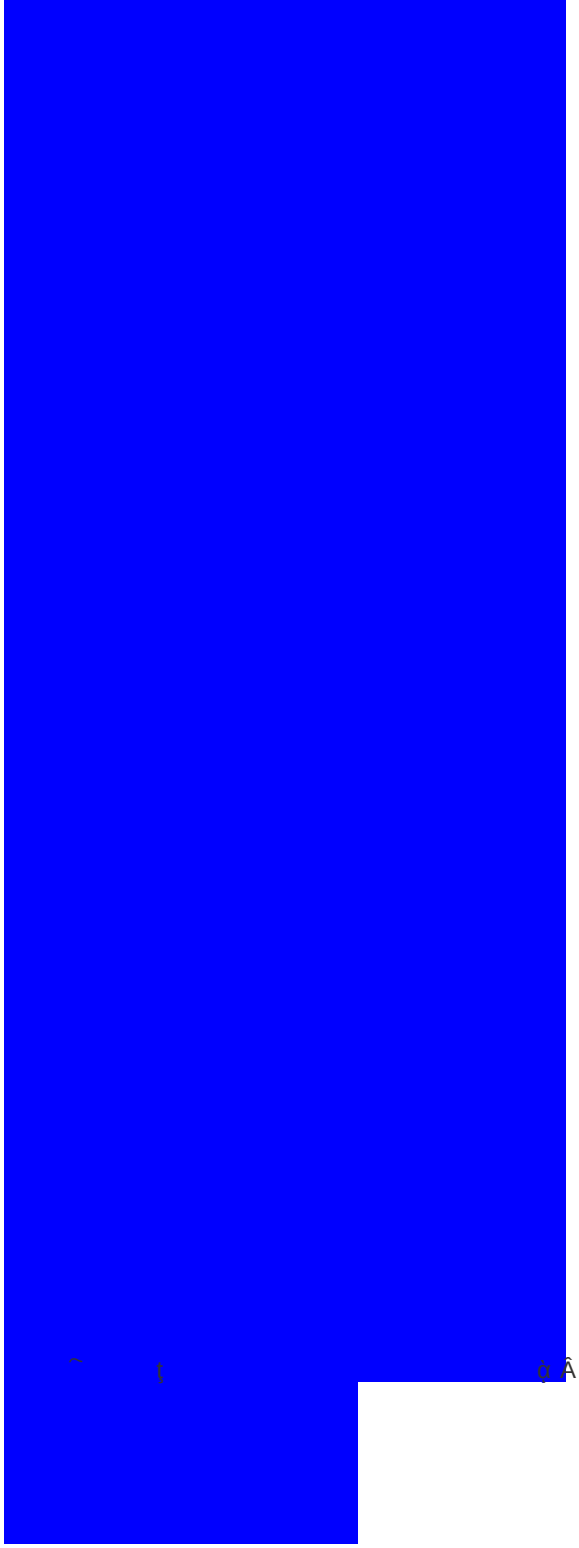
RG-NPE

RGOS 10.3(4b11)p5

V1.0



-
-
-
-
-
-
- ~ ~ ˛ ˛ Â Â S¨Ω N 6
- 7 × 24
-
-

1)

[ ] [ ]

{ x | y | ... }

[x | y | ...]

//

2)

1. CLI
2.
3.
4.
5. HTTP

1 CLI

1.1 alias

alias

no

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

mode
command-alias
original-command

EXEC

EXEC

h	**help**
p	**ping**
s	**show**
u	**undebug**
un	**undebug**

no alias exec

alias ?

*

EXEC

EXEC **show version**

ip address

show aliases

-

mode

EXEC

EXEC

2

2.1

2.1.1 disable

disable

disable [*privilege-level*]

privilege-level	

disable

enable	

-	-

-	-

2.1.2 enable password

enable password **no**

enable password [**level** *level*] {*password* | [**0** | **7**] *encrypted-password*}**no enable password** 579W* reW* n0 {Q re1 20.16W720.1 .5 Tm0 g8[( )] TJETQ5>-11<28A91D73>] TJ99579W*

Password	EXEC

2.1.3 enable secret

enable secret **no**

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

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

ssh-

filename	

2.1.6 ip http authentication

Http Server Web Web

ip http authentication

ip http authentication { **enable** | **local** }

enable	enable password enable secret 15 enable
local	username 15

enable

Web **no ip http authentication**

Web local

enable service	

-	-

2.1.7 ip http port

HTTP **ip http port**

ip http port *number*

number	HTTP Server 80

80

HTTP **no ip http port**

HTTP 8080

-	-

2.1.9 lock

Ķ Ґ ╥ ₉ ж 0 Ŏ Р З u

-	-

2.1.10 lockable

lock line **lockable**

lock **no**

lockable

no lockable

-	-

line

EXEC

lock

lock	

-	-

2.1.11 login

AAA

login **no**

login

no login

-	-

line

AAA
VTY console

VTY

password	line

-	-

2.1.12 login authentication

AAA AAA

no

login authentication {**default** | *list-name*}

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

default	
list-name	

line

AAA

VTY radius

aaa new-

line

AAA
username

VTY

username	

-	-

2.1.16 telnet

Telnet EXEC **telnet**

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

2.1.17 username

username

username *name* **[web-auth] [pwd-modify 0|1]** {**nopassword**|**password**{*password* | [**0|7**]*encrypted-password* }}

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

no username *name*

name	
web-auth	web
pwd-modify 0|1	0 1 web-auth
password	
0|7	0 7
encrypted-password	
privilege-level	
filename	

7

7

7

15

login local	

web

-	-

-	-

2.2.2 banner motd

banner motd

no banner motd

banner motd *c message c*

c	
message	

-	-

clock update-calendar

-	-

. A < Ц

LINE

LINE

line vty 0 5 30

5 30

-	-

-	-

2.2.6 hostname

hostname

hostname *name*

name	32

Ruijie

CHAP

BeiJingAgenda

-	-

-	-

2.2.7 prompt

prompt

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

10

-	-

-	-

2.2.9 session-timeout

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

0 min

LINE

` ã

-	-

-	-

2.2.11 write

running-config

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

memory

-	-

2.3

2.3.1 show clock

show clock

show clock

-	-

console	
vty	vty
line-num	line

console

-	-

-	-

2.3.5 show startup-config

NVRAM

show startup-config

show startup-config

-	-

NVRAM startup-config

show version

-	-

-	-

cp dest {*destine_file* | *directory*} **sour** *source_file*
cp sour *source_file* **dest** { *destine_file* | *directory* }

destine_file	
directory	
source_file	( )

cp

log.txt

.

tmp

3.1.4 makefs

makefs dev ***devname*** fs ***fsname***

makefs fs ***fsname*** dev ***devname***

a

b

jffs2 dev/mtdblock/1

3.1.5 mkdir

mkdir ***directory***

directory	

( )

test

3.1.6 mv

mv sour *source_file* **dest** { *destine_file* | *directory* }
mv dest { *destine_file* | *directory* } **sour** *source_file*

source_file	
destine_file / directory	

a (**type** **file**); b
,

log.txt , config.txt, ,

3.1.7 pwd

Pwd

4

4.1

CLI COPY

- Xmodem **copy xmodem**
- Tftp **copy tftp**

4.1.1 copy xmodem

xmodem xmodem

copy flash: *filename* **xmodem**

copy xmodem flash: *filename*

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

filename

Xmodem

Xmodem

4.1.2 copy tftp

tftp tftp

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

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

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

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

---

tftp

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

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

---

filename

vrfname vrf

TFTP

TFTP

: ip 192.168.12. 1

config.bak ; switch.bin ip 192.168.12.1 :

5 HTTP

5.1

5.1.1 http check-version

all	
string	

ق -

auto-update

1

HTTP

;

web

1 HTTP

-	-

-

10.3(4b7)	

5.1.5 http update server

HTTP

http update server *host* [**port** *port-value*]

Host	ip
port-value	1~65535

0.0.0.0 80 1

HTTP HTTP

1 HTTP

-	-

-

10.3(4b7)	

5.1.6 http update set oob

HTTP

[**no**] **http update set oob**

5.1.7 http update time

HTTP

http update time daily *hh:mm*

hh:mm	

1 HTTP 23:40

-	-

-

10.3(4b7)	

5.1.8 feedback enable

no

[**no**] **feedback** [**user**] **enable**

user	user

feedback user enable **feedback enable**

1

feedback

end

show run

2

-	-

-

10.3(4T90)	
10.3(4b8)	

5.1.9 feedback frequency

no

[**no**] **feedback frequency** *minute*

minute 60 <5

feedback frequency

end

show run

-	-

-

5.1.12 feedback update

feedback update

1

-	-

-

10.3(4T90)	

5.1.13 feedback user-info

no feedback user-info

[**no**] **feedback user-info organization** *string1* **industry-type** *string2* **contact-info** *string3*

string1	<100
string2	<100
string3	<100

1

feedback user-info rganization
industry-type IT **ontact-info**

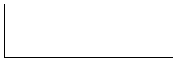
-	-

-

10.3(4b8)	

5.1.14 mail-service enable

[**no**] **mail-service enable**



10.3(4b8)	

5.1.16 mail-client username

SMTP /

[**no**]

5.2

5.2.1 show feedback items

show feedback items [*number*]

number	<0 - *MAXID*>

MAXID ב

1.

2.

3.

4. LINE

5. DLDP

6.

7. Aggregate Port

1

1.1

1.1.1 bandwidth

bandwidth **no**

bandwidth *kilobits*

no bandwidth

kilobits Kbits

bandwidth **show interfaces**

bandwidth

no carrier-delay

seconds 1 60

2

DCD Down Up
DCD

DCD
DCD

5

1.1.3 clear counters

clear counters

clear counters [*interface-type slot-number/interface-numbe*r]

interface-type GigabitEthernet

Slot-number/interface-number /

0/1

show interfaces	

1.1.4 description

description **no**

description *string*

no description

string

show interfaces

show interfaces

ARPA

802.1Q IEEE VLAN

802.1Q

20 802.1Q *VLANID* 20

1.1.7 interface

interface

interface *type slot-number/interface-number* [.sub-interface-number]

type GigabitEthernet tenGigabitEthernet loopback null dialer

Slot-number/port-number /
0

sub-interface-number

GigabitEthernet tenGigabitEthernet no **show interfaces**

show interfaces	

1.1.8 ip address

ip address IP **no** IP

ip address *ip-addressBT*

IP

0/0

192.168.12.1 255.255.255.0

ip unnumbered	IP

1.1.9 ip unnumbered

ip unnumbered IP

no

ip unnumbered *type interface-number*

no ip unnumbered

type

Interface-number

IP IP

Loopback

type	
dialer	
GigabitEthernet	
loopback	Loopback
null	

Loopback 0 IP *192.168.12.1/24* 0/0

0

192.168.12.1 255.255
/0
0

1.1.10 keepalive

keepalive keepalive **no keepalive**

keepalive { *keep-period* | *keep-period* { **dns** *ip* | **ping** *ip* } }

no keepalive

keep-period RGOS keepalive 0
RGOS keepalive 10

dns *ip* dns keepalive
ip dns 3

ping *ip* ip ping
keepalive ip ping 3

keepalive

keepalive

keepalive
keepalive
keepalive

ping dns
ip

ping dns

1.

2. IP

3. ping dns IP

GigabitEthernet 0/0 ping

GigabitEthernet 0/0 dns

1.1.11 load-interval

load-interval

no A

GigabitEthernet 0/0 180 **show interface GigabitEthernet 0/0**

3 minutes input rate 15 bits/sec, 0 packets/sec

3 minutes output rate 14 bits/sec, 0 packets/sec

GigabitEthernet 0/0 180

show interfaces	

1.1.12 mac-address

mac-address MAC **no** MAC

mac-address *H.H.H*

no mac-adderss

H.H.H MAC 16 H 2 6 48

MAC MAC MAC MAC MAC

MAC

1.1.13 media-type

no .

media-type { **baset | basex auto** }

no media-type

basex auto

baset

Ap SVI

show interfaces	

1.1.14 mtu

mtu MTU Maxiumum Transmission Unit **no**

mtu *num*

no mtu

num 64-65535
1500

1500

MTU MTU

Ap SVI

Ԓ n ᛋ ᒉ

Ap SVI
LinkTrap Link SNMP LinkTrap,

Link trap:

Link trap:

-

1.1.17 speed

no

speed {**auto** | **10** | **100 | 1000**}

no duplex

10	10Mbps
100	100Mbps
1000	1000Mbps
auto	

show interfaces
SFP 10M 100M

description	

duplex

2

2.1

2.1.1 bridge-map

bridge-map *bridge-num*

bridge-num	0~2

no

1 1

-	-

-

10.3(4b7)	

2.1.2 lan-ip

receive-only IP

[no] lan-ip *ip_address subnet_mask*

ip_address	IP
subnet_mask	

receive-only 100 receive-only

2.1.3 link-mode

no

[**no**] **link-mode** *interface-name1 interface-name2* { *forward* | *sniffer* | *bypass* | *receive-only* }

interface-name1	
interface-name2	
forward	forward
sniffer	sniffer
bypass	bypass
receive-only	*receive-only*

=_ 2DB+q5q(Ä

forward

sniffer

-	-

-

10.3(4b7)	
10.3(4b8)	receive-only

2.1.4 native-vlan

native-vlan id no native-vlan id

[**no**] **native-vlan** *vlan-id num*

vlan-id num	Vlan id	1~4094

native-vlan id 1 no native-vlan id

native vlan-id vlan-id native vlan-id vlan

1 1 native-vlan id 100

2.1.5 specify interface

specify interface *interface-name* { *lan* | *wan*}

no

[**no**] **specify interface** *interface-name*

interface-name	
lan	
wan	

no

dialer

1 GigabitEthernet 0/0

2 GigabitEthernet 0/0

3 GigabitEthernet 0/0

-	-

-

10.3(4b7)	

2.1.6 sys-mode

no

[**no**] **sys-mode gateway**

-	-

no

1

vlan-enable	vlan id 1-4088

vlan id 1-4088

lan

1 GigabitEthernet 0/0 vlan id 1-4088

4

1 XAUI

-	-

NPE NPE60 NPE60E

10.3(4b7)	

2.1.9 bypass

bypass (NPE40 NPE50E NPE60E
)
NPE40
bypass couple *couple*-num
no bypass
[**no**] **bypass** couple *couple-num*

bypass	bypass
couple	
couple-num	*couple*

bypass

1 bypass

NPE NPE50E NPE60E

10.3(4b7)	

2.2

2.2.1 show bridge-map

show bridge-map [*bridge-num*]

bridge-num	0~2

1 0

-	-

NPE

2.2.3 show sys-mode

wan lan

show sys-mode

sys-mode	wan lan LAN : GigabitEthernet 0/0 GigabitEthernet 0/3 WAN : GigabitEthernet 0/1 GigabitEthernet 0/2 GigabitEthernet 0/4

-	-

-

10.3(4b7)	

2.2.4 show environment

show environment

10.3(4b7)	

3.1.2 gateway

MGMT

gateway *ip-address*

	MGMT IPv4

MGMT MGMT 0

1 MGMT

show interface mgmt	MGMT

NPE NPE40 NPE60

10.3(4b7)	

3.1.3 ip address

MGMT IP

ip address *ip-address subnet-mask*

ip-address	IP
subnet-mask	

MGMT MGMT 0

show interface mgmt	MGMT

MGMT

1 MGMT

-	-

3.1.7 traceroute oob

HTTP

traceroute oob *host*

host	IP

MGMT

1

-	-

NPE NPE40 NPE60

10.3(4b7)	

4 LINE

4.1 LINE

4.1.1 line

LINE

line [**aux** | **console** | **tty** | **vty**] *first-line* [*last-line*]

aux	
console	
tty	
vty	telnet/ssh
First-line	first-line
Last-line	last-line

LINE

LINE VTY 1 3 LINE

4.1.2 line vty

VTY **no**

VTY

line vty *line-number*

no line vty *line-number*

VTY 5 0--4

VTY

VTY 20 VTY 0--19

VTY 10 VTY 0 9

4.1.3 transport input

Line **transport input** Line

default transport input LINE

transport input {**all | ssh | telnet | none**}

default transport input

all	Line

ssh

VTY TTY NONE

default

transport input Ⅰ€

VTY

access-list-number	access-list

in

5 DLDP

5.1.1 DLDP

5.1.2 dldp ip

dldp ip 100

no

dldp ip [nexthopip] [**interval** *value* | **retry** *value*]

no dldp ip [nexthopip]

ip ip

***nexthopip*:** ip

interval

retry

interval 100

Interface

MSTP

10.83.132.1

RGNOS10.3 RGNOS10.3

5.1.3 dldp passive

dldp passive dldp **no**

dldp passive

no dldp passive

Interface

dldp

6

6.1

6.1.1 clear counters

clear counters

clear counters [*interfece-type interface-number*]

interface-type Async Dialer GigabitEthernet Group-Async Loopback Null Serial

interface-number

show interface

show interface	

6.1.2 clear dialer

DDR **clear dialer**

clear dialer [*interface-type interface-number*]

interface-type Async Bri Group-Async Serial

interface-number

DDR

DDR 1

6.1.3 clear interface

clear interface

clear interface *interface-type interface-number*

interface-type Async Dialer GigabitEthernet Group-Async Loopback Null Serial

interface-number

0

6.1.4 clear line

clear line

clear line [*line-type*] *line-number*

line-type Line **aux** **console** **vty** **tty**

line-number

tty **aux** **vty** **console**
line

VTY 0

6.1.5 debug dialer

DDR **debug dialer**

debug dialer { **pkt** | **mlp|callback|event**}

pkt

mlp

callback dialer

event

6.1.6 debug ppp

PPP **debug ppp**

debug ppp [**authentication** | **error** | **event** | **negotiation** | **packet**]

authentication PPP

error PPP

event PPP

negotiation PPP

packet PPP

PPP

PPP

PPP

6.1.7 dialer enable-timeout

dialer enable-timeout no

dialer enable-timeout *seconds*

no dialer enable-timeout

senconds

15

10

6.1.8 dialer-group

dialer-group no

dialer-group *group-number*

no dialer-group

group-number

dialer-list

1 IP

dialer-list	

6.1.9 dialer hold-queue

dialer hold-queue **no**

dialer hold-queue *packets* [**timeout** *seconds*]

no dialer hold-queue [*packets* [**timeout** *seconds*]]

packet 0 100

timeout *seconds* 45s

MODEM

50

6.1.10 dialer idle-timeout

dialer idle-timeout no

dialer idle-timeout *seconds*

no dialer idle-timeout

seconds

120

1 60

dialer-group	
dialer fast-idle	

6.1.11 dialer-list

dialer-list **no**

dialer-list *dialer-group* **protocol** { **ip** } { **permit** | **deny** | **list** *access-list-number* }

no dialer-list *dialer-group* [**protocol** { **ip** } { **permit** | **deny** | **list** *access-list-number* }]

dialer-group

permit

deny

list

access-list-number

dialer pool	
dialer remote-name	

6.1.14 dialer priority

DDR **dialer priority** **no**

dialer priority ***number***

no dialer priority

number 0 255 0

0

DDR

DDR

1 50

6.1.15 ip address negotiated

PPP **ip address negotiated** **no**

ip address negotiated

no ip address negotiated

IP

1 IP

encapsulation ppp	PPP
ip address	IP
ip unnumbered	IP

6.1.16 ip address-pool

IP **ip address-pool** **no**

ip address-pool [**local**]

no ip address-pool

local IP IP

peer default ip address

ip local pool	
peer default ip address	IP

6.1.17 ip route

IP

6.1.18 line

Line **line**

line [**aux** | **console** | **vty**] *line-number* [*ending-line-number*]

aux Line

console Line

vty

line-number Line Line

end-line-number Line line

Line

Line Line Line **aux \ console \ vty** **show line**

Tty 0

show line

aux \ console \ vty Line

1 Line 1 **show line**

0 4 Line 0 4

no peer default ip address

ip-address IP IP
DDR IP

pool *pool-name-list*

pool-name-list

IP

PPP IP
IP

- **peer default ip address** *ip-address* IP
- **peer default ip address pool-name-list**
  IP

1 IP

ip address-pool	
ip dhcp-server	DHCP
ip local pool	

6.1.20 ppp max-bad-auth

PPP **ppp max-bad-auth**

no

ppp max-bad-auth *number*

no ppp max-bad-auth

number PPP 0

3

2

1 4:

Ppp authentication	PPP

6.1.21 pppoe enable

PPPoE **pppoe enable** **no**

PPPoE

pppoe enable

no pppoe enable

PPPoE

PPPoE PPPoE

RGNOS PPPoE

RGNOS PPPoE

pppoe-client	PPPoE DDR

6.1.22 pppoe-client

PPPOE DDR

pppoe-client **no** PPPoE

pppoe-client dial-pool-number *number* {**dial-on-demand| no-ddr}**

no pppoe-client dial-pool-number *number*

number

dial-on-demand

no-ddr

DDR

1 **dial-**

default **dialer string** default

6.2.2 show pppoe

PPPoE **show pppoe**

show pppoe { **session** | **tunnel** }

session **tunnel**

PPPOE

- SENT_IDLE
- SENT_PADI PADI
- RECEIVED_PADO PADO
- SENT_PADR PADR
- SESSION Session
- TERMINATED Session

Next timer fires after

7 Aggregate Port

7.1 aggregateport load-balance

```
Ruijie# configure terminal
Ruijie(config)# aggregateport load-balance dst-mac
```


