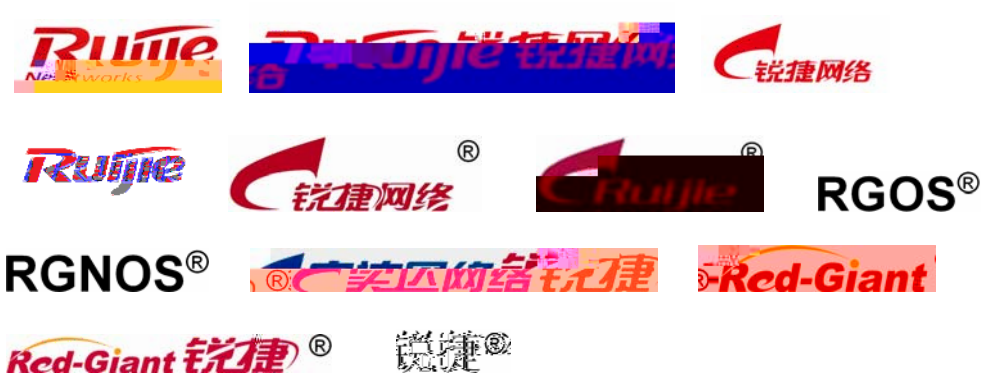
RG-NBR

RGOS 10.3(4b8)p3

V1.0

4008-111-000
http://www.ruijie.com.cn

©2000-2013



4008-111-000
http://www.ruijie.com.cn

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

http://webchat.ruijie.com.cn

8:30 6 “ ”

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

7 × 24 4008-111-000

http://support.ruijie.com.cn

service@ruijie.com.cn

WEB	WEB

! ?Ô

RGOS®10.3 (4b8)p3

//

3.

a !

!

4.

1.

2.

3.

4.

5. HTTP

1

no default

CLI

CLI

CLI

1.1

?

User EXEC

show

Privileged EXEC

“Ruijie”

abbreviated-command-entry?	Ruijie# di? dir disable
abbreviated-command-entry<Tab>	Ruijie# show conf<Tab> Ruijie# show configuration
?	Ruijie# show ?
command keyword ?	Ruijie(config)# snmp-server community ? WORD SNMP community string

1.3

show configuration

Ruijie# show conf

1.4 no default

no no

% Ambiguous command:
"show c"

1.7.1

	Ctrl-B	
	Ctrl-F	
	Ctrl-A	
	Ctrl-E	
	Backspace	
	Delete	
	Return	
	Space	

1.7.2

interface
$static 00d0.f800.0c0c vlan 1 interface fastEthernet
$static 00d0.f800.0c0c vlan 1 interface fastEthernet 0/1

Ctrl-A
$

-address-table static 00d0.f800.0c0c vlan 1 interface $

a _É!

80

1.8 CLI

1.8.1 Show

show

show ئم

Ruijie# showany-commanɖ
include regular-expression

start-terminal-service

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

”ia” ”ip address”

Ruijie(config-if)# ia ?
A.B.C.D IP address
dhcp IP Address via DHCP

Ruijie(config-if)# ip address

”ip address”

show aliases

1.9.1 CLI

CLI PC
CLI
Console Outband
Telnet

2

2.1

CLI

2.1.1

2.1.1.1

TFTP

enable secret

2.1.1.2

15

2.1.1.3

Step 1	15
Ruijie(config)# **enable password** [**level** level] {password | encryption-type encrypted-password}	15 15 15

Step 2	Ruijie(config)# **enable secret** [**level** level] {encryption-type encrypted-password}	
Step 3	Ruijie(config)#**service password-encryption**	
Step 4	Ruijie# **enable** [level] Ruijie# **disable** [level]	

level

2.1.1.4

1

15 16

2.1.1.4.1

Step 1	Ruijie# **configure terminal**	
Step 2		

Ruijie(config)# **privilege** mode [**all**] {/C2TT2 1 Tf (mode)Tc 0 Tw 4.Tj /C2_0 1 f -0.0024 Tc 8.30023 Tw 1 Tw -8.2

no privilege mode [**all**]

level level command

2.1.1.4.2

reload 1 1

”**test**”

Ruijie# configure terminal

Ruijie(config)# privilege exec all level 1 reload

Ruijie(config)# enable secret level 1 0 test

Ruijie(config)# end

1

Ruijie# disable 1

Ruijie> reload ?

at reload at a specific time/date

cancel cancel pending reload scheme

in reload after a time interval

<cr>

reload

Ruijie# configure terminal

Ruijie(config)# privilege exec all reset reload

Ruijie(config)# end

1

Ruijie# disable 1

	line

2.1.1.6

lock

line EXEC

lock

Step 1	Ruijie(config-line)# **lockable**	**line**
Step 2	Ruijie# **lock**	**line**

2.1.2

2.1.2.1

AAA

RADIUS

RADIUS

RADIUS

web ePortal

ePortal

2.1.2.2

AAA

AAA

web

Step 1	Ruijie(config)# **username** name [**web-auth**] [**pwd-modify 0|1**] [**password** password	**password** encryption-type encrypted password]	, (AAA)
Step 2	Ruijie(config)# **username** name [**privilege** level]	

2.1.2.3 web

/

csv txt csv excel

csv excel

aaa aaa
bbb bbb
ccc ccc

Txt :

```
aaa,aaa
bbb,bbb
ccc,ccc
```

web CLI CLI

Step 1	Ruijie# **username import** filename	flash flash
Step 2	Ruijie# **username export** filename	web flash web tftp

2.1.2.4

Step 1	Ruijie(config-line)# **login local**	AAA
Step 2	Ruijie(config-line)# **login authentication** {**default**	list-name}	AAA AAA AAA Radius

2.1.3.4

calendar

clock update-calendar

Step 1	Ruijie# **clock update-calendar**	

Ruijie# clock update-calendar

2.1.4

2.1.4.1

reload [modifiers] scheme

( )

modifers **reload**

modifiers **in at cancel**

reload in mmm | hhh:mm [string]

mmm hhh:mm

string

10 **reload in** 10 test

reload at hh:mm month day year [string]

I 6

reload cancel

8 30

reload cancel

	at 31 ,

2.1.4.2

Step 1	Ruijie# **reload at** hh:mm month day [year] [reload-reason]	year month day hh mm reload relaod reload-reason ( )

2005 1 11 12:00 (

2005 1 11 8:30)

Ruijie# reload at 1 2:00 1 11 2005 midday //

Ruijie# show reload //

Reload scheduled in 16581 seconds.

At 2005-01-11 12:00

Reload reason: midday

2.1.4.3

Step 1	Ruijie# **reload in** mmm [reload-reason]	mmm **reload** **reload** reload-reason( )
Step 2	Ruijie# **reload in** hhh:mm [reload-reason]	hhh mm **reload** **reload** reload-reason( )

125 **reload** (2005-01-10 12:00)

Ruijie# reload in 125 test //
Ruijie# reload in 2:5 test //
Ruijie# show reload //

System will reload in 7485 seconds.

2.1.4.4

reload

reload

2.1.4.5

Step 1	Ruijie# **reload cancel**	

2.1.5

2.1.5.1

(System Name)

CLI 32

32

“ Ruijie ”

2.1.5.2

Step 1	Ruijie(Config)# **hostname** name	32

no hostname

RGOS

Ruijie# configure terminal //
Ruijie(config)# hostname RGOS // RGOS

RGOS(config)# //

2.1.5.3

32

32

prompt EXEC

Step 1

(message of the day) c (’&’)

Ruijie(config)# **banner motd** c message c

```
Ruijie(config)#
```

2.1.7.3

Length: 25 lines, Width: 80 columns
Special Chars: Escape Disconnect Activation
^^x none ^M
Timeouts: Idle EXEC Idle Session
never never
History is enabled, history size is 10.
Total input: 22 bytes
Total output: 115 bytes
Data overflow: 0 bytes
stop rx interrupt: 0 times
Modem: READY

2.1.9 telnet

2.1.9.1

Telnet TCP/IP

Trying 192.168.65.119 ... Open
User Access Verification //
Password:

2.1.9.3 Telnet Server

Telnet Server

Step 1	Ruijie# **enable service telnet-server**	Telnet Server IPV4

2.1.10

2.1.10.1

2.1.10.2

LINE

Step 1		LINE
	Ruijie(config-line)# **exec-timeout** minutes [seconds]	minutes seconds

LINE **no exec-timeout** LINE

Ruijie# configure terminal //
Ruijie# line vty 0 // LINE
Ruijie(config-line)# exec-timeout 20 // 20min

2.1.10.3

LINE

LINE

Step 1		LINE
	Ruijie(config-line)# **session-timeout** minutes [**output**]	minutes **output**

LINE **no exec-timeout** LINE

Ruijie# configure terminal //
Ruijie(config)# line vty 0 // LINE
Ruijie(config-line)# session-timeout 20 // 20min

2.1.11

CLI

Step 1	Ruijie# **execute** {[**flash:**] filename}	

line_rcms_script.text **Telnet**

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

Ruijie# execute flash: line_rcms_script.text
executing script file line_rcms_script.text .....
executing done
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# line vty 1 16
Ruijie(config-line)# transport input all
Ruijie(config-line)# no exec
Ruijie(config-line)# end

	PC TFTP Flash CLI

2.1.12

SNMP Server/SSH Server/Telnet Server/Web Server

Step 1	Ruijie(Config)# **enable service snmp-agent**	SNMP Server
Step 2	Ruijie(Config)# **enable service ssh-sesrver**	SSH Server
Step 3	Ruijie(Config)# **enable service telnet-server**	Telnet Server
Step 4	Ruijie(Config)# **enable service web-server**	Http Server https server

no enable service

Ruijie# configure terminal //
Ruijie(config)# enable service ssh-server // SSH Server

http ò ź - ɑ ȳ Ò ò א all Ò
http https http
http https https

a	https ,https httpd_cert.crt httpd_key.pem tftp

2.1.13 HTTP

Web

https server port: 4443

a	http https http https , http https http https http

3

3.1

Flash

Flash

3.2

3.2.1

4096

a _ É !

flash 128M

dir

flash flash 32M
512K flash
USB flash USB
flash 512K

flash flash 512M
4M flash
USB flash USB
flash 4M

flash 110%

10MB flash
10MB flash 11MB

3.2.2

Ruijie# cd directroy	directory
Ruijie# cd ../	
Ruijie# cd ./	

MNT Document

Ruijie# cd

Ruijie# copy flash: filenameflash: directoryname	
Ruijie# copy flash: filenamesour directoryname	

Ruijie# copy flash: config.tex flash: tmp/
Ruijie# copy flash: con_bak.txt flash: config.text

3.2.4

Ruijie# dir	
Ruijie# dir directory	

Ruijie# dir
Ruijie# dir ../bak

3.2.5

Ruijie# makefs devdevnamefs fs_name	fs_name dev

dev MTD JFFS2

Ruijie# makefs dev /dev/mtd/mtdblock/1 fs jffs2

JFFS2 MTDBLOCK

3.2.6

Ruijie# mkdir directoryname	

BAK

Ruijie# mkdir bak

3.2.7

Ruijie# rename flash: old_filename flash: new_filename	old_filename new_filename

3.2.8

Ruijie# pwd	

3.2.9

Ruijie# rm [recursive] filename	
Ruijie# delete[recursive] filename	

MNT large.c

Ruijie# delete mnt/large.c

aaa

Ruijie# delete recursive aaa

3.2.10

Red-Giant# rmdir directoryname	

MNT

Ruijie# rmdir mnt

4

4.1

CTRL

TFTP

Xmodem

4.2

TFTP

XMODEM

4.2.1 TFTP

CLI

TFTP Server

Location TFTP Server IP

Ruijie# copy tftp: //location/ filename flash: filename [vrf vrfname]	URL filename

CLI

TFTP Server

Ruijie# copy flash: filename tftp: //loca tion/filename [vrf vrfname]	filename URL

a _É!

tftp

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

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

4.2.2 XMODEM

CLI

Windows

Windows “

” “ ” ñ

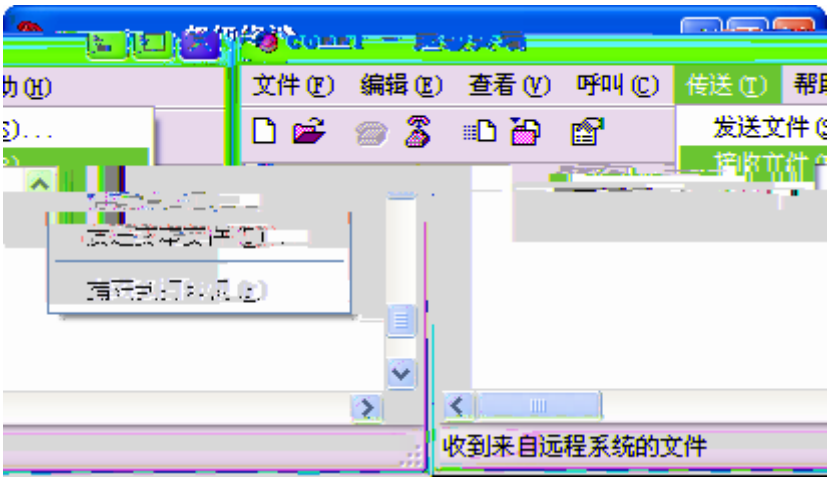
Ruijie# copy xmodem flash:filename	filename

CLI

Windows

Windows “

” “ ”



“Xmodem” “

” “ ”

a _É!

copy xmodem flash:"filename" copy flash:"filename" xmodem

4.2.3

tftp xmodem

1

2

a _É!

show version

redundancy force-switchover

1 rgos.bin

2 copy

3

Upgrade Slave CM MAIN successful!!

