLI III

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

Г Д

CLI 1 "test" reload
III

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

1 CLI reload

Ruijie> **reload ?**
<cr>

reload 1 all

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

1 CLI reload

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

Г Д

enable secret	CLI

9.3 show aliases

EXEC

show aliases III

show aliases *[mode]*

Г Д

mode III

Г Д

Г Д

EXEC

Г Д

III

Г Д

EXEC

Ruijie# **show aliases exec**

exec mode alias:

h	help
p	ping
s	show
u	undebug
un	undebug

Г Д

alias	

10

10.1

10.1.1 disable

disableIII

disable [*privilege-level*]

	<i>privilege-level</i>	

--

--

		III
	III	
	disable	III

	Ruijie# disable 10	
	enable	III

	-	-

--

	-	-

10.1.2 enable

enableIII



-	-

-	-

-	-

10.1.3 enable password

enable password III

no III

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

```
enable password
```

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

	password	security	IIpassword		15
	IIIsecurity		0 15	III	
		password	III	15	password
		security		15	password security
					password
	security		III		

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

```
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
```



Web III no ip http authentication
III

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

enable service	III

-	-

10.1.8 ip http port

HTTP ip http port

ip http port *number*

<i>number</i>	HTTP Server 80III

80III

HTTP III no ip http port III

HTTP 8080
Ruijie(config)# **ip http port 8080**

enable service	III

	-	-

10.1.9 ip http secure-port

HTTPS ip http secure-port

ip http secure-port number

number	HTTPS Server	443III

443III

III HTTPS III no ip http secure-port

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

enable service		III
show web-server status	web	III

10.4 3		

10.1.10 ip telnet source-interface

IP Telnet
ip telnet source-interface

ip telnet source-interface interface-name

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

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

	Loopback 1 IP Telnet
	Ruijie(config)# ip telnet source-interface <i>Loopback 1</i>

telnet	Telnet III

10.4(2)	

10.1.11 lock

	EXEC lockIII
lock	
-	-

	III
■	lock

	■	III	
		I Locked L	
	■	III	
		line	lockable
line		III	

```

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

```

lockable	III

-	-

10.1.12 lockable

	lock	line	lockable
	lock	III	no
			III
lockable			
no lockable			
line			
			EXEC

lock III

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

lock	III

10.1.13 login

AAA

login III

no

III

login

no login

-	-

line

AAA
VTY console

III

III

VTY

III

```
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 III no III
login local
no login local

-	-
---	---

line	
AAA	III
username	III

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

username	III
----------	-----

--	--

line

line

III

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



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

enable password	III

-	-

2 telnet IPV6 2AAA:BBBB::CCCC
Ruijie# **telnet** 2AAA:BBBB::CCCC

ip telnet source-interface	IP Telnet
show session	TTY
exit	

-	-

10.1.20 username

usernameIII

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

username *name* privilege *privilege-level*

no username *name*

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

III

banner login c message c

	c	
	message	

III

III

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

	-	-

	-	-

10.2.2 banner motd

banner motd III

no banner motd III

banner motd c message c

--	--	--

		III
	Boot ROM	III
	Ruijie(config)# boot config flash:/config_main.text	
	boot network	
	service config	
	show boot	III
	-	-

10.2.4 boot ip

	TFTP	IP	no	III
	boot ip <i>local-ip</i> no boot ip			
	<i>local-ip</i>	TFTP	IP	III
	III			
	IP	IP	TFTP	TFTP IP
		boot ip		
	boot network	boot system	TFTP	III
	Boot ROM		III	

	boot ip	IP
	TFTP	III
TFTP	III	
	Boot ROM	III

```
Ruijie(config)# boot network tftp://192.168.7.24/config.text
```

boot config	
boot ip	TFTP IP
service config	
show boot	III

-	-

10.2.6 boot system

no

III

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

	-	-

10.2.7 boot system

no

III

boot system url

no boot system

	url	III

I flash:/rgos.bin L III

III

III

url

III

III

1 4	flash	URL	flash
	III		
2 4	Boot ROM		III

III

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

LINE
 exec-timeout
 exec-timeout *minutes* [*seconds*]
 no exec-timeout

<i>minutes</i>	
<i>seconds</i>	

10 minIII

LINE

III LINE

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

-	-

-	-

10.2.11 hostname

hostname III

hostname *name*

<i>name</i>	32 III

III

```
BeiJingAgenda(config)#
```

-	-

-	-

<i>string</i>	32
---------------	----

RGOS

--	--

	-	-
	-	-

10.2.13 reload

reload III

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

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

III

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

-	-

-	-
---	---

10.2.14 service config

no III

service config
no service config

-	-
---	---

III

III

boot config boot network III

- service config boot config
 └─ /config.text └─ boot network
 III └─
- service config boot network
 └─ boot config └─ /config.text └─
 III
- III

III

Boot ROM III

Ruijie(config)# **service config**
Ruijie(config)# **boot network tftp://192.168.7.24/config.text**

boot config	
boot network	

speed speed

Speed	bpsIII 9600 Ч19200 Ч88400 Ч57600 Ч 115200 9600III

9600

III

57600 bps

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

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

-	-

-	-

10.2.17 write

running-config

III

write [memory | network | terminal]

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

III

boot config

write

[memory]

boot config

Flash

ext L

III

boot config

boot config

5âÀÁFÄ • ¥•SµL@ @^{SD}

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

boot config	
copy	
show running-config	

-	-

10.3

10.3.1 show boot

III

show boot [config | network | system | ip]

config	III
network	III
system	III
ip	IP III

III

III



1. N/A 2.

IP

	-	-

10.3.2 show boot system

show boot system

	-	-

III

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

	-	-

	-	-

10.3.3 show clock

show clock III

show clock

	-	-

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

	-	-

	-	-

10.3.6 show running-config

show

running-config III

show running-config

	-	-

	-	-

	-	-

10.3.7 show startup-config

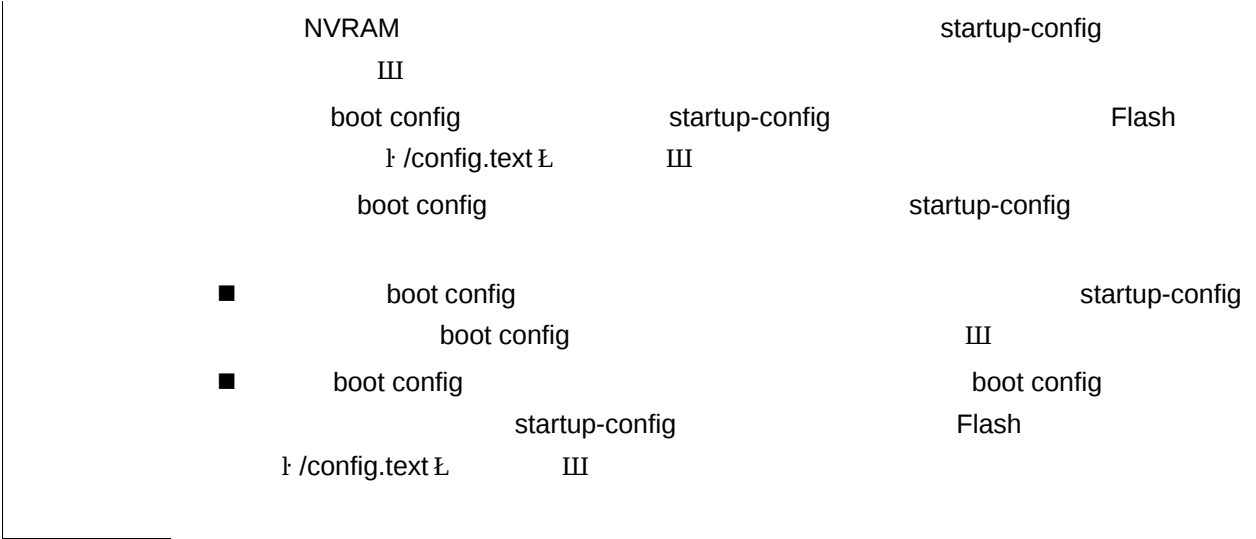
NVRAM
show startup-config III

show startup-config

-	-

--

--



--

boot config	

--

--	--

show version III

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*

Г Д

DIRECTORY

Г Д

III

Г Д

III

Г Д

“ ”
..

“ ”
.

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

Г Д

DESTINE_

DIRECTOR

SOURCE_

注意:

cp

III

Г Д

log.txt

Ruijie# **cp sour** *log.txt* c

11.1.3 ls

III

ls *PATHNAME*

Г Д

PATHNAME

III

Г Д

III

Г Д

Ruijie# **ls**

tmp

Ruijie# **ls tmp**

Г Д

11.1.4 mkdir

mkdir *DIRECTORY*

Г Д

DIRECTORY

Г Д

III

Г Д

III

Г Д

()III

III

Г Д

test

Ruijie# **mkdir test**

Г Д

11.1.5 mv

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

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

Г Д

SOURCE_FILE

DESTINE_FILE/DIRECTORY

Г Д

III

Г Д

III

Г Д

III

аЧ (type file); бЧ'?'
'? '

, III

Г Д

log.txt , config.txt,

,

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

log.txt tmp

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

Г Д

11.1.6 pwd

pwd

Г Д

pwd	

Г Д

III

Г Д

III

Г Д

III

Г Д

III

Ruijie# pwd

Г Д

11.1.7 rm

III

rm *FILE*

Г Д

FILE ()

Г Д

III

Г Д

III

Г Д

, III
III

Г Д

log.txt

Ruijie# rm log.txt

Г Д

rmdir	, rm

11.1.8 rmdir

III

rmdir *DIRECTORY*

Г Д

DIRECTORY ,

Г Д

III

Г Д

III

Г Д

rm , III ,
III

Г Д

tmp III

Ruijie# **rmdir tmp**

Ruijie# **ls**

Г Д

11.2

III

12

12.1

CLI

COPY

12.1.2 copy tftp

tftp

tftp

III

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

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

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

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

注意:

tftp

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

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

Г Д

filename

vrfname vrf

Г Д

III

Г Д

Г Д

III

III

TFTP

Ч

IIITFTP

III

Г Д

:

ip 192.168.12. 1

config.bak ;

switch.bin

ip 192.168.12.1 :

Ruijie# **copy tftp://192.168.12.1/config.bak flash:**

config.text

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

config.bak

Г Д

13 IP

13.1

- ip address
- ip unnumbered

13.1.1 ip address

IP no IP III

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

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

Г Д

<i>ip-address</i>	32 IP 8 III
<i>network-mask</i>	32 "1" "0" III 8 III
secondary	IP III

Г Д

IP III

Г Д

Г Д

IP

IP

IP

III

32

IP

IP

III

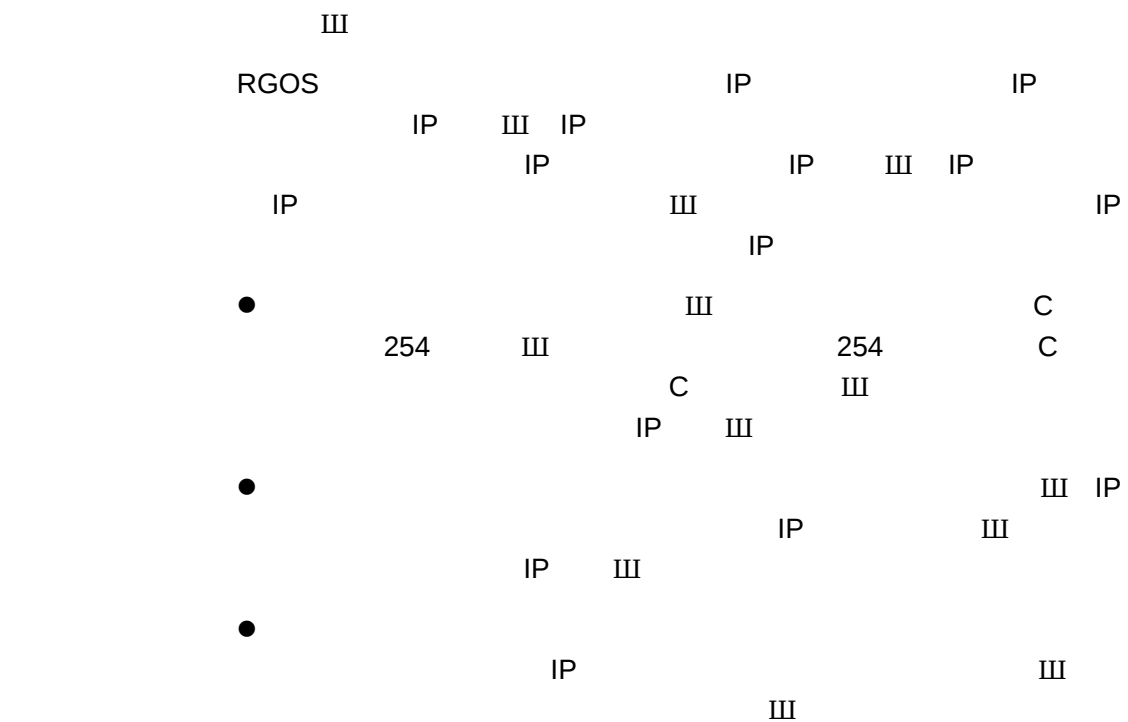
I 0 L

I 1 L

IP

I 255.0.0.0 L III

III A



Г Д

```

IP 10.10.10.1
255.255.255.0
ip address 10.10.10.1 255.255.255.0

```

Г Д

show interface	

Г Д

III

13.1.2 ip unnumbered

```

IP IP III no
III
ip unnumbered interface-type interface-number
no ip unnumbered interface-type interface-number

```

Г Д

--	--

IP IP IP

IP IP III IP

IP III

- SUBXUDLO SUBPBI LABPPIFrame relay

- SLIP 4 HDLC 4 PPP 4 LAPB 4 Frame-relay

III

III X.25 III

- ping

IP III SNMP III

• III

IP III GigabitEthernet 0/1/1/1

```
ip unnumbered vlan 1
```

Г. П. П.

[illegible]

show interface	

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

13.2.1 arp

ARP IP MAC
 III no MAC III
 arp *ip-address* *MAC-address* *type* [*alias*]
 no arp *ip-address* *MAC-address* *type* [*alias*]

Г Д

<i>ip-address</i>	MAC IP III
<i>MAC-address</i>	48
<i>type</i>	ARP III arpaIII
<i>alias</i>	RGOS IP arp III

Г Д

ARP III

Г Д

Г Д

RGOS ARP 32 IP 48
MAC III

ARP ARP
 III clear arp-cache ARP III

Г Д

ARP

III

arp 1.1.1.1 4e54.3800.0002 arpa

Г

Д

clear arp-cache	ARP

13.2.2 arp any-ip

AnyIP

III

IP

ARP

IP

III

no

III

arp any-ip

no arp any-ip

-	-

III

III

1 Ч IP

IP

IP

2 Ч IP

IP

ARP Ч

()

ARP

ARP

1 Ч

ARP

MAC

clear arp

ARP Ч

2 Ч

ARP

MAC

AnyIP

AnyIP

ARP Ч

III

ARP

VRRP

ARP

AnyIP

ARP

AnyIP

III

IP

Г Д

ARP

30s

arp retry interval 30

Г Д

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

13.2.4 arp retry times

arp

IP

ARP

III

no

5 ARP III

arp retry times *number*

no arp retry times

Г Д

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

Г Д

ARP

ARP

5

III

Г Д

Г Д

Г Д

arp retry interval seconds	arp

13.2.5 arp trusted NUM

ARP

III

no

III

arp trusted *number*

no arp trusted

Г Д

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

Г Д

III

Г Д

Г Д

ARP

III

ARP

ARP

III

III

Г Д

1000

ARPIII

arp trusted 1000

Г Д

service trustedarp	ARP

13.2.6 arp trusted aging

IP

Г Д

Г Д

ARP

III

Г Д

500III

arp unresolved 500

Г Д

13.2.8 arp gratuitous-send interval

arp III no

arp gratuitous-send interval *seconds*

no arp gratuitous-send

Г Д

!% È !aBPAQ€?@ @ @CR

SVI 1 ARP

Ruijie(config)# interface vlan 1

Ruijie(config-if)# no arp gratuitous-send

Г Д

13.2.9 arp timeout

ARP ARP

III

no

III

arp timeout *seconds*

no arp timeout

Г Д

<i>seconds</i>	0-2147483

Г Д

3600 III

Г Д

Г Д

ARP

IP

MAC

III

ARP

ARP

III

ARP

III

Г Д

vlan 1

ARP

120 III

interface vlan 1

arp timeout 120

Г Д

clear arp-cache	ARP
show interface	

13.2.10 ip proxy-arp

			ARP		ip proxy-arp	III
	no		ARP	III		
	ip proxy-arp					
	no ip proxy-arp					
г	д					
			ARPIII			
г	д					
г	д					
		IP	ARP MAC	III	ARP	

ARP GSN ARP III GSN
 STP MAC MAC ARP III
 1) STP
 2) root port design ,
 updown
 3) tc
 Г Д
 service trustedarp III
 config
 service trustedarp
 Г Д
 III

13.3

- ip broadcast-addresss
- ip directed-broadcast

13.3.1 ip broadcast-addresss

ip broadcast-addresss III
 no III
 ip broadcast-addresss *ip-address*
 no ip broadcast-addresss *ip-address*
 Г Д

<i>ip-address</i>	IP

 Г Д
 IP 255.255.255.255 III
 Г Д

Г Д

IP 1 1 255.255.255.255
RGOS IP
1 1 III

Г Д

IP 0.0.0.0
ip broadcast-address 0.0.0.0

Г Д

III

13.3.2 ip directed-broadcast

IP ip
directed-broadcast III no III
ip directed-broadcast [*access-list-number*]
no ip directed-broadcast

Г Д

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

Г Д

III

Г Д

Г Д

IP 172.16.16.255 IP IP
III
IP
III
IP 1 1
III

III

III

III

III

no ip directed-broadcast
III

RGOS

г д

vlan 1

III

interface vlan 1
ip directed-broadcast

г д

III

13.4 IP

IP

- clear arp-cache
-

注意:

RNFP(Ruijie Network Foundation Protection,

complete	arp
incomplete	arp

Г Д

Г Д

Г Д

show arp

Ruijie# **show arp**

Total Numbers of Arp: 7

Protocol	Address	Age(min)	Hardware
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

Protocol	InternetIII
Address	IP III
Age (min)	ARP III “_” III
Hardware	IP III
Type	ARPAIII
Interface	IP III

