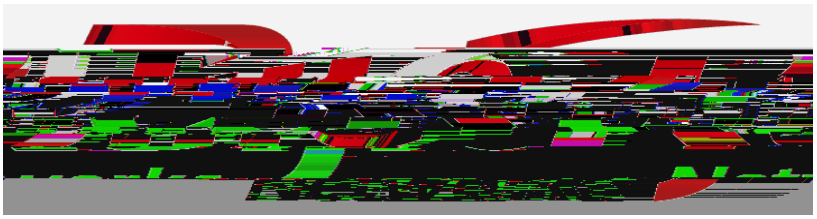

Ф ҳ Ą

RG-EG “ ۸ ٹΩ ң ث

RGOS 10.3(4T90)

Ỏ

Ἇ ᾳ ŋ ą ⁸ ɔ˘ ұ ң ت ` è ы ч ˘ è ᾳ Λ ≠ Â
ɖ ˙ ı ąЮ Ἇ ᾳ ᵍ ¯ Â

Ἇ Θ ɔ ѝ G ˘ ˙ ő Ἇ ┌ ɖ è ᾳ ñ Λ ˘ Ⴎ a
ɖ Ἇ ᾳ ŏ ˘ Ἇ è ą ≠ a ˙ ı
ɖ Â

ɱ

Ąˇ ¨ ѝ‘ RGOS®10.3 (4T90) Â

ˇ Ю “ ж Ԉ

ж Ԉ

Ԉ

1.

ą ‘ Courier New˘ è ɛ˘ 5 ˄˘
ą Â ą è ÿ ώ ą ˘ ╗ ɛ Â

2. Ƒ ҷ

Ƒ ҷ ɛ Ariaľ έ ɛ ˜Ω Ћ Ю˙

ɛ‘ Ƒ ҷ ˜Ω ^ Ƒ ҷ è ɕ a ˄ ǂ ˜ ╗ ɛ Â

ɛ‘ Ƒ ҷ ˄ ^ Ƒ ҷ è ḣ ҷ ǂ ˜ ɛ

[ ] ‘ [ ] ǂ ˘ ﬀ Ƒ ҷ ˄ Â

{ x | y | ... }˙ ÿ ч э э è ˄ У э Â

[x | y | ...]˙ ÿ ч э э è ˄ У э a Â

// ˅ ѝ Â

3.

1 Ø=… ÚÖ¿. G!5B

1 CLI

1.1 alias

У Ъ ъ ⁞ ˘ Л Лъ ŏ Ю G alias Ъ ъ Â G Ъ ъ no

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



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



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



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



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


ð w R Ô


```
Ruijie# configure terminal
Ruijie(config)# aliasconfig
```

```
Ruijie(config)# def-route?
*def-route="ip route 0.0.0.0 0.0.0.0 192.168.1.1"
```

```
Ruijie(config)# def-route?
% Unrecognized command.
Ruijie(config)# end
Ruijie# show aliases config
globle configure mode alias:
def-route   def-route   def-route   def-route   def-route   def-route   def
```

exec	
interface	Л
ip-dhcp-pool	DHCP ьк ыы
keychain	KeyChain
keychain-key	KeyChain-key
time-range	Time-Range

ð w R Ô

ЛъЮ R ˘ CLI ⁞ 1 Л ч ѝ "test" **reload** Ъ ч ˘ Л Лъ Æ Â

```
Ruijie(config)# enable secret level 10 test
Ruijie(config)# privilege exec level 1 reload
```

˘ G ⁞ 1 ώ CLI ˘ Л Л Лъ G **reload** Ъ ч'

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

reload ŏ Ъ ч ⁞ 1 ˘ ‡ Л Лъ G **all** ˜Ω '

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

˘ G ⁞ 1 ώ CLI ˘ Л Лъ G **reload** ŏ Ъ ч'

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

ð ˜Ω Ъ ч Ô

Ъ ч	
enable secret	CLI ⁞ Л ч

1.3 show aliases

Ъ ч ⁞¨ Ъ ч Ю Ъ ч ⁞¨ ˘ Л Лъ EXEC Ю G

show aliases Ъ ч Â

show aliases [mode]

ð ч Ô

mode ' ¦¨ ч Ъ ч Ъ ч Â

ð ą Ô

ð Ъ ч Ô

EXEC

ð G ' Ô

ώ Ъ ч ˘ ‡ Ъ ч ¦¨ Â

ð w R Ô

ЛЬЮ R ˘ EXEC Ю Ъ ч ¦¨ '

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

ð ΏЪ ч Ô

Ъ ч	
alias	Ъ ч ¦¨

2

2.1

2.1.1 disable

ɉɸ ƗƱ æ ɱ ɉɸ ⁞˘ Ɓ ɂ disable Â

disable [privilege-level]

ʏ	
privilege-level	

Ɓ ɂ

G Ɓ ɂ ÿ ˆ Â ╗ Ɔ ˘ ‡ ɱ æˆ Â

disable Ɓ ɂ ɨ	¥ ɱ Â

ƗO R ɱ æˆ π ‘

Ruijie# disable 0

enable	ÿ ώˆ ˘ ˆ ⁞ Â

Ɓ ɂ

a ˇ ⁞ ٨ ٣ ˘ ŏ Ъ ٣ **enable password** Â Ъ ٣ **no** ˥ ⁞ ٨ ٣ Â

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

٨	
Password	ώ EXEC ٨ ٣ Â
Level	⁞ Â

0|7 ٨ ٣ ╗ ø e ş

a ˇ ⁞ ώ ٨ ٣ ˘ ώ Ъ ٣ **enable secret** Â Ъ ٣ **no** ⁋ ⁞ ٨ ٣ Â

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

no enable secret

٨	
Secret	ώ EXEC ٨ ٣ Â
Level	⁞ Â
0|5	٨ ٣ ╗ ٠ 0 ╗ ˘ 5 ώ ╗ Â

٨

٧	
ssh-sesrver	б ٪Ω SSH Server˘ Ъ ٦˚ IPv4 n IPv6 Ь’
telnet-server	б ٪Ω Telnet Server˘ Ъ ٦˚ IPv4 n IPv6 Ь’
web-server	б ٪Ω Http Server˘ Ъ ٦˚ IPv4 n IPv6 Ь’
snmp-agent	б ٪Ω Snmp Agent˘ Ъ ٦˚ IPv4 n IPv6 Ь’

٧

Ъ ٦ ώ

G Ъ ٦ ¥ б ٪Ω Ь Â G **no enable service** Ъ ٦ ٪Ω Ь Â

w R Ю R Ъ ٦’ enable service ssh-sesrver, SSH Server ╖ ‘
Ruijie(Config˜ # enable service ssh-sesrver

٪Ω Ъ ٦

Ъ ٦	
show service	m Ь ’

٨

Ъ ٦ Ч ٨

٨	
-	-

2.1.5 execute

˚ è Ъ ٦˘ Ъ ٦ **execute** Ъ ٦ Â

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

٧	
flash:	˚ Э
filename	˚ ¨

Ъ ٦

Ъ ٦ ¥ ˚ è Ъ ٦ Â
˚ ˚ ¨ p ˚ è ¤ Л Љ ˘ У ƒ PC Э
G TFTP · ∫ Flash è Â ¤ ő ¸ ώ˘ ˘
CLI Ъ ٦ ˚ ¤ Â ˩ ˘ ¥ У Ҫ Ҭ ц Ъ ٦˘ ‡
ƒ ˚ è ™I ñ ώ ą ˘ ć Ъ ٦ Â

Ю R ˚ line_rcms_script.text˘ э ˚ ¥ Л Э Л
ã **Telnet** ╗ ˘ ˚ ¤ Ю˙

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

w R

```
Ruijie# execute flash:
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
Ruijie(config-line)# transport input all
Ruijie(config-line)# no exec
Ruijie(config-line)# end
```

Ω Ъ ٦

Ъ ٦	
-	-

Л

Ъ ٦ \ Л

Л	
-	-

2.1.6 ip http authentication

ƒ G Http Server Ą˘ ώ Web Â Web
˘ ƒ Ю˙ Л Љ G **ip http authentication** Ъ ٦˙

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

٧	
enable	enable password enable secret Ъ ٦ ٨ ٦ ˘ ٨ ٦ 15 Â enable Â
local	ѕ username Ъ ٦ ¨ p ٨ ٦ ˘ 15 Â

enable Â

Ъ ٦ ŏ

G Ъ ٦ ų Web Â G **no ip http authentication** Ъ ٦ ѝ ḣ Â

w R Ю R Ъ ٦˘ Web local ‘
Ruijie(config)# ip http authentication local

Ъ ٦	
enable service	б ˇΩ ┺ Â

٨

٨	
-	-

Ъ ٦ ٧ ٨

2.1.7 ip http port

HTTP ┺ ٨˘ ڤ Ю Л Љ G **ip http port** Ъ ٦‘

ip http port number

٧	
number	HTTP Server ٨˘ ḣ ѝ 80 Â

ḣ ѝ 80 Â

Ъ ٦ ŏ

G Ъ ҙ Ұ HTTP Ь ⅄ ÂG **no ip http port** Ъ ҙ ⅄ ѝ ḣ Â

W R

Ъ ٹ ٧ ٨

٨	
10.4(2)	Ъ ٹ

2.1.9 lock

ٹف Э У э ٨ ٹ˘ EXEC Ъ ٹ **lock** Â

lock

٧

٧	
-	-

Ъ ٹ

æ ï ٨ ٹ ˘ ٹف ف ي ˘ в Лъ Â
ЛъЮ в

У ' ώ **lock** Ъ ٹ˘ ώ ٨ ٹ'
Y ' ώ ٨ ٹ˘ Л Лъ s Â ώ ł˘ ώ ٨ ٹ˘
ł˘ ˘ l' Locked Ł ą '
ώ ˘ ώ ï ٨ ٹ Â
ٹف Э G в ٦ ˘ æ ٹف line Ю **lockable** Ъ ٹ˘ ٹف
line Э в Â

Ю R й в У э '

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

Ъ ٹ	
lockable	ٹف Э в Â

٨

٨	

-	-

2.1.11 login

ƒ AAA ˇΩ ɑ Ю˘ ƒ ٨ Э ` ٨ ٪ ˘ ٨
Ъ ٪ **login** Â Ъ ٪ **no** ٨ ٨ ٪ Â

login

no login

٨	
-	-

Ъ ٪	line

G	í AAA ŏ ┖˘ ‡ Ъ ٪ ¥ ɔ ` ٨ ٪ Â ٨ ٪ VTY console ٨ è ٨ ٪ Â

w R	Ю R ƒ VTY Э ٨ ٪ Â Ruijie(config)# no aaa new-model Ruijie(config)# line vty 0 Ruijie(config-line)# password 0 tm Ruijie(config-line)# login

ˇΩЪ ٪	Ъ ٪	
	password	line ٨ ٪ Â

٨

Ъ ٪ ٧ ٨	٨	
	-	-

2.1.12 login authentication

ƒ AAA ɑ Ю˘ AAA ┖ ˘ G Ъ ٪ ˇΩ
“ Â Ъ ٪ **no** ╗ “ Â

لجي ٤٥

Ъ ٦ line

G í AAA ŏ ┖ ‡ Ъ ٦ ¥ ɔ ɔ ﻙ Â ﻙ username Ъ ٦ ﻙ ə Â

w R Ю R ﻓﺫ VTY Э ﻙ Â

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

ٌΩЪ ٦

Ъ ٦	
username	ﻙ ə Â

ﻥ

Ъ ٦ ٧ ﻥ

ﻥ	
-	-

2.1.14 privilege mode

٧ ê CLI Ъ ٦ Ì Â

٧	
-	-

ٌΩЪ ٦

-	-

ᴖ

Ъ ٤ ٧ ᴖ	
ᴖ	
-	-

2.1.15 password

line ᴖ ٤˘ line Ъ ٤ **password** Â Ъ ٤ **no** ĩ line ᴖ ٤ Â

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

no password

ᴗ	
password	line ᴖ ٤ Â
0**|**7	ᴖ ٤ ╗ خشّ 0 ╗ ˘ 7 ` ╗ Â
encrypted-password	ᴖ ٤ Â

Ъ ٤ line

ɢ Ъ ٤ ¥ يي ثم ? ɑ ٤ < ṡ

2.1.16 service password-encryption

٨ ٦ ╕ ˘ service password-encryption Ъ ٦˘ Ъ ٦ no
ʃ ˘ Л ٨ a˛ и Â

service password-encryption

٨	
-	-

Ъ ٦	ŏ

G	G service password-encryption Ъ ٦ 8˘ Ъ ٦ ℃Ω ˘ ئز ⅃ password ھئ Лъ ˘ G ’ service password-encryption Ъ ٦ Лъ ł˘ show running write ف Лъ ł˘ ℃Ω password ١ ’ Ą ℃Ω service password-encryption˘ ١ и a˛ и Â

w R	Ю R ٨ ٦ ╕ ‘ Ruijie(config)# service password-encryption

℃Ω Ъ ٦	Ъ ٦	
	enable password	a˚ ⋮ ٨ ٦ Â

٨

Ъ ٦ ٧ ٨	٨	
	-	-

2.1.17 telnet

ʃ У ٨ Telnet ┺ ؤ˘ ف EXEC˜ ˜ Ю˜ G **telnet** Ъ ٦
Â

telnet host [port] [**/source** {**ip** A.B.C.D **| ipv6** X:X:X:X::X**| interface** interface-name}]
[**/vrf** vrf-name]

٨	٨	
	Host	Telnet ┺ ئؤ IPV4 ھ ک ä IPV6 ھ ک ў ¨

Port	Telnet ┗ ئۇ TCP ⺆ ⺆˘ ḣ ѝ 23
/source	Telnet G IP ⺆
ip A.B.C.D	Telnet G IPV4 ﻛ ﻫ
ipv6 X:X:X:X::X	Telnet G IPV6 ﻛ ﻫ
interface interface-name	Telnet G ⺆
/vrf vrf-name	VRF

Ъ ҂

G	Ъ ҂ ¥ ⁞ У ⺆ telnet ┗ ئۇ Â
a	**/vrf** ˜Ω ˘ Θ ﻓ RSR ئۇ è **/ipv6** ˜Ω ˘ Θ ﻓ IPV6 è

w R

R 1˙ Ю R ˘ telnet IPV4 ﻛ ﻫ ѝ 192.168.1.1˜ ⺆ G ḣ˘
⺆ ѝ vlan 1˜ VRF ѝ vpn1˙

```
Ruijie# telnet 
```
/source interface 1 /vrf

R 2˙ Ю R ˘ telnet IPV6 ﻛ ﻫ ѝ 2AAA:BBBB::CCCC˙

```
Ruijie# telnet 
```

˜Ω Ъ ҂

Ъ ҂	
ip telnet source-interface	⺆ Э IP ﻛ ﻫ ɔ ѝ Telnet ﻛ ﻫ˙
show session	ɱ TTY ˙
exit	ɱ ˙

⺆

Ъ ҂ ↘ ⺆

⺆	
-	-

2.1.18 username

ﻛ ¨ ˘ ŏ Ъ ҂ username Â

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

username name **privilege** privilege-level

no username name

۷	
Name	Â
Password	۷ ҳ Â
0|7	۷ ҳ ╗ 0 ╗ 7 ╗ Â
encrypted-password	۷ ҳ Â
privilege-level	Â
filename	ώ

Ъ ҳ ŭ

G

Ъ ҳ ¥ ы k G Â	
a	╗ ڜ ù 7 ‡ ώ ù ī Â ╗ ڜ ù 7 Â У ά Ю ۷ 8 ╗ ۷ ҳ ╗ ڜ ù 7 Â

w R

Ю R У э n ۷ ҳ ў ¦ ù 15 '

```
Ruijie(config)# username ъ privilege 5 password 0 ю
```

Ю R web ж n ۷ ҳ :

```
Ruijie(config)# username user1 web-auth password 0 ю
```

Ъ Ω Ъ ҳ

Ъ ҳ	
login local	ы Â

۷

Ъ ҳ \ ۸

۷	
-	-

2.1.19 username import

ÿ ў è ώ ə ў ڤ Ю Ю Ъ ҳ '

username import filename

ч

ч	
filename	ώ ˚ ¨

Ъ ҳ

G

Ъ ҳ ɣ ÿ ώ ə ˘ k web G Â
a ώ ə Θ k web G

w R

Ю R ώ ə :

Ruijie#username import

Ъ ҳ	

Ruijie#username export ◙

Ъ ٦	
web-auth	web Â

٨	

ʌ

Ъ ҳ ↘ ʌ	ʌ	
	-	-

2.2.2 banner motd

ə ˘ ӂ ӧ Ю Ъ ҳ **banner motd**

clock set hh:mm:ss month day year

ч	
hh:mm:ss	ɱ ˘ ѝ ^ 24 ⁸ ~ : ǂ :
day	^ 1-31~ ˘ У э è Â
month	` ^ 1-12~ ˘ У è `
year	Ѽ ĩ ^ 1993-2035~ ˘ a G ĵ̃ Â

Ъ ҳ

G Ъ ҳ ˘ ғ Â

Ɣ k ˚ ˘ G clock set Э Θ

˘ Ю ɨ˘ Â

ɱ˘ k ˚ ‘ S2026G ȁ S2026F ȁ S2028 ȁ RSR10 Â

Ю R ɱ ѝ 2003 3 17 Э´ 10 20ǂ 30 ‘

```
Ruijie# clock set    10:20:30 3 17 2003
Ruijie# show clock
clock: 2003-3-17 10:20:32
```

Ъ ҳ	
show clock	ɱ

ﾉ

ﾉ	
-	-

2.2.4 clock update-calendar

˚ ѝ ɱ ˚ ḣ Â

clock update-calendar

ч	
-	-

w R

Ю R line vty 0 ѝ 5ў 30 ˙

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

Ъ ҙ

Ъ ҙ	
-	-

ѧ

Ъ ҙ Ч ѧ

ѧ	
-	-

2.2.6 hostname

g ў ˝ ˘ ő Ъ ҙ **hostname** Â

hostname name

ч

ч	
name	ў ˝ ˘ ѧ G s à Љ ч Â ѝ 32 э Â

ў ˝ ѝ Ruijie Â

Ъ ҙ

ő

G

ў ˝ ў ұ ⋮ Љ ч ƒ ѧ ņ CHAP è ɔ ѝ ˝ Â

w R

Ю R ў ˝ ѝ BeiJingAgenda

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

Ъ ҙ

Ъ ҙ	
-	-

ѧ

Ъ ҙ Ч ѧ

ѧ	
-	-

2.2.7 prompt

Ъ ҙ ˘ ҂ ŏ Ю Ъ ҙ **prompt** Â ʌ Ъ ҙ ˘ G **no prompt** Ъ ҙ Â

prompt string

ʌ	
string	Ъ ҙ s˘ ʌ Л 32 ɜ

Ъ ҙ	ŏ
G	æ Ъ ҙ ˘ ‡ ¨ ṁ ѝ ˘ ¨ ʌ □ ʌ □ Â Ъ ҙ ʌ EXEC Â
w R	Ю R Ъ ҙ ѝ RGOS˝ Ruijie(config)# prompt **Ø** Ruijie(config)# end RGOS

Ъ ҙ		
-	-	

ʌ	
Ъ ҙ Ч ʌ	

ʌ	
-	-

2.2.8 reload

˘ Ъ ҙ **reload** Â

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

ʌ	
text	ʌ ҭ˘ 1-255 ɜ Â
in [hh:] mm	҂ ł ˘ ѝ 24 Â

at hh:mm	ﻓﺨ 2
month	` ˘ 3 ` ˘ Mar
day	˘ ÿ 1¦ 31
cancel	ﻧ ,

Ъ ҳ

G G Ъ ҳ ﾊ Л Ъ ﻓﺨ 2 í ╟˘ ₰ Â

Ю R 10¦ Л Ъ ł ‘

w R Ruijie# reload in 0

Router will reload in 600 seconds.

Ъ ҳ

Ъ ҳ	
-	-

ﾊ

Ъ ҳ ﾚ ﾊ

ﾊ	
-	-

2.2.9 session-timeout

ɱ LINE Э ¦ ˘ G

session-timeout Ъ ҳ Â **no session-timeout** Ъ ҳ˘ ﻧ LINE Ю¦

˘ a Â

session-timeout minutes [**output**]

no session-timeout

ﻧ

ﻧ	
minutes	¦ ’
output	ŭ ≠ ↄ ѝ ώ˘ ″ ŭ ’

ѝ 0 min Â

Ъ ҳ	LINE
G	ﻮﻫ ﻕ˘ ÿ ɱ LINE Э ˆ ˘ ˙ ! ώ ə ˘ è ˘ LINE й Л Â
w R	Ю R line vty 0 ˚ й 5ˆ 30 ˙ Ruijie(config-line)# exec-timeout 5 30

Ъ ҳ	
-	-

Л

Л	
-	-

2.2.10 speed

˘ ﻮﻫ Ю Ъ ҳ **speed** speed Â
˘ G **no speed** Ъ ҳ Â

speed speed

Ч	
Speed	· ˘ ` æ bps Â ¥ s Л˘ Л · й 9600 ä19200 ä38400 ä57600 à 115200 è У э˘ 9600 Â

9600

Ъ ҳ	ώ
G	G Ъ ҳ Â
w R	Ю R s Л й 57600 bps˙ Ruijie(config)# line console 0 Ruijie(config-line)# speed 0

Ъ ҳ	

-	-

ʌ

Ъ ҙ Ч ʌ	
ʌ	
-	-

2.2.11 write

ˆ running-config˜ ɖ ˥ Æ Â

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

ч	
memory	ŋ̃ ώ NVRAM ˘ ˚ ¥ **copy running-config startup-config** Â
network	ɖ ˥ TFTP ┣ ŋ̃ Э˘ ˚ ¥ **copy running-config tftp** Â
terminal	˘ ˚ ¥ **show running-config** Â

Ъ ҙ

G Ъ ҙ ҙ Ъ ҙ˘ Л ¥ è G p ʌ˘ Лъ ŋ ɖ Ю ғ G Â

	ҙф G **boot config** Ъ ҳ í ╠ ˅ Э˘ **write** [**memory**] Ъ ҳ é ɛ и Ю
	G **boot config** Ъ ҳ í ╠ ˅ ‥ ˘ ‡ ɖ ˥ ɋ Flash è ľ /config.text Ł ˅ è Â
	G **boot config** Ъ ҳ ɑ í ╠ ˅ ‥ ˘ з ˅ ҙф˘ ‡ ɖ ˥ ˅ è Â
	G **boot config** Ъ ҳ ɑ í ╠ ˅ ‥ ˘ ת ˅ a
a	ҙф˘ ‡ˈ
	˅ ҙф˘ ╠… ˅ ĵ ώ ˛
	˅ a ҙф^ Λ ɑ и ˈ í ╠ ˅
	ҙф U SD ǯ Λ ╠ ẏ Э˘ ҙф
	write [**memory**] Ъ ҳ ╕ ˜ ˘ ‡
	ŭ ɱ ɖ ɣ í ╠ ˅ ľ /config Ł è˘
	ъ Â

R 1ˈ ЛЬЮ ı ҙф a **boot config** Ъ ҳ Э ɖ ˈ

```
Ruijie# write
Building configuration...
[OK]
```

R 2ˈ ЛЬЮ ҙф **boot config** Ъ ҳ Э í ╠ ˅ и U Э ˅ ǯ ł˘ ҙф U ɱ ł **write** Ъ ҳ a˘ иˈ

```
Ruijie(config)# boot config
Ruijie# write
Building configuration...
Write to boot config file: [usb1:config.text]
[OK]
Ruijie# usb remove 1
0:1:1:38 Ruijie: USB-5-USB_DISK_REMOVED: USB Device <USB Mass Storage Device> Removed!
Ruijie# write
Building configuration...
Write to boot config file: [usb1:config.text]
[Failed]
The device [usb1] does not exist, write to the default config file [flash:config.text]? [no] yes
Write to the default config file: [flash:config.text]
[OK]
```

w R

˜Ω Ъ ҳ	Ъ ҳ	

boot config	í ╟ ˚ ¨
copy	˚ 8
show running-config	

ʌ

Ъ ҙ ↘ ʌ	
ʌ	
-	-

2.3

2.3.1 show clock

˘ Ъ ҙ **show clock** Â

show clock

↙	
-	-

Ъ ҙ

G G Ъ ҙ ʌ Л ɯ ˘ detail Â

w R Ю R **show clock** Ъ ҙ У э R '

```
Ruijie# show clock
clock: 2003-3-17 10:27:21
```

Ъ ҙ	
clock set	

ʌ

Ъ ٶ ٧ ٨

٨	
-	-

2.3.2 show line

ə ˘ ƒƌ ЮЎ Ъ ٶ **show line** Â

show line [**console** line-num **| aux** line-num **| vty** line-num **|** line-num]

٧

٧	
console	⁸ ٨ ə
aux	aux ə
vty	vty ə
line-num	line

Ъ ٶ

G G Ъ ٶ˘ ə Â

Ю R console ٨ ə ˙
Ruijie# show line console 0
CON Type speed Overruns
* 0 CON 9600 45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape Disconnect Activation
^^x none ^M
Timeouts: Idle EXEC Idle Session
never never
History is enabled, history size is 10.
Total input: 53564 bytes
Total output: 395756 bytes
Data overflow: 27697 bytes
stop rx interrupt: 0 times

w R

ЎΩЪ ٶ

Ъ ٶ	

-	-

/ا

فخ a **boot config** Ъ ٹ Э˘ startup-config ɖ ¥ ɋ Flash è
˚ l' /config.text Ł è Â

فخ G

```
Networks.
System start time      : 2011-09-14 11:54:47
System uptime          : 5:4:43:28
System hardware version : 1.00
System software version : RGOS 10.3(4T90), Release(123368)
System BOOT version    : 10.3.122172(Master), 0.0.0(Slave)
```

ॅΩƃ ३

ƃ ३	
-	-

ภ

ƃ ३ ५ ภ

ภ	
-	-

3

3.1

3.1.1 cd

ſ ˘ ώ

cd DIRECTORY

ð ↰ Ô

DIRECTORY ˙

ð ϙ Ô

ḣ Â

ð Ƀ ҳ Ô

Â

ð ᴳ ˀ Ô

Э ↰ ѝ ώ ˘ ὲ ὲ Э У “..” ˘ “.” ˘ ὲ

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

ð ↓ Ô

DESTINE_FILE˙ ∫ У э ˚

DIRECTORY˙ ⁸∫ ˚

SOURCE_FILE ˙ ⁸ ˚ ˝ (ˆ)

ð ą Ô

ḣ Â

ð Ƃ ҁ Ô

Â

ð ᴳ ˚ Ô

˚ ∫ ˚ è˘ ˚ ɔ̈ ‡ ɔ

ą Â

---

a

ɔ̈ G ˘ ɱ **cp** Ƃ ҁ a ɲ ⁸ Â

ð w ᴿ Ô

ЛЬЮ ᴿ ɱ log.txt ∫ Э У :

Ruijie# cp sour ƀ dest ../ƀ

ð Ѿ Ƃ ҁ Ô

3.1.3 ls

ɱ Ю ˚ ą Â

ls PATHNAME

ð ↓ Ô

PATHNAME˙ Л ↓ ˘ ˘ ą и ɱ Ю ą

ð ą Ô

Л˳ ɱ ɔ Ю ą Â

ð Ƃ ҁ Ô

Â

ð G ˚ Ô

ώ Ю ˚ ə ˘ ↓
Ю ˚ ə Â

ɔ ˘ a .

ð w R Ô

ɱ Ю ˚ ə

```
Ruijie# ls
```

tmp Ю ˚ ə

```
Ruijie# ls ɱ
```

ð ˇΩɃ ɂ Ô

ˇΩɃ ɂ

3.1.4 makefs

Ю w R ˈ jffs2 G ˅ ˘ dev/mtdblock/1 ˅
ˈ

Ruijie# makefs dev /dev/mtdblock/1 /1fs ƒ

ð ˷Ω Ƃ ҁ Ô

˷Ω Ƃ ҁ

3.1.5 mkdir

…

mkdir DIRECTORY

ð ↓ Ô

DIRECTORY ˈ …

ð α Ô

ḣ Â

ð Ƃ ҁ Ô

Â

ð G ˀ Ô

ώ … ˝ ˜ Λ (ˆ ə ˛) Â

Э ƶ a ƶ ə ˛ ˘ … ˚ Â

ð w R Ô

ƶ Ю… test ˈ

Ruijie# mkdir ŧ

ð ˷Ω Ƃ ҁ Ô

3.1.6 mv

╟ ˚ ˥ ↓ У ɜ ˚

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

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

ð ↓ Ô

SOURCE_FILE ˙ ╟ ˚

DESTINE_FILE/DIRECTORY ˙ ˛ ˚

ð α Ô

ḣ Â

ð Ъ ҂ Ô

Â

ð G ˚ Ô

Ъ ҂ Э ώ ↙ ˘ ڜ ˚ ϙ ˛ ђ Â
ڣ G ɛ ˙ a ȁ ˝Ω ώ(**type** ņ **file**); b ȁ ’?’ ╠ G ˘ ڣ
a ώ ӣ ӂ ↙ ˘ Л Љ ώ’? ’ Ъ ҂ ə ,Љ ώ Ъ
҂ Â

ð w R Ô

Ю R log.txt ╟˛ Э У , ̏ й config.txt, ˘ ̏ ˚ , ‡
↙ ˘ ̏ ˚ ˙

```
Ruijie# mv sour ⁄m dest ..⁄
```

Ю R log.txt ╟˛ tmp Ю˙

```
Ruijie# mv dest ⁄m sour ⁄m
```

ð ˝Ω Ъ ҂ Ô

˝Ω Ъ ҂

3.1.7 pwd

ɱ Ɔ

pwd

ð ↙ Ô

↙

Â

ð G ˀ Ô

ɱ Æ Â

ð w R Ô

ÞO R ɱ ɔ ə Â

```
Ruijie# pwd
```

ð ˜ΩƂ ҁ Ô

˜Ω Ƃ ҁ

3.1.8 rm

˺ ˅ Â

rm FILE

ð ↓ Ô

FILE˙ ˺ ˅ ¨ (ˆ ŭ ə)

ð ɑ Ô

ḣ Â

ð Ƃ ҁ Ô

Â

ð G ˀ Ô

a ɔ ,

3.1.9 rmdir

ǐ Â

rmdir DIRECTORY

ð ↓ Ô

DIRECTORY ´ ǐ ¨ , ѝ

ð ɑ Ô

ḣ Â

ð Ƀ ҁ Ô

Â

ð G ˀ Ô

a ɔ , ǐ ѝ Â ɣ Ƀ ҁ ǐ̃ , ʂ G **rm** Ƀ ҁ ˇ Л Ћ ǐ ɔ Â

ð w R Ô

ɱ Ю У э tmp ˘ з è ˚ Â

```
Ruijie# rmdir ɱ
Ruijie# ls
```

ð ʗΩ Ƀ ҁ Ô

ʗΩ Ƀ ҁ

4

4.1

ӯ ӂ ў CLI Ю COPY Ъ ҳ ` Â

Xmodem ˜ ` ‘ **copy xmodem** Ъ ҳ

Tftp ˜ ` ‘ **copy tftp** Ъ ҳ

4.1.1 copy xmodem

xmodem ˜ ` Ъ ҳ˘ xmodem ˜ Э· ц Ю Â

copy flash: filename **xmodem**

copy xmodem flash: filename

a

˚ ¨ è ˘ ˚ ¨ ╗ Э ⁄˘ R ‘

copy xmodeam flash:”filename” copy flash:”filename” xmodeam

ð ч Ô

filenameė Э ˚ ¨

ð ą Ô

ḣ Â

ð Ъ ҳ Ô

ð G ’ Ô

╗· ˘ ‡ · ˚ Â ŭ ‡˘ ą Â Xmodem ˜ ⁄ Л· ˙ ! ˚ ˘ ў ˚ à ч ˚ ÂXmodem· ⁄ ^ s ⁄ ˜ Â

Ю w ɛ э R : У э ÿ ў xmodem ˜ · ˚ ĵ ’ ɣ э Э ˚ xmodem ˜ Э ĵ ў Â

ð w R Ô

Ю Э· ц Ю R :

```
Ruijie# copy xmodem flash : ß
Ruijie# copy flash : ß xmodem
```

ð ˇΩЪ ҳ Ô

ˇΩЪ ҳ

4.1.2 copy tftp

tftp ˜ ` Ъ ҳˇ tftp ˜ Э· p Ю Â

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

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

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

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

a

#A ŽÂ D GS0 ¥"@ Ol m, GQ h:

5 HTTP

5.1

5.1.1 http check-version

HTTP ` Â

http check-version

۷	۷	
	-	-
Ъ ҳ		
G	Ъ ҳ ` ˚ ٱشخ ٱ ٱ ئۇ ٥ ك ˚ Â	
w R	R 1' HTTP ` ‘ Ruijie#http check-version files need to be updated: bin, web, config, character-db, normal. bin: support identification of 31 kinds of popular games.	
٪Ω Ъ ҳ	Ъ ҳ	
	-	-
Ъ ҳ ١ ٨	٨	
	10.3(4b7)	Ъ ҳ

5.1.2 http update

╟` ˚ Â

http update { [**web**] [**route-db**] [**config**] [**character-db**] [**normal**] [**url-db**] [**feedback**]}

ч	
web	WEB ˚
route-db	ﻫ ﻛ
config	˚
character-db	
normal	˚
url-db	URL ˚
feedback	⁄ ą ‡ ˚

Ъ ҳ

G Ъ ҳ ښ ˚ ` Â` ╖ ł ˘ ˚ ╟ Â

w R ᴿ 1˚ ╟` WEB ˚ ɲ ˚
Ruijie#http update web character-db
updating files, please wait...
update success!

ℵΩЪ ҳ

Ъ ҳ	
-	-

Ъ ҳ Ч ⁄

⁄	
10.3(4b7)	Ъ ҳ
10.3(4T90)	╕ Ъ ҳ

5.1.3 http update mode

HTTP ` и ╟` à ╟` ɲ ╟ Â

http update mode { **auto-update** | **manual** | **auto-detect** }

۷	
auto-update	╟`
manual	╟`
auto-detect	╟

۷

ą Ю ѝ ╟` Â

Ъ ҳ Â

Ъ ҳ HTTP ` Â ╟ ۀ ` ˘ ` ┗ ئۇ Э
` ˚ ˘ ڤ` ╖ ł ˘ ╟ ;

G

Ъ ҳ

G Ъ ҳ HTTP ` ┺ ئۇ كە ھە ņ ﾉ ﾉ ÂHTTP ` ˘ . ˝I Ъ ҳ
┺ ئۇ كە ھە˘ a Э˘ ‡¸ э كە ┺ ئۇ كە ھە˘ ˚ ˚
ﾉ ┺ ئۇ Â ┺ ئۇ ˘ ‡ ` Â

w R

R 1˙ HTTP ` ┺ ئۇ كە ھە ņ ﾉ ﾉ˙

```
Ruijie#config
Ruijie(config)#http update server 0 port 0
```

ЎΩЪ ҳ

Ъ ҳ	
-	-

Ъ ҳ ヽ ﾉ

ﾉ	
10.3(4b7)	Ъ ҳ

5.1.5 http update set oob

HTTP ÿ ﾉ ` Â

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

ﾉ

ﾉ	
-	-

α Ю й ﾉ `

Ъ ҳ

G Ъ ҳ HTTP ÿ ﾉ ` Â ﾉ no Ъ ҳ ﾉ ÿ ﾉ ` Â

w R

R 1˙ HTTP ÿ ﾉ ` ˙

```
Ruijie#config
Ruijie(config)#http update set oob
```

ЎΩЪ ҳ

Ъ ҳ	
-	-

Ъ ҙ Ү Ѧ

Ѧ	
10.3(4b7)	Ъ ҙ

5.1.6 http update time

HTTP ╟` Â

http update time daily hh:mm

Ч

Ч	
hh:mm	`

ϙ Ю` й 8:30

Ъ ҙ

G Ъ ҙ ╟` Â Ѧ й э Â

w R ᴿ 1' HTTP ╟` '

```
Ruijie#config
Ruijie(config)#http update time daily 2 // ╟` й
  23:40
```

ЎЪ ҙ

Ъ ҙ	
-	-

Ъ ҙ Ү Ѧ

Ѧ	
10.3(4b7)	Ъ ҙ

5.1.7 feedback enable

ĺ Ո ╖ Â

feedback enable

ч	

	ąЮ ᐟ ╖ ˜Ω
Ъ ҳ	
G	Ъ ҳ í ᐟ ╖ Â
w R	R 1˙ í ╖ ‘ Ruijie#config Ruijie(config)# **feedback** enable R 2˙ ˜Ω ╖ ‘ Ruijie#config Ruijie(config)#no feedback enable

˜ΩЪ ҳ	Ъ ҳ	
	-	-

Ъ ҳ ∖ ∧	∧	
	10.3(4b7)	Ъ ҳ

5.1.8 feedback update

╟ ᐟ ə ą Â

feedback update

ч	

Ъ ҳ	
G	Ъ ҳ í ᐟ ╖ Â
w R	R 1˙ ╟ ᐟ ə ą ‘

Ruijie# feedback update

Ъ ҙ	
-	-

∧	

1 ‘F… ÚÖy •JŒˆ

6

6.1

6.1.1 bandwidth

ﻑﺧ ﻝ Ю G **bandwidth** Ƀ ϗ ﻝ ﻝ ˘ G Ƀ ϗ **no** ﻝ ḣ Â

bandwidth kilobits

no bandwidth

ð ﻝ Ô

kilobits ‘ ˘ Лъ Kbits ѝ ` Æ

ð Ƀ ϗ Ô

ﻝ

ð Ô

ﻝ è **bandwidth** Ƀ ϗ ﻝ ˘ ﻑﺧ Ю **show interfaces** Ƀ ϗ è ḣ

ð G ’ Ô

bandwidth Ƀ ϗ a ط э ﻝ ˘ ﻝ ъ ﻝ ˘ У ˘ Лъ ﻝ يز ˘ ﻝ Лъ α ÂBandwidth ﻝ э ﻝ ˘ a ط ﻝ Â

ð w R Ô

ЛъЮ R ﻝ ﻝ ‘

```
Ruijie(config-if)# bandwidth 64
```

6.1.2 carrier-delay

ﻑﺧ ﻝ Ю G Ƀ ϗ **carrier-delay** ﻑﺧ ﻝ ˘ G Ƀ ϗ **no** تي ḣ Â

carrier-delay [seconds]

no carrier-delay

ð ﻝ Ô

seconds ‘ ﻝ ﻝ ˘ Л ù ` Æ˘ ﻧ 1· 60

ð Ô

ḣ 2

ð ﻮ ﺡ Ô

ﻝ

ð G ’ Ô

ﻝ ﻝ ə ﻝ DCD ÿ Down ↑ Up ˘
DCD ﻓ Ǯ ǫ ﻝ ﻝ □˘ ﻫ ﻝ □ a Ɣ Э
˜ ى Â

DCD è ˘ ﻫ ﻝ ḣ ˘ ﻝ Л ╕
˘ Л ɾ ﻝ Л Â DCD è ˘ з Ɣ
˘ ﻫ ﻝ ˘ Л ó Â

ð w R Ô

ЛЮ R ﻝ ù 5 ‘

```
Ruijie(config)# interface gigabitethernet 0
Ruijie(coinfig)# carrier-delay 5
```

6.1.3 clear counters

ﻓ Ю G Ɱ ﺡ **clear counters** ﻝ ḣ Â

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

ð ﻝ Ô

interface-type ‘ ﻝ ﺵ R ‘ GigabitEthernet Â

Slot-number/interface-number ‘ ﻝ ﺵ ﻝ / ﻝ ﻝ Â

ð ﻮ ﺡ Ô

ð G ’ Ô

ﻝ Э ə ﻝ □ a ﻙ ﻝ □˘ ˘ ù ﻍ ó Л ə
ﻙ ˘ ﻝ ə ˘ ɱ ə ﻝ Л ﻙ ﻝ ɱ ﻝ
ǫ Â a ﻝ˘ ‡ ﻝ ﺋﯗ Â

ð w R Ô

ﾌ ﾉ 0/1 ｈ˘ Ю ﾕ ｷ'

Ruijie# clear counters gigabitethernet

ð ﾟΩﾕ ｷ Ô

ﾕ ｷ	G
show interfaces	ﾉ ə ﾌ ﾚ

6.1.4 description

ﾒ ﾉ Ю G **description** ﾕ ｷ ﾉ ˘ G ﾕ ｷ **no** ｢ ﾉ Â

description string

no description

ð ﾍ Ô

string ' ﾉ s

ð Ô

ﾉ

ð ﾕ ｷ Ô

ﾉ

ð G ' Ô

G **show interfaces** ﾕ ｷ ﾉ ə ˘ ﾊ ﾌ ｢ ﾉ Â

ð w R Ô

Ruijie(config)# interface gigabitethernet
Ruijie(config-if)# description GBIC-1

ð ﾟΩﾕ ｷ Ô

ﾕ ｷ	
show interfaces	ﾉ ə ﾌ ﾚ

6.1.5 duplex

ﾚﾀ ﾉ ЮЎ G Ъ ﾔ ﾉ ﾉ Â G Ъ ﾔ **no**
ﾙ ﾋ

duplex {**auto** | **full** | **half**}

no duplex

ﾐ ﾍ Ô

autoﾟ ﾓ ﾉ ﾇ ´ ﾉ Â

full ﾟ ﾓ ﾉ Â

halfﾟ ´ ﾉ *Â*

ﾐ Ô

ﾓ ﾉ ﾇ ´ ﾉ Â

ﾐ Ъ ﾔ Ô

ﾉ

ﾐ G ﾟ Ô

ﾉ ﾉ б ﾉ ﾚﾩ ЎΩ Â ﾉ Л Ъ G **show interfaces** Ъ ﾔ ﾉ ﾉ
Â

ﾐ w R Ô

```
Ruijie(config-if)# duplex full
```

ﾐ ЎΩ Ъ ﾔ Ô

Ъ ﾔ	

show interfaces A60091E09A013837D60 Tc 0 Tw160.223 7.706 Td[<C12C2F0F197909E6<

ﾉ

ð Ô

Лъ ﾉ й ARPA

ð G ' Ô

802.1Q У э IEEE ñ˜ ˘ ¥ ﾐ VLAN ,ﾞ ｙ ｐ Ь
ｚ ｔ Â

802.1Q ﾊ ﾐ Лъ ﾉ ﾉ Э Â

ð w R Ô

Ю R ﾐ ﾉ 20 Э 802.1Q˝ VLANID й 20˝

```
Ruijie(config)# interface GigabitEthernet 0
Ruijie(config-subif)# encapsulation dot1Q 0
```

6.1.7 interface

ﾐ ŏ Ю G **interface** Ъ ﾔ ώ ﾉ Â

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

ð ﾍ Ô

type ' ﾉ ﾐ ｍ GigabitEthernet à tenGigabitEthernet à loopback à null à dialer à ﾉ Â

Slot-number/port-number ' ﾉ ﾉ˘ ﾉ/ ﾉ ﾉ ˘ ﾉ ﾉ ﾐ
ﾍ э Э^ ў Э ﾉ ﾉ й 0˜ ˘ ﾉ ﾉ ﾉ ﾐ э Э ﾉ Â

sub-interface-number ' ﾉ ﾉ Â

ð Ъ ﾔ Ô

ŏ

ð G ' Ô

ﾉ^ GigabitEthernet à tenGigabitEthernet˜ ˘ a no Ъ
ﾔ¬ Â G **show interfaces** Ъ ﾔ ﾉ

ð w R Ô

ώ ’ ”I Лъ ﾉ'

```
Ruijie(config)# interface gigabitEthernet 0
Ruijie(config-if)#
```

ώ ﾍ˙

```
Ruijie(config)# interface gigabitEthernet 0
Ruijie(config-subif)#
```

ώ Ъ ”I ﾍ˙

```
Ruijie(config)# interface tenGigabitEthernet 0
Ruijie(config-if)#
```

ð ‘ΩƁ ﾇ Ô

Ƀ ﾇ	
show interfaces	ﾍ ə Ɱ ﾚ

6.1.8 ip address

ﾈ ﾍ Ю G **ip** address Ƀ ﾇ э ﾍ IP ﾑ ﾒ˘ G Ƀ ﾇ **no** ĩ ﾍ IP ﾑ ﾒ Â

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

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

ð ﾍ Ô

ip-address ‘ IPV4 ˜ ц ﾑ ﾒ Â

sub-mask ‘ IP ﾑ ﾒ Â

secondary ‘ ﾍ IP ﾑ ﾒ Â

ð Ƀ ﾇ Ô

ﾍ

ð Ô

ﾍ IP ﾑ ﾒ

ð G ’ Ô

a G IP ˜ ˘ ŭ ‡ У э ﾍ a ﾍ˘ IP ﾑ ﾒ Â G **ip address** ﾒ è è Â

ﾈ IP ﾑ ﾒ ˘ ˝ IP ﾑ ﾒ ‡˘ n̲ è ﾍ a ﾈˇ У э ˘ n̲ˇ У э ﾙ è ў Ь a ˇ У э IP ﾑ ﾒ˘ ŭ ‡ Â

ﹾ У э ﻝ ﻟ ﻠﻮﹾ э IP ﻛ ﻫﹶ з a Θ Θ ﻟ ч э˘ ﻟ ﻠﻮ
secondary ﻉ Â

ð w R Ô

ЛЮО R ﻓﺦ ﻠﻮ ﻝ Э IP ﻛ ﻫ'