Upgrade CM MAIN successful!!

1

2

The version synchronization of card in slot [3] get finished successfully.

---

a _É!

\!

---

5 HTTP

5.1 HTTP

5.1.1 HTTP

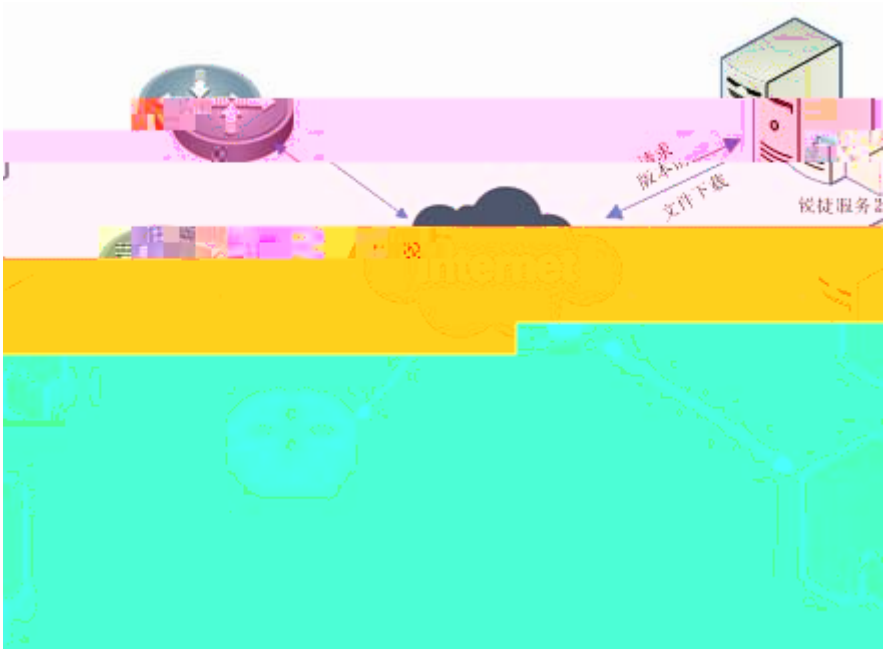
HTTP HTTP HTTP
HTTP HTTP

HTTP HTTP WEB

5.1.2

HTTP

CLI Ò



HTTP WEB

5.1.3

RFC1945 - Hypertext Transfer Protocol -- HTTP/1.0
RFC2616 - Hypertext Transfer Protocol -- HTTP/1.1
RFC1867 - Form-based File Upload in HTML

5.2

5.2.1

5.2.2

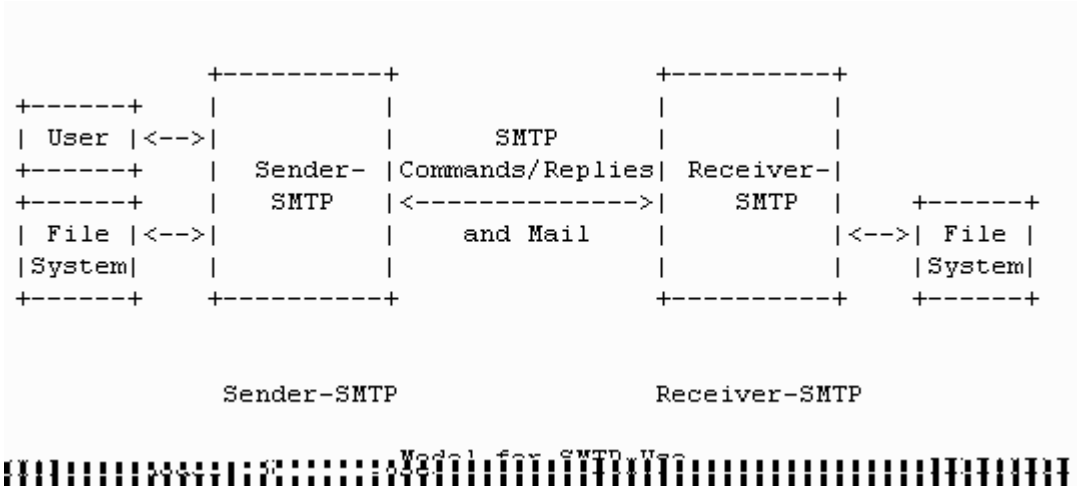
HTTP

1. 1
2. 2 HTTP

1.
2.

SMTP

SMTP



Model for SMTP Use

SMTP

Sender-SMTP

لإ فح f عي

HTTP

HTTP HTTP POST FORM

5.2.3

RFC1945 - Hypertext Transfer Protocol -- HTTP/1.0
RFC2616 - Hypertext Transfer Protocol -- HTTP/1.1
RFC1867 - Form-based File Upload in HTML
RFC821 - Simple Mail Transfer Protocol -- SMTP
RFC822 – Standard for the format of arpa internet text messages -- MIME

5.3

HTTP

	0.0.0.0
	80

HTTP POST	

5.4 HTTP

1. Â
2. Â

5.4.1

HTTP

Step 1	http check-version	
Step 2	http update { all | string}	

HTTP

Ruijie# http check-version

files need to be updated: web, config, character-db, normal.

bin:

support identification of 31 kinds of popular games.

Ruijie# http update web character-db // WEB

updating files, please wait...

update success!

5.4.2

HTTP 0.0.0.0 80

Step 1	configure terminal	
Step 2	http update server host [port port-value]	
Step 3	show running	

#

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# http update server 10.83.132.1

Ruijie(config)# exit

5.5

1. Â
2. Â
3. Â
4. Â

5.5.1

HTTP

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# http update set oob	
Step 3	Ruijie# show running	

no http update set oob

HTTP

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# http update set oob

Ruijie(config)# exit

5.5.2

HTTP

no http update mode

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# http update mode { auto-update | auto-detect | manual }	
Step 3	Ruijie(config)# http update auto-update { all | string }	
Step 4	Ruijie(config)# end	
Step 5	Ruijie# show running	

	http update mode manual

HTTP URL

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# http update mode auto-update
Ruijie(config)# http update auto-update url-db character-db route-db
Ruijie(config)# exit
```

5.5.3

HTTP

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# http update time daily mm:ss	
Step 3	Ruijie# show running	

no http update set oob

3 HTTP

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# http update time daily 03:00
Ruijie(config)# exit
```

5.5.4

HTTP

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# http update set oob	

Step 3	Ruijie# show running	

no http update set oob

HTTP

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# http update set oob

Ruijie(config)# exit

5.6

5.6.1

i8Sj30ËN65573%x2,%DF92RÎTU@2>û)C°

5.6.2

Step 2 Ruijie(config)# **feedback user-info**

no. name ignore

1, no memory, NO

2, no flash, YES

3, high cpu, NO

5.6.6

mail-service enable

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          no mail-service enable
Ruijie(config)#          end
```

5.7.2 SMTP

SMTP

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# mail-client smtp-server host [port value]	SMTP
Step 3	Ruijie(config)# mail-client username	

1.246 -0c 0 Tw47.93 [ET <03C> 6 <0D040D0A605B516456] 19A2DD58 [1 0 1 0 1 0

1.

2.

3.

4.

5.

6. Port VLAN

7. Native VLAN

8.

9. ip/mac

10. LINE

11.

12.

1

1.1

Ruijie

Dialer NULL

Loopback

Ruijie

	GigabitEthernet tenGigabitEthernet	IEEE802.3 RFC894
Dialer	dialer	—
Loopback	Loopback	—
NULL	NULL	—
	GigabitEthernet 0/0.10( )	—

1.2

1.2.1

Ruijie(config)# **interface** interface-type interface-number	
Ruijie(config)# **no interface** interface-type interface-number	

0 0

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

1.2.2 IP

NULL

Ruijie(config-if)# **bandwidth** kilobits	Bandwidth
Ruijie(config-if)# **no bandwidth**	Bandwidth

1.3

1.3.1

Ruijie# **show interface** [interface-type interface-number]	

1.3.2

Ruijie# **clear counters** [interface-type interface-number]	**show interface** 0
Ruijie# **clear interface** [interface-type interface-number]	

clear counter **show interface gigabitEthernet**0/0

Ruijie# show interface gigabitEthernet 0/0
GigabitEthernet 0/0 is DOWN , line protocol is DOWN
Interface address is: 192.168.10.10/24
MTU 1500 bytes, BW 2000 Kbit
Keepalive interval is 10 sec , set

Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: WFQ
5 minutes input rate 0 bits/sec, 0 packets/sec
5 minutes output rate 0 bits/sec, 0 packets/sec
1425 packets input, 22800 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
1425 packets output, 22800 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets

clear counter **show interface gigabitEthernet**0/0

Ruijie# show interface gigabitEthernet 0/0
GigabitEthernet 0/0 is DOWN , line protocol is DOWN
Interface address is: 192.168.10.10/24
MTU 1500 bytes, BW 2000 Kbit
Keepalive interval is 10 sec , set
Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: WFQ
5 minutes input rate 0 bits/sec, 0 packets/sec
5 minutes output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets

1.3.3

shutdown **no shutdown**

Ruijie(config-if)# **shutdown**	
Ruijie(config-if)# **no shutdown**	

1.4

1.4.1

```
Ruijie(config)#          interface GigabitEthernet              0/0
Ruijie(config-if)#             ip address       192.168.12.1 255.255.255.0
```

1.4.2

```
Ruijie(config)#          Interface        gigabitEthernet 0/0
Ruijie(config-if)#             shutdown
```

2

VLAN

2.1

2.1.1

IP

MTU

2.1.1.1

interface

Ruijie(config)#**interface** interface-type interface-number	interface interface range interface range macro

Gigabitethernet 0/1

Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)#

2.1.1.2 interface range

2.1.1.2.1

interface range

interface range

Ruijie(config)# **interface range** {port-range | **macro** macro_name}	**interface range** macro ,

interface range range

GigabitEthernet slot/{ port} - { port}

TenGigabitethernet slot/{ port} - { port}

TenGigabitethernet

interface range

Ruijie# configure terminal
Ruijie(config)# interface range GigabitEthernet 0/1 - 7
Ruijie(config-if-range)# no shutdown
Ruijie(config-if-range)#

, range

Ruijie# configure terminal
Ruijie(config)# interface range GigabitEthernet 0/1-5, 0/6-7
Ruijie(config-if-range)# no shutdown
Ruijie(config-if-range)#

2.1.1.2.2

interface range

macro **define interface-range**

Ruijie(config)# **define interface-range** macro_name interface-range	macro_name 32
Ruijie(config)# **interface range macro** macro_name	**interface range**

no define interface-range macro_name

define interface-range

- **GigabitEthernet** slot/{ port} - { port}
  - **TenGigabitethernet** slot/{ port} - { port}

interface range

define interface-range GigabitEthernet0/1-4

Ruijie# configure terminal
Ruijie(config)# define interface-range resource
GigabitEthernet 0/1-4
Ruijie(config)# end

Ruijie# configure terminal
Ruijie(config)# define interface-range ports1to2N5to7
GigabitEthernet 0/1-2, 0/5-7
Ruijie(config)# end

ports1to2N5to7

Ruijie# configure terminal
Ruijie(config)# interface range macro ports1to2N5to7
Ruijie(config-if-range)#

ports1to2N5to7

Ruijie# configure terminal
Ruijie(config)# no define interface-range ports1to2N5to7
Ruijie# end

2.1.1.3 IP

IP

Ruijie (Config-if)# **ip address** ip-address ip-mask [**secondary**]	IP
Ruijie (Config-if)# **no ip address** ip-address ip-mask [**secondary**]	IP

IP Secondary IP
IP

2.1.1.4 MAC

MAC
MAC MAC

MAC

Ruijie (Config-if)# **mac-address** mac-address	MAC
Ruijie (Config-if)# **no mac-address**	MAC

MAC
MAC

2.1.2

(Description)

Ruijie(config-if)# **description** string	32

Gigabitethernet 0/1