```
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				

```
show arp 192.168.195.0 255.255.255.0
```

```
Ruijie# show arp 192.168.195.0 255.255.255.0
```

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

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

```
Ruijie# show arp 001a.a0b5.378d
```

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

Г Д

III

13.4.3 show arp counter

ARP

arp

```
show arp counter
```

Г Д

Г Д

Г Д

Г Д

show arp counter

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

ARP
```

Г Д

III

13.4.4 show arp timeout

ARP

show arp timeout

Г Д

Г Д

Г Д

show arp timeout

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

ARP
```

Г Д

III

13.4.5 clear ip route

IP IP
clear ip route III

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

--	--

*	
<i>network</i>	
<i>netmask</i>	
vrf <i>vrf_name</i>	VRF

Г Д

Г Д

III
III

Г Д

192.168.12.0 III

clear ip route 192.168.12.0

Г Д

show ip route	IP

Г Д

III

13.4.6 show ip arp

ARP

III

show ip arp

Г Д

Г Д

Г Д

show ip arp

Ruijie# **show ip arp**

Protocol	Address	Age(min)	Hardware	Type
Interface				

```

Internet 192.168.7.233 23 0007.e9d9.0488 ARPA
vlan 1
Internet 192.168.7.112 10 0050.eb08.6617 ARPA
vlan 1
Internet 192.168.7.79 12 00d0.f808.3d5c ARPA
vlan 1
Internet 192.168.7.1 50 00d0.f84e.1c7f ARPA
vlan 1
Internet 192.168.7.215 36 00d0.f80d.1090 ARPA
vlan 1
Internet 192.168.7.127 0 0060.97bd.ebee ARPA
vlan 1
Internet 192.168.7.195 57 0060.97bd.ef2d ARPA
vlan 1
Internet 192.168.7.183 -- 00d0.f8fb.108b ARPA
vlan 1

```

ARP

Protocol	InternetIII
Address	IP III
Age (min)	ARP III “-” III
Hardware	IP III
Type	ARPAIII
Interface	IP III

Г Д

III

13.4.7 show ip interface

IP III

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

Г Д

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

Г Д

Г Д

RGOS RGOS III III
RGOS III

III

Г UP Л

Г UP Л III

III Ду

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

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

ip mask-reply III

no

ICMP

ICMP

III

ip mask-reply

```
no ip mask-reply
```

Г Д

ICMP

III

Г Д

Г Д

ICMP

III

ICMP

Г Д

vlan 1

ICMP

III

```
interface vlan 1
```

```
ip mask-reply
```

Г Д

III

14.1.2 ip mtu

IP MTU ip mtu III

no III

ip mtu *bytes*

no ip mtu

Г Д

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

Г Д

mtu III

Г Д

Г Д

IP IP MTU RGOS III

IP MTU III

mtu IP MTU

MTU MTU III IP MTU

MTU III

Г Д

vlan 1 IP MTU 512 III

interface vlan 1 ip mtu 512

Г Д

mtu	III

Г Д

III

14.1.3 ip redirects

		RGOS		ICMP			ip
		redirects	III	no	ICMP	III	
		ip redirects					
		no ip redirects					
Г	Д		III				
Г	Д						
Г	Д						
			III				
			ICMP				
				III			
			III				
		RGOS		ICMP	III		
Г	Д						
			vlan 1	ICMP	III		
		interface vlan 1					
		no ip redirects					
Г	Д						
				III			

14.1.4 ip source-route

		RGOS		IP		ip
		source-route	III	no		III
		ip source-route				
		no ip source-route				
Г	Д		III			
Г	Д					
Г	Д					

```

      RGOS      IP      III      IP      IP
      Ч      Ч      RFC 791
      III
      ICMP
      III
      RGOS      IP      III
г      д
      IP      III
      no ip source-route
г      д
      III

```

14.1.5 ip unreachable

```

      RGOS      ICMP      ip
      unreachable III      no      ICMP      III
      ip unreachable
      no ip unreachable
г      д
      III
г      д
г      д
      RGOS
      ICMP      III
      ICMP      III
г      д
      vlan 1      ICMP      III
      interface vlan 1
      no ip unreachable
г      д

```

III

15

15.1

15.1.1 ip session timeout

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

III

III	
10.3(4b5)	-

15.1.2 ip session threshold

ip session threshold III no
 III

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	ICMP 10

1tcp closed100III

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

2tcp closedIII

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

-	-

III

10.3(4b5)	-
10.3(4b6)	tcp-closed

15.1.3 ip session log

III

ip session log

no ip session log

-	-

III

1III

Ruijie(config)# ip session log

2III

15 JULY 2004

[illegible]

III	
10.3(4b5)	
10.3(4b6)	

15.1.5 clear ip fpm counters

	III
clear ip fpm counters	
-	-
III	
III	
III	
show ip fpm counters	
III	
1	
Ruijie#clear ip fpm counters	
show ip fpm counters-	
10.3(4b5)	-

15.1.6 clear ip fragment-statistic

III

clear ip fragment-statistic

	-	-

III

III

clear ip fragment-statistic
ip fragment buffer peak value

III

show ip fpm counters

	-	-

III

III

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      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	

clear ip fpm counters	

10.3(4b5)	-
10.3(4b6)	

15.2.2 show ip fpm flows

III

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

filter	
<i>ip_protocol_number</i>	
<i>source_ip</i>	IP

<i>source_ip_mask_len</i>	IP
<i>dest_ip</i>	IP
<i>dest_ip_mask_len</i>	IP

III

III

III

1

Ruijie#show ip fpm flows

Pro	SrcAddr	DstAddr	SrcPort	DstPort	
Cntxt	SendBytes	RecvBytes	State	Bridge	
TCP	192.168.52.68	192.168.52.67	5	2048	0
100	100	TCP_ESTABLISHED	2		

Ruijie#show ip fpm flows filter 1 192.168.52.0 24 192.168.52.67 24

Pro	SrcAddr	DstAddr	SrcPort	DstPort	
Cntxt	SendBytes	RecvBytes	State	Bridge	
TCP	192.168.52.68	192.168.52.67	5	2048	0
100	100	TCP_ESTABLISHED	2		

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



	-	-

	10.3(4b5)	-
	10.3(4b6)	

15.2.4 show ip fragment-buffer

III

show ip fragment-buffer

	-	-

III

show ip fragment-buffer

III

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

	ip fragment buffer overflow number	
	ip fragment contexts	

	clear ip fragment-statistic	III

	III
--	-----

	10.3(4b5)	-
	10.3(4b6)	

16 IP NAT

16.1

16.1.1 address

NAT address III
 no NAT address III
 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 III
end-ip	IP III
interface interface	NAT outside III Pool interface III match interface interface interface III NAT III
match interface interface	NAT outside III NAT pool III

III+III

	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

```

ip nat inside destination	NAT III
ip nat inside source	NAT III
ip nat outside source	NAT III
ip nat pool	IP NAT
show ip nat translations	IP NAT III

III

-	-

16.1.3 ip nat application

NAT

ip nat application III

no

III

```

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 }

```

	<i>list-num</i>	,
	<i>dest-ip</i>	NAT III
	<i>tcp dest-ip port-num</i>	tcp NAT III
	<i>udp dest-ip port-num</i>	udp NAT III
	<i>dest-change ip-addr port-num</i>	
	<i>src-change ip-addr</i>	
		III
		III

```
ip nat application source list 1 destination udp 192.168.1.1 53
dest-change 202.101.98.55 53
!
```

address	
ip nat	NAT III
ip nat inside destination	NAT III
ip nat inside source	NAT III
ip nat outside source	NAT III
show ip nat translations	IP NAT III

10.3(4b6)	vrf

16.1.4 ip nat inside destination

```
NAT ip nat inside destination III
no NAT III
ip nat inside destination list access-list-number pool pool-name
no ip nat inside destination list access-list-number pool pool-name
```

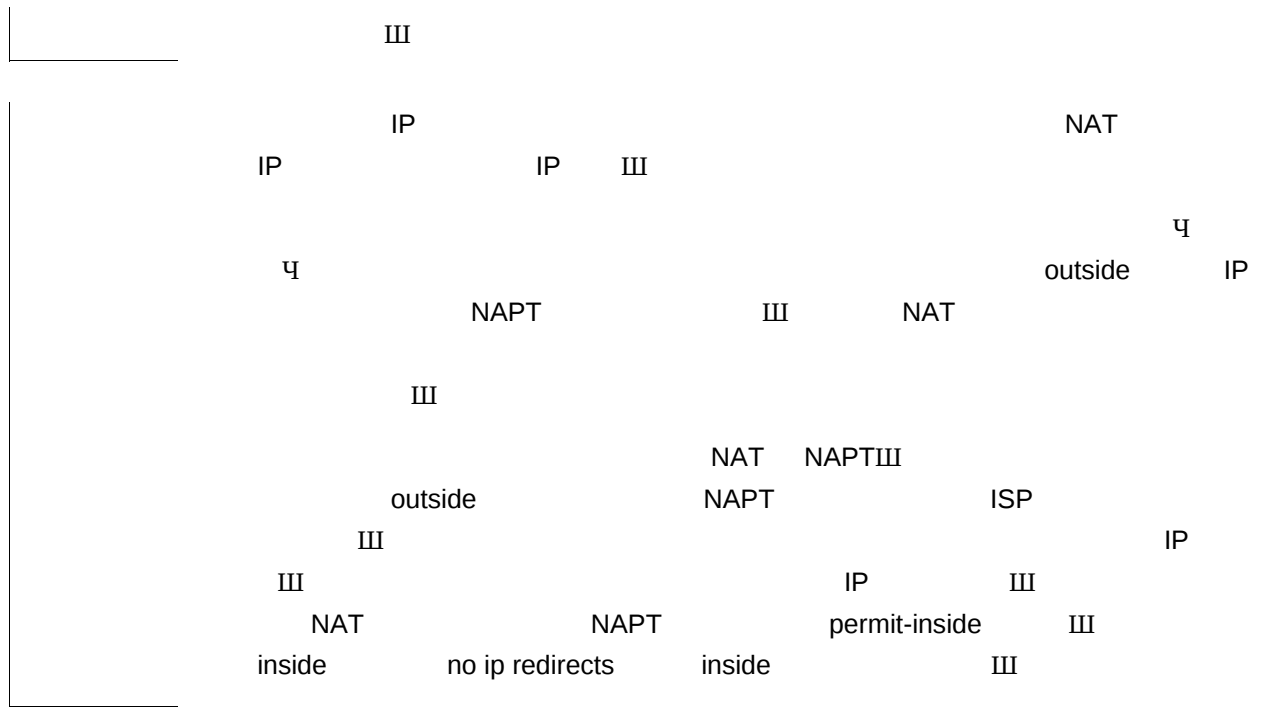
list access-list-number	pool
IP 100-199	IP


```

no NAT
no NAT
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	III NAT III
werface	



	10.3(4b6)	vrf

	NAT	ip nat outside source	III
no	NATIII		
ip nat outside source list	<i>access-list-number</i>	pool	<i>pool-name</i>
no ip nat outside source list	<i>access-list-number</i>		
ip nat outside source static	<i>global-ip</i>	<i>local-ip</i>	
no ip nat outside source static	<i>global-ip</i>	<i>local-ip</i>	
ip nat outside source static	<i>protocol</i>	<i>global-ip</i>	<i>global-port</i> <i>local-ip</i> <i>local-port</i>
no ip nat outside source static	<i>protocol</i>	<i>global-ip</i>	<i>global-port</i> <i>local-ip</i> <i>local-port</i>

list access-list-number	III NAT III
pool pool-name	NAT III
static global-ip local-ip	NAT III local-ip global-ip III
static protocol	NAT protocol TCP UDPIII
local-port	IIITCP UDP III global-port III
global-port	III

NAT

NAT

NAT

III

IP

III

DNS

NATIII

1

92.168.12.0/24

III

192.168.12.0/24

92.168.12.0/24

III

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

inside outside

NAT

III

ip nat	NAT III
ip nat inside destination	NAT III
ip nat inside source	NAT III
ip nat pool	IP NAT
show ip nat translations	IP NAT III

10.3(4b6)	vrf

16.1.7 ip nat pool

NAT

ip nat pool

III

no

III

```
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 III
start-ip	NAT IP III
end-ip	NAT IP III
netmask netmask	NAT III
Prefix-length prefix-length	NAT III
Type	NAT IIIrotary III rotary III rotary cisco III

III

III

III

```
1 net192 192.168.12.1
192.168.12.254 24 III
ip nat pool net192 192.168.12.1 200.168.12.254 prefix-length 24
```

address	
ip nat	NAT III
ip nat inside destination	NAT III
ip nat inside source	NAT III
ip nat outside source	NAT III

	show ip nat translations	IP NAT	III
--	--------------------------	--------	-----

--

	10.3(4b6)	vrf

16.1.8 ip nat translation

NAT ALG ip nat translation III no
III ALG III

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

>	ALG	III	p	W
---	-----	-----	---	---

IP NAT

	10.3(4t90)	
--	------------	--

16.2

16.2.1 show ip nat translations

NAT

show ip nat translations

III

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

icmp	icmp nat III
tcp	tcp nat III
udp	udp nat III
acl_num	acl , acl
verbose	NAT III

III

IP NAT

verbose

timeout

III

1 show ip nat translations verbose

III

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

Pro	III "udp" UDP "tcp" TCP II"icmp" ICMP III
Inside global	III
Inside local	III

Outside local	III
Outside global	III
timeout	NAT III
vrf	vrf

Q.

17

17.1

17.1.1 ping

Ч

III

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

Г

Д

<i>vrf-name</i>	VRF
<i>ip-address</i>	IPv4 III
<i>length</i>	
<i>times</i>	
timeout	
<i>data</i>	
<i>source</i>	IPv4

Г

Д

2

5

100Byte

IP III

Г

Д

Г

Д

Ping

ping

ping

III

ping

2

5

100Byte

IP

!E

!E

III

ping

ping

Ч

III

III VRF

RSR

III

Г Д

```
Ruijie# ping 192.168.5.1
```

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

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

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

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

[illegible]

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

Г Д

III

17.1.2 Traceroute

traceroute

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

г д

г д

tracert

III
DNS III VRF RSR III

г д

tracert

III

1¶ tracert

Ruijie# **tracert** 61.154.22.36

< press Ctrl+C to break >

Tracing the route to 61.154.22.36

```

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

```

Ruijie#

IP 61.154.22.36

1 6

III

2¶ tracert

Ruijie# **tracert** 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

```


17.1.3 Line-detect

line-detect III

line-detect

Г Д

Г Д

Г Д

line-detect

III

Г Д

```
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				III
State		OK	Short	Open
III				
	A Ч B	OK	C Ч D	Short III
	A Ч B Ч C Ч D	OK III		
Length:		III	state OK	III
	Short	Open	length	III

18 DHCP

18.1 DHCP

18.1.1 bootfile

DHCP		DHCP
bootfile III	no	III
bootfile <i>file-name</i>		
no bootfile		

Г Д

<i>file-name</i>	III

Г Д

III

Г Д

DHCP

Г Д

```

graph LR
    subgraph "III"
        TFTP
    end
    subgraph "III"
        DHCP
    end
    subgraph "DHCP"
        next-server
    end
    TFTP --> DHCP
    DHCP --> next-server

```

Г Д

router.conf III

```
bootfile router.conf
```

Г Д

ip dhcp pool	DHCP III

next-server	DHCP IP III
-------------	----------------

18.1.2 client-identifier

DHCP

DHCP

client-identifier III

no

III

client-identifier *unique-identifier*

no client-identifier

Г

Д

client-identifier

0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.65
74.302f.31

Г Д

hardware-address	DHCP III
host	IP III DHCP III
ip dhcp pool	DHCP III DHCP III

18.1.3 client-name

DHCP DHCP client-name III
no DHCP III

client-name *client-name*

no client-name

Г Д

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

Г Д

III

Г Д

DHCP

Г Д

DHCP DHCP
III III

Г Д

river III

client-name river

Г Д

host	IP III DHCP III
ip dhcp pool	DHCP DHCP III

18.1.4 default-router

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

Г Д

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

Г Д

III

Г Д

DHCP

Г Д

DHCP DHCP DHCP III
 DHCP IP
 III

Г Д

192.168.12.1 III
 default-router 192.168.12.1

Г Д

--	--

ip dhcp pool	DHCP DHCP III
--------------	---------------------

18.1.5 dns-server

DHCP DNS DHCP
 dns-server III no DNS III

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

Г Д

<i>ip-address</i>	DNS IP III III
<i>ip-address2...ip-address8</i>	8 DNS III
use-dhcp-client <i>interface-type</i> <i>interface-number</i>	RGOS DHCP DNS DHCP DNS III

Г Д

DNS III

Г Д

DHCP

Г Д

DNS
DNS

DHCP
DNS III

RGOS

DHCP
DHCP III

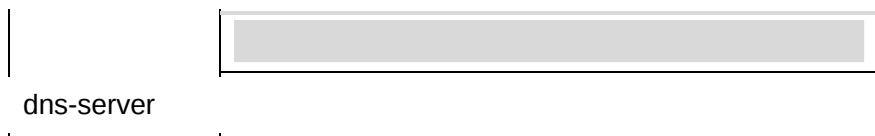
DNS

Г Д

DHCP DNS 192.168.12.3III

dns-server 192.168.12.3

Г Д



18.1.7 hardware-address

DHCP
 hardware-address III no III
 hardware-address *hardware-address type*
 no hardware-address

Г Д

<i>hardware-address</i>	DHCP MAC III
<i>type</i>	DHCP III ◇ ethernet ◇ ieee802 ◇ 1 10M ethernet ◇ 6 IEEE 802

Г Д

III

ethernetIII

Г Д

DHCP

Г Д

DHCP

III

Г Д

ethernet MAC 00d0.f838.bf3dIII

hardware-address 00d0.f838.bf3d

Г Д

host	IP DHCP	III III
ip dhcp pool	DHCP DHCP	III

18.1.8 host

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

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

18.1.9 ip address dhcp