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

ð ﷺ ﻑ Ô

ﷺ ﻑ	G
ip unnumbered	Ḇ è ﻝ IP ﻛ ﻫ

6.1.9 ip unnumbered

ﻓﺦ ﻝ Ю G **ip unnumbered** ﻑ ﻉ Ḇ è ﻝ IP ﻛ ﻫ ﻑ ﻉ˘ G ﻑ ﻉ **no** ﻟ Â

ip unnumbered type interface-number

no ip unnumbered

ð ﻝ Ô

type ' ﻝ ﺷﺦ Â

Interface-number ' ﻝ ﺷﺦ è ﻝ ﻟ Â

ð ﻑ ﻉ Ô

ﻝ

ð G e Ω

ð w ᴿ Ô

ﺥﻓ ﻟ ﻝ ﻷ ﻑ ﻍ ﻝ ﻟ ﻷ ﻝ ping dns
ﻟ ﻝ ip

ﻑ ﻍ ﻷ ping dns ﻷ ﻟ ﻝ

1. ﻝ ﻟ ﻝ
2. ﻟ ﻝ IP
3. ﻷ ping dns IP ﻝ a ﻥﻓ ﻝ

ﻭ w ᴿ Ô

ﺥﻓ ﻟ ﻝ GigabitEthernet 0/0 ﻟ ﻝ ping

```
Ruijie# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# keepalive ping 8
Ruijie(config-if)# end
```

ﺥﻓ ﻟ ﻝ GigabitEthernet 0/0 ﻟ ﻝ dns

```
Ruijie# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# keepalive dns 8
Ruijie(config-if)# end
```

6.1.11 load-interval

ﺥﻓ ﻝ ﻭ **load-interval** ﻑ ﻍ ﻷ ﻝ ﻑ ﻍ **no**

load-interval seconds

no load-interval

ﻭ ﻝ Ô

seconds 30 600

ﻭ ﻑ ﻍ Ô

ﻝ

ﻭ Ô

30

ð ᴳ ˙ Ô

ﾚﾀ ﾉ è Ъ ｷ ﾉ Лъ ώ ąˇ У
30 У ώ ņ Â w ɜ ᴿ ˇ ﾚﾀ ﾉ
GigabitEthernet 0/0 è ﾍ 180 ˇ **show interface GigabitEthernet 0/0** ﾉ Лъ ˆ ˙

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

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

ð w ᴿ Ô

ЛъЮ ᴿ ﾚﾀ GigabitEthernet 0/0 è 180

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# load-interval 0
```

ð ˇΩ Ъ ｷ Ô

Ъ ｷ	ᴳ
show interfaces	ﾉ ą Лъ ﾍ

6.1.12

ﻩ ﻟ ﻝ ﻭ ﻩ ﻭ ﻯ ﻭ MAC ﻙ ﻫ Â ˇ ﻟ ﻝ MAC ﻙ ﻫ
ﻝ ﻟ ﻍ ˇ ﻡ ﻕ ˚ ﻭ ﻫ ﻩ MAC ﻙ ﻫ ﻯ ﻭ ÂMAC ﻙ ﻫ ﻝ ˛
ﻁ ﻏ ﻫ ﻗ ˇ ąﻮ a MAC ﻙ ﻫ Â

ð w ᴿ Ô

ﻟﻮ ᴿ ﻑ ﻟ ﻝ è MAC ﻙ ﻫ˙

```
Ruijie(config)# interface GigabitEthernet 0
Ruijie(config-if)# mac-address 0
```

6.1.13 media-type

ﻝ ﺵ Â ᴳ ﻑ ﻍ **no** ḣ .

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

no media-type

ð ﻝ Ô

basex auto ‘ ˝I ﻝ

baset ‘ ﻝ

ð Ô

ﻝ Â

ð ﻑ ﻍ Ô

ﻝ ˆ ﻝ˘ a ˆ Ap n̲ SVI˜

ð ᴳ ˚ Ô

˚ ﻭ ﻝ ﻝ ﻟ ˝I ﻝ n̲ ﻝ ﻕ ﻯ ﺵ˘ ﻝ ᴳ è ě ﻭ Â ﻭ
ﻯ ﺵ ě ﻫ˘ ﻑ ﻝ ˘ ᴿ à ﻝ n̲ ˘ ﻝ ṃ
ﺵ Â ﻝ ﻝ ﺵ ﻫ˘ ﺵ ﻝ ﻱ è ˘ ﻝ ﻟ
Â

ð w ᴿ Ô

```
Ruijie(config)# interface gigabitethernet 0
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.
```

ð ˝Ω ﻑ ﻍ Ô

ﻑ ﻍ	

show interfaces	ﻝ ə Ɱ ﻝ

ð ﻝ Ô

a ﻝ ╟ ″ ɱ ɔ ﻑ ″I ﻝ ﻝˇ ù ﻝˇ Ƀ ϗ
ᵍ Ȳ ﺵÂ

6.1.14 mtu

ﻑ ﻝ Ю ᴳ **mtu** Ƀ ϗ ﻝ · ` ĩ MTUˆ Maxiumum Transmission Unitˇ ˇ ᴳ Ƀ ϗ **no** Â

mtu num

no mtu

ð ﻧ Ô

numˈ ﻧ ḣ ﺯ ù 64-65535˜ Ɱ ù ` Æ Â ḣ ﻝ ﺯ ﻥ ﺙ aˇ ﻝ ﺵ a
ˇ aˇ ˇ У ù 1500 Â

ð Ô

ù 1500 Â

ð Ƀ ϗ Ô

ﻝ

ð ᴳ ˈ Ô

MTU ﻝ ˬ ط ǐ ǎ ņ ˇ з MTU У ˊ н
Ь ņ Â н Ь ˊ ᴳ ˇ è è У н Ь
з ˇ · ˇ ﻝ У н Ь a é ﻝ
ˇ FTP · Â ˇ MTU
ˇ ¯ ɣ aˇ н Ь ɣ ﻩǐ Â ɱ ﻝ ﻝ
Â

ð w ᴿ Ô

```
Ruijie(config)# interface gigabitethernet 0
Ruijie(config-if)# mtu 0
```

ð ‴Ω Ƀ ϗ Ô

Ƀ ϗ	

show interfaces	ﾉ ə ﾌ ﾚ

6.1.15 shutdown

ﾝ ﾉ è˘ G Ъ ｷ ﾞ Ω ﾉ Â G Ъ ｷ **no** ﾉ

shutdown

no shutdown

ð Ъ ｷ Ô

ﾉ

ð G ' Ô

ｙ ﾉ^ ﾌ ﾚ ﾉ à Ap ﾉ à SVI ﾉ ~ ˘ Ъ ｷ ﾞ Ω ﾉ˘ ﾉ è ы
ÿ ﾝ˘ ﾆ a ɔ Â G **show interfaces** Ъ ｷ ﾉ Â

ð w R Ô

ﾞ Ω GE ﾉ 0/1'

```
Ruijie(config)# interface gigabitEthernet 0
Ruijie(config-if)# shutdown
```

GE ﾉ 0/1'

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# no shutdown
```

ð ﾞ Ω Ъ ｷ Ô

Ъ ｷ	
show interfaces	ﾉ ə ﾌ ﾚ

G ṁ **no shutdown** ﾉ ɔ˘ ﾉ ˛ ﾍ ﾉ
ə Â

6.1.16 snmp trap link-status

ﻓﺦ è ﻝ ﺎﺗﺠﻲ ¥ ﻝ ŭ ﻧ ﻝ LinkTrapˇ ╗ ˇ ﻝ
ﻧ Link ﻝ ◘ˇ SNMP ﻧ LinkTrapˇ ﻝ ǯ ‡ a ﻧ Â G ﻑ ﻍ **no**
SNMP

Â

ð Ъ ｷ Ô

ﾉ

ð G ' Ô

G **show interfaces** Ъ ｷ Â ﾉ ﾜ a ˇ ˘ ǐ ﾜ ≠ ˛
a ˇ Â ˘ SFP ﾜ ﾉ a ǐ ﾙ 10M 100M Â

ð w R Ô

```
Ruijie(config)# interface gigabitethernet 0
Ruijie(config-if)# speed 0
```

ð ΩЪ ｷ Ô

Ъ ｷ	
show interfaces	ﾉ ą ﾉ

6.2

6.2.1 show interfaces

ﾉ n ą

show interfaces [interface-id] [**counters | description | status**]

ð ﾉ Ô

interface-id ' ﾉ^ ^ ﾉ ﾉ à aggregateport ﾉ à SVI ﾉ à loopback
ﾉ à null ﾉ à dialer ﾉ ~

counters ' ﾉ ą Â

description' ﾉ ą ˘ ^ link Â

status' ɣ ﾉ ﾉ ą ˘ ^ à ﾙ Â

ð Ô

ﾉ ą Â

ð Ъ ｷ Ô

ð G ' Ô

a ╗ ﻝ ˘ ‡ ﻝ ﺟﻲ ﻩ Â

ð w ᴿ Ô

Ruijie# show interfaces gigabitEthernet 0

ð ℧Ω ﮋ ﺭ Ô

ﮋ ﺭ	
clear counters	ﻝ ḣ
description	ﻝ
duplex	ﻝ ﻝ Â
interface	ώ ﻝ Â
load-interval	ﻝ
media-type	ﻝ ﺵﺥ
shutdown	ﻑﺫ ﻝ è˘ ᴳ ﮋ ﺭ ℧Ω ﻝ Â
speed	ﻝ Â

7

7.1

7.1.1 bridge-map

Ƃ ҳ ώ Ƃ ҳ Â

bridge-map bridge-num

↓	↓	
↓	bridge-num	↓ Â ΰ ϔ ↓˘ ΰ ɜ Â R ‘ Ь ϔ ↓˘ ‡ ↓ ɪ й 0~2 Â

Ƃ ҳ	ŏ Â
G	Ƃ ҳ˘ ώ Ƃ ҳ Âфɪ Ƃ ҳ è˘ ↓Ɓ ϔ ↓ ʕΩ ɒ ɔ Â Ƃ ҳ a ĭ no Â
w R	R 1˙ ώ Ƃ ҳ 1˙ Ruijie#config Ruijie(config)#bridge-map 1 Ruijie(config-bridge-map)#

ʕΩƂ ҳ	Ƃ ҳ	
	-	-

Ƃ ҳ ↘ ↓	↓	
	10.3(4b7)	Ƃ ҳ

7.1.2 link-mode

ӛ ӀӀ ̃Ω n ∧ ɔ Â

Ф ҳ no ∧ ӛ ӀӀ ̃Ω n ∧ ɔ Â

[**no**] **link-mode**

Ъ ҳ	
-	-

ѧ	
10.3(4b7)	Ъ ҳ

7.1.3 native-vlan

native-vlan id ḣ Â ѧ Ѣ G Ъ ҳ no native-vlan id ѝ ḣ Â

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

ѧ	
vlan-id num	Vlan id ḣ˘ ѧ ĭ ѯ ѝ 1~4094

ϙ Ю native-vlan id ḣ ѝ 1˘ G no ѧ Ѣ native-vlan id ѝ ḣ Â

Ъ ҳ Ъ ҳ

G native vlan-id Â vlan-id ⁞ ѝ native vlan-id vlanʃ Â

W R R 1˙ 1 native-vlan id ѝ 100˙

```
Ruijie(config)#bridge-map 1
Ruijie(config-bridge-map)#native-vlan 0
```

Ъ ҳ	
-	-

ѧ	
10.3(4b7)	Ъ ҳ

7.1.4 specify interface

ﻝ ﻕ ﻩ Â

specify interface interface-name

[no] sys-mode gateway

ы	
-	-

	ą Ю й ЎЗ ˘ G no Л Лъ э й ЎЗ
Ъ ъ	ŏ
G	Ъ ъ ұ э ф ЎЗ ЎЗ Â э ф ЎЗ Ю ˘ Н ˘ Л Лъ NAT ˘ Л й Ь Л˘ Л Лъ IP к њ Â э ф ЎЗ Ю ˘ Н ˘ a NAT ˘ Л й ү Л˘ Л a IP к њ Â
w R	R 1' э й ЎЗ ' Ruijie#config Ruijie(config)#no sys-mode gateway

ЎЗЪ ъ	Ъ ъ	
	-	-

Ъ ч Â

ъф Л Ю Л vlan id й 1-4088 Ъ ч Ю 8

1 ъф 2 Л У э Л Ъ ч з Л ъф lan Л Ю

2 ц EG1000S GigabitEthernet 0/1 Ю a Ъ ч ц EG1000C à EG1000CM GigabitEthernet 0/5 GigabitEthernet 0/6 a Ъ ч

3 ц EG1000S Ъ ч lan Л Л б GigabitEthernet 0/1 У э ц EG1000C à EG1000CM Ъ ч lan Л Л б GigabitEthernet 0/5 GigabitEthernet 0/6 У э

R 1 GigabitEthernet 0/0 vlan id й 1-4088

```
Ruijie(config-if-GigabitEthernet 0/0)#vlan-enable
```

Ъ ч	
-	-

ъф 10.3(4b7)Лъ Л ъ ь è EG1000S à EG1000C à EG1000M Â

Л	
10.3(4b7)	Ъ ч

7.1.7 bypass

Л э ъф bypass

ц EG1000S

bypass couple couple-num

Ъ ч no Л Л bypass

[**no**] **bypass couple** couple-num

Л	
bypass	Л э ъф bypass Â
couple	1 У

couple-num	couple ﾊ

Ъ ҳ ŏ Â

G У ﾊ ﾇ bypass Â

w R ᴿ 1' У ﾊ ﾇ bypass

```
Ruijie(config)# bypass couple 0
```

ˇΩЪ ҳ

Ъ ҳ	
-	-

ﾊ ﾇ 10.3(4b7)Лъ ﾍ ǯ ɨ è˘ EG1000S Â

Ъ ҳ ヽ ﾊ

ﾊ	
10.3(4b7)	Ъ ҳ

¥ EG1000M'

bypass copper couple couple-num

bypass fiber couple couple-num

Ъ ҳ no ﾍ ﾊ bypass

[**no**] **bypass copper couple** couple-num

[**no**] **bypass fiber couple** couple-num

ﾍ

ﾍ	
bypass	ﾊ ɔ ﾇ bypass Â
copper	ﾊ
fiber	ˇI ﾊ
couple	ヽ У
couple-num	couple ﾊ

Ъ ҳ ŏ Â

G	У л^ л "I л~ жф ° bypass Â
w R	R 1' У л жф ° л bypass ' Ruijie(config)# bypass copper couple 0

ЪЪ ч	
-	-

л	жф 10.3(4b7)Лъ л Ğ ł è˘ EG1000M Â

л	
10.3(4b7)	Ъ ч

7.2

7.2.1 show bridge-map

ЎΩ ą Â

show bridge-map [bridge-num]

ч	
bridge-num	л Â ύ ά л˘ ύ э Â R ' Ь ά л˘ ‡ ч ги й 0~2 Â

Ъ ч
G л˘ ЎΩ ą Â a ˘ ‡ ą Â
w R R 1' л й 0 ЎΩ ą ' Ruijie#show bridge-map 0 BRIDGE MAP 0,STATE is DOWN

Inside interface is GigabitEthernet 0/0,Outside interface is GigabitEthernet 0/1

Working mode is forward

Native vlan is 1

Ъ ३	
ΩЪ ३	-

LAN: GigabitEthernet 0/0 GigabitEthernet 0/3

WAN: GigabitEthernet 0/1 GigabitEthernet 0/2 GigabitEthernet 0/4

Ъ ३

POWER 2 is not present!

EG1000M:

```
Ruijie#show environment
---environment information---
CPU Temperature is 41
fan works in low speed mode.

FAN 1 NOT OK!
FAN 2 is OK!
FAN 3 is OK!
FAN 4 is OK!

POWER 1 is not present!
POWER 2 is present!
POWER 2 power on successfully!

Power2 type: RG-PA300I
        Hardware version: 1.00
        Software version: RGNOS 0.03,Release(100625)
        Power SN: A66204100600401V0.2A
        current output power: 75.14(W)
        output voltage: 12.10(V)
        output electric current: 6.21(A)
        power temperature: 26.00(N)
        power supply: OK
```

Ъ ҳ

Ъ ҳ	
-	-

Л

10.3(4b7)Лъ ↓ Ǯ ɨ è˘ EG1000M

Ъ ҳ ↘ Л

Л	
10.3(4b7)	Ъ ҳ

8

8.1

è è Ф ъ **mtu** à **speed** à **duplex** à **flowcontrol** à **description** p **shutdown** ж б Ж

Ƀ ҳ ∖ ⁄	⁄	
	10.3(4b7)	Ƀ ҳ

8.1.2 gateway

MGMT ⁄ ˜Ω Â

gateway ip-address

⁄	⁄	
	ip-address	MGMT ⁄ IPv4 ə ˜Ω ﻫ ﻙ

Ƀ ҳ ⁄

G MGMT ⁄ ﺵﺥ MGMT˜ ⁄ ﻳﺯ ﻯ 0 Â

w R

R 1˙ MGMT ⁄ ˜Ω˙

```
Ruijie#config
Ruijie(config)#interface mgmt 0
Ruijie(config-if-Mgmt 0)#gateway
Ruijie(config-if-Mgmt 0)#end
Ruijie#
```

˜Ω Ƀ ҳ

Ƀ ҳ	
show interface mgmt	MGMT ⁄

⁄ EG ‟ ﻩ ﺙ ﺋﻫ Â

Ƀ ҳ ∖ ⁄	⁄	
	10.3(4b7)	Ƀ ҳ

8.1.3 ip address

G Ъ ҳ MGMT ⊀ IP ھ ک б Â

ip address ip-address subnet-mask

⊀		
⊀	ip-address	IP ھ ک
	subnet-mask	

Ъ ҳ ⊀ Â

G MGMT ⊀ ش MGMT ⊀ ز ي ù 0 Â

R 1 MGMT ⊀ IP ھ ک

```
Ruijie#config
Ruijie(config)#interface mgmt 0
Ruijie(config-if-Mgmt 0)#ip address
Ruijie(config-if-Mgmt 0)#end
Ruijie#
```

w R

Ъ ҳ	
show interface mgmt	MGMT ⊀

⊀ EG " ң ث ھ Â

⊀	
10.3(4b7)	Ъ ҳ

Ъ ҳ ⊀

8.1.4 ping oob

G Ъ ҳ ⊀ ӄ ў Â

ping oob host

⊀		
⊀	host	ў IP ۀ

G Θ ¥ б MGMT ⊀ ӧ SNTP ╟ Â

R 1˙ ĺ SNTP ╖ ˙

w R
```
Ruijie#config
Ruijie(config)#sntp enable oob
```

˜Ω Ѣ ҳ

Ѣ ҳ	
-	-

⊀ 10.3(4b7)Лъ ⊀ Ѯ ł è˘ EG ‟ ӷ Â

Ѣ ҳ ↘ ⊀

⊀	
10.3(4b7)	Ѣ ҳ

8.1.6 telnet oob

б MGMT ⊀ ӧ ў Â

telnet oob host

⊀

⊀	
host	ў IP ˝

Ѣ ҳ

G б MGMT ⊀ ӧ ў Â

R 1˙ ĵ ӧ ў 192.168.200.1˙

Ruijie#telnet oob

w R
```
User Access Verification

Password:
```

˜Ω Ѣ ҳ

Ѣ ҳ	

-	-

⊀ 10.3(4b7)Лъ ⊀ ǯ ɨ è˘ EG ‟ ﬆ Â

Ъ ҳ ⊻ ⊀

⊀	
10.3(4b7)	Ъ ҳ

8.1.7 traceroute oob

HTTP ÿ ⊀` Â

traceroute oob host

⊀

⊀	
host	ў IP ﬓ

Ъ ҳ

G Θ ¥ MGMT ⊀⎫ ά ў Â

R 1ʻ MGMT ⊀⎫ ά ў 192.168.200.1 ʻ

```
Ruijie#traceroute oob
  < press Ctrl+C to break >
Tracing the route to 192.168.200.1

 1   192.168.196.1 10 msec 10 msec 0 msec
 2   192.168.187.1 10 msec 10 msec 10 msec
 3   192.168.198.43 0 msec 10 msec 0 msec
 4   192.168.200.1 10 msec 10 msec 10 msec
```

w R

Ъ ҳ	
-	-

⊀ EG ‟ ҷ ﬆ Â

9 LINE

9.1 LINE

9.1.1 line

ώ↑ LINE ˘ G ЛЬЮЪ ҳ‘

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

ð ↓ Ô

↓	
aux	↓˘ У Θ ﻑ ﺅ " ң ث Э
console	8 ↓
tty	↓˘ У Θ ﻑ ﺅ " ң ث Э
vty	˘ ¥ telnet/ssh
First-line	ώ first-line ↑
Last-line	ώ last-line ↑

ð Ô

ð Ъ ҳ Ô

ŏώ

ð G ’ Ô

ώ LINE

ð w R Ô

ώ↑ LINE VTY 1↑ 3 LINE ‘

```
Ruijie(config)# line vty 13
```

ð ‘Ω Ъ ҳ Ô

9.1.2 line vty

Ъ ъ Л Љ ╗ м Л Љ G VTY Â Ъ ъ **no** ч Л Љ ˝ м Л Љ G VTY Â

line vty line-number

no line vty line-number

ð Ô

α Ю˝ Л VTY й 5˝ Л й 0--4 Â

ð Ъ ъ Ô

ő

ð G ' Ô

╗ ˝ Л VTY ˘ Л Љ G Э Ъ ъ Â

ð w R Ô

Л VTY ╗ 2˝ Л VTY Л ґ й 0--19 Â

```
Ruijie(config)# line vty 9
```

Л VTY ˝ 10˝ Л VTY Л ґ й 0—9 Â

```
Ruijie(config)# line vty 0
```

ð ˝Ω Ъ ъ Ô

9.1.3 transport input

Line Ю Л Љ ~ ˘ G **transport input** Ъ ъ Line Ю Л Љ ~ ÂG **default transport input** й LINE Ю ї ~ й h Â

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

default transport input

ð ч Ô

ч	
all	Line Ю˝ ї ~ Â
ssh	Line Ю˝ Л ї SSH ~ Â
telnet	Line Ю˝ Л ї Telnet ~ Â

none	Line Ю a ї ˙ ¡ ˜ Â

ð Ô

˘ VTY ї ˜ Â è ښ TTY h и NONE˘ a ї ˙ ¡ ˜ Â ¢ ˜ Л Љ ђ˘ Л Љ G **default transport input** Ъ ч и h Â

ð Ъ ч Ô

Line

ð G ˚ Ô

Ъ ч Line Ю ї ˜ Â VTY ф α Ю ї ˜ ą Â ¢ ї ˜ ђ˘ Л ˜ Л Љ ф VTY Э ╗ Â G **show running** Ъ ч Line Ю ą Â

---

a

G **default transport input** Ъ ч Â **no transport input** Ъ ч˘ LINE Ю ą˜ Â б **transport input none** ˚ Â

ð w R Ô

ф line vty 0 4 Ю Л ї telnet ˜ ˙

```
Ruijie# configure terminal
Ruijie(config)# line vty 0 4
Ruijie(config-line)# transport input telnet
```

ð ˝Ω Ъ ч Ô

Ъ ч	
show running	ą Â

ð Ô

˚ RGNOS10.1 Љ Э

9.1.4 access-class

Line Ю ACL^ 8 " ˜ Â G **access-class** acl-no { **in | out** } Ъ ч Line Ю 8 " Â G no **access-class** access-list-number {**in | out**} Ъ ч Л LINE Ю ACL Â

[**no**] **access-class** access-list-number {**in | out**}

ð ч Ô

ч	
access-list-number	access-list Нж 8 " Â
in	ч 8 Â
out	8 Â

ð Ô

˘ Line Ю · ¦ 8 " Â ˘ ĭ Â

ð Ъ ъ Ô

Line

ð G · Ô

Ъ ъ Line Ю 8 " Â ą Ю ĭ ч ώ б ˘ a Â ¢ **access-class** ł˘ Л access list ˘ Л Лъ ╗ Â G **show running** Ъ ъ Line Ю ą Â

ð w R Ô

ж line vty 0 4 Ю ¥ ч access-list и 10

```
Ruijie# configure terminal
Ruijie(config)# line vty 04
Ruijie(config-line)# access-class 0in
```

ð Ω Ъ ъ Ô

Ъ ъ	
show running	ą Â

ð Ô

RGNOS10.1 Лъ Э

10 DLDP

10.1.1

Ruijie(config-if)#

˘ ip ѝ 20.1.1.1˘ ЮУ ip ѝ 10.1.1.1˙

Ruijie(config)# dldp 20.1.1.1 10.1.1.1

ð ˝ΩѢ ҁ Ô

ð ∕ Ô

ð Ô

Ѣ ҁ Θ ҂ RGNOS10.3 ǯ ғ Э ҂˘ ˆ ΰ RGNOS10.3 Â

10.1.3 dldp passive

Ѣ ҁ dldp passive dldp ɔ ɣ ╟ ˘ **no** Ѣ ҁ è ḣ Â

dldp passive

no dldp passive

ð ч Ô

ð Ô

ɑ Ю ɔ ѝ ў ╟ Â

ð Ѣ ҁ Ô

Interface

ð ᴳ ˙ Ô

dldp ɣ ĺ ҷшЮ ˘ ∕ Лъ è ѝ ╟ Лъ ˝ è Â

ð w ᴿ Ô

ЛъЮ ᴿ ѝ ˘ dldp ɔ ɣ ў ‘

Ruijie(config-if)# dldp passive

ð ˝ΩѢ ҁ Ô

ð ∕ Ô

ð Ô

Ѣ ҁ Θ ҂ RGNOS10.3 ǯ ғ Э ҂˘ ˆ ΰ RGNOS10.3 Â

11

11.1

11.1.1 clear counters

ﻯ ə ˘ Ƌ ϗ **clear counters** Â

clear counters [interfece-type interface-number]

ð ﻯ Ô

interface-type ˙ ﻯ ˘ Async ä Dialer ä GigabitEthernet ä Group-Async ä Loopback ä Null ä Serial Â

interface-number ˙ ﻯ ﻯ Â

ð Ƌ ϗ Ô

ð G ˙ Ô

ﻯ ə **show interface** ˚ Â G Ƌ ϗ ﻯ ə ˘ ў Ɣ G Â

ð w R Ô

Ю R Ƌ ϗ У э ˙

```
Ruijie# show interface async 1
Async1 is down, line protocol is down
Hardware is Async Serial
Internet address is 1.1.1.1/24
MTU 1500 bytes, BW 9 Kbit, DLY 100000 usec, rely 255/255,
load 1/255
Encapsulation PPP, loopback not set, keepalive not set
DTR is pulsed for 5 seconds on reset
LCP Closed
Closed: ipcp
Last input 18:17:02, output 18:17:02, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops:
0
Queueing strategy: weighted fair
Output queue: 0/64/0 (size/threshold/drops)
Conversations  0/1 (active/max active)
```

```
Reserved Conversations 0/0 (allocated/max allocated)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1396 packets input, 20516 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
1 input errors, 1 CRC, 0 frame, 0 overrun, 0 ignored,
0 abort
1467 packets output, 22937 bytes, 0 underruns
0 output errors, 0 collisions, 11 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
Ruijie# clear  counters
Clear "show interface" counters on all interfaces
[confirm]
Ruijie#
%COUNTERS: Clear counter on all interfaces by console
Ruijie# show interface async 1
Async1 is down, line protocol is down
Hardware is Async Serial
Internet address is 1.1.1.1/24
MTU 1500 bytes, BW 9 Kbit, DLY 100000 usec, rely 255/255,
load 1/255
Encapsulation PPP, loopback not set, keepalive not set
DTR is pulsed for 5 seconds on reset
LCP Closed
Closed: ipcp
Last input 18:17:15, output 18:17:15, output hang never
Last clearing of "show interface" counters 00:00:02
Input queue: 0/75/0 (size/max/drops); Total output drops:
0
Queueing strategy: weighted fair
Output queue: 0/64/0 (size/threshold/drops)
Conversations  0/1 (active/max active)
Reserved Conversations 0/0 (allocated/max allocated)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute 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 ignored,
0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
```

11.1.4 clear line

ﾞ ﾊ ﾉﾚ ﾖ ﾇ **clear line** Â

clear line [line-type] line-number

ð ﾍ Ô

line-type ﾟ Line ﾚﾞ ﾞ **aux** ã **console** ã **vty** Â
ﾄ ﾙ **tty** Â

line-number ﾟ ﾊ Â

ð ﾖ ﾇ Ô

ð ﾀ ﾟ Ô

ﾖ ﾇ ﾊ ﾉﾚ ﾔ ﾊ ﾞ **tty** ã **aux**ﾞ ã ﾞ **vty** ã **console**ﾞ Â
ﾖ ﾇﾞ ﾀ line ﾔ Â

ð w ﾘ Ô

Ю ﾘ VTY 0 ﾟ

`Ruijie#` clear line vty 0

11.1.5 debug dialer

ﾊﾞ DDRﾞ ﾞﾛ ﾖ ﾇ **debug dialer** Â

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

ð ﾍ Ô

pkt ﾟ ﾊ ₁

mlp ﾟ ﾊ ﾔﾔ

callbackﾟ dialer ﾌﾞ Yﾟ

eventﾟ ﾊ ﾔﾔ Yﾟ

ð ﾖ ﾇ Ô

ð ﾀ ﾟ Ô

ﾖ ﾇ ﾊ ﾉﾚ ﾊ ﾍ ﾞﾛ Â

11.1.6 debug ppp

PPP ˜ ى ˇΩ ﾉ Ɱ Ƀ ɂ **debug ppp** Â

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

ð ﾍ Ô

authentication ' PPP

error ' PPP ˜ ى

event ' PPP Y ˇ

negotiation ' PPP ˜ ى

packet ' PPP ˜ ى

ð Ô

ˇ ‡ PPP ˜ ى Â

ð Ƀ ɂ Ô

ð G ' Ô

Ƀ ɂ ў ɣ PPP ˜ ى ˇ ﻓ é ɛ è ˇ ﾉ Ɱ ˇ a ˇ ˇΩ Â

ð w R Ô

Ю R PPP Y ˇ '

Ruijie# debug ppp event

11.1.7 dialer enable-timeout

ˇ ﾍ Ƀ ɂ **dialer enable-timeout** Â

Ƀ ɂ no ḣ Â

dialer enable-timeout seconds

no dialer enable-timeout

ð ﾍ Ô

senconds ' ^ ˜ Â

ð Ô

15

ð Ƀ ɂ Ô

ﾍ

ð G ' Ô

ﺍ ﻉ ﭖ ﻉ ﭖ ﻉ ﭖ ﻡ ﻉ ˘ ¨
ﻉ ﺎ ﻉ ﻡ Â

ﾉ ｄ “ ˘ ﾉ Ъ ｷ **dialer hold-queue** Â Ъ ｷ **no** ˜Ω ｄ “ Â

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

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

ð ﾍ Ô

packet ‘ “ è ｄ ｆ ˘ ﾍ ḣ 0¦ 100 Â

timeout seconds ‘ ｆ ｄ ﾌﾀ “ ˆ ˜ ˘ 45s Â

ð Ô

˜Ω ｄ “

ð Ъ ｷ Ô

ﾉ

ð ᴳ ’ Ô

ᴳ MODEM ﾉ У ˜ ى ˘ ﾌﾀ ᵩ x Â⊓ ﾏ ｄ “ ˘ ‡ ﾉ Л Ъ ₁ ﾉ ‡ ｄ ﾌﾀ Э ˘ Л Ъ ｲ ˘ ¯ ﾍ Â

ð w ᴿ Ô

Ю ᴿ ｄ “ ｉ 50

```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer hold-queue 50
```

11.1.10 dialer idle-timeout

˘ ﾉ Ъ ｷ **dialer idle-timeout** Â Ъ ｷ no Â

dialer idle-timeout seconds

no dialer idle-timeout

ð ﾍ Ô

seconds ‘ ˆ ˜ Â

ð Ô

120

ð Ъ ｷ Ô

ﾉ

ð ᴳ ’ Ô

ﾉ ﾌﾞ ｴ ｶ ﾞ ﾟ ｲ

У э ｉ ﾑ ﾏ ﾞ Æ Â

ð w ᴿ Ô

Ю ᴿ ﾉ 1 ｙ 60 ‘

```
Ruijie(config)# int async 1
Ruijie(config-if)# dialer idle-timeout θ
```

ð ℧Ъ ｷ Ô

Ъ ｷ

ð w ᴿ Ô

Ю ᴿ ЂЖ ч ₁ ѧ ‡˘ У ї IP ₁ ѧ˘
У Ѧ ї ˝ “ 120 ₁ ѧ˙

```
Ruijie(config)# access-list 0permit tcp
0000
Ruijie(config)# dialer-list 1protocol ip permit
Ruijie(config)# dialer-list 2protocol ip list 0
```

ð ˜ΩѢ ҁ Ô

Ѣ ҁ	
dialer-group	ѯ ѧ Э˜Ω ₁ ѧ ‡
access-list	ЂЖ “

11.1.12 dialer pool

ѯ DDR ѧ è˘ ѧ ˜Ω é ᴇ ѧ ѧ
ѧ˘ ˜Ω ѧ ˘ ѧ Ѣ ҁ **dialer pool** Â Ѣ ҁ
no ѧ ˜Ω Â

dialer pool number

no dialer pool number

ð ѧ Ô

number ˙ ѧ ѧ˘ ḣ ѝ 1~255 ǯ Â

ð Ô

a ˜Ω ѧ

ð Ѣ ҁ Ô

ѧ

ð ᴳ ˙ Ô

ѯ DDR è˘ ѧ ˜Ω é ᴇ ѧ Â ѝ ɷ
ѧ ɲ ѧ ˜Ω ˘ ᴳ ѧ Â ˝Ɪ˘ é ᴇ ѧ
╕ ώ У э э ѧ ˘ ѣ˘ ѯ ѧ Э˜Ω è è У э ѧ ˘ ÿ
ѧ ɲ ѧ ˜Ω Â

У э ѧ Ѧ Лъ ұ э ѧ ˘ Ո У э ѧ Ѧ ˜Ω У э ѧ
˘ ѧ ѯ é ᴇ ѧ Ą˘ ѧ è ѧ
ѧ Â

ð w ᴿ Ô

Ю ᴿ ﾝ ﾉ 0 Э ﾞ Ω ﾉ 1

```
Ruijie(config)# interface dialer 0
Ruijie(config-if)# dialer pool 1
```

ð ﾞ Ω Ъ ﾔ Ô

Ъ ﾔ	
dialer pool-member	ﾉ ╗ ώ ﾉ
dialer remote-name	ў ¨ Â

11.1.13 dialer pool-member

ﾉ ╗ ώ ﾉ è ˘ ﾉ Ъ ﾔ **dialer pool-member** Â Ъ ﾔ **no** ﾍ ﾉ ﾟ ﾉ ﾞ Ω Â

dialer pool-member number [**priority** priority]

no dialer pool-member number [**priority** priority]

ð ﾉ Ô

number ‘ ﾉ ﾉ

priority priority ‘ ﾉ ﾝ ﾉ è . ″I ^ 0 ﾦ 255 ˜ ˘ 0 ﾙ æ . ″I ˘ 255 ﾙ . ″I Â ﾉ ″I ᴳ ﾉ è . ″I ﾉ ﾉ Â

ð Ô

ﾉ a ╗ ώ ﾉ Â . ″I ﾙ 0 Â

ð Ъ ﾔ Ô

ﾉ

ð ᴳ ˙ Ô

Ъ ﾔ ﾉ ╗ ώ ﾉ ˘ ᵏ ﾉ ﾉ ᴳ Â

У э ﾉ ﾉ Л ъ ╗ ώ э ﾉ ˘ ˚ ﾝ э ﾉ è . ″I Â ﾉ ﾝ ᴳ ﾉ ﾉ ˘ ″I з . ″I ﾉ Â

ð w ᴿ Ô

Ю ᴿ ﾉ 1 ╗ ώ ﾉ 1 ﾟ 2 ˝ . ″I ﾦ ⋮ ﾙ 50 ﾟ 100

```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer pool-member 1 priority θ
```

```
Ruijie(config-if)# dialer pool-member 2 priority 0
```

ð ‰Ъ ﾔ Ô

Ъ ﾔ	
dialer pool	ﾋ ﾉ Э ‰ ﾉ Â
dialer remote-name	ў ¨ Â

11.1.14 dialer priority

ﾉ ﾋ ﾉ ^ DDR˜ è . ″I ˇ ﾉ Ъ ﾔ **dialer priority** Â Ъ ﾔ **no** Â

dialer priority number

no dialer priority

ð ﾉ Ô

number ˙ . ″I ^ 0˙ 255˜ ˇ ḣ ˇ . ″I ˇ ḣ ẏ 0Â

ð Ô

ḣ ẏ 0

ð Ъ ﾔ Ô

ﾉ

ð G ˚ Ô

Ъ ﾔ ﾉ ﾋ DDR è G Â ẏ ɷ G Ҷ à ą
ĵ . ″I G ˇ ﾉ Л Ҷ ﾉ . ″I .
″I ˇ DDR ﾋ ﾉ ﾉ ˇ ″I Ҷ. ″I
ﾉ ﾉ Â

ð w R Ô

Ю R ﾉ 1 . ″I ẏ 50˝

```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer priority 0
```

11.1.15 ip address negotiated

ﾉ PPP ˜ ى ﻛ ﻫ ˇ G ﾉ Ъ ﾔ **ip address negotiated** Â Ъ ﾔ **no** ╗ ﾍ ╗ Â

ip address negotiated

no ip address negotiated

ð Ô

ḣ

ð Ъ ﾔ Ô

ﾉ

ð ᴳ ˙ Ô

Ъ ﾔ ў ¥ ﾉ ˘ ᴳ IP ﾑ ﾙ ﾄ ﾈ ﾉ ˘ ﾒ ｐ ﾑ ﾙ Â

ð w ᴿ Ô

Ю ᴿ ﾉ 1 IP ﾑ ﾙ ~ ى ˋ

```
Ruijie(config)# interface async 1
Ruijie(config-if)# ip address negotiate
```

ð ℧Ω Ъ ﾔ Ô

Ъ ﾔ	
encapsulation ppp	PPP ˜
ip address	ﾉ IP ﾑ ﾙ
ip unnumbered	℧Ω è ы ﾉ IP ﾑ ﾙ

11.1.16 ip address-pool

Ⱨ Ж ŏ IP ﾑ ﾙ ˘ ŏ Ъ ﾔ **ip address-pool** Â Ъ ﾔ **no** Â

ip address-pool [**local**]

no ip address-pool

ð ﾉ Ô

local ˋ ﾑ ﾑ ﾙ ˘ ᴳ ﾑ IP ﾑ ﾙ й ώ ˘ IP ﾑ ﾙ Â

ð Ô

a ŏ ﾑ ﾙ

ð Ъ ﾔ Ô

ŏ

ð ᴳ ˙ Ô

Ъ ｧ ｉ ｯ ｶ ｷ ｸ ｹ ｺ ｻ ｼ ｽ ｾ ｿ ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾝ ﾞ ﾟ

G **peer default ip address** Ъ ｧ ｦ ﾉ Э ｉ ｯ ｶ ｷ ｸ ｹ ｺ ｻ ｼ ｽ ｾ ｿ ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾝ ﾞ ﾟ

ð w R Ô

Ю R ｱ ｲ ｳ ｴ ｵ ｶ ｷ ｸ ｹ ｺ ｻ ｼ ｽ ｾ ｿ ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾝ ﾞ ﾟ

й G ｶ ｷ ｸ ｹ ｺ ｻ ｼ ｽ ｾ ｿ ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾝ ﾞ ﾟ

```
Ruijie(config)# ip address-pool local
```

ð ‘Ω Ъ ｧ Ô

Ⴔ ᦔ ĭ ` ɜ Line У Line Â Line ɬ
aux \ console \ vty ᷉Ω ˘ ‡ ㅅ ㅓ ù ㅅ˘ ㅅ
ㅅ Ⴎ

ð ﾍ Ô

ip-address ‘ й ώ У э IP ﾊ ﾑˇ й ﾓ ó э ώ
G IP ﾊ ﾑ ˇ a ﾞ DDR ﾉ è G ﾍ й ώ
У э IP ﾊ ﾑ Â

pool ‘ ﾋ G pool-name-list ﾊ ﾑ ˇ ‡ G ŏ
ﾊ ﾑ† è ﾊ ﾑ Â

pool-name-list ‘ ﾊ ﾑ ¨

ð Ô

G ŏ ﾊ ﾑ† è ﾊ ﾑ й ώ † IP ﾊ ﾑ Â

ð Ъ ﾇ Ô

ﾍ

ð G ’ Ô

Ъ ﾇ ﾞ PPP è й IP ﾊ ﾑˇ ﾊ
ﾊ ﾑˇ ‡ G IP ﾊ ﾑ Â

ﾞ ЛЬЮ ą ЮЎ Ъ ﾇ ŏ ﾊ ﾑ† è ‘

G **peer default ip address** ip-address й IP
ﾊ ﾑ

G **peer default ip address pool-name-list** ﾑ ﾊ ﾑ
й † IP ﾊ ﾑ

ð w R Ô

Ю R й ﾍ 1 ώ IP ﾊ ﾑ‘

```
Ruijie(config)# interface async 1
Ruijie(config-if)# peer default ip address 1
```

ð ‘ΩЪ ﾇ Ô

Ъ ﾇ	
ip address-pool	ŏ ﾊ ﾑ
ip dhcp-server	DHCP ﾋ ﾟﾘ
ip local pool	ﾑ ﾊ ﾑ

11.1.20 ppp max-bad-auth

PPP ˇ ﾍ Ъ ﾇ **ppp max-bad-auth** Â
Ъ ﾇ **no** Â

ppp max-bad-auth number

no ppp max-bad-auth

ð л Ô

number ' PPP ˘ ѝ 0 Â

ð Ô

a

ð Ъ ч Ô

л

ð G ' Ô

ˆ Ў У ˘ ¯ ѝ З У
Лъ ł˘ 2 Â ł У Лъ ł˘ ˆ Æ˜ Â

ð w R Ô

Ю R л 1 ѝ 4:

```
Ruijie(config)# interface async 1
Ruijie(config-if)# ppp max-bad-auth 4
```

ð Ω Ъ ч Ô

Ъ ч	
Ppp authentication	PPP

11.1.21 pppoe enable

Лъ л Э í

Ъ ﾇ У ﾞﾌ RGNOS " PPPoE G Â

ð w R Ô

Ю R Í RGNOS " Лъ Э PPPoE

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# pppoe enable
```

ð ˜ΩЪ ﾇ Ô

Ъ ﾇ	
pppoe-client	Í PPPoE DDR ╖

11.1.22 pppoe-client

Лъ ﾊ PPPOE ﾊ^ DDR˜ ╖ ˘ G ﾊ Ъ ﾇ **pppoe-client** Â Ъ ﾇ **no** ﾍ PPPoE ﾊ ╖ Â

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

no pppoe-client dial-pool-number number

ð ﾊ Ô

number ' ﾊ ﾊ

dial-on-demand PPPoE Client ﾍ Â

no-ddr PPPoE Client Нﾞﾌ Â

ð Ô

˜Ω

ð Ъ ﾇ Ô

ﾊ

ð G ' Ô

G Ъ ﾇ Лъ ﾊ ˛ У э ﾊ ˘ ﾊ G ﾊ ˘ ÿ й Лъ ﾊ ņ ﾊ ˜Ω ˘ DDR ﾊ Â

ﾊ Лъ ч ﾊ '

1˜ ' й **dial-on-demand** ˘ ˝ 1 ﾊ ‡ ˛ ˘ ˘ ‡ 1 Лъ ﾊ PPPoE ﾊ Â ə˘ ‡ Â

2˜ ' й no-ddr ˘ ‡ a ˝ ‡ ﾍ˘ ≠ a ﾍ 8 ъ˘ ╟ 1 Лъ ﾊ PPPoE ﾊ Â

ð w R Ô

1 ÝF… ÚÖP ‘Æ u

12 IP

12.1

12.1.1 ip address

℔ ʅ ﻝ IP ﻙ ﻫ˘ ʌ Ꮁ no ˥ ﻝ IP ﻙ ﻫ Â℔ ʅ Ю̒

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

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

ŏ ﻝ Ô

ﻝ	
ip-address	32 э ᴂ IP ﻙ ﻫ˘ 8 ᴂ У ˘ Ꮁ π ⁸ ˘ ǯ Â
network-mask	32 э ᴂ ˘ “1” ᴂ˘ “0” ў ᴂ Â 8 ᴂ У ˘ Ꮁ π ⁸ ˘ ǯ Â
secondary	IP ﻙ ﻫ Â

ŏ ᶐ Ô

ﻝ IP ﻙ ﻫ Â

ŏ ℔ ʅ Ô

ﻝ

ŏ ᴳ ˀ Ô

У э ʌ ɢ IP ﻙ ﻫ˘ ʌ Ꮁ ᶇ ʌ IP ˘ ﻝ ɢ IP ﻙ ﻫ˘ ﻝ ĭ IP˜ Â

≠ У э 32 ᴂ ḣ˘ IP ﻙ ﻫ \ ű э й ᶘ Â è˘ ḣ й ľ 1 Ŀ IP ﻙ ﻫ ᴂ й ᶘ ˘ ḣ й ľ 0 Ŀ IP ﻙ ﻫ ᴂ й ў ﻙ ﻫ ᶘ Â A й ľ 255.0.0.0 Ŀ Â ꝏ ʌ Ꮁ ¯ У э ,ᶘ ˘ ,ᶘ У э ў ﻙ ﻫ ᶘ Уҿ ᴂ ≠ ɔ й ᶘ ˘ ў ˘ ╗ ˘ й Â

RGOS ˚ Л Љ У э Л э IP ﻙ ﻫ˘ è è У э й ў IP ﻙ ﻫ˘ è м ŏ
й IP ﻙ ﻫ Â IP ﻙ ﻫ Э 8˘ Л Љ ˘ Л Л
ɑ ў IP ﻙ ﻫ ł IP ﻙ ﻫ Â IP ﻙ ﻫ Л Љ б ў IP ﻙ ﻫ Ұ˚ У э
a˚ Âɔɸ è˘ ˛ G ĵ IP ﻙ ﻫ˘ ɔɸ ЉЮ ą Ю
IP ﻙ ﻫ˙

interface-number	Ω

ð α Ô

α Ю

ð Ъ Ô

ð ᴳ Ô

IP IP IP IP1 Tf0 Tc 1.2298

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

ð

ip-address	MAC IP
MAC-address	48
type	ARP arpa
alias	RGOS IP arp

ð

ARP

ð

ð G

RGOS G ARP 32 IP 48 MAC

ARP **clear arp-cache** ARP

ð w R

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

ð

clear arp-cache	ARP

12.2.2 arp retry interval

G arp ARP G no 1 ARP

arp retry interval seconds

no arp retry interval

ð

seconds	<1-3600>,ARP 1 3600 1

ð

ARP 1

ð

ő

ð

ARP ARP ARP a ARP

ð w

ЛЮ ARP 30s