```
Ruijie#      config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          interface gigabitethernet          0/1
Ruijie(config-if)#             description        PortForUser A
Ruijie(config-if)#             end
```

Up Down 5⁄8

Ruijie(config-if)# **media-type** { **baset** | **basex auto** }	baset: basex auto:

Gigabitethernet 0/1

Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)# media-type basex auto
Changing media to fiber auto mode. You may need to update the
speed and duplex settings for this interface.
Ruijie(config-if)# end

2.1.4

Ruijie(config-if)# **speed** {**10** | **100** | **1000** | **auto** }	auto 1000
Ruijie(config-if)# **duplex** {**auto** | **full** | **half** }	speed,duplex, auto

no speed no duplex

Gigabitethernet 0/1

100M

Ruijie# configure terminal
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)# speed 100
Ruijie(config-if)# duplex full
Ruijie(config-if)# end

---

a _É!

IEEE Master Slave

..

2.1.5 MTU

jumbo MTU

MTU

MTU MTU

MTU

MTU 64~1500 4 1500

SVI MTU

Ruijie(config-if)# **Mtu** num	MTU Num <64-1500>

Gigabitethernet 0/1 MTU

Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)# mtu 64
Ruijie(config-if)# end

2.1.6

2.1.6.1

show

Ruijie# **show interfaces** [interface-id]	

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

Ruijie# show interface GigabitEthernet 0/0
GigabitEthernet0/0 is up, line protocol is up
HardwareisPQ3TSECGIGABITETHERNETCONTROLLERGigabitEthernet,
address is 0a0b.0c0d.0e0e (bia 0a0b.0c0d.0e0e)
Internet address is 192.168.200.1/24
MTU 1500 bytes, BW 1000000 Kbit
Encapsulation protocol is Ethernet-II, loopback not set
Keepalive interval is 10 sec set
Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: FIFO
Output queue 0/40, 0 drops;
Input queue 0/75, 0 drops
5 minutes input rate 281 bits/sec, 0 packets/sec
5 minutes output rate 0 bits/sec, 0 packets/sec
82 packets input, 7947 bytes, 0 no buffer
Received 76 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 3 interface resets
Link Mode: 1000M/Full-Duplex, media-type is twisted-pair.
Output flowcontrol is off;Input flowcontrol is off.

2.1.6.2

Ruijie# **clear counters** **GigabitEthernet** interface-number	

2.1.7 LinkTrap

LinkTrap

Link SNMP LinkTrap,

2.1.7.1

Ruijie(config-if)# [**no**] **snmp trap link-status**	link trap

2.2.1 802.1Q

802.1Q 802.1Q
802.1Q

802.1Q
4 802.1Q

802.1Q

4 802.1Q 2

2.2.2 VLAN

VLAN

VLAN

IP

2.2.2.1 VLAN

VLAN

Ruijie(config)# **interface GigabitEthernet** Sub_interface_number	802.1Q
Ruijie((config-subif))# **encapsulation dot1Q** VlanID	802.1Q VLAN ID VLANID VLANID

2.2.3 VLAN

VLAN **show**

Ruijie# **show vlans** [VlanID]	VLAN
Ruijie# **clear vlan** [VlanID]	VLAN

```
encapsulation dot1Q 20                  //  802.1Q  VlANID  20
ip addr 192.168.0.1 255.255.255.0               //  IP
!
interface GigabitEthernet0/0.21
encapsulation dot1Q 21                  //  802.1Q  VlANID  21
ip addr 192.168.1.1 255.255.255.0               //  IP
!
interface GigabitEthernet0/1
no ip address
shutdown
!
end
```

3

Loopback( ) NULL( ) Dialer(

3.3

3.3.1

1)

3.3.2

3.3.2.1

3.3.2.2

interface gigabitEthernet

3.3.3

ſ **show interfaces** ¢

“ ”

4

4.1

NBR

a	1 2 NBR

4.2

4.2.1

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **specify interface** interface-name { lan | wan}	interface-name lan wan

5

5.1

5.1.1

5.1.3

5.2

5.3

5.3.1

(LAN/WAN) **convert port** num **to [wan | lan]**

lan no convert port num

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **convert port** num **to [wan | lan]**	num wan /lan

no convert port num

5.3.2

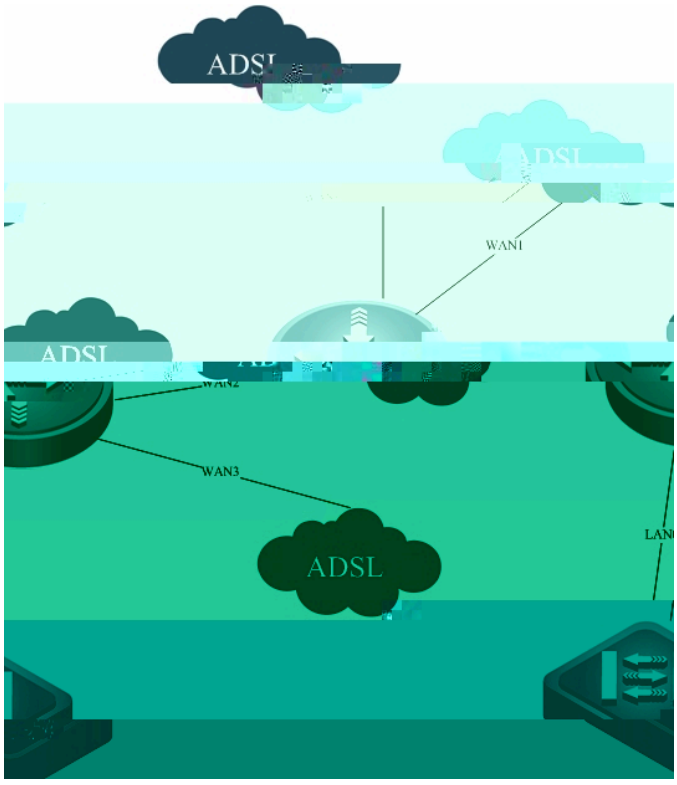
Ruijie(config)# **show convert cur-info**	

5.4

5.4.1

5.4.1.1

5.4.1.2



4 ADSL 4
2 2
4

5.4.1.3

5.4.1.4

1 3 4 LAN3 LAN4 wan

```
Ruijie#  configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#  convert port  3 to wan
##### Please save config and reload the system!!!!!
Ruijie(config)#  convert port  4 to wan
##### Please save config and reload the system!!!!!
```

2

```
Ruijie(config)#exit
Ruijie#wr

Building configuration...

[OK]
Ruijie#reload
Processed with reload? [no]y
Reloading...
```

5.4.1.5

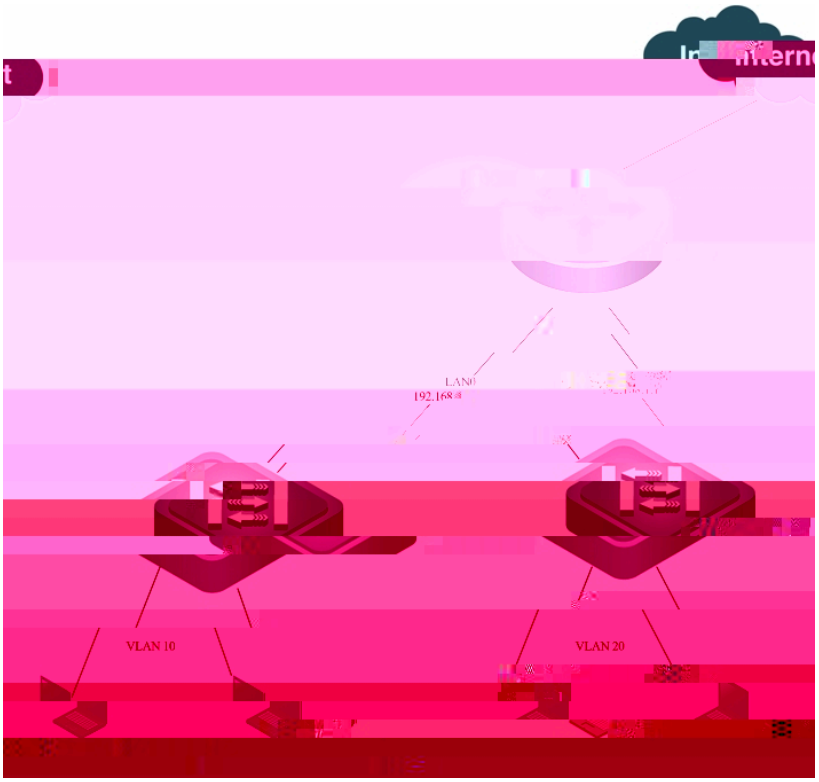
```
Ruijie(config)#exit
  Ruijie#show convert cur-info
  PORT0  PORT0
  PORT1  PORT1
  PORT2  PORT2
  PORT3  WAN3
  PORT4  WAN2
```

6 Port VLAN

6.3

2 802.1Q VLAN

6.4.1.2



Port VLAN

6.4.1.3

6.4.1.4

1 VLAN 10

```
Ruijie(config)# interface gigabitEthernet 0/0.1
Ruijie(config-subif)# encapsulation dot1Q 10
Ruijie(config-subif)# vlan port 0 0 tag
Ruijie(config-subif)# ip address 192.168.0.1 255.255.255.0
```

2 VLAN 20

```
Ruijie(config)# interface gigabitEthernet 0/0.2
Ruijie(config-subif)# encapsulation dot1Q 20
Ruijie(config-subif)# vlan port 1 1 tag
Ruijie(config-subif)#ip address192.168.1.1 255.255.255.0
```

7 Native VLAN

7.1 Native VLAN

7.1.1 Native VLAN

Native VLAN VLAN vlan tag
vlan tag vlan tag VLAN VlanID
“ ” Native
VLAN flooding
Native VLAN lan

a	Native VLAN VLAN

7.1.2

Native VLAN
Native VLAN Native VLAN

vlan tag native vlan tag
vlan tag

7.1.3

IEEE 802.1Q

7.2

native vlan

Native VLAN	

7.3 Native VLAN

7.3.1 Native VLAN

Step 1	Ruijie(config)#**interface GigabitEthernet** Sub_interface_number	
Step 2	Ruijie(config-subif)#**encapsulation dot1Q** vlan_num	802.1Q VLAN ID
Step 3	Ruijie(config-subif)#**vlan port** min_port max_port	VLAN LAN **UNTAG**
Step 4	Ruijie(config)#native lan numvid value	LAN Native VLAN value 1-4085

no native lan num lan Native VLAN

7.3.2

show running-config

7.4 Native VLAN

7.4.1 Native VLAN

7.4.1.1

LAN0 PC PC1 PC2 LAN1 PC PC3 PC4 PC1 PC2 PC3 PC4 VLAN PC

7.4.1.2

Native VLAN

7.4.1.3

Native VLAN LAN0 Native VLAN VLAN 10 LAN1 Native VLAN VLAN 20 vlan tag

7.4.1.4

1 VLAN 10 tag

```
Ruijie(config)# interface gigabitEthernet 0/0.1
Ruijie(config-subif)# encapsulation dot1Q 10
Ruijie(config-subif)# vlan port 0 0
Ruijie(config-subif)# ip address 192.168.0.1 255.255.255.0
```

2 VLAN 20 tag

```
Ruijie(config)# interface gigabitEthernet 0/0.2
Ruijie(config-subif)# encapsulation dot1Q 20
Ruijie(config-subif)# vlan port 1 1
Ruijie(config-subif)# ip address 192.168.1.1 255.255.255.0
```

3) LAN0 Native VLAN VLAN 10 LAN1 Native VLAN VLAN 20