7.2 aggregateport member linktrap


```
Ruijie# configure
```


7.3 interfaces aggregateport

ap_n|mber
ap-n|mber

ap_n|mber	

7.5 show aggregateport

IP

IP

1. IP
2. IP
3. IPv4 REF
4.
5. IP NAT
6.
7.

1 IP

1.1

1.1.1 ip address

IP no IP

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

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

ip-address	32 IP 8
network-mask	32 8
secondary	IP

IP

RGOS IP IP
IP IP
IP IP IP IP
IP
IP

- C

254 254 C
C IP

- IP

IP
IP

-

IP

IP 10.10.10.1 255.255.255.0

show interface	

IP
secondary

1.1.2 ip unnumbered

IP IP no

ip unnumbered *interface-type interface-number*

no ip unnumbered *interface-type interface-number*

interface-type	

interface-number	

IP IP
IP IP IP
IP IP

-
- SLIP HDLC PPP LAPB Frame-relay
  X.25
- ping IP
  SNMP
-

GigabitEthernet 0/1
IP

show interface	

1.2.2 arp-learning

ARP no

ARP ARP

ARP ARP ARP ,

ARP ARP

arp-learning enable

no arp-learning enable

-	-

ARP

ARP web ARP

ARP ARP

ARP ARP ARP

web ARP clear

arp ARP ARP

ARP AnyIP ARP

1 ARP

2 ARP

-	-

10.3(4b8)	10.3(4b8)

1.2.3 arp any-ip

AnyIP IP

ARP IP

no

arp any-ip

no arp any-ip

-	-

10.3(4t76)	10.3(4t76)

1.2.4 arp retry interval

arp IP

2 ARP no 1

ARP

arp retry interval *seconds*

no arp retru15170250(n)]3(p v)13(al)] T‡T-6ETBT1 0 0 1 165.74 526.29 Tm[(no)-4( )ETq67.11

97.29 621542 130.5511>l 55 T2.188 nBT/F1 9.96 TTf1 0 0 1 229.25 501.795T4080.35 0.2

1.2.5 arp retry times

arp IP

ARP no

start-ip-address	ARP IP IP IP
end-ip-address	ARP IP IP IP

1 ARP WEB ARP ARP

2 ARP IP

3 IP ARP ARP 1024

4 ARP IP IP IP IP IP

5 ARP IP IP IP IP 22

6 ARP

7 ARP UP UP IP

1 ARP IP

2 ARP IP

-	-

NPE

10.3(4b8)	10.3(4b8)

1.2.7 arp trusted

ARP no

arp trusted *number*

no arp trusted

update arp	ARP DHCP server DHCP

1.2.8 arp trust-monitor enable

arp no

arp trust-monitor enable

no arp trust-monitor enable

-	-

1 arp ARP 60
ARP 60 3600

2 arp GSN arp ARP
ARP arp
ARP

3 ARP ARP
ARP ARP

4 ARP ARP

ARP

1 arp

2 arp

1.2.10 arp unresolve

ARP no

8192

arp unresolve *number*

no arp unresolve

number	ARP < 1-8192 > 8192

ARP 8192

ARP

500

1.2.11 arp gratuitous-send interval

arp no

arp gratuitous-send interval *seconds*

no arp gratuitous-send

seconds	ARP <1-3600>

ARP

ARP

SVI 1 ARP

SVI 1 ARP

1.2.12 arp timeout

ARP ARP no

ARP IP MAC

ARP ARP

ʃ

1.3

1.3.1 ip broadcast-addresss

ip broadcast-addresss

no

ip broadcast-addresss *ip-address*

no ip broadcast-addresss *ip-address*

ip-address	IP

IP 255.255.255.255

IP “ 1 ” 255.255.255.255 RGOS
IP “ 1 ”

IP 0.0.0.0

1.3.2 ip directed-broadcast

IP **ip directed-broadcast**
no

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

no ip directed-broadcast

access-list-number	1-199 1300 - 2699 IP

IP IP IP 172.16.16.255

1.4 IP

1.4.1 clear arp-cache

ARP ARP IP

clear arp-cache

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

ARP

Protocol	Internet
Address	IP
Age (min)	ARP -
Hardware	IP
Type	ARPA
Interface	IP

show arp 192.168.195.68

show arp *192.168.195.0 255.255.255.0*

show arp *001a.a0b5.378d*

1.4.3 show arp counter

ARP arp

show arp counter

show arp trusted

1.4.5 clear ip route

IP IP

clear ip route

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

show ip a

ARP

Protocol	Internet
Address	IP
Age (min)	ARP -
Hardware	IP
Type	ARPA
Interface	IP

1.4.7 show ip interface

IP

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

IP interface state is:

show ip redirects

ip default-gateway	

2 IP

2.1 IP

2.1.1 ip default-gateway

2.1.2 ip mask-reply

RGOS ICMP ICMP

RGOS ICMP

GigabitEthernet 0/1 ICMP

-

2.1.5 ip source-route

RGOS IP **ip source-route** no

ip source-route

no ip source-route

RGOS IP IP IP
RFC 791

ICMP

RGOS IP

IP

2.1.6 ip unreachables

RGOS ICMP **ip unreachables** no ICMP

ip unreachables

no ip unreachables

RGOS

ICMP

RGOS ICMP

ICMP

GigabitEthernet 0/1 ICMP

-

3 IPv4 REF

3.1

IPv4 REF Ruijie Express Forward IP

3.1.1 ip ref load-sharing original

IPV4 REF IP IP no

-	-

-

-	-

3.1.2 ip ref load-sharing original-only

IPV4 REF IP no IP
IP/MASK
IP IP

[**no**] **ip ref load-sharing original-only**

-	-

IP

1 IP

-	-

-

-	-

3.1.3 ref parameter

ref

ref parameter *{20-95} [200-1000]*

{20-95}	ref cpu0
[200-1000]	ref cpu0 200

3.2 IPv4 REF

3.2.1 show ip ref packet-statistic

REF

show ip ref packet-statistic [**clear**]

clear	

REF

1

total recved	
bad head	
lookup fib fail	
drop adj	
local adj	
glean adj	

forward ĩ

-	-

-

id	
state	unresolve resolved
type	local forward drop glean
rfct	
chg	
l2addr	
interface	

show ip ref route	REF

-

-	-

3.2.3 show ip ref exact-route

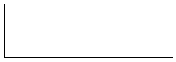
IP

show ip ref exact-route [**vrf** *vrf_name*] *source-ipaddress dest_ipaddress*

vrf	
source-ipaddress	IP
dest_ipaddress	IP

IP IP IP REF

1



tcp-established	TCP established 1800s
tcp-fin-wait	TCP fin-wait 60s
tcp-last-ack	TCP last-ack 30s
tcp-syn-receive	TCP syn-receive 10s
tcp-syn-sent	TCP syn-send 10s
tcp-time-wait	TCP time-wait 10s
udp-closed	UDP 10s
udp-connected	UDP 30s
udp-established	UDP ¨A

4.2

4.2.1 show ip fpm counters

show ip fpm counters

-	-

show ip fpm counters

1

Count	
Reason	

-	-

-	-

4.2.2 show ip fpm flows

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

filter	
ip_protocol_number	
source_ip	IP
source_ip_mask_len	IP
dest_ip	IP
dest_ip_mask_len	IP

show ip fpm flow

1

Pr	
SrcAddr	IP
DstAddr	IP
SrcPort	
DstPort	
Vrf	Vrf
SendBytes	
RecvBytes	
St	

-	-

-	-

4.2.3 show ip fpm statistics

show ip fpm statistics

show ip fpm statistic

1

The capacity of the flow table	
Number of active flows	
Number of the defragment contexts	IP
Number of the buffers hold by FPM	buffer
Event count	

-	-

5 IP NAT

5.1

5.1.1 address

NAT NAT address **no**

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

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

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

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

start-ip	IP
end-ip	IP
interface *interface*	NAT outside Pool match interface interface interface NAT
match interface *interface*	NAT outside NAT pool

NAT

NAT

NAT

1 mulnets

ip nat pool	IP NAT

-

-	-

5.1.2 ip nat

NAT **ip nat** **no** NAT

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

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

inside	
outside	

NAT

outside inside NAT inside outside

1 192.168.12.0/24 200.168.12.0/28 NAT

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

-

-	-

5.1.3 ip nat application

NAT **ip nat application** **no**

ip nat application source list *list-num* **destination**

list nat

list-num	,
dest-ip	NAT
tcp *dest-ip port-num*	tcp NAT
udp *dest-ip port-num*	udp NAT
dest-change *ip-addr port-num*	
src-change *ip-addr*	
vrf vrf_*name*	vrf vrf

NAT IP (DNS relay) EG/NPE

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

!

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

-

-	-

5.1.4 ip nat inside destination

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

ip nat inside destination list *access-list-number* **pool** *pool-name* [**vrf** vrf*_name*]

no ip nat inside destination list *access-list-number* **pool** *pool-name* [**vrf** vrf*_name*]

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

IP NAT

NAT TCP

1 10.10.10.100
WWW 10.10.10.1
10.10.10.2 NAT

no ip nat inside source list *access-list-number* [**vrf** vrf_*name*]

ip nat inside source static *local-ip global-ip* [**match** *interface-type interface-number*][**permit-inside**] [**vrf** vrf_*name*] [**netmask** *mask*]

no ip nat inside source static *local-ip global-ip* [**permit-inside**] [**match** *interface-type interface-number*][**vrf** vrf_*name*]

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

global-port [**match** *interface-type interface-number*] [**permit-inside**] [**vrf** vrf_*name*]

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

global-port [**match** *interface-type interface-number*] [**permit-inside**] [**vrf** vrf_*name*]

list access-list-number	NAT
interface interface-type interface-number	outside NAP g[( )] TJETQQq2

IP NAT
IP IP

outside IP
NAPT NAT

NAT NAPT
outside NAPT ISP
IP
IP
NAT NAPT permit-inside
inside no ip redirects inside

1 192.168.12.0/24
200.168.12.0/28 NAT

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

-

	-	-

5.1.6 ip nat outside source

NAT **ip nat outside source** **no**
NAT

ip nat outside source list *access-list-number* **pool** *pool-name* [**vrf** vrf_*name*]

no ip nat outside source list *access-list-number* [**vrf** vrf_*name*]

ip nat outside source static *global-ip local-ip* [**vrf** vrf_*name*]

no ip nat outside source static *global-ip local-ip* [**vrf** vrf_*name*]

ip nat outside source static *protocol global-ip global-port local-ip local-port* [**vrf** vrf_*name*]

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

NAT NAT

IP

DNS

NAT

1 92.168.12.0/24
192.168.12.0/24 92.168.12.0/24

inside outside NAT

5.1.7 ip nat pool

NAT **ip nat pool** no

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

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

no ip nat pool *pool-name*

show ip nat translations	IP NAT

-

-	-

5.1.8 ip nat translation

NAT ALG **ip nat translation** **no**
ALG

ip nat translation { **dns | ftp | h323 | pptp | sip | tftp** }

no ip nat translation { **dns | ftp | h323 | pptp | sip | tftp** }

dns	DNS

10.3(4t90)	

5.2

5.2.1 show ip nat translations

NAT show ip nat translations

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

gre	gre nat

Pro	UDP TCP ICMP gre GRE
Inside global	
Inside local	
Outside local	
Outside global	
timeout	NAT
vrf	vrf

clear ip nat translation	NAT
ip nat	NAT
ip nat inside destination	NAT
ip nat inside source	NAT
ip nat outside source	NAT
ip nat pool	IP NAT
show ip nat translations	IP NAT

-

-	-

6

6.1

6.1.1 load-monitor

load-monitor {uplink | mixed-link}

no load-monitor

uplink	
mixed-link	
no	

mllb load-interval *10*

mllb enable	
mllb policy	

-

10.3(4b8)	

6.1.5 mllb load-sharing original

IP

mllb load-sharing original

no mllb load-sharing original

original	IP
no	

IP

IP
mllb policy bandwidth

1 IP
mllb load-sharing original

mllb enable	
mllb policy	

-

10.3(4b7)	

6.1.6 mllb policy

mllb policy { **bandwidth** | **load** }

no mllb policy

bandwidth	
load	
no	

bandwidth load

mllb policy **no mllb policy** **bandwidth**

1 **load**

mllb policy load

2

no mllb policy

mllb enble	
bandwidth	

-

10.3(4b7)	
10.3(4b8)	**intelligence**
10.3(4b10)	l

6.1.7 mllb threshold

mllb threshold {*percent-upper* [lower *percent-lower*]} | [lower *percent-lower*]

no mllb threshold [lower]

percent-upper	
percent-lower	
no	lower 90
lower	

90

1-100

1 95 80

mllb threshold *95* lower *80*

mllb enable	

no	

1

over-load-protect enable

over-load-protect enable

over-load-protect interaface-group	

IP

10

increase

decrease

1

over-load-protect interface-group *1*

over-load-protect interface-group *1*

interaface-group	

-

10.3(4b8)	

6.1.10 over-load-protect load-interval

no

over-load-protect load-interval *seconds*

no over-load-protect load-interval

seconds	3-30
no	

5

5

1

6.2

6.2.1 show load-monitor configure

show load-monitor configure

show load-monitor configure

	-

B$

1

mllb enable	
mllb policy	

-

10.3(4b8)	

6.2.3 show mllb statistics

show mllb statistics

show mllb statistics

-	-

1

```
Ruijie# show mllb statistics
Interface                      Packets     Flows
-------------------------- -------- --------
GigabitEthernet 0/1            6750        879
GigabitEthernet 0/2            6580        871
```

threshold: 95

load-over-protect interface-group	

-

10.3(4b8)	

user-route user-group	
posterior-line	“ ”
prior-line	“ ”

-

10.3(4b10)	

7.1.2 link-sam conn-timeout

SAM SAM

SAM

SAM NPE SAM

	10.3(4b10)	

7.1.4

7.1.5 link-sam protocol

SAM SAM 3.90 SAM3.90
3.90

link-sam protocol {**new | old**}

no link-sam protocol

new	SAM 3.90
old	SAM 3.90

no

7.1.6 posterior-line

“ ” “ ”

posterior-line interface *interface-name*

no posterior-line interface *interface-name*

interface-name	“ ”
no	“ ”

“ ”

“ ” 32 “ ”

1 “ ” gi0/3 gi0/4

2 “ ” gi0/3 gi0/4

user-route user-group	
prior-line	“ ”

NPE

B$$FAHTN

7.1.7 prior-line

“ ” “ ”

prior-line interface *ijTŒTBT1*

user-route enable

no user-route enable

no	

no

original	IP

PBR> > > “
” “ ”

64

SAM SAM
“ ”

1

2

prior-line	“ ”
posterior-line	“ ”

NPE

10.3(4b10)

1 SAM

show link-sam statistics

1 SAM

link-sam enable	SAM
link-sam port	SAM TCP

link-sam conn-timeout	SAM
clear link-sam statistics	SAM

-

10.3(4b10)	

7.2.3 show user-route configure

show user-route configure

show user-route [**user-group** *user-group*

2

user-route enable	
user-route user-group	
Deny others	
posterior-line	“ ”
prior-line	“ ”

NPE

10.3(4b10)	

1

1.1.1 layer23 classify enable

3 SAM IP

3.1

3.1.1 layer23 sam-accip-relate enable

no

[no] layer23 sam-accip-relate enable

show vlan-group [*group name*]	vlan
vlan-enable	vlan tag vlan

-

10.3(4b7)	

4.2

4.2.1 show vlan-group

vlan

show vlan-group [*group name*]

group name	vlan

2 “ vlan1 ”

vlan1

Vlan-group	vlan
Police_flow	
Police_url	url
Flow	
Vlan id	vlan vlan id

name ***vid-list***	vlan

-

10.3(4b7)	

5

5.1

5.1.1 subscriber

subscriber *obj* **move to parent** *par_str*

Obj	
Par_str	

tt xx yy
tt tt yy

1 tt yy
Ruijie#**subscriber** *tt* **move to parent** *yy*

show subscerber brief	

-

10.3(4b10)	

5.1.2 subscriber allow

no

subscriber allow name privilege {none | { [webauth] [vpn] [login] }}

Name	

web vpn

subscriber allow name privilege none

none

1 “ 1 ” vpn login

“ ”

2 “ 1 ”

Ruijie(config)#

show subscriber [**all** | **static** | **dynamic** | **parent** [*name* | **root**]]	

-

10.3(4b10)	

5.1.3 subscriber export

subscriber export [***txt*** | ***csv***] *filename*

filename	

1 “ userfile ”

Ruijie#**subscriber export txt** userfile

-

10.3(4b

dym	
av-fc	
av-com	
vip	vip
rel	
pwd-e	
Au-deny	
Sslvpn	sslvpn
Vpn	vpn
Webauth	web
Bind	1 2 0
h-pwd	
On-line	
Ip	IP

name **parent**

network-group export [***txt*** | ***csv***

“ .txt ”

/ / 1, 1,192.168.197.1

“ .csv ” Microsoft Excel “ .csv ”

3

ip

“ .csv ” “ LAYER23-CLASSIFY-SCG.doc ” “

”

1 “ userfile ”

Ruijie#**network-group import txt** userfile

-

ip ip ip ip
“ / ” ip
“ / ” parent

1 ip “ network1 ” , 192.168.196.0 “
1 ” “ 1 ” “ ”

network1 / /
1 *192.168.196.0 255.255.255.0*

2 “ network1 ”

show network-group [**all	brief	parent[root**	name **]]**	
flow-rule num **vlan-group** vlan-group-name **subscriber** subscriber-name **network-group** network-group-name **app-group** app-group-name **time-range** time-rang-name	

-

10.3(4b8)	

6.1.5 network-group rename

network-group rename *oldname newname*

1 xx yy

Ruijie#**network-group rename** *xx yy*

-	-

-

10.3(4b8)	

6.2

6.2.1 show network-group

S

7

7.1

7.1.1 auth-subs

sam

sam-online recycle *time*

sam-offline recycle {off| *time}*

Time	

20 sam

8

8.1

8.1.1 app-add

app-add *app-name*

-

10.3(4b8)	

8.1.6 identify-application custom

no

[**no**] **identity-application custom name** *software-name* **class** *class-name* {**tcp** | **udp**} **sport** *sport-low sport-high* **dport** *dport-low dport-high* [**sip** *sip-low sip-high* **dip** *dip-low dip-high*]

dport

software-name	
class-name	
sport-low	0-65535 any
sport-high	0-65535 any
dport-low	0-65535 any
dport-high	0-65535 any

200 udp

3 myqq
im 111 2020 udp

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group**	

-

-	-

-

[**no**] **identity-application enable**

-	-

1

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range**	

-

10.3(4b7)	

8.1.12 identify-application key

identify-application key *app-name*

app-name	

1 FTP

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	

-

[**no**] **identify-**

1

app route enable	
identify-application enable	
app route *app-name* { **interface** *interface-name* | **interface-group** *group-name*} [**time-range** *time-rang-name*] [**enhance**]	

-

10.3(4b10)	

8.1.18 identify-application signature update

identify-application signature update [**sub** *sub-num*]

sub-num	1 – 10

1

-

10.3(4b7)	

8.1.19 identify-application web-cache enable

no

[**no**] **identify-**

	10.3(4b10)	

8.2

8.2.1 show identify-application

show identity-application

-	-

1

-	-

-

10.3(4b7)	

8.2.4 show identify-application group-state

show identify-application group-state

-	-

1

identify-application route enhance enable	
identify-application http route enhance enable	HTTP

-

10.3(4b8)	

8.2.9

1

-	-

-

10.3(4b8)	

8.2.11 show identify-application userdef-rule

show identity-application userdef-rule

-	-

-

10.3(4b7)	

8.2.12 show identity-application version

sh(xŸ

	10.3(4b7)	

8.3

- identify-application clear key-inhibitive group

8.3.1 identify-application clear key-inhibitive group

identi

1 “ P2P ” “ ”

Router(config)#**app route enable**

app route	

-

10.3(4b8)	

9.1.3 app route priority

app route *app-name* **priority** { **increase** | **decrease** } [*1-1999*]

app-name	, “ ” “ ” “ ” “ ”

10.3(4b8)	

9.1.4 clear app route statistics

clear app route statistics [*app-name*]

app-name	

show app route statistics	

-

10.3(4b8)	

9.1.5 interface-group

no

interface-group *interface-group-name*

no interface-group

interface-group-name	

128

UP UP

1 “

ip-address	

WAN

WAN WAN LAN

1

show app route

show app route statics

show app route *app-name* **session**

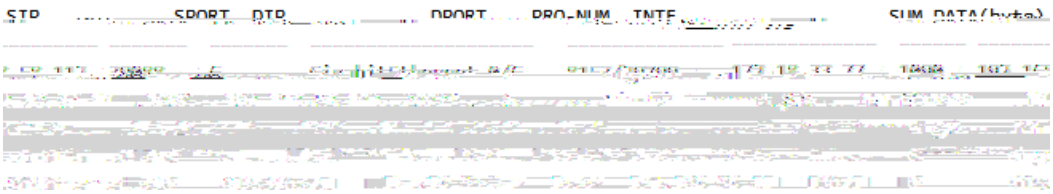
[illegible]

1

CLASS	(/ / /)
INTERFACE(GRPUP)	
TIME-RANGE	time-range
STATE	

2

3 “HTTP ”



10

10.1

10.1.1 flow-pre-mgr enable

[no] flow-pre-mgr enable

1

-

10.1.2 flow-pre-mgr priority-swap

flow-pre-mgr priority-swap *rule-id1 rule-id2*

rule-id1	1~50
rule-id2	1~50

rule-id	1~50
acl-number	ACL 1~199
total-limit-number	ACL 0

1 ACL IP

2 action block by-pass

trust ACL

3

4 ACL IP IP IP IP

5 ACL

6 ACL ACL IP IP
ACL

7

1 ACL IP 220.200.20.20
30

120

2 *120*
30

trust /
IP

3

“ UserGroupA ” 5000 “ UserGroupA ”
IP 300

1

-	-

10.3(4b10)p1	

10.1.7 ip upload-pps-limit specify A.B.C.D limit

IP

ip upload-pps-limit specify *A.B.C.D* **limit** *limit-num*

no ip upload-pps-limit specify *A.B.C.D*

A.B.C.D	IP
limit-num	IP

0

ip new-session-limit virtual-host limit *limit-num*

no ip new-session-limit virtual-host

limit-num	IP

0

1 PC DOS/DDOS
IP
IP IP

2 IP

1

-	-

10.3(4b11)p4	

10.1.10 ip new-session-limit real-host limit

IP

ip new-session-limit real-host limit *limit-num*

no ip new-session-limit real-host

limit-num	

0

1 PC DOS/DDOS
IP
IP IP

2 IP

1

IP

IP

IP

2 IP

1 IP 192.168.1.2 1000

-	-

10.3(4b11)p4	

10.2

10.2.1 show flow-pre-mgr ip-info

IP IP í

-	-

-

-	-

-

10.2.4 show ip new-session-limit

show ip new-session-limit

-	-

10.3(4b11)p4	

10.2.5 show ip new-session-limit attack

show ip new-session-limit attack

11

11.1

11.1.1 active-limit

TCP UDP no

active-limit {tcp-enable | udp-enable}

no active -limit {tcp-enable | udp-enable}

tcp-enable	TCP
udp-enable	UDP

flow-control

1

P2p

2 4

UDP

10.3(4b8)	

11.1.2 auto-pir

PIR **no**

auto-pir enable [interval *NUM* **[root-rate** *Percentage***]] [exclude-pass]**

no auto-pir enable

NUM	1 1 3600
Percentage	PIR ✧ PIR CIR PIR ✧ 10 PIR ✧ 90 1 99 90 80% PIR 90% PIR 80% 90%
exclude-pass	**root-rate** **exclude-pass** pass

NPE

channel-tree

show flow-control	**Inbound** **Outbound** PIR

10.3(4b7)	

11.1.4 channel-default

no

channel-default *channel-name*

no channel-default

channel-name	

pool *pool_name*	NPE
auto	( ) Per-net **per-cir** **limit** **cir**
reverse	( ) Per-net (IP) VPN (IP) Per-net

1.