```

                                PPP  HDLC  FR
                                ip address dhcp  III
                                DHCP      IP
                                no
                                III
ip address dhcp
no ip address dhcp

Г      Д

                                DHCP      IP      III

Г      Д

Г      Д

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

Г      Д

                                GigabitEthernet 0

```

18.1.10 ip dhcp excluded-address

IP DHCP DHCP
 ip dhcp excluded-address III no
 III

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

Г Д

<i>low-ip-address</i>	IP IP III IP
<i>high-ip-address</i>	IP III

Г Д

DHCP IP III

Г Д

Г Д

IP III IP DHCP IP DHCP
 DHCP III IP IP DHCP
 III

Г Д

DHCP 192.168.12.100~150
 IP III

ip dhcp excluded-address 192.168.12.100 192.168.12.150

Г Д

ip dhcp pool	DHCP DHCP III
network DHCP	DHCP III

18.1.11 ip dhcp ping packet

DHCP ping
ip dhcp ping packet III no III

ip dhcp ping packet [*number*]

no ip dhcp ping packet

Г Д

<i>number</i>	0 10 0 ping III ping III

Г Д

ping 2III

Г Д

Г Д

DHCP DHCP IP ping

DHCP III Ping
10 III

Г Д

ping 3 III

ip dhcp ping packets 3

Г Д

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

18.1.12 ip dhcp ping timeout

DHCP ping

ip dhcp ping timeout III no

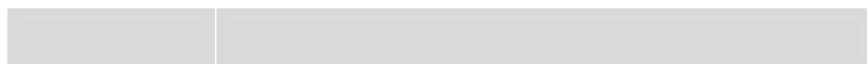
III

ip dhcp ping timeout *milli-seconds*

no ip dhcp ping timeout

Г

Д



DHCP
ip dhcp pool III

DHCP
no

DHCP III

ip dhcp pool *pool-name*

no ip dhcp pool *pool-name*

Г Д

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

Г Д

DHCP III

Г Д

Г Д

DHCP

Ruijie(dhcp-config)#

IP ЧDNS Ч

III

Г Д

mypool0 DHCP III

ip dhcp pool mypool0

Г Д

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

DHCP
lease III

no

III

DHCP

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

no lease

Г

Д

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

DHCP NETBIOS WINS DHCP

netbios-name-server III no WINS

III

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

no netbios-name-server

Г

Д

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

Г

Д

WINS III

Г

Д

DHCP

Г

Д

WINS WINS

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

netbios-node-type type

no netbios-node-type

г д

	NetBIOS III
	0~FF
type	✧ 1 b-node ✧ 2 p-node ✧ 4 m-node ✧ 8 h-nodeIII
	✧ b-node ✧ p-node ✧ m-node ✧ h-node III

г д

NetBIOS III

г д

DHCP

г д

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

г д

DHCP NetBIOS III

netbios-node-type h-node

г д

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

18.1.17 network DHCP

DHCP
 network III no III DHCP
 network *net-number net-mask*
 no network

Г Д

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

Г Д

III

Г Д

DHCP

Г Д

DHCP

III

IIIDHCP

DHCP

III

show ip dhcp binding

show ip dhcp conflict III

Г Д

DHCP

192.168.12.0

255.255.255.240III

network 192.168.12.0 255.255.255.240

Г

Д



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

18.1.19 option

DHCP DHCP option III

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

Г Д

<i>code</i>	DHCP III
<i>ascii string</i>	ASCII III
<i>hex string</i>	III
ip <i>ip-address</i>	IP III

Г Д

III

Г Д

Г Д

DHCP DHCP TCP/IP III
DHCP option DHCP 312 option III
DHCP III DHCP
DHCP option RFC 2131 III

Г Д

```

19
DHCP
IP 1
DHCP
option 19 hex 1

33
DHCP
DHCP
1
172.16.12.0 192.168.12.12 2 172.16.16.0
192.168.12.16
option 33 ip 172.16.12.0 192.168.12.12 172.16.16.0
192.168.12.16

```

Г Д

ip dhcp pool	DHCP DHCP III

18.1.20 service dhcp

```

DHCP
service
dhcp
no
DHCP
DHCP
service dhcp
no service dhcp

```

Г Д

Г Д

DHCP III

Г Д

Г Д

```

DHCP
DHCP
IP
DNS
DHCP
DHCP
DHCP
DHCP
<

```


'
show ip dhcp binding

DHCP

III

```
clear ip dhcp server statistics
```

Г Д

III

Г Д

Г Д

DHCP

DHCP
DHCP

Ч

Ч

clear

```
ip dhcp server statistics
```

III

Г Д

DHCP

III

```
clear ip dhcp server statistics
```

Г Д

show ip dhcp server statistics	DHCP III

18.2.4 debug ip dhcp client

DHCP Client

debug ip dhcp client

III

```
debug ip dhcp client
```

```
no debug ip dhcp client
```

Г Д

Г Д

Г Д

Г Д

dhcp client

III

г д

dhcp

III

III

Г Д

Г Д

IP IP IP IP

Г Д

show dhcp lease III

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 show ip dhcp binding III

show ip dhcp binding [ip-address]

Г Д

--	--

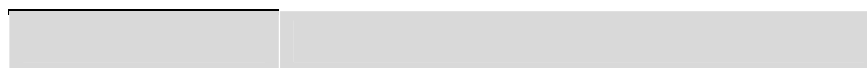
Г д

show ip dhcp binding III

Ruijie# **show ip dhcp binding**

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

III



Г Д

show ip dhcp conflict III

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

```
dhcpd excluded ipaddress
192.168.12.100
```

III

IP address	DHCP IP III
Detection Method	III
dhcpd excluded ipaddress	III

Г Д

clear ip dhcp confict	DHCP

18.2.9 show ip dhcp server statistics

DHCP EXEC show ip dhcp
server statistics III
show ip dhcp server statistics

Г Д

Г Д

III

Г Д

Г Д

DHCP III

Г д

show ip dhcp server statistics

III

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

III

Address pools	
Automatic bindings	III
Manual bindings	III
Expired bindings	III
Malformed messages	DHCP III
Message Received or Sent	DHCP III

Г

19 DNS

19.1

19.1.1 ip domain-lookup

```

      DNS      III      no      DNS
      III
ip domain-lookup
no ip domain-lookup

R      D
      DNS      III

R      D

R      D
      DNS      DNS
      III

R      D
      DNS
Ruijie(config)# ip domain-lookup

R      D


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



R      D
      RGNOS10.1      III
```

19.1.2 ip name-server

```

      IP      III
      III      no      III
```

ip name-server *ip-address*

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

Г Д

<i>ip-address</i>	IP

Г Д

Г Д

Г Д

DNS Server IP III DNS
 ServerIII Server
 Server DNS III
 6 III DNS Server ip-address
 DNS III

Г Д

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

Г Д

show hosts	DNS III

Г Д

RGNOS10.1 III

19.1.3 ip host

IP III no

III

ip host *host-name ip-address*

no ip host *host-name ip-address*

Г Д

--	--

DNS

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

Г Д

Г Д

no ip host host-name ip-address

Г Д

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

Г Д

show hosts	DNS III

Г Д

RGNOS10.1 III

-IP

III

clear host *

Г Д

show hosts	

Г Д

RGNOS10.1

III

19.1.5 show hosts

DNS

III

show hosts

Г Д

Г Д

DNS

III

Г Д

Ruijie# **show hosts**

Name servers are:

static

host	type	address
switch	static	192.168.5.243
www.ruijie.com	dynamic	192.168.5.123

Г Д

ip host	IP
ip name-server	DNS

Г Д

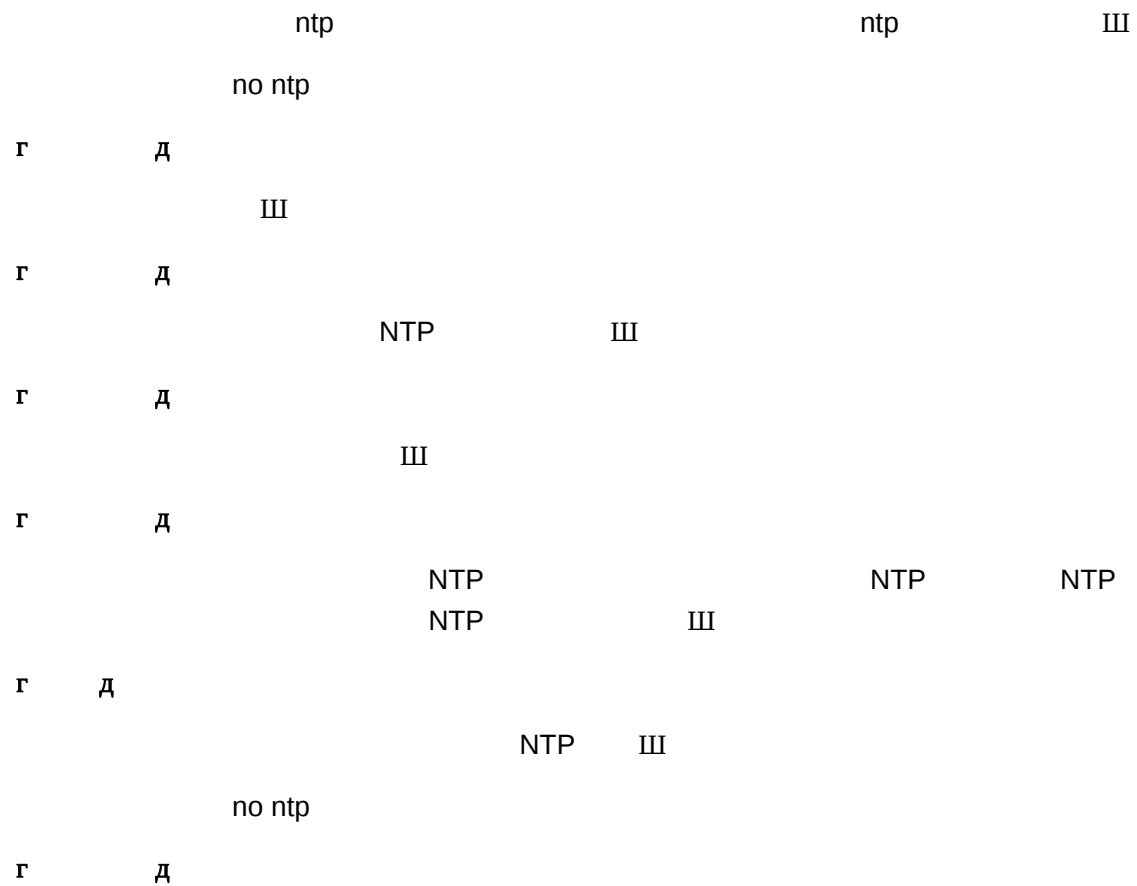
RGNOS10.1

III

20 NTP

20.1 NTP

20.1.1 no ntp



20.1.2 ntp access-group

NTP
III
no
ntp access-group {peer|serve|serve-onl

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

ГД

peer	NTP III
serve	NTP III
serve-only	NTP III
query-only	NTP III
<i>access-list-number</i>	IP 1 99 1300 1999
<i>access-list-name</i>	IP III

ГД

NTP III

ГД

III

ГД

NTP III
NTP III
NTP

III peer Ч

serve Ч serve-only Ч query-onlyIII

注意:

III
III

III
III

ГД

1

2

III

Ruijie(config)# ntp access-group peer 1

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

Г

Д

ip access-list	IP III

20.1.3 ntp authenticate

NTP

NTP

III

ntp authenticate

no ntp authenticate

Г

Д

III

ntp authentication-key	
ntp trusted-key	III

20.1.4 ntp authentication-key

NTP NTP III

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

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

Г Д

<i>key-id</i>	ID
<i>key-string</i>	
<i>enc-type</i>	7 0

Г Д

III

Г Д

III

Г Д

md5 key-id
ntp trusted-key key-id

III

1024

Г Д

ID 6

ntp authentication-key 6 md5 woooooop

Г Д

ntp authenticate	

ntp trusted-key	
ntp server	NTP

20.1.5 ntp disable

```

NTP III
ntp disable
Г Д
III
Г Д
NTP III
Г Д
III
Г Д
NTP
NTP III

```

注意:

```

III IP

```

```

Г Д
NTP III
no ntp
Г Д
III

```

20.1.6 ntp master

```

NTP
III no NTP III
ntp master [stratum]
no ntp master

```

Г

Д

no ntp server *ip-addr*

Г Д

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

Г Д " Ì €

20.1.8 ntp synchronize

NTP

ntp synchronize

no ntp synchronize

Г Д

III

Г Д

III

Г Д

III

Г Д

NTP 8

Г Д

NTP III

Ntp synchronize

Г Д

ntp server	NTP

20.1.9 ntp trusted-key

ID

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

Г Д

<i>key-id</i>	IDIII

Г Д

III

Г Д

III

Г Д

NTP

ID

Г Д

III

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

Г Д

ntp authenticate	III
ntp authentication-key	NTP III
ntp server	NTP III

20.1.10 ntp update-calendar

NTP

III no

III

```
ntp update-calendar
no ntp update-calendar
```

Г Д

Г Д

III

Г Д

III

Г Д

NTP

III

III

NTP

III

NTP

III

Г Д

NTP

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

Г Д

20.2

20.2.1 debug ntp

NTP III

debug ntp

no debug ntp

Г Д

III

Г Д

III

Г Д

III

Г Д

NTP

III

Г Д

NTP III

debug ntp

Г Д

III

20.2.2 show ntp status

NTP III

show ntp status

Г Д

III

Г Д

III

Г Д

Г Д

NTP atu()Tj /C2_0 1 Tf 0.0057 Tc 2 Tr -8 -7.406 Td [<02CCC07471CF

21 SNTP

21.1

21.1.1 sntp enable

SNTP

no

—DisableIII

[no] sntp enable

г

Д

г

Д

SNTP

Disable

г

Д

г

Д

show sntp

SNTP

г

Д

RedGiant(config)# **sntp enable**

г

Д

show sntp	SNTP
clock update-calendar	
clock set	

г

Д

RGOS10.0

21.1.2 sntp server

SNTP Server

SNTP

NTP

Server internet NTP ServerIII

sntp server ip-addr

no sntp server

Г Д

ip-addr NTP/SNTP IP

Г Д

NTP/SNTP

Г Д

Г Д

show sntp SNTP

Г Д

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

Г Д

show sntp	SNTP
sntp enable	SNTP

Г Д

RGOS10.0

21.1.3 sntp interval

SNTP Client

NTP/SNTP Server

III

sntp interval *seconds*

no sntp interval

Г Д

seconds I L 60 --65535 III

Г Д

1800s

Г Д

Г Д

show sntp SNTP III

Г Д

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

Г Д

sntp enable	SNTP
show sntp	SNTP
clock update-calendar	

Г Д

RGOS10.0

注意:

sntp

enable III

21.2

21.2.1 show sntp

SNTP III

Г Д

Г Д

Г Д

sho `SNTP

Г Д

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

Г Д

sntp enable	SNTP
show sntp	SNTP

Г Д

RGOS10.0

Г Д

show ip ssh	SSH Server III
crypto key zeroize {rsa dsa }	DSA RSA SSH Server III

Г Д

RGOS10.1

22.1.2 crypto key zeroize

SSH

crypto key zeroize {rsa | dsa}

Г Д

rsa	RSA
dsa	DSA

Г Д

Г Д

Г Д

III SSH Server SSH Server
DISABLEIII no enable
service ssh-server III

Г Д

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

Г Д

show ip ssh	SSH Server III

crypto key generate {rsa dsa}	DSA	RSA	III
-------------------------------	-----	-----	-----

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A

RGOS10.1

22.1.3 ip ssh version

show ip ssh	SSH Server	III
-------------	------------	-----

Г Д

RGOS10.1

22.1.4 ip ssh time-out

SSH Server III no

III

ip ssh time-out *time*

no ip ssh time-out

Г Д

III	Ō	no
-----	---	----

22.1.5 ip ssh authentication-retries

SSH Server

III

no

III

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

Г Д

<i>retry times</i>	III

Г Д

3 III

no ip ssh

authentication-retries

III

Г Д

Г Д

SSH Server

III

SSH Server

III show

ip ssh

SSH Server

III

Г Д

2

Ruijie# configure terminal

Ruijie(config)# ip ssh ssh authentication-retries 2

Г Д

show ip ssh	SSH Server III

Г Д

RGOS10.1

22.2 SSH

22.2.1 show ip ssh

SSH Server

show ip ssh

г д

г д

г д

г д

SSH Server

Server Ⅲ Ⅲ SSH

SSH

SSH

г д

Ruijie# show ip ssh

10.10.10.10 (w) 1354205B51Tjr1vdk

Г Д

Г Д

SSH SSH III VTY Ч
SSH Ч Ч Ч Ч III

Г Д

Ruijie# show ssh

Г Д

Г Д

RGOS10.1

22.2.3 show crypto key mypubkey

SSH Server

III

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

Г Д

rsa	RSA
dsa	DSA

Г Д

Г Д

Г Д

SSH Server III
Ч Ч III

Г Д

Ruijie# show crypto key mypubkey rsa

Г Д

crypto key generate {rsa dsa}	DSA RSA III

Г Д

RGOS10.1

22.2.4 disconnect ssh

SSH III

disconnect ssh [vty] *session-id*

Г Д

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

Г Д

Г Д

Г Д

SSH
VTY SSH SSH III
SSH III SSH
III

Г Д

Ruijie# disconnect ssh 1
Ruijie# disconnect ssh vty 1

Г Д

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

Г Д

RGOS10.1

23 UDP-Helper

23.1

23.1.1 udp-helper enable

udp-helper enable

udp-helper enable

UDP

UDP

III

no

III

UDP

III

udp-helper enable

no udp-helper enable

ГД

ГД

UDP

ГД

ГД

UDP-Helper

69,53,37,137,138,49

UDP

III

ГД

UDP

:

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

ГД

ip forward-protocol	UDP

ГД

RGNOS10.1

III

23.1.2 ip helper-address

UDP

III

no

UDP

III

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

Г Д

<i>address</i>	UDP 20 III

Г Д

UDP

Г Д

Г Д

20

III

UDP-Helper

UDP

III

no ip helper-address

III

Г Д

UDP

:

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

Г Д

ip forward-protocol	UDP

Г Д

RGNOS10.1

III

23.1.3 ip forward-protocol

UDP

III

no

UDP

III

udp-helper enable	UDP
ip forward-protocol	UDP

Г

Д

RGNOS10.1

III

24

24.1

24.1.1 ip policy route-map

Г Д

vlan 1
10.0.0.1 196.168.4.6 20.0.0.1
196.168.5.6 III