```
Ruijie(config-subif)#exit
Ruijie(config)#native lan 0 vid 10
```

```
Ruijie(config)#native lan 1 vid 20
```

8

8.1

8.1.1

8.1.2

8.3

8.3.1

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# mirror master port port-num slave port port-num [rx | tx | all]	slave master

8.3.2

show running-config

8.4

8.4.1

8.4.1.1

lan0 lan1 lan2

Ruijie(config)# mirror master port 0 slave port 1 rx

Ruijie(config)# mirror master port 0 slave port 2 rx

lan0 lan1

Ruijie(config)# mirror master port 0 slave port 1 all

lan0 lan1

Ruijie(config)# no mirror master port 0 slave port 1 all

9 ip/mac

9.1 ip/mac

9.1.1 ip/mac

9.1.2

ip mac
cpu

9.1.3

9.2

ip/mac	

9.3 ip/mac

9.3.1 ip/mac

Step 1	Ruijie# **configure terminal**	

Step 2	Ruijie(config)#**pkt-block {ip** ip-address [**mac** mac-address] **| mac** mac-address **}**	ip mac ip/mac

9.3.2 ip/mac

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)#**no pkt-block {all	{ip** ip-address [**mac** mac-address] **| mac** mac-address **} }**	ip mac all ip mac

9.3.3

Ruijie(config)# **show pkt-block**	ip mac

9.4 ip/mac

9.4.1 ip/mac

9.4.1.1

mac 0000.1111.0000

Ruijie(config)#**pkt-block add mac** 0000.1111.0000

ip 192.168.1.200

Ruijie(config)#**pkt-block add ip** 192.168.1.200

ip 192.168.1.201 mac 0000.1111.0001

Ruijie(config)#**pkt-block add ip** 192.168.1.201 **mac** 0000.1111.0001

mac 0000.1111.0000

Ruijie(config)#**no pkt-block mac** 0000.1111.0000

9.4.1.2

ip mac

```
Ruijie(config)#show pkt-block
ip : 192.168.1.200
ip : 192.168.1.201 mac: 0000.1111.0001
```

10 LINE

10.1

LINE

LINE

/ LINE VTY

LINE

10.2 LINE

10.2.1 LINE

LINE LINE LINE
LINE

Ruijie(config)# **line** [**aux** | **console** | **tty** | **vty**] first-line [last-line]	LINE

10.2.2 / LINE VTY

LINE VTY 5 LINE VTY
VTY 36

LINE VTY VTY
show users

VTY 7 telnet
VTY 7

CLI “ no line vty 6 ” VTY
VTY 7

Ruijie(config)# **line vty** line-number	LINE VTY
Ruijie(config)# **no line vty** line-number	LINE VTY

10.2.3 Line

LINE

VTY TTY

configure terminal	
Line vty line number	Line
transport input {**all** | **ssh** | **telnet** | **none**}	Line
no transport input	LINE
default transport input	LINE

10.2.4 Line

LINE

Line

configure terminal	
Line vty line number	Line
access-class access-list-number {**in | out**}	Line
no access-class access-list-number {**in |out**}	Line

11

11.1

DLDP

DLDP

arp

mac mac

mac

ICMP echo

UP echo

DLDP / arp icmp echo

icmp echo dldp

11.2

11.2.1

ip

interval

retry

11.2.2

Ruijie(config-if)#**dldp ip [nexthopip]**	

\ !

1) ICMP ECHO ICMP

2) up

3) down

4) ip

11.2.3 interval

Ruijie(config-if)# **dldp ip interval val**	

11.3 retry

Ruijie(config-if)# **dldp ip retry val**	

11.4 /

Ruijie(config-if)# **dldp passive**	

12

12.1 PPPOE

12.1.1 PPPOE

Ruijie(config-if)# **pppoe-client dial-pool-number** pool-number **dial-on-demand**	(, pppoe)
Ruijie(config-if)# **pppoe-client dial-pool-number pool-number no-ddr**	, (, pppoe)

a _É!

dail-on-demand no-ddr dail-on-demand PPPOE DDR , DDR no-ddr pppoe , pppoe .

12.1.2.2

PPPOE PPP PPPOE

Ruijie(config)# **interface dialer** dialer-number	
Ruijie(config-if)# **ip address negotiate**	شم

\ !

MTU 6/AU

12.1.3 PPPOE

PPPOE, EXEC

Ruijie# **show pppoe** {**tunnel** | **session**}	tunnel session
Ruijie# **show interfaces dialer** dialer-number	IP
Ruijie# **debug pppoe** {**datas**|**errors**|**events**|**packets** }	PPPOE

12.1.4 PPPOE

PPPOE

1. 5 5
2. pppoe pppoe
3. NAT 192.168.0.0/24

```
!
hostname "Ruijie"
!
ip subnet-zero

#       PPPOE,                          10
interface GigabitEthernet0/0
no ip address
duplex auto
pppoe enable
pppoe-client dial-pool-number 10 dial-on-demand

#
interface GigabitEthernet0/1
ip address 192.168.0.1 255.255.255.0
ip nat inside
ip mtu 1488
duplex auto
```

```
speed auto

#
interface Dialer1
ip address negotiate
mtu 1488
encapsulation ppp
ip nat outside
dialer pool 10                                  //          10
dialer-group 1
dialer idle-timeout 300                                 //5
ppp pap sent-username pppoe password 0 pppoe
!
ip nat inside source list 1 interface Dialer1
access-list 1 permit any
ip route 0.0.0.0 0.0.0.0 Dialer1
!
dialer-list 1 protocol ip permit
!
line con 0
line aux 0
line vty 0 4
login
!
end
```

IP

IP

1. IP
2. IPv4
3.
4. NAT
5.

1 IP

1.1 IP

1.1.1 IP

IP 32
8 0~255 “ . ”
“ 192.168.1.1 ” IP

IP IP 32 IP
1 2
IP

A “ 0 ” 7 24
128 A

B “ 10 ” 14 16
16,348 B

C “ 110 ” 22 8
2,097,152 C

D “ 1110 ”

B	172.16.0.0~172.31.255.255	16 B
C	192.168.0.0~192.168.255.255	256 C

IP TCP/UDP RFC 1971 0 996P/UDP7.44 717.38 0.4

IP

IP

1.1.2.1.1 IP

IP IP
IP IP IP IP
IP IP
IP
C
254 254 C
C
IP
IP
IP
IP
IP

\ !
IP IP
IP IP
IP

IP

Ruijie(config-if)# **ip address** ip-address mask **secondary**	IP
Ruijie(config-if)# **no ip address** ip-address mask **secondary**	IP

1.1.2.2 ARP

IP 1

MAC MAC MAC
IP 2 IP

IP 48 MAC
IP MAC ARP MAC
IP RARP 1
ARP 2 Proxy ARP ARP Proxy ARP
RARP RFC 826 RFC 1027 RFC 903

ARP MAC IP IP ARP
MAC MAC IP MAC
ARP MAC IP
IP ARP Ethernet
II SNAP

RARP ARP RARP MAC
IP RARP

ARP

ARP

ARP

1.1.2.2.1 ARP

ARP IP MAC
ARP IP ARP

ARP

Ruijie(config)# **arp** ip-address mac-address arp-type	ARP arp-type arpa
Ruijie(config)# **no arp** ip-address	ARP

1.1.2.2.2 ARP

ARP Ethernet II ARPA

1.1.2.2.3 ARP

ARP IP MAC
ARP ARP
ARP

ARP

Ruijie(config-if)# **arp timeout** seconds	ARP 0-2147483 0
Ruijie(config-if)# **no arp timeout**	

3600 1

1.1.2.2.4 ARP

ARP ARP arp
arp ARP
ARP ARP
ARP

Ruijie(config-if)# **arp-learning enable**	arp
Ruijie(config-if)# **no arp-learning enable**	arp

arp

1.1.2.2.6 ARP

ARP ARP

IP IP

UP UP IP

Ruijie(config-if)#**arp scan [**start-ip-address end-ip-address**]**	ARP

ARP

---

a _É!

1 ARP IP

2 IP ARP

ARP

1024

3 ARP IP IP

IP IP 22

4 ARP IP IP IP IP

IP

web ARP ARP

1.1.2.2.7 ARP

ARP ARP

ARP ARP ARP ARP

ARP ARP ARP ARP

ARP ARP —— ARP

1.1.2.3 IP

IP IP

IP

IP

1.1.2.4.1

IP IP IP
172.16.16.255

IP

IP “ 1 ”

Ruijie(config-if)# **ip directed-broadcast** [access-list-number]	
Ruijie(config-if)# **no ip directed-broadcast**	

1.1.2.4.2 IP

“ 1 ” 255.255.255.255

255.255.255.255

Ruijie(config-if)# **ip broadcast-address** ip-address	
Ruijie(config-if)# **no ip broadcast-address**	

1.1.3 IP

1.1.3.1

1) ARP

2) IP

3)

Ruijie# **clear arp-cache**	ARP
Ruijie# **clear ip route** {network [mask] | *}	IP

1.1.3.2

IP

Ruijie# **show arp**	ARP
Ruijie# **show ip arp**	IP ARP
Ruijie# **show ip interface** [interface-type interface-number]	IP
Ruijie# **show ip route** [network [mask]]	
Ruijie#**show ip route**	
Ruijie# **ping** ip-address [**length** bytes] [**ntimes** times] [**timeout** seconds]	

1.1.4 IP

IP

IP

1.1.4.1 IP

IP

IP

RIP RIPv1 C 172.16.2.0/24 D 172.16.1.0/24

RIPv1 172.16.1.0/24 172.16.2.0/24 C 192.168.12.0/24 C D RIP

A B 192.168.12.0/24 172.16.3.0/24 A B

A

```
interface GigabitEthernet 0/0
ip address 172.16.3.1 255.255.255.0 secondary
ip address 192.168.12.1 255.255.255.0
!
interface GigabitEthernet 0/1
ip address 172.16.1.1 255.255.255.0
!
router rip
```

network 172.16.0.0
network 192.168.12.0

B :

interface GigabitEthernet 0/0
ip address 172.16.3.2 255.255.255.0 secondary
ip address 192.168.12.2 255.255.255.0
!
interface GigabitEthernet 0/1
ip address 172.16.2.1 255.255.255.0
!
router rip
network 172.16.0.0
network 192.168.12.0

1.2 IP

1.2.1 IP

IP

IP

1.2.2

show ip redirects

no

ip default-gateway ip-address	

show ip redirects	

1.2.3 IP

IP IP ICMP
ICMP
ICMP RFC 792

IP

ICMP

ICMP

ICMP

IP MTU

IP

1.2.3.1 ICMP

IP

ICMP

ICMP

ICMP

Ruijie(config-if)# **ip unreachables**	ICMP
Ruijie(config-if)# **no ip unreachables**	ICMP

1.2.3.2 ICMP

ICMP

ICMP

Ruijie(config-if)# **ip redirects**	ICMP
Ruijie(config-if)# **no ip redirects**	ICMP

1.2.3.3 ICMP

ICMP ICMP
ICMP

ICMP

Ruijie(config-if)# **ip mask-reply**	
Ruijie(config-if)# **no ip mask-reply**	

1.2.3.4 IP MTU

MTU MTU

MTU MTU IP MTU IP
MTU MTU IP MTU
MTU

MTU

askmtuT1 1 Tf 03.0013 Tc 0.Tr (0.5 0 0 1078(no ip)6

RFC 791

ICMP

IP

IP

Ruijie(config)# **ip source-route**	IP
Ruijie(config)# **no ip source-route**	IP

2 IPv4

2.1 IPv4

2.1.1 IPv4

(Prefix Tree+Adjacency) Ruijie Express Forwarding REF REF

2.3

2.4.1

REF

Ruijie# **show ip ref packet-statistic** [**clear**]	/ REF

2.4.2

Ruijie# **show ip ref adjacency** [**glean** | **local** | ip | (**interface**	

3

3.1

3.1.1

3.1.2

show ip fpm flows

Ruijie# **show ip fpm flows** [**filter** ip_protocol_number urce_ip source_ip_mask_len dest_ip dest_ip_mask_len]	

3.2

show ip fpm counters

Ruijie# **show ip fpm counters**	

3.3

show ip fpm statistic

Ruijie# **show ip fpm statistics**	

3.4

show ip fpm user

Ruijie# **show ip fpm users**	

3.5

ip session timeout

Ruijie# **ip session timeout** {**icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait | tcp-last-ack | tcp-syn-receive |**	

tcp-time-wait	10s
udp-closed	10s
udp-connected	30s
udp-established	600s
udp-started	60s

3.6.1

ip session timeout tcp-fin-wait 10

ip session timeout tcp-syn-sent 5

ip session timeout tcp-time-wait 5

UDP udp-connected

udp-closed udp-connected

ip session timeout udp-closed 5

ip session timeout udp-connected 600

4 NAT

4.1 NAT

NAT( )

NAT

NAPT

NAT

TCP

NAT

NAT

ALG

4.1.1 NAT

NAT IP

IP NAT

NAT

NAT

NAT

NAT

Step 1	Ruijie(config)# **ip nat inside source static** local-address global-address [**permit**-**inside**] [**vrf** vrf_name] [**netmask** mask] [**match** interface]	
Step 2	Ruijie(config)# **interface** interface-type interface-number	
Step 3	Ruijie(config-if)# **ip nat inside**	
Step 4	Ruijie(config)# **interface** interface-type interface-number	
Step 5	Ruijie(config-if)# **ip nat outside**	

Inside outside

NAT

NAT

Step 1	Ruijie(config)# **ip nat pool** address-pool start-address end-address {**netmask** mask | **prefix-length** prefix-length}	IP
Step 2	Ruijie(config)# **access-list** access-list-number **permit** ip-address wildcard	
Step 3	Ruijie(config)# **ip nat inside source list** access-list-number **pool** address-pool [**vrf**	

Step 4 Ruijie(config)# **interface** interface-type
beS0 gs /C2_0 1 T2.143c 0.27<0D040D14>tep-35.554011.0494.16<0540193f01C40F561D700D040D1

Step 2	Ruijie(config)# **interface** interface-type interface-number	
Step 3	Ruijie(config-if)# **ip nat inside**	
Step 4	Ruijie(config)# **interface** interface-type interface-number	
Step 5	Ruijie(config-if)# **ip nat outside**	

4.1.4 TCP

TCP TCP
NAT TCP NAT
TCP

Ruijie(config)# **ip nat pool** address-pool start-address end-address {**netmask** mask | **prefix-length** prefix-length}	IP
Ruijie(config)# **access-list** access-list-number permit ip-address **wildcard**	IP4U Ñ³ãP @

Ruijie(config)#**no ip nat translation sip**	SIP ALG
Ruijie(config)#**no ip nat translation tftp**	TFTP ALG

4.1.6 NAT

TCP

4.1.6.1

NAT Net200
200.168.12.2~200.168.12.100 1
NAT