11.1.7 comment

no

[**no**] **comment** *Comment_String*

Comment_String	127

flow-control

“ ”

flow-control	

10.3(4b8)	

11.1.8 flow-control

( )

no

flow-control {global | *name* **[update bandwith**_*In_bandwith Out_bandwith* **[perpir-update]] }**

no flow-control *name*

Log

[no] flow-control log on

flow-policy	wan

10.3(4b7)	
10.3 4b8	update global

11.1.9 flow-policy

wan

no

flow-policy *name*

no flow-policy

name	

Ruijie(config-if-GigabitEthernet 0/1)#

flow-control	

10.3(4b7)	

11.1.10 flow-rule

no

flow-rule *num* **[vlan-group** *vlan-group-name***] [subscriber** *subscriber-name***] [auth-group** *auth-group-name***] [network-group** *network-group-name***] [app-group** *app-group-name***] time-range** *time-rang-name* **[vpn]**

flow-rule *num* **[session-limit** *session-num*] **action** {**drop** | **log-drop** | **pass** [**in-channel** *in-channel-name*] [**out-channel** *out-channel-name*]} **[default]** [**commet** *string*]

[no] flow-rule *num* **disable**

no flow-rule *num*

num	1 8192
vlan-group-name	vlan-group any
subscriber-name	subscriber any
auth-group-name	any
network-group-name	network-group any
app-group-name	app-group any

time-rang-name	time-rang
session-num	0 4000000 0
in-channel-name	in-channel
out-channel-name	out-channel
string	
disable	
vpn	VPN VPDN VPN
default	

1 num

2

WAN (WAN)

3 **Action** pass **in-channel** **out-channel** **in** **out**

4 vlan > IP > > IP >

1 group1 3M 300

3 group1 1

time-range *name*	
vlan-group *name*	vlan-group
subscriber static name	subscriber
network-group name	network-group
identify-application custom name	app-group

10.3(4b7)	
10.4(4T90)	**disable**

11.1.11 flow-template

1

channel-group *channel-name*

1 tpl-fixlimit

```
Ruijie#show flow-control tpl-fixlimit
flow-control tpl-fixlimit
 comment                                    (  )
 !
 channel-tree inbound
  auto-pir enable interval 1 root-rate 90
  !
  channel-group root parent null cir 10000 pir 10000 pri 4 schedule-type per-net
per-mask 32 per-cir 10 per-pir 10000 limit 1000
  channel-group default parent root pir 10000 pri 4 schedule-type per-net per-mask 32
per-cir 1 per-pir 10000 limit 1000 auto
  channel-default default
 !
 channel-tree outbound
  auto-pir enable interval 1 root-rate 90
  !
  channel-group root parent null cir 10000 pir 10000 pri 4 schedule-type per-net
per-mask 32 per-cir 10 per-pir 10000 limit 1000
  channel-group default parent root pir 10000 pri 4 schedule-type per-net per-mask 32
per-cir 1 per-pir 10000 limit 1000 auto
  channel-default default
 !
```

2

3

CIR	
PIR	
Pri	

Pool	
Rate	
Type	
Limit	Per-IP
State	Normal Green Red Per-IP NA
Child	Pool 1
Active	Per-IP
Kill flow	Per-

12.1.2 flow-audit vpn

VPN

flow-audit vpn {inside-ip | outside-ip}

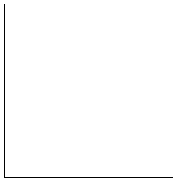
show flowrate aption {**global** | **interface** *interface-name* **| bridge** *bridge-name*} [[**subscriber** *subscriber-name*] [**subscriber-group** *subscriber-group*] | [**auth-subs-group** *auth-group-name*] [**auth-subs** *auth-name*]] [**ip** *ip-address*] [**ap8lion -group** *applii -group*] [{[**by-group**] | [**ap8lion -ty8e** *application-ty8e*] [{**by-ty8e** | **ap8lion** *applcati -name*}]}] [{**recent** *hour* **| minute-interval** *begin-year begin-mh begin -day begin-hour:begin-mnute* **to** *end-year end-mh end -day end-hour:end-mnute* **|** {[**month** | **week**] **day-interval** *begin-year begin-month begin-day* **to** *end-year end-mh end -day* | **day** *begin-year begin-mh begin -day*} [**hour-interval** *begin-hour1* **to** *end-hour1* [*begin-hour2* **to** *end-hour2*]}] [**order-by** {{**pass** | **drop** } {**upload** | **download**} | **ap8lion** } {**de** | **asc**}[**top** *n*]] [**detail**]

interface-name	
bridge-name	
subscriber-name	
subscriber-group	
auth-group-name	
auth-subs	
Ip-address	IP
application-group	
application-type	
application-name	

- ✓ global
  interface bridge
  by-group
  by-type

  eg: show flowrate application global
  show flowrate application interface gi0/3 gi0/3
  show flowrate application interface gi0/3 by-group
  gi0/3
  show flowrate application interface gi0/3 by-type gi0/3

- ✓ minute-interval show fl



detail

hour-interval 1 2

	10.3(4b8)	minute-interval week month day

12.2.2 show flowrate channel

show flowrate channel [**channel-group** *channel-group*] [[**minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute]* | [{[**month** | **week**] **day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* |**day** *begin-year begin-month begin-day*} [**hour-interval** *begin-hour* **to** *end-hour* [*begin-hour2* **to** *end-hour2*

begin-hour2	2
end-hour2	2
n	n

-	-

NPE day-interval recent time-interval day month week hour-interval

10.3(4b7)	
10.3(4b8)	minute-interval week month day

end-year end-month end-day end-hour:end-minute **|** [**month** | **week**] **time-interval** *begin-year begin-month begin-day begin-hour* **to** *end-year end-month end-day end-hour* **|** {[**month** | **week**] **day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-day*}[**hour-interval** *begin-hour* **to** *end-hour* [*begin-hour2* **to** *end-hour2*]] } [**detail**]]

interface-name	
hour	
begin-year	
begin-month	
begin-day	
begin-hour	
begin-minute	
end-year	
end-month	
end-day	
end-hour	
end-minute	
begin-hour2	2
end-hour2	2

eg: show flowrate global month day-interval 2012 1 5 to 2012 1 15
2012 1 5 2012 1 15
show flowrate global week time-interval 2012 1 5 8 to 2012 1 15 18
2012 1 5 8 2012 1 15 18

	10.3(4b8)	minute-interval week month day

12.2.4 show flowrate ip

show flowrate ip {**global** | {**interface** *interface-name* **| bridge** *bridge-name*} [**by-vpn**]} [**subscriber-group** *subscriber-group* **by-group** | [[**subscriber-group** *subscriber-group*] [**subscriber** *subscriber-name*] [**vip**] | {**by-auth**} [**auth-subs-group** *auth-group-name*] [**auth-subs** *auth-name*]] [**ip** *ip-address*] [**application** *application-name*] [**application-group** *application-group*] [**application-type** *application-type*]] [{**recent** *hour* **| minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour: end-minute* | {[**month** | **week**] **day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-*

25 0 0 1 71.16 ETBT8.11 Tc[(to)] TJETBT/F13 10.56 Tf 0 0 1 20)4(te)] TJETOq297.29 741.94 239.81 20.064 r Tm[(m)26(ont)4(h

end-hour	
end-minute	
begin-hour1	

detail

hour-interval 1 2

1 gigabitEthernet 0/1

12.2.5 show flowrate ip-application

IP IP

show flowrate ip-application {**global** | {**interface** *interface-name* **| bridge** *bridge-name*} [**by-vpn**]} [[**subscriber** *subscriber-name*] [**subscriber-group** *subscriber-group*] [**vip**] | {**by-auth**} [**auth-subs-group** *auth-group-name*] [**auth-subs** *auth-name*]] [**ip** *ip-address*] [**application** *application-name*] [**application-group** *application-group*] [**application-type** *application-type*] [**order-by** {{**pass** | **drop**} {**upload** | **download**} | **ip** | **application** | **subscriber-group** | **subscriber** | **auth-subs-group** | **auth-subs** } {**desc** | **asc**}[**top** *n*]]

interface-name	
bridge-name	
subscriber-name	
auth-group-name	
auth-name	
Ip-address	IP
application-name	
application-group	
application-type	
n	n

IP

✓ global IP interface bridge IP

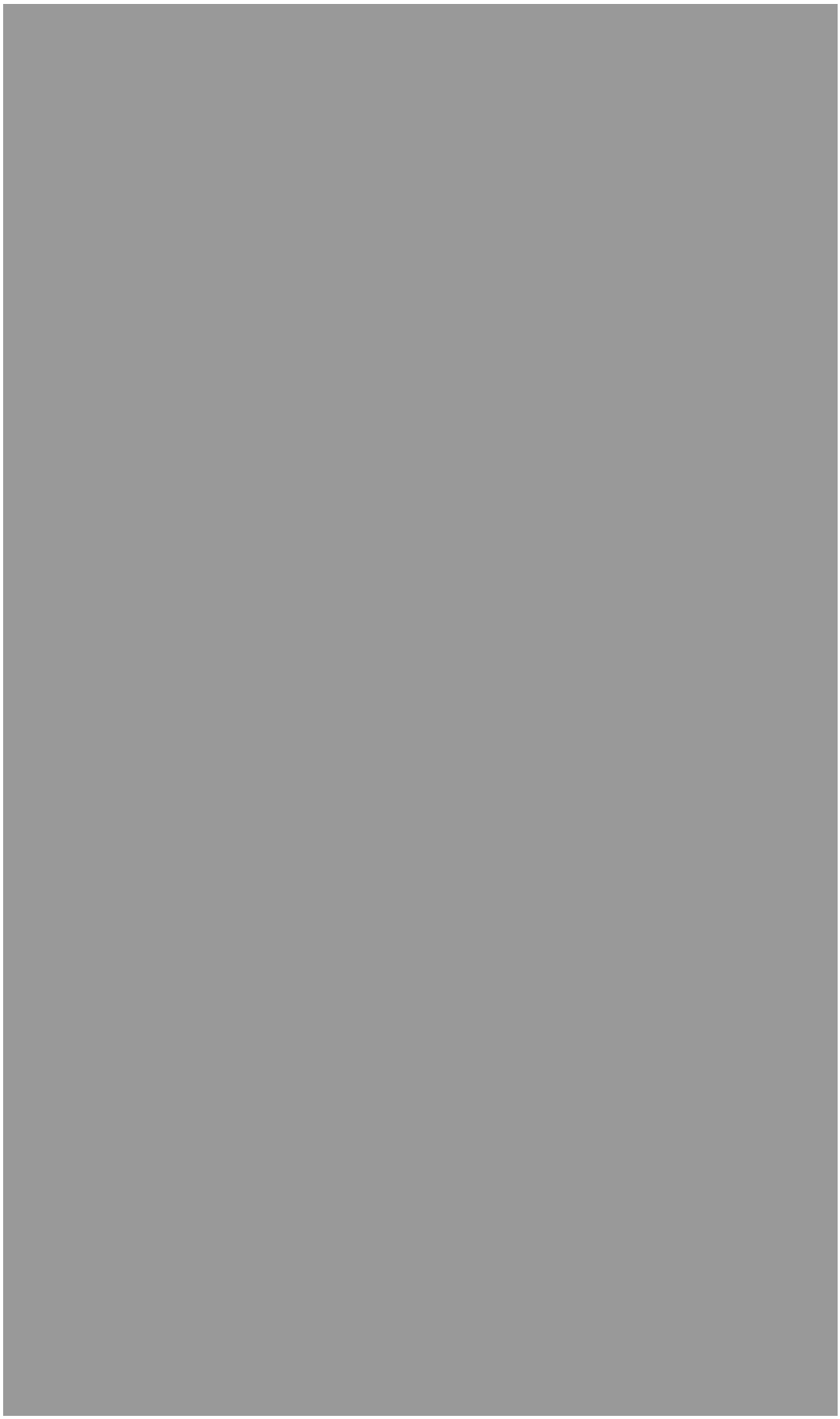
download} | **ip** | **subscriber-group** | **subscriber** | **auth-subs-group** | **auth-subs** } {**desc** | **asc**}[**top** n]]

interface-name	
bridge-name	
subscriber-name	
subscriber-group	
auth-group-name	

begin-day end-year end-month end-day

eg: show online ip global ip 192.168.1.1 month day-interval 2012 1 5 to 2012 1 15
ip 192.168.1.1 2012 1 5 2012 1 15

3 gigabitEthernet 0/1 2010 1 8 2010 1 11
1 3 ip



application-type	
start-record	
record-num	

global IP
interface bridge IP
ip,subscriber,subscriber-group,application,application-group
order-by top n
n

1 bridge-map0 IP

end-day	
end-hour	
end-minute	
begin-hour	
end-hour	
begin-hour2	2
end-hour2	2

IP

✓ global IP IP
interface bridge
IP IP
eg: show online statistics global IP
show online statistics interface gi0/3 gi0/3 IP

✓ minute-interval begin-year begin-month begin-day begin-hour begin-minute end-year end-month end-day end-hour:end-minute
1 IP
;
eg: show online statistics interface gi0/3 minute-interva 2012 2 1 9:20 to 2012 2 1 9:50 gi0/3 2012 2 1 9 20 2012 2 1 9 50 IP

✓ month week t90
day-interval begin-year begin-month begin-day end-year end-month end-day

eg: show online statistics global month day-interval 2012 1 5 to 2012 1 15
2012 1 5 2012 1 15 IP

✓ recent hour 0~24 recent

eg: show online statistics interface gi0/3 recent 1 gi0/3
IP

✓ day begin-year begin-month begin-day

eg: show online statistics global day 2012 2 12 2012 2 12
IP

hour-interval 1 2

1 bridge-map0 IP

2	bridge-map0	IP
3	1	IP

49 80 522
2011-12-28 8

-	-

NPE minute-interval time-interval recent day month week hour-interval

10.3(4b7)	
10.3(4b8)	minute-interval week month day

13 URL

13.1

13.1.1 class

URL URL no
URL URL

[**no**] **class** *class-name*

class-name	URL

13.1.2 comment

URL URL no

comment *comment-string*

no comment

comment-string	URL URL 100

URL URL

13.1.3 regexp

URL URL no
URL URL

[**no**] **regexp** *url-regexp*

url-regexp	URL

URL

1 URL “ OBJA ” URL ieft URL

-	-

-

10.3(4b7)	

13.1.4 url

URL k ħ ˜

[no] url-audit exact-filter

url-audit except-regexp *[regexp]*

no url-audit except-regexp

[no] url-audit except-postfix

url-audit optimize-cache *[time]*

[no] url-audit optimize-cache

regexp	URL
time	time URL URL

1 **url-audit except-regexp**
" .*=.*&.*=.* "

2

4 60s IP URL URL

-	-

-

10.3(4b10)	

13.1.6 url-class

URL URL URL

[**no**] **url-class** *class-name*

class-

URL

10.3(4b7)	

13.1.8 url-object

URL URL

[**no**] **url-object** *obj-name*

{*auth-subs-name* | **any** } } **time-range** {*time-name* | **any**} **from** *url_a* **to** *url_b* [**comment** *comment-string]*

no url-redirect-rule *rule-id*

URL

url-redirect-rule priority-swap *rule-id1 rule-id2*

rule-id	URL ID 1~1000
subs-name	URL
auth-subs-name	URL
time-name	URL
url_a	URL, URL ‘ ? ’ ‘ > ’
url_b	URL, URL ‘ ? ’ ‘ > ’
comment-string	URL
rule-id1	URL ID
rule-id2	URL ID

-	-

-

10.3(4b10)	

13.1.10 url-rule

URL

no

[no] url-rule audit-default-enable

URL no

url-rule *rule-id* **url-object** *obj-name* **time-range** {*time-name* | **any**} **action** {**deny** | **permit**} [**audit**] [**comment** *comment-string]*

no url-rule *rule-id*

URL

url-rule priority-swap *rule-id1 rule-id2*

rule-id	URL ID 1~1000
obj-name	URL URL
time-name	URL
comment-string	URL
rule-id1	URL ID
rule-id2	URL ID

“ ”

“ ”

-	-

-

10.3(4b8)	

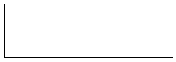
13.2

13.2.1 show url-class user-cfg

URL

show url-class user-cfg *[class-name]*

class-name	



policy-name	
subs-name	
auth-subs-name	

URL

Ruijie#show url-rule **content-policy**

1.

2. DHCP

3. DHCP Relay

4. DNS

5. NTP

6. SNTP

7. UDP-Helper

8. DDNS

9. DNS

10. DNS-Proxy

1

1.1

1.1.1 ping

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

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

2 5 100Byte IP

Ping

ping ping ping

2

5 100Byte IP

‘ ! ’ ‘ . ’ ping

ping

ping

DNS

ping

ping

Ip-address	IPv4
number	e σ

68.17 q82 7 40 msec 40 msec 40 msecn

2 DHCP

2.1.1 bootfile

DHCP DHCP **bootfile** **no**

bootfile *file-name*

no bootfile

file-name	

DHCP

DHCP DHCP DHCP TFTP **next-server**

router.conf

ip dhcp pool

2.1.2 client-identifier

DHCP DHCP

client-identifier **no**

client-identifier *unique-identifier*

no client-identifier

DHCP

unique-identifier

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

2.1.3 client-name

DHCP DHCP **client-name**
no DHCP

client-name *client-name*

no client-name

client-name	DHCP ASCII river DHCP river.i-net.com.cn

DHCP

DHCP DHCP

2.1.4 default-router

DHCP DHCP **default-router** **no**

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

no default-router

ip-address	IP

ip- -address8

ip-address	DNS IP
ip- -address8	8 DNS
use-dhcp-client *interface-type interface-number*	RGOS DHCP DNS DHCP DNS

DNS

DHCP

DNS DHCP DNS DNS

RGOS DHCP DNS DHCP

DHCP DNS 192.168.12.3

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

2.1.6 domain-name

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

domain-name *domain-name*

no domain-name

domain-name	DHCP

ip-address	DHCP IP
netmask	DHCP

IP ; Ṛ Ư# ف

DHCP ARP

DHCP

DHCP ARP DHCP
ARP

DHCP ARP ARP

pool1 ARP

ip dhcp refresh arp k .