```
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
```

Г Д

access-list	III
route-map	III
set ip next-hop	
set ip default next-hop	
set interface	
set default interface	
set ip tos	IP TOS
set ip dscp	IP DSCP
set ip precedence	IP
match ip address	
match length	

route-map

Э

Ю

24.1.2 ip local policy route-map

route-map *III* no *III* ip local policy
ip local policy route-map *route-map*
no ip local policy route-map

Г Д

<i>route-map</i>	<i>III</i>

Г Д

III

Г Д

III

Г Д

III

III

1

III

III

set interface *III* , set interface

Г Д

192.168.217.10

vlan 1 *III*

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

Г Д

access-list	
route-map	
set ip next-hop	
set ip default next-hop	
set interface	
set default interface	
set ip tos	IP TOS
set ip dscp	IP DSCP
set ip precedence	IP
match ip address	
match length	

route-map

Э

Ю

24.1.3 ip policy

set ip nexthop

ip policy

III

no

III

ip policy {load-balance|redundance }

no ip policy

Г Д

load-balance redundance	

Г Д

III

Г Д

III

Г Д

set ip next-hop

			WCMP
4	ECMP	32	III
	ARP	III	

Г Д

nexthop,

vlan 1

nexthop III

```
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

25.1

25.1.1 address-family RIP

RIP

address-family

no III

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

Г Д

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

Г Д

RIP III

Г Д

III

Г Д

address-family

(config-router-af)# III

VRF RIP III

III

VRF

RIP

VRF

RIP

exit-address-family exit III

Г Д

vpn1 VRF

vrf

RIP III

Ruijie(config)# **ip vrf vpn1**

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

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

Ruijie(config-if)# **ip vrf forwarding vpn1**

RIP

- RIP III

-

III

RIPv2

RIPv1

III

Г Д

RIPv2

III

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

Г Д

Г Д

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

redistribute III

25.1.5 distance

RIP

istribute-list inIII no III

istribute-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*]

Г Д

<i>access-list-number</i>	III III
prefix <i>prefix-list-name</i>	III
<i>gateway prefix-list-name</i>	III
<i>interface-type interface-number</i>	() III

Г Д

III

Г Д

III

Г Д

access-list	III
prefix-list	III

Г Д

Г Д

25.1.7 distribute-list out RIP

distribute-list out III no III

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*]]

Г Д

<i>access-list-number</i>	III III
prefix <i>prefix-list-name</i>	III
<i>interface</i>	() III
<i>protocol</i>	() III
<i>process-id</i>	() <i>protocol</i> OSPF OSPF idIII

Г Д

III

Г Д

III

Г Д

III

Г Д

RIP

192.168.12.0/24

III

```

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

```

Г Д

access-list	III
prefix-list	III
redistribute	III

Г Д

Г Д

25.1.8 exit-address-family

exit-address-family

III

exit-address-family

Г Д

III

Г Д

III

Г Д

III

Г Д

III

exit III

Г Д

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

Г Д

address-family	III

Г Д

Г Д

25.1.9 ip rip authentication key-chain

```

RIP          RIP          ip rip
authentication key-chain  III      no      III
ip rip authentication key-chain name-of-keychain
no ip rip authentication key-chain
```

Г Д

<i>name-of-keychain</i>	RIP III

RIP



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

Г Д

Г Д

25.1.11 ip rip authentication text-password

RIP ip rip authentication
text-password III no III

ip rip authentication text-password *password-string*

no ip rip authentication text-password

Г Д

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

Г Д

III

Г Д

III

Г Д

RIP

III

RIPv1 RIP RIPv2 III

Г Д

Serial 0 RIP

ruijieIII

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

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

Г Д

ip rip authentication mode	RIP III
ip rip authentication key-chain	RIP III RIPv2 RIP III

Г Д

Г Д

25.1.12 ip rip default-information

default-information III RIP no ip rip III

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

no ip rip default-information

Г Д

only	III
originate	III
metric <i>metric-value</i>	1-15III

Г Д

III
metric 1III

Г Д

III

Г Д

ip rip default-information RIP III

default-information originate III

注意:

1 Ч ip rip default-information RIP

III

III

2 Ч ip rip default-information

III

Г Д

ethernet0/0

III

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

Ruijie(config-if)# **ip rip default-information only**

Г Д

default-information originate	RIP

Г Д

Г Д

25.1.13 ip rip receive enable

RIP
receive enable III no RIP ip rip
III RIP

ip rip receive enable
no ip rip receive enable

Г Д

III

Г Д

RIP III

Г Д

III

Г Д

no RIP
default III RIP III

Г Д

GigabitEthernet 0/0

RIP

III

```
Ruijie(config)# interface GigabitEthernet 0/0
```

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

Г Д

ip rip send enable	RIP
passive-interface	RIP

Г Д

Г Д

25.1.14 ip rip receive version

RIP

RIP

ip rip receive version III

no

III

ip rip receive version [1] [2]

no ip rip receive version

Г Д

1	RIPv1 III
2	RIPv2 III

Г Д

version III

Г Д

III

Г Д

vesion RIPv2 ÓX

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

Г Д

version	RIP III

Г Д

Г Д

25.1.15 ip rip send enable

RIP send enable III no RIP ip rip
RIP

ip rip send enable
no ip rip send enable

Г Д

III

Г Д

RIP

Г Д

Г Д

no RIP
default III RIP III

Г Д

GigabitEthernet 0/0 RIP III

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

Г Д

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Г Д

Г Д

25.1.17 ip rip v2-broadcast

RIP version 2

ip rip v2-broadcast III no

III

ip rip v2-broadcast

no ip rip v2-broadcast

Г Д

III

Г Д

version III

Г Д

III

Г Д

vesion III
RIPv1 RIPv2
version III

RIP

III

Г Д

GigabitEthernet 0/0 RIPv2 III

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

Ruijie(config-if)# **ip rip v2-broadcast**

Г Д

		RIP		ip split-horizon
		no	RIP	III
		ip split-horizon		
		no ip split-horizon		
Г	Д			
		III		
Г	Д			
			III	
Г	Д			
		III		
Г	Д			
		IP		
			III	
				III
			III	
				Ч rip(orizon)]TJ/C2_0 1 Tf0 T5.174f1.913 0 T2051

25.1.19 ip summary-address rip

summary-address rip **III** **no** **ip**
III

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

Г Д

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

Г Д

RIP **III**

Г Д

III

Г Д

ip summary-address rip **III**
IIIRIP **III** **III**

Г Д

RIPv2 **III**
 GigabitEthernet 1/0 **172.16.0.0/16**
 Ruijie(config)# **interface GigabitEthernet 1/0**
 Ruijie(config-if)# **ip summary-address rip 172.16.0.0 255.255.0.0**
 Ruijie(config-if)# **ip address 172.16.1.1 255.255.255.0**
 Ruijie(config)# **router rip**
 Ruijie(config-router)# **network 172.16.0.0**
 Ruijie(config-router)# **version 2**
 Ruijie(config-router)# **no auto-summary**

Г Д

auto-summary	RIP

Г Д

Г Д

25.1.20 network (RIP)

```

RIP
network III          no          III

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

```

Г Д

<i>network-number</i>	IP RIP III
<i>wildcard</i>	IP 0 1 III

Г Д

Г Д

III

Г Д

```

network-number wildcard
RIP III

wildcard RGOS
RIP III

RIP RIP
RIP III

```

Г Д

```

RIP
192.168.12.0/24 172.16.0.0/24 RIP

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

```

Г Д

Г Д

Г Д

25.1.21 neighbor (RIP)

RIP IP neighbor III
no III

neighbor *ip-address*

no neighbor

Г Д

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

Г Д

III

Г Д

III

Г Д

RIPv1 IP

RIP

Г Д

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

Г Д

III

Г Д

III

Г Д

RIP 512 25

25

III

III output-delay

III

Г Д

RIP 30

Ruijie(config)# **router rip**

Ruijie(config-router)# **output-delay 30**

Г Д

Г Д

Г Д

25.1.24 passive-interface

passive-interface III no

III

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

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

Г Д

default	passive

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

Г Д

passive III

Г Д

III

Г Д

passive-interface default passive

no passive-interface *intface-type interface-num*

passive III

ip rip send enable ip rip receive enable

RIP

passive

RIP

RIP

ip rip send enable

ip rip receive

enable

III

Г Д

passive

ethernet0/0

passive

Ruijie(config-router)# **passive-interface default**

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

Г Д

ip rip receive enable	RIP
ip rip send enable	RIP

Г Д

Г Д

25.1.25 redistribute RIP

redistribute

III

no

III

```
redistribute {ospf <1-65535> | connected | static }[metric value ]  
[route-map route-map-name ][ match internal | external type | n  
ssa-external type ]
```

```
no redistribute {ospf <1-65535> | connected | static }[metric  
value ] [route-map route-map-name ] [ match internal | external  
type | nssa-external type ]
```

Г

Д



1 B Q , Pöà,,•9e•(A,~à...!uVgg R%Pnđ...% nh •=ñaVi°Â1hđ W,~á R)thB`0¥ K€ Du... hdđ – D

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

Г

Д



Г Д

25.1.27 timers basic

RIP timers basic III
 no III
 timers basic *update invalid flush*
 no timers basic

Г Д

<i>update</i>	III <i>update</i> invalid <i>Flush</i> III 30 III
<i>invalid</i>	III <i>invalid</i> III invalid invalid III <i>invalid</i> 180 III
<i>flush</i>	RIP <i>invalid</i> III <i>flush</i> <i>invalid</i> III <i>Flush</i> 120 III

Г Д

30 180 120 III

Г Д

III

Г Д

RIP III RIP

III

RIP

show ip rip

III

Г Д

RIP

10

III 30

invalid

invalid

90

III

Ruijie(config)# **router rip**

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

注意:

III 2Mbps III

Г Д

Г Д

Г Д

25.1.28 validate-update-source

RIP

validate-update-source III no

III

validate-update-source

no validate-update-source

Г Д

III

Г Д

III

Г Д

III

Г Д

RIP

III

RIP

IP

III

RIP

validate-update-source III

ip unnumbered

RIP

validate-update-source III

Г Д

III

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

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

Г Д

ip split-horizon	RIP III
ip unnumbered	IP III
neighbor (RIP)	RIP IP III

Г Д

Г Д

25.1.29 version (RIP)

RIP version III
no III
version {1 | 2}
no version

Г Д

1	RIP 1 III
2	RIP 2 III

Г Д

RIPv1 RIPv2 RIPv1
III

Г Д

III

Г Д

RIP III ip rip receive version Ч
ip rip send version RIP
III

Г Д

RIP 2 III

Ruijie(config)# **router rip**

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

Г Д

ip rip receive version	RIP RIP III
ip rip send version	RIP RIP III
show ip rip	rip III

Г Д

Г Д

25.2

25.2.1 show ip rip

RIP

show ip rip III

show ip rip [vrf *vrf-name*]

Г Д

vrf <i>vrf-name</i>	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)
```

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)
```

```

r      d
r      d
r      d
```

25.2.2 show ip rip database

RIP

show ip rip database III

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

Г Д

<i>vrf vrf-name</i>	VRF RIP
<i>network-number</i>	III
<i>network-mask</i>	III

Г Д

III

Г Д

Ч

Ч

III

Г Д

RIP

III

III

Г Д

RIP

III

4redistributed

Ruijie directly -103 connected -103 loopback -103 10.7439 w 1195.13

Г Д

25.2.3 show ip rip external

RIP

show ip rip external

III

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

Г Д

bgp connected isis ospf static	
vrf <i>vrf-name</i>	VRF RIP
<i>process-name</i>	ISIS
<1-65535>	OSPF



```

Authentication text-password: ruijie
Default-information: only, metric 5
IP interface address:
  192.168.64.100/24, next update due in 14 seconds
  2.2.1.1/24, next update due in 24 seconds
    neighbor 2.2.1.6, next update due in 3 seconds
    neighbor 2.2.1.77, next update due in 13 seconds
  2.2.2.57/24, next update due in 16 seconds

```

RIP BFD , :

Ruijie#**show ip rip interface**

VLAN 1 is up, line protocol is up

Routing Protocol: RIP

Receive RIPv1 and RIPv2 packets

Send RIPv1 packets only

Receive RIP packet: Enabled

Send RIP packet: Enabled

Send RIP supernet routes: Enabled

Passive interface: Disabled

Split horizon: Enabled

BFD: Enabled

V2 Broadcast: Disabled

Multicast registe: Registered

Interface Summary Rip:

Not Configured

IP interface address:

2.2.2.111/24, next update due in 24 seconds

Г Д

show ip rip	III

Г Д

Г Д

26 OSPF

26.1

26.1.1 area

no OSPF III

area area-id

no area area-id

Г Д

area-id	OSPF III IP III

Г Д

OSPF III

Г Д

III

Г Д

no OSPF

area authentication Чarea default-cost Чarea filter-list Ч

area nssa III

OSPF

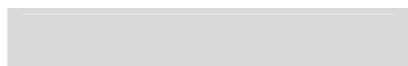
1. III

III

2.