```
!
interface GigabitEthernet 0/0
ip address 192.168.12.1 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.168.12.1 255.255.255.0
ip nat outside
!
ip nat pool net200 200.168.12.2 200.168.12.100 netmask
255.255.255.0
ip nat inside source list 1 pool net200
!
access-list 1 permit 192.168.12.0 0.0.0.255
```

4.1.6.2

NAPT 8.1 NAT
NAPT NAT Net200
200.168.12.200 IP
1 NAT

```
!
interface GigabitEthernet 0/0
ip address 192.168.12.1 255.255.255.0
```

TCP

NAT ACL IP ACL

```
!
interface GigabitEthernet 0/0
ip address 10.10.10.1 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.198.12.1 255.255.255.0
ip nat outside
!
ipnatpoolrealhosts10.10.10.210.10.10.3netmask255.255.255.0
type rotary
ip nat inside destination list 100 pool realhosts
!
access-list 100 permit ip any host 10.10.10.100
!
```

NAT

```
Ruijie# sh ip nat translations
ProInside global Insidelocal Outsidelocal Outside
global
tcp 10.10.10.100:23 10.10.10.2:23 100.100.100.100:1178
100.100.100.100:1178
tcp 10.10.10.100:23 10.10.10.3:23 200.200.200.200:1024
200.200.200.200:1024
```

4.1.6.5

(FTP WEB E-MAIL)

Internet NAT NAT

NAT

```
#
  Ruijie>     enable
#
  Ruijie# config terminal
  Enter configuration commands, one per line. End with CNTL/Z.
#       WAN0
  Ruijie(config)#interface GigabitEthernet                0/1
#       WAN
  Ruijie(config-if)#          ip address      218.5.19.2 255.255.255.0
#       WAN                     Internet
  Ruijie(config-if)#          ip nat outside

#       WAN
  Ruijie(config-if)#          no shut
#
  Ruijie(config-if)#          end
  Ruijie#
#                                   WAN             UP      (               ).
  %LINK-CHANGED: Interface GigabitEthernet 0/1, changed state to up
  %LINEPROTO-CHANGE: Interface GigabitEthernet 0/1, changed state
  to UPRuijie#      config terminal
  Enter configuration commands, one per line. End with CNTL/Z.
#       LAN
  Ruijie(config)# interface GigabitEthernet               0/0
```

```
#       LAN
  Ruijie(config-if)#          ip address      192.168.0.1 255.255.255.0
#       LAN                     Intranet
  Ruijie(config-if)#          ip nat inside
#       LAN
  Ruijie(config-if)#          no shut
  Ruijie(config-if)#          end
  Ruijie#
  %LINKCHANGED:InterfaceGigabitEthernet0/0,changedstatetoup
```

```
Ruijie(config-line)#              end
Ruijie#
Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# enable secret private
#
Ruijie(config)#          host    EG
RUIJIE(config)#          end
RUIJIE#
#
RUIJIE#    write
Building configuration...
[OK]
RUIJIE#
#
RUIJIE# show running-config
Building configuration...
Current configuration:
!
!
hostname EG
!
!
specify interface GigabitEthernet 0/0 lan
specify interface GigabitEthernet 0/1 wan
!
access-list 1 permit any
!
!
interface GigabitEthernet 0/0
ip address 192.168.0.1 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 218.5.19.2 255.255.255.0
ip nat outside
!
ip nat inside source list 1 interface GigabitEthernet 0/1
ip nat inside source static tcp 192.168.0.4 110 218.5.19.2 110
ip nat inside source static tcp 192.168.0.4 25 218.5.19.2 25
ip nat inside source static tcp 192.168.0.3 80 218.5.19.2 80
ip nat inside source static tcp 192.168.0.2 21 218.5.19.2 21
```

```
ip nat inside source static tcp 192.168.0.2 20 218.5.19.2 20
!
ip route 0.0.0.0 0.0.0.0 GigabitEthernet 0/1 218.5.19.1
!
line con 0
line vty 0 4
password remoteuser
login
!
end
RUIJIE#
```

4.1.6.6 NAT

arp

arp

192.168.12.0 200.198.12.0

```
!
interface GigabitEthernet 0/0
ip address 192.168.12.1 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.198.12.1 255.255.255.0
ip nat outside
!
ip nat inside source static 192.168.12.0 200.198.12.0 netmask
255.255.255.0
```

4.1.6.7 NAT DNS

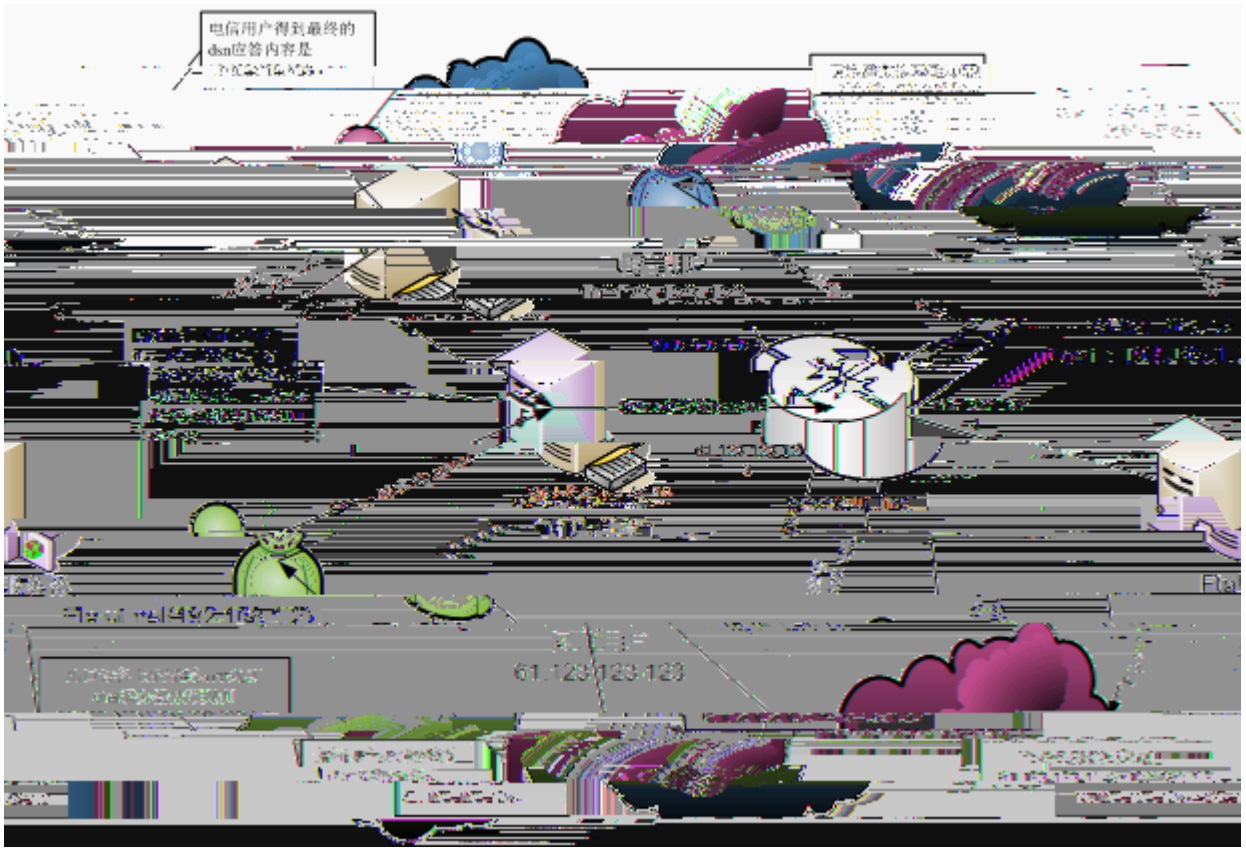
NAT dns alg dns

login

3. DNS

4.
   DNS

5. DNS



interface GigabitEthernet 0/0

ip address 10.123.123.123 255.255.255.0

ip nat outside

duplex auto

speed auto

description

interface GigabitEthernet 0/1

ip address 61.123.123.123 255.255.255.0

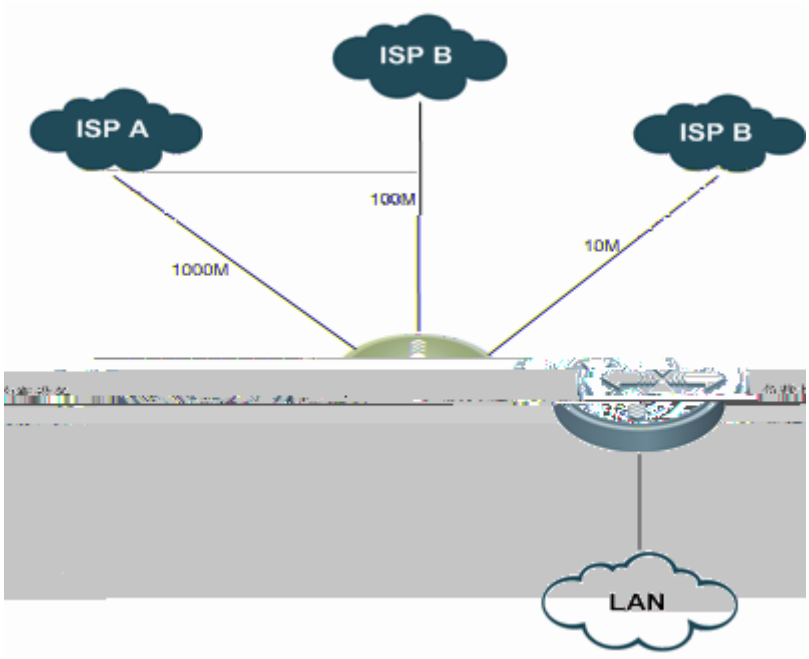
ip nat outside

duplex auto

speed auto

5

5.1



5.1.1

2

/

ECMP

	10.3(4b8)

pbr > >

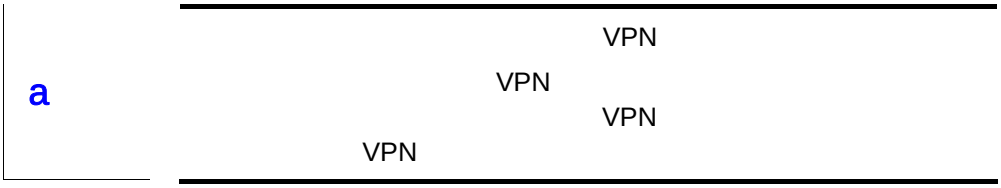
5.1.2

5.1.2.7

5.1.3

5.1.3.1

(session) IP IP VRF



5.1.3.2 IP

IP ECMP

IP

IP

ECMP ICMP UDP IP

5.1.3.3

ECMP

ECMP

5.1.3.4

ECMP

5.1.3.5

IP ECMP

5.1.3.6

IP

=

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **mllb enable**	
	Ruijie(config)# **no mllb enable**	

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          mllb enable
```