```
arp retry interval 30
```

ð

Arp retry times number	ARP

12.2.3 arp retry times

arp IP ARP 5 ARP

arp retry times number

no arp retry times

ð

number	ARP <1-100> 1 a ARP 1 ARP

ð α Ô

ǀ ARP ˇ ARP ˛ ∧ 5 ˇ ł Â

ð Ъ ҁ Ô

ŏ

ð G ˚ Ô

∧ ă̈ ∧ ARP ˇ è ˇ Л Ъ
ARP · У ˇ У a · Â

ð w R Ô

ЛЬЮ ˇ ѕ ARP a · Â

```
arp retry times 1
```

ЛЬЮ ˇ ѕ ARP · 1 Â

```
arp retry times 2
```

ð ℧Ъ ҁ Ô

Ъ ҁ	
arp retry interval seconds	arp ·

12.2.4 arp trusted NUM

G Ъ ҁˇ Л Ъ Л ą̇ ARP э Â Ъ ҁ no ḣ Â

arp trusted number

no arp trusted

ð ∨ Ô

∨	
number	Л Ъ Л ą̇ ARP э , ∧ ḣ ﺯ <10-4096> Â

G ARP ARP ARP a

ð w R Ô

1000 ARP

```
arp trusted 1000
```

ð Ô

service trustedarp	ARP

12.2.5 arp trust-monitor enable

arp no

arp trust-monitor enable

no arp trust-monitor enable

-	-

G

1 ARP 60 ARP 60 3600

2 arp GSN arp ARP ARP arp ARP

3 ARP ARP ARP

4 ARP ARP a

w R

R 1' ЛЬЮ ˘ í ⁄ ˜Ω ⁄ ą arp ╖ Â

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# arp trust-monitor enable
```

R 2' ЛЬЮ ˘ ˜Ω ⁄ ˜Ω ⁄ ą arp ╖

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# noarptrust-monitorenable
```

˜Ω Ƌ ɂ

Ƌ ɂ	
-	-

Ƌ ɂ \ ⁄

⁄	
10.3(4t90)	10.3(4t90)

12.2.6 arp trusted aging

G Ƌ ɂ˘ ⁄ Лъ ⁄ ą˙ ARP □ Â Ƌ ɂ ô

ѕ ҳ	
service trustedarp	í Л ę˙ ARP ╖

12.2.7 arp unresolve

oãPâÍV™`‰` ARP 81

G Ъ ҳ˘ Л Ш ARP è э Â Ъ ҳ no Л Ш ḣ 8192 Â

arp unresolve number

no arp unresolve

ð ч Ô

no arp gratuitous-send

ð

seconds	<1-3600>

ð

ð

ð

ð

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

```
Ruijie(config)# interface vlan 1
```

IP

ARP MAC MAC ARP

ð w R Ô

GigabitEthernet 0

12.3.1 ip broadcast-addresss

ЊЖУ э Л К Л **ip broadcast-addresss** Â Ф ч no Л Љ Ч К Â

ip broadcast-addresss ip-address

no ip broadcast-addresss ip-address

ð Ч Ô

Ч	
ip-address	IP К

ð ą Ô

IP К й 255.255.255.255 Â

ð Ф ч Ô

Л

ð G ' Ô

ɱ IP К У й ŏ ľ 1 Ł˘ й 255.255.255.255 Â RGOS ˚ Л Љ ЊЖ ң è IP К ˘ з Л Љ˚ ŏ ľ 1 Ł Љ Ч ЊЖ ˆ Â

ð w R Ô

ЉЮ R ˘ Л ң IP К й 0.0.0.0 Â

```
ip broadcast-address 0.0.0.0
```

12.3.2 ip directed-broadcast

í IP ă ĵ ˘ Л Ф ч **ip directed-broadcast** Â Ф ч no Ч ă ĵ Â

ip directed-broadcast [access-list-number]

no ip directed-broadcast

ð Ч Ô

Ч	
	ˆ Л ~ " Л˘ нт ÿ 1-199 1300 - 2699

access-list-number

ð ąÔ

ˇΩ Â

ð Ъ ҷ Ô

ᵑ

ð ᴳ ˚ Ô

IP ą̈ ѫ ѭ й э IP ѫ ѭ IP ˘ ѫ ѭ й
172.16.16.255 й ą̈ Â ᴨ ң ᵑ a
Ц Â

б ˛ IP ą̈ ˘ ᵑ` У ą̈
Â ą̈ ˛ ł˘ ą̈
й ^ У IP ѫ ѭ й ѽ ľ 1 Ł ˜ ˘ ł Љ
ᵑ Э ў Â

ѳ ᵑ Љ ҳф ᵑ Э˘ í ╠ ą̈ ˛ ╖ ˘ ᵑ ᵑ Љ
ᵑ˛ ą̈ ɕ Â Ъ ҷ ᵑ ѣ ˛ ą̈
ł· ˘ a ѣ è ą̈ ᵑ Â

ҳф ᵑ Э˘ ѳ ᵑ Љ Ҟ “ ⁸ ᵑ ı Ҽ ą̈ Â Ҟ ɕ “
˘ ᵑ ´ “ è Ҟ ^ ą̈ ˛ Â

ҳф ᵑ Э ɕ **no ip directed-broadcast** ˘ RGOS x ˛
ą̈ Â

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ЉЮ ᴿ ˘ GigabitEthernet 0/1 ᵑ í ɕ ą̈ ᵑ Â

```
interface GigabitEthernet 0/1
ip directed-broadcast
```

12.4 IP

12.4.1 clear arp-cache

ÿ ARP ă è˥ ╠ ARP ˘ Љ ᵡ IP ă ˘ ѽ Ъ
ҷ clear arp-cache Â

clear arp-cache [A.B.C.D] | **interface** interface-name]

ð Ъ ҷ Ô

ð ᴳ ˚ Ô

ARP

a

RNFP(Ruijie Network Foundation Protection,) mac IP) ARP clear arp 1s ARP

w

ARP

```
clear arp-cache
```

ARP 1.1.1.1

```
clear arp-cache 1.1.1.1
```

SVI1 ARP

```
clear arp-cache interface Vlan 1
```

arp	ARP

12.4.2 show arp

ARP

show arp [ip [mask] | mac-address] | **static** | **complete** | **incomplete**

ip	ip ip ARP
ip mask	ip mask ARP
mac-address	mac ARP
static	arp
complete	arp
incomplete	arp

ð Ђ ҷ Ô

ð w ᴿ Ô

ЛЬЮ ѝ show arp ‘

```
Ruijie# show arp
Total Numbers of Arp: 7
Protocol  Address         Age(min)  Hardware
Type   Interface
Internet  192.168.195.68    0          0013.20a5.7a5f   arpa
VLAN 1
Internet  192.168.195.67    0          001a.a0b5.378d   arpa
VLAN 1
Internet  192.168.195.65    0          0018.8b7b.713e   arpa
VLAN 1
Internet  192.168.195.64    0          0018.8b7b.9106   arpa
VLAN 1
Internet  192.168.195.63    0          001a.a0b5.3990   arpa
VLAN 1
Internet  192.168.195.62    0          001a.a0b5.0b25   arpa
VLAN 1
Internet  192.168.195.5     --         00d0.f822.33b1   arpa
VLAN 1
```

ARP ă è ⅃ ђ Ћ Ю

Protocol	ҟ ҕ ~ ˘ ѭ ѝ Internet Â
Address	б ˚ ҟ ҕ IP ҟ ҕ Â
Age (min)	ARP ă ѩ 6 Ñ—•›qG“ €ҷ C b • „# $PB"áDïG4c b , B1@h ,"áDï"yB‘8 , „# $T•† ЛЬ Â O t

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

show arp 001a.a0b5.378d

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

12.4.3 show arp counter

ARP arp

show arp counter

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show arp counter

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

ARP

ð w ᴿ Ô

ЛЬЮ ѝ **show arp timeout**

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

ARP ă è ⅃ ǔ ЬЖ Юՙ

12.4.5 clear ip route

ɜ╕ IP IP è ɜ ˇ Л Лъ
clear ip route Ъ ϟ Â

clear ip route { * | network [netmask] }

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*	╕ ŏ
network	╕
netmask	^ Л ~

ð Ъ ϟ Ô

ð ᴳ ՝ Ô

Л è ˇ Л Лъ ᵀ ⁹ ╵ Â ⊓
╕ ɜ ˇ ɜ ą Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˇ Л╕ 192.168.12.0 Â

```
clear ip route 192.168.12.0
```

ð ℧Ω Ъ ϟ Ô

Ъ ϟ	
show ip route	IP

12.4.6 show ip arp

ARP

show ip arp

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show ip arp

```
Ruijie# show ip arp
Protocol Address      Age(min)Hardware       Type
Interface
Internet  192.168.7.233    23          0007.e9d9.0488    ARPA
GigabitEthernet 0/0
Internet  192.168.7.112    10          0050.eb08.6617    ARPA
GigabitEthernet 0/0
Internet  192.168.7.79     12          00d0.f808.3d5c    ARPA
GigabitEthernet 0/0
Internet  192.168.7.1      50          00d0.f84e.1c7f    ARPA
GigabitEthernet 0/0
Internet  192.168.7.215    36          00d0.f80d.1090    ARPA
GigabitEthernet 0/0
Internet  192.168.7.127    0           0060.97bd.ebee    ARPA
GigabitEthernet 0/0
Internet  192.168.7.195    57          0060.97bd.ef2d    ARPA
GigabitEthernet 0/0
Internet  192.168.7.183    --          00d0.f8fb.108b    ARPA
GigabitEthernet 0/0
```

ARP

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

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12.4.7 show ip interface

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show ip interface [interface-type interface-number]

ð Ø Ô

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Interface-type	Ø ш
Interface-number	Ø Ø

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a ˚ Ø ш Ø a У ˘ ъ й Ч ą Ч Ь Ø Â

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Ц Ю й **show ip interface** Â

```
Ruijie# show ip interface GigabitEthernet 0/1
IP interface state is: UP
IP interface type is: BROADCAST
IP interface metric is: 0
IP interface MTU is: 1500
IP address is:
192.168.5.133/24 (primary)
IP address negotiate is: OFF
Forward direct-boardcast is: ON
ICMP mask reply is: ON
Send ICMP redirect is: ON
Send ICMP unreachabled is: ON
DHCP relay is: OFF
```

```
Fast switch is: ON
Route horizontal-split is: ON
Help address is: 0.0.0.0
Proxy ARP is: ON
Outgoing access list is not set.
Inbound access list is not set.
```

IP interface state is:	“UP”
IP interface type is:	
IP interface MTU is:	MTU
IP address is:	IP
IP address negotiate is:	IP
Forward direct-boardcast is:	
ICMP mask reply is:	ICMP
Send ICMP redirect is:	ICMP
Send ICMP unreachabled is:	ICMP
DHCP relay is:	DHCP
Fast switch is:	IP
Route horizontal-split is:	
Help address is:	helper IP
Proxy ARP is:	ARP
Outgoing access list is	
Inbound access list is	

12.4.8 show ip redirects

show ip redirects

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Ю й **show ip redirects** Â

```
Ruijie# show ip redirects
Default Gateway: 192.168.195.1
```

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Ф ҳ	

13 IP

13.1 IP

IP

ip default-gateway

ip mask-reply

ip mtu

ip redirects

ip source-route

ip unreachables

13.1.1 ip default-gateway

ip default-gateway no

ip default-gateway

no ip default-gateway

show ip redirects

192.168.1.1

```
ip default-gateway 192.168.1.1
```

show ip redirects	

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ip mask-reply **no ip mask-reply**

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```
interface GigabitEthernet 0/1
ip mask-reply
```

ð Á Ô

13.1.3 ip mtu

ip mtu bytes

no ip mtu

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bytes	IP 68~1500

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У э IP IP MTU RGOS У Э IP MTU У

mtu MTU h MTU h a

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ЛЬЮ R GigabitEthernet 0/1 IP MTU h 512

```
interface GigabitEthernet 0/1
ip mtu 512
```

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13.1.4 ip redirects

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Л Â ˆ ÿ Л Л Л˘ ˚ Л У э
ICMP ð̈ ˘ Ъ ĺ ѕ ћ ˜Ω й˘ У Э Л У Л Â
˚ ł ˆ Л Λ Л Â

RGOS ˚ í ICMP ð̈ Â

ð w R Ô

ЛЬЮ R ˘ GigabitEthernet 0/1 Л ˜Ω ɓ ICMP ð̈ Â

```
interface GigabitEthernet 0/1
no ip redirects
```

ЛЬЮ R ˘ ˇΩ ¢ IP Â

```
no ip source-route
```

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13.1.6 ip unreachables

RGOS ˚ ң ICMP a /l ˘ ˩ Ъ ч **ip unreachables** Â Ъ ч no /l ЛЬˇΩ ˥ ICMP a /l Â

ip unreachables

no ip unreachables

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RGOS ˚ ¦ У э ك ه й ` ˘ ˧ a Э ~ ˘ ˚ ˥ У э ICMP a /l Â

RGOS ˚ Ұ ˘ a ˥ У э ˆ˘ ˚ ą̈ ˥ ICMP ў a /l Â

Ъ ч ط ICMP a /l Â

ð w R Ô

ЛЬЮ R ˘ ˇΩ ¢ GigabitEthernet 0/1 ˩ ˥ ICMP a /l Â

```
interface GigabitEthernet 0/1
no ip unreachables
```

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14 IPv4 REF

14.1

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14.1.2 ip ref load-sharing original-only

IPV4 REF ыё ий IP' Ъ ч no Ъ ч Л Лъ IP ыё
Â фэ ц Ю˝ ¯ У э IP/MASK э Ю У ц Ю˝ Ъ ч Л
Лъ Ч ˘ ÿ ыЭ Ұ IP ыё Â фэ У Ц ъЭ ˘
a ĭ ˚ У IP ÿ a˚ Л Ч˘ ‡ G Ъ ч Â

[no] ip ref load-sharing original-only

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Ъ ч	ŏ Â
G	фэ У Ц ъЭ ˘ a ĭ ˚ У IP ÿ a˚ Л Ч˘ ‡ G Ъ ч
w R	R 1' IP ыё Â Ruijie(config)# ip ref load-sharing original-only G ыЭ Ұ ыё кс нн ыё Ruijie(config)# no ip ref load-sharing original-only

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14.1.3 ref parameter

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

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	У э ѝ Ч è ѭ ѝ {20-95}	^ ref˜. cpu0 R Â
	Ү э ѝ Л Ч è ѭ ѝ [200-1000]	^ ref˜. cpu0 R Ƣ ˘ ѝ 200 Â

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14.2 IPv4 REF

б IPv4 REF б ЂЩЪ ъ'

14.2.1 show ip ref packet-statistic

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

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	clear	ѣ Â

IP à ⁄ ʔΩ ↓ ʔΩ ə Â

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```
Ruijie#show ip ref adjacency
id     state      type     ip    rfct  chg  vid  tid    len  l2add
interface
1      unresolve  local    0.0.0.0          3    0    0    0      0
0000.0000.0000
4      resolved   forward 192.168.52.58    1    0    0    800    14
001a.a0b4.ce5c  FastEthernet 0/0
3      unresolve  glean    0.0.0.0          1    0    0    0      0
0000.0000.0000  FastEthernet 0/0
```

↓ ˙

id	
state	unresolve˙ resolved˙
type	ڂ local˙ ک forward˙ ∧ drop˙ x glean˙ ˇ
rfct	
chg	ŭ ف ⁄ □ è
l2addr	Y
interface	⁄

ʔΩƂ ҁ

Ƃ ҁ	
show ip ref route	m REF ۔ è ə

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

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vrf	Ч
source-ipaddress	IP ѕ ѡ
dest_ipaddress	IP ѕ ѡ

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Ъ ҷ Â

G Ъ ҷ˘ IP IP ѕ ѡ б IP ѕ ѡ˘ Л Љ ṁ REF Ч ˘ Ч Â

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```
Ruijie#show ip ref exact-route 20.1.1.1 192.168.52.5
20.1.1.1 --> 192.168.52.5 (vrf global):
id    state      type    ip            rfct chg vid tid   len l2add
interface
2     unresolve   glean   0.0.0.0         1    0   0   0     0
0000.0000.0000  FastEthernet 0/0
```

vrf	∧
default	
ip	IP
mask	
statistic	ҷ

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Ъ ҳ Â

G ∧ Л Ъ ɱ REF è ˜Ω ҷ ˘ ∧ Л Ъ à IP/MASK ѣ à ҷ Â

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R 1˙ REF è ҷ

```
Ruijie#show ip ref route
Codes: * - default route
# - zero route
 ip       mask       adj-id   next-hop          weight   interface
224.0.0.0      224.0.0.0      1      0.0.0.0        1
192.168.52.0     255.255.255.0    11        0.0.0.0            1
FastEthernet 0/0
192.168.52.255  255.255.255.255 1      0.0.0.0        1
 192.168.52.68   255.255.255.255 1      0.0.0.0        1
192.168.52.58     255.255.255.255  12         192.168.52.58     1
FastEthernet 0/0
 20.0.0.0          255.255.255.0    10        0.0.0.0            1
FastEthernet 0/1.1
 20.0.0.255     255.255.255.255 1      0.0.0.0        1
 20.0.0.3       255.255.255.255 1      0.0.0.0        1
```

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ip	IP
mask	
adj-id	
next-hop	Ю У ѧ ѩ
weight	
interface	∧

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15.2

15.2.1 show ip fpm counters

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ŏ Ю G **show ip fpm flow** ɱ ə Â

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```
Ruijie#show ip fpm flows
Pr  SrcAddr          DstAddr          SrcPort     DstPort     Vrf
SendBytes  RecvBytes  St
1   192.168.52.68    192.168.52.67      5           2048        0
100       100       2
Ruijie#show ip fpm flows filter 1 192.168.52.0 24 192.168.52.67 24
Pr  SrcAddr          DstAddr          SrcPort     DstPort     Vrf
SendBytes  RecvBytes  St
1   192.168.52.68    192.168.52.67      5           2048        0
100       100       2
```

ﾉ

Pr	~ ﾉ
SrcAddr	IP ﾑ ﾊ
DstAddr	IP ﾑ ﾊ
SrcPort	ﾉ
DstPort	ﾉ
Vrf	Vrf
SendBytes	ﾍ
RecvBytes	
St	

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15.2.3 show ip fpm statistics

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show ip fpm statistics

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G	ɔ́ ŏ ЮG **show ip fpm statistic** ɱ Л ŏ ə Â

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```
Ruijie#show ip fpm statistics
The capacity of the flow table:32000
Number of active flows:0
Number of the defragment contexts:0
Number of the buffers hold by FPM:0
Event count (%256):3
```

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The capacity of the flow table	ɱ Л ḣ
Number of active flows	ɱ ɔ́ G
Number of the defragment contexts	ɱ ɔ́ IP ^

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15.2.4 show ip fpm users

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show ip fpm users

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ɔə ŏ HO G **show ip fpm users** m / ə Â

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```
Ruijie#sho ip fpm users
Active Users:
IP address       Active time  Connections
19 192.168.52.68    1
```

W R J

IP address	IP

16 IP NAT

16.1

16.1.1 address

У э NAT к h к h нз˘ NAT к h Ъ ъ address Â Ъ ъ
no Л Лъ У э к h к h нз Â

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

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

α Â Pool Н
Л к h ˜ ы˘ •
match interface
face У Â ў ‡ Л

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ip nat pool	Ⱨ IP NAT ಕ ಹ

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16.1..36 626.0727.22 394.98 0.48 ref66.84 699.38 0.24 5266.84 620.6 0.24 0.48 ref14

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

֎֏ ֈ

```
!
ip nat inside source list 1 pool net200
ip nat application source list 1 destination udp 192.168.1.1 53
dest-change 202.101.98.55 53
!
```

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Ѣ ҂	
address	Нѫ кѣ ѣ кѣ ѣѣ ѣ нт
ip nat	Нѫ ѧ NAT Â
ip nat inside destination	í ą̈ кѣ ѣ NAT Â
ip nat inside source	í ą̈ кѣ ѣ NAT Â
ip nat outside source	í кѣ ѣ NAT Â
show ip nat translations	IP NAT Â

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í ӫ ѫ Ѧ Â

Ƃ ҁ ŏ Â

ӫ ѫ ˘ Ѧ Ѣ TCP ѭ Â ӫ Ѧ ў TCP
˘ Ѧ Ѧ ў TCP н Ь ѭ Â ˘ ѳ Ѧ Ѣ
NAT TCP ѭ ˘ NAT … ҩ У Ѧ ў ᵏ TCP Ь˘ ў
ɢ ӫ Ѧ ў ˘ ɬ ѫ ˘ ĵ ĵ Â ѻ
Ұ è IP ˘ a ṁ ̇ ị Ѧ˘ NAT ɔ ҩ è Â
NAT TCP ѭ ˘ ӫ ѫ Ѧ Ѣ ˊ ŏ ѫ ˘ ≠ Ѧ Ѣ
ѫ Â ѻ ѫ ҙ

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16.1.5 ip nat inside source

í ϕ̈ ѕ ѡ NAT ʌ ʎ Ɓ ʎ Ƃ ҳ **ip nat inside source** Â Ƃ ҳ **no** ʎ Ɓ Ɣ ʎ ╟ NAT Â

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

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]

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list access-list-number	ѕ ѕ ѡ " Â ʎ ѕ ѡ Ѳ " ˘ ˛ … NAT Â
interface interface-type interface-number	¯ outside ʎ ѿ ѕ ѡ ṁ NAPT ʌ ѕ ѡ ʎ ~ ˘ ≠ ʎ

permit-inside	Л ҙ ip nat inside source static Ъ ҷ è˘ ҰĭĬ ą Лъ global-ip local-ip ў Â ˜Ω Ө ҙ ҟ Э Â
vrf vrf_name	vrf¨ ˘ ҙ vrf ą
match	Л
netmask mask	ĺ ѕ ѡ

ą ѕ ѡ NAT Л Â

Ъ ҷ ŏ Â

ą IP ѕ ѡ ѝ ѕ ѡ˘ Л б ˘ NAT˘ ą IP ѕ ѡ ŏ ĳ У IP ѕ ѡ Â

Ұ У Ҽ ĭ ´ н ` Æ˘ Ө Ө ѝ ҁ Э ˘ à Л ˚ àЮ ˚ ˘ a k Ь Л Лъ ¯ outside Л IP ѕ ѡ ṁ ŏ ѕ ѡ˘ Лъ NAPT ѕ ѡ Â a ↄ NAT˘ ĺ ѕ ѡ ą ¨ G Э б ҁ ц ˘ ґ ц Ӡ ˝ ц a ҁ˘ ѣ ѝ ѕ ѡ Â

Ұ k Ь ą ў ˘ NAT NAPT Â ĺ Ь k Л ˘ a ¯ outside Л ѕ ѡ ṁ NAPT˘ ѣ ѝ ѕ ѡ ѝ б ISP ц ѕ ѡ˘ Л Л Â ɑ Ю˘ ą Ҽ ą ў k Ь Л ą IP Л Лъ ҁ Â ґ Ҽ Ь ą Лъ ŏ IP Ь Â ą ѕ ѡ NAT ą ѕ ѡ NAPT ˘ ╗ ώ permit-inside ˜Ω Â ≠ ҙ inside Л Э Э no ip redirects˘ inside Л Л ą̈ Â

R 1ʻ ЛъЮ R ˘ Л Лъ 192.168.12.0/24 ą ў ˘ ╠ ĺ ŏ ѕ ѡ 200.168.12.0/28 Â ą è ў a ĭ ṁ NAT Â

```
!
interface GigabitEthernet 0/0
ip address 192.168.12.6 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.168.12.17 255.255.255.240
ip nat outside
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat inside source list 1 pool net200
!
access-list 1 permit 192.168.12.0 0.0.0.255
```

W R

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

TCP

local-port

ч ÿ inside ї outside ѣ ˇ ″I ″ ā ў NAT ˜ ѕ Â

Ъ ч	
address	Нж кс нн кс нн ем нн кс нз
ip nat	Нж ѵ NAT Â
ip nat inside destination	í ą̈ кс нн NAT Â
ip nat inside source	í ą̈ кс нн NAT Â
ip nat pool	Нж IP NAT кс нн
show ip nat translations	IP NAT Â

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16.1.7 ip nat pool

Нж NAT кс нн ˘ ѵ Л ў ѓ Ъ ip nat pool Â Ъ ч no ѵ Л ў кс нн Â

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

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

no ip nat pool pool-name

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pool-name	NAT кс нн ¨ Â
start-ip	NAT кс нн IP кс нн Â
end-ip	NAT кс нн IP кс нн Â
netmask netmask	NAT кс нн кс нн Â
prefix-length prefix-length	NAT кс нн кс нн Â
type	NAT кс нн шх Â rotary й шх ˜ э кс нн ї Â rotary шх Â ʒ Л ю rotary ѵ б cisco Ъ ч ò Â

	к ж НЖ Â
Ъ ч	ŏ Â
G	У э к ж НЖ э к ж ы ‡ ″I … У э к ж ˘ ł НЖ к ж нз Â
W R	R 1 ЛЬЮ R ˘ … ¢ и net192 к ж ˘ к ж и 192.168.12.1 к ж и 192.168.12.254 и 24 э Æ Â `ip nat pool net192 192.168.12.1 200.168.12.254 prefix-length 24`

Ъ ч

Ъ ч	
address	НЖ к ж к ж ы нз
ip nat	НЖ ✓ NAT Â
ip nat inside destination	í ą к ж NAT Â
ip nat inside source	í ą к ж NAT Â
ip nat outside source	í к ж NAT Â

sip	sip ALG
tftp	tftp ALG

Ю ALG ф í Â

Ъ ҳ

ӧ

G

¥ 8 э NAT ALG í n ̃Ω Â R ˘ ж Ҷ ̈ a DNS ALG Ą ̊ ˘ Л Ъ Ъ ҳ ѐ ̄ ˘ í Â

w R

R 1 ̇ ЛЮ R ˘ ̃Ω DNS ALG

```
no ip nat translation dns
```

Ъ ҳ	
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10.3(4t90)	g Ъ ҳ

16.2

16.2.1 show ip nat translations

NAT ˘ фг show ip nat translations Ъ ъ Â

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

ч	
gre	Л gre nat Â
icmp	Л icmp nat Â
tcp	Л tcp nat Â
udp	Л udp nat Â
acl_num	acl л , Л acl ¥ ф
vrf_name	vrf ¨ ˘ vrf ¨
verbose	NAT ę Â

Ъ ъ Â

G Ъ ъ Л Лъ IP NAT ф˘ ~ ˘ ф ѡ ѫ ѭ ч л л à ф ѫ ѫ ѭ ч л л à ѫ ѫ ѭ ч л л à ѡ ѫ ѭ ч л л Â **verbose** ч Л Лъ ę ˘ ^ ┘ timeout ˘ ⅓ м à Â

w R R 1' ЛЬЮ ѝ show ip nat translations verbose Ъ ъ Â

```
Ruijie# show ip nat translations verbose
Pro Inside global     Inside local      Outside local     Outside
global timeout vrf
tcp   192.168.5.103:1987   192.168.211.21:1987   211.67.71.7:80
211.67.71.7:80 timeout=85139 1
udp  192.168.5.103:1041  192.168.211.183:1041  202.101.98.55:53
202.101.98.55:53 timeout=38 1
```

┘ ѽ Ня Ю'

~ خشÂ “udp”

Pro

17

17.1

17.1.1 mllb enable

ϧϕ ŏ Ю í /ˇΩ ﻩ ℼ ˋ

mllb enable

no mllb enable

ϟ	ϟ	
	no	ˇΩ ﻩ ℼ
	ˇΩ	
Ƌ ϗ	ŏ	
G		
w R	R 1ˋ í ﻩ ℼ ℼ Ruijie(config)# **mllb enable**	
ˇΩƋ ϗ	Ƌ ϗ	
	-	-
ϰ	-	
Ƌ ϗ ϒ ϰ	ϰ	
	10.3(4b7)	Ƌ ϗ

17.1.2 mllb policy

ϧϕ ŏ Ю ﻩ ˋ

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

no mllb policy

ч

ч	
bandwidth	ﻩ
latency	ﻩ
load	ﻩ
intelligent	ﻩ
no	ﻩ ḣ

ﻩ

Ъ ҳ ŏ

G ﻩ л **bandwidth** ã **latency** ã **load** ã **intelligent** è è У ˘ ˛ й è ы ﻩ **mllb policy** Ъ ҳ й ’ **no mllb policy** ﻩ й **bandwidth** Â

w R

R 1˙ ﻩ й **load**

```
Ruijie(config)# mllb policy load
```

R 2˙ ﻩ й ḣ

```
Ruijie(config)# no mllb policy load
```

Ъ ҳ

Ъ ҳ	
mllb enble	ﻩ ╗
bandwidth	

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10.3(4b7)	Ъ ҳ

17.1.3 mllb policy intelligent

ﻩ ŏ Ю ﻩ

mllb policy intelligent [**bandwidth** base1] [**latency** base2] [**load** base3]

no mllb policy intelligent

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ٸ	
bandwidth base1	ثز ججي ˘ ٸ ḣ نز 1-100
latency base2	ثز ججي ˘ ٸ ḣ نز 1-100
load base3	ثز ججي ˘ ٸ ḣ نز 1-100
no	ثز ѝ ḣ

ججي 1.

Ъ ٦ ŏ

ɢ

ڤ ھئ ѝ **intelligent** ˘ ثز à à
╕ Î ˘ ججي Ɣ ڤ ˘ ثز o Л ججي Ą
╕ Â ˘ ˘ ججي ٨ Л ٨ Ь ثز ط
Â ججي ḣ 1˘ .

ʀ 1˙ ھئ ѝ **intelligent** ѝ 50˘ ѝ 60˘
ѝ 100˘

wʀ

```
Ruijie(config)# mllb policy bandwidth 50 latency 60 load 100
```

Ъ ٦

Ъ ٦	
mllb enble	ĺ ھئ ╖
bandwidth	
mllb policy	ھئ

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Ъ ٦ ٧ ٨

٨	
10.3(4b7)	Ъ ٦

17.1.4 mllb threshold

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mllb threshold percent

no mllb threshold

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ϗ Ϯ ϗ mllb policy bandwidth У G Â

R 1 ϕ ϡ У э IP Л ϡ У э Л

w R

```
Ruijie(config)# mllb load-sharing original
```

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	mllb enable	ί ϕ ℸ

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	10.3(4T90)	Ƌ ϗ

17.2

17.2.1 show mllb config

show mllb config Ƌ ϗ ﻑ Â

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show mllb config

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	-	-

Ƌ ϗ	ώ

G	ɱ ﻑ ə

R 1˙ ɱ ﻑ ə ˙

```
Ruijie(config)# show mllb config

 muti-link load balance configure:
 muti-link load balance state: enabled
 muti-link load balance threshold: 95
 muti-link load balance policy: intelligent
     bandwidth weight base = 100
     latency weight base = 100
     load weight base = 100
```

w R

ϒΩƋ ϗ	Ƌ ϗ	
	mllb enable	í ﻑ ℸ
	mllb policy	ﻑ

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ℬ ३ ५ ለ

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10.3(4b7)	ℬ ३

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18

18.1

18.1.1 layer23 classify enable

í γ Ь ǂ ⁞ ╖ ˘ ⁄ Л Ъ Ƀ ҙ no ˜Ω ╖ Â

[no] layer23 classify enable

⁄	⁄	

	ą Ю γ Ь ǂ ⁞ ╖ ˜Ω Â
Ƀ ҙ	ѽ Â
G	í γ Ь ǂ ⁞ ł ⁄ Л Ъ vlan ą̀ ↓ ⁞ Â
w R	R 1ʹ í γ Ь ǂ ⁞ ╖ ʻ Ruijie#**config** Ruijie(config)#layer23 classify enable R 2ʹ ˜Ω γ Ь ǂ ⁞ ╖ ʻ Ruijie#config Ruijie(config)#no layer23 classify enable

˜Ω Ƀ ҙ	Ƀ ҙ	
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⁄	10.3(4b7)Л Ъ ↓ Ğ ł è˘ EG ‟ ₰ Â

Ƀ ҙ ↘ ⁄	⁄	Ƀ ҙ
	10.3(4b7)	

19 vlan

19.1

19.1.1 vlan-group

У э vlan Â Л Љ G Ъ ҳ no ҭ vlan Â

vlan-group name **vlan** vid-list

no vlan-group name

л	
name	vlan ¨ Â
vid-list	vlan ˆ ў vlan vlan id Â нт и :1-4094

Â

Ъ ҳ ŏ Â

vlan ǯ vlan id a ă ˘ э vlan id ǯ л ˘ э
vlan id Ұ˚ У э vlan ˘ Л l' - Ł vlan id n vlan id э
vlan id Â

жф У э vlan l' any Ł˘ Í ү Ь ĺ ⋮ ╖ ˘ жф ˇΩ Ю
ē è l' any Ł Ю ē è native vlan
G vlan ˘ native vlan vlan ˘ ‡ ē è
l' any Ł Â

a	
	a˚ vlan ǯ ¨ a ˚ Â vlan ⋮ жф ˇΩ Ю Â жф ă Л Э vlan-enable Ъ ҳ˘ ă Л vlan tag ˘ vlan ⋮ Â

R 1ʻ vlan l' vlan-group1 Ł ˆ ў vlan 1 ä vlan 3 ä vlan7 ä vlan8 ä vlan9ʻ
Ruijie#**config**
w R Ruijie(config)# **vlan-group** vlan-group1 **vlan** 1,3,7-9
R 2ʻ ҭ vlan l' vlan-group1 l'ʻ
Ruijie#config

Ruijie(config)#no vlan

show vlan-group [group name]	vlan
vlan-enable	vlan tag
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(4b7)

10.3(4b7)	

19.2

19.2.1 show vlan-group

vlan

show vlan-group [group name]

group name	vlan

vlan

vlan vlan vlan

1 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
```

R 2' l' vlan1

20

20.1

20.1.1 subscriber export

ώ У э ˚ ˘ ɣ ώ ˚ è Â

subscriber export [txt | csv] filename

↰	↰	
	filename	˚ ˭
	Â	
Ƀ ҂	Â	
G	Ƀ ҂ ў ɣ ˘ ɱ è ˚ è Â	
w R	R 1ˈ ˚ lʼ userfile Lˈ Ruijie#subscriber export txt userfile	

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	-	-

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name	¨

α Ю a ˘ ¨ Â

Ъ ҳ Â

G э Л Лъ ȯ ^ avoid-monitor˜ n ^ deny˜ ˘ ч э
˘ ˘ ¥ . ¨I ȯ Â

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Ľʻ

Ruijie#**config**

*ÌÇJzQ R¸0.5 0 0 10.5 141.44 648.0203 Tm< Ruijie(config)# subscriber set 1 attribute avoid-monitor

R 2ʻ ٧ ľ 1 Ľ ȯ ʻ

Ruijie#config

Ruijie(config)#no subscriber set 1attribute avoid-monitor

Ъ ҳ	

ip-addr	` ip ـه ـه ip ـه ـه
mac-addr	mac ـه ـه
subnet	Ip ـه ـه ˆ ŭ
mask	
start	Ip ـه ـه ـز ip ـه ـه
end	Ip ـه ـه ـز ip ـه ـه

Â

Ъ ҳ Â

ip ـه ـه a ŋ ğ ـف ă ˇ mac ـه ـه ‡ a ŋ è ы˙
ị ă Â Љ ip ـه ـه† ` ip ـه ـه à ip ـه ـه ŋ ip
ـه ـه ـز Ь ˇ Љ mac ـه ـه† ˆ ŭ mac ـه ـه ŋ a ˆ ŭ mac ـه
ـه ч ˇ è è ` ip ـه ـه Л Љ˘ ˆ ŭ mac ـه ـه˘ ip ـه ـه ŋ ip
G ـه ـه ـز a Л Љ˘ ˆ ŭ mac ـه ـه Â mac ـه ـه ŋ ip ـه ـه˚ Ē è˘ Љ mac
ـه ـه Ē й ñ Â
ـف У э ľ / Ł, í ų Ь ť ⋮ ╗ ˇ ip ـه ـه Ē a
è è ы˙ У э ‡ Ē è Â

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R 1˙ ľ 1 Ł˘ ip ـه ـه ľ 192.168.196.156 Ł˘ è ľ 1 Ł˘ ľ
1 Ł ľ Ł˙

Ruijie#**config**

Ruijie(config)# **subscriber static name** 1 **parent** / / 1 **ip-host**
w R 192.168.196.156

// ¨ ğ ľ /

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	10.3(4b7)	Ъ ҳ

20.2

20.2.1 show subscriber

ə Â

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

↙	↙	
	name	‥

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G	¥ ə ˘ ˜Ω ⁄ a˚ ə Â

R 1' ə ‘

Ruijie#show subscriber all

```
name   mac           flow police_flow police_url dir dynamic avoid deny  ip
/     0000.0000.0000  0       0       0         1    0       0    0    192.168.196.100
    1  0000.0000.0000 3       0       0         0    0       0    0    192.168.196.101
    2  0000.0000.0000 0       0       0         0    0       0    0    192.168.196.102
```

show subscriber Ъ ҳ Ṗ

w R

Avoid	ó
Deny	
Ip	ip

Ъ ҳ	
subscriber static name name **parent** parent [[**ip-host** ip-addr] [**mac** mac-addr] **| ip-subnet** subnet mask **| ip-range** start end]	Ъ ҳ

10.3(4b7)Лъ ↓ Ǯ ɨ è˘ EG ‟ ﬕ Â

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10.3(4b7)	Ъ ҳ

21

21.1

21.1.1 network-group

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network-group name name **{ip-host** ip-addr **| ip-subnet** subnet mask **| ip-range** start end **] }**

no network-group name

ч	
name	¨ Â
ip-addr	` ip ко нв ip ко нв
subnet	Ip ко нв ^ ŭ
mask	
start	Ip ко нв нз ip ко нв
end	Ip ко нв нз ip ко нв

Â

Ъ ъ Â

Л ip ко нв ą ˇ ї й ` ip ко нв àip ко нв ч ip ко нв нз Ь Â фф У э ľ / Ľˇ í ү Ь ї ⁞ ˇ ip ко нв

Ђ a è ѐ ы˙ У э ‡ Ђ è ľ / Ľ Â	
a a˚ ʒ̆ ¨ a ˚ Â	

R 1˙ ip ко нв ľ network1 Ľ ^ ŭ 192.168.196.0 ˙

Ruijie#**config**

Ruijie(config)#**network-group name** network1 **ip-subnet** 192.168.196.0 255.255.255.0

R 2˙ ї ľ network1 Ľ˙

Ruijie#config

Ruijie(config)#no network-group name

Ъ ३	
show network-group [name]	३ Ъ ३

ॅΩЪ ३

```
network2        0          0          0        192.168.197.1
network3        0          0          0        192.168.197.2
```

ᴿ 2ʻ network1 ə ʻ

```
Ruijie#show network-group      network1
network-group police_flow police_url flow     ip
------------  -------     --------   ------   ----------
/               0          0          0
network1        0          0          0        192.168.197.3
```

show network-group Ъ ҳ ə ʻ

Network-group	¨
Police_flow	ˇΩ ‡
Police_url	ˇΩ url ‡
Flow	ˇΩ
Ip	ˆ ŭ ip

ˇΩЪ ҳ

Ъ ҳ	
network-group name name **{ip-host** ip-addr **| ip-subnet** subnet mask **| ip-range** start end **] }**	Ъ ҳ

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10.3(4b7)	Ъ ҳ

22

22.1

22.1.1 identify-application custom

У HЖ ‡ Â Л Лъ G Ƃ ҳ no ╕
HЖ ‡ Â

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

Л	
software-name	˚ ¨ Â
class-name	╡ ¨ Â
sport-low	Л Â
sport-high	Л Â
dport-low	Л Â
dport-high	Л Â

Ƃ ҳ ŏ Â

G Ƃ ҳ Л Лъ ╕ У HЖ ‡ Â

R 1˙ У HЖ ‡˘ ╡ ѝ HЖ ˘ ¨ ѝ ˘ Л
ɲ ѝ 1╡ 10ʊ Л ɲ ѝ 1╡ 100ʊ ˜ ɦɯ ѝ tcp˙

```
Ruijie#config
Ruijie(config)# identify-application custom name                    class
```

HЖ

W R

	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	‡ Ɓ ϗ
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Ɓ ϗ ϒ ʌ	ʌ	
	10.3(4b7)	Ɓ ϗ

22.1.3 identify-application inhibitive

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identify-application inhibitive app-name

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	app-name	¨
	a ╗ ώ ⁸	
Ɓ ϗ	ŏ	
ɢ	Ɓ ϗ ʌ Ɱ ɔ ╗ ώ ⁸ Â	
w ʀ	ʀ 1˙ MSN ╗ ώ ˜Ω ˙ Ruijie#config Ruijie(config)#identify-application inhibitive	M

	Ɓ ϗ	
˜ΩƁ ϗ	**flow-rule** num **vlan-group** vlan-group-name **subscriber** subscriber-name	

22.1.4 identify-application key

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identify-application key app-name

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app-name	‥

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ɑ У† ╟`

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```
Ruijie#config
Ruijie(config)#identify-application signature update
```

Ɓ ҙ	
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	‡ Ɓ ҙ

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10.3(4b7)	Ɓ ҙ

22.2

22.2.1 show identify-application

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show identify-application

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R 1 ‡ ҷ

```
Ruijie#show identify-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-      Ω м 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
            AIM 1-9-3-0
                1-12-0-0
          ҷ 1-14-0-0
    IP        2-0-0-0
        SKYPE 2-7-0-0
        h232 ~     2-12-0-0
            H323-HOSTCALLSC 2-12-4-0
            CALL-SIG-TRANS 2-12-5-0
            RTCP 2-12-6-0
            RTP 2-12-7-0
            IMTC-MCS 2-12-10-0
```

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	10.3(4b7)	Ъ ३

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show identify-application inhibitive

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Ruijie#show identify-application inhibitive

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10.3(4b7)	Ɓ ϗ

22.2.5 show identify-application key

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show identify-application key

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G Ɓ ҁ ʌ Ɲ ʊ ɱ Ҿ ǀ ╗ ώ ɞ ʖ Ω Â

w R R 1˙ ʖ Ω è ˙

```
Ruijie#show  identify-application key
IP
    QQ
MSN
FTP
```

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10.3(4b7)	Ɓ ҁ

22.2.6 show identify-application userdef-rule

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show identify-application userdef-rule

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G Ɓ ҁ ʌ Ɲ ʊ ɱ ɞ Ҿ Ⱨ Ж ‡ Â

w R R 1˙ Ⱨ Ж ‡ ə ̨ ˙

```
Ruijie#show  identify-application userdef-rule
TYPE  NAME              CLASS              SPL    SPH    DPL    DPH
TCP                       Ⱨ Ж              1      10     1      100
TCP   myqq                ¨                ˚      any    any    200    888
UDP   myxunlei            myp2p            18     18     any    any
```

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ℬ ₹

/I

22.3

22.3.1 identify-application clear key-inhibitive group

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identify-application clear key-inhibitive group

23

23.1

23.1.1 auto-pir

G PIR ╟ ╖ ˘ G **no** Ђ ҳ ̃Ω ╖ Â

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

no auto-pir enable

ч	
NUM	˘ ` Æ˙ ˘ a й 2 ˘ ґ й 1˙ 3600
Percentage	PIR Ч ⁸ ḣ˙ ¯ ˘ Ю ў ḣ ∧ PIR Ч ⁸ ˘ ƒ CIR ‡ Ч ⁸ è PIR æ ў ḣ 10 э ǀ ∧ PIR ’ Ў ў ў ч ǯ a ṁ a й 90 й 1˙ 99 Â Â Л ḣ 90 й ᴿ˘ æ ў 80% ∧ PIR ˘ ў 90% ∧ PIR Ч ⁸ ˘ Ў ў 80% n 90% ǯ a ṁ Â

EG ң ث í

Ђ ҳ **channel-tree** Â

ў ƒ Э У ґ ˘ ǀ . a Ю è a ǀ ɖ ˘ Л Љ G ╖ Â

˙ ¯ й ¯ ˘ ^ ⁸ ∧ n x Â

G ₿ **inbound PIR** ╖ ˙