ARP ARP DHCP
ARP

ARP

update arp	ARP

2.1.11 ip address dhcp

PPP HDLC FR DHCP IP

ë

dns-server

ip dhcp pool	DHCP DHCP

ip dhcp ping timeout	DHCP ping ping
show ip dhcp conflict	DHCP

2.1.14 ip dhcp ping timeout

DHCP ping

ip dhcp ping timeout **no**

ip dhcp ping timeout *milli-seconds*

no ip dhcp ping timeout

milli-

2.1.15 ip dhcp pool

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

ip dhcp pool *pool-*

2.1.16 lease

DHCP DHCP

lease **no** 1 365 23 59

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

no lease

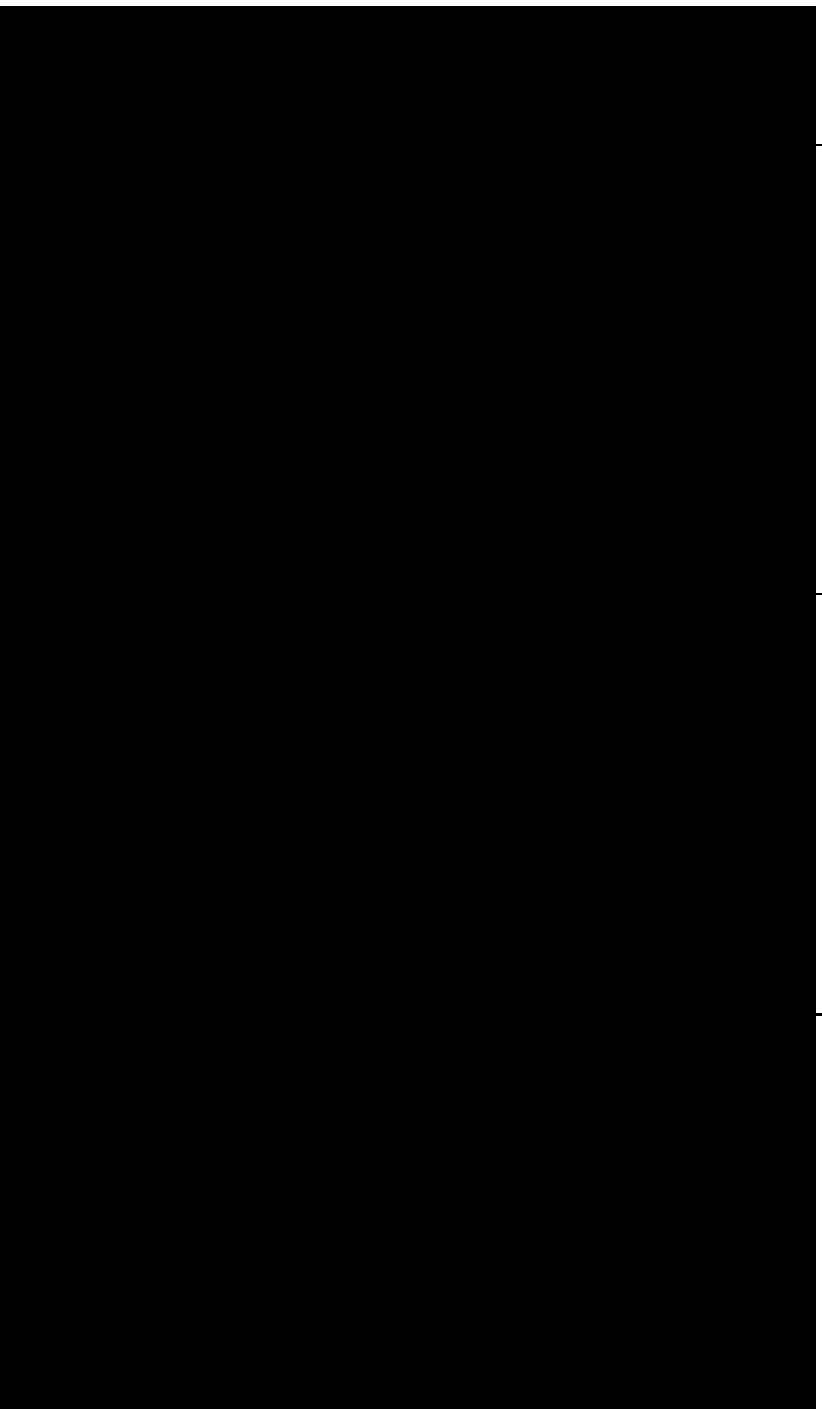
days	
hours	
minutes	

infinite

netbios-node-type *type*

no netbios-node-type

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



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

2.1.21 option

DHCP DHCP **option** **no** option

option *code* { **ascii**

33 DHCP
DHCP 1 172.16.12.0
192.168.12.12 2 172.16.16.0 192.168.12.16

ip dhcp pool	DHCP DHCP

2.1.22 service dhcp

DHCP **service dhcp**
no DHCP

service dhcp

no service dhcp

DHCP

DHCP IP DNS
DHCP DHCP
DHCP DHCP DHCP

DHCP

DHCP

show ip dhcp server statistics	DHCP

2.2

- **clear ip dhcp binding**
- **clear ip dhcp conflict**
- **debug ip dhcp client**
- **debug ip dhcp server**
- **clear ip dhcp server statistics**
- **show dhcp lease**
- **show ip dhcp binding**
- **show ip dhcp conflict**
- **show ip dhcp server statistics**

2.2.1 clear ip dhcp binding

DHCP **clear ip dhcp binding**

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

*	DCHP
ip-address	IP

DHCP DHCP **no ip dhcp pool**

IP 192.168.12.100 DHCP

show ip dhcp binding	DHCP

2.2.2 clear ip dhcp conflict

DHCP **clear ip dhcp conflict**

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

*	DCHP
ip-address	IP

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

ip dhcp ping packets	DHCP ping
show ip dhcp conflict	DHCP

2.2.3 clear ip dhcp server statistics

DHCP **clear ip dhcp server statistics**

dhcp client

dhcp

r ?+X Ï n »+X ¾

2.2.5 debug ip dhcp server

DHCP Server **debug ip dhcp server**

show dhcp lease

ip

show dhcp lease

IP IP
IP

show ip dhcp binding

IP address	DHCP IP
Hardware address	DHCP client identifier
Lease expiration	Infinite IDLE DHCP
Type	Automatic Manual

clear ip dhcp binding	DHCP

2.2.8 show ip dhcp conflict

DHCP EXEC **sh**

DHCP

show ip dhcp conflict

IP address	DHCP IP
Detection Method	
dhcpd excluded ipaddress	

clear ip dhcp confict	DHCP

2.2.9 show ip dhcp server statistics

DHCP EXEC **show ip dhcp server statistics**

show ip dhcp server statistics

3.1.2 ip helper-address

DHCP no

DHCP

/

dhcp DHCP

vrf
vrf vrf
vrf vrf

vrf 61.154.26.49
vrf local 192.168.197.1

service dhcp	DHCP

3.1.3 ip dhcp relay information option dot1x

dhcp option dot1x no **dhcp option dot1x**

DHCP relay 802.1x

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

3.1.4 ip dhcp relay information option dot1x access-group

dhcp option dot1x acl no **dhcp option dot1x acl**

ACL

ACL ACE

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

3.1.5 ip dhcp relay information option82

ip dhcp relay information option82 no **ip dhcp relay information option82**

option dot1x

Service dhcp

Service dhcp	DHCP

3.1.7 ip dhcp relay suppression

DHCP no DHCP
DHCP relay

DHCP request relay

1 relay

4 DNS

4.1

4.1.1 ip domain-lookup

DNS no DNS

ip domain-lookup

no ip domain-lookup

DNS

DNS DNS

DNS

show hosts	DNS

-

4.1.2 ip name-server

IP

no

ip name-server *ip-address*

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

ip-address	IP

DNS Server IP DNS Server
Server Server DNS

6 DNS Server ip-address
DNS

show hosts	DNS

-

4.1.3 ip host

IP no

ip host *host-name ip-address*

no ip host *host-name ip-address*

host-name	

ip-address	IP

no ip host host-name ip-address

show hosts	DNS

-

4.1.4 clear host

clear host [*host-name*]

host-name	

1 ip host 2 DNS DNS

-IP

show hosts	

-

4.1.5 show hosts

DNS

show hosts

DNS

ip host	IP
ip name-server	DNS

-

5 NTP

5.1 NTP

NTP

- **no ntp**
- **ntp access-group**
- **ntp authenticate**
- **ntp authentication-key**
- **ntp disable**
- **ntp master**
- **ntp server**
- **ntp synchronize**
- **ntp trusted-key**
- **ntp update-calendar**

5.1.1 no ntp

ntp ntp

no ntp

NTP

NTP NTP NTP
NTP

NTP

no ntp

ntp server	NTP

5.1.2 ntp access-group

NTP no

ntp access-group {**peer**|**serve**|**serve-only**|**query-only**} *access-list-number*| *access-list-name*

no ntp access-group {**peer**|**serve**|**serve-only**|**query-only**}

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

	NTP

peer

NTP

peer serve serve-only query-only

1

2

ip access-list	IP

5.1.3 ntp authenticate

NTP NTP no

ntp authenticate

no ntp authenticate

NTP

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

ntp authentication-key	
ntp trusted-key	

5.1.4 ntp authentication-key

NTP NTP no NTP

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

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

key-id	ID 1 4294967295
key-string	
enc-type	0 7

md5 key-id

ntp trusted-key key-id

1024

ID 6

ntp authenticate	
ntp trusted-key	
ntp server	NTP

5.1.6 ntp master

NTP

key-id	ID 1 4294967295

NTP ID

ntp authenticate	
ntp authentication-key	NTP
ntp server	NTP

5.1.10 ntp update-calendar

NTP

no

ntp update-calendar

no ntp update-calendar

NTP

NTP NTP

NTP

5.2

- **debug ntp**
- **show ntp status**

5.2.1 debug ntp

NTP no

debug ntp

no debug ntp

NTP

NTP

5.2.2 show ntp status

NTP

show ntp status

NTP NTP

NTP

6 SNTP

6.1

- **sntp enable**
- **sntp server**
- **sntp interval**

6.[(64o[(2ETBT/F.06 0 0 1 62.4 565.39 Tm[( )] T14.04 Tf9.26 0 0 1 62.4 565s0.2 nt)4(sn39 Tm[( )]

RGOS10.0

6.1.2 sntp server

SNTP Server SNTP NTP Server
internet NTP Server

sntp server ip-addr

no sntp server

ip-addr NTP/SNTP IP

NTP/SNTP

show sntp SNTP

show sntp	SNTP
sntp enable	SNTP

RGOS10.0

6.1.3 sntp interval

SNTP Client NTP/SNTP Server

sntp interval *seconds*

no sntp interval

seconds “ ” 60 --65535

1800s

show sntp SNTP

sntp enable	SNTP
show sntp	SNTP
clock update-calendar	

RGOS10.0

sntp enable

show sntp SNTP

sntp enable	SNTP
show sntp	SNTP

RGOS10.0

7.1.2 ip helper-address

UDP no UDP

ip helper-address *address*

no ip helper-address *address*

address	UDP 20

UDP

20
, UDP-Helper UDP

no ip helper-address

UDP :

ip forward-protocol	UDP

NPE

7.1.3 ip forward-protocol

UDP **no**
UDP

udp-helper enable	UDP
ip forward-protocol	UDP

-

8 DDNS

8.1

8.1.1 peanut username

DDNS no

[**no**] **peanut username** *name* **password** *word*

name	
word	

9 DNS

9.1

9.1.1 smartdns

IP no IP

[**no**] **smartdns** *A.B.C.D interface* **map** *X.X.X.X*

A.B.C.D	IP
Interface	
X.X.X.X	IP

IP

1 IP 192.168.1.100 gigabitethernet 0/1 202.101.99.55 gigabitethernet 0/2 58.66.101.33

192.168.1.100 *gigabitethernet 0/1* map *202.101.99.55*

192.168.1.100 *gigabitethernet 0/1* map *58.66.101.33*

smartdns enable	DNS

-

1.0	

9.1.2 smartdns enable

DNS no DNS

[**no**] **smartdns enable**

-	-

DNS

1 DNS

Smartdns	DNS

-

1.0	

10 DNS-Proxy

10.1

10.1.1 blacklist

dns-proxy

dns-proxy dns-proxy

1 dns-proxy

TJETq67.111.666.94W60.q[(.8].TJETq67104.516.19.62.88.63.024.reW* n45W* nE1.9.96.Tf1.0.0.1.782D2.0.0.107A3.384.63

1 gi0/1 gi0/1 dns

dns-proxy	dns-proxy
track	track

-

10.3(4b8)	

10.1.5 load-balance

dns-proxy
load-balance {load | bandwidth}
no load-balance

load	
bandwidth	
no	

load

DNS-Proxy

dns-proxy

1 dns-proxy dns-proxy

2 dns-proxy dns-proxy

-

10.3(4b8)	

10.2

10.2.1 show dns-proxy configure

dns-proxy

show dns-proxy configure

dns-proxy

1 dns-proxy

```
Ruijie#show dns-proxy configure
>Dns-proxy load-balance: load
------------------------------------------------------------

>Dns-proxy whitelist
------------------------------------------------------------
Type:source-ip
Source-ip: 192.168.1.1 192.168.1.10

Type:name-server
Name-server: 8.8.8.8

>Dns-proxy blacklist
------------------------------------------------------------
Start-ip              End-ip
---------------   ---------------
```

202.112.112.114 220.112.112.120
114.110.211.1 114.110.211.100
121.244.10.1 121.244.10.255

dns-proxy enable	dns-proxy
dns-proxy	dns-proxy

-

10.3(4b8)	

10.2.2 show dns-proxy configure blacklist

dns

show dns-proxy configure blacklist

dns

1 dns

```
Ruijie#show dns-proxy configure blacklist
>Dns-proxy blacklist
------------------------------------------------------------------
Start-ip End-
```

dns-proxy enable	dns
blacklist	dns

-

10.3(4b8)	

10.2.3 show dns-proxy configure whitelist

dns-proxy

show dns-proxy configure whitelist

-

1.

2.

3. RIP

4. OSPF2

5.

1

route-map

1.1.2 ip local policy route-map

ip local policy route-map no

ip local policy route-map *route-map*

no ip local policy route-map

route-map	

1

set interface , set interface

192.168.217.10 **serial**

set interface serial

access-list	
route-map	
set ip next-hop	
set ip default next-hop	

WCMP 4 ECMP
32 ARP

nexthop,
EF0 nexthop

2

2.1

2.1.1 route-auto-choose

no

[**no**] **route-auto-choose** {**cnc** | **cnii | cernet | cmcc**} *interface next-hop* [**tag** *num*] [*distance*]

interface	
next-hop	ip
num	tag
distance	metric
cnc	
cnii	
cernet	
cmcc	

-

3 RIP

3.1

3.1.1 address-family RIP

RIP

address-family **no**

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

vrf *vrf-name*	VRF

RIP

address-family

(config-router-af)# VRF RIP VRF

RIP VRF RIP

exit-address-family **exit**

vpn1 VRF vrf RIP

RIP

-

RIPv2

RIPv1

RIPv2

version	RIP v1 v2 v1&v2

3.1.3 default-metric (RIP)

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

default-metric *metric*

no default-metric

metric	1 16 metric 16 RGOS

1

redistribute

RIP

RIP

RIP

RIP

distance	
ip-address	
wildcard	

120

RIP

IP

68.12.1

3.1.6 distribute-list in

distribute-list

in

distribute-li *t-number | name*] | **prefix** *prefix-list-name* [**gatewah8 0 0 1 482.98**

3.1.7 distribute-list out RIP

RIP

key chain	

ip rip authentication key-chain

RIP

2 **ip rip default-information**

ethernet0/0

default-information originate	RIP

3.1.13 ip rip receive enable

RIP RIP **ip rip receive enable** **no** RIP RIP

ip rip receive enable

no ip rip receive enable

RIP

RIP **no** **default**

RIP

GigabitEthernet 0/0 RIP

ip rip send enable	RIP
passive-interface	RIP

3.1.14 ip rip receive version

RIP RIP **ip rip receive version** **no**

ip rip receive version [**1**] [**2**]

no ip rip receive version

1	RIPv1
2	RIPv2

version

vesion

RIP RIPv1 RIPv2 version

GigabitEthernet 0/0 RIPv1 RIPv2

version

ip rip receive enable	RIP
passive-interface	RIP

3.1.16 ip rip send version

RIP RIP **ip rip receive version** **no**

ip rip send version [**1**] [**2**]

no ip rip send version

1	RIPv1
2	RIPv2

version

vesion

RIP RIPv1 RIPv2 version

GigabitEthernet 0/0 RIPv1 RIPv2

version	RIP

3.1.17 ip rip v2-broadcast

RIP version 2

ip rip v2-

ip split-horizon

no ip split-horizon

IP

X.25

IP

RIP

show ip rip

neighbor RIP

GigabitEthernet 0/0 RIP

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

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

ip-address	IP
ip-network-mask	IP

RIP

ip summary-address rip RIP

RIPv2

GigabitEthernet 1/0 172.16.0.0/16

3.1.20 network (RIP)

RIP **network**

no

network *network-number* [*wildcard*]

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

network-number	IP RIP
wildcard	IP 0 1

network-number *wildcard*

RIP

wildcard RGOS

RIP

RIP RIP

RIP

RIP 192.168.12.0/24

172.16.0.0/24

3.1.21 neighbor (RIP)

RIP IP **neighbor** **no**

neighbor *ip-address*

no neighbor

ip-address	IP

RIPv1 IP 255.255.255.255 RIPv2 224.0.0.9

passive-interface

RIP passive

3.1.22 offset-list(RIP)

RIP metric **offset-list** **no** offset

offset-list access-list-number {**in** | **out**} *offset* [*interface-type interface-number]*

no offset-list access-list-number {**in** | **out**} *offset* [*interface-type interface-number*]

access-list-number	acl
in	acl metric
out	acl metric
offset	metric
interface-type	acl
interface-number	

offset

RIP offset-list offset-list
RIP offset-list metric

acl 7 RIP metric 7

GigabitEthernet1/0 acl 8 RIP
metric 7

3.1.23 output-delay

RIP

output-delay **no**

output-delay *delay*

no output-delay

delay	<8-

passive

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

ip rip send enable **ip rip receive enable**
RIP passive
RIP RIP **ip rip send enable** **ip rip receive enable**

passive ethernet0/0 passive

ip rip receive enable	RIP
ip rip send enable	RIP

3.1.25 redistribute RIP

redistribute

no

redistribute {**bgp** | **isis** [*process-name*] |**ospf** <*1-65535*> | **connected** | **static**}[**metric** *value*] [**route-map** *route-map-name*][**match internal** | **external** *type* | **nssa-external** *type*]

no redistribute {**bgp** | **isis** [*process-name*] |**ospf** <*1-65535*> |

connected | **static**}[**metric** *value*] [**route-map** *route-map-name*] [**match i nternal** | **external** *type* | **nssa-external** *type*]

bgp | **isis** | **ospf** | **connected** | **static**	
metric	metric
route-map	
match	ospf
process-name	ISIS
<1-65535>	OSPF

OSPF

ISIS level-2

metric 1

route-map

RIP

default-metric *metric*	

3.1.26 router rip

RIP **router rip**

no RIP

router rip

no router rip

RIP

RIP

async default routing

RIP

3.1.27 timers basic

RIP **timers basic** no

timers basic *update invalid flush*

no timers basic

update	*update* *invalid* *Flush* 30
invalid	*invalid* *invalid* *invalid* *Invalid* 180
flush	RIP *invalid* *flush* *invalid* *Flush* 120

30 180 120

RIP RIP

RIP **show ip rip**

RIP 10 30 invalid invalid 90

2Mbps

3.1.28 validate-update-source

RIP

validate-update-source **no**

validate-update-source

no validate-update-source

RIP RIP

IP

RIP

validate-update-source

ip unnumbered RIP

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

3.1.29 version (RIP)

RIP **version** **no**

version {**1** | **2**}

no version

1	RIP 1
2	RIP 2

RIPv1 RIPv2 RIPv1

RIP **ip rip receive version** **ip rip send version** RIP

RIP 2

vrf RIP

3.2.2 show ip rip database

RIP **show ip rip database**

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

vrf *vrf-name*	VRF RIP
network-number	
network-mask	

RIP

RIP

RIP 192.168.121.0/24

show ip rip	

3.2.3 show ip rip external

RIP **show ip rip external**

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

show ip rip interface [**vrf** *vrf-name*]

vrf *vrf-name*	VRF RIP

RIP

show ip rip	

4 OSPF2

4.1

4.1.1 area

no OSPF

area area-id

no area area-id

OSPF

no OSPF
area authentication **area default-cost** **area filter-list** **area nssa**

OSPF

1.