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          no mllb enable
```

5.2.2

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# interface interface-name	
Step 3	Ruijie(config-if)# **bandwidth** kilobits	
	Ruijie(config-if)# **no bandwidth**	

1M

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          interface       fastEthernet 0/1
Ruijie(config-if)#           bandwidth      1000
```

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          interface       fastEthernet 0/1
Ruijie(config-if)#           no bandwidth
```

5.2.3

1 100.

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# mllb threshold percent-upper | percent [lower percent-lowe]	1-100

bandwidth

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# mllb policy bandwidth

5.2.5 IP

IP

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# mllb first-choice gi0/1

a	Mllb 10.3(4b8) ECMP Mllb first-choice

5.2.7

+ /2

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)#load-monitor {uplink | mixed-link}	uplink mixed-link
Step3	Ruijie(config)#end	

#

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# over-load-protect enable

5.2.9

10

Ste.02

5.3

5.3.1

show mllb config

Ruijie (config)# **show mllb config**	

show running-config

Ruijie# show mllb config

multi-link load balance configure:

multi-link load balance state: enabled

multi-link load balance policy: load

multi-link load balance load-interval: 5

multi-link load balance threshold: 90 lower: 90

multi-link load balance load-monitor: down-link

multi-link load balance first-choice set to GigabitEthernet 0/5 is up

multi-link load balance load-sharing original

5.3.2

show over-load-protect configure

5.3.3

show load-monitor configure

Ruijie (config)# **show load-monitor configure**	

show load-monitor configure

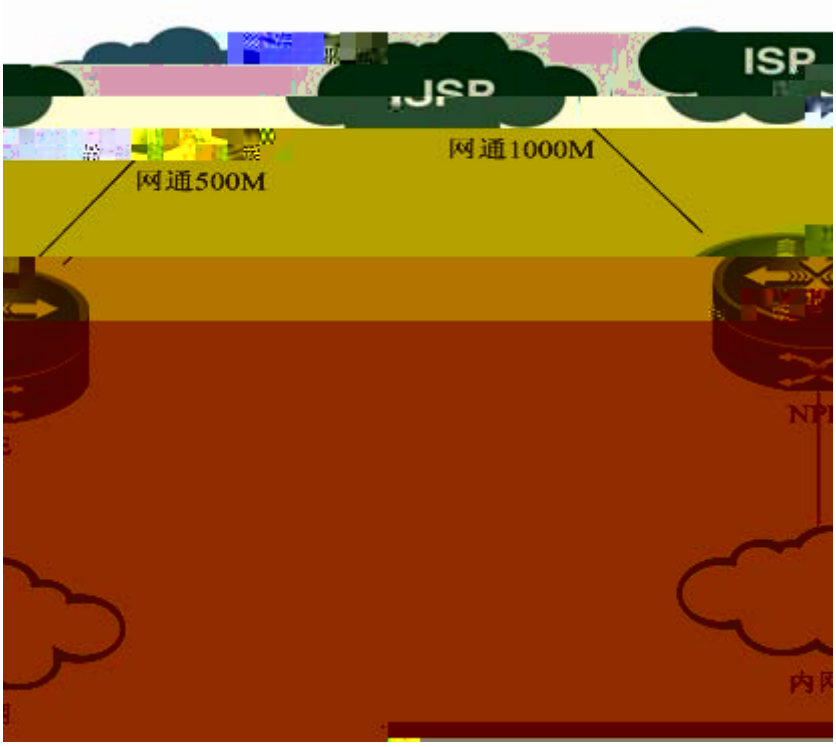
Ruijie(config)#show load-monitor configure
>Load-monitor: down-link

5.4 1

5.4.1.1

ISP 2 gi0/2 gi0/3
1000M 500M

5.4.1.2



5.4.1.3

1

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          mllb enable
```

2

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
#

Ruijie(config)#
```

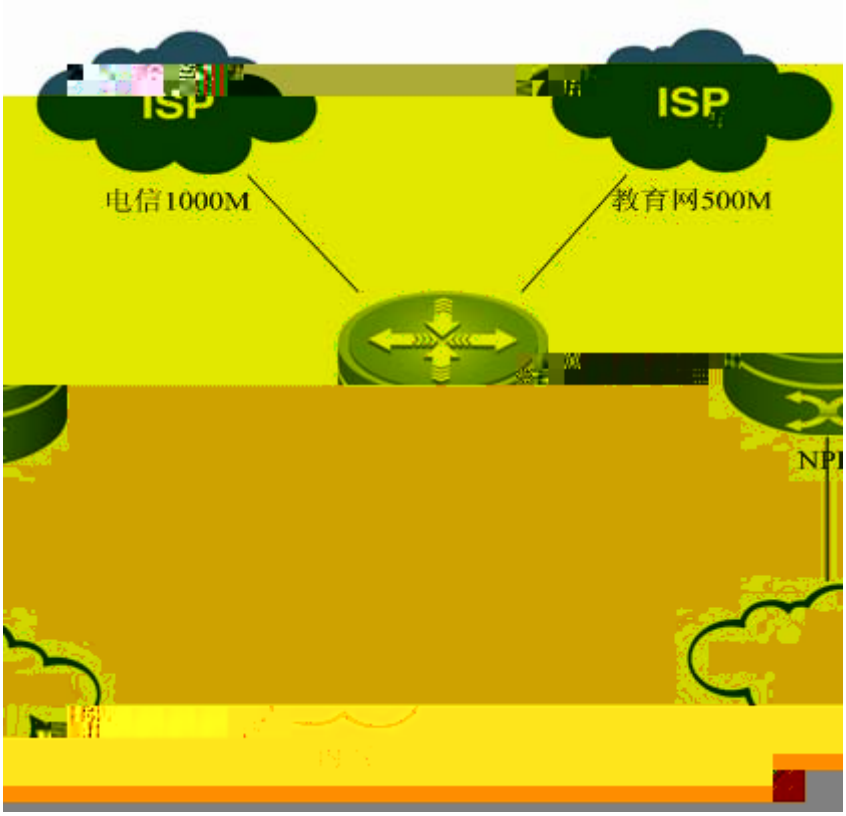
5.5 2

5.5.1.1

ISP 1 1000M 1 500M

first-choice

5.5.1.2



5.5.1.3

1

#

```
Ruijie#      configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#          mllb enable
```

2

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

#

Ruijie(config)# ip route 0.0.0.0 0.0.0.0 Gi0/4 58.63.60.33

Ruijie(config)# ip route 0.0.0.0 0.0.0.0 Gi0/5 192.168.14.2

3

lately

Ruijie(config)# mllb policy latelty

4

gi0/4

Ruijie(config)# route-auto-choose cnii Gi0/4 58.63.60.33

gi0/5

Ruijie(config)# route-auto-choose cernet Gi0/5 192.168.14.2

5.6

5.6.1.1

1000M gigabitEthernet 0/1 gigabitEthernet 0/2

5.6.1.2

5.6.1.3

1 1

#

Router(config)# interface-group 1

Router(config-intf-group)# interface gi 0/1

Router(config-intf-group)# interface gi 0/2

Router(config-intf-group)# exit

2

Ruijie(config)# over-load-protect enable

3 1

Ruijie(config)# over-load-protect interface-group 1

1.

2.

3.

4.

5.

6.

1

1.1

1.1.1

vlan IP IP

1.1.2

vlan tag IP
IP vlan

1.1.2.1 vlan

vlan vlan id vlan
vlan tag
“ any ” native vlan
vlan native vlan vlan
“ any ”

1.1.2.2

ip mac
ip mac
ip mac
mac ip mac

1.1.2.3

ip

1.1.2.4

web ip mac

IP ip mac

1.2

Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# layer23 classify enable
Ruijie(config)# end

1.4

1.4.1

Ruijie# configure terminal	
Ruijie(config)# **layer23 deny-mode enable**	
Ruijie(config)#**end**	
Ruijie# **show running**	

no layer23 deny-mode enable

#

Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# layer23 **deny-mode** enable
Ruijie(config)# end

1.5

1.5.1

Ruijie# configure terminal	
Ruijie(config)# **layer23 ad-mode enable**	
Ruijie(config)#**end**	
Ruijie# **show running**	

no layer23 ad-mode enable

#

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# layer23 **ad-mode** C2Df ( )Tj /TT4 1 T2 4533554 -6.549 TD (Ruijie(config)#)Tj /TT

vlan “ vlan-group1 ” vlan 1 vlan 3 vlan7 vlan8 vlan9

```
Ruijie# configure terminal
Ruijie(config)# vlan-group vlan-group1 vlan 1,3,7-9
Ruijie(config)# end
```

1.7 vlan

Ruijie# **show vlan-group** [group name]	show vlan-group vlan vlan

vlan

```
Ruijie#show vlan-group
vlan-group      police_flow     police_url      flow      vlan id
any             9               0               0
vlan1           0               0               0         1
vlan2           0               0               0         3-5
vlan3           0               0               0         7,9
```

1.8

1.8.1

Ruijie# **configure terminal**	
Ruijie(config)# **subscriber static name** name **parent** parent [[**ip-host** ip-addr] [**mac** mac-addr] **| ip-subnet** subnet mask **| ip-range** start end]	
Ruijie(config)#**end**	
Ruijie# **show subscriber** [**all** | **static** | **dynamic** | **parent** [name | **root**]]	

no subscriber static name name

“ / ” ip

5 4

“ / ”

“ / ” “ / ”

ip mac

ip ip ip

ip mac mac

mac ip

mac ip ip mac

“ 1 ” ip “ 192.168.196.156 ” “ 1 ” “ 1 ” “ ”

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)#subscriber static name 1 parent / /
1 ip-host 192.168.196.156
Ruijie(config)# end
```

1.8.2

Ruijie# **configure terminal**	
Ruijie(config)# [no] subscriber set name attribute {avoid-monitor [flow-monitor] | deny | release | vip}	vip

1.8.4

Ruijie# **subscriber export** [**txt**	**csv**] filename	

“ userfile ”

Ruijie# subscriber export txt userfile

1.9

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

#

Ruijie#show subscriber all

name	mac	flow	fc	url	dir	dym	av-fc	av-con	vip	rel	deny	ip
/	0000.0000.0000	2	0	1	1	0	0	0	0	0	0	0
	0000.0000.0000	0	0	0	1	0	0	0	0	0	0	0
	0000.0000.0000	0	0	0	1	0	0	0	0	0	0	0

1.10

1.10.1

Ruijie# **configure terminal**	
Ruijie(config)#**network-group name** name **[parent** parent**]** [[**ip-host** ip-addr] **| ip-subnet** subnet mask **| ip-range** start end]	, parent
Ruijie(config)#**end**	
Ruijie# **show network-group** [**all** | **brief** | **parent** [name | **root**]]	

no network-group name name

“ / ”

ip ip

5 4

/

Ruijie# **show network-group [all	brief	parent [root**	name **]]**	

“ .txt ”

ip

“ ” “ ”

“ ”

“ .txt ”

/ / 1, 1,192.168.197.1

“ .csv ” Microsoft Excel “ .csv ”

3

ip

“ .csv ”

/group1	xinlang	192.168.196.11-192.168.196.25
/group1	baidu	192.168.197.0/24
/group1	user1	192.168.198.1
/group1	user2	

“ userfile ”

Ruijie# network-group import txt userfile

1.10.3

Ruijie# **network-group export** [**txt**	**csv**] filename	

“ userfile ”

Ruijie# network-group export txt userfile

1.11

2

2.1

2.1.1

UDP DPI

TCP DPI

TCP

NBR1300G NBR1500G NBR2000G

2.1.2

2.1.2.1

“

” “ "IP ” “ ” “ ” “ P2P

” “ ” “ ” “ ”

“ ” “ ” “ ” “ ” “

” “ ” “ ” “ ” “

” “ ” “ ” “

” “ ” “ ” “

” “ ” “ ” “

WEB , ” “ ” “ RFC ” “ HTTP ” “ ”

IP

2.1.2.2 DPI

DPI

2.1.2.3

IP

Ĥ

2.1.2.3

2.1.2.3 **IP** **IP**

2.1.2.7

IP

HTTP P2P

2.1.2.8

TCP HTTP1.1

1

2

a

1

2 VPN

3 TCP SYN

2.1.2.9

xml

web xml xml
xml

2.1.3

2.2

29TT120 r0 1 Tf4.683 -0.078 Td[<14682AFC1B0A46<1CF3411j/231F<087336D1>]TJ682AFC>6/TT0 1 Tf( )Tj/C2