```
Ruijie# config
Ruijie(config)# flow- control ₿
Ruijie(config-flow-control)# channel-tree inbound
Ruijie(config-channel-tree)# auto-pir enable
```

Ѣ ҳ

Ѣ ҳ	
show flow-control	Л Љ Ѣ ҳ **Inbound** **Outbound** PIR ҷ

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10.3(4T90)	Ѣ ҳ

23.1.2 change-priority

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… Â Л Ъ G Ъ ҳ no ҭ … Â

channel-group name **parent** {**NULL** | parent_name } **cir** cir_num **pir** pir_num [**pri** pri_num] [**schedule-type** {**fifo** | **sfq** | **per-net per-mask** mask **per-cir** pcir_num **per-pir** ppir_num **limit** limit_num [**session-limit** session_limit_num] [**auto**]}]

[**no**] **channel-group** name

"Ω м

[**no**] **channel-group** name **pool** pool_name

ч	
name	…
parent	…
NULL	a ‡ … й
parent_name	… й …
cir cir_num	ә 10000000 ` kbps
pir pir_num	h ә Л Ъ ¥ ¥ **cir** **cir** й ш 100 10000000 ` kbps
pri pri_num	. "I ю 0 7 0 . "I . "I . "I

schedule-type

auto	(Л) a ‴Ω ˘ Per-net ‴ **per-cir** n̲ **limit** o ¥ ¥ **cir** ‴Ω ‡ a ṁ ˘ ў ¥ ╟

ą Ю ’

… ˘ ώ **pri** ‴Ω ˘ ˙ ″I ὴ 4‴ ώ **schedule-type** ‴Ω ˘ ‟ ὴ **fifo** **a ╗ ώ ‴Ω м̨**

Ъ ҳ **channel-tree** Â

1. У э Л ⁎ У э ˘ **cir** n̲ **pir** ὴ ḣ ’
2. **cir** ˘ **cir** б ὲ ’I **cir** ℨ n̲ ¥ ¥ **cir**’

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23.1.5 channel-tree

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[**no**] **channel-tree {inbound | outbound}**

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inbound	… Ю
outbound	… Э

ą Ю

Ъ ҳ **flow-control**

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```
Ruijie(config)#flow-control
Ruijie(config-flow-control)#channel-tree inbound
Ruijie(config-channel-tree)#exit
Ruijie(config-flow-control)#channel-tree outbound
Ruijie(config-channel-tree)#exit
```

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channel-default	
channel-group	…

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23.1.6 flow-control

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flow-control name

no flow-control name

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name	8 ¨ Â

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‡ n 8 Â ˘ 8 ǀ WAN ʌ Э G
‡ n Â

R 1˙ group1˙
Ruijie#config
Ruijie(config)#flow- control ฿
Ruijie(config-flow-control)#
R 2˙ group2˙
Ruijie#config
Ruijie(config)# flow- control ฿
Ruijie(config-flow-control)#
R 3˙ ǐ group1˙
Ruijie#config
Ruijie(config)#no flow-control ฿

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flow-policy	ف wan ʌ 8

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23.1.7 flow-policy

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‡ p ⊀ Л Ъ Â ⊀ Л Ъ G Ъ ҳ no ∀ э
8 ﬀ ⊀ Э Â

flow-policy name

no flow-policy

∀	
name	8 ¨ Â

	ą Ю˘ è WAN ⊀ Э ˙ ¦ 8 Â
Ъ ҳ	⊀ Â
G	Ъ ҳ ⊀ ﬀ WAN ⊀ Э ˘ WAN ⊀ Э Ъ ҳ G Â

R 1˙ group1 ∫ Gi 0/1 Э˙

```
Ruijie#config
Ruijie(config)#interface gi 0/1
Ruijie(config-if-GigabitEthernet 0/1)#flow-policy
Ruijie(config-if-GigabitEthernet 0/1)#
```

R 2˙ group2 ∫ Gi 0/2 Э˙

```
Ruijie#config
Ruijie(config)#interface gi 0/2
Ruijie(config-if-GigabitEthernet 0/2)#flow-policy
Ruijie(config-if-GigabitEthernet 0/2)#
```

R 3˙ Gi 0/1 ⊀ Э ∀ group1˙

```
Ruijie#config
Ruijie(config)#interface gi 0/1
Ruijie(config-if-GigabitEthernet 0/1)#no flow-policy
Ruijie(config-if-GigabitEthernet 0/1)#
```

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flow-control	8

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23.1.8 flow-rule

У ‡˘ ǂ ч ǂ ˘ ɱ´ ǂ
‡ ˜Ω ˘ ɨ´ ǂ ‡ ╟ ɔ Â Л Ɯ ᴳ Ƀ ҳ no
ǂ ‡ Â

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

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

flow-rule num **disable**

no flow-rule num

ч	
num	‡ ˄˘ ώ ɀ 1˙ 8192
vlan-group-name	‡ ˜Ω vlan-group ¨ ˘ any ƀ ˙ ¡ Â
subscriber-name	‡ ˜Ω subscriber ¨ ˘ any ƀ ˙ ¡ Â
network-group-name	‡ ˜Ω network-group ¨ ˘ any ƀ ˙ ¡ Â
app-group-name	‡ ˜Ω app-group ¨ ˘ any ƀ ˙ ¡ Â
time-rang-name	‡ ˜Ω time-rang ¨
session-num	‡ ˛ ˘ ƀ ζ

R 1' ɔɛɵ 8 group1 Ю" 8 'Ω ʌ ʌ ѝ 3M" ˬ
8 ѝ 300"
Ruijie#config
Ruijie(config)#flow-control ɸ
Ruijie(config-flow-control)#flow-rule 1 vlan-group ɣ subscriber
network-group ɣ app-group ɣ time-rang ɣ
Ruijie(config-flow-control)#flow-rule 1 session-limit θ action
pass out-channel ʌ M

w R

R 2' ɔɛɵ 8 group2 Ю" 8 'Ω ʌ Ь Э a ĭ
sina" a ˬ ṁ 8 '
Ruijie#config
Ruijie(config)#flow-control ɸ
Ruijie(config-flow-control)#flow-rule 1 vlan-group ɣ subscriber
Ь network-group ɛ app-group ɣ time-rang ɛ
Ruijie(config-flow-control)#flow-rule 1 session-limit 0 action
drop
R 3" ĩ 8 group1 Ю ‡ 1'
Ruijie#config
Ruijie(config)#flow-control ɸ
Ruijie(config-flow-control)#no flow-rule 1

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

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share-pool Name **rate** num1 [**type** { **normal** | **per-ip limit** num2 }]
no share-pool Name

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share-pool Name	╕ ╖ ″Ω м ¨
rate num1	… ″Ω м
type	… ″Ω м ф ш˘ a ώ й **normal** ф ш
normal	**normal** ф ш˘
per-ip	**per-ip** ф ш˘
limit num2	**per-ip** ф ш″Ω м 8

ц Ю è ˙ ı ″Ω м

Ъ ъ **channel-tree** Â

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1 à Normal ф ш″Ω м ╓ ╜ ╕ ώ ″Ω м 8 ˘ ¨ a Rate’
2 à Per-IP ф ш″Ω м ╓ ╜ ╕ ώ ″Ω м э 8 ˘ ¨ э a Rate Â
3 à Per-IP ф ш″Ω м Limit 8 ˘ ¸ ’
4 à╕ ώ ″Ω м Ǯ . ″I a ˚ ˘ ы ц Ю . ″I ¸ . ″Ω м ˘ Л Љ ╜ a ˚ н ┗ ↖ ┆ . ″I нж ’

R 1’ ф 8 group1 inbound Ю … Normal ш à й 1000kbps ″Ω м test ’

```
Ruijie#config
Ruijie(config)#flow-control ₿
Ruijie(config-flow-control)# channel-tree inbound
Ruijie(config-channel-tree)# share-pool ₴ rate ₀ typenormal
```

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Channel-group	… Ц ╕ ώ ″Ω м Ъ ъ

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23.2

23.2.1 show flow-control

show flow-control Name **{inbound | outbound} [channel-group** channel-name [**detail]]**

show flow-control Name **{inbound | outbound} [share-pool [**pool-name **]]**

Auto-pir
show flow-control Name **{inbound | outbound} auto-pir**

flow-control Name	
inbound	
outbound	
channel-group channel-nam	**detail** FIFO SFQ Per-net
share-pool [pool-name **]**	Name Pool Pool

channel-group channel-name

1

```
Ruijie#show flow-control test inbound channel-group root
Group-name          CIR          PIR          Pri          Schedule
CIDR/CIR/PIR/Limit/Sess-limit/Share-pool
----------  --    --   --   -------- ----------------------------
root        100   100   4    per-net  32/10/10/10/100/test
```

2

```
Ruijie#show flow-control test inbound
Group-name          CIR          PIR          Pri          Schedule
CIDR/CIR/PIR/Limit/Sess-limit/Share-pool
```

```
---------- --   --   --   -------- ------------------------
root       100  100  4    per-net  32/10/10/10/100/test
part1      100  100  4    fifo     /////test1
```

Group-name	‥
CIR	ҷ
PIR	ḣ ҷ
Pri	. ″I
Schedule	‟ ڜ
CIDR/CIR/PIR/Limit/Sess-limit/ Share-pool	¥ Per-net ڜ ۷ ˘ Л৮ ۷ ╗ ώ ″Ω м

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```
Ruijie#show flow-control test outbound share-pool
Global pool:    14          Global red obj:  0
Tree pool:      3

Share-pool     Rate       Type        Limit      Child
-------------- ---------- ---------- ---------- ----------
tcp            200        Normal     NA         1
udp            150        Normal     NA         1
p1             100        Normal     NA          2
```

Global pool	ώ ″Ω м
Global red obj	ώ ∫ ⁸ ″Ω м ˘ Normal ڜ″Ω м n Per-IP ڜ″Ω м ۸ э
Tree pool	Channel-tree ″Ω м э
Share-pool	″Ω м ‥
Rate	″Ω м
Type	″Ω м ڜ
Limit	Per-IP ڜ″Ω м ˘ ѝ ⁸
Child	Ц ˘ ⁄ ╗ ώ Pool ˘ Ь э ⁄ ╗ ώ ″Ω м ḣ ⁄ ╗ 1

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```
Ruijie#show flow-control test3 outbound share-pool p1
Pool:     p1
Rate:     100       Type:     Normal    Limit:    NA
State:    Green     Child:    2         Active:   NA
Kill flow: 0

Group-name  Cir     Pir      Pri  Type      Limit     Share-pool
----------- ------ ------- ---- -------- -------- ----------
p1-tcp      150     500      4    fifo      NA        p1
p1-udp      100     500      4    fifo      NA        p1
```

Pool	″Ω м ¨
Rate	″Ω м
Type	″Ω м ҷш
Limit	Per-IP ҷш″Ω м ˘ й 8
State	Normal ҷш″Ω м ˘ Green ĵ 8 ḣ˘ Red ĵ Э ḣ˘ Per-IP ҷш й NA
Child	Ш ˘ Л ╕ ώ Pool ˘ Ь э Л ╕ ώ ″Ω м ḣ Л ╕ 1
Active	╟ ˘ Per-IP ҷш″Ω м
Kill flow	˘ Per-IP ҷш″Ω м ˘ Per-IP ҷш″Ω м Limit 8
Group-name	″Ω м Ш ¨
Cir	″Ω м Ш
Pir	″Ω м Ш ḣ
Type	″Ω м Ш ҷш
Pri	″Ω м Ш . ″I
Limit	″Ω м Ш 8˘ Per-net ҷш
Share-pool	╕ ώ ″Ω м ¨ ‘ ″Ω м ҩ Ш й Л ˘ Л ≠ ˛ Ф ҳ ˘ ѐ ╕ ώ ┘ ″Ω м ‡ Share-pool ¨ ˘ ŭ ‡ й NA

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Ruijie#

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Ruijie#show flow-control-policy rule

```
Pri_num grp_id rule_num ifx   vlan_id    subs_id    net_wk_id  app_id
ichl_id ochl_id ses_num ses_lim state effec
1       0       1        0     0          814695740  0          0
NA      2       0       2000   up    0
2       0       2        0     18661884    18577704   18577496  0
1       NA      0       2000    0
3     1    3        6     18661884    18577704   18577496  4294967290
1       1       0       2000    up    1
```

è ⁸ group1 ə ˈ

Ruijie#show flow-control-policy rule group ƀ

```
Pri_num grp_id rule_num ifx   vlan_id    subs_id    net_wk_id  app_id
ichl_id ochl_id ses_num ses_lim state effec
1       0       1        0     0          814695740  0          0
NA      2       0       2000   up    0
2       0       2        0     18661884    18577704   18577496  0
1       NA      0       2000    up    0
```

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Pri-num	‡ . ˝I ⁄ Â
grp_id	⁸ ⁄ Â
rule_num	‡ ⁄ Â
ifx	‡ ⁄ ḣ˘ ѝ 0 ‡ ƶ ⁸ ˛ ⁄ Â
vlan_id	‡ ˇΩ vlan-group id˙ ѝ 0 vlan-group Â
subs_id	‡ ˇΩ subscriber id˙ ѝ 0 subscriber Â
net_wk_id	‡ ˇΩ network-group id˙ ѝ 0 network-group Â
app_id	‡ ˇΩ app-group id˙ ѝ 0 app-group Â
inchl_id	‡ ˇΩ in-channel id˙ id ḣ ѝ 0 ˘ NA ‡ ˇΩ in-channel Â
ochl_id	‡ ˇΩ out-channel id˙ id ḣ ѝ 0 ˘ NA ‡ ˇΩ out-channel Â
ses_num	ɱ ɒ ˛ ‡ Â

24

24.1

24.1.1 flow-audit data-store

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flow-audit data-store n

no flow-audit enable

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G	Ъ ҳ g ɖ Â
w R	R 1˙ ɖ й 12 Ruijie#config Ruijie(config)#flow-audit data-store 1 R 2˙ ɖ й ɖ ‘ Ruijie#config Ruijie(config)#no flow-audit data-store

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24.1.2 flow-audit enable

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flow-audit enable

no flow-audit enable

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subscriber-name] [**ip** ip-address] [

Download(pps)
DROP: Upload(bps) Download(bps) Upload(pps)
Download(pps)
App1 46
62597 65955 15 17
0 0 0 0
R 2 HO bridge 0 ə ˘ ,
Ruijie# show flowrate application bridge 0 by-group
path:bridge-map 0
Application_group
PASS: Upload(bps) Download(bps) Upload(pps)
Download(pps)
DROP: Upload(bps) Download(bps) Upload(pps)
Download(pps)
App_group1
211 249 0 0
0 0 0 0

R 3 HO bridge 0 2010 1 9 2010 1
9 ə ˘ ,
Ruijie# show flowrate application bridge 0 by-group day- interval
019 to 019
path:bridge-map 0
day-interval: 2010-1-9 ~ 2010-1-9
Application_group
PASS: Upload(KB) Download(KB) Upload(packets)
Download(packets)
DROP: Upload(KB) Download(KB) Upload(packets)
Download(packets)
P2P
0 6 24 24
0 0 0 0
/HTTP~
5229 116742 59983 89151
0 0 0 0
/ QQ
220 135 1349 1290
0 0 0 0

27684236 159994 363431164 226927
0 0 0 0

	/Lotus-Notes			
	793	772	5327	4766
	0	0	0	0
	32	252	567	635
	0	0	0	0
	/NETBIOS			
	2	98	24	1187
	0	0	0	0
	0	2	0	4
	0	0	0	0

	-	-

-

end-year	
end-month	
end-day	
end-hour	
begin-hour2	2
end-hour2	2
n	

recent hour time-interval begin-year begin-month begin-day begin-hour end-year end-month end-day end-hour day-interval,hour-interval begin-year begin-month begin-day end-year end-month end-day begin-hour end-hour begin-hour2 end-hour2

1

```
Ruijie#show flowrate channel
channel_group       channel_name
 type                      pass_rate(bits/sec,       packets/sec)
drop_rate(bits/sec, packets/sec)
 channel_groupA/  channel_nameA
  up                                  125520                , 33
0            , 0
 channel_groupB/  channel_nameB
  down                               128                    , 0
0            , 0
 channel_groupC/  channel_nameC
  down                               39632                  , 61
0            , 0
```

2 NBR 2010 1 8 2 2010 1 9 11

```
Ruijie# show flowrate channel channel-name                  time-interval
2810        to  1910
channel_group: channel_groupA
channel_name: channel_nameA
type:  down
PASS:  821170 KB, 2280990 Packets
```

```
DROP:  0 KB, 0 Packets

channel_group: channel_groupB
channel_name: channel_nameB
type:  up
PASS:  616543 KB, 1890126 Packets
DROP:  0 KB, 0 Packets
```

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24.2.3 show flowrate interface

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show flowrate interface interface-name [{**recent** hour **| time-interval** begin-year begin-month begin-day begin-hour **to** end-year end-month end-day end-hour } {**day-interval** begin-year begin-month begin-day **to** end-year end-month end-day [**hour-interval** begin-hour **to** end-hour begin-hour2 **to** end-hour2]}[**detail**]]

ʎ	
interface-name	¨
hour	
begin-hour	
begin-day	
begin-month	
begin-year	
end-hour	
end-day	
end-month	
end-year	

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ɲ ʌ hour ʊ ɋ˘ ʌ ʾ ʖ time-interval ɻ ʌ
begin-year begin-month begin-day begin-hour end-year end-month end-day
end-hour ɋ ʌ ʾ

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R 1ˑ ʌ gigabitEthernet 0/1 ɱ ʾ

Ruijie# show flowrate interface ƀ0

```
Interface: GigabitEthernet 0/1
Input rate: 979685 bits/sec, 114 packets/sec
Output rate: 107233 bits/sec, 60 packets/sec
```

R 2ˑ ʌ gigabitEthernet 0/1˘ 2010 1 8 ʌ 2 ˘ ʃ 2010 1 9 ʌ 11

Ruijie# show flowrate interface ƀ0 time- i nterval 2810 to 1910

```
Interface:GigabitEthernet 0/1
PASS upload: 14478835 KB, 30655170 Packets
PASS download: 6342862 KB, 22501788 Packets
```

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24.2.4 show flowrate ip

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show flowrate ip

interface-name	
hour	
subscriber-name	
subscriber-group	
Ip-address	IP
application-name	
application-group	
application-type	
begin-hour	
begin-day	
begin-month	
begin-year	
end-day	
end-month	
end-year	
begin-hour	
end-hour	
begin-hour2	2
end-hour2	2
n	

day-interval,hour-interval begin-year begin-month begin-day end-year end-month end-day begin-hour end-hour begin-hour2 end-hour2

2

order-by top n

gigabitEthernet 0/1

```
Ruijie#show flowrate ip interface
Subscriber                Application-num
PASS: UplWEthernet 0/1 ,Xãhà |v|Xñà |r2
PASS (in-T*58T 98)-6TJ0 -1.713 T[(PASS: )-10S:
```

0 0 0 0

ᴿ 2˙ ˜Ω HO˙ ˩ gigabitEthernet 0/1˜ 2010 1 8 ˩ˆ 2010 1 9 ˩

Ruijie#showflowrateip day- interval 2010-1-8 to 2010-1-9

path:bridge-map 0

day-interval: 2010-1-8 ~ 2010-1-9

Subscriber

PASS ˙ Upload(KB) Download(KB) Upload(packets) Download(packets)

DROP ˙ Upload(KB) Download(KB) Upload(packets) Download(packets)

/User_groupA/User_nameA

0 2871 0 16161

0 0 0 0

/User_groupB/User_nameB

153987 0 2022024 0

0 0 0 0

/User_groupC/User_nameC

153986 0 2022024 0

0 0 0 0

/User_groupD/User_nameD

213285 0 2800725 0

0 0 0 0

/User_groupE/User_nameE

161994 0 2127179 0

0 0 0 0

Ю м IP à э Л ч э ё IP

ə ,

show flowrate ip-application {**interface** interface-name **| bridge** bridge-name } [**subscriber-group** subscriber-group] [**subscriber** subscriber-name] [**ip** ip-address] [**application-group** application-group] [**application-type** application-type] [**application** application-name] [**day-interval** begin-year begin-month begin-day **to** end-year end-month end-day [**hour-interval** begin-hour1 **to** end-hour1 begin-hour2 **to** end-hour2] [**order-by** {{**pass** | **drop**} {**upload** | **download**} | **ip** | **subscriber|application** {**desc** | **asc**}[**top** n]]

ч	
interface-name	
hour	
subscriber-name	
subscriber-group	
Ip-address	IP
application-name	
application-group	
application-type	
begin-hour	
begin-day	
begin-month	
begin-year	
end-day	
end-month	
end-year	
begin-hour	
end-hour	
begin-hour2	2
end-hour2	2
n	м n

ч

Ю м IP ə ё IP ə , ˇΩ day-interval ,

R 1 ˇΩ Ю ч gigabitEthernet 0/1 м IP ,

w R Ruijie#show flowrate ip-application interface

path:GigabitEthernet 0/1

Subscriber Application

PASS Upload(bps) Download(bps) Upload(pps) Download(pps)

DROP: Upload(bps) Download(bps) Upload(pps) Download(pps)

/user_groupA/user_nameA applicationA

46003 2093107 93 173

0 0 0 0

/user_groupB/user_nameB applicationB

46001 2093102 193 173

0 0 0 0

/user_groupC/user_nameC applicationC

4003 1093107 63 73

0 0 0 0

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24.2.6 show online ip

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show online ip {**interface** interface-name **| bridge** bridge-name } [**subscriber** subscriber-name] [**subscriber-group** subscriber-group] [**ip** ip-address] [{**day-interval** begin-year begin-month begin-day **to** end-year end-month end-day [**hour-interval** begin-hour **to** end-hour begin-hour2 **to** end-hour2]}] [**order-by** {{**pass** | **drop**} {**upload** | **download**} | **ip** | **subscriber**} {**desc** | **asc**}[**top** n]]

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interface-name	Ь ⅄ ˘ ғ ‘Ω Ю G
bridge-name	˘ ғ Ю G
subscriber-name	
subscriber-group	
Ip-address	IP ک ھ
begin-hour	
begin-day	
begin-month	
begin-year	
end-day	
end-month	
end-year	
begin-hour	
end-hour	
begin-hour2	2
end-hour2	2

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a ϙ ӇӦ ɱ ﬠ IP Э à ҽ ’ ӝΩ

day-interval ɲ ӈ begin-year begin-month begin-day end-year end-month end-day

ɢ IP Э ҽ ˘ ӝΩ order-by

```
/User_groupE/User_nameE
 192.168.203.39                  2010-1-8 8:48        530
  42329            515173            0               0
/User_groupF/User_nameF
 192.168.196.72                  2010-1-7 9:37        1922
  274249           396572            0               0
/User_groupG/User_nameG
 192.168.203.48                  2010-1-7 9:37        1922
  55562            380214            0               0
/User_groupH/User_nameH
 192.168.196.70                  2010-1-7 9:37        1922
  105615           285195            0               0
/User_groupI/User_nameI
 192.168.196.55                  2010-1-7 9:37        1922
  33071            205676            0               0
/User_groupJ/User_nameJ
 192.168.203.40                  2010-1-7 9:37        1922
  15904            160891            0               0
```

ᴿ 3ˇ ˜Ω Юˇ ⊀ gigabitEthernet 0/1 ﬓ 2010 1 8 ⊀ 1 ↑ 3 ip Э ⊇ ą ˘ Ю ¨ ,

Ruijie# show online ip interface ﬓ0 day- i nterval 2010 1 8 to 2010 1 8 hour 1 to 3 order-by pass download desc

```
path:GigabitEthernet 0/1
Subscriber
IP              OnlineTime(min)
PASS-Upload(KB)         PASS-Download(KB)         DROP-Upload(KB)
DROP-Download(KB)
/User_groupC/User_nameC
192.168.196.37     180
  75381            1193654          0               0
/User_groupD/User_nameD
192.168.203.36     180
  381              3120             0               0
/User_groupE/User_nameE
192.168.196.53     180
  206              1457             0               0
/User_groupF/User_nameF
192.168.196.63     135
  142              1437             0               0
```

Subscriber
IP Application
LoginTime OnlineTime(min)
PASS-Upload(KB) PASS-Download(KB) DROP-Upload(KB)
DROP-Download(KB)
/User_groupA/user_nameA
192.168.196.14 UDP
2010-1-8 19:7 0
24 0 0 0
/user_groupB/user_groupB
192.168.196.15 UDP
2010-1-8 19:7 0
24 0 0 0
/User_groupC/User_nameC
192.168.196.16 UDP
2010-1-8 19:7 0
24 0 0 0
R 2 Ω HO 1 gigabitEthernet 0/1 IP 192.168.196.70
IP
Ruijie#showonline ip-application interface ip
path:GigabitEthernet 0/1
Subscriber
IP Application
LoginTime OnlineTime(min)
PASS-Upload(KB) PASS-Download(KB) DROP-Upload(KB)
DROP-Download(KB)
/user_groupA/user_nameA
192.168.196.70 by_pass
2010-1-7 9:37 2032
107182 327352 0 0

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10.3(4b7)	

24.2.8 show online ip-application history

Ю IP à Э Ч Л ą Â

show online ip-application history {**interface** interface-name **| bridge** bridge-name } [**subscriber** subscriber-name] [**subscriber-group** subscriber-group] [**ip** ip-address] [**application** application-name] [**application-group** application-group] [**application-type** application-type] [**order-by** {{**pass | drop**} {**upload | download**} **| ip | subscriber | application**} {**desc | asc**}[**top** n]]

Л	
interface-name	Ь Л ˘ ф ˚Ω Ю G
bridge-name	˘ ф Ю G
subscriber-name	
subscriber-group	£
application-name	
application-group	£
application-type	ѡ ڜ
Ip-address	IP ك ھ
application-name	
application-group	£

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Ю IP à Э ¡ Ч Л ą Â ˚Ω
ip,subscriber,subscriber-group,application,application-group ˚ ˘ ˚Ω
order-by ,

R 1' ф Ю bridge-map0 ¡ Ю IP и 192.168.196.70
˘ IP à Э ¡ Ч Л ą ' *Ãẅ*À

W R

0 0 0 0
/User_groupA/User_groupA TCP
2496 35913 3 5
0 0 0 0
/User_groupA/User_groupA UDP
21216 0 34 0
0 0 0 0
ᴿ 2ʾ ˜Ω Ю˙ ⊿ gigabitEthernet 0/1 IP ѝ 192.168.196.70
IP

```
 2010-1-2 3:32       2010-1-2 3:34
 0              0              2              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70      DNS
 2010-1-2 3:32       2010-1-2 3:34
 0              0              1              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70      DNS
 2010-1-2 4:15       2010-1-2 4:16
 0              0              1              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70          HTTP
 2010-1-2 4:30       2010-1-2 4:34
 0              1              9              6
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70      DNS
 2010-1-2 4:32       2010-1-2 4:33
 0              0              1              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70          HTTP
 2010-1-2 4:39       2010-1-2 4:42
 1              1              4              2
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70      DNS
 2010-1-2 4:39       2010-1-2 4:42
 0              0              1              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70      DNS
 2010-1-2 5:15       2010-1-2 5:20
 0              0              1              1
 0              0              0              0
/User_groupA/User_groupA
 192.168.196.70          HTTP
```

```
  2010-1-2 5:42        2010-1-2 5:46
  0                0                2                1
  0                0                0                0
/User_groupA/User_groupA
 192.168.196.70       DNS
  2010-1-2 5:42        2010-1-2 5:46
  0                0                1                1
  0                0                0                0
/User_groupA/User_groupA
 192.168.196.70       DNS
  2010-1-2 6:16        2010-1-2 6:20
  0                0                1                1
  0                0                0                0
```

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	10.3(4b7)	Ъ ҳ

24.2.9 show online ip history

Ю IP Э ϒ ʌ ə Â

show online ip history {**interface** interface-name **| bridge** bridge-name } [**subscriber** subscriber-name] [**subscriber-group** subscriber-group] [**ip** ip-address] [**order-by** {{**pass** | **drop**} {**upload** | **download**} | **ip** | **subscriber**} {**desc** | **asc**} [**top** n]]

ʌ	ʌ	
	interface-name	Ь ʌ ˇ ڤ ЮG
	bridge-name	ˇ ڤ ЮG
	subscriber-name	
	subscriber-group	
	Ip-address	IP ھ ك
	n	ɱ n

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G IP Э ٧ ٨ ą ’ ˝Ω ip,subscriber,subscriber-group ˚ ˘ order-by ņ top n ¨ ɱ n ’

R 1ˈ ƶф Ю˝ bridge 0 IP ƶф ˘ ą ٧ ٨’

Ruijie#show online ip history bridge 0

path:bridge-map 0

Subscriber

IP AuthType LoginTime LogoutTime

PASSˈ Upload(KB) Download(KB) Upload(packets) Download(packets)

DROPˈ Upload(KB) Download(KB) Upload(packets) Download(packets)

/User_groupA/User_nameA

192.168.196.61 2010-1-8 16:52 2010-1-8 18:6

8662 0 113726 0

0 0 0 0

/User_groupB/User_nameB

192.168.196.131 2010-1-8 16:52 2010-1-8 18:6

8662 0 113726 0

0 0 0 0

/User_groupC/User_nameC

192.168.196.38 2010-1-8 16:52 2010-1-8 18:6

8662 0 113726 0

w R 0 0 0 0

/User_groupD/User_nameD

192.168.196.93 2010-1-8 16:52 2010-1-8 18:6

8662 0 113726 0

0 0 0 0

/User_groupE/User_nameE

192.168.196.245 2010-1-8 16:52 2010-1-8 18:6

8662 0 113726 0

0 0 0 0

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```
/User_groupA/User_nameA
 192.168.203.41                    2010-1-2 2:12        2010-1-2
2:25
   1              3              16              14
  0              0              0              0
/User_groupB/User_nameB
 192.168.196.39                    2010-1-2 2:17        2010-1-2
2:25
   3              25             34              29
  0              0              0              0
```

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24.2.10 show online statistic

Ю ɱ ف ˇ hour ˙ IP Л ʊ ˛

show online statistics{**interface** interface-name **| bridge** bridge-name } [{**detail|recent** hour **| time-interval** begin-year begin-month begin-day begin-hour **to** end-year end-month end-day end-hour }]

ʌ	
interface-name	Ь ʌ ˇ ف Ю G
bridge-name	ˇ ف Ю G
hour	
begin-year	
begin-month	
begin-day	
begin-hour	
end-year	
end-month	
end-day	
end-hour	

Ъ ҷ

a ɑ Ю ⊀ Ю ɱ ƒɑ IP ɲ ˛ ’

ˇΩ detail ƒɑ ɜ ɛ ɛ IP ˛ ˘ “ ’ ˇΩ recent

G ɲ ⊀ hour ύ ɑ̈ IP ⊀ ˛ ˘ ˇΩ time-interval ɲ ⊀

begin-hour begin-day begin-month begin-year to end-hour end-day end-month end-year ɑ̈ IP ⊀ ˛ ’

R 1˙ ƒɑ Ю bridge-map0 ɱ IP ˘ ˛

```
Ruijie#show online statistic bridge 0
path: bridge-map 0
online ip count: 251
online session: 254
```

R 2˙ Ю bridge-map0 ɱ IP ˛

```
Ruijie#show online statistic bridge 0 detail
path: bridge-map 0
id       ip            subscriber          session
1   192.168.196.70  /User_groupA/User_nameA  5
2   192.168.203.127 /User_groupB/User_nameB  2
3   192.168.196.77  /User_groupC/User_nameC  1
4   192.168.196.26  /User_groupD/User_nameD  1
5   192.168.196.150 /User_groupE/User_nameE  1
```

R 3˙ ˇΩ Ю 3 ɑ̈ Э IP ˛ ə ̨

w R Ruijie# showonlinestatisticsinterface ƀ0 recent 3

```
path: GigabitEthernet 0/1
recent hour: 3
Time slice: 15 min
count:12
ID       Online-IP     Online-Session
1              95          522
2              95          588
3              96          798
4              94          590
5              96          528
6              96          886
7              97          646
8              99          666
9              97          542
```

10	96	885
11	97	986
12	95	820

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25 URL

25.1

25.1.1 class

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┆ URL è ˆ ỗ URL┆ Â

[] **class** class-name

ч	
class-name	URL┆ ¨ ˘ Л Л ъ Ж URL┆ ˘ ≠ Л Л ъ URL┆

Ъ ъ	URL
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w R

```
# и URL l' OBJA Ł ╗ У э URL┆
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# url-object OBJA
Ruijie(url-obj-config)# class
Ruijie(url-obj-config)# end
```

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10.3(4b7)	Ъ ъ

25.1.2 comment

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comment comment-string

no comment

ч	
comment-string	URL┤ URL ˘ 100 э

Ъ ч URL URL┤

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R 1 й URL Ґ OBJA Ł ╕

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# url-object OBJA
Ruijie(url-obj-config)# comment
```

w R

25.1.3 content-policy

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ӷ Â

[**no**] **content-policy** policy-name

ч	
policy-name	ӷ ӟ

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w R	# У э ӷ ў ӟ й policyA Ruijie# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# content-policy policyA Ruijie(cont-plcy-config)# end

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policy-name	ф

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```
# У э й policyA ф ⌡ ⊀ gi 0/1
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface    gi 0/1
Ruijie(config-if-GigabitEthernet 0/1)# content-policy-map     policyA
Ruijie(config-if-GigabitEthernet 0/1)# end
```

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25.1.5 regexp

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no ⌠ URL è URL ‡ Â

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

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url-regexp	URL ‡ ˘ ñ ‡

Ъ ъ URL

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w R	R 1' й URL l' OBJA Ь ╗ У э Ш˘ ¥ ѓ URL è ^ ў ieft ˚Ω URL Ruijie# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# url-object OBJA Ruijie(url-obj-config)# regexp ₣ Ruijie(url-obj-config)# end

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	10.3(4b7)	Ъ ч

25.1.6 url

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[**no**] **url** url-string

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ч	url-string	URL] ^ ў URL ˘ ѓ ' 1 à Ж] è ^ ў URL й ж Ю ˘ ‡ ѓ Ю ' Â R ' URL й l' ietf.org/2006 Ь˘ ‡ ѓ l' ietf.org/2006 Ь Ю ф Â 2 à Ж] è ^ ў URL й ж з a ў ˘ ‡ ѓ ж ч è ж ˘ R ' URL й l' ietf.org Ь˘ ‡ ѓ l' www.ieft.org Ь ч l' download.ietf.org Ь à l' news.ietf.org Ь ж Â

Ъ ч	URL]
G	1 à URL ѓ т Θ 1 ˘ a ї l' ietf.org/2006/12 Ь' 2 à URL ж ѓ т Θ 4 ж ˘ й

ľ test.rfc.download.ietf.org Ľ ˇ ‡ Θ Ē Â

ᴿ 1˙ ѝ URL ǂ -CLASSA ╗ У э ˋ ietf.org

```
Ruijie# configure terminal
Ruijie(config)# url-class CLASSA
Ruijie(url-cls-config)# url ĝ
Ruijie(url-cls-config)#end
Ruijie# show running
```

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1 à ҙ í **url-audit except-regexp** ‡ ˘ ‡ и
ľ .*=.*&.*=.* Ł

G 2 à í **url-audit except-postfix**˘ a Ю Ҷ ғ URL˘ jpg css à js à gif

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URL Ƒ ३

	text	URL ă Э Â a ώ ą Â
	╗ í Â ą̈ и̇ "You are forbidden to visit the website, please contact webmaster!"	
Ъ ҳ	ŏ	
G	Ъ ҳ У э URL ˘ ώ⁄ URL	

1 à url ă ą ‘

```
Ruijie# configure terminal
```

w R Ruijie(config)# url-filter-notice display ˘ б Ц

```
Ruijie(config)#end
Ruijie# show running
```

w R	1 à У э URL -OBJA Ruijie# configure terminal Ruijie(config)# url-object Ruijie(url-obj-config)#end Ruijie# show running

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25.1.11 url-rule

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[no] url-rule audit-default-enable

Ъ ч ц ё ф è ╖ URL 8 ‡ Â Л Л Ъ G Ъ ч no ╜ Â

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

no url-rule rule-id

Ъ ч ц Ц ˇ У э ф Ю ч э URL 8 ‡ . ″I

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

Ч	
rule-id	URL 8 ‡ ID ˘ Ч ḣ ﺯ 1~1000˜
subs-name	URL ‡ ˜Ω

URL Ъ ҳ

obj-name	URL ‡ ˇΩ URL
time-name	URL ‡
comment-string	URL ‡
rule-id1	URL ‡ ID
rule-id2	URL ‡ ID

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R 1 и ά Ґ POLICYA Ł URL ‡

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
```

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URL Ъ ३

10.3(4b7) Ъ ३

25.2

25.2.1 show url-audit detail

ٰ ٱ URL ə

show url-audit detail {recent hours | **time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss | **day-interval** yyyy mm dd **to** yyyy mm dd **[hour-interval** hour1 **to** hour2 **[**hour3 **to** hour4**]]} [interface** intf-name **| bridge** bridge-num] **subscriber** subs-name **[url-class** class-name **| url-object** obj-name**] [host** host-string **] [permit | deny]** [**order-by time | url-class |url | url-class | host-times | IP]**

ٱ	
yyyy mm dd	
hh:mm:ss	٭
hour1	٭ ٬
hour2	٭ ٬
hour3	٭ ٬
hour4	٭ ٬
intf-name	ٱ ¨
bridge-num	ٱ
subs-name	٭ ٬ ¨ ˘ Ѓ
class-name	٭ ٬ URL٭ ¨ ˘ Ѓ
obj-name	٭ ٬ URL ¨ ˘ Ѓ

ٱ ê j Ɪ Ú # ٬

URL-CLASS Access-control URL-RULE

==========

2010-1-10 19:20:02 USEA 192.168.1.100

http://www.ietf.org/

IT permit URL_RULEA

2010-1-10 19:20:00 USEB 192.168.1.101

http://www.ietf.org/

IT permit URL_RULEA

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EG

10.3(4b7)	

25.2.2 show url-audit stat

URL

show url-audit stat {recent hours | **time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss | **day-interval** yyyy mm dd **to** yyyy mm dd **[hour-interval** hour1 **to** hour2 **[**hour3 **to** hour4**]]} [interface** intf-name **| bridge** bridge-num] **subscriber** subs-name **[url-class** class-name **| url-object** obj-name**] [host** host-string **] [permit | deny]** [**order-by time | url-class |url | url-class | host-times]**

yyyy mm dd	
hh:mm:ss	
hour1	
hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name	

URL Ƃ ३

class-name	˚ ‘ URL† ¨ ˘ Ɠ
obj-name	˚ ‘ URL ¨ ˘ Ɠ

ˆ ˚ ‘ HOST

G !

yyyy mm dd	
hh:mm:ss	
hour1	
hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name	
class-name	URL

25.2.4 show url-rule

URL ‡ ҷ Â

show url-rule content-policy policy-name

ӌ	
policy-name	¨

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```
#                URL  ‡     ҷ
Ruijie#show url-rule content-policy POLICYA
content-policy:POLICYA
(active)url-rule 1 subscriber USERA url-object OBJA time-range any
action deny audit
(active)url-rule 2 subscriber any url-object OBJA time-range any
action permit audit
url-rule audit-default-enable
```

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10.3(4b7)	Ъ ҳ

26

26.1.1 content-object

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è ˆ ӗ ˜Ω Â

[**no**] **content-object** object-name

ʌ		
	ʌ	
	object-name	ӫ ¨
Ƃ ҳ	ӫ	
G		
w R '	# У ɜ ӫ ˘ ˆ ӗ ˜Ω hello ŋ ‡ ҕ .163.com Ruijie# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# content-object name1 Ruijie(content-obj-config)# keyword hello Ruijie(content-obj-config)# regexp .*\.163\.com Ruijie(content-obj-config)# end	

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26.1.2 ftp-rule audit-default-enable

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╕ Â

ftp-rule audit-default-enable

no ftp-rule audit-default-enable

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```
R 1 POLICYA è FTP ‡
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# ftp-rule delete-all
Ruijie(cont-plcy-config)# end
```

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26.1.4 ftp-rule priority-swap

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ftp-rule priority-swap rule-id1 rule-id2

rule-id1	‡ 1 ID
rule-id2	‡ 2 ID

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w R	R 1 Ң ftp ‡ 10 n ‡ 20 . ″I Ruijie# configure terminal Ruijie(config)# content-policy POLICYA Ruijie(cont-plcy-config)# ftp-rule priority-swap 10 20 Ruijie(cont-plcy-config)# end

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	10.3(4t76)	Ъ ҳ

26.1.5 ftp-rule rule-id

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ftp-rule rule-id **subscriber** {subs-name **| any**} **time-range** time-name [**direction** {**in | out | double**}] [**relation** {**and** | **or**} [**directory** content-object-name1] [**file-name** content-object-name2]] **action** {**permit | deny**} [**audit**] [**comment** comment-string]

no ftp-rule rule-id

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy       POLICYA
Ruijie(cont-plcy-config)# ftp-rule     2subscriberanytime-       r angeany
directionoutrelationorfile-name                FileBactiondenyauditc       omment
DenyAllUserUpload
Ruijie(cont-plcy-config)# end
```

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26.1.6 im-rule audit-default-enable

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im-rule audit-default-enable

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26.1.9 im-rule rule-id subscriber

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im-rule rule-id **subscriber** {subs-name | **any**} **time-range** time-name **action** {**permit | deny**} [**audit**] [**comment** comment-string]

no im-rule rule-id

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rule-id	IM ⁸ ‡ ID ˘ Л ḣ ڑ 1~200˜
subs-name	IM ‡ Ѽ
time-name	IM ‡
comment-string	IM ‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy      POLICYA
Ruijie(cont-plcy-config)# im-rule   2 subscriber   USERA time- r ange any
action permit audit comment         PermitUserAMSN
Ruijie(cont-plcy-config)# im-rule   2 im-type   msn relation or
account   ACCOUNTA message   KEYA comment   PermitUserAMSN
Ruijie(cont-plcy-config)# end
```

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26.1.10 im-rule rule-id relation

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im-rule rule-id **im-type** im-name [**relation** {**and** | **or**} [**account** content-object-name1] [**message** content-object-name2]]

no im-rule rule-id

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rule-id	IM ⁸ ‡ ID ˘ ⊀ ḣ ˛ˆ 1~200˜
im-name	IM ˅ Âim-name string s˘ R string s ѝ ”qq” ‡ ⊀ QQ ˅ ’ R string s ѝ ”qq,msn” ”msn,qq” ‡ ⊀ QQ ˅ ɲ MSN ˅ Â
content-object-name1	IM ⊀˘ a ƀ Â
content-object-name2	˘ a ƀ Â

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy       POLICYA
Ruijie(cont-plcy-config)# im-rule    2 subscriber    USERA time-  r ange any
action permit audit comment          PermitUserAMSN
Ruijie(cont-plcy-config)# im-rule    2 im-type    msn relation or
account   ACCOUNTA  message  KEYA comment   PermitUserAMSN
Ruijie(cont-plcy-config)# end
```

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26.1.11 keyword

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[**no**] **keyword** string

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	string	ӫ ˆ ӱ Ѽ

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w R	# У э ӫ ˇ ˆ ӱ Ѽ hello ŋ ‡ ҕ .163.com Ruijie# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# content-object name1 Ruijie(content-obj-config)# keyword hello Ruijie(content-obj-config)# regexp .*\.163\.com Ruijie(content-obj-config)# end

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26.1.12 mail-rule audit-default-enable

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mail-rule audit-default-enable

no mail-rule audit-default-enable

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Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule priority-swap 10 20
Ruijie(cont-plcy-config)# end

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26.1.15 mail-rule rule-id subscriber

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mail-rule rule-id **subscriber** {subs-name | **any**} **time-range** time-name [**direction** {**in | out | double**}] **action** {**permit | deny**} [**audit**] [**comment** comment-string]

no mail-rule rule-id

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rule-id	MAIL 8 ‡ ID ˘ ч ḣ ˆ 1~200˜
subs-name	MAIL ‡ ˝Ω
time-name	MAIL ‡
comment-string	MAIL ‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule 1 subscriberanytime-ra ngeany
action permit audit comment mail-audit-1
Ruijie(cont-plcy-config)# mail-rule 1 relationorfrom OBJ-F subject
OBJ-S attachement-size less 20000
Ruijie(cont-plcy-config)# end
```

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26.1.16 mail-rule rule-id relation

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mail-rule rule-id **relation** {**and** | **or**} [**from** content-object-name1] [**to** content-object-name2] [**subject** content-object-name3] [**body** content-object-name4] [**attachment-name** content-object-name5] [**mail-size** {**greater** | **greater-equal** | **less** | **less-equal**} file-size]

no mail-rule rule-id

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rule-id	MAIL ⁸ ‡ ID ˘ ∧ ḣ ﺯ 1~200˜
content-object-name1	∧ ˚ ж ƹΩ ˘ a ɒ Â
content-object-name2	˚ ж ƹΩ ˘ a ɒ Â

content-object-name3	˚	Ὼ ˘ a ҕ	Â
content-object-name4	˚ ӧ	Ὼ ˘ a ҕ	Â
content-object-name5	˚ ¨	Ὼ ˘ a ҕ	Â
file-size	˚	ḣ˘ й ˘ ` æ й KBytes	

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regexp	‴Ω ‡ ˘ ñ ‡

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У э ӫ ˘ ˆ ӗ ‴Ω hello n ‡ ѓ .163.com

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-object     name1
Ruijie(content-obj-config)# keyword  hello
Ruijie(content-obj-config)# regexp  .*\.163\.com
Ruijie(content-obj-config)# end
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26.1.18 telnet-rule audit-default-enable

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26.1.20 telnet-rule priority-swap

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telnet-rule priority-swap rule-id1 rule-id2

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rule-id1	‡ 1 -94.5 470.18 0k158 ref169.26

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26.1.21 telnet-rule rule-id

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26.1.22 web-bbs-rule audit-default-enable

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web-bbs-rule audit-default-enable

no web-bbs-rule audit-default-enable

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Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-bbs-rule audit-default-enable
Ruijie(cont-plcy-config)# end

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rule-id1	‡ 1 ID
rule-id2	‡ 2 ID

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comment-string WEB BBS

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Ruijie# configure terminal
Ruijie(config)# content-policy      POLICYA
Ruijie(cont-plcy-config)# web-mail-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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26.1.27 web-mail-rule delete-all

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Ruijie(config)# content-policy      POLICYA
Ruijie(cont-plcy-config)# web-mail-rule delete-all
Ruijie(cont-plcy-config)# end
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26.1.28 web-mail-rule priority-swap