2. **network area**

OSPF 2

4.1.2 area authentication

OSPF **area authentication** **no** OSPF

area *area-id* **authentication** [**message-digest**]

no area *area-id* **authentication**

RGOS OSPF OSPF **message-digest** MD5 **message-digest**

OSPF **ip ospf authentication-key** **ip ospf message-digest-key** MD5

ABR ABR
STUB NSSA ABR

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

50

area-id	
acl-name	acl
prefix-name	prefix-list
access | **prefix**	prefix list ACL
in | **out**	|

ABR

ABR

area 1 172.22.0.0/8

NSSA

default-information-originate Type-7 LSA nssa
ABR ASBR ABR
Type-7 LSA ASBR (ABR)
Type-7 LSA

no-redistribution ASBR OSPF redistribute
NSSA Œ 0 ţ

OSPF

172.16.16.0/20

4.1.7 area stub

OSPF **area stub** **no**

area *area-id* **stub** [**no-summary**]

no area *area-id* **stub** [**no-summary**]

area-id	STUB
no-summary	ABR ABR

OSPF **area stub** ABR (LSA) 1 1 LSA 2 2 LSA 3 3 LSA OSPF

router-id	show ip ospf
dead-interval *seconds*	40
hello-interval *seconds*	OSPF Hello 10
retransmit-interval *seconds*	OSPF LSA 5
transmit-delay *seconds*	OSPF LSA 1 LSA LSA LSA OSPF

authentication-key *key*

OSPF

ABR ABR
Stub Area NSSA

router-id OSPF>11<1236082A>11<29E04C1E4EC8>11<01C430 0 1 188.18 641.62 Tm 0 Tc

4.1.9 auto-cost

no

4.1.10 clear ip ospf process

OSPF

clear ip ospf (*process-id*) **process**

process-id	OSPF OSPF

RFC2328

OSPF

OSPF 1

4.1.11 compatible rfc1583

AS

RFC1583 RFC2328

commpatible rfc1583

no commpatible rfc1583

RFC1583

rfc 2328

show ip ospf	ospf

4.1.12 default-information originate OSPF

OSPF

default-information originate **no**

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

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

always	OSPF
metric *metric*	1
metric-type *type*	OSPF 1 2 1 2 2

4.1.13 default-metric

OSPF **default-metric**
no

default-metric *metric*

no default-metric

metric	OSPF

20

default-metric **redistribute**

default-metric **default-information originate**
OSPF

OSPF 50

redistribute	
show ip ospf	ospf

4.1.14 distance ospf

OSPF

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

no distance ospf

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

110

OSPF

OSPF

OSPF 160

4.1.15 distribute-list in

LSA

distribute-list {*listname* |

4.1.16 distribute-list out

redistribute

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

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

4.1.17 enable mib-binding

enable mib-binding MIB OSPFv2 **no**

enable mib-binding

no enable mib-binding

MIB OSPFv2

OSPFv2 MIB OSPFv2 SNMP OSPFv2
OSPFv2 MIB OSPFv2

SNMP OSPFv2 MIB

SNMP 100 OSPFv2

4.1.18 enable traps

OSPFv2 16 TRAP 4
TRAP **no** TRAP

enable traps [**error** [**ifauthfailure | ifconfigerror | ifrxbadpacket | virtifauthfailure | virtifconfigerror | virtifrxbadpacket**] | **lsa** [**lsdbapproachoverflow | lsdboverflow | maxagelsa | originatelsa**] | **retransmit** [**iftxretransmit | virtiftxretransmit**] | **state-change** [**ifstatechange | nbrstatechange | virtifstatechange | virtnbrstatechange**]]

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

stat

TRAP

snmp-server **snmp-server enable traps ospf**

MIB TRAP

OSPFv2 100 TRAP

show ip ospf	OSPF
enable mib-binding	OSPFv2 MIB

4.1.19 ip ospf authentication

no

ip ospf authentication [**message-digest** | **null**]

no ip ospf authentication

message-digest	MD5

. **no**

null ,

,

GigabitEthernet 0/0 OSPF MD5

ip ospf authentication-key OSPF

OSPF

OSPF **area authentication**

, **ip ospf authentication**

, .

GigabitEthernet 0/0 OSPF ospfauth

area authentication	OSPF
Ip ospf authentication	

AEVA2TaeqAaDPCB5ewbEGabi1146.421659.21477D0.56 Tf1 0 0 1 203.45 563.59 Tm[<096A>11<0E0F1C5F>

no ip ospf disable all

network area

network ospf OSPF
OSPF

4.1.25 ip ospf hello-interval

OSPF Hello **ip ospf hello-interval** **no**

ip ospf hello-interval *seconds*

no ip ospf hello-interval

seconds	OSPF hello

- 10
- PPP HDLC 10
- 10

MD5

ip ospf message-digest-key OSPF

OSPF

OSPF **area authentication**

, **ip ospf**

authentication ,

ip ospf authentication	

4.1.27 ip ospf mtu-ignore

mtu

no

ip ospf mtu-ignore

no ip ospf mtu-ignore

mtu

k

OSPF MTU MTU
, MTU MTU,
, MTU Ő

, .

X.25 OSPF
X.25 map **frame-relay map** X.25
OSPF X.25

OSPF

-
-

X.25 IP
broadcast .

DR/RDR

DR/BDR

dialer map ip	IP ˩ / ₸

GigabitEthernet 0/0 0

ip ospf network	OSPF

4.1.30 ip ospf retransmit-interval

LSU **ip ospf retransmit-interval** **no**

ip ospf retransmit-interval *seconds*

no ip ospf retransmit-interval

Seconds	LSU 5

5

LSU LSU **ip ospf retransmit-interval** LSA

LSU area virtual-link retransmit-interval

serial 1/0

serial1/ 0 5

area virtual-link	OSPF

cost]

no neighbor *ip-address*

ip-address	IP
poll-interval *seconds*	120 Non-broadcast(NBMA)
priority *priority*	Non-broadcast(NBMA)
Cost *cost*	, cost point-to-multipoi nt [non-broadcast]

RGOS IP
IP

NBMA
Hello OSPF Hello Hello
OSPF 0 Hello
0 DR/BDR DR/BDR
DR/BDR Hello

, ,
, cost
.

OSPF IP 172.16.24.2
1 150

ip ospf priority	OSPF
ip ospf network	OSPF

4.1.35 network area

OSPF OSPF
network area **no** OSPF

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

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

ip-address	IP
wildcard	IP
area-id	OSPF OSPF OSPF

OSPF

ip-address *wildcard*
OSPF OSPF IP
network area IP **network area** IP
IP OSPF

OSPF **network** IP
OSPF

LSA 10 OSPF 10

4.1.37 overflow database external

external LSA

overflow database external *max-dbsize wait-time*

no overflow database external

max-dbsize	external lsa AS 0-2147483647
wait-time	0-65535

external-LSA

external-LSA external-LSA

E5ŸX1Gpwj‡Đ

4.1.38 overflow memory-lack

OSPF

show ip protocols ospf	OSPF

10.3(4b3)	

4.1.39 passive-interface

no

passive-interface [**default** | *type number*]

no passive-interface [**default** | *type number*]

show ip ospf interface	

4.1.40 redistribute

redistribute {**bgp** | **isis** *area-tag* | **ospf** *process-id* | **rip** | **connected** | **static**} {**level-12**| **level-1-2** | **level-2**} [**metric** *value* | **match** {**internal** | **external | external** 1 | **external** 2 | **nssa-external | nssa-exte**

exte

ASBR OSPF type-5 LSA OSPF

BGP metric 1 LSA metric 20

isis level level-2 level level level 1, level 2 level-1-2

ospf match ospf match match no match

route-map route-map match OSPF ISIS match level route-map

OSPF

Show run

4.1.41 router ospf

OSPF **router ospf** **no** OSPF

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

no router ospf *process-id*

process-id	ospf
vrf-name	VRF OSPF VRF

OSPF

RGOS10.1 ospf ospf

vrf *vpn_1* OSPF 10

show ip protocols	
show ip ospf	ospf

4.1.42 router-id

ID, **no** Router ID
Router ID

router-id *router-id*

no router-id

ip-address	IP
net-mask	
not-advertise	

OSPF

OSPF

area rang area

timers lsa-group-pacing *seconds*

no timers lsa-group-pacing

seconds	LSA : 10-1800

: 240

LSA

4

LSA 10000 LSA

40~100 10~20

120

show ip ospf	ospf

4.1.45 timers spf

OSPF SPF

spf-delay	SPF OSPF SPF
spf-holdtime	SPF SPF

spf-delay 5 *spf-holdtime* 10

spf-delay *spf-holdtime* OSPF
CPU

OSPF 3 9

show ip ospf	ospf

4.2

4.2.1 show ip ospf

OSPF **show ip ospf**

show ip ospf [*process-id*]

process-id	ospf

OSPF

show ip ospf

Router ID	
Process uptime	OSPF 0.0.0.0 router-id

process-id	ospf

ABR ASBR OSPF
OSPF **show ip route** OSPF
OSPF

show ip ospf border-routers

Codes	i I

4.2.3 show ip ospf database

OSPF **show ip ospf database**

LSAs

show ip ospf [*process-id area-id*] **database**

show ip ospf [*process-id area-id*] **database** [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**self-originate** | **max-age**]

show ip ospf [*process-id area-id*] **database** [**router**] [*link-state-id*]

show ip ospf [*process-id area-id*] **database** [**router**] [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**router**] [**self-originate**]

show ip ospf [*process-id area-id*] **database** [**network**][*link-state-id*]

show ip ospf [*process-id area-id*] **database** [**network**] [*link-state-id*] [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**network**] [*link-state-id*] [**self-originate**]

show ip ospf [*process-id area-id*] **database** [**summary**] [*link-state-id*]

show ip ospf [*process-id area-id*] **database** [**summary**] [*link-state-id*] [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**summary**] [*link-state-id*] [**self-originate**]

show ip ospf [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*]

show ip ospf [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*] [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**asbr-summary**] [*link-state-id*] [**self-originate**]

show ip ospf [*process-id area-id*] **database** [**external**] [*link-state-id*]

show ip ospf [*process-id area-id*] **database** [**external**] [*link-state-id*] [**adv-router** *ip-address*]

show ip ospf [*process-id area-id*] **database** [**external**] [*link-state-id*] [**self-originate**]

show ip ospf [*process-id area-id*] **database** [**nssa-external**]

OSPF

OSPF

show ip ospf database

show ip ospf database

OSPF Router with ID	OSPF OSPF
Router Link States	
Net Link States	
Summary Net Link States	
NSSA-external Link States	
AS External Link States	
Link ID	
ADV Router	
Age	
Seq#	LSA
Cksum	
Link-Count	
Route	LSA
Tag	

show ip ospf database asbr-summary

show ip ospf database asbr-

show ip ospf database external

OSPF Router with ID	OSPF
Type-5 AS External Link States	
LS age	
Options	
LS Type	
Link State ID	
Advertising Router LS Seq Number	

show ip ospf database network

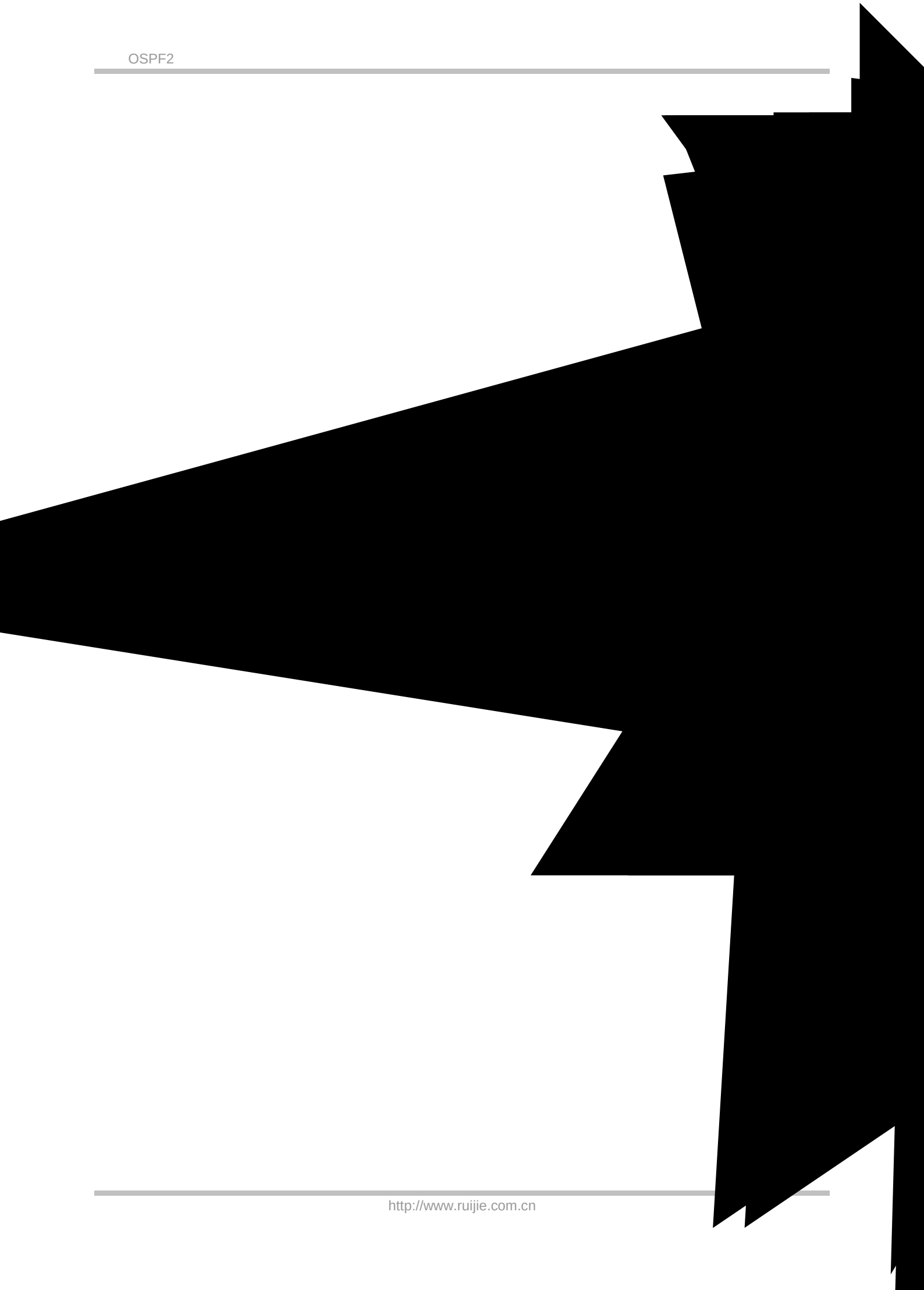
OSPF Router with ID

show ip ospf database router

OSPF Router with ID	OSPF
Router Link States	
LS age	
Options	
Flag	router
LS Type	
Link State ID	
Advertising Router	
LS Seq Number	
Checksum	
Length	
Number of Links	
Link connected to	
(Link ID)	
(Link Data)	
Number of TOS metrics	TOS TOS0
TOS 0 Metrics	TOS

show ip ospf database summary

show ip ospf database summary



External Route Tag	32 OSPF OSPF

show ip ospf database external

LS age
Options

Network Mask	
Metric Type	
TOS	TOS 0
Metric	
Forward Address	IP 0.0.0.0
External Route Tag	32 OSPF OSPF

show ip ospf database database-summary

4.2.4 show ip ospf interface

OSPF **show ip ospf interface**

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

interface-type	
interface-number	

OSPF OSPF

show ip ospf interface GigabitEthernet *1/0*

show ip ospf interface serial *1/0*

GigabitEthernet 0/0 State	UP Down
Internet Address	IP
Area	OSPF
MTU	MTU
Matching network config	OSPF network area
Process ID	
Router ID	OSPF
Network Type	OSPF
Cost	OSPF
Transmit Delay is	OSPF
State	DR/BDR
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
DD received send	DD
LS-Req received send	LS

show ip ospf neighbor

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

Dead Time	
DR	DR (Hello DR)
BDR	BDR (Hello BDR)
Options	Hello E 0 STUB STUB

Dead timer due in

show ip ospf route μ

NSSA ABR

show ip ospf summary-address

Summary Address	
Summary Mask	
Advertise	
Status	
Aggregated subnets	

4.2.8 show ip ospf virtual-link

OSPF **show ip ospf virtual-link**

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

show ip ospf neighbor

show ip ospf virtual-links

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

State

5

5.1

5.1.1 distribute-list in

distribute-list

in **no**

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

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

access-list-number	1-99 1300-1999 100-199 2000-2699
access-list-name	
prefix *prefix-list-name*	
gateway *prefix-list-name*	
i*nterface-type interface-number*	( )

OSPF OSPF

RIP GigabitEthernet 0/0
172.16

access-list-number	1-99 1300-1999 100-199 2000-2699
access-list-name	
prefix *prefix-list-name*	
Interface	( )
protocol	( )

OSPF OSPF

RIP 192.168.12.0/24

access-list	
prefix-list	
redistribute	

5.1.3 ip community-list

no

ip community-list {{**standard** | **expanded**} *community-list-name* | *community-list-number* } {**permit** | **deny**} [*community-number..*]

no ip community-list {{**standard** | **expanded**

BGP

match community	
set comm-list delete	BGP
show ip community-list	
show ip bgp community-list	BGP

5.1.4 ip default-network

ip default-network no

ip default-network *network*

no ip default-network *network*

network	

0.0.0.0/0

default-network

*

connected

192.168.100.0

200.200.200.0 200.200.200.0

show ip route	IP

5.1.5 ip prefix-list

ip prefix-list

no

ip prefix-list *prefix-lis-name* [**seq** *seq-number*] { **deny** | **permit** } *ip-prefix* [**ge** *minimum-prefix-length*][**le** *maximum-prefix- length*]

no ip prefix-list *prefix-lis-name*[**seq** *seq-number*] { **deny** | **permit**} *ip-prefix* [**ge** *minimum-prefix- length*][**le** *maximum-prefix- length*]

prefix-lis-name	
seq-number	1 2147483647 5 5
deny	

permit	
ip-prefix	IP 0 32
minimum-prefix-length	( ) **ge**
maximum-prefix-length	( ) **le**

ip prefix-list IP permit deny

ge le
ip-prefix
ge le ip-prefix
ge minimum-prefix-length 32 le
ip-prefix maximum-prefix- length
minimum-prefix-length maximum-prefix- length ip-prefix
minimum-prefix-length maximum-prefix-length ip-prefix
< minimum-prefix-length < maximum-prefix-length <= 32

OSPF RIP
IP IP (
IP 201.1.1.0/24)

5.1.6 ip prefix-list description

ip prefix-list description

no

ip prefix-list *prefix-lis-name* **description** *descripton-text*

prefix-lis-name	
descripton-text	

IP **Deny routes from Net-A**

5.1.7 ip prefix-list sequence-number

ip prefix-list description **no**

ip prefix-list sequence-number

5.1.8 ip route

ip route no

ip route [**vrf** *vrf_name*] *network net-mask* {*ip-address* | *interface* [*ip-address*]} [*distance*] [**tag** *tag*] [*permanent*] [**weight** *number*] [*disable* | *enable*]

vrf_name	VRF
network	
net-mask	
ip-address	
Interface	
distance	
tag	Tag
permanent	
number	
disable/enable	

1

OSPF

110 125

OSPF

vrf vrf

1 **show ip route weight**

weight WCMP

weight

show ip route	IP

5.1.9 ip routing

RGOS IP no
IP

ip routing

no ip routing

IP

VOIP RGOS
IP RGOS IP

RGOS IP

5.1.10 ip static route-limit

ip static route-limit

no

ip static route-limit *number*

no ip static route-limit

number	1-10000

1000

ip static route-limit

show running-config

900

5.1.11 ipv6 prefix-list

IPv6 **ipv6 prefix-list**

no

Ipv6 prefix-list *prefix-lis-name* [**seq** *seq-number*] { **deny**

no ipv6 prefix-list *prefix-lis-name*[**seq** *seq-number*] { **deny** | **permit**} *ipv6-prefix* [**ge** *minimum-prefix*

RIP OSPF 1
IP IPv6
(IP)

5.1.12 ipv6 prefix-list description

IPv6 **ipv6 prefix-list description**
no

ipv6 prefix-list *prefix-lis-name* **description** *descripton-text*

prefix-lis-name	IPv6

ipv6 prefix-list sequence-number

IPv6

5.1.14 match as-path

AS_PATH **match as-path** **no**

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

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

as-path-acl-list-num	1 500

match as-path

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

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

5.1.15 match community

COMMUNITY **match community** **no**

match community { *community-list-number* | *community-list-name*} [**exact-match**] [{ *community-list-number* | *community-list-name*} [**exact-match**]]

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

community-list-number	1-99 100-199
communitys-list-name	80
exact-match	

match community

6

exact-match

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

match **set**

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

interface-number	

match interface

OSPF RIP RIP
OSPF

route maps

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

OSPF RIP
GigabitEthernet 0/0 RIP

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

5.1.17 match ip address

match ip address **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...*]}

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...*]}

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

set metric	
set metric-type	
set tag	

5.1.18 match ip next-hop

IP

match ip next-hop **no**

match ip next-hop {*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 next-hop {*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...*]}

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

match ip next-hop

OSPF OSPF

RIP RIP
OSPF IP

route maps

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

OSPF RIP RIP
10 20 OSPF

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

5.1.20 match ipv6 address

IPv6

match ipv6 address **no**

match ipv6 address { *access-list-name* | **prefix-list** *prefix-list-name* }

no match ipv6 address

access-list-name	

prefix-list *prefix-list-name*

OSPF RIP RIP
OSPF IP

route maps

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

OSPF RIP
10 RIP OSPF type-1
40

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	

5.1.21 match ipv6 next-hop

IPv6

match ipv6 address **no**

match ipv6 next-hop { *access*

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

OSPF RIP
10 RIP OSPF type-1
40

5.1.22 match ipv6 route-source

IPv6

/F2 10.56 Tf 1 0 0 1 222.65 727.42 Tm3844 120 G [(O.5-SJ EP)] F BT 1 0 00

1

serial 1/0 500
GigabitEthernet 1/0

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

5.1.24 match metric

match metric **no**

match metric *metric*

no match metric

metric	0-4294967295

OSPF RIP RIP
OSPF IP

route maps

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

OSPF RIP 10 RIP
OSPF

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	

5.1.25 match origin

match origin

no

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

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

egp	EGP
igp	IGP
Incomplete	

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

5.1.26 match route-type

match route-type **no**

match route-type {**local | internal | external** [**type-1 | type-2**] **| level-1 | level-2**}