Г

Д



Г Д

III

Г Д

III

Г Д

ABR
STUB

NSSA III ABR
ABR

III

OSPF STUB NSSA area
stub area nssa area default-cost III STUB area
area stub NSSA area
nssa area default-cost ABR III

Г Д

50 III

```
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
```

Г Д

Г Д

<i>area-id</i>	III
<i>acl-name</i>	acl
<i>prefix-name</i>	prefix-list
access prefix	prefix list ACL
in out	

Г Д

Г Д

III

Г Д

ABR

III

ABR

III

Г Д

area 1

172.22.0.0/8

III

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**

Г Д

Г Д

Г Д

26.1.5 area nssa

OSPF

nssa

area nssa III

no

nssa

nssa

III

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 ]
```

Г Д

area-id	NSSA III
no-redistribution	ABR nssa nssa III
default-information-originate	7 LSA nssa NSSA ABR ASBR III
no-summary	nssa (ABR) LSA nssa III

Г Д

NSSA III

Г Д

III

Г Д

```
default-information-originate Type-7 LSA
nssa ABR ASBR ABR
Type-7 LSA ASBR (
ABR) Type-7 LSA III
no-redistribution ASBR OSPF redistribute
NSSA III NSSA
ASBR ABR
```

OSPF

no-summary	ABR III ABR III
------------	--

Г Д

III

Г Д

III

Г Д

OSPF

area stub IIIABR

(LSA) 1 1 LSA 2 2

LSA 3 3 LSAIII

OSPF

ABR

III

OSPF

III

ABR

area stub

26.1.8 area virtual-link

OSPF

no

area virtual-link

III

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*

Г

Д

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

message-digest	MD5 III
null	III

Г Д

dead-interval 40
hello-interval 10
retransmit-interval 5
transmit-delay 1
;
III

Г Д

III

Г Д

OSPF
III
router-id OSPF
show ip ospf neighbor III
area virtual-link OSPF
ABR Stub Area NSSA III
ABR
router-id Loopback
area authentication III

Г Д

1 2.2.2.2 III 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

```

Г Д

area authentication	OSPF III
show ip ospf	OSPF III

Г Д

Г Д

26.1.9 auto-cost

no

III

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

no auto-cost [reference-bandwidth]

Г Д

<i>ref-bw</i>	III Mbps : 1-4294967

Г Д

100MbpsIII

Г Д

III

Г Д

```

        ,
        ,
        . default auto-cost no
        ( )
        auto-cost
        III
        ip ospf cost cost
        costIII

```

Г Д

```

        10MIII
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

```

Г Д

--	--

show 03D

III

Г Д

OSPF

Г Д

OSPF 1

Ruijie# **clear ip ospf 1 process**

Г Д

Г Д

Г Д

26.1.11 compatible rfc1583

show ip ospf	ospf
--------------	------

```

always OSPF
III
show ip ospf database OSPF
0.0.0.0 III OSPF
show ip route III
default-information originate
default-metric III
OSPF 1 2
III
1 2 show ip route
1 III
STUB III

```

Г Д

```

OSPF OSPF
1 50 III
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

```

Г Д

show ip ospf database	OSPF III
show ip route	IP III

Г Д

Г Д

26.1.13 default-metric

```

OSPF
default-metric III no III
default-metric metric
no default-metric

```

Г Д

<i>metric</i>	OSPF III

Г Д

20III

Г Д

III

Г Д

default-metric redistribute
III

default-metric default-information originate
OSPF III

Г Д

OSPF

50III

```
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
```

Г Д

redistribute	III
show ip ospf	ospf

Г Д

Г Д

26.1.14 distance ospf

OSPF

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

```
no distance ospf
```

Г Д

intra-area <1-255>	110
inter-area <1-255>	110
external <1-255>	110

Г Д

110III

Г Д

OSPF III

Г Д

OSPF III

Г Д

OSPF 160

```
Ruijie(config)# router ospf 1
```

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

Г Д

Г Д

Г Д

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]
```

Г Д

<i>listname</i>	acl

gateway <i>plist-name</i>	gateway
prefix <i>plist-name</i>	prefix-list
interface-type <i>num</i>	LSA

Г Д

III

Г Д

III

Г Д

LSA SPF
III
ASBR OSPF III ABR
III

Г Д

```
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
```

Г Д

Г Д

Г Д

26.1.16 distribute-list out

redistribute

```
distribute-list {listname | gateway plist-name | prefix plist-name} out
[bgp | connected | isis area-tag | ospf process-id | rip | static ]
no distribute-list {listname | gateway plist-name | prefix plist-name }
out [connected | ospf process-id] rip | static ]
```

Г Д

--	--

<i>listname</i>	acl
gateway <i>plist-name</i>	gateway
prefix <i>plist-name</i>	prefix-list

[connected | ospf
process-id | rip |

Г Д

Г Д

MIB OSPFv2 III

Г Д

III

Г Д

OSPFv2 MIB OSPFv2 SNMP
 OSPFv2 III OSPFv2 MIB
 OSPFv2 III
 MIB SNMP OSPFv2
 III

Г Д

SNMP 100 OSPFv2
 Ruijie(config)# **router ospf 100**
 Ruijie(config-router)# **enable mib-binding**

Г Д

show ip ospf	OSPF
enable traps	OSPF TRAP

Г Д

Г

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

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

Г Д

TRAP III

Г Д

III

Г Д

snmp-server
enable traps ospf III
MIB TRAP III

Г Д

OSPFv2 100 TRAP

Ruijie(config)# **router ospf 100**

Ruijie(config)# **enable traps**

Г Д

show ip ospf	OSPF
enable mib-binding	OSPFv2 MIB

Г Д

Г Д

26.1.19 ip ospf authentication

no

III

ip ospf authentication [message-digest | null]

no ip ospf authentication

Г Д

message-digest	MD5 III
null	III

Г Д

III

Г Д

III

Г Д

no

null

III

Г Д

GigabitEthernet 0/0

OSPF

MD5

III

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

Г Д

area authentication	OSPF III
ip ospf authentication-key	OSPF III
ip ospf message-digest-key	OSPF MD5 III

Г Д

Г Д

26.1.20 ip ospf authentication-key

OSPF
 authentication-key III no III
 ip ospf authentication-key key
 no ip ospf authentication-key

Г Д

Key	8 III

Г Д

III

Г Д

III

Г Д

ip ospf authentication-key OSPF III
 OSPF
 III

III

OSPF area
 authentication III
 authentication , ip ospf
 authentication ,

Г Д

,XN870X,ü2#AxAsy

Г Д

Г Д

26.1.21 ip ospf cost

OSPF

ip ospf cost III

no

OSPF

III

ip ospf cost cost

no ip ospf cost

Г Д

cost	OSPF III

Г Д

/Bandwidth

100Mbps III

Г Д

III

Г Д

OSPF

100Mbps/Bandwidth

Bandwidth

bandwidth

III

OSPF

● 64K cost 1562

● E1 cost 48

● 10M cost 10

● 100M cost III

ip ospf cost

OSPF

III

Г Д

serial 1/0

OSPF

100III

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

Ruijie(config-if)# **ip ospf cost 100**

Г Д

--	--

bandwidth	III
show ip ospf	Ospf

Г Д

Г Д

26.1.22 ip ospf database-filter all out

LSA LSA
no
ip ospf database-filter all out
no ip ospf database-filter

Г Д

Г Д

, LSA III

Г Д

III

Г Д

LSA ,

Г Д

LSA serial 1/0 III

```
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
```

Г Д

Г Д

26.1.23 ip ospf dead-interval

OSPF		ip	
ospf dead-interval	III	no	III
ip ospf dead-interval	seconds		
no ip ospf dead-interval			
Г	Д		
		seconds	

Г Д

Г Д

26.1.24 ip ospf disable all

ospf III

ip ospf disable all

no ip ospf disable all

Г Д

Г Д

Г Д

III

Г Д

Ў Ъ

<i>seconds</i>	OSPF hello	III
----------------	------------	-----

Г Д

- 10
- PPP Ч HDLC 10
- 10
- Ч .25 30 III

Г Д

III

Г Д

hello hello III OSPF
III
hello III
hello III

Г Д

serial 1/0 OSPF Hello
15 III

```
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
```

Г Д

ip ospf dead-interval	OSPF III

Г Д

Г Д

26.1.26 ip ospf message-digest-key

OSPF MD5 ip ospf
message-digest-key III no OSPF MD5
III
ip ospf message-digest-key *key-id* md5 *key*

no ip ospf message-digest-key

Г Д

Key	16 III
Key-id	255III

Г Д

MD5 III

Г Д

III

Г Д

ip ospf message-digest-key

OSPF

III

OSPF

III

III

III

OSPF

area

authentication

III

ip ospf authentication

,

.

RGOS

MD5

III

OSPF MD5

OSPF

III

III

Г Д

GigabitEthernet 0/0

OSPF

hello5III

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
```

III

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# no ip ospf message-digest-key 10 md5
hello10
```

Г Д

area authentication	OSPF III
ip ospf authentication	

Г Д

Г Д

26.1.27 ip ospf mtu-ignore

mtu

III

no

III

```
ip ospf mtu-ignore
no ip ospf mtu-ignore
```

Г Д

Г Д

mtu III

Г Д

III

Г Д

```
OSPF MTU , MTU MTU
MTU, MTU, , MTU
III
```

Г Д

serial 1/0 MTU III

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

Г Д

Г Д

26.1.28 ip ospf network

OSPF ip ospf network III

no III

```
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
```

Г Д

broadcast	OSPF III
non-broadcast	OSPF NBMA III
point-to-multipoint [non-broadcast]	OSPF , non-broadcast III III
point-to-point	OSPF III

Г Д

● PPP и SLIP и и X.25

● NBMA и X.25

●

● III

Г Д

III

Г Д

OSPF

Г Д

III

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# ip address 172.16.24.4
255.255.255.0
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network point-to-multipoint
```

DR/RDR

III

DR/BDR III

```
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
```

Г Д

dialer map ip	IP III
frame-relay map	IP DLCI III
neighbor OSPF	IP NBMA III
X25 map	IP X.25 III

Г Д

Г Д

26.1.29 ip ospf priority

OSPF

ip ospf priority III

no III

```
ip ospf priority priority
no ip ospf priority
```

Г Д

Priority	OSPF III

Г Д

III

г д FAN0 € F г д FOSPF § DR/BDRF

Г Д

5 III

Г Д

III

Г Д

LSU

LSU

ip ospf retransmit-interval

LSAIII

III

LSU

area

virtual-link

retransmit-interval

III

Г Д

serial 1/0

LSU

10 III

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

Ruijie(config-if)# **ip ospf retransmit-interval 10**

Г Д

1 III

Г Д

III

Г Д

LSU

LSAs

Age

	detail	
Full	III	Full

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

Г Д

Г Д

Г Д

26.1.34 neighbor

OSPF neighbor III no

III

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

no neighbor *ip-address*

Г Д

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

Г Д

III

Г Д

III

Г Д

RGOS

III

IP

IP III

NBMA

Hello

OSPF

Hello

Hello

III OSPF

0

Hello

0

DR/BDR III DR/BDR DR/BDR
Hello III
,
,
cost .

Г Д

OSPF IP
172.16.24.2 1 150 III
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

Г Д

ip ospf priority	OSPF III
ip ospf network	OSPF

Г Д

Г Д

26.1.35 network area

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

Г Д

<i>ip-address</i>	IP III
<i>wildcard</i>	IP III
<i>area-id</i>	OSPF III OSPF OSPF III

Г Д

OSPF III

Г Д

III

Г Д

ip-address wildcard

Г Д

<1-4294967294>	LSA
hard soft	hard LSA OSPF soft LSA III

Г Д

Г Д

III

Г Д

soft OSPF hard OSPF

Г Д

LSA 10 OSPF 10 III

Ruijie# **config terminal**

Ruijie(config)# **router ospf 10**

Ruijie(config-router)# **overflow database 10 hard**

Г Д

Г Д

Г Д

26.1.37 overflow database external

external LSA

III

overflow database external *max-dbsize wait-time*

no overflow database external

Г Д

<i>max-dbsize</i>	external lsa AS 0-2147483647III
<i>wait-time</i>	0-65535III

Г Д

external-LSA III

external-LSA external-LSA

III

Г Д

III

Г Д

Г Д

external-LSA *max-dbsize*

external-LSA

III

OSPF OVERFLOW

III OSPF NULL III

OVERFLOW III

clear ip ospf process OSPF OSPF

no OSPF OVERFLOW

OSPF

III

1 OSPF OVERFLOW

Ruijie(config)# **router ospf 1**

Ruijie(config-router)# **no overflow memory-lack**



match	OSPF
metric-typ	E-1 E-2III
route-map	III
tag	OSPF tag III
subnets	III

Г Д

Г Д

Г Д

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

Г Д

OSPF

```
Ruijie(config-router)# redistribute static subnets
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute ospf 2 subnets
Ruijie(config-router)# redistribute ospf 2 match
external 1 internal
Show run

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

Г Д

Г Д

Г Д

26.1.41 router ospf

```

      OSPF
no      OSPF      III
router ospf process-id [vrf vrf-name]
no router ospf process-id

```

Г Д

<i>process-id</i>	ospf
<i>vrf-name</i>	OSPF VRF VRF

Г Д

OSPF III

Г Д

III

Г Д

```

RGOS10.1
ospf      ospfIII
      III

```

Г Д

```

      vrf vpn_1      OSPF      10III
Ruijie(config)# router ospf 10 vrf vpn_1

```

Г Д

show ip protocols	III
show ip ospf	ospf III

Г Д

Г Д

26.1.42 router-id

OSPF

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

Г Д

<i>ip-address</i>	IP III
<i>net-mask</i>	III
not-advertise	III

Г Д

III

Г Д

III

Г Д

OSPF

OSPF

III

III

area rang area range OSPF
summary-address OSPF III
NSSA summary-address NSSA ABR
III

Г Д

100.100.0.0/16III

```
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
```

Г Д

area range	OSPF III

Г Д

Г Д

26.1.44 timers lsa-group-pacing

LSA

no

III

timers lsa-group-pacing seconds

no timers lsa-group-pacing

Г Д

seconds	LSA : 10-1800 III

Г Д

: 240 III

Г Д

III

Г Д

LSA

III

4

III

III

LSA

III

10000 LSA

III

40~100

10~20

III

Г Д

120 III

Ruijie(config)#**router ospf 20**

Ruijie(config-router)#**timers lsa-group-pacing 120**

Г Д

show ip ospf	ospf

Г Д

Г Д

26.1.45 timers spf

OSPF

SPF

SPF

timers spf

no

III

timers spf *spf-delay* *spf-holdtime*

no timers spf

Г

Д

<i>spf-delay</i>	SPF OSPF SPF III
<i>spf-holdtime</i>	SPF III SPF III

Г

Д

spf-delay 5 *spf-holdtime* 10 III

Г

Д

III

Г

Д

spf-delay *spf-holdtime*

OSPF

CPU

III

Г

Д

OSPF

3 9 III

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

Г

26.2

26.2.1 show ip ospf

OSPF

show ip ospf III

show ip ospf [*process-id*]

Г Д

<i>process-id</i>	ospf

Г Д

III

Г Д

III

Г Д

OSPF

III

Г Д

show ip ospf

Ruijie# **show ip ospf**

Routing Process "ospf 1" with ID 1.1.1.1

Process uptime is 4 minutes

Process bound to VRF default

Conforms to RFC2328, and RFC1583Compatibility flag
isenabled

Supports only single TOS(TOS0) routes

Supports opaque LSA

This router is an ASBR (injecting external routing
information)SPF schedule delay 5 secs, Hold time between two SPFs
10 secs

LsaGroupPacing: 240 secs

Number of incoming current DD exchange neighbors 0/5

Number of outgoing current DD exchange neighbors 0/5

Number of external LSA 4. Checksum 0x0278E0

Number of opaque AS LSA 0. Checksum 0x000000

Number of non-default external LSA 4

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

III

Router ID	III
Process uptime	OSPF router-id 0.0.0.0
Bound to VRF	OSPF VRF
Conforms to RFC2328	RFC2328
RFC1583Compatibility flag	RFC1583 RFC2328 ASBR
Support Tos	TOS0
Supports opaque LSA	opaque-LSA
Router Type	OSPF normal 4 ABR 4 ASBR III
SPF Delay	SPF

SPF-holdtime	SPF
LsaGroupPacing	LSA
Incomming current DD exchange neighbors	incomming exstart
Outgoing current DD exchange neighbors	outgoing exstart
Number of external LSA	LSA
External LSA Checksum Sum	LSA
Number of opaque LSA	opaque-LSA
Opaque LSA Checksum Sum	opaque-LSA
Number of non-default external LSA	external-LSA
External LSA database limit	external-LSA
Exit database overflow state interval	overflow
Database overflow state	OSPF overflow
Number of LSA originated	LSA
Number of LSA received	LSA
Log Neighbor Adjency Changes	
Number of areas attached to this router	
Area type	, Default, Stub,NSSA
Number of interfaces in this area	
Number of fully adjacent neighbors in this area	Full
Number of fully adjacent virtual neighbors through this area	Full
Area authentication	
SPF algorithm last executed	SPF

SPF algorithm executed times	SPF
Number of LSA	LSA
Checksum Sum	LSA
NSSA Translator State	LSA NSSA LSA OSPF NSSA External ABR

Г Д

Г Д

26.2.2 show ip ospf border-routers

ABR/ASBR OSPF
 show ip ospf border-routers III
 show ip ospf [*process-id*] border-routers

Г Д

<i>process-id</i>	ospf

Г Д

III

Г Д

II OSPF ABR ASBR OSPF
 show ip route OSPF OSPF
 III

Г Д

show ip ospf border-routers

Ruijie# **show ip ospf border-routers**
 OSPF internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 1.1.1.1 [2] via 10.0.0.1, GigabitEthernet 0/1, ABR,
 ASBR, Area 0.0.0.1 select

III

Codes	III III
I	III
1.1.1.1	OSPF III
[2]	cost III
via 10.0.0.1	III
GigabitEthernet 0/1	III
ABR, ASBR	ASBR ABR ASBR III
Area 0.0.0.1	III
select	ASBR select III

г д

г д

26.2.3 show ip ospf database

OSPF show ip
ospf database III

LSAs III

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 ]

```

Г

Д

Area-id	
adv-router	
link-state-id	OSPF III
self-originate	
maxage	LSA
router	OSPF III

network	OSPF	III
summary	OSPF	III
asbr-summary	ASBR	III
external	OSPF	III
nssa-external	OSPF	III
opaque-area	LSA	
opaque-as	LSA	
opaque-link	LSA	
database-summary	OSPF	LSA

г д

III

г д

III

г д

OSPF

III

OSPF

III

г д

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

III

OSPF Router with ID	OSPF OSPF
Router Link States	III
Net Link States	III

OSPF

Cksum
Link-Count
Route

LSA

LS age	III
Options	III
LS Type	III
Link State ID	III
Advertising Router	III
LS Seq Number	III
Checksum	III
Length	III
Network Mask	III
TOS	TOS OIII
Metric	III

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 III

OSPF Router with ID	OSPF IIIII

Type-5 AS External Link States	III
LS age	III
Options	III
LS Type	III
Link State ID	III
Advertising Router	III
LS Seq Number	III
Checksum	III
Length	III
Network Mask	III
Metric Type	III
TOS	TOS 0III
Metric	III
Forward Address	III 0.0.0.0 IP III
External Route Tag	32 IIIOSPF OSPF III

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

III

--	--

OSPF Router with ID

Network Mask: /24
TOS: 0 Metric: 11

show ip ospf database summary

III

OSPF Router with ID	OSPF III
Summary Net Link States	III
LS age	III
Options	III
LS Type	III
Link State ID	III
Advertising Router	III
LS Seq Number	III
Checksum	III
Length	III
Network Mask	III
TOS	TOS 0III
Metric	III

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

III

OSPF Router with ID	OSPF III
NSSA-external Link States	III
LS age	III
Options	III
LS Type	III
Link State ID	III
Advertising Router	III
LS Seq Number	III
Checksum	III
Length	III
Network Mask	III
Metric Type	III
TOS	TOS 0III
Metric	III
NSSA:Forward Address	III 0.0.0.0 IP III
External Route Tag	32 IIIOSPF OSPF III

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

III

OSPF Router with ID	OSPF III
Type-7 AS External Link States	III
LS age	III
Options	III
LS Type	III
Link State ID	III
Advertising Router	III
LS Seq Number	III
Checksum	III
Length	III
Network Mask	III
Metric Type	III
TOS	TOS 0III
Metric	III
Forward Address	III 0.0.0.0 IP III

External Route Tag	32 IIIOSPF OSPF III
--------------------	---

show ip ospf database database-summary

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

III

OSPF Process	
Router Link	OSPF LSA III
Network Link	OSPF LSA III
Summary Link	OSPF LSA III
ASBR-Summary Link	OSPFASBR LSA III
AS External Link	OSPF LSA
NSSA-external Link	,OSPF NSSA LSA

<i>interface-number</i>	III
-------------------------	-----

Г Д

III

Г Д

III

Г Д

OSPF

OSPF

III

Г Д

show ip ospf interface GigabitEthernet 1/0

Ruijie# **show ip ospf interface fa 1/0**

GigabitEthernet 1/0 is up, line protocol is up
 Internet Address 192.88.88.27/24, Ifindex 4, Area
 0.0.0.0, MTU 1500
 Matching network config: 192.88.88.0/24
 Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST,
 Cost: 1
 Transmire..