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web-mail-rule priority-swap rule-id1 rule-id2

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rule-id1	‡ 1 ID
rule-id2	‡ 2 ID

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```
Ruijie# configure terminal
Ruijie(config)# content-policy      POLICYA
Ruijie(cont-plcy-config)# web-mail-rule priority-swap      10 20
Ruijie(cont-plcy-config)# end
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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy      POLICYA
Ruijie(cont-plcy-config)# web-mail-rule     1 subscriber any
time-range any action permit audit comment              mail-audit-1
Ruijie(cont-plcy-config)# web-mail-rule     1 relation or from        OBJ-F
subject   OBJ-S mail-size     less 20000
Ruijie(cont-plcy-config)# end
```

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26.1.31 web-search-rule audit-default-enable

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web-search-rule audit-default-enable

no web-search-rule audit-default-enable

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```
Ruijie(cont-plcy-config)# web-search-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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26.1.32 web-search-rule delete-all

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Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-search-rule delete-all
Ruijie(cont-plcy-config)# end
```

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26.1.33 web-search-rule priority-swap

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web-search-rule priority-swap rule-id1 rule-id2

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∢	rule-id1	‡ 1 ID
	rule-id2	‡ 2 ID

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26.1.34 web-search-rule rule-id

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web-search-rule rule-id **subscriber** {subs-name | **any**} **time-range** time-name [**content** content-object-name] **action** {**permit | deny**} [**audit**

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2010-5-1ⁱ 2010-5-7 ÿ 09 ⁱ 18 ˘ USERA FTP Э·
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Ruijie# **show ftp-audit stat day-interval** 2010 5 1 **to** 2010 5 7 **hour-interval** 9 **to** 18 **subscriber** USERA **direction out**

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rule-name	˚ ‘ Ѳ ‡ ‟
Integer1	´ è Æ

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26.2.3 show im-audit stat

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show im-audit stat {**recent** hours **| time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss **| day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**direction** {**in | out | double**}] [**type** {**qq | msn**}] [**message** keyword] [**account** account-string] [**rule-name** rule-name] [**ip** ip-address] [**permit | deny**]

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Ruijie# **show im-audit detail day-interval** 2010 5 1 **to** 2010 5 7 **hour-interval** 9 **to** 18 **subscriber** USERA **type msn order-by time desc start-item** 1 **end-item** 20

==========

Time: 2010-05-03 15:45:59

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show mail-audit stat {**recent** hours | **time-range**

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26.2.6 show mail-audit detail

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show mail-audit detail {**recent** hours **| time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss **| day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**ip** addr] [**direction** {**in** | **out** | **double**}] [**from** keyword1] [**to** keyword2] [**subject** keyword3] [**rule-name** rule-name] [**permit | deny**] **order-by** {**time | subscriber** | **internal-ip** | **direction** | **send-mail-addr | mail-size**} {**asc** | **desc**} [**start-item** integer **end-item** integer]

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hours	
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hh:mm:ss	˛
hour1	˚ ‘
hour2	˚ ‘
hour3	˚ ‘
hour4	˚ ‘
intf-name	ﻫ¨
bridge-num	ﻫ
subs-name	˚ ‘ ¨ ˘ Ъ ’ ə ¨ ľ , Ł
addr	˚ ‘ IP˘ Ъ ’ ə IP ľ , Ł
keyword1	˚ ‘ ˚ ٧ ˇΩ
Keyword2	˚ ‘ ˚ ˇΩ
Keyword3	˚ ‘ ˚ ў ˇΩ
rule-name	˚ ‘ Ъ ‡¨
Integer1	ˊ è Æ
integer2	ˊ è Æ

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2010-10-10¦ 2010-10-14 ÿ 09 ¦ 18 ˘ USERA ˚ ą Â

Ruijie# **show mail-audit detail day-interval** 2010 10 10 **to** 2010 10 14 **hour-interval** 9 **to** 18 **subscriber** USERA **order-by time desc start-item** 1 **end-item** 20

Timestamp Rand-ID Time Subscriber Direction App-Type

Send/Receive-Time Sender Receiver

Subject Mail-Size Attach-Num

Rule Action Match-Keyword Body-Path

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1287027112 1686175891 2010-10-14 11:31:52 /USERA out SMTP

Thu, 14 Oct 2010 11:31:33 +0800 nabi2006@126.com nabi2006@126.com baicai2010@tom.com

E 136282 0

default-audit permit From:,To:,Subj:,Body:,Attach: mnt/sata/c/mail/10/2010-10-14-11-31-52.html

1287026348 253667735 2010-10-14 11:19:08 /USERA out SMTP

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deny-all deny From:,To:,Subj:,Body:,Attach:

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26.2.7 show mail-audit attachment-info

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show mail-audit attachment-info timestamp timestamp **rand-id**

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	timestamp	
	49 --id	id

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timestamp й 1286849291˘ **rand-id** й 1087821567 ˚ ˚ ą Â
Ruijie#**show mail-audit attachment-info timestamp** 1286849291 **49 --id** 1087821567
w R Size(Byte) Path
========== =
80646 mnt/sata/c/mail/10/unknown(09-01-19-44-40).gif
150528 mnt/sata/c/mail/10/˘Ω ¥ У Ш ı ө ╟ (3).doc

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26.2.8 show telnet-audit stat

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show telnet-audit stat {**recent** hours **| time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss **| day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**ip** addr] [**direction** {**in** | **out** | **double**}] [**content** keyword] [**rule-name** rule-name] [**permit | deny**]

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hours	
yyyy mm dd	
hh:mm:ss	ϯ
hour1	˚ ‘
hour2	˚ ‘
hour3	˚ ‘
hour4	˚ ‘
intf-name	ϰ¨
bridge-num	ϰ
subs-name	˚ ‘ ¨ ˘ Ə ’ ə ¨ l’ , Ł
addr	˚ ‘ IP˘ Ə ’ ə IP l’ , Ł
keyword	˚ ‘ ˇΩ
rule-name	˚ ‘ Ə ‡¨

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2010-5-1ϯ 2010-5-7 ÿ 09 ϯ 18 ˘ USERA TELNET ə Â

Ruijie# **show telnet-audit stat day-interval from** 2010 5 1 **to** 2010 5 7 **hour-interval from** 9 **to** 18 **subscriber** USERA

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26.2.9 show telnet-audit detail

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show telnet-audit detail {**recent** hours | **time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss | **day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**ip** addr] [**direction** {**in** | **out** | **double**}] [**content** keyword] [**rule-name** rule-name] [**permit | deny**] **order-by** {**time** | **subscriber** | **internal-ip | external-ip** | **direction**} {**asc** | **desc**} [**start-item** integer **end-item** integer]

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hours	
yyyy mm dd	
hh:mm:ss	ϯ
hour1	˚ ‹
hour2	˚ ‹
hour3	˚ ‹
hour4	˚ ‹
intf-name	ѵ‟
bridge-num	ѧ
subs-name	˚ ‹ ‟ ˘ Ē ’ ə ‟ l’ , Ł
addr	˚ ‹ IP˝ Ē ’ ə IP l’ , Ł
keyword	˚ ‹ ˜Ω
rule-name	˚ ‹ Ē ‡‟
Integer1	ˊ è Æ
integer2	ˊ è Æ

Ъ ҷ

G

w R ‘

2010-10-1⍞ 2010-10-15 ÿ 09 ⍞ 18 ˇ USERA TELNET
ə Â

Ruijie# **show telnet-audit detail day-interval** 2010 5 1 **to** 2010 5 7 **hour-interval** 9 **to** 18 **subscriber** USERA **order-by time desc start-item** 1 **end-item** 20

Timestamp Rand-ID Time
Subscriber Direction

Internal-IP External-IP Internal-Port External-Port

Rule Action Content
Match-Keyword

Path

==========
==========

w R

1287110493 564732062 2010-10-15 10:41:33 /USERA
out

192.168.11.91 192.168.78.1 2343 23

default-audit permit admin

mnt/sata/c/telnet/10/1287110493.txt

1287110493 564732062 2010-10-15 10:41:33 /USERA
out

192.168.11.91 192.168.78.1 2343 23

default-audit permit en

mnt/sata/c/telnet/10/1287110493.txt

¥ ¥ ¥ ¥ ¥ ¥

[redacted]

¥ ¥ ¥ ¥ ¥ ¥

Ѣ ҁ ϒ ϗ	ϗ	
	10.3(4t76)	Ѣ ҁ

26.2.10 show web-bbs-audit stat

ϒ ϗ WEB BBS ҽ

show web-bbs-audit stat {**recent** hours **| time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss **| day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**ip** ip-list] [**content** keyword] [**rule-name** rule-name] [**permit | deny**]

rule-name

Ruijie# show web-bbs-audit stat day-interval 2010 10 14 to 2010 10 14 subscriber USERA

1

Ъ ҳ	
-	-

EG ‟ ң ث ﷺ

∕	
10.3(4t76)	Ъ ҳ

26.2.11 show web-bbs-audit detail

\ ∕ WEB BBS ə

show web-bbs-audit detail {**recent** hours **| time-range from** yyyy mm dd hh:mm::ss **to** yyyy mm dd hh:mm:ss **| day-interval** yyyy mm dd **to** yyyy mm dd [**hour-interval** hour1 **to** hour2 [hour3 **to** hour4]]} [**interface** intf-name **| bridge** bridge-num] [**subscriber** subs-name] [**ip** ip-list] [**content** keyword] [**rule-name** rule-name] [**permit | deny**] **order-by** {**time** | **subscriber** | **inter**

rule-name

Ѣ ҳ ѵ ѧ	ѧ	
	10.3(4t76)	Ѣ ҳ

26.2.12 show web-mail-audit stat

ѵ ѧ WEB ҁ

show web-mail-audit stat {**recent** hours | { { # 4 - c 2 r A 1

Ruijie# 50

Ъ ҳ

Ъ ҷ

G

w R ‘

2010-5-1¦ 2010-5-7 ÿ 09 ¦ 18 ˘ USERA ˚ ą Â

Ruijie# **show web-mail-audit detail day-interval** 2010 5 1 **to** 2010 5 7 **hour-interval** 9 **to** 18 **subscriber** USERA **order-by time desc start-item** 1 **end-item** 20

==========
==========

Timestamp: 1289513962

Rand-id: 991447375

Time: 2010-11-12 06:19:22

Subscriber: /192.167.101.63

Direction: out

App-Type: webmail

Send/Receive-Time:

w R

Sender: 15483314@qq.com

Receiver: "starnet_111"<starnet_111@sina.cn>

Subject: content

Mail-Size: 5545

Rule: webmail

Action: permit

Match-Keyword: [From][To][Subject][Body]

Body-Path: /mnt/sata/c/webmail/3/2010-11-12-6-19-22-101061.html

url: m409.mail.qq.com/cgi-bin/compose_send

==========
==========

¥ ¥ ¥ ¥ ¥ ¥

ЪЪ ҳ	Ъ ҳ	
	-	-

ʌ	EG ‟ ң ث ڤ

Ъ ҳ ٧ ʌ	ʌ	
	10.3(4t76)	Ъ ҳ

26.2.14 show web-search-audit stat

٧ ʌ WEB ə

show web-search-audit stat {recent

w R '

w R

2010-5-1ˆ 2010-5-7 ÿ 09 ˆ 18 ˇ USERA WEB-SEARCH ə Â

Ruijie# **show web-search-audit stat day-interval** 2010 5 1 **to** 2010 5 7 **hour-interval** 9 **to** 18 **subscriber** USERA

Ruijie# 50

##

ʌ	EG ‟ ҥ ث ﷺ

Ъ ҳ ∨ ʌ	ʌ	
	10.3(4t76)	Ъ ҳ

1 hF… ÚÖh*ü#A

27

27.1

27.1.1 ping

Ъ ҳ ˘ Л Ц ╠ à Æ è
Â Ъ ҳ Ю

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

ˇ ˇ ɒ ping ╖ У ˇ ɨ ≠ У э ə Â G
ﻩ ╖ ˇ ‡ ˝I ﻩ ┺ ﻭ ˇ é E ↙ DNS ǀ Â

ð w R Ô

ping R '

```
Ruijie# ping 0
Sending 5, 100-byte ICMP Echoes to 192.168.5.1, timeout is 2
seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max =
1/2/10 ms
```

ping R '

Ruijie# ping 0 length 0 ntimes 0 timeout 3 data
f source 0

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

ð Л Ô

Ъ ҳ ﬠ Э ﻫ Â

27.1.2 Traceroute

traceroute Ъ ҳ˘ Л Ћ ¥ ˆ ÿ ﻛ ﻫ ﻛ ﻫ
˜Ω.

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

ð ↙ Ô

↙	
vrf-name	VRF ˝
Ip-address	IPv4 ﻛ ﻫ Â

number	∧
source-address	IPV4 ﻫ ﻙ
seconds	
minimum maximum	p TTL ḣ

ð Ъ ҳ Ô

ð ᴳ ˙ Ô

traceroute Ъ ҳ ў ¥ ˘ ﬡ ∧ ˘ ñ Æ ∧ Æ Â ᴳ ﻫ ˟ ˘ ‡ ”I ﻫ ˟ ᵾ ˘ é ᴇ ∢ DNS ↑ Â

ð w ᴿ Ô

ЛЬЮ й traceroute ч э ᴿ ˘ У э й ˘ У э й ﬡ ҉ Ω a α Â

1 à traceroute ᴿ ‘

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

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

ÿ Э ˘ ∧ Лъ ﻙ ↑ ˘ ÿ ﻙ ﻫ IP ﻙ ﻫ й 61.154.22.36 ў ˘ ɑ ∖ ҉ Ω 1˙ 6˜ ˘ ˇ ɑ↑ Ω ˘ ¥ ↑ ˘ Â

2 à è ҉ Ω a traceroute ᴿ ‘

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

1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2       0 msec  4 msec 4 msec
```

```
3     192.168.110.1    16 msec  12 msec  16 msec
4     *  *  *
5     61.154.8.129     12 msec  28 msec  12 msec
6     61.154.8.17       8 msec  12 msec  16 msec
7     61.154.8.250     12 msec  12 msec  12 msec
8     218.85.157.222   12 msec  12 msec  12 msec
9     218.85.157.130   16 msec  16 msec  16 msec
10     218.85.157.77   16 msec  48 msec  16 msec
11     202.97.40.65    76 msec  24 msec  24 msec
12     202.97.37.65    32 msec  24 msec  24 msec
13     202.97.38.162   52 msec  52 msec  224 msec
14     202.96.12.38     84 msec  52 msec  52 msec
15     202.106.192.226   88 msec  52 msec  52 msec
16     202.106.192.174   52 msec  52 msec  88 msec
17     210.74.176.158   100 msec  52 msec  84 msec
18     202.108.37.42    48 msec  48 msec  52 msec
Ruijie#
```

ÿ Э ˘ Л Љ ѕ ⌡ ˘ ÿ ѕ ѫ IP ѕ ѫ ѝ 202.108.37.42 ў ˘
ˆ ѓ ≀ Ҷ ℨ 1̇ 17˜ ˘ з ℨ 4 ѓ Â

Ruijie# traceroute ў

Translating " ў "...[OK]
< press Ctrl+C to break >
Tracing the route to 64.170.98.32

```
1     192.168.217.1   0 msec  0 msec  0 msec
2     10.10.25.1        0 msec  0 msec  0 msec
3     10.10.24.1        0 msec  0 msec  0 msec
4     10.10.30.1        10 msec 0 msec  0 msec
5     218.5.3.254       0 msec  0 msec  0 msec
6     61.154.8.49       10 msec 0 msec  0 msec
7     202.109.204.210    0 msec  0 msec  0 msec
8     202.97.41.69      20 msec 10 msec 20 msec
9     202.97.34.65      40 msec 40 msec 50 msec
10    202.97.57.222     50 msec 40 msec 40 msec
11    219.141.130.122    40 msec 50 msec 40 msec
12    219.142.11.10     40 msec 50 msec 30 msec
13    211.157.37.14     50 msec 40 msec 50 msec
14    222.35.65.1       40 msec 50 msec 40 msec
15    222.35.65.18      40 msec 40 msec 40 msec
16    222.35.15.109     50 msec 50 msec 50 msec
17    *      *      *
18   64.170.98.32     40 msec 40 msec 40 msec
```

ð Л Ô

Ъ ҳ ف Э ﷺ Â

28 DHCP

28.1 DHCP

28.1.1 bootfile

Ня DHCP í ╠ ę ˚ ¨ ˘ DHCP ѫ ѭ Ъ ъ **bootfile** Â
Ъ ъ **no** Л Ц ч Ня Â

bootfile file-name

no bootfile

ð ч Ô

ч	
file-name	Ня ұ í ╠ ˚ ¨ Â

ð ą Ô

Ня í ╠ ˚ ¨ Â

ð Ъ ъ Ô

DHCP ѫ ѭ

ð G ˚ Ô

Ч DHCP ѯ í ╠ è Ю ɔ à ˚ ˘ DHCP Ь ѱ
k í ╠ ę ˚ ¨ ˘ DHCP Л Ц Ь ѱ^
TFTP˜ Ю ˚ Â è Ь ѱ **next-server** Ъ ъ Ня Â

ð w R Ô

Л Ю R ˘ Ня ѧ router.conf ɔ ѝ í ╠ ˚ ¨ Â

```
bootfile router.conf
```

ð Ѿ Ъ ъ Ô

Ъ ъ	
ip dhcp pool	Ня DHCP ѫ ѭ ¨ ˘ ώ DHCP ѫ ѭ Â
next-server	DHCP í ╠ Ю У э Ь ѱ IP ѫ ѭ Â

28.1.2 client-identifier

Ƙ DHCP ʤ У ˆ Л π Ώ ⁸ ˜ ˘ DHCP ѕ ѫ
Ƃ ɂ **client-identifier** Â Ƃ ɂ **no** ʌ Лʊ Â

client-identifier unique-identifier

no client-identifier

ð ч Ô

ч	
unique-identifier	DHCP ˘ Л π Ώ ⁸ Â 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 Â

ð ą Ô

ḣ Â

ð Ƃ ɂ Ô

DHCP ѕ ѫ

ð ᴳ ˀ Ô

Ҷ DHCP DHCP Ь ʭ IP ѕ ѫ ˘ ˀ ѕ ѫ
ɂ Â Ў ɕ à MAC ѕ ѫ n ʌ ˘ MAC ѕ
ѫ и 00d0.f822.33b4 à ʌ и GigabitEthernet 0/1 и
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 è è 01 ɂ
Л Ў ɕ
67.6967.6162.6974.4574.6865.726e.6574.302f.31 и
GigabitEthernet0/1 π Ώ ⁸ Â Ω ɣ Ў ɂ Ƙ ʌ Л ч RFC1700
ľ Address Resolution Protocol Parameters Ŀ Â

ʌ ƒ DHCP Ƙ ˘ ʌ Л ᴳ Ƃ ɂ Â

ð w ᴿ Ô

ЛЮ ᴿ ˘ Ƙ ɢ MAC ѕ ѫ и 00d0.f822.33b4 Л DHCP
Â

```
client-identifier
```

Ъ ч	
hardware-address	Ж DHCP ˚ к м Â
host	Ж IP к м р Â ц DHCP Â
ip dhcp pool	Ж DHCP к м ¨ ˘ ώ DHCP к м Â

28.1.3 client-name

Ж DHCP ¨ ˘ DHCP к м Ъ ч **client-name** Â Ъ ч no ¦ DHCP ¨ Â

client-name client-name

no client-name

ð ч Ô

ч	
client-name	Ж DHCP ¨ Â Л Лъ ˙ ¡ ñ ASCII Â¨ a ^ ł ж¨ ˘ Ж river ù DHCP ¨ ˘ a Ж ù river.i-net.com.cn Â

ð ą Ô

Ж ¨ Â

ð Ъ ч Ô

DHCP к м

ð G ˚ Ô

Л ф DHCP Ж ˘ Л Лъ ¯ Ъ ч Ж DHCP ¨ Â ¨ a ^ ł ж¨ Â

ð w R Ô

ЛъЮ R ˘ Ж ą У э s river ↄ ù ¨ Â

```
client-name river
```

ð Ъ Ъ ч Ô

Ъ ч	

host	Ьж IP ак ан n Â ц DHCP Â
ip dhcp pool	Ьж DHCP ак ан ¨ ˇ ώ DHCP ак ан Â

28.1.4 default-router

Ьж DHCP ЎЖ DHCP ак ан Ъ ъ **default-router** Â Ъ ъ **no** Л Лђ ЎЮ Ьж Â

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

no default-router

ð ч Ô

ч	
ip-address	Ьж IP ак ан Â У э Â
ip-address2 ip-address8	^ Л ~ Л Лђ 8 э ЎЮ Â

ð q Ô

Ьж ЎЮ Â

ð Ъ ъ Ô

DHCP ак ан

ð G ' Ô

У q Ю DHCP ÿ DHCP Ь ъЂ ЎЮ ә Â DHCP Ь ъЂ й У э ЎЮ IP ак ан ˇ ак ан б ¦ ак ан ж ˇ У э Â

ð w R Ô

ЛЬЮ R ˇ Ьж ¢ 192.168.12.1 ↄ й ЎЮ Â

```
default-router 192.168.12.1
```

ð ЎЮ Ъ ъ Ô

Ъ ъ	
ip dhcp pool	Ьж DHCP ак ан ¨ ˇ ώ DHCP ак ан Â

28.1.5 dns-server

HX DHCP DNS ʟ ʊ̆ DHCP ﻛ ﻫ Ƃ ɝ **dns-server** Â
Ƃ ɝ **no** ʌ ʃ Ɓ̄ DNS ʟ ʊ̈ HX Â

dns-server { ip-address [ip-address2 ip-address8] |
use-dhcp-client interface-type interface-number }

no dns-server

ð ɻ Ô

ɻ	

ip-address

ip dhcp pool	Н DHCP м н ¨ ˇ ώ DHCP м н Â

28.1.6 domain-name

Н DHCP ł ж¨ ˇ DHCP м н Ъ ђ **domain-name** Â Ъ ђ **no** Л Лў ł ж¨ Â

domain-name domain-name

no domain-name

ð ч Ô

ч	
domain-name	Н DHCP ł ж¨ s Â

ð ą Ô

ł ж¨ Â

ð Ъ ђ Ô

DHCP м н

ð G ' Ô

DHCP ґ ł ж¨ ł˘ é ˚ ł ж¨ ў ˘ ў ¨ Л Лъ ґ Â

ð w R Ô

ЛъЮ R ˘ DHCP Н ґ ł ж¨ i-net.com.cn Â

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

ð Ъ Ъ ђ Ô

Ъ ђ	
dns-server	Н DHCP DNS ъ ѓ
ip dhcp pool	Н DHCP м н ¨ ˇ ώ DHCP м н Â

28.1.7 hardware-address

Ня DHCP ° ак ан˘ DHCP ак ан Ъ ч **hardware-address** Â
Ъ ч **no** Л Лч° ° ак ан Ня Â

hardware-address hardware-address type

no hardware-address

ъ ч Ô

ч	
hardware-address	Ня DHCP MAC ак ан Â
type	DHCP ° Л˜ ˘ Л Лч s Ня Â s ‘ ethernet ieee802 ‘ 1ˆ 10M ethernet˜ 6ˆ IEEE 802˜

ъ ц Ô

° ак ан Â

Ня ° ак ан ˘ ий ethernet Â

ъ Ъ ч Ô

DHCP ак ан

ъ G ’ Ô

Л фф DHCP Ня ˘ Л Лч G Ъ ч Â

ъ w R Ô

ЛчЮ R ˘ Ня ф ъщ ий ethernet MAC ак ан 00d0.f838.bf3d Â

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

ъ ЎЪ ч Ô

Ъ ч	
client-identifier	Ня DHCP ъЎ У ^ Лч п Ґ 8 ˜ Â
host	Ня IP ак ан р Â ў DHCP Â
ip dhcp pool	Ня DHCP ак ан ¨ ˘ ю DHCP ак ан Â

28.1.8 host

Ҥ DHCP ў IP ѫ ѧ ҧ ˘ DHCP ѫ ѧ Ѣ ҁ **host** Â
Ѣ ҁ **no** ʌ Ћҭ DHCP IP ѫ ѧ ҧ Ҥ Â

host ip-address [netmask]

no host

ð ч Ô

ч	
ip-address	Ҥ DHCP ў IP ѫ ѧ Â
netmask	Ҥ DHCP ў Â

ð ą Ô

Ҥ ў IP ѫ ѧ ҧ Â

ð Ѣ ҁ Ô

DHCP ѫ ѧ

ð G ʾ Ô

Ҥ˘ DHCP ᶣ ئۇ ¯ IP ѫ ѧ ÂA
ѫ ѧ й 255.0.0.0’ B ѫ ѧ й 255.255.0’ C ѫ ѧ й 255.255.255.0 Â

ʌ ҂ DHCP Ҥ ˘ ʌ Ћ G Ѣ ҁ Â

ð w R Ô

ЛЬЮ R ˘ IP ѫ ѧ й 192.168.12.91˘ й ó 255.255.255.240 Â

```
host 192.168.12.91 255.255.255.240
```

ð Ѽ Ѣ ҁ Ô

Ѣ ҁ	
client-identifier	Ҥ DHCP ڈ У ˆ Ћ ҧ π Ѽ 8 ˜ Â

DHCP Ѣ ३

↓	
number	ˆ Л ˜ нг ÿ 0↑ 10˝ 0 ˇΩ ping ↄ Â ping ч э ˆ Â

ð α Ô

ping ˆ Л й 2 Â

ð Ѣ ҂ Ô

ŏ̈

ð ᴳ ˚ Ô

DHCP ┗ ÿ DHCP ѕ ѕ è ﻲ IP ѕ ѕ ˘ ˛ ping ↄ ѕ ѕ
ŭ̈ è ў . ˘ . Ю ˘ . ↑ DHCP Â
Ping ↄ й Ν ч э ˆ˘ ЛЪΝ 10 э ˆ Â

ð w ᴿ Ô

ЛЪЮ ᴿ ˘ ping ↄ Ν ˆ й 3 э Â

```
ip dhcp ping packets 3
```

ð ˇΩѢ ҂ Ô

Ѣ ҂	P2ˆQS-QSb‧

milli-seconds	DHCP ┗ ؤ ping ^ Л ~ Â ヘ ḣ ز ѝ 100 ⁞ 10000 Â

ð ą Ô

ѝ 500 Â

ð Ъ ҳ Ô

ѽ

ð G ' Ô

Ж У э ping ^ Â

ð w R Ô

ЛЬЮ R ˘ ping ^ ѝ 600ms Â

```
ip dhcp ping timeout 600
```

ð Ѿ Ъ ҳ Ô

Ъ ҳ	
clear ip dhcp conflict	DHCP ヽ ヘ ă Â
ip dhcp ping packets	Ж DHCP ┗ ؤ ⁞ ه ك ˘ ه ك ă ping ɔ ヘ ^ э Â
show ip dhcp conflict	DHCP ┗ ؤ ⁞ ه ك ˘ ⁞ ه ك ă Â

Н DHCP к м Â

ð Ъ ч Ô

ώ

ð G ' Ô

Ъ ч˘ ˚ ώ DHCP к м ˘ й'

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

ж э è˘ Л Ъ IP к м нг à DNS ┗ ю à ˇΩ ч Â

ð w R Ô

ЛЪЮ R ˘ НК ¢ У э¨ й mypool0 DHCP к м Â

```
ip dhcp pool mypool0
```

ð ˇΩЪ ч Ô

Ъ ч	
host	Н IP к м n Â ¥ DHCP Â
ip dhcp excluded-address	Н DHCP ┗ ю a ˆ IP к м Â
networkˆ DHCP˜	Н DHCP к м ч n Â

28.1.14 lease

Н DHCP ┗ ю¦ к м ˘ DHCP к м **иoP Ъ d leasP**

minutes	^ Л ~ НЖ ˇ Лъ¦ й ` Æ Â НЖ¦ ɱ НЖ n Â
infinite	НЖ 8 Â

ð α Ô

й У Â

ð Ъ ч Ô

DHCP ѕ ѡ

ð G ˚ Ô

ĵ ˇ DHCP ˛ Л ÂDHCP Ь ѱ У ˛ ĭ ˇ ѕ ѡ ɖ a Л Â

ð w R Ô

ЛЬЮ R ˇ DHCP й 1 Â

```
lease 0 1
```

ЛЬЮ R ˇ DHCP й 1¦ Â

```
lease 0 0 1
```

ð ΏЪ ч Ô

Ъ ч	
ip dhcp pool	НЖ DHCP ѕ ѡ ¨ ˇ ώ DHCP ѕ ѡ Â

28.1.15 netbios-name-server

DHCP NETBIOS WINS¨ Ь ѱˇ DHCP ѕ ѡ Ъ ч **netbios-name-server** Â Ъ ч no Л Лъ¦ WINS Ь ѱ Â

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

no netbios-name-server

ð Л Ô

Л	
ip-address	НЖ WINS Ь ѱ IP ѕ ѡ Â У э Â

ip-address2 ip-address8	^ Л ~ Л Л Ъ 8 э WINS Ь ѓ Â

ð ą Ô

Ж WINS Ь ѓ Â

ð Ъ ҳ Ô

DHCP ѕ ћ

ð G ' Ô

Ж э WINS Ь ѓ ˘ ї ћ ѓ ћ . ″I ˘ DHCP Л б ћ ѓ ћ
WINS Ь ѓ ˘ ¸ Ю У э WINS Ь ѓ Â

ð w R Ô

Л Ъ Ю R ˘ й DHCP ѓ WINS Ь ѓ 192.168.12.3 Â

```
netbios-name-server 192.168.12.3
```

ð Ъ Ъ ҳ Ô

Ъ ҳ	

type	ЊЖ NetBIOS ҕшЎ ч Â ЊЖ˘ тт ÿ 0~FF˘ π Ѡ ⁸ ˘ п Л ЛЬЮ h˙ˋ 1˘ ҁ b-node’ 2˘ ҁ p-node’ 4˘ ҁ m-node’ 8˘ ҁ h-node Â s ЊЖˋ b-node˘ ҕш ’ p-node˘ ҕш ’ m-node˘ ˝ ҕш ’ h-node˘ ˝ ҕш Â

ð ą Ô

ЊЖ NetBIOS ҕш Â

ð Ѣ ҁ Ô

DHCP ѫ ѭ

ð ᴳ ’ Ô

DHCP NetBIOS ҕш тм ‘ 1˘ Broadcast˘ ҕш ˘
NetBIOS ¨ ’ 2˘ Peer-to-peer˘ ҕш ˘
WINS Ь ѱ NetBIOS ¨ ’ 3˘ Mixed˘ ˝ ҕш ˘ ˝I
¨ ˘ ł б WINS Ь ѱ ¨ ’ 4˘ Hybrid˘ ˝ ҕш
˘ ˝I WINS Ь ѱ NetBIOS ¨ ˘ ˛ ˘
NetBIOS ¨ Â

ą Ю˘ ɔ ҕш й ҕш ˝ ҕш Â WINS
Ь ѱ˘ й ҕш ’ ц Ь ѱ˘ α

28.1.17 network DHCP

Ьж DHCP ак ан л р ˘ DHCP ак ан Ъ ъ **network** Â Ъ ъ **no** л Лъ Ьж Â

network net-number net-mask

no network

ð ч Ô

ч	
net-number	DHCP ак ан IP ак ан л Â
net-mask	DHCP ак ан IP ак ан Â Ьж ˘ ѝ Â

ð ą Ô

Ьж л р Â

ð Ъ ъ Ô

DHCP ак ан

ð G ' Ô

Ьж ак ан ч è ˘ ѝ DHCP Ь ئؤ k ѓ У э л ак ан Â ак ан ˘ ŭ ‡ ак ан è ак ан л Â DHCP ѓфў ак ан è ак ан˘ ˘ ак ан ѓф DHCP è ў ак ан ѓф è ѓф˘ Ю У э ак ан˘ ў ў У э ак ан Â

ак ан ў ą л **show ip dhcp binding** Ъ ъ ˘ ак ан ă ą л **show ip dhcp conflict** Ъ ъ Â

ð w R Ô

Лъ Ю R ˘ Ьж ѓ DHCP ак ан л ѝ 192.168.12.0˘ ѝ

ip dhcp pool	Н DHCP к ш ў ю DHCP к ш Â

28.1.18 next-server

Н DHCP í ╠ è í ╠ ╘ ю " ў DHCP к ш
Ъ ч **next-server** Â Ъ ч **no** Л Лт í ╠ ╘ ю " Н Â

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

no next-server

ð ч Ô

ч	
ip-address	Н í ╠ ╘ ю IP к ш ў й TFTP ╘ ю Â У э Â
ip-address2 ip-address8	^ Л ~ Л Лъ 8 í ╠ ╘ ю Â

ð α Ô

Â

ð Ъ ч Ô

DHCP к ш

ð G ' Ô

Н э í ╠ ╘ ю ў ђ ф м . ў I ў DHCP Л б ф м í
╠ ╘ ю ў ¸ Ю У э í ╠ ╘ ю Â

ð w R Ô

ЛЪЮ R ў й DHCP ф í ╠ ╘ ю 192.168.12.4 Â

```
next-server 192.168.12.4
```

ð Ω Ъ ч Ô

Ъ ч	
bootfile	Н DHCP í ╠ ę ¸ ¨
ip dhcp pool	Н DHCP к ш ¨ ў ю DHCP к ш Â
ip help-address	Л Н Helper к ш
option	RGOS ¸ DHCP ╘ ю Â

DHCP Ѣ ३

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

ъ Ъ ч Ô

Ъ ч	
ip dhcp pool	DHCP Â

28.1.20 service dhcp

Э í DHCP ┗ п è ч ў ў Ъ ч **service dhcp** Â
Ъ ч **no** Л Ъ DHCP ┗ п è ч Â

service dhcp

no service dhcp

ъ ч Ô

ъ α Ô

DHCP ┗ п è ч Â

ъ Ъ ч Ô

ў

ъ ▪ ' Ô

DHCP ┗ Л Ъ ╟ ї 4 V+ E 9 a1 E +

D H C P

D H C P @ F @ K ° K r • ¢ „ Ñ _ ° @

ð ч Ô

ч	
*	ĩ DCHP ک ھ ă Â
ip-address	ĩ IP ک ھ ă Â

ð ą Ô

ѝ Â

ð Ƃ ҳ Ô

ð ᴳ ˀ Ô

DHCP ㄴ ۓ ک ھ ă ping ˬ ˇ DHCP ĩ ک ھ ăᴴ ک ھ | ڃ ° º ᴍ

Â ک ھ ă Â

ð G ' Ô

DHCP ┗ ЮЁ ˇ ¢ DHCP ме нн à ╟ à ˇ n ∧ DHCP ┘ ¢ Â **clear ip dhcp server statistics** Ъ ъ Л Лў ∨ ∧ ˇ ÿ Â

ð w R Ô

ЛЬЮ R ˇ DHCP ┗ ЮЁ Â

```
clear ip dhcp server statistics
```

ð ЎЩ ъ Ô

Ъ ъ	
show ip dhcp server statistics	DHCP ┗ ЮЁ Â

28.2.4 debug ip dhcp client

DHCP Client ˇ фх **debug ip dhcp client** Ъ ъ Â

debug ip dhcp client

no debug ip dhcp client

ð ∨ Ô

ð ¤ Ô

ЎΩ

ð Ъ ъ Ô

ð G ' Ô

Ъ ъ ч dhcp client фх ч ┗ ЮЁ Ц ц è ў ¤ ˇ ЛЬ ∨ Â

ð w R Ô

ЛЬЮ R ˇ Э dhcp ЎΩ Â

```
debug ip dhcp client
```

ð ЎЩ ъ Ô

28.2.5 debug ip dhcp server

DHCP Server ˘ ƒƨ **debug ip dhcp server** Ъ ъ Â

debug ip dhcp server

no debug ip dhcp server

ð ↓ Ô

ð ą Ô

˜Ω

ð Ъ ъ Ô

ð ᴳ ˚ Ô

Ъ ъ ¥ dhcp server ƨƒ ¥ Ђ ц è ў ą˙ ˘ Л ↓ Â

ð w ᴿ Ô

ЛЊО ᴿ ˘ Э dhcp ┗ ƣƣ ˜Ω Â

```
debug ip dhcp server
```

ð ˜ΩЪ ъ Ô

28.2.6 show dhcp lease

DHCP ą ˘ EXEC Ъ ъ **show dhcp lease** Â

show dhcp lease

ð ↓ Ô

ð ą Ô

ѝ Â

ð Ъ ъ Ô

ð ᴳ ˚ Ô

ĦK IP ѕ ѡ˘ ѕ ѡ ą Â ĦK ɢ IP ѕ ѡ˘ Ѧ IP ѕ ѡ ą Â

ð w ᴿ Ô

ЛЬЮ й **show dhcp lease** Â

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

28.2.7 show ip dhcp binding

DHCP кс нв α˘ EXEC Ъ ч **show ip dhcp binding** Â

show ip dhcp binding [ip-address]

ð ч Ô

ч	
ip-address	^ Л ~ Л IP кс нв α Â

ð α Ô

й Â

ð Ъ ч Ô

ð G ' Ô

НЖ IP кс нв˘ кс нв α Â НЖ ¢ IP кс нв˘ Л IP кс нв α Â

ð w R Ô

ЛЬЮ й **show ip dhcp binding** Â

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

Л ъ НЖ ЮÂ

IP address	ĵ DHCP IP ѫ ѭ Â
Client-Id/ Hardware address	DHCP client identifier ˚ ѫ ѭ
Lease expiration	ĵ Â Infinite 8 ’ IDLE ɱ ѫ ѭ˘ ɱ ч ѣ л DHCP ў ╟ Â
Type	ѫ ѭ ѽ Â Automatic ╟ĵ ’ Manual ĵ Â

ы ъ ЬЖ ЮÂ

IP address	a л† DHCP IP ьь Â
Detection Method	ă Â
dhcpd excluded ipaddress	ьь нт Â

ъ ЪЩЪ ч Ô

Ъ ч	
clear ip dhcp confict	DHCP ă

28.2.9 show ip dhcp server statistics

DHCP ┗ щ ы ˇ EXEC Ъ ч **show ip dhcp server statistics** Â

show ip dhcp server statistics

ъ ч Ô

ъ ą Ô

и Â

ъ Ъ ч Ô

ъ ᴳ ˚ Ô

Ъ ч л Лъ DHCP ┗ щ т ы Â

ъ w ᴿ Ô

ЛъЮ и **show ip dhcp server statistics** Ъ ч Â

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

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

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

л ъЎ Нж ЮО Â

Address pools	км мм э
Automatic bindings	╠ км мм Â
Manual bindings	км мм Â
Expired bindings	км мм Â
Malformed messages	DHCP ∧¦ a Â
Message Received or Sent	DHCP ╘ ЮЎ n ∧ Â

ð ЎΩЪ ч Ô

Ъ ч	
clear ip dhcp server statistics	¦ DHCP ╘ л Â

29 DHCP Relay

29.1 DHCP Relay

29.1.1 service dhcp

ъф Э Í DHCP è ъ ˘ ŏ Ъ ъ **service dhcp** Â Ъ ъ no Л Лъ ̃Ω DHCP ъ Â

service dhcp

no service dhcp

ð α Ô

̃Ω DHCP ъ Â

ð Ъ ъ Ô

ŏ

ð G ' Ô

DHCP è Л Лъ DHCP Л è ┺ ̃ئ تي DHCP ^ ъф Л DHCP ˘ DHCP è ↄ Â

ð w R Ô

ЛъЮ R ˘ Í ɢ DHCP ┺ ئ ņ è Â

service dhcp

ð ̃ΩЪ ъ Ô

Ъ ъ	
ip helper-address [**vrf**] A.B.C.D	╗ У э DHCP server ك ھ

29.1.2 ip helper-address

G Ъ ъ Л Лъ ╗ У э DHCP ┺ ئ ك ھ Â Ъ ъ no ˘ ĭ У э ┺ ئ ك ھ Â

¥ ┺ ئ ك ھ Л Лъ ŏ ˘ ≠ Л Лъ Л Â ŧ Ъ ъ Л Лъ ъф ŏ Ю ̃ ≠ Л Лъ ъф Л Ю ˘ ĭ ⋮ ╗ Ю DHCP ┺ ئ ə Â

ð α Ô

· ı ┺ ئؤ ə Â

ð Ъ ч Ô

ŏ / ⊀

ð G ˙ Ô

ж э ⊀ Л Ъ э dhcp ┺ ئؤ كـ ھھ ˘ э ⊀ У э DHCP ˛ ⊀
ĵ э ┺ ئؤ Â ⊀ Л Ъ ÿ э è У э Â

ж vrf ⊀ Ą˘ ﻱ ų ŏ ŋ ﻱ ų Ę ⊀ a ˚ ' ﻱ ų ŏ
a vrf ⊀ ˘ ɱ ┺ ئؤ a ų˙ ı vrf ┺ ئؤ كـ ھھ '
ﻱ ų ⊀ a vrf ⊀ ˘ ɱ ┺ ئؤ ŋ ⊀ ų˚ У vrf

ð w R Ô

ЛЪЮ R ˘ ч э ┺ ئؤ كـ ھھ ˘ ĵ ⋮˚ У vrf ϙ ┺ ئؤ ѝ 61.154.26.49˘
Л Ъ ⊀ ﻱ ų vrf R ¨ ѝ local ┺ ئؤ ѝ 192.168.197.1 Â

```
ip helper-address 61.154.26.49
ip helper-address vrf local 192.168.197.1
```

ð ˇΩ Ъ ч Ô

Ъ ч	
service dhcp	DHCP è ч

29.1.3 ip dhcp relay information option dot1x

G Ъ ч **dhcp option dot1x** ╖ ˘ G Ъ ч no ˇΩ **dhcp option dot1x** ╖ Â

ð α Ô

ˇΩ

ð Ъ ч Ô

ŏ

ð G ˙ Ô

Ъ ч ˝I DHCP relay˘ ⊿ ˊ 802.1x ˇΩ Â

ð w R Ô

```
Ip dhcp relay information option dot1x
```

ѽ

ð G ' Ô

Ъ ч б option dot1x Ъ ч ц Â

ð w R Ô

```
Ip dhcp relay information option82
```

ð ΏЪ ч Ô

Ъ ч	
Service dhcp	DHCP è ч · T Ă d l (

Ъ Ô

G Ƃ ҳ ŏ DHCP ╖ ˘ G Ƃ ҳ no ˇΩ ŏ DHCP
╖ ⅄ DHCP relay ⁸ ╖ Â

ð ą Ô

ˇΩ

ð Ƃ ҳ Ô

⅄

ð G ˀ Ô

↓ Ƃ ҳ ł˘ ⅄ DHCP request a relay Â

ð w R Ô

ЛЬЮ R ˘ ⅄ 1 relay ⁸ ╖ Â

```
Ruijie#
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0
Ruijie(config-if)# ip dhcp relay suppression
Ruijie(config-if)# exit
Ruijie(config)#
```

30 DNS

30.1

30.1.1 ip domain-lookup

í ╠ DNS Â G no ‡ Ω DNS ╖ Â

ð ¼ Ô

¼	
ip-address	IP

ð Ô

ð Ô

ŏ

ð G Ô

DNS Server IP Â DNS Server Â
ÿ Server DNS
Â

6 Â DNS Server ip-address
‡ DNS Â

ð w R Ô

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

ð Ô

show hosts	DNS Â

ð Ô

RGNOS10.1 Â

30.1.3 ip host

IP Â G no Â

ip host host-name ip-address

no ip host host-name ip-address

ð ¼ Ô

¼	
host-name	
ip-address	IP

show hosts	ŭ ¨ ă

ð Ô

RGNOS10.1 Ə Â

30.1.5 show hosts

DNS ą Â

31 NTP

31.1 NTP

31.1.1 no ntp

ʖΩ ntp˚ Ⱡ˘ ṃ б Ⱡ ئۇ ˚ ˘ ntp ə̨ Â

no ntp

ð ↰ Ô

Â

ð ɑ̨ Ô

ɑ̨ Ю NTP Ⱡ ʖΩ Â

ð Ƃ ҂ Ô

ŏ̈ Â

ð ᴳ ˚ Ô

ɔ̀ɸ ɑ̨ Ю˝ NTP ╗ ʖΩ ˘ ⊓ ∧ ɕ NTP Ⱡ ئۇ NTP ŏ̈ ⁞
⁸˘ NTP ╗ ˚ Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ ʖΩ ɕ NTP Ⱡ Â

no ntp

ð ʖΩƂ ҂ Ô

Ƃ ҂	
ntp server	У э NTP Ⱡ ئۇ

31.1.2 ntp access-group

NTP Ⱡ ⁸ ˘ Ƃ ҂ no ↰ ⁸ Â

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

ð ϟ Ô

ϟ	
peer	ĭ ﻙ NTP ﻉ n ⁸ ˘ ≠ ĭ ﻙ б ˚ ^ ŏ ~ Â
serve	ĭ ﻙ NTP ﻉ n ⁸ ˘ Ո a ĭ ﻙ б ˚ Â
serve-only	Θ ĭ ﻙ NTP ﻉ Â
query-only	Θ ĭ ﻙ NTP ﻉ ⁸ Â

access-list-number IP ⁸ ‟ ﻫ’ ﻧ ﻯ 1

30.0T[C2_0 1 Tf0 Tc½2.2517.000[1.

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

ð ‘Ω Ƃ ҁ Ô

Ƃ ҁ	
ip access-list	… IP 8 “ Â

31.1.3 ntp authenticate

NTP Ł G NTP ŏ 8 Â

ntp authenticate

no ntp authenticate

ð ч Ô

Â

ð α Ô

α Ю NTP ŏ 8 ‘Ω Â

ð Ƃ ҁ Ô

ŏ Â

ð G ˙ Ô

G ŏ ŏ ⁞ 8˘ ‡ a ˚ ə ╗ Â ŏ ŏ ⁞
8˘ ˚ è ы ŏ ˘ ∧ ∧ ¥ Ł ﻭ ╗ ə Â

ñ **ntp authentication-key** à **ntp trusted-key** ə˙ Â

ð w R Ô

ж ɑ ŏ è и ŏ ə˙ ł˘ 8 Â

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

ð ‘Ω Ƃ ҁ Ô

Ƃ ҁ	
ntp authentication-key	ŏ
ntp trusted-key	ŏ ə˙ Â

31.1.4 ntp authentication-key

ѝ NTP Ь У э ѓ NTP Â

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

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

ð ч Ô

ч	
key-id	ID’
key-string	s’
enc-type	^ Л ~ ў ╗ ˇ 0 ╗ ˇ 7 ` ╗ ’

ð α Ô

Â

ð Ђ ҂ Ô

ѓ Â

ð G ’ Ô

ѓ ˇ md5 ╗ ˇ э У э Ѓ У key-id ˇ Л Љ **ntp trusted-key** key-id ѝ ѓ ә̇ Â

Э ѝ 1024 э˘ п э Ь ѳ Θ Θ У э

ð w R Ô

ЉЮ R У э ID ѝ 6

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

ð ‘Ω Ђ ҂ Ô

Ђ ҂	
ntp authenticate	ѓ ѓ ⋮ 8
ntp trusted-key	ѓ ә̇
ntp server	У э NTP Ь ѳ

31.1.5 ntp disable

ћΩ л NTP ╖ Â

ntp disable

ð л Ô

Â

ð ą Ô

ą Ю л л Љ ы NTP Â

ð Ъ ч Ô

л Â

ð G ' Ô

ѓф ą Ю' ' л Э ы NTP л Љ k ˘
э ╖ ˘ л Љ л Э ĵ NTP Â

---

a

ă̈ л IP ы ˘ ѓф è ы л Э
Ъ ч Â

ð w R Ô

ЉЮ R ˘ ћΩ л NTP Â