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

local	
Internal	OSPF
external	(BGP OSPF)
type-1	**type-2**	OSPF 1 2

level-1 | **level-2**	ISIS 1 2

OSPF RIP RIP
OSPF IP

route maps

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

RIP OSPF RIP OSPF

set metric	
set metric-type	
set tag	

5.1.27 match tag

match tag **no**

match tag *tag* [*tag*]

no match tag *tag* [*tag*]

tag	

match tag tag

OSPF

RIP RIP

OSPF IP

route maps

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

match **set**

RIP OSPF RIP OSPF

50 80

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

5.1.28 maximum-paths

maximum-paths no

maximum-paths *number*

no maximum-paths

number	1-32

32

maximum-paths

show running config

ipv4 ipv6 ipv4
ipv6

10

5.1.29 route-map

route-map

no

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

route-map-name	permit match set set

permit

deny	deny match deny match set
sequence-number	

RGIOS

OSPF RIP RIP
OSPF IP

route maps

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

1) *sequence-number* 10

2) *sequence-number*

OSPF RIP 4
RIP OSPF type-1 40
40

match as-path	AS_PATH
match community	
match metric	

no set community { *community-number*[*community-number*] **additive** | **none**}

community-number	AA:NN(:2) 0-4294967295 internet Internet local-as AS no-advertise BGP peers no-export EBGP peers
additive	community
none	

match as-path	AS_PATH

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

5.1.34 set dampening

match **set dampening** **no**

set dampening *half-life reuse suppress max-suppress-time*

no set dampening

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

set default interface

1

down set
set

serial 1/0 500
GigabitEthernet 1/0

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

5.1.36 set extcommunity

match **set extcommunity** **no**

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

no set extcommunity {**rt** | **soo**}

rt	RT
soo	SOO
extend-community-value	

match as-path	AS_PATH
match community	

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

5.1.37 set interface

match **set interface**

no

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

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

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

5.1.41 set ip next-hop verify-availability

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

set ip next-hop verify-availability *ip-address* **track** *track-obj*

OSPF RIP backbone

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

5.1.45 set local-preference

local-preference local-preference

set metric ‘ + ’ ‘ - ’ metric

RIP metric 1-16

OSPF RIP RIP

OSPF IP

route maps

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

match **set**

OSPF RIP

40

match route-type

match interface	

match ip address

OSPF RIP RIP
OSPF IP

egp	EGP
igp	IGP
incomplete	

5.1.50 set originator-id

match **set originator-id** **no**

set originator-

5.1.51 set tag

match **set tag**

no

set tag *tag*

no set tag

tag	

OSPF RIP

100

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	

5.1.52 set weight

match BGP **set weight**
no

set weight *number*

no set weight

number	0-65535

BGP

neighbor weight
32768

BGP

BGP in 1.1.1.1
100

5.2.3 show ip route

IP **show ip route**

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

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

show ip route

show ip route *network*

Routing Descriptor Blocks	IP BGP

show ip route count

show ip route weight

5.2.4 show ipv6 prefix-list

IPv6 Ц

1. ACL
2. RPL
3.
4.
5.
6. VPDN
7. Tunnel
8. IPSec
9.
10. AAA
11. RADIUS
12. TACACS+

1 ACL

id	IP ACL: 1-99,1300-1999 IP ACL: 100-199,2000-2699 MAC ACL: 700 799 ACL: 2700 2899
name	ACL
sn	ACL ( )
start-sn	
inc-sn	
deny	
permit	
prot	IPv4 eigrp, gre, ipinip, igmp, nos, ospf, icmp, udp, tcp, ip IP 0-255 icmp/tcp/udp
interface idx	
src	
src-wildcard	0.255.0.32
dscp dscp	, 0-63
dst	
dst-wildcard	0.255.0.32
fragment	
precedence precedence	0-7
time-range tm-rng-name	tm-rng-name
tos tos	0-15
cos cos	cos (0-7)
cos inner cos	tag cos
icmp-type	ICMP 0-255
icmp-code	ICMP 0-255

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

H	Org Code	21	V		50
I		24	W		54
J	IP	26	XY	IP	58
K	TOS	27	Z	flags	59
L	IP	28	a	Windows size	60
M	ID	30	b		62
N	Flags	32			

SNAP tag 802.3

1.1

- **access-list**
- **ip access-list**
- **mac access-list**
- **expert access-list**
- **ip access-list resequence**

ACL

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

- **ip access-group**
- **mac access-group**
- **expert access-group**

1.1.1 access-list

no

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**} [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range**
time-range-nam-

operator	lt- eq- gt- neq- range-
port [*port*]	*range*
host *source-mac-address*	
host *destination-mac-address*	
VID *vid*	vid
ethernet-type	
match-all	

- **priority**
- **routine**

- **max-reliability**
- **max-throughput**
- **min-delay**
- **min-monetary-cost**
- **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**
- **chargen**
- **cmd**
- **daytime**
- **discard**
- **domain**
- **echo**
- **exec**
- **finger**
- **ftp**
- **ftp-data**
- **gopher**
-

ACL

ACL

4) Expert

Expert Extended ACL ACL IP
192.168.12.3 MAC 00d0.f800.0044 TCP

ACL ACL
deny **permit** **show access-lists**
ACL

ACL

ACL

show access-lists	IP

RGOS10.0

1.1.3 expert access-list

ACL **no** ACL

expert access-list extended {*id* | *name*}
no expert access-list extended {*id* | *name*}

Id Expert 2700-2899
Name ACL

Expert ACL

show access-lists ACL

ACL

show access-lists	

RGOS10.0

1.1.5 deny

(deny) ACL

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

Transmission Control Protocol (TCP)

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

User Datagram Protocol (UDP)

[*sn*] deny udp {*source source wildcard* **| host** *source* | **any**} [*operator* **port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**} [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

3) MAC

[*sn*] **deny** {**any** | **host** *source-mac-address*}{**any** | **host** *destination-mac-address*} [*ethernet-type*][**cos** [*out*] [**inner** *in*]]

4) Expert

[*sn*] **deny**[**protocol** | [*ethernet-type*][**cos** [*out*] [**inner** *in*]]] [[**VID** [*out*][**inner** *in*]]] {

a [d d r e s s

[*sn*] **deny icmp** [[**VID** [*out*][

IP

show access-lists	
ip access-group	IP ACL
mac access-group	MAC ACL
ip access-list	IP ACL
mac access-list	MAC ACL
expert access-list	ACL
permit	

õ ˘ - ş ˘

User Datagram Protocol (UDP)

[*sn*] **permit udp** {*source source -wildcard*|**host** *source* |**any**} [*operator*
port [*port*]] {*destination destination-wildcard* |**host** *destination* | **any**} [**operator**
port [*port*]hETBT1 0 0 1([]) TJETBT1 0 0 1 175.94 696([]) TJETBT/F6 10.56 Tf1 0 0 1 41.82 Tm[

TBT/F13 10.56 Tf1 0 0 1 149.36 657[82 1m09 705[68 24(3T1 0)9 1 146.42 727.42 1m78 65782 Tm[(op)-4(era)120)] TE

ACL

MAC ACL MAC

sn ACL

ACL

ACL ACL

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

RGOS10.0

1.1.9 ip access-group

ip access-group

no

ip access-group {*id* | *name*} {**in** | **out**} [**reflect | unreflect**]

no ip access-group { *id* | *name*} {**in** | **out**} [**reflect | unreflect**]

id IP 1-199 1300-2699

name IP

in

out

unreflect ACL

reflect ACL

ACL

ip access-group

GigabitEthernet0/0 120

access-list	
show access-lists	

RGOS10.0

1.1.10 expert access-group

EXPERT ACL **no**

expert access-group {*id* | *name*} {**in** | **out**} [**unreflect**]
no expert access-group {*id* | *name*} {**in** | **out**} [**unreflect**]

id Expert 2700-2899

name Expert

in

out

unreflect ACL

Expert ACL

ACL **show access-group**

access-list accept_00d0f8xxxxxx_only Gigabit 1

0/1

show access-group	ACL

RGOS10.0

1.2

:

- **show access-lists**
- **show ip access-group**
- **show mac access-group**
- **show expert access-group**
- **show access-group**

1.2.1 show access-lists

ACL ACL

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

id

name

acl *id* *name* ACL

ip access-list	IP ACL
mac access-list	MAC ACL
expert access-list	Expert ACL

RGOS10.0

1.2.2 show ip access-group

IP ACL

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

<*interface*>

IP ACL IP ACL

ip access-list	IP ACL

RGOS10.0

1.2.3 show expert access-group

Expert

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

<*interface*>

Expert ACL Expert ACL

expert access-list	Expert ACL

RGOS10.0

1.2.4 show access-group

ACL

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

<*interface*>

ACL ACL

ip access-group	
mac access-group	MAC
expert access-group	Expert

RGOS10.0

2 RPL

2.1

2.1.1 reverse-path

reverse-path

no

reverse-path

no reverse-path

-	-

1 RPL .

reverse-path

-	-

-

10.3(3b7)	10.3(4)

3

3.1

3.1.1 acpp

ACPP control-plane acpp

no

3.1.2 anti-arp-spoof

ARP ARP
ARP ARP ARP (10s
200 ARP) MAC IP ARP MAC
MAC

no ARP

anti-arp-spoof

control-plane

1 ARP

1 ARP

-	-

3.1.3 anti-arp-spoof scan

ARP IP arp ARP

no

anti-arp-spoof scan

control-plane

control-plane

1 ARP
10pps

Ruijie(config)# control-plane	control-plane

exit control-plane

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

control-plane

1 ,

Ruijie(config-cp)# ef-

1 Glean

10pps

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

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

	-	-

3.1.12 scpp

SCPP

control-plane scpp

no scpp

scpp list *acl_no* {**bw-rate** *bw-rate* **bw-burst-rate** *bw-burst-rate* } [**log**]

no scpp list acl_no

3.1.14 security web permit

security deny web IP
web no IP

security web permit *low-ip-address* [*high-ip-address*]

low-ip-address	IP IP IP
high-ip-address	IP

control-plane

32 IP IP

1 192.168.1.1 192.168.1.2 IP WEB

1 192.168.1.1 IP WEB

-	-

3.2

3.2.1 show arp-suspect

ARP show arp-suspect

show arp-suspect

-	-

1

Ruijie#show attack-info current

System is currently in attack, System has been in attack 12s.

ALL:194986pkts, 12481736bytes

PROTOCOL	pkts	bytes
ARP	37	2220
UDP	194949	12479516

TOP5 IP attack:

IP	pkts	bytes	interface
192.168.64.1	194938	12476032	Gi0/0
192.168.123.1	8	2867	Gi0/5
172.18.3.120	1	125	Gi0/5
172.18.3.73	1	243	Gi0/5
172.18.3.80	1	249	Gi0/5

2

Ruijie#show attack-info current

-	-

Ruijie#show attack-info history

System attack record at 1970-1-7 7:45:5, System in attack 38s

ALL: 503435pkts, 32212698bytes

PROTOCOL	pkts	bytes
ARP	3712	222720
UDP	499723	31989978

TOP3 IP attack:

IP	pkts	bytes	interface
192.168.64.1	499696	31980544	Gi0/0
192.168.123.1	26	9309	Gi0/5
172.18.3.120	1	125	Gi0/5

2

Ruijie#show attack-info history

-	-

3.2.4 show ef-rnfp

show ef-rnfp

show ef-rnfp {**acpp** | **scpp** | **glean-car** | **arp-car** | **port-filter** | **mpp | all** }

-	-

-	-

4

4.1

4.1.1 firewall enable

[no] firewall enable

no	

1

-	-

10.3(4b11)	/

4.1.2 clear firewall count

clear firewall count [global]

[global]

firewall defend scan	IP

10.3(4b5)	/

4.1.4 firewall blacklist

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

sour-addr	ip

1

-	-

10.3(4b5)	/

4.1.5 firewall defend fraggle

fraggle

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

no	

1

-	-

10.3(4b5)	/

4.1.8 firewall defend icmp-unreachable

icmp icmp

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

no	

1

-	-

10.3(4b5)	/

4.1.9 firewall defend land

Land LAND

[**no**] **firewall defend land**

no	

10.3(4b6)	/

4.1.12 firewall defend scan ignored-protocol

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

	ṡ T ¤0

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

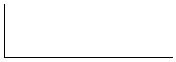
	con-num	
	pri-num	ip *pri-num*
	ip-num	ip
	port-num	
	no	

1

-	-

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

rate-num	pps



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

4.1.21 show firewall scan-detect-conf

show firewall scan-detect-conf {default | effective} [icmp | ip | tcp |udp]

default	
effective	
**[icmp	ip	tcp |udp]**	

show firewall scan-detect-conf default

5

5.1

5.1.1 firewall alg

ALG

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

no	
[all|h323|ftp|mms|rtsp|sip|tftp]	ALG

alg

show firewall dynamic-filter

1

-	-

10.3(4b6)	**/**

6 VPDN

6.1

6.1.1 vpdn authorize

VPDN **no** VPDN

vpdn authorize domain [split]

no vpdn authorize domain

domain	
split	

	10.3 5	

6.1.2

vpdn ignore_source

no vpdn ignore_source

-	-

VPDN

1 VPDN

VPDN

1 50

-	-

-	-

6.1.6 vpdn session-limit

VPDN **no**

vpdn session-limit *sessions*

no vpdn session-limit

sessions	VPDN

36 300

VPDN

1 100

-	-

-	-

6.1.7 vpdn source-ip

VPDN ( ) **no**

vpdn source-ip *A.B.C.D*

no vpdn source-ip

A.B.C.D	VPDN

VPDN ( )

LNS(L2TP) HGW(PPTP)

1 192.168.12.223

-	-

-	-

-	-

-	-

6.2.2 debug vpdn

vpdn

debug vpdn { **error** | **event** | **l2x-data** | **l2x-errors** | **l2x-events** | **l2x-packets** | **packet** }

no debug vpdn { **error** | **event** | **l2x-data** | **l2x-errors** | **l2x-events** | **l2x-packets** | **packet** }

error	VPDN
event	VPDN
l2x-data	L2TP
l2x-errors	L2TP
l2x-events	L2TP
l2x-packets	L2TP
packet	VPDN

VPDN

error event packet VPDN

L2TP PPTP L2TP

1	pptp	**debug vpdn event**

4 ( ) VPDN

5 ( ) **debug vpdn l2x-data** / .

8 LNS ( ) **debug vpdn l2x-packets**

VPDN

VPDN

show

12

show vpdn tunnel l2tp *locid* show vpdn tunnel pptp *locid*

1 VPDN

VPDN

VPDN

sa

6.3 VPDN-Group

6.3.1 accept dialin

no

accept-dialin

no accept-dialin

-	-

VPDN-Group

VPDN-Group

1

-	-

-	-

6.3.2 dns

PPP DNS Đ b ف

A.B.C.D	PPP DNS

PPP DNS

vpdn-domain

domain PPP DNS
DNS DNS

1 ruijie ppp dns

domain	

-	-

6.3.3 domain

group

domain *domain-name* [**vrf** *vrf-name*]

no domain *domain-name*

domain-name	

vrf

VPDN-Group

domain group
vpdn-group domain
vrf vrf

1 ruijie.net vrf 1

vpdn authorize	
vpdn domain-delimiter	

Client LAC LAC LNS Client L2TP
Client LNS

1 PPP LCP

Ruijie(config-vpdn)# **force-local-chap**

-	-

-	-

6.3.5 ip precedence

IP **no**

ip precedence { *precedence-value* | **critical** | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine** }

no ip precedence

precedence-value	0~7
critical	5
flash	3
flash-override	4
immediate	2
internet	6
network	

VPDN-Group

L2TP PPTP

1 7

VPDN-Group

TOS

a

-	-

-	-

6.3.8 local name

no

local name *local-hostname-string*

no local name

local-hostname-*string*	

VPDN-Group

1 LNS

-	-

-	-

6.3.9 pool

PPP **no**

pool *pool-name*

no pool

pool-name	

ĭ ṡ

protocol {**any** | **l2tp** | **pptp**}

no protocol

any	
l2tp	L2TP
pptp	PPTP

VPDN-Group

1 L2TP

-	-

-	-

6.3.11 source-ip

VPDN-Group ( ) **no**

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

no

-	-

-	-

6.3.13 virtual-template

VPDN-Group **no**

virtual-template *number*

no virtual-template

number	

VPDN-Group

VPDN-Group

VPDN-Group
VPDN-Group VPDN- GrøPDN

vrf

vpdn-group

PPTP **protocol pptp** **protocol any**

PPTP RFC2637

1 ACK
ACK
1 ACK RFC2637

1 pptp 32

-	-

vpdn-group

PPTP **protocol pptp** **protocol any**

PPTP RFC2637 PPTP ACK
ATO Acknowledgment Time-Outs
RTT Round-Trip Time static-rtt RTT