Ō =“

2.3

DFI

DFI

HTTP

2.3.1

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application enable**	
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show running	

no identity-application enable

#

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application enable

Ruijie(config)#

2.3.2

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application app-db enable**	
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show running	

no identify-application app-db enable

2.3.3

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application proto-expect enable**	
Step3	Ruijie(config)#**identify-application proto-expect timeout** seconds	

2.3.4

	P2P DPI P2P DPI P2P P2P P2P “ P2P ” “ ”

2.3.8 DFI

DFI

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application dfi gather**	DFI
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show running	

DFI **no identify-application dfi gather**

DFI

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application dfi gather**GLš-#RrPeC}ñUT7B}Rh0u**

Step 1 Ruijie# configure terminal

1		app-name	app-class
2	app-name	app-class	

#

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# identify-application custom name Ruijie
```

configure terminal no Ruijie#47 0 Td <01C3tify-application custom name

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application key** app-name	app-name
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show identity-application key	

no identity-application key

app-name

FTP

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application key FTP

Ruijie(config)#

2.3.12

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application inhibitive** app-name	app-name
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show identity-application inhibitive	

no identity-application inhibitive

app-name

QQ

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application **inhibitive** QQ

Ruijie(config)#

2.3.13

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application block** app-name	app-name
Step 3	Ruijie(config)#**end**	
Step 4	Ruijie#show identity-application inhibitive	

no identity-application block app-name

QQ

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application **block** QQ

Ruijie(config)#

2.3.14

Step 1	Ruijie# configure terminal	
Step 2	Ruijie(config)# **identify-application custom-group** group-name	group-name
Step3	Ruijie(config-app-group)#**app-add** app-name	app-name group-name
Step 4	Ruijie(config-app-group)#**end**	
Step 5	Ruijie# show identify-application custom-group group-name	

no identify-application custom-group group-name

app-group **app-del** app-name

MYQQ QQ MYQQ

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application **custom-group** MYQQ

Ruijie(config-custom-group)# app-add QQ

2.3.15

Step 1	Ruijie# configure terminal

100.1.1.1 10.1.1.10

UDP myxunlei myp2p 18 18 any any 192.168.1.2 192.168.1.2 66.12.11.34 66.12.11.36

#

Ruijie# show identity-application

any 255-4095-63-48

1-0-0-0

1-1-0-0

MSN 1-6-0-0

MSN-CHAT 1-6-1-0

MSN-AUDIO 1-6-2-0

MSN-FILE 1-6-3-0

MSN- 1-6-4-0

MSN- 1-6-5-0

QQ 1-7-0-0

QQ-CHAT 1-7-1-0

QQ- 1-7-2-0

QQ- 1-7-3-0

QQ- 1-7-4-0

QQ- 1-7-5-0

QQ- 1-7-14-0

WEBIM 1-9-0-0

MSN-WEBIM 1-9-1-0

YAHOO-WEBIM 1-9-2-0

#

Ruijie# show identity-application key

IP

QQ

MSN

FTP

#

Ruijie# show identity-application inhibitive

#

Ruijie# show identity-application class

1-0-0-0

IP 2-0-0-0

3-0-0-0

4-0-0-0

P2P 5-0-0-0

6-0-0-0

HTTP 7-0-0-0

8-0-0-0

9-0-0-0

10-0-0-0

11-0-0-0

12-0-0-0

13-0-0-0

14-0-0-0

15-0-0-0

RFC 16-0-0-0

248-0-0-0

myP2P 249-0-0-0

#

Ruijie# show identity-application group-state

app group state: 1 //1 2

Ruijie#show identity-application disable application

RFC

FTP

Ruijie# show identify-application custom-group myqq

QQ

MSN

#

Ruijie# show identity-application proto-expect

protocol expectation state: on //

protocol expectation timeout: 180 / / 3

Step 4	Ruijie#show running	

#

Ruijie# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# identify-application clear key-inhibitive-block group

Ruijie(config)#

3

3.1

3.1.1

IP IP

ADSL M 7-8

+ADSL

P2P

ADSL

NBR1300G NBR1500G NBR2000G

3.1.2

3.1.2.1

3.1.2.2

“
” “ ” “ ” “ ”
“ ”
“ ” “ ”
“ ” “ ” “ ” “ ” “ ”
“ ” “ ”
“ ” “ ” “ ” “
” “ ” “
” “ ” “ ” “
” “ HTTP ” “ HTTP ” “ HTTP
” “ ” “ ” “
” “ HTTP ” “ HTTP ” “ ”

“ ” “ ” “ ”

P2P	(all)	(all)	Y
	(all)	(all)	Y
	(all)	(all)	Y
HTTP			
	HTTP	(all)	Y
	(all)	(all)	Y
	(all)	(all)	Y
(IM)	(all)	(all)	Y

“ HTTP ”

a “ HTTP ”

k

3.1.2.4

a

3.1.3.2 NAT

IP

NAT IP

80%

3.1.3.3 DNS

DNS DNS

DNS DNS

IP

IP PC DNS

DNS HTTP DNS

HTTP DNS

DNS

DNS DNS DNS

DNS IP DNS

a

DNS

3.1.4

3.2

3.3

3.3.1

Step 1	Ruijie>**enable**	
Step 2	Ruijie# **configure terminal**	
Step 3	Ruijie(config)# **app route enable**	
Step 4	Ruijie(config)# **end**	

no app route enable

3.3.2

no interface

interface-name

no load-balance

IP hash

“ inhibitive_intf_group ” “ dialer 1 ” “ dialer 2 ” “ dialer 3 ” “ ”

```
Router(config)#interface-group inhibitive_intf_group
Router(config-intf-group)#interface-member dialer 1
Router(config-intf-group)#interface-member dialer 2
Router(config-intf-group)#interface-member dialer 3;
Router(config-intf-group)#load-balance policy load
Router(config-intf-group)#exit
```

a	WAN dialer WAN WAN LAN

3.3.4

WAN

Step 1	Ruijie>**enable**	
Step 2	Ruijie# **configure terminal**	
Step 3	Ruijie(config)# **interface** type number	
Step 4	Ruijie(config-if)# **nexthop** ip-address	
Step 5	Ruijie(config-if)# **end**	

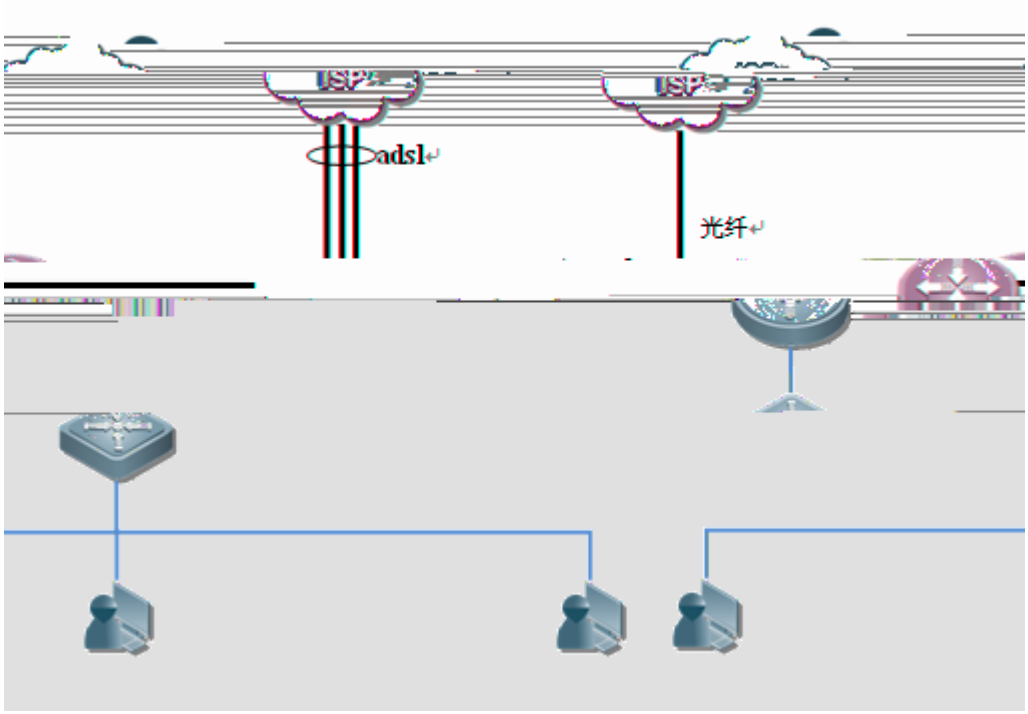
no nexthop

GigabitEthernet 0/1 100.0.0.1