```
no ntp
```

ð ћΩЪ ч Ô

Â

31.1.6 ntp master

ѕ ɔ й NTP ў ^ ѕ ы л ~˘ й è k˘ Â
Ъ ч no й ы NTP ў Â

ntp master [stratum]
no ntp master

ð л Ô

л	
stratum	ѕ ˘ нт й 1· 15’ a ы ‡ ḣ й 8 Â

ð ɑ Ô

a NTP ў ╖ Â

ð Ƃ ϩ Ô

ŏ Â

ð ᴳ ˚ Ô

ɦ ɑ Ю˘ ﻙ ˬ ﻙ б ˇ Â ת ¥
ϟ ﻙ б ˇ ˇ Л Љ Ƃ ϩ
ﻙ ϟ Л ˇ й è ы ᵏˇ Â

У ɷ ˇ ɬ a˛ б è ḣ ˇ Â

a

ᴳ Ƃ ϩ ⁞ Â ﻙ й ў ˆ è ɷ æ
ḣ ˜ Л Â ˇ У è э ᴳ
ɷ Ƃ ϩˇ ‡ Л ¥ Ǯ ˇ a Â

ɻ ˇ ᴳ Ƃ ϩ ɱ ÿ б ˇ ˇ ‡ Л ╟ ñ
Љ ɖ è a˛ Ļ Â

ð w ᴿ Ô

ЉЮ ı ﻙ ϟ Л ˇ è й 12 Â

```
Ruijie(config)# ntp master 2
```

ð ℃Ƃ ϩ Ô

31.1.7 ntp server

й NTP У э NTP ┗ ﺋ Â

ntp server ip-addr [**version** version] [**source** if-name] [**key** keyid 41(r)]Tj/C2_0 1 0025 Tc 2.251 0 0A60>ver

version	^ Л ~ NTP ^ 1-3˜˘ NTPv3 ,
if-name	^ Л ~ Н NTP Л Ь Л˜’
keyid	^ Л ~ б Ь ӈ ә ╗
prefer	^ Л ~ Ь ӈ й Prefer Ь ӈ

ð α Ô

NTP Ь ӈ Â

ð Ъ ҷ Ô

ѻ Â

ð ᴳ ˚ Ô

ɱ ъ Θ Ь ӈ ˘ ˚ Ь ӈ Э й 20 э Â

б Ь ӈ ╗ ә˘ ″I ѻ ╗ Лъ Л ѻ ә˙ ˘ ł
й Ь ӈ ә˙ ˘ Л Лъ Н Ұ Ь ӈ ╗ ә˘ б Ь
ӈ ╗ ә Ь ӈ ˚ ѻ ╗ б ѻ ә˙

ɔƒ ˚ α^ ˜ Ю˘ . ″I prefer ˚

NTP Н Л Ą У Ю˘ Л й ɷ IP
Л Лъ Ц NTP Ь ӈ ә Л Â

ð w ᴿ Ô

ЛъЮ ᴿ ˘ Э й NTP server Â

IPv4 ‘ Ruijie(config)# ntp server 192.168.210.222

IPv6 ‘ Ruijie(config)# ntp server 10::2

ð ˇΩ Ъ ҷ Ô

Ъ ҷ	
no ntp	ˇΩ NTP Ь ╗ Â

31.1.8 ntp synchronize

NTP ˚

ntp synchronize

no ntp synchronize

ð ч Ô

Â

ð ą Ô

ḣ Â

ð Ѣ ҁ Ô

ŏ Â

ð ᴳ ˚ Ô

NTP б э ᴸ ᵑ ˚ й 8 э ˘ Ѯ ł й У˥ ˚
˘ ƒ ╟˚ ˘ ¨ ˚ ˘ ‡ Л Љ ᴳ Ѣ ҁ

ð w ᴿ Ô

ЉЮ ᴿ ˘ NTP ˚ Â

```
Ntp synchronize
```

ð Ѿ Ѣ ҁ Ô

Ѣ ҁ	
ntp server	У э NTP ᴸ ᵑ ˚

31.1.9 ntp trusted-key

У э ID й ŏ ҷ˙

ntp trusted-key key-id

no ntp trusted-key key-id

ð ч Ô

ч	
key-id	ŏ ҷ˙ ID Â

ð ą Ô

ąЮ ҷ˙ Â

ð Ѣ ҁ Ô

ŏ Â

ð ᴳ ˚ Ô

ҙ NTP ۷ ˇ ҽ˙ ˇ ID ˇ a
˙ ˇ Л Ѡ ’

ð w ᴿ Ô

ЛЮ У э ˇ й Ь ӈ ҽ˙ Â

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

ð ˇΩƂ ҁ Ô

Ƃ ҁ	
ntp authenticate	ѽ ⁞ ⁸ Â
ntp authentication-key	NTP Â
ntp server	У э NTP Ь ӈ Â

31.1.10 ntp update-calendar

NTP ᴳ ÿ ˇ ḣ ˅ Â
Ƃ ҁ no ۷ ˅ ℸ Â

ntp update-calendar
no ntp update-calendar

ð ۷ Ô

ð ą Ô

˅ ℸ Â

ð Ƃ ҁ Ô

ѽ Â

ð ᴳ ˅ Ô

ᴳ ℸ Л Ѡ NTP ᴳ ÿ ˇ ḣ
˅ Â ˅ ᵀ ᴳ ҙ ˇΩ ҙ Æ ą Ю Ÿ
╟ Â

ҙ ą Ю NTP ˅ Â Ǯ ɬ ˇ NTP ˬ ҙ б
ˇ ℸ ≠ ˇ ˅ Â

ð w

ЛЬЮ ¦ NTP

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

31.2

31.2.1 debug ntp

NTP

debug ntp

no debug ntp

31.2.2 show ntp status

NTP

show ntp status

Â

ð ɑ Ô

ѝ Â

ð Ƒ ɂ Ô

ð ᴳ ˙ Ô

NTP Ꮮ ˘ ɱ NTP ə ˘ ƒ У ╗ ˇ Ꮮ ᾔ ᾖ
ɱ Ƒ ɂ a˛ ˜ ˙ ɪ ə Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ ɱ NTP ə Â

```
show ntp status
```

ð ᾞ Ƒ ɂ Ô

32 SNTP

32.1

32.1.1 sntp enable

Ъ ч SNTP ╖ ˘ G Ъ ч è **no** и ḣ
Disable Â

[**no**] **sntp enable**

ð ч Ô

ð Ô

SNTP Disable

ð Ъ ч Ô

ő̃

ð G ˚ Ô

G **show sntp** Ъ ч SNTP ˜Ω ч

ð w R Ô

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

ð ˜ΩЪ ч Ô

Ъ ч	
show sntp	SNTP
clock update-calendar	˚ ˚ ˚
clock set	˚

ð л Ô

˚ RGOS10.0 Лъ Э

32.1.2 sntp server

Ъ ч SNTP Server SNTP NTP Server
internet NTP Server

sntp server ip-addr

no sntp server

IP

ip-addr NTP/SNTP IP

NTP/SNTP

show sntp Ъ ч SNTP

RedGiant(config)# sntp server

Ъ ч	
show sntp	SNTP
sntp enable	SNTP

RGOS10.0 Э

32.1.3 sntp interval

Ъ ч SNTP Client NTP/SNTP Server

sntp interval seconds

no sntp interval

seconds 60 --65535

1800s

ð Ъ ч Ô

ŏ

ð G ' Ô

G **show sntp** Ъ ч SNTP ˜Ω ч Â

ð w R Ô

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

ð ˜ΩЪ ч Ô

Ъ ч	
sntp enable	SNTP
show sntp	SNTP ˜Ω ч
clock update-calendar	˚ ˘ ˚

ð л Ô

˚ RGOS10.0 Лъ Э

---

a

a˚ ¯ ˘ ¯ ˘ ł

sntp enable Ъ ч Â

32.2

б ^ ЛъЮЪ ч :

show sntp

32.2.1 show sntp

Ъ ч SNTP ˜Ω ч Â

ð ч Ô

ð Ъ ч Ô

show sntp SNTP

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

sntp enable	SNTP
show sntp	SNTP

RGOS10.0

33 UDP-Helper æ Þ ¾

33.1

33.1.1 udp-helper enable

udp-helper enable Þ ¾ í ╠ UDP è ∧ ╖ Â**no udp-helper enable** Þ ¾ ˇΩ UDP è ∧ ╖ Â

ą Ю UDP è ∧ ¥ ˇΩ Â

udp-helper enable

no udp-helper enable

ð ∢ Ô

ð Ô

UDP è ∧ ¥ ˇΩ

ð Þ ¾ Ô

ő

ð G ˙ Ô

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

ð w R Ô

Ю R í ╠ UDP è ∧ ╖ :

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

ð ˇΩ Þ ¾ Ô

Þ ¾	
ip forward-protocol	è ∧ UDP ∠

ð Ô

Þ ¾ ṃ Θ ж RGNOS10.1 Э Â

33.1.2 ip helper-address

UDP è ﾍ ﾚｳﾂ G no ﾃ UDP
è ﾍ ﾚｳﾂ

ip helper-address address

no ip helper-address address

ﾃｵ ﾍ Ô

UDP-(el)8(lpe

ip forward-protocol udp [port | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

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

Ð ¾	
udp-helper enable	G Ä UDP
ip forward-protocol	è Ä UDP Å

ð Ô

Ð ¾ m Θ ÷ RGNOS10.1 Э Â

34 DDNS

34.1

34.1.1 peanut username

У DDNS Ѣ ҳ Â Л Љ G Ѣ ҳ no ĵ Ѣ ҳ Â

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

ч		
ч	name	¨
	word	

	ą Ю й ˇΩ ╖
Ѣ ҳ	ŏ Â
G	Ѣ ҳ Л Љ ¨ ņ
w R	R 1' í ╖ ' Ruijie#config Ruijie(config)# peanut username test password test

Ѣ ҳ		
ˇΩѢ ҳ	-	-

Л	-

Л			
Ѣ ҳ ч Л	1.0	]	]

35 DNS

35.1

35.1.1 smartdns

У IP ‡ Â Л Љ G Ƃ ҂ no ҭ IP ‡ Â

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

Л	A.B.C.D	Ь ҍ ӷ IP ҝ ҩ Â
	Interface	Л Â
	X.X.X.X	ғ IP ҝ ҩ Â
Ƃ ҂	ѽ Â	
G	Ƃ ҂ Л Љ ╗ У IP ‡ Â	
w R	R 1˙ ч IP ‡˘ ӷ Ь 192.168.1.100˝ ҂ Л gigabitethernet 0/1 Э 202.101.99.55˝ ҂ Л gigabitethernet 0/2 Э 58.66.101.33˝ Ruijie#config Ruijie(config)# smartdns 0 gigabitethernet 0/1 map 202.101.99.55 Ruijie(config)# smartdns 0 gigabitethernet 0/1 map 58.66.101.33	

˝ΩƂ ҂	Ƃ ҂	
	smartdns enable	DNS ╗ G ˝Ω
Л	-	

Ƃ ҂ Ч Л	Л	
	1.0	ҷ

35.1.2 smartdns enable

í DNS ╖ ˇ Λ Л Ъ G Ƌ ҳ no ˜Ω DNS ╖ Â

[no] smartdns enable

↓	

↓

1 AF… ÚŒc^+

36

36.1

36.1.1 ip policy route-map

ð w ᴿ Ô

ЛЬЮ ᴿ è˘ Лъ ⊀ FE0 ⁄ ˘
ѕ ѡ й 10.0.0.1˜ ‡ ЮУ й 196.168.4.6˜ ѕ ѡ й 20.0.0.1
‡ ЮУ й 196.168.5.6˜ ŭ ‡ ⊀ Â

```
access-list    1 permit   10.0.0.1 0.0.0.0
access-list    2 permit   20.0.0.1 0.0.0.0
route-map   lab1 permit   10
match ip address      1
set ip next-hop       196.168.4.6
exit
route-map   lab1 permit   20
match ip address      2
set ip next-hop       196.168.5.6
exit
interface GigabitEthernet          0/0
ip policy      route-map lab1
exit
```

ð ˜ΩЪ ҳ Ô

Ъ ҳ	
access-list	НЖ " ‡ Â
route-map	НЖ يي Â
set ip next-hop	НЖ ЮУ
set ip default next-hop	НЖ ЮУ
set interface	НЖ ⊀
set default interface	НЖ ⊀
set ip tos	IP è TOS
set ip dscp	IP DSCP
set ip precedence	IP è ˙ ˝I
match ip address	‡
match length	ѓ

ˋ route-map ˜ΩЪ ҳ ⊀ ê ˜ ˜ΩЪ ҳ ⊀ Ì

ip local policy route-map

ѕ ∧ í ˘ ƒ Ю G Ъ ҳ **ip local policy route-map** Â ∧ ˜Ω G Ъ ҳ no Â

ip local policy route-map route-map

no ip local policy route-map

a

Ђ Э a Ъ ҳ Â

ð ∢ Ô

∢	3

```
route-map bpermit      0
match ip address 1
set interface serial 20
exit
```

ð ЎΩЪ ҳ Ô

Ъ ҳ	
access-list	НЖ " ‡
route-map	НЖ يي
set ip next-hop	НЖ Ю У
set ip default next-hop	НЖ Ю У
set interface	НЖ ۸
set default interface	НЖ ۸
set ip tos	IP è TOS
set ip dscp	IP DSCP
set ip precedence	IP è ˙I
match ip address	‡
match length	ѕ

' route-map ЎΩЪ ҳ ۸ ê ~ ЎΩЪ ҳ ۸ Ì

36.1.2 ip policy

set ip nexthop ӈ м ` ۿ ˘ ف ŏ Ю G **ip policy** Â G Ъ ҳ **no** ۸ Â

ip policy {**load-balance|redundance**}

no ip policy

ð ۸ Ô

۸	
load-balance|redundance	ۿ ӈ м `

ð ą Ô

ӈ м ` Â

ð Ђ ҳ Ô

ŏ Â

ð ᴳ ˙ Ô

ƒ ي è **set ip next-hop** ˘ Л Љ э Ю У ˘ Л
ɑ ț ӣ м ` ˘ Л У э Л Љ Ю У ɔ ' ɑ
ɸ ˘ э Ю У ɔ ˘ WCMP Л Љ
4 э Ю У ˘ ECMP Л Љ 32 э Ю У Â Ю У
˜ ĺ ARP ą Ю У Â

ð w ᴿ Ô

ЉЮ ᴿ è˘ ي è ɑ э nexthop, ƒ ŏ Ю
ɑ ț ӣ м ` ł˘ ‡ ƒ EF0 Э э ي Л У
э nexthop ɔ ˘ Л Â

```
access-list 1permit  0
access-list 2 permit 0
route-map bpermit     0
match ip address 1
set ip next-hop 0
set ip next-hop 0
set ip next-hop 0
exit
route-map bpermit     0
match ip address 2
set ip next-hop 0
set ip next-hop 0
set ip next-hop 0
exit
interface GigabitEthernet 0
ip policy route-map b
exit
ip policy redundance
```

37

37.1

ﻥ -

ﻥ	
10.3(4b7)	Ꭿ ﻉ
10.3(4t90)	╗ ╟ ﻙ ﻫ

Ꭿ ﻉ ﻝ ﻥ

37.1.2 route-auto-choose update

ﻙ ﻫ ˚ ˘ Ꭿ ﻉ ł ɱ ﻙ ﻫ ˚ ﻓﺧ ﻙ ﻫ
˘ G ˚ ł ¯ ¯ Â

route-auto-choose update

38 RIP

38.1

38.1.1 address-family RIP

ώ ко нв RIP ~ ˘ G ко нв Ъ ҳ
address-family ˝ ~ ко нв ˘ G Ъ ҳ
no Â

address-family ipv4 vrf vrf-name

no address-family ipv4 vrf vrf-name

ð ч Ô

ч	
vrf vrf-name	Ъ ҳ ˜Ω VRF ¨ Â

ð Ô

a RIP ˜ ко нв Â

ð Ъ ҳ Ô

Â

ð G ˚ Ô

G **address-family** Ъ ҳ G ώ ко нв ˆ ѝ ˙
(config-router-af)#˜ Â У ˜Ω VRF ˘ RIP ¸ …
VRF RIP R Â ڧ Ю Ѓ Л VRF RIP
ә Â

˝ ко нв تي ˘ G
exit-address-family **exit** Ъ ҳ Â

ð w R Ô

ЛЬЮ R ˘ … ɷ У э¨ ѝ vpn1 VRF˝ ѝ vrf …
RIP R Â

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

˘ ˇΩ ╠ ╖ Â ⊓ ∧ RIPv2 ˘ ∧ЛЪˇΩ
╠ ╖ ˘ RIPv1 ╠ Â

ð w ᴿ Ô

ЛЪЮ ᴿ ˘ ˇΩ ₲ RIPv2 ╠ Â

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

Ҥ ḣ˘ ḣ default-metric Ҥ ḣ Â a Ƃ ҳ ‡ default-metric ḣ ѝ 1Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ RIP ~ OSPF ~ ˛ ɢ ˛ ˘ ҿ ˛ ˥ RIP ḣ ѝ 3Â

```
Ruijie(config)# router rip
Ruijie(config-router)# default-metric 3
Ruijie(config-router)# redistribute ospf 0
```

ð ‴Ω Ƃ ҳ Ô

Ƃ ҳ	
redistribute	ÿ У э ѡ ˛ ˛ ˩ У э ѡ Â

ð ∧ Ô

ð Ô

38.1.4 default-information originate(RIP)

ғ RIP ң У ˘ ∧ Ль ᴳ Ƃ ҳ **default-information originate** Ƃ ҳ˘ Ƃ ҳ **no** ∧ Â

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

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

ð ∢ Ô

∢	
always	^ ∧ ~ ‴Ω ᴳ RIP ˟ ң ˘ a ѕ ŭ ғ Â
metric metric-value	^ ∧ ~ ˥ ḣ˘ metric-value ∧ ḣ ѧ 1-15Â
route-map map-name	^ ∧ ~‴Ω route-map ‥ , ‴Ω route-map

ð Ô

ң ’ ң metric ḣ ѝ 1Â

ð Ƃ ҳ Ô

Â

ð G ' Ô

è ¾ ˘ RIP a ¸ ä ˚

˘ G **default-information originate** Ð ¾

˘ ä ˚ Â

always Â ¸ ב ħ ¾ .

=

Tf[B12 4 0 C 4 T(f0 Tw 14 p 266.33 7 4 1 1 v (1 4 T d 6 5 1 8 1 3 C E F 4 3 5 8 2 8 F 4 5 4 7 2 1 3 4 5 A 4 5] T 3 E 2 8 >]]

distance distance [ip-address wildcard]

no distance [distance ip-address wildcard]

ð ↰ Ô

↰	
distance	RIP ˘ ĭ <1-255> ǯ
ip-address	IP ↰ ↔ ɱ
wildcard	ⱵK IP ↰ ↔ Æ˘ ° ɔ̄ ˘ ˝ a ṁ Â

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

ð Ô

38.1.7 distribute-list out RIP

8 ƚ˘ Ɲ ˘ G Ƃ ҳ
distribute-list out Â Ƃ ҳ **no** ǐ ⱡ Â

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

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

ð ↰ Ô

↰	
access-list-number	“ Â ʌ “ ĭ ˘ ʌ Ɲ ↰ Â
prefix prefix-list-name	G ɱ “ Â
interface	(ʌ) ǀ “ ˘ ƚ 8 ʌ ƒ ʌ Â
protocol	(ʌ) ǀ “ ˘ ǀ Â
process-id	(ʌ) protocol ѝ OSPF ˘ ¥ OSPF id Â
process-name	(ʌ) protocol ѝ ISIS ˘ ¥ ISIS ¨ Â

ð Ô

8 ƚ Â

ð Ƃ ҳ Ô

Â

ð G ˙ Ô

Ƃ ҳ a ˙ ı ʌ ↰ ˘ ƚ 8 ʌ ɔ ’
ʌ ˘ ƚ 8 ʌ ʌ ɔ ’ è
↰ ˘ ‡ ƚ 8 ʌ ɔ Â

ð w R Ô

ЛЬЮ R ˘ RIP ʌ ƚ 192.168.12.0/24 Â

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

```
Ruijie(config-router)# distribute-list          0 out
Ruijie(config-router)# version    2
Ruijie(config)# access-list       0 permit       0
0
```

ð 'Ω Ð ¾ Ô

Ð ¾	
access-list	H X " ‡ Â
prefix-list	H X m " Â

address-family	ѡ ѕ ѧ Â

ð ѧ Ô

ð Ô

38.1.9 ip rip authentication key-chain

í RIP ˘ RIP G s˘ ѧ Ѣ ҷ **ip rip authentication key-chain** Â Ѣ ҷ **no** ĩ s Â

ip rip authentication key-chain name-of-keychain

no ip rip authentication key-chain

ð ѧ Ô

ѧ	
name-of-keychain	s ¨ ˘ RIP G s Â

ð Ô

˜Ω s Â

ð Ѣ ҷ Ô

ѧ Â

ð G ’ Ô

s ѯ ѧ è ɕ˘ ת ¯ **key chain** ŏ Ѣ ҷ s Ж˜ a RIP ˆ Â

RIPv1 a RIP ˆ ˘ ѧ RIPv2 Â

ð w R Ô

ЛЬЮ R ˘ Serial 0 ѧ í ɕ RIP ˘ ˜Ω s й ripchain Â

```
Ruijie(config)# interface serial Ø0
Ruijie(config-if)# ip rip authentication key-chain
þ
```

ð ˜Ω Ѣ ҷ Ô

ð ⁄ Ô

ð Ô

38.1.10 ip rip authentication mode

HX RIP ˘ G ⁄ Ъ ҳ **ip rip authentication mode** Â Ъ ҳ

38.1.11 ip rip authentication text-password

RIP s˘ G ⊀ Ƃ ҷ **ip rip authentication text-password** Â Ƃ ҷ **no** ȉ s Â

ip rip authentication text-password password-string

no ip rip authentication text-password

ð ⊀ Ô

⊀	
password-string	s˘ 1˙ 16 Â

ð Ô

s Â

ð Ƃ ҷ Ô

⊀ Â

ð G ˙ Ô

í RIP ╖ ˘ ⁄ Ɓ G Ƃ ҷ
s˘ ≠ ⁄ Ɓ ˜Ω s ∧ s˘ ł . ˝I ¥ ₥ Â

RIPv1 a RIP ˆ ˘ ⁄ RIPv2 Â

ð w R Ô

ЛЬЮ R ˘ Serial 0 ⊀ í RIP ˘
s ѝ ruijie Â

```
Ruijie(config)# interface serial Ø0
Ruijie(config-if)# ipripauthenticationtext-password
```

þ

ð ˜ΩƂ ҷ Ô

Ƃ ҷ	
ip rip authentication mode	Ⱨ RIP Â
ip rip authentication key-chain	í RIP ˘ RIP G s Â ⁄ RIPv2 RIP ˆ Â

ð ⁄ Ô

ð Ô

38.1.12 ip rip default-information

ÿ ⊀ ѣ У RIP ˘ G ⊀ Ѣ ҁ **ip rip default-information** Â Ѣ ҁ **no** ∧ ƒ⁄ ⊀ ѣ Â

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

no ip rip default-information

ð ⊀ Ô

⊀	
only	ѣ ˘ a ѣ è Â
originate	ѣ ˘ ≠ ѣ è Â
metric metric-value	ḣ˘ ∧ ḣ ˙ 1-15 Â

ð Ô

Â

í ╟ ѣ ѣ˘ metric ѝ 1 Â

ð Ѣ ҁ Ô

⊀ Â

ð G ˚ Ô

ƒ⁄ ⊀ ₢ Ѣ ҁ ѣ˘ ¸ ÿ ⊀ ѣ У ∧ Â

˘ ₢ ⊀ Ю **ip rip default-information** ņ RIP **default-information originate**˘ ‡ ⁄ ѣ ⊀ Â

---

a

1 à ⁄ У э ⊀ ₢ **ip rip default-information**˘ RIP a Ą ¯ ѣ Â ¯ ˚ ₢ ˘ ¸ ˚ ˥ Â

2 à ⊀ Э ₢ **ip rip default-information**˘ a¸ ¨ ∧ ˘ ƒ⁄ Ю У э è ѣ Â

ð w R Ô

ЛЬЮ R ˘ ƒ⁄ ⊀ ethernet0/0 Э… У ˘ ⊀ ⁄ ѣ Â

```
Ruijie(config)# interface ethernet Ø0
Ruijie(config-if)# ip rip default-information only
```

ð ℧Ѣ ҁ Ô

Ѣ ҁ	

default-information originate	ҩ RIP ң

ð Л Ô

ð Ô

38.1.13 ip rip receive enable

ĭ RIP ҩ У э Л Э RIP ˆ˘ Л Ѣ ҳ **ip rip receive enable** Â Ѣ ҳ **no** RIP ҩ У э Л Э RIP ˆ Â

ip rip receive enable

no ip rip receive enable

ð Л Ô

Â

ð Ô

@ÀÄDÐ Л

™ 0ÐO ••,, Ù€Ð OÀ=@ùÃ SØi Än3 1.6/C2_0 1 Tf 0 Tc >- 0 6360EE1 Tc

38.1.15 ip rip send enable

ĭ RIP ƭƭ У э ⅄ Э ∧ RIP ˆ˘ ⅄ Ƃ ҳ **ip rip send enable** Â Ƃ ҳ **no** RIP ƭƭ У э ⅄ Э ∧ RIP ˆ Â

ip rip send enable

no ip rip send enable

ð ⅄ Ô

Â

ð Ô

ĭ ⅄ ∧ RIP ˆ

ð Ƃ ҳ Ô

⅄

ð ᴳ ’ Ô

⅄ ∧ RIP ˆ˘ ƭƭ ⅄ ⅄ Ю ᴳ Ƃ ҳ **no** Â Ƃ ҳ ᶜ

defaulto ⅄ ∧

no ip rip send version

ð ५ Ô

Â

ð Ô

ѝ ѧ ā ѱ **version** Ъ ъ Â

ð Ъ ъ Ô

ѧ Â

ð ᴳ ˚ Ô

Ъ ъ ˘ ѧ Л **vesion** Ъ ъ Â Ъ ъ ѧ ѣ
ѧ ѧ RIP ѝ˘ ѧ Л ĭ ѧ˚ ѧ RIPv1 p RIPv2
ˆ Â Ъ ъ a ѧ ‡ ѝ ѧ ā ѱ version Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ ᴳ GigabitEthernet 0/0 ѧ Л ѧ RIPv2 Â

```
Ruijie(config)# interface GigabitEthernet Ø0
Ruijie(config-if)# ip rip v2-broadcast
```

ð ℧Ъ ъ Ô

Ъ ъ	
version	Ћ ѧ ѧ RIP ˆ Â

ð ѧ Ô

ð Ô

38.1.18 ip split-horizon (RIP)

í RIP ѣ → ╖ ˘ ᴳ ѧ Ъ ъ **ip split-horizon** Â Ъ ъ no ℧ RIP ѣ → ╖ Â

ip split-horizon

no ip split-horizon

ð ѧ Ô

Â

ð Ô

ą Ю ѣ → ѳ ѧ Э Â

ð Ъ ъ Ô

ѧ Â

ð ᴳ ˚ Ô

Л фж IP шф Э˘ ч α̈ ~ ˘
ǐ → ⁸ Лъ ȯ Â ǐ → Л Лъ
Ҿ ˘ ǝ̨ ÿ IP̱ ǐ Ҿ ǝ̨ ѝ Л ӂ ч˘ и̇ ◘ ɑ

RIP ╟ ⍭ Â

ð Ƌ ҳ Ô

ᐧ Â

ð ᴳ ˙ Ô

Ƌ ҳ **ip summary-address rip** ﻓﺬ ﻩ ᐧ Ю У ﻩ ﻛ ﻫ
Â RIP ╟ ⍭ Â ᐧ ᐧ ﻩ Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ ˇΩ ₢ RIPv2 ╟ Â ᐧ ˘ ᐧ
GigabitEthernet 1/0 ˇ ł 172.16.0.0/16 Â

```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip summary-address rip 0
0
Ruijie(config-if)# ipaddress 00
Ruijie(config)# router rip
Ruijie(config-router)# network 0
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

ð ˇΩƋ ҳ Ô

Ƌ ҳ	

wildcard	ⱡЖ IP ѫ ѭ Æ˘ 0 ѳ ˘ 1 a ṁ Â

ð Ô

ð Ƃ ɂ Ô

Â

ð ᴳ ˚ Ô

Л Лъ̊ network-number ƾ wildcard ч ˘ ᴳ ƶф ѫ ѭ ѧ ѫ ѭ ч б RIP Â

wildcard ч ˘ RGOS ѫ ѭ ѧ ˘ ᴳ ƶф ѫ ѭ ѧ ѧ ч ѫ ѭ ч б RIP Â

Л ч ѫ ѭ ѧ ƶф RIP ⱡЖ ‟ è˘ ч Л Лъ ч RIP ˘ RIP Â

ð w ᴿ Ô

ЛъЮ ᴿ ˘ ⱡЖ ѧ б RIP ˜Ω ч э Л˘ ĭ ƶф 192.168.12.0/24 ƾ 172.16.0.0/24 ѧ ѫ Л ѫ ѭ ч б RIP

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

ð ˜ΩƂ ɂ Ô

ð Л Ô

ð Ô

38.1.21 neighbor (RIP)

ⱡЖ RIP IP ѫ ѭ˘ Л Лъ Ƃ ɂ **neighbor** Â Ƃ ɂ **no** ⁋ ⱡЖ Â

neighbor ip-address

no neighbor

ð ч Ô

ч	
ip-address	IP ѫ ѭ Â ѫ ѫ ѭ Â

ð Ô

ⱡЖ Â

ð Ƃ ɂ Ô

Â

ð ᴳ ˙ Ô

RIPv1 ᴳ IP ﻫ ﻫ^ 255.255.255.255~ ƀ ə ˇ RIPv2 ᴳ ﻫ ﻫ^ 224.0.0.9~ ƀ ə Â a Ɔ ŏ ˇ ﷺ ʌ ˆ ə ˇ ʌ Ɲ Ƃ ɂ **passive-interface** ʌ ŭ ╟ ʌ˘ ł ʌ Ⱨ Ɇ ʌ Ɲ ˆ ə Â Ƃ ɂ a˳ ƅ RIP ə Â ɑ passive ʌ˘ Í ł ≠ ɳ a˳ ʌ Â

ð w ᴿ Ô

ð Ω Ƃ ɂ Ô

ð ʌ Ô

ð Ô

38.1.22 offset-list(RIP)

╕ ʌ RIP metric ḣ˘ ʌ Ɲ ᴳ Ƃ ɂ **offset-list** Ƃ ɂ **no** ˆ 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]

ð ʎ Ô

ʎ	
access-list-number	ñ acl ʌ
in	acl metric ɡ
out	acl ʌ metric ɡ
offset	ɡ metric ʎ ╟ ḣ
interface-type	acl ˆ ʌ
interface-number	ʌ ʌ

ð Ô

offset Â

ð Ƃ ɂ Ô

Â

ð G ' Ô

RIP ˚ л offset-list Лъ л л ŏ
offset-list‴ ‡ RIP ˛ ╕ л offset-list metric ḣ

ð w R Ô

ЛъЮ R ˘ ƒф acl 7 ƞ ϙ RIP ˛ metric ╕ 7 Â

```
Ruijie(config-router)# offset-list 7out 7
```

ЛъЮ R ˘ GigabitEthernet1/0 ˉ ƒф acl 8 ƞ ϙ
RIP ˛ metric ╕ 7 Â

```
Ruijie(config-router)# offset-list 7in 7
Ruijie(config-router)# offset-list 8 in 7
GigabitEthernet 1/0
```

ð ΩФ ч Ô

ð л Ô

ð Ô

38.1.23 output-delay

л RIP л ˘ G Ф ч
output-delay‴ Ф ч **no** л л Â

output-delay delay

no output-delay

ð л Ô

л	
delay	л ˘ ` Æ и ˘ ƞ <8-50>

ð Ô

и л Â

ð Ф ч Ô

Â

ð G ' Ô

ϙ Ю RIP и 512 ˘ л Лъ ˆ ъ̈ 25 ˘
ұ 25‴ ˛ э л ˘ ϙ Ю
л л Â

Л ˘ ă æ Л ˘ æ Л a
ŏ ˘ ę x Â ˘ G **output-delay**
Ъ ч ╗ Л ˘ G æ ŏ
Â

ð w R Ô

ЛЬЮ R ˘ RIP Л й 30

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

ð ЎЪ ч Ô

ð Л Ô

ð Ô

38.1.24 passive-interface

Л ж У э Л Э Л ╗ ˘ G Л Ъ ч
passive-interface Ъ ч Â Ъ ч **no** í Л ╗
Â

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

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

ð Л Ô

Л	
default	Л Л й passive
interface-type interface-num	Л ш б Л

ð Ô

ą Ю˘ Л й passive Â

ð Ъ ч Ô

Â

ð G ˙ Ô

passive-interface default Ъ ч Л й passive ˘ Л
Ль G **no passive-interface** intface-type interface-num Ъ ч Ę
Л й passive Â

ж G **ip rip send enable** Ъ ч ņ **ip rip receive enable** Ъ ч Л
й ĭ Л ņ RIP ą Ю˘ Ъ ч Л й
passive ˘ a Ą Л RIP ˘ Л Л Ль RIP ,

ŭ ʌ ˘ **ip rip send enable** Ƌ ҳ ɒ **ip rip receive enable** Ƌ ҳ ⁸ Â

ð w ᴿ Ô

ЛЬЮ ᴿ ʌ ѝ passive ˘ ɨ ethernet0/0 ѝ passive

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

ð ℧Ƌ ҳ Ô

Ƌ ҳ	
ip rip receive enable	ĭ ʌ RIP ˆ

ip rip send enable

38.1.26 router rip

… RIP ώ ˘ G ŏ Ф ҳ
router rip Â Ф ҳ **no** ˝ RIP Â

router rip

no router rip

ð ч Ô

Â

ð Ô

RIP ƒ Â

ð Ф ҳ Ô

ŏ Â

ð G ˚ Ô

У э RIP ˘ ЊУ э ѓ Â Э ╠
˜ ˘ ƒ ѓ **async default routing** Â

ð w R Ô

ЛЬЮ R ˘ ¢ ¡ … RIP

ч	
update	˘ Лъ Âupdate НЖ ѓ ч Ƣ ˘ ˚ ˘ invalid ƾ Flush æ Â 30 ч У Â
invalid	˘ Лъ ˘ ÿ У Âinvalid НЖ ѓ è ѽ ч й Â й Ь˝ ˘ ƶф ϙ ˚ ˙ ˘ ч й ˘ ώ invalid ’ invalid ϙ ˚ ˘ ˬ æ Â Invalid й 180 Â
flush	˘ Лъ ˘ ÿ RIP ώ invalid Â flush ˚ ˘ ҷ invalid Â Flush й 120 Â

ð Ô

ϙ Ю й 30 ˘ й 180 ˘ й 120 Â

ð Ф ҳ Ô

Â

ð ᴳ ˙ Ô

Лъ Э ˘ Л ˬ ╗ ˜ Лъ ↓ Â
ƶф˘ У Э ˘ RIP ḣ У У Â У a RIP
˘ Â

ɱ RIP ч ˘ Л Лъ **show ip rip** Ф ҳ Â

ð w ᴿ Ô

ЛъЮ ᴿ ˘ RIP 10 ч У Â 30 ϙ
˚ ˘ ч й ˘ ώ invalid ’
ώ invalid ѣ˘ 90 ˘ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# timers basic 0 0 0
```

---

a

ƶф æ Э ˘ ˬ У ˘ ѽ й
ˬ Â У Л ƶф Лъ 2Mbps Лъ Э ˘ Л Лъ
У ˘ Л Лъ Â

ð ℃Ω Ф ҳ Ô

ð Л Ô

ð Ô

38.1.28 validate-update-source

 RIP ˘ G Ƒ ३ **validate**

validate-update-source

no validate-update-source Â 2

38.1.29 version (RIP)

Ҍ э RIP ӈ˘ G Ƃ ҳ **version** Â Ƃ ҳ **no** Â

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

no version

ð ӈ Ô

ӈ	
1	Ҍ RIP ӈ ѝ 1 Â
2	Ҍ RIP ӈ ѝ 2 Â

ð Ô

ӆ Лъ RIPv1 ҧ RIPv2 ˘ ѕ ӆ ӊ RIPv1 Â

ð Ƃ ҳ Ô

Â

ð G ʾ Ô

ɣ Ҍ э RIP ӆ Â ӆ Лъ **ip rip receive version** à **ip rip send version** Ƃ ҳ˘ э ӆ \ э RIP Ҍ Â

ð w R Ô

ЛъЮ R ˘ RIP ӆ ѝ 2 Â

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

ð ‵Ω Ƃ ҳ Ô

Ƃ ҳ	
ip rip receive version	Ҍ RIP ҙ У э ӆ Э \ э RIP ^ Â
ip rip send version	Ҍ RIP ҙ У э ӆ Э ӊ \ э RIP ^ Â
show ip rip	ɱ **rip** ~ ą Â

ð ӆ Ô

ð Ô

38.2

38.2.1 show ip rip

RIP ~ ~ ﻩﺟﻲ ﻩ ˘ G **show ip rip** Â

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

ð ﻯ Ô

ﻯ	
vrf vrf-name	ˆ ﻯ ~ VRF RIP ﻩ

ð Ô

Â

ð Ƃ ҷ Ô

à ŏ à Â

ð G ˙ Ô

ﻯ ɣ RIP ~ Ь ə ﻩﺗﻮ à ˇ ﻧ à ˇ
ﻧ à ﻯ rip à rip ﻯ б ﻧﺮ à metric б distance Â
VRF ˛ VRF ¨ ﻯ VRF-id

ð w R Ô

ЛЬЮ R ˘ RIP ~ ﻩﺟﻲ ﻩ ˘ à
Â

```
Ruijie# show ip rip
Routing Protocol is "rip"
Sending updates every 10 seconds
Invalid after 20 seconds, flushed after 10 seconds
Outgoing update filter list for all interface is: not
set
Incoming update filter list for all interface is: not
set
Default redistribution metric is 2
Redistributing: connected
Default version control: send version 2, receive version
2
Interface            Send  Recv
GigabitEthernet 1/1      2     2
GigabitEthernet 1/0      2     2
Routing for Networks:
```

```
192.168.26.0 255.255.255.0
192.168.64.0 255.255.255.0
Distance: (default is 50)
```

ЛЬЮ R ˘ ɷ

ð ᴳ ᵎ Ô

ˇ RIP
è Â ł У э 1 й ˇ

<1-65535>	¥ OSPF R ⁄

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ð Ф ч Ô

à ŏ à Â

ð G ˙ Ô

ð w R Ô

ЛЬЮ R ˘ RIP ˛ ą Â

```
Ruijie# show ip rip external connected
Protocol connected route:
[connected] 1.0.0.0/8 metric=0
nhop=0.0.0.0, if=2
[connected] 3.0.0.0/8 metric=0
nhop=0.0.0.0, if=16391
[connected] 4.4.0.0/16 metric=0
nhop=0.0.0.0, if=16388
[connected] 5.0.0.0/8 metric=0
nhop=0.0.0.0, if=16386
[connected] 192.168.195.0/24 metric=0
nhop=0.0.0.0, if=1
```

ð ˇΩФ ч Ô

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à ő à Â

ð G ˙ Ô

ð w R Ô

ЛЬЮ R ˘ RIP Ѧ ą Â

```
Ruijie# show ip rip interface
GigabitEthernet 1/1 is down, line protocol is down
  RIP is not enabled on this interface
GigabitEthernet 1/0 is up, line protocol is up
  Routing Protocol: RIP
  Receive RIPv2 packets only
  Send RIPv2 packets only
  Passive interface: Disabled
  Split horizon: Enabled
  V2 Broadcast: Disabled
  Multicast register: Registed
  Interface Summary Rip:
    Not Configured
  Authentication mode: Text
  Authentication key-chain: ripk1
  Authentication text-password: ruijie
  Default-information: only, metric 5
  IP interface address:
    192.168.64.100/24, next update due in 14 seconds
    2.2.1.1/24, next update due in 24 seconds
      neighbor 2.2.1.6, next update due in 3 seconds
      neighbor 2.2.1.77, next update due in 13 seconds
    2.2.2.57/24, next update due in 16 seconds
```

í RIP б BFD ╠, ж Ƃ ҳ Ю ą :

```
Ruijie#show ip rip interface
VLAN 1 is up, line protocol is up
  Routing Protocol: RIP
    Receive RIPv1 and RIPv2 packets
    Send RIPv1 packets only
    Receive RIP packet: Enabled
    Send RIP packet: Enabled
    Send RIP supernet routes: Enabled
    Passive interface: Disabled
    Split horizon: Enabled
```

```
BFD: Enabled
  V2 Broadcast: Disabled
  Multicast registe: Registed
  Interface Summary Rip:
    Not Configured
  IP interface address:
    2.2.2.111/24, next update due in 24 seconds
```

ð ЎΩФ ҳ Ô

Ф ҳ	
show ip rip	ɱ ˜ ə Â

ð /ı Ô

ð Ô

39 OSPF

39.1

Ƃ ȝ	
network area	ȸȻ ȷ OSPFˇ Ɲ ȷ OSPF ȴ ȶȶ

ð ȸ Ô

ð Ô

39.1.2 area authentication

í OSPF ȴ ȶȶ ˇ G Ƃ ȝ **area authentication** Â
Ƃ ȝ **no** ˜Ω OSPF ȴ ȶȶ Â

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

no area area-id **authentication**

ð ȷ Ô

ȷ	

n **o**

area-id

ЛЬЮ R ˘ OSPF ѵ ѧ 0 ѵ ѧ˜ MD5 ˘
ѧ ҳ ѝ backbone Â

```
Ruijie(config)# interface GigabitEthernet 0
Ruijie(config-if)# ip address 1
255.255.255.0
Ruijie(config-if)# ip ospf message-digest-key 1 md5
1
```

OSPF ˜

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 1
0.0.0.255 area 0
Ruijie(config-router)# area 0authentication
message-digest
```

ð ‰Ѣ ҳ Ô

Ѣ ҳ	
ip ospf authentication-key	ЂЖ OSPF ѧ ҳ Â
ip ospf message-digest-key	ЂЖ OSPF MD5 ѧ ҳ Â
area virtual-link	ЂЖ Â

ð ѧ Ô

ð Ô

39.1.3 area default-cost

ЂЖ ѣ STUB ѵ ѧ NSSA ḣˆ OSPF
ḣ˜ ˘ G Ѣ ҳ **area default-cost** Â Ѣ ҳ **no**
Â

area area-id **default-cost** cost

no area area-id **default-cost**

ð ѵ Ô

ѵ	
area-id	STUB ѵ ѧ NSSA ѵ ѧ ѧ Â
cost	ώ STUB ѵ ѧ NSSA ḣ Â

ð ϙ Ô

ѝ˝ Â

ð Ѣ ҳ Ô

Â

ð ᴳ ˙ Ô

Ѣ ҳ Л ƶ ABR˜ Ҟ ѧ ˜ Э ˘ з ABR
У э STUB Ҟ ѧ^ ѝ ѧ˜ У э NSSA Â ABR
˘ ɷ Ҟ ѧ ˘ ل У э Ҟ ѧ Â

У э OSPF Ҟ ѧ ѝ STUB NSSA ч Ь ˜Ω Ѣ ҳ **area stub˘ area nssa** n **area default-cost** Â ∫ STUB Э˘ **area stub** Ѣ ҳ˘ ∫ NSSA Ҟ ѧ **area nssa** Ѣ ҳ˘ ת **area default-cost** Ѣ ҳ Л ƶ ABR Э Â