1 pptp 32

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn-acc-in)# protocol pptp
Ruijie(config-vpdn-acc-in)# exit
Ruijie(config-vpdn)# pptp flow-control static-rtt 32
Ruijie(config-vpdn)#
```

-	-

-	-

6.4.3 pptp tunnel echo

pptp echo request **no**

pptp tunnel echo *echo-packet-interval*

no pptp tunnel echo

echo-packet-interval	pptp echo request 0---1000

60

vpdn-group

PPTP **protocol pptp** **protocol any**
echo-packet-interval 0

echo

echo-packet-interval 0 PPTP *echo-packet-interval*
echo request
echo reply 1
echo request
5 **echo reply**

1 pptp echo request 30

Ruijie(config-vpdn)#

-	-

-	-

6.5 L2TP

6.5.1 authentication (L2TP)

no

authentication

no authentication

-	-

L2TP-Class

-	-

6.5.3 hello

L2TP Keepalive Hello **no**

local-hostname-string	

L2TP-Class

L2TP

1 LAC

-	-

-	-

6.5.5 ip dfbit set

no

ip dfbit set

no ip dfbit set

-	-

Pseudowire-Class

L2TP

1

-	-

-	-

6.5.6 ip local interface

( ) **no**

ip local interface *interface-name*

no ip local interface *interface-name*

interface-name	

( )

Pseudowire-Class

( ) ( )

L2TP

1 ( ) Serial 0

-	-

-	-

6.5.7 ip ttl

IP TTL **no**

ip ttl *ttl-value*

no ip ttl

ttl-value	TTL 1~255

IP TTL 255

Pseudowire-Class

IP TTL IP TTL

l2tp-class-name	L2TP-Class

L2TP-Class

1 UDP Checksum

-	-

6.5.11

no

l2tp tunnel force_ipsec

no l2tp tunnel force_ipsec

-	-

VPDN-Group

Hello Hello
L2TP

1 Hello 30

-	-

	-	-

l2tp tunnel retransmit {**retries** *number* | **timeout** {**min** | **max**} *seconds*}

no l2tp tunnel retransmit {**retries** | **timeout** {**min** | **max**}}

number	
seconds	

600 (
) 300

VPDN-Group

/
L2TP

1 1200

-	-

-	-

6.5.18 password (L2TP)

no

password *password-string*

no password

password-string	

L2TP-Class

L2TP

1 share

-	-

-	-

6.5.19 protocol (L2TP)

L2TP **no**

protocol l2tpv2 [*l2tp-class-*

	-	-

6.5.20 pseudowire

pseudowire **no**

pseudowire *peer-ip-address vcid* {**encapsulation l2tpv2** [**pw-class** *pw-class-name*] | **pw-class** *pw-class-name* }

no pseudowire

hostname **pseudowire**

pseudowire hostname *peer-hostname vcid* {**encapsulation l2tpv2** [**pw-class** *pw-class-name*] | **pw-class** *pw-class-name* }

no pseudowire

peer-ip-address	L2TP Server(LNS)
peer-hostname	L2TP Server LNS DNS hostname
vcid	**pseudowire**
l2tpv2	l2tpv2(RFC 2661)
pw-class-name	pseudowire-class

pseudowire

pseudowire virtual-ppp virtual-

-	-

-	-

6.5.21 pseudowire-class

pseudowire-class pseudowire- class pseudowire-class **no** pseudowire-class

pseudowire-class *pseudowire-class-name*

no pseudowire-class *pseudowire-class-name*

pseudowire-class-name	pseudowire-class

pseudowire-class

pseudowire-class L2TP

1 pw pseudowire-class

-	-

-	-

6.5.23 retransmit

no

retransmit {**initial** {**retries** *initial-retries* | **timeout** {**max** | **min**} *initial-timeout*} | **retries** *retries* | **timeout** {**max** | **min**} *timeout*}

no retransmit { **initial** {**retries** | **timeout** {**max** | **min**} }| **retries** | **timeout** {**max** | **min**} }

initial-retries	SCCRQ
initial-timeout	SCCRQ
retries	
timeout	

timeout setup *seconds*

no timeout setup

seconds	

120

L2TP-Class

L2TP

1 240

-	-

-	-

6.5.25 vpdn

L2tp vrf

Virtual-PPP L2tp

vrf

7 Tunnel

7.1

7.1.1 keepalive (tunnel interface)

GRE

keepalive [*seconds* [*retries*]]

no keepalive

seconds	1 32767 10
retries	down 1 255 3

keepalive

seconds *10*

retries *3*

UP

tunnel vrf ip vrf forward

1 interface tunnel 1 3 5

show interfaces tunnel	tunnel

7.1.2 tunnel checksum

tunnel checksum turnnel

no

tunnel checksum

no tunnel checksum

tunnel destination *ip-address*

no tunnel destination

ip-address	

tunnel key GRE

1 tunnel 0 1234

show interfaces tunnel	tunnel

-

-	-

7.1.5 tunnel mode

tunnel **tunnel mode** no

tunnel mode { **gre ip | ipip** }

gre ip	IP GRE Generic Route Encapsulation
ipip	ip over ip

gre ip

Tunnel Tunnel Tunnel GRE Tunnel IP GRE mode

1 tunnel 0 GRE IP

show interfaces tunnel	tunnel

init

learning learning

5 MTU keep keep

1 tunnel 0 PMTUD

show interfaces

tunnel

1 tunnel 0 **tunnel source** 1/0

show interfaces tunnel	tunnel

10.4	RGOS 10.4 10.4 2

7.1.9 tunnel ttl

tunnel ttl tunnel ttl no

7.1.10 tunnel vrf

IPv4 VRF

tunnel vrf *vrf-name*

no tunn

	-	-
		GRE show

8 IPSec

8.1

8.1.1 authentication (IKE policy)

IKE IKE **authentication** **no**

authentication {**pre-share**|**rsa-sig**|**digital-email** }

no authenti

lifetime IKE

clear crypto sa peer { *ip-address* | *peer-name*}

clear crypto sa map *map-name*

clear crypto sa spi *destination-address* {**ah** | **esp**} *spi*

ip-address	IP
Peer-name	

8.1.4 crypto dynamic-map

crypto dynamic-map

no

crypto dynamic-map *dynamic-map-name dynamic-seq-num*

no crypto dynamic-map *dynamic-map-name* [*dynamic-seq-num*]

set	IP DF Bit	DF Bit	1	IP

1 IPSec

-	-

	-	-

8.1.8

crypto ipsec profile *profile-name*

IKE

tunnel protection ipsec profile (interface IPSec)	Tunnel
Set transform-set	
show crypto map	

clear crypto sa

3. **crypto ipsec security-association lifetime seconds**

crypto ipsec security-association lifetime kilobytes KB

4. CPU

5. **seconds** **kilobytes**

seconds 30 **kilobytes** 256KB

IPSec

6.

1 IPSec 2500 2304000KB(10MB)

-	-

-	-

8.1.10 crypto ipsec security-association replay disable

crypto ipsec security-association replay disable

no

crypto ipsec security-association replay disable

no crypto ipsec security-association replay disable

dos

10.4(3b5)	

8.1.11 crypto ipsec transform-set

crypto ipsec transform-set

no

crypto ipsec transform-set *transform-set-name transform1*

[transform2 [transform3]]

no crypto ipsec transform-set *transform-set-name*

transform-set-name	
transform1 transform2 transform3	

1. IPSec IPSec

2. IPSec

IPSec

3.

1 ESP-DES-MD5

show crypto ipsec transform-set	

IKE

1 IKE

-	-

-	-

8.1.13 crypto isakmp key

IKE **cry**

1 172.16.1.1 IKE mysecret

crypto isakmp enable	IKE
encryption {**des	3des	aes-128	aes-192	aes-256	sm1**}	
hash {**sha	md5**}	HASH
authentication {**pre-share	rsa-sig**}	
group {**1	2**}	Diffie-Hellman
lifetime	IKE

-	-

8.1.14 crypto isakmp keepalive

crypto isakmp keepalive **keepalive** 8.2

crypto isakmp keepalive *secs*

crypto isakmp keepalive *secs* **on-demand**

crypto isakmp keepalive *secs* **periodic**

crypto isakmp keepalive *secs retries*

crypto isakmp keepalive *secs retries* **on-demand**

crypto isakmp keepalive *secs retries* **periodic**

no crypto isakmp keepalive

secs	10 3600

	retries	2 60

-	-

-	-

8.1.16 crypto isakmp nat disable

nat- traversal

crypto isakmp nat disable

no crypto isakmp nat disable

8.1.17 crypto isakmp nat keepalive

RFC3947 IPSEC NAT-t UDP nat nat keepalive

crypto isakmp nat keepalive *secs*

no crypto isakmp nat keepalive

secs	5 3600

5

next-payload doi
0

1 next-payload

-	-

-	-

8.1.19 crypto isakmp peer

peer peer ,**crypto isakmp peer**

crypto isakmp peer {bind|random}

no crypto isakmp policy

bind	3G 3G peer ipsec peer
random	peer

peer

lifetime: 3600 seconds

crypto isakmp enable	IKE
encryption {**des	3des	aes-128	aes-192	aes-256	sm1**}	
hash {**sha**	**md5**}	HASH
authentication {**pre-share**	**rsa-sig**}	
group {**1**	**2**}	Diffie-Hellman
lifetime	IKE

-	-

8.1.21 crypto isakmp rg-sm1

SM1 IKE

crypto isakmp rg-sm1

no crypto isakmp rg-sm1

-	-

IKE IKE SM1

-	-

-	-

8.1.23 crypto map (global IPSec)

crypto map **no**

crypto map *map-name seq-num* **ipsec-manual**

crypto map *map-name seq-num* **ipsec-isakmp** [**dynamic**

dynamic-map-name]

no crypto map *map-name* [*seq-num*]

map-name	
seq-num	
ipsec-manual	IPSec
ipsec-isakmp	IKE IPSec
dynamic-map-name	

IPSec

1. IPSec
2. IPSec IPSec
3. IPSec IPSec
4. IPSec
5.
6. IKE

IP

IP

IKE

IKE

IPSec

IPSec

1.

match address	
Set peer	
Set transform-set	
show crypto map	

-	-

8.1.24 crypto map (interface IPSec)

crypto map

no

crypto map *map-name*

no crypto map [*map-name*]

map-name	

IPSec

map-name *seq-num*
Seq-num

crypto map(global IPSec)	

crypto isakmp enable	IKE
encryption	
hash {**sha**	**md5**}	HASH
authentication {**pre-share**	**rsa-sig**}	
group {**1**	**2**}	Diffie-Hellman
lifetime	IKE

-	-

8.1.26 crypto mib enable

IPSec mib IPSec MIB

-	-

IPSec mib

1 ipsec mib

2 ipsec mib

Ruijie(config)# **crypto mib enable**	ipsec mib

8.1.27 crypto software

crypto software

-	-

-	=

-	-

8.1.28 debug crypto engine

IPSec **debug**

debug crypto engine

no debug crypto engine

-	-

8.1.29 debug crypto ipsec

IPSec **debug**

debug crypto ipsec

no debug crypto ipsec

-	=

-	-

8.1.30 debug crypto isakmp

IKE **debug**

debug crypto isakmp

no debug crypto isakmp

-	-

des	56 DES-CBC
3des	168 3DES-CBC
aes-128	128 AES
aes-192	192 AES
aes-256	256 AES
sm1	128 SM1

56 DES-CBC

IKE

IKE IPSec

1 IKE DES

crypto isakmp enable	IKE
hash {**sha**	**md5**}	HASH
authentication {**pre-share**	**rsa-sig**}	
group {**1**	**2**}	Diffie-Hellman
lifetime	IKE

-	-

8.1.32 group (IKE policy)

IKE Diffie-Hellman IKE **group** **no** Diffie-Hellman

group {**1|2**}

no group

1	768 Diffie-Hellman
2	1024 Diffie-Hellman

768 Diffie-Hellman group 1

IKE

IKE Diffie-Hellman

1 IKE Diffie-Hellman 1024

crypto isakmp enable	IKE
encryption {**des	3des	aes-128	aes-192	aes-256	sm1**}	
hash {**sha	md5**}	HASH
authentication {**pre-share	rsa-sig**}	
lifetime	IKE

-	-

8.1.33 hash (IKE policy)

IKE HASH IKE **hash** **no** hash

hash {**sha | md5**}

no hash

sha	SHA-1(HMAC) HASH
md5	MD5(HMAC) HASH

HASH sha

IKE

	seconds	IKE	60 86400

86400 1

IKE

IKE IKE
IKE
IKE
SA SA
IPSec IKE IPSec
IKE

1 IKE 1000

crypto isakmp enable

match address *access-list-number*

no match address

access-list-number	100-199 2000-2699 2900-3899 IP

IPSec

IKE

1 mymap 101

crypto map(global IPSec)	
show crypto map	
crypto map(interface IPSec)	

-	-

8.1.36

8.1.37 mode (IPSec)

mode **no**

mode {**tunnel** | **transport**}

no mode

tunnel|transport	

IPSec

IPSec IP IPSec

1

crypto ipsec transform-set	

-	-

8.1.38 reverse-route

ipsec

ip

reverse-route [remote-peer *ip-address*] [*distance*] **[tag** *tagvalue*] **[track** *trackvalue*]

no reverse-route [remote-peer *ip-address*] [*distance*] **[tag** *tagvalue*] **[track** *tracTm7r1 461.] TETBT1 0 0*

ip-address	
distance	
tagvalue	tag
trackvalue	track

	user-fqdn	

up

1 ( )

crypto map(interface IPSec)	
match address	
Set peer	
Set transform-set	
show crypto map	

-	-

8.1.41 set exchange-mode

IKE

set exchange-mode {**main | aggressive**}

no set exchange-mode

main	
aggressive	

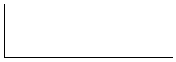
—— SA

IP

1 ( )

crypto map(interface IPSec)	
match address	
Set peer	
Set transform-set	
show crypto map	

-	



peer

ca ca

1 mymap

crypto map(global IPSec)	
show crypto map	
crypto map(interface IPSec)	

-	-

8.1.45 set security-association lifetime

IPSec

set security-association lifetime **no**

set security-association lifetime {**seconds** *seconds* | **kilobytes** *kilobytes*]}

no set security-association lifetime {**seconds** | **kilobytes**}

seconds *seconds*	
kilobytes *kilobytes*	

IKE IPSec

IPSec

IPSec

1 mymap 5 2500

crypto map(global IPSec)	
show crypto map	
crypto map(interface IPSec)	
crypto ipsec security-association lifetime	

-	-

8.1.46 set session-key

SPIs no SPIs

set session-key { inbound | outbound} ah *spi hex-key-data*

set session-key { inbound | outbound} esp *spi* **cipher** *hex-key-data* **[authenticator** *hex-key-data***]**

no set session-key { inbound | outbound} ah

no set session-key { inbound | outbound} esp

spi	
hex-key-data	16

ipsec-manual

1 mymap esp
ipsec-manual

crypto map(global IPSec) ipsec-manual	
show crypto map	
crypto map(interface IPSec)	

-	-

8.1.47 set transform-set

set

transform-set **no**

Set transform-set *transform-set-name1* [*transform-set-name2*] [*transform-set-name3*] [*transform-set-name4*] [*transform-set-name5*] [*transform-set-name6*]

no set transform-set

transform-set-name1 [*transform-set-name2*] [*transform-set-name3*] [*transform-set-name4*] [*transform-set-name5*] [*transform-set-name6*]	

1 myset

cr/ 20.64 re₩302.45 617.4i 0.12 T	

-	-

8.2.2 show crypto ipsec sa

IPSec EXEC **show crypto ipsec sa**

show crypto ipsec sa

-	-

crypto map mymap 7
sa timing: remaining key lifetime (k/sec): (4607000/3505)

1

```
Ruijie#show crypto ipsec transform-set
transform set myset3: { esp-des,}
        will negotiate = {Tunnel,}
```


-

-	-

-	-

8.2.5 show crypto isakmp sa

IKE EXEC **show crypto isakmp sa**

show crypto isakmp sa

-	-

EXEC

1

-

9

9.1

9.1.1 certificate

config-cert-chain **certificate**

no

certificate [**ca**] *certificate-serial-number*

no certificate [**ca**] *certificate-serial-number*

ca	CA
certificate-serial-number	

config-cert-chain

crypto pki certificate chain	

-	-

9.1.2 crypto pki authenticate

SCEP CA

crypto pki authenticate

crypto pki authenticate *ca_name*

crypto pki certificate peer *ip_address*

ip_address	ip

pem

crypto pki certificate peer address 192.168.50.203 // IP

% Enter PEM-formatted peer certificate.
% End with a blank line or "quit" on a line by itself.
//
quit
import peer certificate success.

Router(config)#crypto pki certificate peer address 192.168.50.203 // IP

% Enter PEM-formatted peer certificate.
% End with a blank line or "quit" on a line by itself.
-----BEGIN CERTIFICATE-----
MIIDLjCCAtigAwIBAgIQVq4HPBChfoxFro0/FVIzVzANBgkqhkiG9w0BAQUFADCB
rDEhMB8GCSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV0LmNuMQswCQYDVQQG
EwJD
TjEPMA0GA1UECBMGRnVKaWFuMQ8wDQYDVQQHEwZGdVpob3UxIDAeBgNVBA
oTF1Jl
Z2lhbnQgTmV0d29yayBDby4gTHRkMR0wGwYDVQQLExRSZXNlYXJjaCBBcGFydG
1l
bnQgNTEXMBUGA1UEAxMOQ0EgdGVzdCBzZXJ2ZXIwHhcNMDUwMjI1MDg0NjAy
WhcN
MDcwMzAxMDIzNjIzWjCBrDEhMB8GCSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV
0
LmNuMQswCQYDVQQGEwJDTjEPMA0GA1UECBMGRnVKaWFuMQ8wDQYDVQQ
HEwZGdVpo
b3UxIDAeBgNVBAoTF1JlZ2lhbnQgTmV0d29yayBDby4gTHRkMR0wGwYDVQQLExR
S
ZXNlYXJjaCBBcGFydG1lbnQgNTEXMBUGA1UEAxMOQ0EgdGVzdCBzZXJ2ZXIwXD
AN
BgkqhkiG9w0BAQEFAANLADBIAkEA2R8axg75UZJM3JZNREP62r5T8t31E7Y0taah
n/1XoWxvevShE8FZPQxMPo5i3nbYokzyLPjagqoX0+jMgMKVjwIDAQABo4HTMIHQ
MAsGA1UdDwQEAwIBxjAPBgNVHRMBAf8EBTADAQH/MB0GA1UdDgQWBBRyQ4Q
cKwNF
LYJY9YRDd/UhqkssITB/BgNVHR8EeDB2MDigNqA0hjJodHRwOi8vemotcm91dGVy
L0NlcnRFbnJvbGwvQ0ElMjB0ZXN0JTIwc2VydmVyLmNybDA6oDigNoY0ZmlsZTov
L1xcemotcm91dGVyXENlcnRFbnJvbGxcQ0ElMjB0ZXN0JTIwc2VydmVyLmNybDAQ

BgkrBgEEAYI3FQEEAwIBATANBgkqhkiG9w0BAQUFAANBAH8ufRZ2tVYO3R7YC0IF

OzmnQrjgaBN4bpmSLkxYYKtK8ZNjo0FwUL11aq6nCGp6n8Ks0dijoMxnedB2zn0a

f0w=

-----END CERTIFICATE-----

quit

import peer certificate success.

-	-

-	-

9.1.5 crypto pki crl request

CRL **crypto pki crl request** trustpoint

No

crypto pki crl request *trustpoint*

trustpoint	*trustpoint*

RGOS CRL 1M RGOS http CRL URL

1. **crypto pki crl url**

http://www.myca.cn/certsrv/mycertcrl.crl url_string
“ %20 ”
http://www.myca.cn/CertEnroll/CA%20Server.crl

url_string IP http://202.101.211.123/
http://myserver/ URL
CRL
DNS ip host
IP

1 crypto pki crl url

http://www.m142BT9716 Tm1e1.98 479.59 Q0.851 g141.9 0.F97 Tm1e 0.04 ref*297.2 0.F97169

router(config)#crypto pki enroll CA

%

%Start certificate enrollment ..

%Create a challenge password. You will need to verbally provide this password to the CA Administrator in order to revoke your certificate. For security reasons your password will not be saved in the configuration.Please make a note of it.

Password:F4EEE4FEB3766007 // CA

Re-enter password:F4EEE4FEB3766007

%The subject name in the certificate will include: router

crypto pki trustpoint	trustpoint

-	-

9.1.8 crypto pki import crl

TFTP CRL **crypto pki import** *ca_name* **crl** *tftp_url*

No

crypto pki import *ca_name* **crl** *tftp_url*

ca_name	*ca_name* trustpoint CA
terminal	
tftp_url	CRL TFTP URL

PEM RSA

PKI PC

-	-

10.4(3b15)	10.4(3b15)

9.1.9 crypto pki import pem

PEM Privacy-enhanced Mail RSA

crypto pki *ca_name* **import pem** *password* **No**

crypto pki import *ca_name* **pem terminal** *password*

ca_name	*ca_name* trustpoint CA
terminal	
password	

PEM RSA

PKI PC

1

// PEM CA

“ ”

// CA

//CA

//

// PEM

// “ quit ”
//

// “ quit ”

//

-	-

-	-

9.1.10 crypto pki trustpoint

trustpoint ca-trustpoint **crypto pki trustpoint**
NO trustpoint

crypto pki trustpoint *ca_name*

no crypto pki trustpoint *ca_name*

ca_name	*ca_name* trustpoint CA

trustpoint trustpoint
no crypto pki trustpoint *ca_name*

-	-

9.1.11 enrollment offline subject

trustpoint **enrollment offline subject**

enrollment offline subject

trustpoint

crypto pki trustpoint

percentage	*percentage* 1 100

trustpoint

crypto pki trustpoint	trustpoint

-	-

crypto pki trustpoint	trustpoint

-	-

9.1.17 debug crypto pki

pki EXEC **debug crypto pki** **no**

debug crypto pki {**event** | **error**}

no debug crypto pki {**event** | **error**}

event	pki
error	pki

9.1.18 recursion-check

CA trustpoint **recursion-check**

No

recursion-check {**none**}

no recursion-check {**none**}

none	CA

CA

trustpoint

CA CA CA CA
CA
CA CA
CA

none	

CRL

trustpoint

RGOS

CRL

-	-

-	-

9.1.21 interface

trustpoint CRL trustpoint **interface**

No

interface *interface_name*

no interface

none	

trustpoint

CRL IP

-	-

10.4(3b15)	10.4(3b15)

9.2

9.2.1 show crypto pki certificates

EXEC **show crypto pki certificates**

show crypto pki certificates [*CA_name*] [**detail**]

CA_name	Trustpoint

-	-

-	-

9.2.2 show crypto pki crls

CRL EXEC **show crypto pki crl**

show crypto pki crls [*CA_name*] [**detail**]

CA_name	Trustpoint

1

1

-	-

-	-

9.2.4 show crypto pki trustpoints *name_string* status

trustpoint EXEC **shF6 gw crypto pki trustpoints** *name_string* **status**

shgw crypto pki trustpoints *name_string* **status**

name_string	trustpoint

1

-	-

-	-

10 AAA

10.1

10.1.1 aaa authentication dot1x

AAA 802.1X **aaa authentication dot1x** 802.1X no 802.1X

aaa authentication dot1x {**default** | *list-name*} *method1* [*method2*...]

no aaa authentication dot1x {**default** | *list-name*}

default	802.1X
list-name	802.1X
method	“ local none group ” 4
local	
none	
group	RADIUS

Œ

aaa new

aaa new-model	AAA
enable	
username	

-	-

10.1.3 aaa authentication login

AAA Login **aaa authentication login**

Login r õ r õ ʌ

web portal AAA web
aaa authentication web web

web_auth AAA web
RADIUS RADIUS

aaa new-model	AAA
username	
web-auth	Web

0.12003 reW* n g66.864 79.35 0.24001 58.3W*19f*66.864 39ET35 0.24001 58.3W*19f*6

14 14

TACACS+ 15

aaa new-model	AAA
authorization commands	

-	-

10.2.2 aaa authorization config-commands

AAA

aaa authorization config-commands no AAA

aaa authorization config-commands

no aaa authorization config-commands

-	-

no

aaa new-model	AAA
aaa authorization commands	AAA

-	-

10.2.4 aaa authorization exec

AAA NAS CLI Exec
aaa authorization exec no AAA Exec

aaa authorization exec {**default** | *list-name*} *method1* [*method2*...]

no aaa authorization exec {**default** | *list-name*}

default	Exec
list-name	Exec
method	“ local none group ” 4
local	
none	
group	RADIUS TACACS+

AAA Exec

RGOS NAS CLI CLI 0~15
Login Exec Exec
CLI
Exec Exec

RADIUS Exec

aaa new-model	AAA

-	-

10.2.5 aaa authorization network

AAA PPP SLIP
aaa authorization network no AAA

aaa authorization network {**default** | *list-name*} *method1* [*method2*...]

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

default	Network
method	“ none group ” 4
none	
group	RADIUS TACACS+

AAA Network

RGOS PPP SLIP

RADIUS TACACS+

RADIUS

aaa new-model	AAA

aaa authentication	AAA
username	

-	-

10.2.6 authorization commands

authorization

commands no

authorization commands *level* {**default** | *list-name*}

no authorization commands *level*

level	0~15
default	
list-name	

AAA

cmd 15 TACACS+
none VTY 0 4

aaa new-model	AAA

aaa authorization commands	AAA

-	-

10.2.7 authorization exec

Exec **authorization exec**

no Exec

authorization exec {**default** | *list-name*}

no authorization exec

-	-

10.3

10.3.1 aaa accounting commands

NAS

aaa accounting commands no

aaa accounting commands *level* {**default** | *list-name*} **start-stop** *method1* [*method2*...]

no aaa accounting commands *level* {**default** | *list-name*}

level	0~15
default	
list-name	
method	“ **none** **group** ” 4
none	
group	TACACS+

RGOS

none

TACACS+ 15

aaa new-model	AAA
aaa authentication	AAA
accounting commands	

RADIUS NAS

aaa new-model	AAA
aaa authentication	AAA
accounting commands	Exec

-	-

10.3.3 aaa accounting network

aaa accounting network no

aaa accounting network {**default** | *list-name*} **start-stop** *method1* [*method2*...]

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

default	Network
list-name	
start-stop	
method	4
none	
group	RADIUS TACACS+

Ŷ . ¾ T .

RADIUS

-	-

10.3.6 accounting commands

accounting

commands no

accounting commands *level* {**default** | *list-name*}

no accounting commands *level*

level	0~15
default	
list-name	

cmd 15 TACACS+
none VTY 0 4

aaa new-model	AAA
aaa accounting commands	AAA

	-	-

10.3.7 accounting exec

Exec **accounting exec**
no Exec

accounting exec {**default** | *list-name*}

no

10.4 AAA

10.4.1 aaa domain

no

aaa domain {**default** | *domain-name*}

no aaa domain {**default** | *domain-name*}

default	
domain-name	

AAA default
domain-name
32

aaa new-model	AAA
aaa domain enable	AAA
show aaa domain	

-	-

10.4.2 aaa

ruijie.com 20

aaa new-model	AAA
aaa domain enable	AAA
show aaa domain	

-	-

10.4.4 accounting network

Network no

accounting network {**default |** *list-name*}

no accounting network

list-name	

ault

aaa domain enable	AAA
show aaa domain	

-	-

10.4.6 authorization network

Network no

authorization network {**default** | *list-name*}

no authorization network

default	
list-name	

default

default	
domain-name	

domain.com

aaa new-model	AAA
aaa domain enable	AAA

-	-

10.4.9 username-format

NAS no

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

no username-format

AAA

AAA RADIUS TACACS+

show aaa group	aaa

-	-

10.5.2 ip vrf forwarding

AAA vrf no

ip vrf forwarding *vrf_name*

no ip vrf forwarding

vrf_name	vrf

vrf

aaa group server	aaa
show aaa group	aaa

-	-

10.5.3 server

AAA no

server *ip-addr* [

aaa group server	aaa
show aaa group	aaa

-	-

10.5.4 show aaa group

AAA

show aaa group

-	-

AAA

AAA

no aaa new-model

-	-

AAA

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

AAA

show running-config	
show aaa lockout	login

-	-

10.6.5 debug aaa

AAA **no**

debug aaa event

no debug aaa event

-	-

EXEC

	-	-

10.6.7 show aaa user lockout

show aaa user lockout {**all** | **user-name**

11 RADIUS

11.1 RADIUS

11.1.1 ip radius source-interface

radius **ip radius source-interface**
no RADIUS

ip radius source-interface *interface*
no radius source-interface

Interface radius

radius

radius nas
radius ip radius

radius GigabitEthernet 0/0 ip radius

radius-server host	RADIUS
ip address	ip

11.1.3 radius-server key

RADIUS

radius-server key no

radius-server key *text-string*

no radius-server key

text-string

RADIUS

RADIUS RADIUS

3

AAA

RADIUS

4

radius-server host	RADIUS
radius-server key	RADIUS
radius-server timeout	RADIUS

11.1.5 radius-server timeout

RADIUS

radius-server timeout **no**

radius-server timeout *seconds*

no radius-server timeout

seconds 1-1000

5

10

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

11.1.6 radius-server deadtime

t t

deadtime RGOS RADIUS

radius-server deadtime **no**

radius-server deadtime *minnutes*

no radius-server deadtime

minnutes 1-1000

5

10

radius-server host	RADIUS

19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilige	22

qos cos dscp

radius vendor-specific extend	Radius id

11.1.9 radius vendor-specific extend

id

radius vendor-specific extend

no radius vendor-specific extend

id

id

radius attribute	
radius set	qos cos

11.2 RADIUS

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

11.2.1 debug radius

RADIUS no RADIUS

debug radius [**event | detail**]

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

EXEC

11.2.2 show radius server

RADIUS

show radius server

radius

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

11.2.3 show radius parameter

RADIUS

show radius parameter

radius

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

11.2.4 show radius vendor-specific

RADIUS

show radius vendor-specific

radius

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

TACACS+

12.1.2 ip tacacs source-interface

TACACS+

TACACS+

TACACS+ vrf

TACACS+ VRF vpn1

host

TACACS+

tac1 TACACS+ 1.1.1.1
TACACS+

aaa group server tacacs+	TACACS+
ip vrf forwarding	TACACS+ VRF

-	-

12.1.5 tacacs-server host

TACACS+ IP

tacacs-server host {*ip-address* | *ipv6-address*} [**port** *integer*] [**timout** integer] [**key** *string*]

no tacacs-server host {*ip-address*

tacacs-server host TACACS+

TACACS+

aaa authentication	AAA
tacacs-server key	TACACS+
tacacs-server timeout	TACACS+

-	-

12.1.6 tacacs-server key

TACACS+

tacacs-server key [*0* | *7*] *string*

no tacacs-server key

string	
0	*7*	0 7

TACACS+ TACACS+

TACACS+

tacacs-server host key

tacacs-server host	TACACS+
tacacs-server timeout	TACACS+

-	-

12.1.7 tacacs-server timeout

TACACS+

tacacs-server timeout *seconds*

no tacacs-server timeout

seconds	1-1000

5

1.

tacacs-server host timeout
timeout timeout

2. ip tcp syntime-out

10

tacacs-server host	TACACS+
tacacs-server key	TACACS+

-	-

+

acs+

CS+ no TACACS+

acs+

tacacs+

-	-

-	-

TACACS+

tacacs-server host	TACACS+

1. VRRP
2. MULTI-LDP
3. RNS&Track

1 VRRP

1.1

VRRP

- **vrrp authentication**
- **vrrp delay**
- **vrrp description**
- **vrrp ip**
- **vrrp preempt**
- **vrrp priority**
- **vrrp timers advertise**
- **vrrp timers learn**
- **vrrp track**

1.1.1 vrrp authentication

VRRP **no**

vrrp group authentication *string*

no vrrp *group* **authentication**

group VRRP

string VRRP (8)

VRRP VRRP

VRRP 1

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

1.1.2 vrrp delay

VRRP

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

no vrrp delay

min-seconds VRRP *min-seconds*

reload-seconds VRRP *min-seconds*
reload-seconds VRRP *min-seconds*

VRRP

UP VRRP
VRRP
0~60

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

RGNOS10.3(4)

1.1.3 vrrp description

VRRP **no**

vrrp *group* **description** *text*

no vrrp group description

group VRRP

text VRRP

VRRP VRRP

VRRP

VRRP VRRP

E0 VRRP 1 Building A Marketing and Administration

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

1.1.4 vrrp ip

VRRP IP **no** VRRP IP

vrrp *group* **ip** *ipaddress* [**secondary**]

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

group VRRP

ipaddress IP

secondary IP

VRRP

secondary IP IP VRRP IP no VRRP IP IP

0 VRRP VRRP 1 IP 10.0.1.20 IP 10.0.2.20

Ruijie# **show vrrp** [**brief | group**]	VRRP

1.1.5 vrrp preempt

VRRP no VRRP

vrrp *group* **preempt** [**delay** *seconds*]

no vrrp *group* **preempt** [**delay**]

group VRRP

delay *seconds* Master

0

VRRP VRRP VRRP

VRRP /

VRRP VRRP
1

VRRP VRRP
VRRP

VRRP 4

Ruijie(config-if)# **vrrp** *group* **i**

VRRP

VRRP VRRP

Master VRRP

Master VRRP

VRRP 1

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

1.1.9 vrrp track

VRRP **vrrp** *group* **track** *interface-type number* VRRP IP **vrrp** *group* **track** *ip-address* **vrrp** *group* **track bfd** BFD

Ruijie(config-if)# **vrrp** *group* **ip** *ipaddress* [ ]	VRRP IP
Ruijie(config-if)# **vrrp** *group* **priority** level	VRRP

1.2 VRRP

VRRP

- **debug vrrp**
- **debug vrrp errors**
- **debug vrrp events**
- **debug vrrp packets**
- **debug vrrp state**

1.2.1 debug vrrp

VRRP VRRP VRRP **no**

debug vrrp

no debug vrrp

VRRP

VRRP

1.2.4 debug vrrp packets

VRRP **no**

debug vrrp packets

no debug vrrp packets

VRRP

VRRP VRRP 1

, VRRP VRRP 1
IP VRRP 1

VRRP

VRRP

VRRP

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

2.1.2 multi-ldp

no

multi-ldp icmp *dest-ip1* [*next-hop*] [**dns** *dest-ip2*] [**tcp** *dest-ip3* [**port** *port-value*]] [**interval** *value1*] [**retry** *value2*] [**resume** *value3*]

no multi-ldp

dest-ip1	icmp	IP

-	

-

10.3 4t90	

2.2

2.2.1 show multi-ldp interface

show multi-ldp interface [*interface-name*]

ow2mu 366.65 395.11 395.83 re*nBT/F14 9.96 Tf1 0 0 1 249.41 753.9

3 RNS & Track

3.1 delay

track

delay { *up seconds* [*down seconds*] | [*up seconds*] *down seconds* }

-	-

operation-number	ip rns 1 700

-

ip-rns icmp dns

1 ip rns