Area	OSPF III
MTU	MTU
Matching network config	OSPF network area
Process ID	
Router ID	OSPF III
Network Type	OSPF III
Cost	OSPF III
Transmit Delay is	OSPF III
State	DR/BDR III
Priority	
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	HELLO
Neighbor count	
Adjacent neighbor count	Full
Crypt Sequence Number	md5
Hello received send	HELLO III
DD received send	DD III
LS-Req received send	LS III
LS-Upd received send	LS III
LS-Ack received send	LS III
Discard	OSPF III

Г Д

Г Д

26.2.5 show ip ospf neighbor

OSPF

Link State Request List 0
 Link State Retransmission List 0
 Crypt Sequence Number is 0
 Thread Inactivity Timer on
 Thread Database Description Retransmission off
 Thread Link State Request Retransmission off
 Thread Link State Update Retransmission off
 Thread Poll Timer on

show ip ospf neighbor

Neighbor ID	III
Pri	DR
State	
Dead Time	Dead
Address	
Interface	
interface address	
In the area	
via interface	III
Neighbor priority	OSPF III
State	OSPF IIIFULL DR BDR
State changes times	
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/

show ip ospf summary-address

```
Ruijie# show ip ospf summary-address
Summary Address Summary Mask   Advertise   Status
Aggregated subnets
-----
202.101.0.0           255.255.0.0           advertise
Inactive 0
Ruijie#
```

Summary Address	
Summary Mask	III
Advertise	
Status	
Aggregated subnets	

Г Д

Г Д

26.2.8 show ip ospf virtual-link

```
OSPF show ip ospf
virtual-link III
show ip ospf [process-id] virtual-link
```

Г Д

Г Д

III

Г Д

III

Г Д

IIIshow ip ospf neighbor

III

Г Д

show ip ospf virtual-links

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

III

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

Time intervals configured

7

27

27.1

27.1.1 distribute-list in

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

Г Д

III

Г Д

III

Г Д

III

OSPF

OSPF

III

Г Д

RIP

192.168.12.0/24

III

```
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
```

Г Д

access-list	

prefix-list	
redistribute	

27.1.3 ip default-network

ip default-network III

no III

ip default-network network

no ip default-network network

Г Д

show ip route	IP III

Г Д

III

27.1.4 ip prefix-list

ip prefix-list
 III no III
 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*]

Г Д

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

Г Д

III

г	д	III				
г	д	ip prefix-list	IP	III	permit	deny
				III		
					ge	le
			III	ge	le	ip-prefix
			III		ge	ip-prefix
		minimum-prefix-length	32III		le	ip-prefix
			maximum-prefix-lengthIII			
		minimum-prefix-length		maximum-prefix-lengthIII		ip-prefix
		minimum-prefix-length		maximum-prefix-length		
		ip-prefix	< minimum-prefix-length < maximum-prefix-length			
		<= 32III				
г	д					
				OSPF		RIP
			IP			IP
		I	ε		P ê	

Г	Д
Г	Д
Г	Д
Г	Д

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

		ip prefix-list description	III
	no	III	
	ip prefix-list	sequence-number	
Г	Д		
Г	Д		
Г	Д		
Г	Д		
Г	Д		

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

27.1.7 ip route

ip routeIII no
 III

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

Г Д

vrf_name	VRF
network	
net-mask	
ip-address	
Interface	
distance	
tag	Tag
permanent	
object-number	() track ,object-number track id
number	
disabled/enabled	

Г Д

III

Г Д

III

Г Д

1

III

III OSPF 110
125 OSPF
III
vrf vrfIII
1 show ip route weight
III weight WCMP

weight

III

WCMP

32

WCMP

III

III

III

ip

route 0.0.0.0 0.0.0.0 GigabitEthernet 0/0 III

GigabitEthernet 0/0

ARP

CPU

III

III

track

III

track

track

```

no ip routing

R      D
      IP      III

R      D

R      D

      RGOS      IP      III      VOIP      RGOS      IP      III

R      D

      RGOS      IP      III

Ruijie(config)# no ip routing

R      D

      III

```

27.1.9 ip static route-limit

Г Д

900

III

Ruijie(config)# ip static route-limit 900

Ruijie(config)# no ip static route-limit

Г Д

III

27.1.10 ipv6 prefix-list

IPv6

ipv6

prefix-list

III

no

III

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*]

Г Д

<i>prefix-lis-name</i>	III

III

1 2147483647III

seq-number

III

Г Д

III

Г Д

```
ipv6 prefix-list
deny
```

IPv6

III

permit

III

Illegale

ipv6-prefix

III

ge le

Г Д

Г Д

Г Д

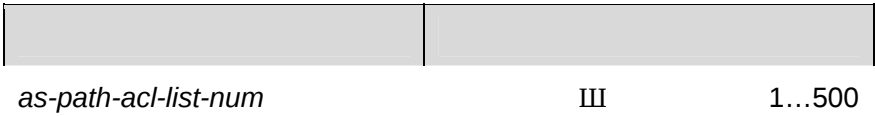
Г Д

IPv6

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

Г

Д



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

Г

Д



community-list-number

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

27.1.15 match interface

match

interface III no III

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

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

Г Д

<i>interface-type</i>	

```

set III match 1 match 1
set III
III
III

```

Г Д

```

III
OSPF RIP
GigabitEthernet 0/0 RIP III
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

```

Г Д

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

Г Д

Г Д

27.1.16 match ip address

match ip address III no III

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...]}

Г Д

access-list-number	1-99 1300-1999 100-199 2000-2699
access-list-name	
prefix-list prefix-list-name	

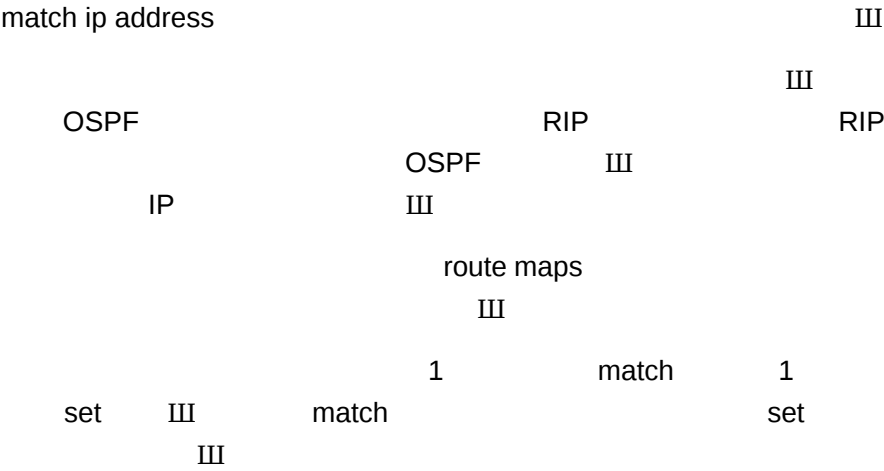
Г Д

III

Г Д

III

Г Д



Г Д

OSPF RIP III RIP
10 20 OSPF III

```
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
```

Г Д

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

Г Д

Г Д

27.1.18 match ip route-source

IP
match ip route-source III no
III

```
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...]}
```

Г

Д

Ruijie(config-route-map)# **match ip route-source 5**

Г

Д

--	--

access-list

Д

III

Д

40III

```
Ruijie(config-route-map)# set metric 30
```

Д

ipv6 access-list	IPv6
match interface	
match ipv6 next-hop	IPv6
match ipv6 route-source	IPv6
match metric	
match route-type	

match tag	
set metric	
set metric-type	
set tag	

Г Д

III

III

III

OSPF

RIP

10

RIP

OSPF

IPv6

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

27.1.23 match metric

match metric III

no III

match metric metric

no match metric

Г

Д

metric	0-4294967295

Г

Д

III

Г

Д

III

Г

Д

OSPF

RIP

III

RIP

OSPF

III

route maps

III

1

match

1

set

III

match

III

Г

Д

RIP

OSPF

III

RIP

III

10

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

```

Г Д

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

Г Д

Г Д

27.1.24 match origin

match origin III no III

match origin {egp | igp | incomplete }

no match origin {egp | igp | incomplete| }

Г Д

egp	EGP
igp	IGP

Incomplete	
------------	--

Г Д

III

Г Д

III

Г Д

III

III

Г Д

```
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
```

Г Д

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

27.1.25 match route-type

match route-type III

no III

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

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

III

III

The diagram illustrates a network topology with the following components and connections:

- Nodes:** OSPF, IP, RIP, and route maps.
- Connections:**
 - OSPF is connected to IP and RIP.
 - IP is connected to OSPF and route maps.
 - RIP is connected to OSPF and route maps.
 - route maps is connected to IP and RIP.

RIP	OSPF	IIIRIP	OSPF
III			

```
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	

ГД

ГД

27.1.26 match tag

match tagIII no

III

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

ГД

tag	

ГД

III

ГД

III

ГД

	IP	OSPF	III	
		III		
		route maps		
		III		
		1	match	1
set				

route-map III

no III

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

Г Д

route-map-name	III
permit	match permit III set set III permit match III set
deny	match deny III III deny match III set III
sequence-number	III III

Г Д

III

Г Д

III

Г Д

RGIOS
III

OSPF

RIP

III

RIP

IP OSPF III
III
route maps
III
1 match 1
set III match set
III
1) sequence-number
10
2) sequence-number
III
г д
OSPF RIP Á OSPF •D 10ÄCÄ\$

		match	AS																	
		set aggregator as	no	III																
		III																		
		set aggregator as	as-num ip_addr																	
		no set aggregator as	[as-num ip_addr]																	
Г	Д																			
		<table><tr><td></td><td></td></tr><tr><td>as-number</td><td>AS</td></tr><tr><td>ip_addr</td><td></td></tr></table>					as-number	AS	ip_addr											
as-number	AS																			
ip_addr																				
Г	Д																			
		III																		
Г	Д																			
		III																		
Г	Д																			
		BGP	III																	
		as,ip-addr																		
Г	Д																			
		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																		
Г	Д																			
		<table><tr><td></td><td></td></tr><tr><td>match as-path</td><td>AS_PATH</td></tr><tr><td>match community</td><td></td></tr><tr><td>match metric</td><td></td></tr><tr><td>match origin</td><td></td></tr><tr><td>set community</td><td>COMMUNITY</td></tr><tr><td>set metric</td><td></td></tr><tr><td>set metric-type</td><td></td></tr></table>					match as-path	AS_PATH	match community		match metric		match origin		set community	COMMUNITY	set metric		set metric-type	
match as-path	AS_PATH																			
match community																				
match metric																				
match origin																				
set community	COMMUNITY																			
set metric																				
set metric-type																				

27.1.30 set as-path prepend

	match		AS_PATH	
	set as-path prepend	III	no	III
		III		
	set as-path prepend	<i>as-number</i>		
	no set as-path prepend	[<i>as-number</i>]		
Г	Д			

match	COMMUNITY_LIST
community	set comm-list delete III
no	III
set comm-list	<i>community-list-number</i> <i>community-list-name</i> delete
no comm-list	

		III	
		AA:NN(	:2
		)	
		0-4294967295	
	internet	Internet	
		III	
<i>community-number</i>	local-as		AS
			III
	no-advertise		
	BGP peersIII		
	no-export		
	EBGP peersIII		

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

27.1.33 set dampening

match set
dampening III no III
set dampening half-life reuse suppress max-suppress-time
no set dampening

Г Д

half-life	III 1..45() 15
reuse	III 1..20000 750III
suppress	III 1..20000 2000III
max-suppress-time	III 1..255() 4* half-life

Г Д

III

Г Д

III

Г Д

III

Г Д

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

```

Г Д

match as-path	AS_PATH
match community	
match metric	
match origin	
set as-path prepend	AS_PATH
set metric	
set local-preference	

27.1.34 set default interface

match

set default interfaceIII no

III

set default interface *interface-type interface-number [...interface-type interface-number]*

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

Г Д

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

Г Д

III

Г Д

Г Д

27.1.35 set extcommunity

match
set extcommunity III no III
III

set extcommunity {rt *extend-community-value* | soo
extend-community-value}

no set extcommunity {rt | soo}

Г Д

rt	RT
soo	SOO
<i>extend-community-value</i>	

Г Д

III

Г Д

III

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

27.1.36 set interface

match € «

```

match
set ip next-hop IP
no
set ip default next-hop ip-address [weight] [...ip-address [weight] ]
no set ip default next-hop ip-address [weight] [...ip-address
[weight] ]

```

Г

Д

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

/C2_7DF03D443C7>Tj /TTB>1.92 r

III

set III

Г Д

III

1 1.1.1.1
6.6.6.6 2.2.2.2
7.7.7.7 III
III

```
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
```

Г Д

route-map	
match ip address	
set default interface	
set default interface	
set interface	
set ip next-hop	IP
set ip precedence	IP

27.1.38 set ip dscp

matchDSCPset ip

dscp III no III

set ip dscp dscp_value

no set ip dscp

ГД

dscp_value	IP IP DSCP

ГД

III

ГД

III

ГД

ГД

ГД

route-map	
match ip address	
set default interface	
set default interface	
set interface	
set ip default next-hop	IP
set ip precedence	IP

ГД

Г Д

27.1.39 set ip next-hop

match IP
set ip next-hop III no III
III

set ip next-hop ip-address [weight] [...ip-address [weight]]
no set ip next-hop ip-address [weight] [...ip-address [weight]]

Г Д

ip-address	IP
weight	

Г Д

III

Г Д

III

Г Д

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

set ip precedence	IP
-------------------	----

Г Д

Г Д

27.1.40 set ip next-hop verify-availability

IP set ip
next-hop verify-availability III no III
III

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*

Г Д

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

Г Д

III

Г Д

III

Г Д

Г Д

serial 1/0 III
10.0.0.0/8 192.168.100.1
172.16.0.0/16 172.16.100.1
III

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
```

Г Д

route-map	
match ip address	
set default interface	
set default interface	
set interface	
set ip default next-hop	IP
set ip precedence	IP

Г Д

Г Д

27.1.41 set ip precedence

```
match IP ,
set ip precedenceIII no
III
```

```
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* }

Г Д

III

Г Д

III

Г Д

IP

IP

III

27.1.42 set ip tos

match

match route-type	
match tag	
set metric-type	
set tag	
set ip precedence	IP

27.1.43 set level

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

27.1.44 set local-preference

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

Г Д

number	III 0-4294967295

Г Д

III

Г Д

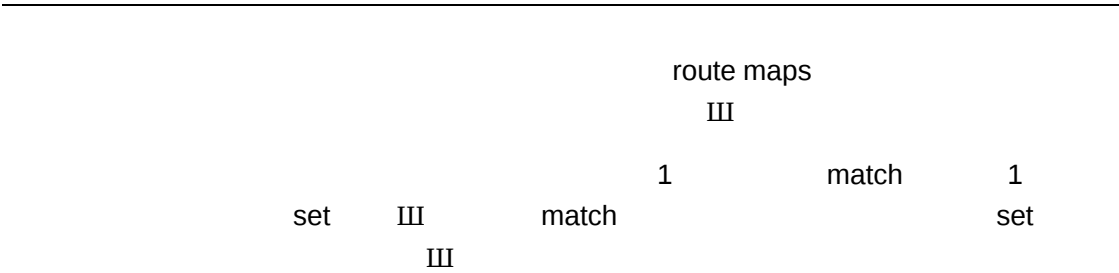
III

Г Д

local-preference local-preference
III
III

Г Д

Ruijie(config)# route-map SET_PREF permit 10 rou15/TT5 1 T



Г Д

OSPF RIP

40III

```
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
```

Ў ъ

Г Д

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

set metric-type *type*

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

Г Д

Г Д

27.1.47 set next-hop

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

Г Д



```

set III match 1 match 1
set III match 1 set
III

```

Г Д

```

192.168.1.2III
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

```

Г Д

match interface	
match ip address	
match ip next-hop	

match ip route-source

Г Д

III

Г Д

III

Г Д

III

III

Г Д

```
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
```

Г Д

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 III no III

set originator-id *ip-addr*

no originator-id [*ip-addr*]

Г Д

<i>ip-addr</i>	

Г Д

III

Г Д

III

Г Д

III

Г Д

```
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
```

Г Д

match as-path	AS_PATH
match metric	
match origin	
set as-path prepend	AS_PATH
set metric	
set local-preference	

27.1.50 set tag

match set tag III
no