ð w ᴿ Ô

ЛЬЮ Ѣ ҳ˘ ḣ ѝ 50 Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 00
area 0
Ruijie(config-router)# network 00
area 1
Ruijie(config-router)# area 1stub
Ruijie(config-router)# area 1default-cost 0
```

ð ˜Ω Ѣ ҳ Ô

Ѣ ҳ	
area stub	У э OSPF Ҟ ѧ ѝ ѧ Â
area nssa	У э OSPF Ҟ ѧ ѝ NSSA Ҟ ѧ

ð Л Ô

ð Ô

39.1.4 area filter-list

ABR Э ˘ ɣ a˚ Ҟ ǯ intra-area ˚ Â

ѵ	
area-id	ѵ ѧѧ ѵ Â
acl-name	acl¨
prefix-name	prefix-list¨
access | **prefix**	ˇΩ prefix list ACL
in | **out**	˚ ¥ ώ | ѵ ѵ

ð ϱ Ô

ð Ѣ ҳ Ô

Â

ð G ˚ Ô

Ѣ ҳ ѵ ѣ ABR ѵ ѧѧ ~ Э Â

ѣ ABR Э a˚ ѵ ǯ ˝ ˚ ˘ G Ѣ ҳ Â

ð w R Ô

ЛЬЮ Ѣ ҳ˘ area 1 ѵ ¯ ˛ ¥ 172.22.0.0/8 ѧ ϱ ѵ Â

```
Ruijie# configure terminal
Ruijie(config)# access-list 1permit 0
Ruijie(config)# router ospf 0
Ruijie(config-router)# area 1 filter-list access 1 in
```

ð ˇΩѢ ҳ Ô

ð ѵ Ô

ð Ô

39.1.5 area nssa

У э OSPF ѵ ѧѧ й nssa˘ G Ѣ ҳ **area nssa** Â Ѣ ҳ **no** ˛ nssa ѵ ѧѧ nssa ѵ ѧѧ Â

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

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

ð ѵ Ô

ӈ	
area-id	NSSA ѵ ѫ ѵ ѫ ӈ Â
no-redistribution	ˆ ӀӀ ˜ У э nssa ABR ˘ æ ӀӀ ˛ ӀӀ Ѣ ҳ ą ώ ѵ a ώ nssa ѵ ˘ ӀӀ Ѧ Э Â
default-information-originate	ˆ ӀӀ ˜ ң ڜ 7 LSA ώ nssa ѵ ˘ ӀӀ ف NSSA ABR ASBR Э Â

no-summary

```
Ruijie(config-router)# network  00
area  1
Ruijie(config-router)# area 1nssa
```

ð ‘Ω Ѣ ҳ Ô

Ѣ ҳ	
area default-cost	Нж ъ NSSA ḣ ˆ OSPF ḣ ˜ Â

ð ∧ Ô

ð Ô

39.1.6 area range

OSPF ѵ ѡ ǯ ˘ G Ѣ ҳ **area range** Â Ѣ ҳ **no** ĩ ˘ **no** ṁ б **cost** ↓ ˊ ∧ Л Ъ ḣ ˘ ⊓ a ˛ ĩ Â

area area-id **range** ip-address net-mask [**advertise | not-advertise**] [**cost** cost]

no area area-id **range** ip-address net-mask [**cost**]

ð ↓ Ô

↓	
	ώ OSPF ѵ ѡ ∧ Â
area-id	costA 5B<2 ¯ Ȳ

ð ¤ ¯ Ô

Ð ¾ ¸ ¬ ABR Э э ¼ ¬

Â

ð G ˙ Ô

OSPF ѫ ӧ **area stub** Ѣ ҳ ÂABR Л ӓ
ѫ Л Ь (LSA)ӯ 1˜ ҷш 1˜ LSA’ 2˜ ҷш 2˜
LSA’ 3˜ ҷш 3˜ LSA Â ÿ ˘ ѫ è
Л ˝ ˛ OSPF ѫ ӧ ˘ ˆ ABR ң ӧ
Â ѫ a ˝ ˛ OSPF ѫ Â

ѿ ѫ˘ Л ҽф ABR Э **area stub** Ѣ ҳ ˘
no-summary ˇΩ Â ѿ ѫ Л ˛ Ҳ ѫ ӧ ˘ ЛЪ Ӏ
ABR ң ӧ Â

У э OSPF Ҳ ѫ й ѫ ч Ѣ ҳ **area stub** ҧ **area default-cost** Â ˛ ѫ Э˘ **area stub** Ѣ ҳ˘ П **area default-cost** Ѣ ҳ Л ҽф ABR Э Â **area default-cost** Ѣ ҳ Ҍ ӧ ˥ ˆ ˜ Â

ð w R Ô

ЛЪЮ R ˘ Ҳ ѫ 1 й ѫ˘ ұ Ҳ ѫ
Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 00
area 0
Ruijie(config-router)# network 100
area 1
Ruijie(config-router)# area 1 stub
```

ð ˇΩѢ ҳ Ô

Ѣ ҳ	
area default-cost	Ҍ Ъ STUB Ҳ ѫ ḣˆ OSPF ḣ˜ Â

ð Л Ô

ð Ô

39.1.8 area virtual-link

Ҍ OSPF ˘ G Ѣ ҳ **area virtual-link** Â Ѣ ҳ **no** ˥ Ҍ Â

area area-id **virtual-link** router-id [**authentication** [**message-digest** | **null**]] [**dead-interval** seconds] [**hello-interval** seconds] [**retransmit-interval** seconds] [**transmit-delay** seconds] [[**authentication-key** key] | [**message-digest-key** key-id **md5** key]]

a ;

è м ч ḣ Â

ð Ѣ ҳ Ô

Â

ð ᴳ ˙ Ô

ѫ OSPF ѧѧ è˘ ᵡ ѧѧ б ѧѧ ˘ ѧѧ ˘
ѧѧ ˘ ŭ ‡ Â
ѫ ч э ᵡ ѧѧ ^ ABR˜ ǯ … ˘ ч э ABR ˝Ω˚
ᵡ ѧѧ й ᵡ ѧѧ Â ѧѧ^ Stub Area˜ n NSSA а ɔ й ᵡ
ѧѧ Â ≠ Л Лъ ҰЕ è ᵡ ѧѧ Â

router-id й OSPF ˘ a router-id ḣ˘
show ip ospf neighbor Ѣ ҳ ÂЛ Лъ Loopback ѕ ѡ
ṁ Â

area virtual-link Ѣ ҳ Л Ж ˘ í
ᵡ ѧѧ OSPF ˘ Ѣ ҳ **area authentication** Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ Лъ ᵡ ѧѧ 1 ɔ й ᵡ ѧѧ˘ б 2.2.2.2 Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network [illegible] area
0
Ruijie(config-router)# network [illegible]
[illegible] area 1
Ruijie(config-router)# area 1virtual-link 2
```

ЛЬЮ ᴿ ˘ Лъ ᵡ ѧѧ 1 ɔ й ᵡ ѧѧ˘ б 1.1.1.1
Â ѽ ᵡ ѧѧ 10 n ᵡ ѧѧ˘ OSPF
˘ й MD5 Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network [illegible]
[illegible] area 1
Ruijie(config-router)# network [illegible]
[illegible] area [illegible]
Ruijie(config-router)# area 0 authentication
message-digest
Ruijie(config-router)# area 1virtual-link 1
message-digest-key 1 md5 hello
```

ð ˝Ω Ѣ ҳ Ô

Ƌ ३	
area authentication	í OSPF ऄ ॐ ऻ Â
show ip ospf	OSPF ə ˇ ˆ Â

ð ∕ Ô

ð Ô

39.1.9 auto-cost

Ƌ ३ ╟ ३ ╖ ˜Ω n ɨ ∜ ˇ ∜ ╟

```
Ruijie(config-router)# network 0.0.0.0 area
0
Ruijie(config-router)# auto- cost reference -bandwidth 0
```

ð ˜ΩѢ ҳ Ô

Ѣ ҳ	
show ip ospf	ospf ŭ ˜Ω ҷ

ﻓﻅ ĵ ˇ У э AS ﻛﻡ ˘ . ˘ Ъ
ҳ RFC1583 è G . ˝I ‡ RFC2328 è G
. ˝I ‡ Â

commpatible rfc1583

no commpatible rfc1583

ð ч Ô

always	^ Л ~ ЎΩ G OSPF ˚ ң ˘ a ам ŭ фж Â
metric metric	^ Л ~] ḣ˘ ий 1 Â
metric-type type	^ Л ~ жш Â OSPF ч жш̇ жш 1˘ a˚ Э ˆ ḣ a У ’ жш 2˘ ˆ ḣ У Â жш 1 жш 2 Л ą Â ий жш 2 Â
route-map map-name	ЎΩ route-map ¨ , ЎΩ route-map

ð ą Ô

a ң Â

ð Ъ ъ Ô

Â

ð G ’ Ô

redistribute default-information Ъ ъ ˘ OSPF ˚ ╠ Л ий ASBR˘ мм ~ Â п ASBR a˚ ╠ ң ˘ ъ OSPF мм è Â ASBR ң ˘ **default-information originate** Ъ ъ Â

always Л ˘ OSPF a ŭ фж ˘ ˚ ą̈ ъ У Â п ам a˚ ˘ ŭ ң ˘ Л Љ **show ip ospf database** OSPF ˘ ий 0.0.0.0 ѓ Â OSPF

```
Ruijie(config-router)# network   0
Ruijie(config-router)# version   2
Ruijie(config-router)# exit
Ruijie(config)# router ospf
Ruijie(config-router)#  network   0 0
area  0
Ruijie(config-router)# default-metric       θ
Ruijie(config-router)#redistribute rip subnets
```

ð ˜Ω Ð ¾ Ô

Ð ¾	
redistribute	ˆ è Â
show ip ospf	ospf ŏ ˜Ω ą

ð / Ô

ð Ô

39.1.14 distance ospf

a˘ ش OSPF

ЛЬЮ R ˘ OSPF ѝ 160

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# distance ospf external 0
```

ð ЎΩЪ ч Ô

ð Л Ô

ð Ô

39.1.15 distribute-list in

LSA

distribute-list {listname | **gateway** plist-name | **prefix** plist-name } **in** [**interface-type** num]

no distribute-list {listname | **gateway** plist-name | **prefix** plist-name } **in** [**interface-type** num]

ð Ч Ô

Ч	
listname	G acl ‡
gateway plist-name	G gateway ‡
prefix plist-name	G prefix-list ‡
interface-type num	Л э Ч LSA

ð ц Ô

ѝ ˘ ŏ Â

ð Ъ ч Ô

Â

ð G ' Ô

ĵ LSA ˘ ˚ Ч б SPF ˘
Â a˛ ط ˘ ≠ a˛ ң ˙ ı
ط˘ Л˛ طĵ ك OSPF Â ╖ У Ұ ABR
ASBR˝ ز Л Љ 8 Ҽ ض Â

ð w R Ô

```
Ruijie(config)# access-list 3permit 0
0
Ruijie(config)# router ospf 2
Ruijie(config-router)# redistribute rip metric 0
```

```
Ruijie(config-router)# distribute-list 3 in ethernet
0
Ruijie(config-router)# distribute-list 3 in ethernet
1
```

ð ‰Ω Ð ¾ Ô

ð / Ô

ð Ô

39.1.16 distribute-list out

ˆ ˜ ¶ ı **redistribute** Ð ¾

distribute-list {l s6×¼5@ wIÞÑ L T1 1 Ñ:PÖ

Ъ ъ	
show ip ospf	OSPF ŏ ˜Ω ə
enable traps	OSPF TRAP ╗

ð Л Ô

ð Ô

39.1.18 enable traps

OSPFv2 м Л 16 TRAP ə ˘ ⎪ и 4 ĕш˘ G Ю Ъ ъ Л Лъ í ╟ TRAP ə Л ÂG Ъ ъ **no** Л Лъ˜Ω TRAP ə Л Â

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 | nbrstatechange | virtifstatechange | virtnbrstatechange**]]

ð Н Ô

Н	
error	б error ˜Ω traps ˜Ω˘ Н Л Лъ Ю error traps ˜Ω˙ **ifauthfailure** Л **ifconfigerror** Л Н **ifrxbadpacket** Л ⎪ **virtifauthfailure** Л **virtifconfigerror** Л Н **virtifrxbadpacket** Л ⎪

lsa	б lsa ѿ traps ѿ ҵ ѧ Ѧ Ъ Ю lsa traps ѿ **lsdbapproachoverflow** LSA ѓ ѫ Э h ѓ ѯ Ҫ π **lsdboverflow** LSA ѓ ѫ Э h **maxagelsa** LSA ѓ ◘ **originatelsa** ҕ LSA
retransmit	б retransmit ѿ traps ѿ ҵ ѧ Ъ Ю retransmit traps ѿ **iftxretransmit** ѧ Э ѧ · **virtiftxretransmit** ѧ Э ѧ ·
state-change	б state-change ѿ traps ѿ ҵ ѧ Ѧ Ъ Ю state-change traps ѿ **ifstatechange** ѧ ѧ ◘ **nbrstatechange** ѧ ◘ **virtifstatechange** ѧ ѧ ◘ **virtnbrstatechange** ѧ ◘

ð ą Ô

ą Ю ŏ TRAP ѿ Â

ð Ѣ ҳ Ô

Â

ð G ˙ Ô

Ѣ ҳ ѧ **snmp-server** Ѣ ҳ 8 ˘ ˝I ѿ **snmp-server enable traps ospf** Ъ ł ˘ Ѣ ҳ Ѧ Ъ Â

Ѣ ҳ a ѧ MIB 8 ˘ ĭ a ˚ ˚ TRAP ѿ Â

ð w R Ô

ЪЮ R ˘ OSPFv2 100 ŏ TRAP ѿ

```
Ruijie(config)# router ospf 0
Ruijie(config)# enable traps
```

ð ѿ Ѣ ҳ Ô

Ѣ ҳ	
show ip ospf	OSPF ŏ ѿ ą
enable mib-binding	OSPFv2 MIB

ð Ѧ Ô

ð Ô

39.1.19 ip ospf authentication

Ƃ ҳ ʎ ˘ G **no** ʎ Л Ъ й Â

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

no ip ospf authentication

ð ʎ Ô

ʎ	
message-digest	ƒ ʎ Э MD5 ╗ Â
null	a Â

ð ɑ Ô

ʎ Э , ʎ Э ƒ ʖ ж

ш Â

ð Ƃ ҳ Ô

ʎ Â

ð G ˙ Ô

Ƃ ҳ ł a ˙ ı . ƒ

G **no** ḣ ˘ ŭ ʎ ƒ ʖ

Э ᾱ ˘ й **null** ‡ 8 й

a , ʎ Э p ʎ ƒ ʖ ж ,.

˝I ʎ Э Â

ð w R Ô

ЛЪЮ R ˘ GigabitEthernet 0/0 ʎ OSPF ш й MD5

Â

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

ð ˝Ω Ƃ ҳ Ô

Ƃ ҳ	
area authentication	í OSPF ʖ ж Ж Â
ip ospf authentication-key	OSPF Â

ip ospf message-digest-key	OSPF MD5 Â

ð Л Ô

ð Ô

39.1.20 ip ospf authentication-key

OSPF ˘ G Л Ъ ҳ **ip ospf authentication-key** Â Ъ ҳ **no** ĩ Â

ip ospf authentication-key key

no ip ospf authentication-key

ð ч Ô

ч	
Key	˘ Л Ль 8 э Â

ð ą Ô

Â

ð Ъ ҳ Ô

Л Â

ð G ' Ôy,ÿ8Epâ€—(m®âuÈ> ETr®0@ y=ê8Ûf2T®

Ruijie(config-if)#ipospfauthentication-keyospfauth

ð ‘Ω Ѣ ҳ Ô

Ѣ ҳ	
area authentication	í OSPF ↖ ₥ ⊮ Â
Ip ospf authentication	í ⅄ Э ⊮

ð ⅄ Ô

ð Ô

39.1.21 ip ospf cost

OSPF ⅄ ∧ У э ˆ ˆ OSPF ˜ ˇ G ⅄

ЛЬЮ R ˘ serial 1/0 ⁄ OSPF ѝ 100 Â

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

ð ˜Ω Ъ ҳ Ô

Ъ ҳ	
bandwidth	⁄ Â a˛ ⊾ · Â
show ip ospf	Ospf ŏ ˜Ω ą

ð ⁄ Ô

ð Ô

39.1.22 ip ospf database-filter all out

```
Ruijie(config-if)# ip ospf database-filter all out
```

ð ∧ Ô

ð Ô

39.1.23 ip ospf dead-interval

OSPF " ∧ Ƃ Ɔ G ∧ Ѣ ҳ **ip ospf dead-interval** ë Ѣ ҳ **no** ë

ip ospf dead-interval seconds

no ip ospf dead-interval

ð ∧ Ô

∧	
seconds	ă Ƃ " Ɔ Лъ ѝ ` æ ë

ð ą Ô

ѝ **ip ospf hello-interval** " ˜ ë

ð Ѣ ҳ Ô

∧ ë

ð G ˙ Ô

OSPF Ƃ ˆ ŭ ƒ Hello ą ë OSPF ƒ Ƃ ą Ɔ
ſ ∧ Hello Ɔ ƫ ÿ è ſ
ë Ƃ ѝ hello 4˜ Ɔ g ɷ hello
Ɔ˛ ╟ g Ƃ ë

Ѣ ҳ Л Лъ g OSPF " Ƃ Ɔ ת πſ ë
ч ‘

Ƃ Ɔ a ɣ hello ’

˙ У Э Ƃ У ë

ð w R Ô

ЛъЮ R Ɔ ѕerial 1/0 " Ƃ

Ѣ ҳ	
ip ospf hello-interval	OSPF ѧ Hello Â

ð ѧ Ô

ð Ô

39.1.24 ip ospf disable all

G ѧ a Ѧ ң ospf Â

ip ospf disable all

no ip ospf disable all

ð ѧ Ô

Ѣ ҳ ѧ

ð ɑ Ô

ð Ѣ ҳ Ô

ѧ Â

ð G ˙ Ô

Ѣ ҳ ѧ ɢ **network area** ŭ ɔ ˇ Ѣ ҳ ћ ˇ ¨ G ѧ ɣ network ˇ ≠ a Ѧ ң ospf Â ɯ a ˛ ɲ ѧ ˙ ı OSPF ˇ ≠ a ѧ б OSPF Â

ð w R Ô

```
Ruijie(config)# interface serial 0
Ruijie(config-if)# ip address 0
0
Ruijie(config-if)# ip ospf disable all
```

ð Ѿ Ѣ ҳ Ô

ð ѧ Ô

ð Ô

39.1.25 ip ospf hello-interval

OSPF ѧ Hello ˇ G ѧ Ѣ ҳ **ip ospf hello-interval** Â Ѣ ҳ **no** Â

ip ospf hello-interval seconds

no ip ospf hello-interval

ð ч Ô

ч	
seconds	OSPF ч hello ˘ Лъ ий` æ Â

ð ą Ô

Лъ 10 ’

PPP à HDLC ч 10 ’

è ĺ ч 10 ’

è ĺ ч à_ .25 ч 30 Â

ð Ъ ч Ô

ч Â

ð G ’ Ô

hello ˆ ŭ ﬓ hello è Â ˘ OSPF ĺ

ч ◘ ≠ ˘ Л ╗ Ã˘ У Э

hello У Â g ″ Ъ ˘

ɗ hello a ¥ Ъ Â

ð w R Ô

ЛъЮ R ˘ serial 1/0 ч OSPF ч Hello

ий 15 Â

```
Ruijie(config)# interface serial 0
Ruijie(config-if)# ip address 0
0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf hello-interval 5
```

ð ΩЪ ч Ô

Ъ ч	
ip ospf dead-interval	OSPF ″ Ъ Â

ð ∕ Ô

ð Ô

39.1.26 ip ospf message-digest-key

OSPF MD5 ˘ G ч Ъ ч **ip ospf message-digest-key** Â Ъ ч no ĩ OSPF MD5 Â

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

no ip ospf message-digest-key

ð ч Ô

ч	
Key	˘ Л Ћ 16 э Â

```
Ruijie(config-if)# ip ospf message-digest-key          5md5
hello5
```

╗ ɢ ɬ˘ ŏ ĩ Â

```
Ruijie(config)# interface Serial          0
Ruijie(config-if)# noipospfmessage-digest-key          0  md5
hello10
```

ð ˜ΩѢ ҁ Ô

Ѣ ҁ	
area authentication	í OSPF ↖ ѧ Ж Â
ip ospf authentication	í ѧ Э Ж

ð ѧ Ô

ð Ô

39.1.27 ip ospf mtu-ignore

ѧ ѯ ˚ ɬ **mtu** ѧ Ъ G Ѣ ҁ Â
Ѣ ҁ **no** Â

ip ospf mtu-ignore

no ip ospf mtu-ignore

ð ѧ Ô

ѧ	
Ѣ ҁ ѧ	

ð ɑ Ô

mtu Â

ð Ѣ ҁ Ô

ѧ Â

ð G ˙ Ô

OSPF ѯ ˚ ˬ ѧ MTU n ѧ
MTU ŭ ˘ , ˚ è ѧ MTU ¥
ѧ MTU, ж ˜Ω a , ѧ Ъ ˜Ω MTU
ā Â

ð w R Ô

ЛЬЮ R ˘ serial 1/0 MTU ╗ ˜Ω Â

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

ð Ô

ð Ô

39.1.28 ip ospf network

OSPF G Ѣ ҳ **ip ospf network** Ѣ ҳ **no** Â

ip ospf network broadcast non-broadcast point-to-multipoint [non-broadcast] point-to-point

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

ð Ô

broadcast	OSPF Â
non-broadcast	OSPF NBMA Â
point-to-multipoint [non-broadcast]	OSPF non-broadcast Â
point-to-point	OSPF Â

ð Ô

PPP SLIP X.25 X.25

NBMA X.25

Â

ð Ô

Â

ð Ô

OSPF FDDI X.25

ĵ ^ HDLC˜ PPP˜ SLIP˜

è è ˘ OSPF ɔ a˚ ʎĵ ȕ ч ɕɯ˙

(NBMA) ɕɯÂNBMA ц

˘ ʎ ŏ ĵ ˘ SVC

^ X.25˜ ˘ ɲ PVC˜ è ˜ У

ÂOSPF ƒƌ NBMA Э ɔ б Э ɹ˘ w

^ Designated Router˜ ˘ ƾ NBMA

Â

ĵ ɕɯÂ a ŏ ˘

OSPF ʎ ɕɯ ĵ ɕɯÂƒƌ ĵ

ɕɯè˘ OSPF ʒ ɔ ĵ ˘ Лъ

w Â ĵ ɕɯʎĵ ȕ ɒ ɕɯ,

ɕɯ .

a ʎ ɕɯ ӣ ж˘ ʎЛъ ȕ ɕɯÂ ʎЛъ

^ è ˘ X.25˜ ˘ ƒƌ OSPF

˘ ʎ ɷ Â **X.25 map** ɒ

frame-relay map Ф ҳ˘ ʎЛъ X.25 ɒ è é Ғ˘

OSPF ʎЛъ X.25 ɒ è ɔ Â

ĵ ʎ ʎЛъ У э э ˘ OSPF ĵ

ɕɯ ˘ ˛ э ў Â ĵ ɕɯ б ɕɯ

ЛЬЮ ˙

˘ a ˘ ≠ ,

ҳ˙ ˘ a ŏ Â

ұ ʎ à è Лъ ɻ X.25 ˘ IP ھ ک ˘

broadcast ˜Ω .

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ è ʎ ȕ ɕɯ˘ ˝ ŏ è

Â

```
Ruijie(config)# interface Serial 0
Ruijie(config-if)# ip address 1
0
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network broadcast
```

ЛЬЮ ᴿ ˘ è ʎ ȕ ĵ ɕɯ˘ ˝ ŏ

è Â

```
Ruijie(config)# interface Serial 0
Ruijie(config-if)# ip address 1
0
Ruijie(config-if)# encapsulation frame-relay
```

```
Ruijie(config-if)#ipospfnetworkpoint-to-multipoint
```

ЛЬЮ R ˘ è л ù ϶˘ DR/RDR˘
˝ ŏ ˛ ´ è ÂЛЬЮ ф ˙
a Э ^ 8 ù DR/BDR˜ Â

```
Ruijie(config)# interface Serial 0
Ruijie(config-if)#ipaddress
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network broadcast
Ruijie(config-if)# ip ospf priority 0
```

ð ΩЪ ч Ô

Ъ ч	
dialer map ip	Ж IP к њ б л л Â
frame-relay map	Ж IP к њ б è DLCI Â
neighbor OSPF˜	Ж IP к њ˘ л ˝ NBMA ϶ n ˙ ϶Â
X25 map	Ж IP к њ б X.25 к њ Â

ð л Ô

ð Ô

39.1.29 ip ospf priority

л OSPF . ″I ḣ˘ G л Ъ ч **ip ospf priority** Â
Ъ ч **no** Â

ip ospf priority priority

no ip ospf priority

ð ч Ô

ч	
Priority	л OSPF . ″I ḣ Â

ð ą Ô

. ″I ḣ ù˝ Â

ð Ъ ч Ô

л Â

ð G ˛ Ô

OSPF ѧ . ″I ḣ ˆ ǖ ҩ hello è Â OSPF ҽ ѧ DR/BDR˜ ˆ ` ~ ˘ . ″I ḣ ˘ ѝ DR BDR Â . ″I ḣ У ˘ ѝ DR BDR Â ˛ ″I ḣ ѝ˚ ˘ a ѧ ѝ DR BDR Â Ѣ ҷ ѧ OSPF **broadcast** ņ **non-broadcast** ҽ Â

---

a :

è ҩ DR ņ BDR ж ᵍ ѧ . ″I a ˛ ¯ ˘ ѧ ҩЮУ DR ņ BDR w è ˛ ˚ ѧ . ″I .

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ GigabitEthernet 0/0 ѧ . ″I ḣ ѝ 0 Â

```
Ruijie(config)# interface GigabitEthernet 0
Ruijie(config-if)# ip ospf priority 0
```

ð ‴Ω Ѣ ҷ Ô

Ѣ ҷ	
ip ospf network	ѧ OSPF ҽ Â

ð ѧ Ô

ð Ô

39.1.30 ip ospf retransmit-interval

Ж ѧ LSU˜ ~ . ˘ G ѧ Ѣ ҷ **ip ospf retransmit-interval** Â Ѣ ҷ **no** Â

ip ospf retransmit-interval seconds

no ip ospf retransmit-interval

ð ѵ Ô

ѵ	
Seconds	LSU · ˘ Лъ ѝ ` æ Â ч ц э ǯ ˆ · Â ѝ 5 Â

ð ą Ô

ѝ 5 Â

ð Ð ¾ Ô

Ä Â

ð ¢ ¯ Ô

Ä У ¾ LSU "

ð G ' Ô

ж· LSU ǯ м˘ è LSAs˜ ~ Age
╗˘ ╗ ⊀ Ъ ч **ip ospf transmit delay** Нж Â
⊀ ⍭ ⊀ ⊀ n · ˘ ¥ æ ˘
⊀ · Ҫ Â LSU · ˘ **area**
virtual-link Ъ ч **retransmit-interval** ˜Ω Нж Â

RGOS ˚ Age ⍭ 3600 LSA˘ · · ˘
⍭ ⊀ 9 ˘ LSA ÿ è Â

ð w R Ô

ЛЬЮ R ˘ serial1/ 0 · ѝ 5 Â

```
Ruijie(config)# interface serial
Ruijie(config-if)# ip ospf transmit delay
```

ð ˜ΩЪ ч Ô

Ъ ч	
area virtual-link	Нж OSPF Â

ð ⊀ Ô

ð Ô

39.1.32 log-adj-changes

Ъ ч ў ⊀ □ ˘ Ъ ч **no** n **default**
⊀ Лъ˜Ω ╗ Â

log-adj-changes [**detail**]

no log-adj-changes [**detail**]

ð ч Ô

ч	
detail	ŏ ⊀ □ ą

ð ą Ô

╗ ˘ a **detail** ч ˘ ⊀ ⍭ Full
Full ą Â

ð Ъ ч Ô

Â

ð w R Ô

39.1.34 neighbor

Ⱶ OSPF ˘ G Ƌ ३ **neighbor** Â Ƌ ३ **no** ╕ Â

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

no neighbor ip-address

ð ५ Ô

५	
ip-address	५ IP ક ક Â

poll-interval
seconds

ЛЬЮ R ˘ ɷ У э OSPF ˘ è IP ѫ ѭ й
172.16.24.2ˇ . ˝I ḣ й 1˘ й 150 Â

```
Ruijie(config)# router ospf 0
Ruijie(config-router)# network 0.0.0.0
area 0
Ruijie(config-router)# neighbor 0.0.0.0 priority 1
poll-interval 0
```

ð ˇΩѢ ҷ Ô

Ѣ ҷ	
ip ospf priority	OSPF . ˝I ḣ Â
ip ospf network	OSPF ښ

ð ѧ Ô

ð Ô

39.1.35 network area

ЖѦ ҂ ѧ OSPFˇ ЛЬ ɻ OSPF ϰ ѫ˘ G
Ѣ ҷ **network area** Â Ѣ ҷ **no** ĩ ѧ OSPF ϰ ѫ ЖѦ Â

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

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

ð ѧ Ô

ѧ	
ip-address	ѧ IP ѫ ѭ Â
wildcard	ЖѦ IP ѫ ѭ Æ˘ ° Ð ˘ ˝ a ṁ Â
area-id	OSPF ϰ ѫ Â У э OSPF ϰ ѫ ˇΩ У э ѫ ѭ ѩ˘ й ɷ ғ ұ ˘ ≠ ѧ ЛЬ У э ɔ й OSPF ϰ ѫ Â

ð ɑ Ô

OSPF ϰ ѫ Â

ð Ѣ ҷ Ô

Â

ð G ˙ Ô

ip-address ц wildcard ч э ч НЖ ї У Ъ ч Л Љ э
ч Ѓ Ω ј У э OSPF ќ ж Â ф У э ч Э OSPF
ч ў IP к ж ^ ф network area НЖ IP к ж нз ц Â **network**
area НЖ IP к ж нз ~ Л ^ ч IP к ж ~ ч а ¸
OSPF Â

ч к ж б э OSPF **network** Ъ ч НЖ IP к ж нз Ъ
~ . Ъ ~ ч ч б OSPF Â

ð w R Ô

ЉЮ R ~ НЖ ¢ ' э ќ ж ' О 1 ~ 172.16.16.0 Â IP к ж ф
192.168.12.0/24 нз ц ч НЖ ј ќ ж 1 ~ IP к ж ф
172.16.16.0/20 нз ц ч НЖ ј ќ ж 172.16.16.0 О è м ч НЖ
ј ќ ж 0 Â

```
Ruijie(config)# router ospf 0
Ruijie(config-router)# network 0
0 area 0
Ruijie(config-router)# network 0
0 area 1
Ruijie(config-router)# network 0
area 0
```

ð Ω Ъ ч Ô

Ъ ч	
router ospf	… OSPF Â

ð ч Ô

ð Ô

39.1.36 overflow database

Ъ ч ц м OSPF R LSA Â

overflow database <0-4294967294 > **hard** | **soft**

no overflow database

ð ч Ô

ч	
<1-4294967294 >	LSA
hard | **soft**	hard LSA ~ Ѓ Ω OSPF R ' soft LSA ~ ч ъ Â

ð α Ô

ð Ф ҳ Ô

Â

ð G ’ Ô

˜Ω OSPF

ð G ’ Ô

w R

R 1' OSPF ҙ ӷ a ɑ Ю a ώ OVERFLOW
Ruijie(config)# router ospf 1
Ruijie(config-router)# no overflow memory-lack

ˇΩ Ъ ҳ

Ъ ҳ	
clear ip ospf process	OSPF R Æ
show ip protocols ospf	OSPF ˇΩ ə

ʌ

Ъ ҳ \ ʌ

ʌ	
10.3(4b3)	Ъ ҳ

ЛЬЮ R ˘ л serial 1/0 и ╠ л Â

```
Ruijie(config)# router ospf θ
Ruijie(config-router)# passive -interface serial 0
```

ð ˜Ω Ъ ч Ô

Ъ ч	
show ip ospf interface	л ˜Ω ą

ð л Ô

ð Ô

39.1.40 redistribute

Ъ ч ¥ ł ∧ ą Â

redistribute {**bgp** | **isis** area-tag | **ospf** process-id | **rip** | **connected** | **static**} {**level-1** | **level-1-2** | **level-2**} [**metric** value | **match** {**internal** | **external | external** 1 | **external** 2 | **nssa-external | nssa-external** 1| **nssa-external** 2}|**metric-type** {**1**|**2**} | **route-map** map-tag | **tag** <0-4294967295 > | **subnets**]

no redistribute {**bgp** | **isis** area-tag | **ospf** process-id | **rip** | **connected** | **static**} {**level-1** | **level-1-2** | **level-2**} [**metric** value [**match** {**internal** | **external** 1 | **external** 2 **nssa-external** 1| **nssa-external** 2}] | **metric-type** {**1**|**2**} | **route-map** map-tag | **tag** <0-4294967295 > | **subnets**]

ð ∧ Ô

∧	
bgp	**isis** area-tag	**ospf** process-id	**rip**	**connected**	**static**	ł ˜ Â
metric	OSPF extern2 LSA metric Â
Level-1/ level-1-2/ level-2	л ł ∧ IS-IS G ˘ ¥ level ł ∧˘ л ĭ level-2 IS-IS ł ∧ Â
match	л ł ∧ OSPF G ˘ ¥ ł ∧˘ ĭ OSPF ł ∧’
metric-typ	ڜ и E-1 E-2 Â

route-map	ї ‡ Â
tag	ї ї OSPF ф tag ḣ Â
subnets	Л ї ñ Â

ð ф Ô

ð Ъ ч Ô

ð G ' Ô

Ъ ч ћ˘ Л й ASBR˘ ę ώ OSPF
ѫ ф˘ Љ type-5 LSA ї ѫ ф è ы OSPF Â

ї ˘ BGP metric й 1˘ è м ҷ LSA
metric й 20ʼ

ї **isis** ˘ a level ч ˘ Л ĭ ї Ч level-2
˘] ї ˘ level ч ˘ ‡ ĭ ї Ч level
ч Â ɖ ˘ й ɷ ғ˘ ˚ level 1, level 2 ˘ ´
й level-1-2 ч ɖ Â ч w R Â

ї **ospf** ˘ a match ч ˘ ĭ ї Ч
ҷ ospf ' ћ У match ч ɔ й] match ч
˘ ї Ч Л ĭ Ē ҷ ї Ч' G no Ъ ч
match ч й ḣ Â ч w R Â

ї ˘ route-map ˘ route-map è match ‡
ї Ч ч ч Ē ' ц ї Ч OSPF ISIS ˘ Л
ї Ч match level ‡˘ Ѧ route-map
″ Â

ð w R Ô

ЉЮЪ ч ї ї OSPF ѫ ф

```
Ruijie(config-router)# redistribute static subnets
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute ospf 2 subnets
Ruijie(config-router)# redistribute ospf 2 match
external 1 internal
Ruijie(config-router)# redistribute isis 0
Ruijie(config-router)# redistribute isis i 0
```

Show run Ю

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

```
redistribute isis isis-001 level-1-2
```

ð ‘Ω Ѣ ҷ Ô

ð ⁄ Ô

ð Ô

39.1.41 router ospf

… OSPF ˘ G ŏ Ѣ ҷ **router ospf** Â Ѣ ҷ **no** ĩ ЊЌ OSPF Â

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

no router ospf process-id

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ч	
process-id	ospf ⁄
vrf-name	ƒ VRF ң ъ è˘ ¥ OSPF VRF

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a ƒ OSPF Â

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RGOS10.1 ƒ ч ﻲ Э ╗ ¢ ч ˙ ⁄˘ й R ospf Â a˚ ospf R ц ˘ ⁄ Љ ı й ч э ц a ˜ Â

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ЉЮ R ˘ ƒ **vrf** vpn_1 ą … OSPF 10 Â

Ruijie(config)# router ospf 0 vrf 1

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Ѣ ҷ	
show ip protocols	м ˜ ə Â
show ip ospf	м ospf ə Â

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39.1.42 router-id

ID, G Ђ ҳ **no** ʌ Лъ Router ID˘ G Router ID Â

router-id router-id

no router-id

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↓	
router-id	ID,Лъ IP ѕ ћ Â

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OSPF w ʌ ip ѕ ћ ɔ ѝ Â

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ʌ Лъ ˙ ị У э ip ѕ ћ ɔ ѝ ˘ Ո ʌ
ڈ У Â ұ ʌ ł˘ ˜ ą̈ ˛ ṁ
, Лъ a ў ʌ ˘ Лъ ў ǵ ’
ʌ ʌ ƒ ˙ ị LSA ĭ . Лъƒ OSPF ˘

OSPF ˘ G Ф ҳ
summary-address Ф ҳ **no** Â

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

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

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ÿ è ˘ ώ OSPF ˘
OSPF Â ώ
˘ ÿ Â

б **area rang** Ф ҳ a˘ ˘ area range OSPF ˘
summary-address OSPF Â

Ұ NSSA ˘ **summary-address** Ф ҳ NSSA ABR Э
˘ Â

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ЛЬЮ Ф ҳ˘ ң У 100.100.0.0/16 Â

```
redRuijie(config)# router ospf 0
Ruijie(config-router)# summary-address 0 0
255.255.0.0
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# network 0 0
area 1
Ruijie(config-router)# network 0 0
area 0
Ruijie(config-router)# area 1nssa
```

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area range	ҩ OSPF ҟ ѽ	Э ṁ	Â

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39.1.44 timers lsa-group-pacing

Ъ ҳ LSA ⁋ ł ⁹ Л Ч ◘

˘ Ъ ҳ **no** Â

timers lsa-group-pacing seconds **tno imers lsa-group-pacing ЇЌHAЋ**

39.1.45 timers spf

OSPF ъй Ї ч ◘ ә ˘ SPF ˘ Лъ
ч ц SPF ˘ G Ъ ч **timers spf** Â
Ъ ч no Â

timers spf spf-delay spf-holdtime

no timers spf

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ч	
spf-delay	Нж SPF ˘ Лъ й ` æ Â OSPF Ї ч ◘˘ ł˘ SPF Â
spf-holdtime	Нж ц SPF ʒ ˘ Лъ й ` æ Â Ї ˘ a SPF Â

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spf-delay ' 5 ' spf-holdtime ' 10 Â

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spf-delay п spf-holdtime ˘ OSPF ч ◘
≠ ˘ ≠ ˘ п ˛ . CPU
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ЛЬЮ R ˘ OSPF п ф Ї ⁞ й 3 п 9 Â

```
Ruijie(config)# router ospf 0
Ruijie(config-router)# timers spf 39
```

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Ъ ч	
show ip ospf	ospf ˜Ω ә

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39.2

39.2.1 show ip ospf

OSPF ə ˘ G Ъ ҳ **show ip ospf** Â

show ip ospf [process-id]

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process-id	ospf л

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Ъ ҳ Л Љ OSPF ə Â

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ЉЮ ѝ **show ip ospf** Ъ ҳ

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

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

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Router ID	Â
Process uptime	OSPF ^ router-id й 0.0.0.0 a ~
Bound to VRF	OSPF VRF
Conforms to RFC2328	б RFC2328 У
RFC1583Compatibility flag	ф RFC1583 ‡ RFC2328 ‡ ф л ASBR p ‡ ∫
Support Tos	Л TOS0
Supports opaque LSA	opaque-LSA
Rc 0.00Type	OSPF ш normal à ABR à ASBR Â
SPF Delay	∫ Л □ SPF
SPF-holdtime	ч SPF ǯ

LsaGroupPacing	LSA ˘ n ˘ ◘
Incomming current DD exchange neighbors	ڤ Ꮉ ҵ ˘ incomming ώ exstart
Outgoing current DD exchange neighbors	ڤ Ꮉ ҵ ˘ outgoing ÿ تي exstart Ꮉ ҵ
Number of external LSA	è ẏ LSA
External LSA Checksum Sum	è ẏ LSA n n
Number of opaque LSA	è ẏ opaque-LSA
Opaque LSA Checksum Sum	è ẏ opaque-LSA n n
Number of non-default external LSA	external-LSA
External LSA database limit	external-LSA 8
Exit database overflow state interval	″ overflow
Database overflow state	ɱ OSPF ŭ Ɣ overflow
Number of LSA originated	LSA
Number of LSA received	ˆ LSA
Log Neighbor Adjency Changes	∤ ◘ ʔΩ ŭ
Number of areas attached to this router	Э ؞
Area type	؞ ڜ, ḣ Default, Stub,NSSA
Number of interfaces in this area	Ɣ ؞ ∤
Number of fully adjacent neighbors in this area	Ɣ ؞ Full
Number of fully adjacent virtual neighbors through this area	Ɣ ؞ Full ’ ∤ ڤ ڜ ؞ ’
Area authentication	؞
SPF algorithm last executed	Э SPF
SPF algorithm executed times	SPF

Number of LSA	¥ ˇ LSA
Checksum Sum	ˇ LSA p p
NSSA Translator State	ў NSSA LSA й External LSA' Θ NSSA ˇ з ABR OSPF '

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39.2.2 show ip ospf border-routers

ĺ ABR/ASBR OSPF ¤ ˘ G Ъ ч **show ip ospf border-routers** Â

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

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ч	
process-id	ospf Л

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Ъ ч˘ Л Љ ѕ ĺ ABR ASBR OSPF ¤ ÂOSPF ¤ a˘ ¥ **show ip route** ˘ OSPF ¤ ѕ ѓ й OSPF ˘ a Â

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ЉЮ й **show ip ospf border-routers** Ъ ч '

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

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

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

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Codes	ъш ч HЖ Âi ˇ I ˇ ž Â

I	ѝ ѵ ѫ ѽ Â
1.1.1.1	OSPF Â
[2]	ˆ ˆ ˆ cost˜ Â
via 10.0.0.1	ˆ Ю У ˜Ω Â
GigabitEthernet 0/1	ˆ ѧ Â
ABR, ASBR	˜ ABR n ASBR ч ˘ ѧ Л˘ ABR n ASBR Â
Area 0.0.0.1	ˉ ˆ ѵ ѫ Â
select	ˆ ASBR ˘ select ɱ . Â

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39.2.3 show ip ospf database

OSPF ҷ ˘ G Ъ ъ **show ip ospf database** Â

Ъ ъ a˘ a˘ ˆ LSAs˜ ҷ Â

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

show ip ospf [process-id area-id] **database** [**adv-router** ip-addr(a)<| [process-id area-id]

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

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

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

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

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

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

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

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

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

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

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

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৸	
Area-id	^ ⁄ ~ ৸
adv-router	^ ⁄ ~ Ω ৮ ə
link-state-id	^ ⁄ ~ ⁄ OSPF ə Â
self-originate	^ ⁄ ~ ə
maxage	^ ⁄ ~ ∫ ◘ LSA
router	^ ⁄ ~ OSPF ə Â
network	^ ⁄ ~ OSPF ə Â
summary	^ ⁄ ~ OSPF ə Â
asbr-summary	^ ⁄ ~ ˜Ω ¥ ASBR ə Â

external	ˆ ʌ ˜ OSPF ҷ Â
nssa-external	ˆ ʌ ˜ OSPF Ц ҷ Â
opaque-area	ˆ ʌ ˜ π LSA
opaque-as	ˆ ʌ ˜ π У LSA
opaque-link	ˆ ʌ ˜ Ҫ LSA
database-summary	ˆ ʌ ˜ OSPF Ӌ LSA ҷ

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OSPF ˘ ˡ π¦ Â ᴋ ᴳ
Ҿ Ƃ ҳ˘ ╠ ¥ OSPF Â

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ЛЬЮ ѝ **show ip ospf database** Ƃ ҳ ˙

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

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

        Network Link States (Area 0.0.0.0)

Link ID        ADV Router     Age  Seq#      CkSum
193.88.88.27    1.1.1.1        120  0x80000001 0x5366

        Summary Link States (Area 0.0.0.0)

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

      Router Link States (Area 0.0.0.1 [NSSA])
```

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

      Summary Link States (Area 0.0.0.1 [NSSA])

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

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

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

              AS External Link States

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

show ip ospf database Ф ч л Ю Â

OSPF Router with ID	OSPF б OSPF л
Router Link States	ЛЬЮ ф й ә Â
Net Link States	ЛЬЮ ф й ә Â
Summary Net Link States	ЛЬЮ ф й ә Â
NSSA-external Link States	

Age	фф Â
Seq#	ѓ ¥ LSA Â
Cksum	p Â
Link-Count	ф è
Route	LSA ^ ЎЎ ф
Tag	Â

ЛЬЮ й **show ip ospf database asbr-summary** Ъ ч

```
Ruijie# show ip ospf database asbr-summary
OSPF Router with ID (1.1.1.35) (Process ID 1)
ASBR-Summary Link States (Area 0.0.0.1)
LS age: 47
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: ASBR-summary-LSA
Link State ID: 3.3.3.3 (AS Boundary Router address)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0xbe8c
Length: 28
Network Mask: /0
TOS: 0  Metric: 1
```

show ip ospf database asbr-summary Ъ ч л ЮÂ

OSPF Router with ID	ЛЬЮ ф б OSPF ѓ
AS Summary Link States	ЛЬЮ AS ф Â
LS age	фф Â
Options	Â
LS Type	шх Â
Link State ID	Â
Advertising Router	Ъ Â
LS Seq Number	ѓ Â
Checksum	p Â

Length	˘ Лъ ѝ ` Æ Â
Network Mask	Â
TOS	TOS ћ˘ ґт Л ѝ 0Â
Metric	ћ Â

ЛЬЮ ѝ **show ip ospf database external** Ъ ч

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

show ip ospf database external Ъ ч Л Ю Â

OSPF Router with ID	ЛЬЮ ą б OSPF л Â Â
Type-5 AS External Link States	ЛЬЮ ą ѝ ą Â
LS age	ф Â
Options	Â
LS Type	ш Â
Link State ID	Â
Advertising Router	ъ Â
LS Seq Number	л Â
Checksum	n Â