```
Router(config)#interface gi 0/1
Router(config-if-GigabitEthernet 0/1)# nexthop 100.0.0.1
```

a	WAN WAN LAN

3.4.1.2



+ ADSL

3.4.1.3

1

#

Router(config)#ip route 0.0.0.0 0.0.0.0 202.100.12.5

2

dialer 1,2,3

Router(config)#interface-group inhibitive_intf_group

Router(config-intf-group)# interface-member dialer 1

Router(config-intf-group)# interface-member dialer 2

Router(config-intf-group)# interface-member dialer 3

config-intf-group)# load-balance policy load config-intf-group)#exit

3 config)#time-range no_midnight

Router (config-time-range)#periodic daily 9:00 to 23:00

Router (config-time-range)#exit

4

#

Router(config)#app route enable

http

Router(config)#app route P2P interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group time-range no_midnight

Router(config)#app route HTTP interface-group inhibitive_intf_group time-range no_midnight

Router(config)#app route interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group

3.4.1.4

1

Router#show app route

CLASS INTERFACE(GRPUP) time-range state

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

P2P inhibitive_intf_group(group) NA UP

inhibitive_intf_group(group) no_midnight UP

HTTP inhibitive_intf_group(group) no_midnight UP

inhibitive_intf_group(group) NA UP

inhibitive_intf_group(group) NA UP

inhibitive_intf_group(group) NA UP

CLASS

2

Router#show app route statistics

CLASS INTERFACE(GROUP)

HIT DATA(byte) HIT RATE(Mb/s)

SUM DATA(byte) SUM RATE(Mb/s)

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

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

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

HTTP inhibitive_intf_group(group)

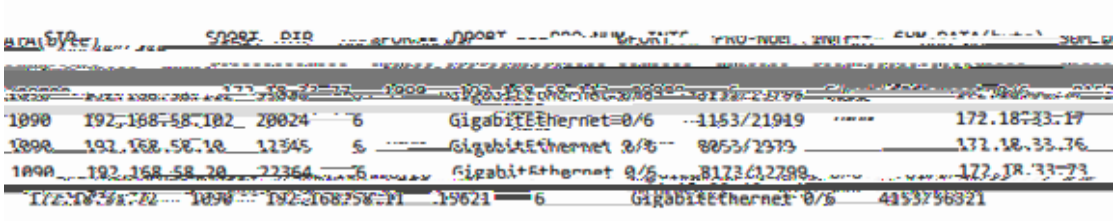
81535/297997 0.5/3.75

101918/342496 0.6/4.68

CLASS	(/ / /)
INTERFACE(GROUP)	/
HIT DATA(byte)	/
HIT RATE(Mb/s)	= / /
SUM DATA(byte)	= + /
SUM RATE(Mb/s)	= / /

3 “ HTTP ”

Router#show app route HTTP session



SIP	IP
SPORT	
DIP	IP
DPORT	
SUM DATA(byte)	/

3.4.2 + ADSL

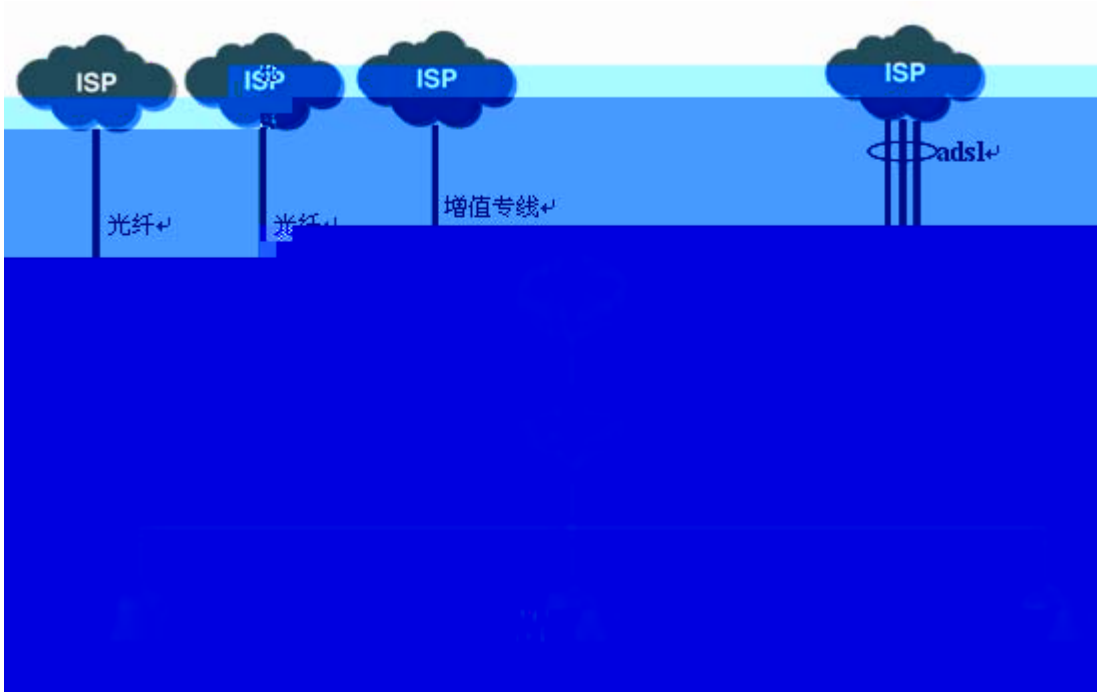
3.4.2.1

3

ADSL 88.0.0.0/8 80

ADSL

3.4.2.2



3.4.2.3

1

ecmp

Router(config)#ip route 0.0.0.0 0.0.0.0 gi0/1 202.100.12.51

Router(config)#ip route 0.0.0.0 0.0.0.0 gi0/2 202.96.128.86

gi0/1 gi0/2

Router(config)#route-auto-choose cnii gi0/1 202.100.12.51

Router(config)#route-auto-choose cnc gi0/2 202.96.128.86

3 PBR

88.0.0.0/8 www 88.0.0.1

Router(config)# access-list 100 permit ip any 88.0.0.0 0.255.255.255

Router(config)# access-list 101 permit tcp any any eq www

Router(config)# route-map RM_FOR_PBR 10

Ruijie(config-route-map)#match ip address 100

Ruijie(config-route-map)#match ip address 101

Ruijie(config-route-map)#set ip nexthop 88.0.0.1

Gi 0/0

Ruijie(config)#interface GigabitEthernet 0/0

Ruijie(config-if)#ip policy route-map RM_FOR_PBR

2

dialer 1,2,3

Router(config)#interface-group inhibitive_intf_group

Router(config-intf-group)# interface-member dialer 1

Router(config-intf-group)# interface-member dialer 2

Router(config-intf-group)# interface-member dialer 3

#

Router(config-intf-group)# load-balance policy load

Router(config-intf-group)#exit

3

Router(config)#time-range no_midnight

Router (config-time-range)#periodic daily 9:00 to 23:00

Router (config-time-range)#exit

4

#

Router(config)#app route enable

#

Router(config)#app route P2P interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group time-range no_midnight

Router(config)#app route interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group

Router(config)#app route interface-group inhibitive_intf_group

3.4.2.4

1

Router#show app route

CLASS INTERFACE(GRPUP) time-range state

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

P2P inhibitive_intf_group(group) NA UP

inhibitive_intf_group(group) no_midnight UP

ȯ

60168/91067 0.1/1.41

inhibitive_intf_group(group)

20136/40359 0.1/0.98

21031/60594 0.2/2.01

3 “HTTP ”

Router#show app route HTTP session

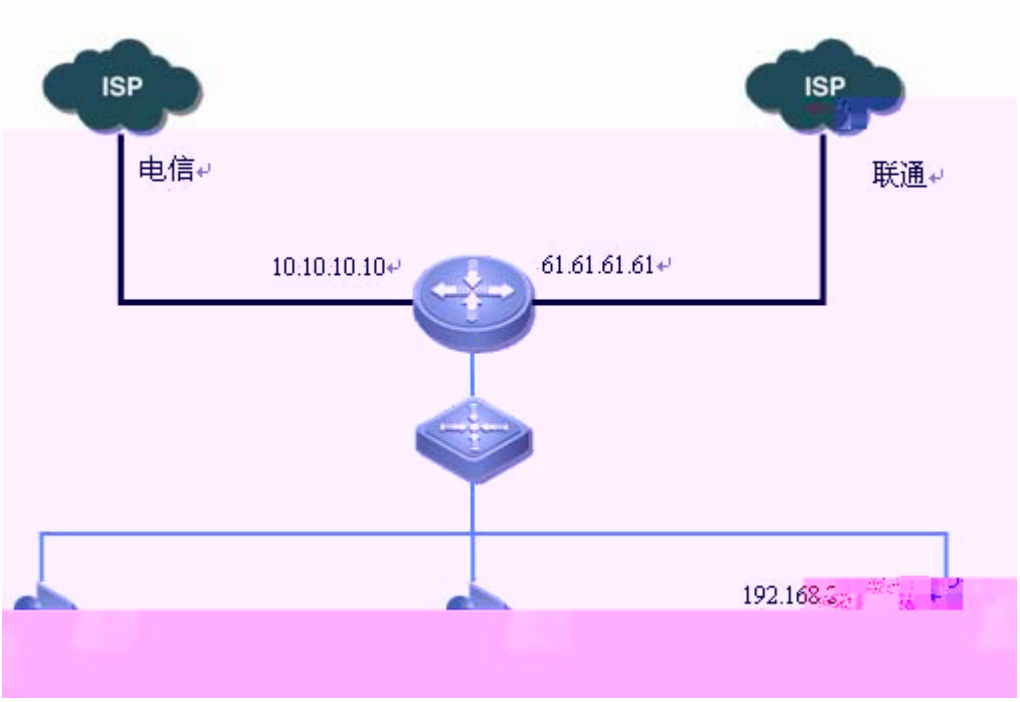
3.4.3

3.4.3.1

2

HTTP

3.4.3.2



3.4.3.3

1

#

Router(config)#ip route 0.0.0.0 0.0.0.0 202.100.12.51

2

Router(config)#time-range no_midnight
Router (config-time-range)#periodic daily 9:00 to 23:00
Router (config-time-range)#exit

3 DNS

DNS

Router(config)#interface gi 0/1
Router(config-if-GigabitEthernet 0/1)#dns 202.96.199.133
Router(config-if-GigabitEthernet 0/1)#exit
Router(config)#interface gi 0/2
Router(config-if-GigabitEthernet 0/2)#dns 58.240.57.33
Router(config-if-GigabitEthernet 0/2)#exit

DNS

Router(config)#dns-proxy enable

4

Router(config)#interface gi 0/2

Router(config-if-GigabitEthernet 0/1)#nexthop 61.61.61.1

5

#

Router(config)#app route enable

http

Router(config)#app route P2P GigabitEthernet 0/2

Router(config)#app route GigabitEthernet 0/2 time-range no_midnight

Router(config)#app route HTTP GigabitEthernet 0/2 time-range no_midnight

Router(config)#app route GigabitEthernet 0/2

Router(config)#app route GigabitEthernet 0/2

Router(config)#app route GigabitEthernet 0/2

3.4.3.4

1

Router#show app route

CLASS INTERFACE(GRPUP) time-range state

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

P2P GigabitEthernet 0/2(interface) NA UP

GigabitEthernet 0/2(interface) no_midnight UP

HTTP GigabitEthernet 0/2(interface) no_midnight UP

GigabitEthernet 0/2(interface) NA UP

GigabitEthernet 0/2(interface) NA UP

GigabitEthernet 0/2(interface) NA UP

2

Router#show app route statistics

CLASS INTERFACE(GROUP)

HIT DATA(byte) HIT RATE(Mb/s)

SUM DATA(byte) SUM RATE(Mb/s)

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

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

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

P2P inhibitive_intf_group(group)

92333/297997 0.6/3.75

202918/342496 0.7/4.68

inhibitive_intf_group(group)

31030/101901 0.2/1.75

401189/212002 0.3/2.61

inhibitive_intf_group(group)

10120/201331 0.1/2.57

100121/204691 0.2/2.98

inhibitive_intf_group(group)

41035/97997 0.3/1.01

60168/91067 0.1/1.41

inhibitive_intf_group(group)

20136/40359 0.1/0.98

21031/60594 0.2/2.01

3 “HTTP ”

Router#show app route HTTP session

3.4.4 ADSL

3.4.4.1

ISP ADSL

30 ADSL 20 ADSL

3.4.3.2.4.2

Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 44
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 45
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 46
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 47
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 48
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer 49

2

ADSL dialer 1-30

Router(config)#interface-group inhibitive_intf_group
Router(config-intf-group)# interface-member dialer 1
Router(config-intf-group)# interface-member dialer 2
Router(config-intf-group)# interface-member dialer 3
Router(config-intf-group)# interface-member dialer 4
Router(config-intf-group)# interface-member dialer 5
Router(config-intf-group)# interface-member dialer 6
Router(config-intf-group)# interface-member dialer 7
Router(config-intf-group)# interface-member dialer 8
Router(config-intf-group)# interface-member dialer 9
Router(config-intf-group)# interface-member dialer 10
Router(config-intf-group)# interface-member dialer 11
Router(config-intf-group)# interface-member dialer 12
Router(config-intf-group)# interface-member dialer 13
Router(config-intf-group)# interface-member dialer 14
Router(config-intf-group)# interface-member dialer 15
Router(config-intf-group)# interface-member dialer 16
Router(config-intf-group)# interface-member dialer 17
Router(config-intf-group)# interface-member dialer 18
Router(config-intf-group)# interface-member dialer 19
Router(config-intf-group)# interface-member dialer 20
Router(config-intf-group)# interface-member dialer 21
Router(config-intf-group)# interface-member dialer 22
Router(config-intf-group)# interface-member dialer 23
Router(config-intf-group)# interface-member dialer 24
Router(config-intf-group)# interface-member dialer 25
Router(config-intf-group)# interface-member dialer 26
Router(config-intf-group)# interface-member dialer 27
Router(config-intf-group)# interface-member dialer 28
Router(config-intf-group)# interface-member dialer 29
Router(config-intf-group)# interface-member dialer 30

#

2

Router#show app route statistics

CLASS INTERFACE(GROUP)

HIT DATA(byte) HIT RATE(Mb/s)

SUM DATA(byte) SUM RATE(Mb/s)

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

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

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

P2P inhibitive_intf_group(group)

92333/297997 0.6/3.75

202918/342496 0.7/4.68

inhibitive_intf_group(group)

31030/101901 0.2/1.75

401189/212002 0.3/2.61

inhibitive_intf_group(group)

10120/201331 0.1/2.57

100121/204691 0.2/2.98

inhibitive_intf_group(group)

41035/97997 0.3/1.01

60168/91067 0.1/1.41

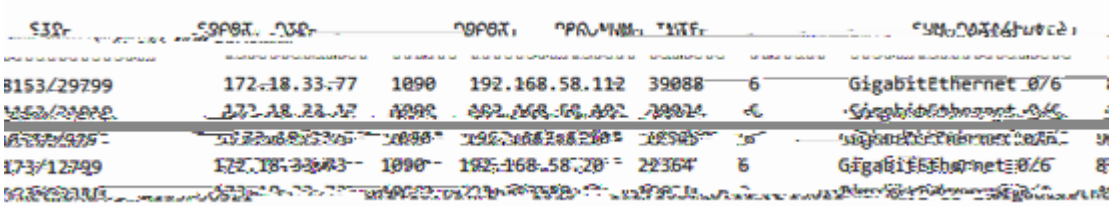
inhibitive_intf_group(group)

20136/40359 0.1/0.98

21031/60594 0.2/2.01

3 “HTTP ”

Router#show app route HTTP session



4

4.1

4.1.1

VOIP Voice Over Internet Protocol P2P Peer-to-Peer P2P

1

QOS

2 /

/ /

a) P2P

Ruijie(config)# no flow-pre-mgr enable

4.3.2

Step 1	Ruijie(config)#**flow-pre-mgr total-limit** limit-number	limit-number 0

no flow-pre-mgr total-limit

a	1 2
	NBR1300G\1500G\2000G

20 20

Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# flow-pre-mgr total-limit 200000

4.3.3 /

/

/

Step 1	Ruijie(config)# **flow-pre-mgr** rule-id **subscriber** subs_name **action { block | by-pass | {trust total-limit** total-limit-number **per-ip-limit** per-limit-number **}}**	/ block by-pass trust rule-id 1~50 subs_name total-limit-number / 0 per-limit-number / IP total-limit-number 0

no flow-pre-mgr

Ruijie(config)# flow-pre-mgr 1 subscriber UserGroupA action trust total-limit 5000 per-ip-limit 300

4.3.4 ACL

ACL

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

1.2.2 IP

NULL