```
set tag tag
no set tag
```

Г Д

tag	

Г Д

III

Г Д

III

Г Д

III

III

Г Д

OSPF

RIP

100III

```
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
```

Г Д

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

Г Д

Г Д

27.1.51 set weight

match BGP
 set weight III no III
 set weight *number*
 no set weight

Г Д

<i>number</i>	III 0-65535

Г Д

III

Г Д

III

Г Д

BGP III

neighbor weight
 32768III

BGP III

Г Д

BGP in
 1.1.1.1 100III

```
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
```

Г Д

match as-path	AS_PATH
match community	
match metric	
match origin	

set community	COMMUNITY
set metric	
set metric-type	

Г Д

Г Д

27.2

27.2.1 show ip prefix-list

show ip prefix-list

III

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

Г Д

--	--

IP show ip route III

show ip route [[vrf vrf_name] [network [mask] | count | protocol
[process-id] | weight | track-table]]

Г Д

vrf vrf_name	VRF
network	
mask	
count	
protocol	connected , static bgp , isis , ospf , rip
process-id	
weight	
track-table	track

Г Д

III

Г Д

Ч Ч Ч Ч

Г Д

III

vrf vrf_name III

Г Д

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

show ip route *network*

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*

	Ruijie#		
Routing Descriptor Blocks	IP		
		BGP	

show ip route count

Ruijie#

Г Д

IPv6

III

Г Д

Ч

Ч

Ч

Ч

Г Д

III

Г Д

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

27.2.4 show route-map

show route-map III

show route-map *route-map-name*

Г Д

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

Г Д

III

Г Д

Ч

Ч

Ч

Ч

III

Г Д

III

Г Д

```
Ruijie# show route-map
```

route-map AAA, permit, sequence 10

Match clauses:

ip address 2

Set clauses:

metric 10

--	--

28 ACL

The diagram shows a 1D lattice structure. A horizontal line represents the lattice, with vertical tick marks indicating lattice sites. The lattice is divided into two sublattices: IP (Ionic Pair) and ACL (Anion-Cation Lattice). The unit cell is labeled III. The lattice constant is indicated as 1-99.

icmp-message	ICMP
operator port[port]	Operator lt- eq- gt- neq- range- port
text	

28.1

- access-list
- ip access-list
- ip access-list resequence
- firewall default-policy-permit

ACL

- deny
- permit
- list-remark text
- no sn

- ip access-group

28.1.1 access-list

III no

III

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
```

<i>Id</i>	III 1-99 100-199 1300-1999 2000-2699 2700 – 2899 700 - 799 III
deny	III
permit	III
<i>source</i>	
<i>source-wildcard</i>	III 0.255.0.32
<i>protocol</i>	IP EIGRP 4 GRE 4 IPINIP 4 IGMP 4 NOS 4 OSPF 4 ICMP 4 UDP 4 TCP 4 IP IP 0-255 III ICMP/TCP/UDP III

ACL

- 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

TCP

TCP

- bgp (179)
- chargen (19)
- cmd (514)
- daytime (13)
- discard (9)
- domain (53)
- echo (7)
- exec (512)
- finger (79)
- ftp (21)
- ftp-data (20)
- gopher (70)
- hostname (101)
- ident (113)
- irc (194)
- klogin (543)
- kshell (544)
- login (513)
- nntp (119)
- pim-auto-rp (496)
- pop2 (109)
- pop3 (110)
- smtp (25)
- sunrpc (111)
- tacacs (49)
- syslog (514)
- talk (517)
- telnet (23)
- time (37)
- uucp (540)
- whois (43)
- www (80)

UDP

UDP

- biff (512)
- bootpc (68)
- bootps (67)
- discard (9)
- dnsix (195)
- domain (53)
- echo (7)
- isakmp (500)
- mobile-ip (434)
- nameserver (42)
- netbios-dgm (138)
- netbios-ns (137)
- netbios-ss (139)
- ntp (123)
- pim-auto-rp (496)
- rip (520)
- snmp (161)
- snmptrap (162)
- sunrpc (111)
- syslog (514)
- tacacs (49)
- talk (517)
- tftp (69)
- time (37)
- who (513)
- xdmcp (177)

```
1 IP
   IP                               192.168.1.64 - 192.168.1.127
```

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

```
2 IP
   IP          DNS      ICMP
```

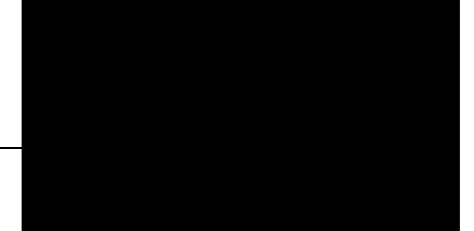
```
Ruijie(config)# access-list 102 permit tcp any any eq domain
```

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

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

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

ACL



port [port]] {destination destination-wildcard | host destination | any}
[operator port [port]] [[dscp dscp] | [[precedence precedence][tos
tos]]] [time-range time-range-name]

access-list	access-list

ACL

ACL

ACL

```
1      IP      ACL      IP 192.168.4.12      TCP
100                                gigabitethernet 1/1/1
Ruijie(config)# ip access-list extended ip-ext-acl
Ruijie(config-ext-nacl)# deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended ip-ext-acl
```

ip access-group	ACL
ip access-list	IP ACL
permit	

V10.0	V10.0 III
-------	-----------

28.1.3 firewall default-policy-permit

ACL III no
III

firewall default-policy-permit
no firewall default-policy-permit

-	-
---	---

ACL

ACL III
III

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**

-	-
---	---

	V10.0	V10.0

28.1.4 ip access-group

ACL

no

ip access-group {id |

III

ip access-group III

28.1.5 ip access-list

IP ACL IP ACL III no
ACL

ip access-list {extended | standard} {*id* | *name*}

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

<i>id</i>	IP 1-99 1300-1999 100-199 2000-2699
<i>name</i>	IP

ACL

ACL ACL III
deny permit III show access-lists ACL III

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

<i>Id</i>	ACL
<i>name</i>	ACL
<i>start-sn</i>	
<i>inc-sn</i>	

show access-lists	ACL
-------------------	-----

	V10.0	V10.0	III
--	-------	-------	-----

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

--

ACL

ACL

ACL

1 IP ACL IP 192.168.4.12 TCP
100 gigabitethernet 1/1 ACL III

Ruijie(config)# **ip access-list extended 102**

Ruijie(config-ext-nacl)# **permit tcp host 192.168.4.12 eq 100 any**

Ruijie(config-ext-nacl)# **show access-lists**

ip access-list extended 102

10 permit tcp host 192.168.4.12 eq 100 any

Ruijie(config-ext-nacl)# **exit**

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

Ruijie(config-if)# **ip access-group 102 in**

Ruijie(config-if)#

2 IP ACL IP 192.168.4.12
gigabitethernet 1/1 ACL III

Ruijie(config)# **ip access-list standard std-acl**

Ruijie(config-std-nacl)# **permit host 192.168.4.12**

Ruijie(config-std-nacl)# **show access-lists**

ip access-list standard std-acl

10 permit host 192.168.4.12

Ruijie(config-std-nacl)# **exit**

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

Ruijie(config-if)# **ip access-group std-acl in**

show access-lists	
ip access-group	ACL
ip access-list	IP ACL
deny	ACL

V10.0	V10.0 V10.2(3)	arp III

28.2

28.2.1 show access-group

ACL

show access-group [interface <interface>]

<interface>	

ACL

ACL

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

ip access-group	ACL

ACL

ACL

show access-lists [*id* | *name*]

<i>id</i>	
<i>name</i>	

acl

id *name*

ACL

Ruijie# **show access-lists** *n_acl*

ip access-list standard *n_acl*

Ruijie# **show access-lists** *102*

ip access-list extended *102*

access-list	ACL
ip access-list	IP ACL III

V10.0	V10.0

28.2.3 show ip access-group

IP ACL

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

< <i>interface</i> >	

ACL

|
|

|
|

|
|

ACL

ACL

Ruijie#

29.1.2 arp-car

ARP

Glean-CAR

control-plane

arp-car

no

arp-car

arp-car *packet_rate_per_group* [total-bw-rate *rate*]

no arp-car

<i>packet_rate_per_group</i>	pps
<i>rate</i>	Arp pps

ARP-CAR

ARP

5ppsIII

control-plane

III

1

ARP

10pps

```
Ruijie(config)# control-plane manage
```

```
Ruijie(config-cp)# arp-car 10
```

Ruijie(config)# control-plane {protocol manage data}	control-plane
---	---------------

	-	-
--	---	---

29.1.3 control-plane

control-plane

control-plane

```

exit      control-plane
control-plane {protocol | manage | data}

```

	protocol	
	manage	
	data	

```


```

```


```

```


```

```

1          control-plane
Ruijie(config)# control-plane protocol
Ruijie(config-cp)#

```

	-	-

```


```

	-	-

29.1.4 glean-car

```

control-plane          IP          Glean-CAR
control-plane          glean-car
no          glean-car
glean-car packet_rate_per_group [total-bw-rate rate]
no glean-car

```

	packet_rate_per_group	pps
	rate	glean pps

	Glean-CAR	Glean
	5ppsIII	
	control-plane	
	III	
	1	Glean
	10pps	
	Ruijie(config)# control-plane data	
	Ruijie(config-cp)# glean-car 10	
	Ruijie(config)# control-plane {protocol manage data}	control-plane
	III	
	-	-

29.1.5 management-interface

	MPP	
	III	MPP
	III	MPP
control-plane	management-interface	
no		
management-interface	interface allow {ftp http https ssh snmp telnet tftp }	
no management-interface	interface	
	Interface	
	MPP	

	control-plane	
	III	
	1	interface vlan 100
	telnet snmp	
	Ruijie(config)# control-plane manage	
	Ruijie(config-cp)# management-interface vlan 100 allow snmp telnet	
	Ruijie(config)# control-plane {protocol manage data}	control-plane
	-	-

29.1.6 port-filter

Port-Filter	III	Port-Filter	control-plane
port-filter			
no	Port-Filter		
port-filter			
no port-filter			
	-		-
	Port-Filter		
	control-plane		
	1	Port-Filter	

1

192.168.52.0

TCP

100pps

150pps

30

5

7

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**

Ruijie(config)# control-plane {protocol manage data}	control-plane

III

-	-

vrrp delay { minimum *min-seconds* / *max-seconds* }

no vrrp delay

Г

Д

min-seconds VRRP Pri B444B95532AFCD8DBJ / T92BJ / TT1 1 Tf 0 Tc 0 Tr () Tj / TT2 1 Tf 0 Tj.0057 Tc

30.1.3 vrrp description

```

VRRP                                     no                                     III

vrrp group description text
no vrrp group description

R      D

group VRRP
text VRRP

R      D

VRRP III VRRP
VRRP III

R      D

R      D

VRRP VRRP III

R      D

E0 VRRP 1 Building A –
Marketing and AdministrationIII

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"

```

R D

Ruijie(config-if)# vrrp group ip ipaddress [secondary]	VRRP IP

30.1.4 vrrp ip

VRRP IP IP no
VRRP IP III

vrrp group ip ipaddress [secondary]
no vrrp group ip ipaddress [secondary]

Г

Д

group VRRP
ipaddress

VRRP

group VRRP

level VRRP

Г Д

VRRP III VRRP

VRRP 100III

Г Д

Г Д

VRRP III

Г Д

VRRP 1 254III

vrrp 1 priority 254

Г Д

Ruijie(config-if)# vrrp <i>group</i> ip <i>ipaddress</i> [<i>secondary</i>]	VRRP IP
Ruijie(config-if)# vrrp <i>group</i> preempt [<i>delay seconds</i>]	VRRP

30.1.7 vrrp timers advertise

VRRP no

III

vrrp *group* timers advertise *interval*

no vrrp *group* timers advertise

Г Д

group VRRP

interval VRRP ()

Г Д

VRRP III VRRP
1 III

Г Д

VRRP 1

III

vrrp 1 timers learn

r d

Ruijie(config-if)# vrrp <i>group</i> ip <i>ipaddress</i> [secondary]	VRRP IP
Ruijie(config-if)# vrrp <i>group</i> timers advertise [msec] <i>interval</i>	VRRP

30.1.9 vrrp track

VRRP vrrp *group* track *interface-type* *number*
VRRP IP vrrp *group*

VRRP III VRRP
IP III

Г Д

Г Д

(Routed Port SVI Loopback Tunnel)
IP ping III

Г Д

VRRP 1 Routed Port Fa1/1 III Fa1/1
VRRP 30 Fa1/1 VRRP
1 III
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**

Г Д

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

30.2 VRRP

30.2.1 debug vrrp

		VRRP	Ч VRRP	Ч VRRP
		no	III	
		debug vrrp		
		no debug vrrp		
Г	Д			
			III	
Г	Д			
Г	Д			
		VRRP	III	
		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#		
Г	Д			

Ruijie# debug vrrp errors	VRRP
---------------------------	------

debug vrrp errors
no debug vrrp errors

Г Д

VRRP III

Г Д

Г Д

VRRP III

```
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

VRRP no III

debug vrrp events
no debug vrrp events

Г Д

VRRP III

Г Д

Г Д

VRRP III

```
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

		VRRP	no	III
		debug vrrp packets		
		no debug vrrp packets		
Г	Д		VRRP	III
Г	Д			
Г	Д			
		VRRP		
		VRRP 1	III	
		Ruijie# debug vrrp packets		
		Ruijie#		
		VRRP: Grp 2 sending Advertisement checksum DD4D		
		VRRP: Grp 2 sending Advertisement checksum DD4D		
		VRRP: Grp 2 sending Advertisement checksum DD4D		
		VRRP		
		VRRP 1 IP VRRP 1	III	
		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

		VRRP	no	III
		debug vrrp state		
		no debug vrrp state		
Г	Д		VRRP	III
Г	Д			

Г Д

VRRP

III

```
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

30.3.1 show vrrp

VRRP

III

```
show vrrp [ brief | group ]
```

Г Д

```
brief
```

VRRP

```
group
```

VRRP

Г Д

Г Д

VRRP

III

Г Д

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
```

VRRP III

show vrrp interface *type number* [*brief*]

Г Д

type

number

brief III

Г Д

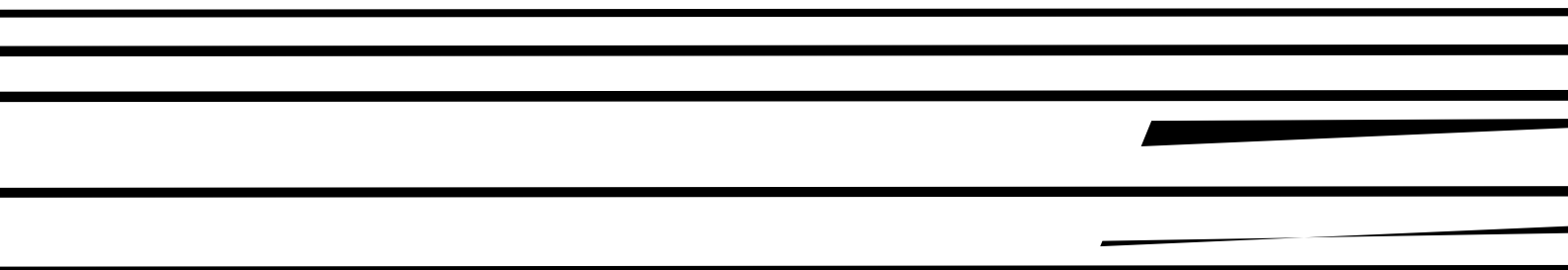
Г Д

E1/0 VRRP

```
Ruijie# show vrrp interface GigabitEthernet 0/0
GigabitEthernet 0/0 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
GigabitEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is
120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
```

Г Д

Ruijie(config-if)# vrrp <i>group</i> ip <i>ip address</i> [<i>secondary</i>]	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%	dhcpc_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_daemon
63	0%	3%	1%	track_daemon
64	0%	0%	0%	pbr_guard
65	0%	0%	0%	vrrpd
66	0%	0%	0%	psnpd
67	0%	0%	0%	igsnpd
68	0%	0%	0%	coa_recv
69	0%	0%	0%	co_oper
70	0%	0%	0%	co_mac
71	0%	0%	0%	radius_task
72	0%	0%	0%	tac+_acct_task
73	0%	0%	0%	tac+_task
74	0%	0%	0%	dhcpd_task
75	0%	0%	0%	dhcps_task
76	0%	0%	0%	dhcpping_task
77	0%	0%	0%	dhcpc_task
78	0%	0%	0%	uart_debug_file_task
79	0%	0%	0%	ssp_init_task
80	0%	0%	0%	rl_listen
81	0%	0%	0%	ikl_msg_operate_thread
82	0%	0%	0%	bcmDPC
83	0%	0%	0%	bcmL2X.0
84	3%	3%	3%	bcmL2X.0
85	0%	0%	0%	bcmCNTR.0
86	0%	0%	0%	bcmTX
87	0%	0%	0%	bcmXGS3AsyncTX
88	0%	2%	1%	bcmLINK.0
89	0%	0%	0%	bcmRX
90	0%	0%	0%	mngpkt_rcv_thread

5 CPU 3 LISR 5 HISR 1 III

- | | |
|---|-----|
| 5 | CPU |
| 1 | CPU |
| 5 | CPU |

Windows 10 System Idle Process 5 CPU 75% III

CPU, cpu-logIII

log-limit

low_num CPU

high_num CPU

Г Д

100%

90%III

Г Д

III

Г Д

CPU

CPU

CPU

CPU

CPU

CPU

III

Г Д

CPU

70% CPU

80%III

ruijie(config)# **cpu-log log-limit 70 80**

CPU 80%

Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute : 95% Using most cpu's task

32.1

- threshold set

32.1.1 threshold set

```
threshold set {cpu | memory | temperature} [M1 | M2 | slot      n | member n ]
warning_value
```

	III		
CPU		90	100.
		90	100.
		90	100.