```
Ruijie(config)# ip rns 1
```

-	-

-

3.8 show ip rns statistics 3.8

RNS

show ip rns statistics [*operation-number*]

operation-number	ip rns 1 700

-

RNS

-

-	-

milliseconds	

icmp echo 5 dns 9

icmp ehco dns

-

-

rns rns up
rns track up

123 track 1 rns

```
Ruijie(config)# track 123 rns 1
```

1.

2. CPU-LOG

3.

4.

5. USB

1.2

1.2.1 show dev-audit

show dev-audit { **cpu | memory | flash** } [**from** *year* [*month* [*day* [*hh:mm:ss* [**to** *year* [*month* [*day* [*hh:mm:ss*]]]]]]]]

cpu	CPU
memory	
flash	
from	
to	
year	1970 2035
month	1 12
day	1 31
hh:mm:ss	00:00:00 59:59:59

CPU

NPE

2 CPU-LOG

2.1

- **show cpu**
- **cpu-log**
- **show environment**

2.1.1 show cpu

CPU **show cpu**

show cpu

CPU 5 1
5 CPU 5 1
5 CPU

show cpu

2.1.2 cpu-log

CPU , **cpu-log**

cpu-*log* *log-limit low_num high_num*

log-limit

low_num CPU

high_num CPU

100% 90%

Æ7Ð Ždl-O"0FBGqTVSbPåCuYvTFLipÉYvTFLÞ¼TFBâiÆCvTFBŽ0ødtd WTVSbPåAYVGFB€%dtd!ždtd

show environment

CPU

show environment

CPU 30

3

3.1

3.1.1 threshold set

3 CPU

CPU MIB

CPU

1 M1

2 CPU

show threshold	

10.3(4b3)	

3.2

3.2.1 show threshold

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*


1
M1
CPU
2

4

4.1

show memory
memory-lack exit-policy
show memory protocols

4.1.1 show memory

show memory

show memory

show memory

1. 4k

1 BGP

show memory	

-

10.3(4b3)	

4.1.3 show memory protocols

show memory protocols

BGP,OSPF,RIP,LDP,PIM,ISIS

1 show memory protocols

show memory	

-

10.3(4b3)	

5 USB

5.1

CLI USB

- USB **show usb**
- USB **usb remove**

5.1.1 show usb

USB

show usb

USB

show usb :

USB Mass Storage Device

ID ID remove

Lun ID id

Disk Partitions
/dev/uba/disc0/part1 /mnt/uba cd /mnt/uba

5.1.2 usb remove

usb remove *Device_ID*

Device_ID USB

usb

USB

usb

1.

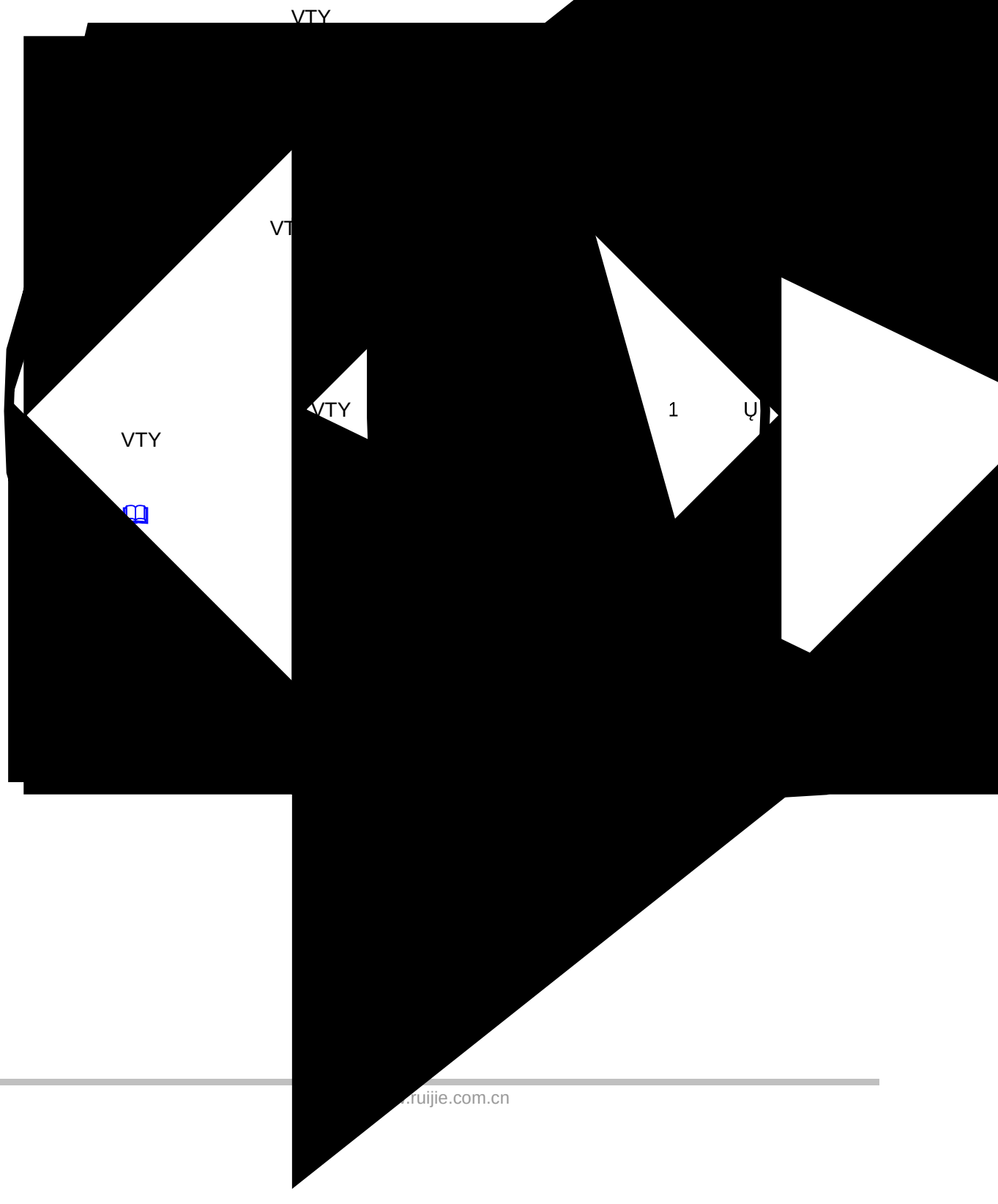
2. RLOG

3. SNMP

4. APM

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

1.1.2 terminal monitor



buffer-size 4K 128K Bytes

levelI 0 7

4k Bytes

7

show logging

clear

logging Ãà T 'f 5 Ÿ FLASH

6 6 10000

logging on	
show logging	
clear logging	

1.1.4 logging server

Syslog Sever

Syslog server **Syslog Server** no

logging server {*ip-address* [**vrf** *vrf-name*] | **ipv6** *ipv6-address*}

no logging server {*ip-address* [**vrf** *vrf-name*] | **ipv6** *ipv6-address*}

ip

logging on	
show logging	
logging trap	syslog server

6

logging on	
show logging	

1.1.7 logging monitor

VTY telnet SSH
no VTY

logging monitor *level*

no logging monitor

level
1

Debugging (7)

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

Logging monitor VTY

VTY 6

logging on	

show logging	

1.1.8 logging trap

Syslog Server

no Syslog Server

logging trap *level*

no logging trap

level

1

Informational(6)

Syslog Server logging Syslog Server logging trap

show logging

6 202.101.11.22 Syslog Server

logging on	
logging	Syslog Server
show logging	

1.1.9 logging source interface

no

logging source interface *interface-type interface-number*

no logging source interface

interface-type

interface-number

Syslog Server

Loopback 0 Syslog

logging server	Syslog Server

1.1.10 logging source ip| ipv6

no

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

no logging source {**ip** | **ipv6**}

ip-address IPV4 IPV4

ipv6-address IPV6 IPV6

Syslog Server

Loopback 0

logging console	

1.1.12 logging count

no

logging count

no logging count

no logging count

show logging count	
show logging	

1.1.13 logging rate-limit

no

logging rate-limit {*number* | *all number* | *console* {*number* | *all number*}} [*except severity*]

no logging rate-limit

number 1 10000

all 0 7

console

except error(3)
error

severity 0 7;

debug 10 warning

show logging count	
show logging	

1.1.14 logging synchronous

no

logging synchronous

no logging synchronous

UP-DOWN

show running-config	

1.1.15 service sequence-numbers

no

service sequence-numbers

no service sequence-numbers

show logging	

1.1.18 more flash

FLASH Ǝ ⊦

Ŏ ®

logging file flash:	FLASH

1.1.19 clear logging

clear logging

logging on	
show logging	
[redacted]	

show logging

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

logging on

logging count	
show logging	
clear logging	

2 RLOG

2.1

2.1.1 rlog export-rate

rlog export-rate *number*

no rlog export-rate

number	

1000

1

-	-

50

-

-	-

2.1.2 rlog filter

rlog filter *number*

no rlog filter

number	ACL

ACL

1 ACL 2000

-	-

-

NPE50 NPE

vrf-name	VRF
port-num	

udp

20000

1

-	-

-

10.3(4T76)	oob
10.3(4T90)	port

2.1.4 rlog type

rlog type *n* **server** *server-ip* **priority** *prio*

no rlog type *n* **server** *server-ip*

n	
server-ip	ip

prio

-

1

-	-

-

-

10.3(4T76)	

2.1.6 ip nat-log on

nat

-

10.3(4T76)	

2.2

2.2.1 **show rlog**

Show rlog

-	-

-

1

-	-

-	-

2.2.2 **show rlog-type**

Show rlog-type

-	-

-

-	-

-

10.3(4T76)	

2.2.3 **show rlog-status**

Show rlog-status server *server-ip*

-	-

-

10.3(4T76)	

2.2.4 **show nat-log**

NAT/

Show nat-log [username *user_name***] [ip-protocol** *ip-protocol***] [source-ip** *source-ip***] [dst-ip** *dst-ip***] [src-port** *src-port***] [dst-port** *dst-port***] time-interval** *begin-year begin-mon begin-day begin-hour* **to** *end-year end-mon end-day end-hour*

user_name	
ip-protocol	
source-ip	ip
dst-ip	ip
src-port	
dst-port	
begin-year	
begin-mon	
begin-day	

end-hour	

-

/NAT , ip ip

1 2010 10 6 3 5

-	-

NAT/

-

10.3(4T76)

3 SNMP

3.1

3.1.1 no snmp-server

SNMP **no snmp-server**

no snmp-server

SNMP

SNMP

SNMP

3.1.2 snmp-server chassis-id

SNMP **snmp-server chassis-id**
no

snmp-server chassis-id *text*

no snmp-server chassis-id

text

60FF60

SNMP

show snmp

SNMP 123456:

show snmp	SNMP

3.1.3 snmp-server community

SNMP **snmp-server community**
no SNMP

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

no snmp-server community *string*

string NMS SNMP

view-name

ro NMS MIB

rw NMS MIB

number 0-99 MIB NMS

ipaddr NMS MIB NMS

SNMP
MIB NMS

SNMP **no snmp-server**

MIB 192.168.12.1 NMS
MIB

access-list	

3.1.4 snmp-server contact

SNMP **snmp-server contact**
no SNMP

snmp-server contact *text*

no snmp-server contact

text

SNMP i-net800@i-net.com.cn

show snmp-server	SNMP
no snmp-server	SNMP

ipv6-addr SNMP ipv6

vrfname vrf

version snmp V1 V2C V3

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

community-string V3

port-num snmp

notification-type snmp

SNMP

snmp-server enable traps NMS

SNMP

vrf [vrf]

SNMP SNMP

snmp-server enable traps	

3.1.7 snmp-server location

SNMP **snmp-server location**

no SNMP

snmp-server location *text*

text

snmp-sever contact	SNMP

3.1.8 snmp-server packetsize

SNMP **snmp-sever packetsize**
no

snmp-server packetsize *byte-count*

no snmp-server packetsize

byte-count 484 17876

1500

SNMP 1492

snmp-server enable host	NMS

3.1.12 snmp-server trap-timeout

snmp-server

trap-timeout no

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

seconds

30

60

username

groupname

v1 | **v2** | **v3** SNMP v3

encrypted

16 MD5
16 SHA 20

auth **md5** MD5 **sha** SHA

auth-pass125 word

write

MIB-2 oid 1.3.6.1

show snmp view	SNMP

3.1.16 snmp-server if-index persist

snmp-server if-index persist

no snmp-server if-index persist

j9n4 157.22 19.824 re

show run

3.2

3.2.1 show snmp

SNMP **show snmp**

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

show snmp SNMP

show snmp mib snmp mib

show snmp user snmp

show snmp view

snmp-server *chassis-id*	SNMP