III

1

M1

III

Ruijie(config)# **threshold set memory M1 70 90**

2

CPU

III

Ruijie(config)# **threshold set cpu member 2 70 90**

show threshold	

M1 | M2 | slot *n* | member *n*]

FW

10.3(4b3)	

32.2

MSTP

- [show threshold](#)

32.2.1 show threshold

III

show threshold {cpu | memory | temperature} [M1 | M2 | slot *n* | member *n*]

cpu memory temperature	cpu CPU
	memory
	temperature

M1 | M2 | slot *n* *n*

member *n* *n*

III

1 M1 CPU III
Ruijie# **show threshold cpu M1**

2 III
Ruijie# **show threshold memory**

threshold set

M1 | M2 | slot *n* | member *n*] FW

10.3(4b3)

33

33.1

33.1.1

min	III
lower	III memory-lack exit-policy III
low	OVERFLOW III III
high	III OVERFLOW

3.

III

33.1.2 memory-lack exit-policy

worsen

BGP ¶ OSPF ¶ RIP ¶ PIM-SMIII

memory-lack exit-policy (bgp |ospf |pim-sm| rip)

no memory-lack exit-policy

Г

Д

bgp ospf pim-sm rip	BGP OSPF PIM RIPIII
no	III

Г

Д

III

Г

Д

Г

Д

lower (show memory lower III)

III

III

BGP

bgpIII

III

				III	
				III	
Г	Д	1	BGP	III	
		Ruijie(config)# memory-lack exit-policy bgp			
Г	Д				
		show memory			
Г	Д				
				FW	BGP Ч
		PIM-SM			
Г	Д				
		10.3(4b3)			

33.1.3 show memory protocols

		III	
		show memory protocols	
Г	Д		
Г	Д		
Г	Д		
		III	
			

protocol	memory(byte)
BGP	102000000
OSPF	24000000
RIP	10000000
PIM	50000000
LDP	20000000
Total	206000000

Г
Г
Г

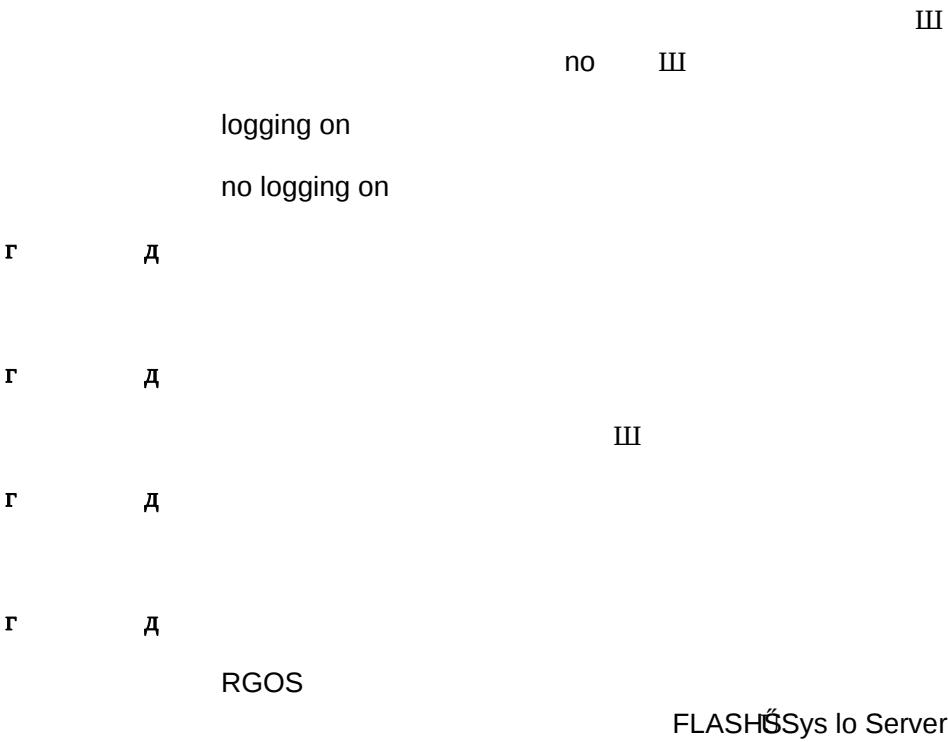
Д
Д
Д

show memory	
-	
10.3(4b3)	

34

34.1

34.1.1 logging on



logging console	
logging monitor	VTY (telnet)
logging trap	Syslog Server

34.1.2 terminal monitor

		VTY	no	III	VTY
				III	
		terminal monitor			
		terminal no monitor			
Г	Д				
		VTY		VTY	III
Г	Д				
Г	Д				
		VTY		III	
		III VTY			
		III			
		说明:			
		RGOS		III	
		no ,		0 1	III
Г	Д				
		VTY		III	
		Ruijie# terminal monitor			
		Ruijie#			

34.1.3 logging buffered

						ч
			III	no		
		III				
		logging buffered	[buffer-size level]			
		no logging buffered				
г	д					
		buffer-size		4K	128K Bytes	III
	0	level		0	7	III
		III				
г	д					
		4k Td(122>6<0ytes)Tj/C2_0 1 Tf0114 0 Td<01C4>Tj/TT0 1 Tyes75BD				

0

III

III

Г Д

6

6

10000

Ruijie(config)# **logging buffered 10000 6**

Г Д

logging on	
show logging	
clear logging	

34.1.4 logging server

Syslog Sever

III

Syslog server

Syslog Server

Г Д

Debugging (7)

Г Д

Г Д

III

show logging

III

Г Д

6

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

Г Д

logging on	
show logging	

34.1.7 logging monitor

VTY

telnet

SSH

III

no

VTY

III

logging monitor *level*

no logging monitor

Г Д

level

III

III

1III

Г Д

Debugging (7)

Г Д

Г Д

```

VTY
monitor VTY III
logging monitor III
Logging monitor VTY III

R
D
VTY 6

```

```

Ruijie(config)# logging monitor informational

```

```

R
D

```

logging on	
show logging	

34.1.8 logging trap

```

Syslog Server
III no Syslog ServerIII

logging trap level
no logging trap

R
D
level III III
1III

R
D
Informational(6)

R
D

R
D
Syslog Server logging
Syslog ServerIII logging trap
III
show logging III

R
D

```

Syslog Server

Ruijie(config)# **logging 202.101.11.22**

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

Г Д

logging on	
logging	Syslog Server
show logging	

34.1.9 logging source interface

III

no

III

logging source interface *interface-type interface-number*

no logging source interface

Г Д

interface-type

interface-number

Г Д

Г Д

Г Д

Syslog Server

III

III

Г Д

Loopback 0

Syslog

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

Г

Д

logging	Syslog Server

34.1.10 logging source ip| ipv6

III

no

III

logging source {ip *ip-address* | ipv6 *ipv6-address*}

no logging source {ip | ipv6}

Г

Д

ip-address

IPV4

IPV4

ipv6-address

IPV6

IPV6

Г

Д

Г

Д

Г

Д

Д

Ø

|| C

				III				
		no	(23)III					
		logging facility	facility-type					
		no logging facility						
Г	Д							
		facility-type	Syslog	III				
Г	Д							
		Local7(23)						
Г	Д							
Г	Д							
		2	Syslog					
				2				
		<table><tr><th>Numerical Code</th><th>Facility</th></tr><tr><td>0es3.-15</td><td>kernel messages</td></tr></table>			Numerical Code	Facility	0es3.-15	kernel messages
Numerical Code	Facility							
0es3.-15	kernel messages							
		0es3.-15	kernel messages	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) 23III

Г Д

Syslog kernel

Ruijie(config)# logging facility kern

Г Д

logging console	

34.1.12 logging count

III
no III

logging count
no logging count

Г Д

Г Д

Г Д

Г Д

		III	III	no logging
	count		III	
Г	Д			

Ruijie(config)# **logging count**

Г	Д		
	show logging count		
	show logging		

34.1.13 logging rate-limit

		III		no
	III			
	logging rate-limit	{ <i>number</i> <i>all number</i> <i>console {number all number}</i> }		
		[<i>except severity</i>]		
	no logging rate-limit			
Г	Д			
	<i>number</i>		1—10000	
	<i>all</i>		0—7	
	<i>console</i>	{})3)5(0)]TJ/C2_0 1 Tf0 Tw 2 0.6 0 T<64302-CD>81411E3>462316<04628C0>		

III

III

Г Д

debug 10

warning

Ruijie(config)#**logging rate-limit all 10 except warnings**

Г Д

show logging count	
show logging	

34.1.14 logging synchronous

III

no III

logging synchronous

no logging synchronous

Г Д

Г Д

III

Г Д

Г Д

III

Г Д

Ruijie(config)#
Ruijie(config)#**line console 0**
Ruijie(config-line)#logging synchronous

UP-DOWN

```
Ruijie#configure terminal
Oct      9   23:40:55   %LINK-5-CHANGED:   Interface
GigabitEthernet 0/1, changed state to down
Oct  9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on
Interface GigabitEthernet 0/1, changed state to DOWN
Ruijie#configure terminal   ----
```

Г Д

show running-config	

34.1.15 service sequence-numbers

III

```
no
III
service sequence-numbers
no service sequence-numbers
```

Г Д

Г Д

III

Г Д

Г Д

```
1
III
III
```

Г Д

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

Г Д

Log

Debug

Datetime

```
Ruijie(config)# service timestamps debug datetime msec
Ruijie(config)# service timestamps log datetime msec
Ruijie(config)# end
Ruijie(config)# Oct  8 23:04:58.301 %SYS-5-CONFIG_I:
Configured from console by console
```

Г

Д

logging on	
service sequence-numbers	

34.1.17 service sysname

III

no service s y nme

Г

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

Г Д

show logging	

34.1.18 more flash

FLASH

more flash:filename

Г Д

Filename

Г Д

Г Д

FLASH

"/f2/" "/f3/" III
III

Г Д

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
```

Г Д

--	--

III

clear logging

Г Д

Г Д

III

III

Г Д

III

Ruijie# **clear logging**

Г Д

--	--

ÔÏPßÖPïVb&/%¿CPïVbR2Y#H!\$4...a

Log Buffer	
------------	--

Г Д

logging on	
clear logging	

34.2.2 show logging count

III

show logging count

Г Д

Г Д

Г Д

logging

count IIIshow logging count
III

show logging III

Г Д

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
```

Г Д

logging count	

show logging	
clear logging	

35 RLOG

35.1

35.1.1 rlog export-rate

rlog export-rate *number*

no rlog export-rate

	number	

1000

III

1
Ruijie(config)# **rlog export-rate 10000**

	-	-

no rlog filter



III

$$\neq \quad \vdash$$

III

III

1

Ruijie(config)# **rlog mtu 1200**

-	-

-	-

III

-	-

-	-

35.1.4 rlog port

III

rlog port *number*

no rlog port

<i>number</i>	

10000

III

III

1

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

	-	-
--	---	---

--

	III
	

RLOG

rlog vrf-rate number

no rlog vrf-rate

number	1~100

20

III

III

1vrf30

Ruijie(config)#content vrf

Ruijie(config-ctx)# rlog vrf-rate 30

2vrf20

Ruijie(config)#content vrf

Ruijie(config-ctx)# no rlog vrf-rate

	-	-

III

III

1
Ruijie# show rlog
rlog server is enable
mtu 1200 port 13000 server 10.1.1.1
rlog export-rate 0 rlog queue remain 2048
send log count : 5244 error count : 0 errorno : 0
recv buf: 5244 poll buf err: 0 push buf: 5244

--	--	--

S% Fp fFF&fFF&b L @ Li&tsf~"Eri\$D #± N@')rW!UF i2CA ònô\$rw!Q

|
|_____

|
|_____

1

Ruijie# show rlog-status

36 SNMP

36.1

36.1.1 no snmp-server

The diagram illustrates four different configurations for the 'snmp-server' command in Ruijie devices. Each configuration is shown in a separate box with a title and a code snippet.

- Configuration 1:** The title is 'no snmp-server'. The code snippet is 'Ruijie(config)# no snmp-server'.
- Configuration 2:** The title is 'SNMP'. The code snippet is 'Ruijie(config)# snmp-server'.
- Configuration 3:** The title is 'SNMP'. The code snippet is 'Ruijie(config)# snmp-server III'.
- Configuration 4:** The title is 'SNMP'. The code snippet is 'Ruijie(config)# snmp-server III'.

36.1.2 snmp-server chassis-id

SNMP		snmp-server
chassis-id	III	no
snmp-server	chassis-id	text
no snmp-server	chassis-id	
г	д	
	text	III
г	д	
	60FF60	
г	д	
г	д	

SNMP III

show snmp III

Г Д

SNMP 123456:

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

Г Д

show snmp	SNMP

36.1.3 snmp-server community

SNMP snmp-server

community III no SNMP III

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

no snmp-server community *string*

Г Д

string NMS SNMP III

view-name III

ro NMS MIB III

rw NMS MIB III

number 0-99

MIB NMS III

ipaddr NMS MIB NMS III

Г Д

Г Д

Г Д

SNMP

Ч MIB NMS III

III

192.168.12.1

```
Ruijie(config)# snmp-server community public ro 2
```

access-list	

III

no snmp-server contact

text

III

i-net800@i-net.com.cn

show snmp-server	SNMP
no snmp-server	SNMP

36.1.5 snmp-server enable traps

		SNMP	NMS	Trap	snmp-server enable trap	sIII				
	no	SNMP	NMS	Trap	III					
	snmp-server enable traps [snmp]									
	no snmp-server enable traps									
Г	Д	snmp	SNMP		III					
Г	Д									
Г	Д									
Г	Д									
				snmp-server		III				
Г	Д									
			SNMP							
		Ruijie(config)# snmp-server enable traps snmp								
		Ruijie(config)# snmp-server host 192.168.12.219 public								
		snmp								
Г	Д									
		<table><tr><td></td><td></td></tr><tr><td>snmp-server host</td><td>SNMP</td></tr></table>							snmp-server host	SNMP
snmp-server host	SNMP									

36.1.6 snmp-server host

		SNMP	NMS		
snmp-server host	III	no	SNMP	III	
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					

Г

Д

host-addr SNMP*ipv6-addr* SNMP ipv6*vrfname* vrf*version* snmp V1 V2C V3*auth | noauth | priv* V3 III*community-string* V3 III*port-num* snmp*notification-type* V2C Å 1vq μ C !đ WÂ@AĐ® 0 ¹G! îà?à0ž I ™3Â 13 S

		SNMP		snmp-server
		location	no	III
		snmp-server location <i>text</i>		
		no snmp-server location		
Г	Д			
		<i>text</i>	III	
Г	Д			
Г	Д			
Г	Д			
		Ruijie(config)# snmp-server location start-technology		
		-city 4F of A Buliding		
Г	Д			


```

SNMP
system-shutdown III no SNMP snmp-server III
snmp-server system-shutdown
no snmp-server system-shutdown

```

Г Д

SNMP

Г Д

Г Д

```

reload/reboot SNMP RGOS
NMS III

```

Г Д

SNMP

```

Ruijie(config)# snmp-server system-shutdown

```

36.1.11 snmp-server trap-source

```

SNMP snmp-server
trap-source III no III
snmp-server trap-source interface
no snmp-server trap-source

```

Г Д

```

interface SNMP

```

Г Д

```

SNMP IP III

```

Г Д

Г Д

```

SNMP IP
SNMP IP

```

Г Д SNMP III

```

0 IP SNMP

```

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

Г Д

snmp-server enable traps	
snmp-server enable host	NMS

36.1.12 snmp-server trap-timeout

```
trap-timeout III no III snmp-server
snmp-server trap-timeout seconds
no snmp-server trap-timeout
```

Г Д

seconds III

Г Д

30

Г Д

Г Д

60

```
Ruijie(config)# snmp-server trap-timeout 60
```

Г Д

snmp-server queue-length	
snmp-server enable host	NMS

36.1.13 snmp-server user

```
SNMP snmp-server user III
no III
```

```
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 }
```

Г

Д

username III

groupname

v1 | v2 | v3 SNMP III v3 III

encrypted

III

16

III

MD5

16

SHA

20

III

III

III

auth

IIImd5

MD5

IIsha

SHA

III

auth-password:

32

III

III

priv

IIIdes56

56

DES

III

priv-password

32

III

III

Г

Д

III

Г

Д

Г

Д

snmpV3

md5

DES

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

Г

Д

show snmp user	SNMP

36.1.14 snmp-server group

```

SNMP
no
snmp-server group groupname {v1 | v2c | v3 {auth | noauth | priv }}
[read readview][write writeview] [access {num | name}]

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

v1 | v2c | v3      SNMP      III
auth                                v3      III
noauth                                v3
III
priv                                v3
III
readview                        III
writeview                        III

```

Г Д

Г Д

Г Д

```

Ruijie(config)# snmp-server group mib2user v3 priv read
mib2

```

Г Д

show snmp group	SNMP

36.1.15 snmp-server view

```

SNMP
no
snmp-server view view-name oid-tree {include | exclude }
no snmp-server view view-name [oid-tree]

```

г	д				
		<i>view-name</i>	III		
		<i>oid-tree</i>	MIB	MIB	III
		include			

Г Д

show run	

36.2

36.2.1 show snmp

SNMP

show snmp III

show snmp [mib | user | view | group]

Г Д

Г Д

show snmp 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

Г

Д

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