Length	˘ Лъ й ` æ Â
Network Mask	Â
Metric Type	ъшЖ Â
TOS	TOS ћ˘ ґт Л й 0 Â
Metric	ћ Â
Forward Address	ў ˘ Л ў IP кс нн Â кс нн й 0.0.0.0 ‡ ° Л ў ң Â
External Route Tag	˘ э 32 э Â OSPF a G ˘ фъ è ў OSPF ° ў Â

ЛЬЮ й **show ip ospf database network** Ъ ҳ

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

LS age: 572
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: network-LSA
Link State ID: 192.88.88.27 (address of Designated
Router)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x5366
Length: 32
Network Mask: /24
Attached Router: 1.1.1.1
Attached Router: 3.3.3.3
```

show ip ospf database network Ъ ҳ Л Ю Â

OSPF Router with ID	ЛЬЮ ә б OSPF л Â
Network Link States	ЛЬЮ й ә Â
LS age	фъ Â
Options	Â
LS Type	ъшЖ Â

Link State ID	Â
Advertising Router	ъ Â
LS Seq Number	ѓ Â
Checksum	ц Â
Length	ў Љ ѝ ` æ Â
Network Mask	Â
Attached Router	Э Â

ЉЮ ѝ **show ip ospf database router** Ђ ғ

```
Ruijie# show ip ospf database router
OSPF Router with ID (1.1.1.1) (Process ID 1)
Router Link States (Area 0.0.0.0)
LS age: 322
Options: 0x2 (*|-|-|-|-|-|E|-)
Flags: 0x3 : ABR ASBR
LS Type: router-LSA
Link State ID: 1.1.1.1
Advertising Router: 1.1.1.1
LS Seq Number: 80000012
Checksum: 0x6d3a
Length: 48
Number of Links: 2

Link connected to: Stub Network
(Link ID) Network/subnet number: 100.0.1.1
(Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0
TOS 0 Metric: 0
```

show ip ospf database router Ђ ғ Ј Ю Â

OSPF Router with ID	ЉЮ ә б OSPF ѓ Â
Router Link States	ЉЮ ѝ ә Â
LS age	ف Â
Options	
Flag	router
LS Type	ش Â

Link State ID	Â
Advertising Router	ђ Â
LS Seq Number	ѓ Â
Checksum	ҧ Â
Length	˘ Лъ ѝ ` Æ Â
Number of Links	ћΩ Â
Link connected to	˘ Лъ ѵ ћшÂ
(Link ID)	Â
(Link Data)	Â
Number of TOS metrics	TOS ћ˘ ѓ TOS0Â
TOS 0 Metrics	TOS˚ ћ Â

ЛЬЮ ѝ **show ip ospf database summary** Ђ ғ

```
Ruijie# show ip ospf database summary
OSPF Router with ID (1.1.1.1) (Process ID 1)
Summary Link States (Area 0.0.0.0)
LS age: 499
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: summary-LSA
Link State ID: 10.0.0.0 (summary Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 80000004
Checksum: 0x330e
Length: 28
Network Mask: /24
TOS: 0  Metric: 11
```

show ip ospf database summary Ђ ғ Ј Ю Â

OSPF Router with ID	ЛЬЮ ә б OSPF ѓ Â
Summary Net Link States	ЛЬЮ ѝ ә Â
LS age	ф Â
Options	Â
LS Type	ћшÂ

Link State ID	Â
Advertising Router	ъ Â
LS Seq Number	л Â
Checksum	р Â
Length	ў Лъ ий ` Æ Â
Network Mask	Â
TOS	TOS h˘ м л ий 0Â
Metric	h Â

ЛъЮ й **show ip ospf database nssa-external** Ъ ч

```
Ruijie# show ip ospf database nssa-external
OSPF Router with ID (1.1.1.1) (Process ID 1)
   NSSA-external Link States (Area 0.0.0.1 [NSSA])
LS age: 1
Options: 0x0 (*|-|-|-|-|-|-|-)
LS Type: AS-NSSA-LSA
Link State ID: 20.0.0.0 (External Network Number For
NSSA)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x033c
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
NSSA: Forward Address: 100.0.2.1
External Route Tag: 0
```

show ip ospf database nssa-external Ъ ч л ЮÂ

OSPF Router with ID	ЛъЮ ъ б OSPF л Â
NSSA-external Link States	ЛъЮ ъ й Ц ъъ ъ Â
LS age	ъф Â

Options	Â
LS Type	ڜ Â
Link State ID	Â
Advertising Router	ڑ Â
LS Seq Number	۴ Â
Checksum	ڈ Â
Length	˘ Лъ ѝ ` Æ Â
Network Mask	Â
Metric Type	ڜ Â
TOS	TOS ḣ˘ ṃ ۸ ѝ 0 Â
Metric	ḣ Â
NSSA:Forward Address	ˆ ˘ ۸ˆ IP ѫ ѭ Â ѫ ѭ ѝ 0.0.0.0 ‡ ˚ ۸ˆ ң Â
External Route Tag	˘ э 32 э Â OSPF a G ˘ ڣ è ˆ OSPF ˚ ˆ Â

ЛЬЮ ѝ **show ip ospf database external** Ъ ҳ

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.1) (Process ID 1)
AS External Link States
LS age: 1290
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external Ъ ҳ Ы Ю Â

OSPF Router with ID	ЛЬЮ ѣ б OSPF ѧ Â
Type-7 AS External Link States	ЛЬЮ ѣ ѝ Ц ѽ ѣ Â
LS age	ѳ Â
Options	Â
LS Type	ѿ Â
Link State ID	Â
Advertising Router	ѣ Â
LS Seq Number	ѧ Â
Checksum	p Â
Length	˘ Лъ ѝ ` æ Â
Network Mask	Â
Metric Type	ѿ Â
TOS	TOS ћ˘ ѫ Ѧ ѝ 0 Â
Metric	ћ Â
Forward Address	ѓ ˘ Ѧѓ IP ѕ ѕ Â ѕ ѕ ѝ 0.0.0.0 ‡ ѯ Ѧѓ ң Â
External Route Tag	˘ э 32 э Â OSPF a G ˘ ѳ è ѓ OSPF ѯ ѓ Â

ЛЬЮ ѝ **show ip ospf database database-summary** Ъ ъ

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

show ip ospf database database-summary Ъ ъ Ы Ю Â


```
Internet Address 192.88.88.27/24, Ifindex 4, Area
0.0.0.0, MTU 1500
Matching network config: 192.88.88.0/24
Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST,
Cost: 1
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 1.1.1.1, Interface Address
192.88.88.27
Backup Designated Router (ID) 3.3.3.3, Interface Address
192.88.88.72
Timer intervals configured, Hello 10, Dead 40, Wait 40,
Retransmit 5
Hello due in 00:00:03
Neighbor Count is 1, Adjacent neighbor count is 1
Crypt Sequence Number is 70784
Hello received 1786 sent 1787, DD received 13 sent 8
LS-Req received 2 sent 2, LS-Upd received 29 sent 53
LS-Ack received 46 sent 23, Discarded 1
```

show ip ospf interface serial 1/0 Ъ ҷ ӏ Ю Â

GigabitEthernet 0/0 State	ӏ ˘ UP ↄ˘ Down Â
Internet Address	ӏ IP ҳҳ ҡ Â
Area	ӏ OSPF ҳ ҳҳ Â
MTU	MTU
Matching network config	OSPF network area
Process ID	ӏ
Router ID	OSPF Â
Network Type	OSPF ҳшҳ Â
Cost	OSPF ӏ Â
Transmit Delay is	OSPF ӏ· Â
State	DR/BDR Â
Priority	ӏ . ″I
Designated Router(ID)	ӏ DR
DR's Interface address	ӏ DR ӏ ҳҳ ҡ
Backup designated router(ID)	ӏ BDR

BDR's Interface address	ﾉ BDR ﾉ ﾑ ﾙ
Time intervals configured	ﾉ Helloˇ Deadˇ Waitˇ Retransmit
Hello due in	Э HELLO ﾍ
Neighbor count	
Adjacent neighbor count	Full
Crypt Sequence Number	ﾉ md5 ﾉ
Hello received send	↑ б ﾍ HELLO Â
DD received send	↑ б ﾍ DD Â
LS-Req received send	↑ б ﾍ LS Â
LS-Upd received send	↑ б ﾍ LS Â
LS-Ack received send	↑ б ﾍ LS ﾋ Â
Discard	x OSPF Â

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39.2.5 show ip ospf neighbor

OSPF ˘ G Ъ ҳ **show ip ospf neighbor** Â

show ip ospf [process-id] **neighbor** [[**detail**] | [[interface-type interface-number] [neighbor-id]]]

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detail	ˆ ﾉ ˜ ҷ Â

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Ƃ ҳ Л Љ ə ˘ Ƃ ҳ OSPF ŭ
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ЉЮ ì **show ip ospf neighbor** Ƃ ҳ ‘

```
Ruijie# show ip ospf neighbor
OSPF process 1, 1 Neighbors, 1 is Full:
```

Interface	⅄
interface address	⅄ ⋲ ⋔
In the area	˜ ⍭ ⍲ ⋔
via interface	⍭ ⅄ Â
Neighbor priority	OSPF ˙ ″I ḣ Â
State	OSPF ÂFULL Ɣ ’ DR ѝ ’ BDR ѝ ` ’ DROTHER a DR/BDR Â ⍭ ⋓ DR BDR Â
State changes times	⅄ ◘
Dead Time	‘
DR	w DR ⅄ ⋲ ⋔ (Hello DR)
BDR	w BDR ⅄ ⋲ ⋔ (Hello BDR)
Options	Hello E ⍰ ˘ 0 ⍲ ⋔ ѝ STUB’ ˘ ⍲ ⋔ a STUB ⍲ ⋔ Â
Dead timer due in	⍮ Â
Neighbor up time	⅂ ⍭ ⋒
Database Summary List	DD

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39.2.6 show ip ospf route

ospf Â

show ip ospf [process-id] **route**[**count**]

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ч	
process-id	ospf ⁄˘ ч ospf Â
count	⅃ ospf ə Â

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```
Ruijie# show ip ospf route
OSPF process 1:
Codes: C - connected, D - Discard, O - OSPF,
IA - OSPF inter area  N1 - OSPF NSSA external type 1,
N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
E2    100.0.0.0/24    [1/20]    via    192.88.88.126,
GigabitEthernet 1/0
C     192.88.88.0/24   [1]   is   directly   connected,
GigabitEthernet 1/0, Area 0.0.0.1
```

show ip ospf route Ъ ҳ ⅃ Ю

codes	ҷшЛъ ч ĵ̃
100.0.0.0/24	ɱ Â
[1]	cost
via	Ю У б ⁄

ð ˇΩЪ ҳ Ô

ð ⁄ Ô

ð Ô

39.2.7 show ip ospf summary-address

OSPF ƚ ˘ G Ƌ ҳ

show ip ospf summary-address Â

show ip ospf summary-address

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Ƌ ҳ ⊣ Â

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39.2.8 show ip ospf virtual-link

OSPF ə ˘ G Ъ ҳ **show ip ospf virtual-link** Â

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

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Ъ ҳ ч	

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˘ Л Ъ ҳ ˘ Лъ ч è ˜Ω ə
Â **show ip ospf neighbor** Ъ ҳ a Â

ð w R Ô

ЛЬЮ ѝ **show ip ospf virtual-links** Ъ ҳ

```
Ruijie# show ip ospf virtual-links
Virtual Link VLINK0 to router 1.1.1.1 is up
Transit area 0.0.0.1 via interface GigabitEthernet 0/1
Local address 10.0.0.37/32
Remote address 10.0.0.27/32
Transmit Delay is 1 sec, State Point-To-Point,
Timer intervals configured, Hello 10, Dead 40, Wait 40,
Retransmit 5
Hello due in 00:00:05
Adjacency state Full
```

ч ЮÂ

Virtual Link VLINK0 to router	Лъ ч
Virtual Link state	.
Transit area	ˇ ѽ Â

via interface	˜Ω ѧ Â
Local address	ѧ ѩ ѫ
Remote Address	ѧ ѩ ѫ
Transmit Delay	· Â
State	ѧ
Time intervals configured	ѧ Hello˘ Dead˘ Wait˘ Retransmit
Adjacency State	Â FULL ѝ Â

ð ѧ Ô

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ù ɷ Ɋ ˘ Л Ъ ĵ ⁸ “ ˘
ĵ Â Ƃ ɂ OSPF ˜ ˘ ɯ ù
OSPF ĵ a é ɛ ˘ Â

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ЛЪЮ ᴿ ˘ RIP ÿ GigabitEthernet 0/0 л ˘ ɷ
⁸ ˘ л ĭ 172.16 Â

```
Ruijie(config)# router rip
Ruijie(config-router)# network 
Ruijie(config-router)# distribute-list  in
Ruijie(config-router)# no auto-summary
Ruijie(config-router)# exit
Ruijie(config)#  access-list  permit 
```

ð ˜Ω Ƃ ɂ Ô

Ƃ ɂ	
access-list	Ⱨ Ⱪ “ ‡
prefix-list	Ⱨ Ⱪ ɱ “

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40.1.2 distribute-list out

⁸ ˀ˘ Л Ъ ˘ G Ƃ ɂ
distribute-list out Â Ƃ ɂ **no** ĵ Ⱨ Ⱪ Â

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

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

ð ɻ Ô

ɻ	

access-list-number	" ʎ ñ " ʎ ϫ΄ 1-99˘ 1300-1999 " ʎ ϫ΄ 100-199˘ 2000-2699
access-list-name	" ¨
prefix prefix-list-name	G ɱ "
Interface	(ʎ) ϳ " ˘ ϟ 8 ʎ ϕϧ ʎ
protocol	(ʎ) ϳ " ˘ ϳ

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Ъ ϗ a ˙ ı ʎ ϟ ˘ ϟ 8 ʎ ϟ ɔ ˈ
ʎ ˘ ϟ 8 ʎ ʎ ɔ ˈ è
ϟ ˘ ‡ ϳ ˘ è ɔ
a ϟ 8 ϧ Â

OSPF ϟ 8 ˘ a ʎ˘ ϶ ʎ
Ɣ OSPF ϰϰ Â

ð w R Ô

ЛЬЮ R ˘ RIP ʎ ϟ 192.168.12.0/24 ϫ ϕ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# network 0
Ruijie(config-router)# network 0
Ruijie(config-router)# distribute-list 0 out
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# access-list 0 permit 0
0
```

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Ъ ϗ	
access-list	HЖ " ‡
prefix-list	HЖ ɱ "

redistribute	ĵ

40.1.3 ip community-list

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

no ip community-list {{**standard** | **expanded**} community-list-name | community-list-number }

ð ч Ô

ч	
standard	ñ ш е “
expanded	ш е “
community-list-name	ш е “ ¨ ш е “ ¨ a 80
community-list-number	ш е “ л ñ ш е “ ' л нz й 1-99 ш е “ ' л нz й 100-199
permit	ĭ
deny	
community-number	ш е ḣ Â й AA:NN(л' 2)˘ У э ḣ˘ нz 0-4294967295˘ ЛЬЮ ЊЖ ḣ' internet˘ Internet ш е˘ Ұ ш е Â local-as˘ a ч ĵ AS ˘ ˘ a ч è Â no-advertise˘ a ч ' ı У э BGP peers Â no-export˘ a ч EBGP peers Â нz' 1..255 Â ' ṁ э ш е “ 32 э ш е ḣ Â

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ĦЖ ش E “

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G Ƒ ٶ ĦЖ ɣ BGP ش E “ Â

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Ruijie(config)# ip community-list standard test deny 00
Ruijie(config)# ipcommunity-liststandard test2 permit internet

ð ˇΩƑ ٶ Ô

Ƒ ٶ	
match community	Ɔ ش E “
set comm-list delete	ش E “ ĵ BGP è ش E ḣ
show ip community-list	ش E “ ٹ
show ip bgp community-list	Ɔ ش E “ BGP ٹ

ð Λ Ô

40.1.4 ip default-network

˘ G ŏ Ƒ ٶ **ip default-network** Â Ƒ ٶ no Λ Ɲĵ Â

ip default-network network

no ip default-network network

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ѝ ҂ ң ˘ **default-network** ң

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Лъ“*” ⊿ ˘ Ą Â

è connected ņ Ю У ˘ ‡ Â

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ЛЬЮ R ˘ 192.168.100.0 ѝ ˘ Ұ ҂ĺ

˘ Лъ ╟ ң У Â

Ruijie(config)# ip route

seq-number	У ɱ “ Лъ “ ѵ Âè ɲ 1ˆ 2147483647 Â Ъ ҳ ˆ ΰ̈ э “ ѵ˘ ‡ ˛ ѝ ɱ “ ˆ У э “ ѵ Â У э “ ѵ 5˜ ɨ У э ḣ “ ѵ ḣ ɱ У э “ ѵ У э 5 ˜ ḣ
deny	ɣ ɒ ɑ
permit	ɣ ɒ ɑ ĭ
ip-prefix	ѕ ћ Лъ ɻ Â ѕ ћ ѵ Лъ · IP ѕ ћ Â ÿ 0ˆ 32
minimum-prefix-length	ˆ ѵ ˜ ɲ ḣ (¯ ɲ)

```
Ruijie# configure terminal
Ruijie(config)# ipprefix-listpre1permit
Ruijie(config)# router ospf
Ruijie(config-router)#distribute-listprefixpre1out
rip
Ruijie(config-router)# end
```

40.1.6 ip prefix-list description

й У э м “ ╗ ˘ G **ip prefix-list description** Ъ ҳ Â
Ъ ҳ **no** ˝ У э м “ Â

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

ð ч Ô

prefix-lis-name	м “ ¨
descripton-text	м “

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╗ м “

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ЛЬЮ R й IP м “ ╗ **Deny routes from Net-A**
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre description Deny
routes from Net-A

40.1.7 ip prefix-list sequence-number

й м “ ĺ ╗ ˘ G **ip prefix-list description** Ъ ҳ Â
Ъ ҳ **no** ч м “ ╗ Â

ip prefix-list sequence-number

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ЛЬЮ R ѝ ɱ “ Í ╗ ‘

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

40.1.8 ip route

˘ G ŏ Ъ ϧ ip route Â Ъ ϧ no ĩ Â

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

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ϟ	
vrf_name	VRF¨
network	ѕ ѩ
net-mask	
ip-address	Ю У ѕ ѩ
Interface	ˆ Л ˜ Ю У Л
distance	ˆ Л ˜
tag	ˆ Л ˜ Tag ḣ
permanent	ˆ Л ˜ Ѧ
number	ˆ Л ˜ ḣ
disable/enable	ˆ Л ˜ G

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ѝ 1˜ ˘ ∧ Лъ ї ╠
ǀ ˘ ∧ ╠ a ǀ ˘ G Â
∧ Лъ ` ˘ ˘ У
ч ѝ ╠ Â OSPF ˜ ѝ 110˝ ∧ Лъ
ѝ 125˜ OSPF ˘
∧ Лъ ǀ Э Â

∧ Лъ ҰvrfЂ ‡ ╕ǀ vrf Â

ѝ 1˜ ∧ Лъ G **show ip route weight** Ъ ҳ
Â ч weight Ұ WCMP ╖ ˘ ѣ
ѧ ∧ǀ ˘ Ђ ˬ ˩ ḣǀ
˘ weight ˬ ǀ ˘ ˬ ǀ
Â ѫ WCMP ⁸ У ѝ 32˝ Ђ ‡ Ұ ˩
a ˘ Лъ è WCMP ⁸ б ѿ ∧ ЎΩ’ ѧ
Ѯ ц Ұ ⁸ ˘ ⁸ a ˬ Â

G ⁸ ŭ ˘ ‡ a ˬ Ұ ∧ Â
Ћ ∧ ˘ ǀ ˘ ŭ ‡ У ѣ Â

Лъ ∧ ˘ ȯ Ю У ѝ ∧^ ip route 0.0.0.0 0.0.0.0 GigabitEthernet 0/0˜ Â ˬ
˘ ѣ GigabitEthernet 0/0 ∧˘ ѿ э ў
∧ У э ARP ˘ ˬ. CPU ц ϙ Â ЛъУ a
ă Лъ ∧ Â

ð w R Ô

ЛъЮ R ˘ ╕ ѓ У ǀ 172.16.100.0/24 ˘
Ю У ѝ 192.168.12.1˜ ѝ 115 Â

```
ip route 172.16.100.0 255.255.255.0 192.168.12.1 115
```

∧˘ ∧ ∧ ˘ ∧ ˬ G
ÿ è ∧ ∧ Â ȯ ϙ ∧ ˘ ∧ ÂЛъЮ R
˘ ǀ 172.16.100.0/24 ∧ ÿ GigabitEthernet 0/0
∧ ∧ Â

```
Ruijie(config)# ip route 172.16.100.0 255.255.255.0
GigabitEthernet 0/0 192.168.12.1
```

ѣ Ю ϙ˘ a ˘ ˘ è ˬ a
˘ Â

″I ѓ ∧˘ ∧ Ю У Â Ѯ ł˘ ∧ ⁹
distance/tag/weight ч Â ж ъ ї ∧
∧ Ю У ч э ч è è è У э ¯ ∧˘ a ч
˘ R ˘ Ю ˬ У distance ѝ 100 Â

ip route 20.0.0.0 255.0.0.0 Loopback 1 10.0.0.2 tag 5 weight 2

ip route 20.0.0.0 255.0.0.0 Loopback 1 100

ip route 20.0.0.0 255.0.0.0 Loopback 1 10.0.0.2 tag 5 weight 2

ip route 20.0.0.0 255.0.0.0 10.0.0.2 100

Л ˘ Л ˘ Ю ˘ ‡ a˛ Э

ip route 20.0.0.0 255.0.0.0 10.0.0.2

ip route 20.0.0.0 255.0.0.0 Loopback 1 100

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Л ɔ ѝ ˘ Л ɔ ѝ VOIP ˇΩ ˘ Л Љ a
RGOS ˚ IP Л ╖ Â Л Љ ˇΩ RGOS IP ╖ Â

ð w R Ô

ЉЮ ˘ ˇΩ ɷ RGOS ˚ IP ╖ Â

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

ð Л Ô

Ђ ϧ ƒ γ Э a Â

40.1.10 ip static route-limit

Э ˘ G ŏ Ђ ϧ **ip static route-limit** Â
Ђ ϧ no Л Љ تي Â

ip static route-limit number

no ip static route-limit

ð Л Ô

Л	
number	Э ˘ تز 1-10000

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ѝ 1000 Â

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Э ѝ ɷ ⁸ ˘ **ip static route-limit** Э ł ˛ ң Ю ˘
a ˛ Э Â **show running-config** Л Љ ɱ
Э Â

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ЛЬЮ R ˘ Э ѝ 900 ˘ ѣ ḣ Â

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

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40.1.11 ipv6 prefix-list

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ώ Â

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ipv6 prefix-list Ƃ ϗ ɣ IPv6 ɱ Â ɱ " permit deny ˇΩ ā ɟɸ ɒ ϙ Ю ɲ ∧ ╟ ɔ Â

ɱ " ЊЌ ɣ У ɜ ɱ ɒ ɲɪ ɒ Âge le ˇΩ ЊЌ У ɜ ɣ ɒ ɱ ɲɪ˘ ᵏ ɷ ` ώ ipv6-prefix ╕ ɒ Â Ƃ ϗ è ge le ˇΩ ˘ ‡ ipv6-prefix ᵏ ɷ ɱ ɲɪ ɒ Â Θ ώ ge˘ ‡ ɒ ɲɪ minimum-prefix-length ⌈ 32 Â Θ ώ le˘ ‡ ɒ ɲɪ ipv6-prefix ⌈ maximum-prefix- length Â ɣ ώ˘ ‡ ɒ ɲɪ ÿ minimum-prefix-length ⌈ maximum-prefix- length Â ¯ ˘ ipv6-prefix à minimum-prefix-length ɲ maximum-prefix-length ˇΩ ˋ ipv6-prefix < minimum-prefix-length < maximum-prefix-length <= 128 Â

ð w ᴿ Ô

ЛЬЮ ѝ ᴳ ⌈ ∧ " ᴿ ˘ RIP ˜ è ⌈ ∧ OSPF 1 ⌈ ∧ ə IP ˘ ‡ ɟɸ ˇΩ IPv6 ɱ " è ЊЌ(ᴿ /∧ ĭ IP ɟɸ 2222::/64 ʒ ɋ ə ⌈ ∧ ∧)˘ ‡ Ю " ˋ

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre permit 2::/64
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# redistribute ospf 1
Ruijie(config-router)# distribute-list prefix pre out
Ruijie(config-router)# end
```

40.1.12 ipv6 prefix-list description

ѝ У ɜ IPv6 ɱ " ╕ ˘ ᴳ **ipv6 prefix-list description** Ƃ ϗ Â Ƃ ϗ **no** ⁻ У ɜ ɱ " Â

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

ð ∨ **ÔÏ_0IF&JaF)ẃhĝAāV^A)BRbVB̂VRf4‰**

prefix-lis-name	IPv6 ɱ " ¨
descripton-text	IPv6 ɱ "

╗ ɱ “

ð Ъ ҳ Ô

ώ

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ЛЬЮ R ѝ IPv6 ɱ “ pre ╗ Deny routes from Net-A‘

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre description Deny routes from Net-A
```

40.1.13 ipv6 prefix-list sequence-number

ѝ IPv6 ɱ “ ĺ ╗ ˘ G **ipv6 prefix-list description** Ъ ҳ Â Ъ ҳ **no** ∧ ɱ “ ╗ Â

ipv6 prefix-list BsQ@

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ЛЬЮ R ѝ ɋ **no** Pϑ╫ Âl p v 6 p t s e [(I P v

۰ا	
as-path-acl-list-num	“ ۱ Â“ ۱ نز 1…500

ð Ô

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ð Ъ ҳ Ô

يي Â

ð ᴳ ˙ Ô

match as-path Ъ ҳ ł ۸ Л Ъ э “ ۱ Â

У э يي ‡ è˘ ۸ Л Ъ 1 э э

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↓	
community-list-number	ɲ ɛ “ ↓ ñ ɲ ɛ “ ˙ ↓ ɲ и 1-99 ɲ ɛ “ ˙ ↓ ɲ и 100-199
communitys-list-name	ɲ ɛ “ ¨ ɲ ɛ “ ¨ a 80
exact-match	ώ ɒ “

ð Ô

Â

ð Ƃ ɂ Ô

ي Â

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match community Ƃ ɂ ł Л Ћ э ɲ ɛ “ ↓ ɲ ɛ “ ¨ ˘ Ո ч n a ɣ 6Â

э **exact-match** ˇΩ Θ ɡ ɱ У э “ ˘ a ɡ ɒ “ Â

У э ي ‡ è˘ Л Ћ 1 э э **match** Ƃ ɂ n 1 э э **set** Ƃ ɂ Â **match** Ƃ ɂ˘ ‡ ɒ ’ **set** Ƃ ɂ˘ ‡ a ṁ ˙ ı ɔ Â

ð w ʀ Ô

```
Ruijie(config)# ipcommunity-list 1 permit 00
Ruijie(config)# route-map b
Ruijie(config-route-map)# match community 1 exact-match
Ruijie(config-route-map)# set local-preference 0
```

ð ˇΩ Ƃ ɂ Ô

Ƃ ɂ	
ip community-list	ɲ ɛ “
match as-path	ɒ AS_PATH ḣ
match metric	ɒ ḣ
match origin	ɒ ↑ ḣ
set as-path prepend	ˀ AS_PATH Â

set comm-list delete	ϔ Ƃ ش ɛ ḣ
set community	ش ɛ ḣ
set metric	ϒ ḣ

40.1.16 match interface

Ƃ Ю У ⊿ ѝ ⊿˘ G يي Ƒ ϗ **match interface** Â Ƒ ϗ **no** ϔ ϕ̈ Â

match interface interface-type interface-number [interface-type interface-number]

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

ð ⊿ Ô

⊿	
interface-type	⊿ خش
interface-number	⊿ ⊿

ð Ô

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ð Ƒ ϗ Ô

يي Â

ð G ˙ Ô

match interface Ƒ ϗ ł ⊿Ћ э ⊿ Â

ą ⊿Ћ ÿ У э ϒ ϒ ⊿ У э ℼ Â ⊿ Ћ OSPF ⋒ ϒ ł ƛϒ RIP ⋒ è˘ ≠ ⊿Ћ RIP ⋒ ϒ ł ƛϒ OSPF ⋒ è Â

ϟϕ ϒ è˘ يي̂ route maps˜ ˘ ч э ⋒ Ǯ ϖϒ ˚ ⁸ Â

У э يي ‡ è˘ ⊿Ћ 1 э э **match** Ƒ ϗ ϱ 1 э э **set** Ƒ ϗ Â **match** Ƒ ϗ˘ ‡ ϔ ’ **set** Ƒ ϗ˘ ‡ a ṁ˙ ı ɔ Â

ð w R Ô

يي πϒ ˘ ⊿Ћ ϟϕ ϒ ϱ Э Â a ı يي˘ è ч У ˘ ⊿ Ƒ ϗ a˚ Â

¨ G˘ فخ ǂ Э˘ a˘ ˜ يّي è G
Ђ ҳ ≠ a ˘ Â

ЛЬЮ R ˘ OSPF ˜ ǂ RIP ˘ Л ǂ Ю
У ѝ

```
Ruijie(config-router)#  redistribute  rip  subnets
route-map  ƥ
Ruijie(config-router)# network  ■■
area 0
Ruijie(config-router)# exit
Ruijie(config)#  access-list  ■  permit  ■
■
Ruijie(config)# route-map  ƥ  permit  10
Ruijie(config-route-map)# match ip address  ■
Ruijie(config-route-map)# set metric  ■
Ruijie(config-route-map)# set metric-type type-1
```

ð ˇΩ Ƌ ϟ Ô

Ƌ ϟ	

access-list-name] | **prefix-list** prefix-list-name [prefix-list-name...]}

ð ч Ô

ч	
access-list-number	“ л ñ “ л лт˙ 1-99˘ 1300-1999 “ л лт˙ 100-199˘ 2000-2699
access-list-name	“ ¨
prefix-list prefix-list-name	ē m “ ¨

ð Ô

Â

ð Ъ ҳ Ô

ﻲﻲ Â

ð G ˚ Ô

match ip next-hop Ъ ҳ ł Л Љ э “ л “ ¨ Â

ą Л Љ ÿ У э ĭ ĭ ˩ У э ℼ Â Л Љ OSPF ѩ ĭ ĭ ˩ У э ℼ Â Л Љ OSPF ѩ ĭ ł ЂĬ RIP ѩ è˘ ≠ Л Љ RIP ѩ ĭ ł ЂĬ OSPF ѩ è Â ц ĭ Л Љ ѯ IP ˜ ǯ Â

ѯ ĭ è˘ ﻲﻲ route maps˜ ˘ ч э ѩ ǯ ц ĭ ˚ ⁸ Â

У э ﻲﻲ ‡ è˘ Л Љ 1 э э **match** Ъ ҳ ņ 1 э э **set** Ъ ҳ Â **match** Ъ ҳ˘ ‡ ē ’ **set** Ъ ҳ˘ ‡ a ṁ˙ ı ɔ Â

ð w R Ô

Л ЊЮ R ˘ OSPF ˜ ĭ RIP Â Л RIP Ю У ѫ ѧ ˝ “ 10 20˝ OSPF ĭ è ĭ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map ﻲﻲ
Ruijie(config-router)# network  00
area 0
Ruijie(config-router)# exit
Ruijie(config)# access-list  0  permithost  0
```

```
Ruijie(config)# access-list      0   permit host      0
Ruijie(config)# route-map      p1          permit    0
Ruijie(config-route-map)# match ip next-hop          00
```

ð ٪Ω Ъ ٪ Ô

Ъ ٪	
access-list	ЬЖ " ‡
match ip address	ē " è ھ ک
match interface	ē ЮУ ⁄
match ip route-source	ē " è ھ ک
match metric	ē ḣ
match route-type	ē ش̇خ
match tag	ē ḣ
set metric	ƒ ḣ

access-list-name	“ ¨
prefix-list prefix-list-name	Ē ɱ “ ¨

ð Ô

Â

ð Ъ ҳ Ô

ييِ Â

ð ᴳ ՝ Ô

match ip route-source Ъ ҳ ł Л Љ э “ л Â

ą Л Љ ÿ У э ĭ ĭ Ј У э ℼ Â Л Љ OSPF ѩ ĭ ł Ъĭ RIP ѩ è˘ ≠ Л Љ RIP ѩ ĭ ł Ъĭ OSPF ѩ è Â ҷ ĭ Л Љ ѯ IP ˜ Ѯ Â

ѯ ĭ è˘ ييِ route maps˜ ˘ ч э ѩ

match ip next-hop	Ъ “ è ЮУ ѕ ѫ
match metric	Ъ ḣ
match route-type	Ъ ښ
match tag	Ъ ḣ
set metric	ǂ ḣ
set metric-type	ǂ ښ
set tag	ǂ ḣ

ð Л Ô

ð Ô

40.1.20 match ipv6 address

ǂ “ ɱ “ è ĭ IPv6 ˘ G
ييِ Ъ ҳ **match ipv6 address** Â Ъ ҳ **no** ǂ Â

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

no match ipv6 address

ð Ч Ô

Ч	
access-list-name	“ ¨
prefix-list prefix-list-name	Ъ IPv6 ɱ “ ¨

ð Ô

Â

ð Ъ ҳ Ô

ييِ Â

ð G ˙ Ô

ą Л Лъ ÿ У э ǂ ǂ ˩ У э ℸ Â Л
Лъ OSPF ѫ ǂ ł ƚǂ RIP ѫ è˘ ≠ Л Лъ RIP
ѫ ǂ ł ƚǂ OSPF ѫ è Â ц ǂ Л
Лъ ѯ IP ˜ ǯ Â

ѯ ǂ è˘ ييِ route maps˜ ˘ ч э ѫ
ǯ ц ǂ ˚ ⁸ Â

40.1.21 match ipv6 next-hop

ŧ Ю У IPv6 ﻙ ﻫ ˝ “ ɱ “ ‡
ˇ G ﻲ Ъ ҳ **match ipv6 address** Â Ъ ҳ **no** ŧ
Â

match ipv6 next-hop { access-list-name | **prefix-list** prefix-list-name }

no match ipv6 next-hop

ð ۷ Ô

Ķ ÂA ‰ÃÙ Ú † •@

```
Ruijie(config-router)#  redistribute  rip  subnets
route-map  p1
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list  6
Ruijie(config-ipv6-acl)# 10  permit ipv6  2001  any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map  p1  permit  10
Ruijie(config-route-map)# match ipv6 next-hop  6
Ruijie(config-route-map)# set metric  40
```

ð ‰Ω‰ ‹ Ô

‰ ‹	
ipv6 access-list	‰Ú IPv6 " ‡
match interface	‰ ЮУ ‚
match ipv6 address	‰ IPv6 " è ЮУ ‹ ‰
match ipv6 route-source	‰ IPv6 " è ‹ ‰

access-list-name	“ ¨
prefix-list prefix-list-name	Ē IPv6 ṁ “ ¨

ð Ô

Â

ð Ƒ ϗ Ô

ييِ Â

ð ᴳ ˙ Ô

ą Л Лъ ÿ У э ĭ ĭ ⊿ У э ℼ Â Л
Лъ OSPF ѫ ĭ ł ƚ RIP ѫ è˘ ≠ Л Лъ RIP
ѫ ĭ ł ƚ OSPF ѫ è Â ц ĭ Л
Лъ ҂ IP ˜ Ğ Â

҂ ĭ è˘ ييِ route maps˜ ˘ ч э ѫ
Ğ ц ĭ ˚ ⁸ Â

У э ييِ ‡ è˘ Л Лъ 1 э э **match** Ƒ ϗ ņ 1 э
э **set** Ƒ ϗ Â **match** Ƒ ϗ˘ ‡ Ē ’ **set** Ƒ ϗ˘
‡ a ṁ˙ ị ɔ Â

ð w ᴿ Ô

ييِ πĭ ˘ Л Лъ ҂ ĭ ņ Э Â a
ị ييِ˘ è ч У ˘ Л Ƒ ϗ a˚ Â
ᵀᵀ ᴳ˚ ҂ ĭ Э˘ a˚ ˜ ييِ˘ è ᴳ
Ƒ ϗ ≠ a ˚ Â

ЛЬЮ ᴿ ˘ OSPF ˜ ĭ RIP ˘ Л ĭ
˝ “ 10 RIP ˘ ҂ OSPF ѫ è˘ ҷш й
type-1˘ ⌉ ḣ й 40 Â

```
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets
route-map ņl
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list ĝ
Ruijie(config-ipv6-acl)# 0 permit ipv6 ĝ any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map ņl permit 0
Ruijie(config-route-map)# match ipv6 route-sourc e
ĝ
Ruijie(config-route-map)# set metric ϑ
```

ð ˇΩƑ ϗ Ô

Ƒ ɾ	
ipv6 access-list	⊮ IPv6 ‟ ‡
match interface	ƀ Ю У ⊀
match ipv6 address	ƀ IPv6 ‟ è Ю У ﻛ ﻫ
match ipv6 route-source	ƀ IPv6 ‟ è ﻛ ﻫ
match metric	ƀ ḣ
match route-type	ƀ ﺵ
match tag	ƀ ḣ
set metric	ɬ ḣ
set metric-type	ɬ ﺵ
set tag	ɬ ḣ

ð ⊀ Ô

ð Ô

40.1.23 match length

ﻲ ¥ IP ˆ ˘ G ﻲ Ƒ ɾ **match length** Â Ƒ ɾ **no** ⊀ Л ⊮ Â

match length min-length max-length

no match length min-length max-length

ð ⊀ Ô

⊀	
min-length	IP ˆ
max-length	IP ˆ

ð Ȯ t

У ﻲﺠ Ұ ╕ ˆ Ѵ

⁸ Â ɞ ˘ ﻲ ā α ¡ ˆ

˘ ﻲ ā α ɞ У э ˆ ЮУ Ѵ

match metric metric

no match metric

ð ٨ Ô

٨	
metric	ḣ ٨ ḣ ˙ 0-4294967295

ð Ô

Â

ð Ƒ ٶ Ô

ي Â

ð ᴳ ˚ Ô

ą ٨ Лъ ÿ У э ˚ ˚ ل У э ╖ Â ٨ Лъ OSPF ѩ ˚ ł ˽˚ RIP ѩ è˘ ≠ ٨ Лъ RIP ѩ ˚ ł ˽˚ OSPF ѩ è Â ц ˚ ٨ Лъ֏ IP ˜ Ǯ Â

֏ ˚ è˘ ي route maps˜ ˘ ч э ѩ Ǯ ц˚ ˚ ⁸ Â

У э ي ‡ è˘ ٨ Лъ 1 э э **match** Ƒ ٶ ņ 1 э э **set** Ƒ ٶ Â **match** Ƒ ٶ˘ ‡ ƀ ’ **set** Ƒ ٶ˘ ‡ a ṁ˙ ị ɔ Â

ð w ᴿ Ô

ЛъЮ ᴿ ˘ OSPF ˜ ˚ RIP Â ٨ ḣ й 10 RIP ˘ OSPF ˚ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map ⓟ
Ruijie(config-router)# network ⓪⓪                .255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map ⓟ          permit ⓪
Ruijie(config-route-map)# match metric ⓪
```

ð ˇΩƑ ٶ Ô

Ƒ ٶ	
access-list	Ⱨ Ⱪ ‡
match ip address	ƀ “ è ك ѩ

match interface	Ƀ ЮУ ⁄
match ip next-hop	Ƀ “ è ЮУ ﻙ ﻫ
match ip route-source	Ƀ “ è ﻙ ﻫ
match route-type	Ƀ ﺵ
match tag	Ƀ ḣ
set metric	⁋ ḣ
set metric-type	⁋ ﺵ
set tag	⁋ ḣ

ð ⁄ Ô

ð Ô

40.1.25 match origin

Â Ő ä ˚ Ɋ Š ˀ ˛

Ï(u „0 9#P€ï8C #gˆ P ‰„PYX˜E õ’ï4ïQQS“P€ð•YÀ9 …A P • Ï G ÄAÈ â Ð

```
Ruijie(config)# route-map    M      permit
Ruijie(config-route-map)# match origin egp
Ruijie(config-route-map)# set community      
Ruijie(config-route-map)# exit
Ruijie(config)# route-map      permit
Ruijie(config-route-map)# match origin incomplete
Ruijie(config-route-map)# set community no-export
```

ð ٪ΩɃ ३ Ô

Ƀ ३	
match as-path	ɒ AS_PATH ḣ
match metric	ɒ ḣ
match origin	ɒ ∧ ḣ
set as-path prepend	ɬ AS_PATH
set metric	ɬ ḣ
set origin	ɬ ښ

40.1.26 match route-type

ɒ ښ G يي Ƀ ३ **match route-type** Â
Ƀ ३ **no** ɬ Â

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

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

ð ∧ Ô

∧	
local	ک
Internal	OSPF ۈ
external	(BGP OSPF)
type-1	**type-2**	OSPF ښ 1 ښ 2
level-1	**level-2**	ISIS 1 2

ð Ô

Â

ð Ƒ ɂ Ô

يي Â

ð ᴳ ˙ Ô

ə ʌЛъ ÿ У э ǂ ǂ ɻ У э ℼ Â ʌ
Лъ OSPF ѩ ǂ ł ƚǂ RIP ѩ è˘ ≠ ʌЛъ RIP
ѩ ǂ ł ƚǂ OSPF ѩ è Â ɥ ǂ ʌ
Лъ ƶ IP ˜ ǯ Â

ƶ ǂ è˘ يي̂ route maps˜ ˘ ч э ѩ
ǯ ɥǂ ˚ ⁸ Â

У э يي ‡ è˘ ʌЛъ 1 э э **match** Ƒ ɂ p 1 э
э **set** Ƒ ɂ Â **match** Ƒ ɂ˘ ‡ ƀ ’ **set** Ƒ ɂ˘
‡ a ṁ ı ɔ Â

ð w ᴿ Ô

ЛъЮ ᴿ ˘ RIP ˜ ǂ OSPF ÂRIP ʌ ǂ OSPF
ѩ ǫ Â

```
Ruijie(config)# router rip
Ruijie(config-router)#  redistribute  ospf  route-map
ƥ
Ruijie(config-router)# network  0
Ruijie(config-router)# exit
Ruijie(config)# route-map  ƥ  permit  0
Ruijie(config-route-map)# match route-type internal
```

ð ˇΩƑ ɂ Ô

Ƒ ɂ	
access-list	ЬЖ “ ‡
match ip address	ƀ “ è ѭ ѫ
match interface	ƀ ЮУ ʌ
match ip next-hop	ƀ “ è ЮУ ѫ ѭ
match ip route-source	ƀ “ è ѫ ѭ
match metric	ƀ ḣ
match tag	ƀ ḣ
set metric	ǂ ḣ
set metric-type	ǂ ښ
set tag	ǂ ḣ

ð ⁄ Ô

ð Ô

40.1.27 match tag

```
Ruijie(config)# route-map    ƥ        permit    0
Ruijie(config-route-map)# match tag    θθ
```

ð ˇΩƑ ϟ Ô

Ƒ ϟ	
access-list	ⱵⱾ " ‡
match ip address	Ɒ " è ﻙ ﻫ
match interface	Ɒ ЮУ ﻝ
match ip route-source	Ɒ " è ﻙ ﻫ
match metric	Ɒ ḣ
match ip next-hop	Ɒ " è ЮУ ﻙ ﻫ
match route-type	Ɒ ﺵ
set metric	ƚ ḣ
set metric-type	ƚ ﺵ
set tag	ƚ ḣ

ð ﻝ Ô

ð Ô

40.1.28 maximum-paths

ˢ ˇ G ώ Ƒ ϟ **maximum-paths** Â Ƒ ϟ

ð ᴳ ˀ Ô

ˢ ˢ ˘
ѝ ɷ ⁸ ˢ ˘
maximum-paths ˢ ł˳ ɳ Ю ˘ ƒɸ ƒɸ
Ю ƒɸ ˀ a˳ ˢ Â **show running**
config ʌ Љ ɱ ˢ Â

Ƃ ɂ ipv4 ɲ ipv6˚ ˘ ≠ ˘ ɷ Ƃ ɂ˘ ˀ
У ipv4 ƙ ˢ ḣ˘ ˀ У ipv6
ƙ ˢ ≠ ḣ Â

ð w ᴿ Ô

ЉЮ ᴿ ˘ ˢ ѝ 10 ˘ ł ḣ Â

```
Ruijie(config)# maximum-paths 0
Ruijie(config)# no maximum-paths
```

ð ʌ Ô

Ƃ ɂ ƒɸ ɣ Э a Â

40.1.29 route-map

Ҥ ي˘ ώ ي ˘ ᴳ ŏ Ƃ ɂ **route-map** Â
Ƃ ɂ **no** ˀ ي Ҥ Â

route-map route-map-name [**permit** | **deny**] [sequence-number]

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

ð ʏ Ô

] conff08>Tj/TT1 1 T0 1tch7 0 T174 437.4203 Tm3.1316E43C32βTT1 3C31590Df-0.F48C7E 1 TfC7E > 0 T

deny	ˆ ʌ ˜ ⱵⱣ ɕ deny ˷Ω ˘ ʁ ˝ match ⱵⱣ ɔ ‡ Â ‡ a ˚ ˙ ˛ ɔ ˘ ي a ǐ ˀ ˘ ɜ ي ɔ Â ⱵⱣ ɕ deny ˷Ω ˘ a ˝ match ⱵⱣ ɔ ‡ Â ‡ ώ Ю У ə ي ɔ Â ˀ ɕ set Ƒ ɂ Â
sequence-number	ي ʁ Â æ ʁ . ˝I ˀ G ˘ ش ʁ Â

ð Ô

```
Ruijie(config)# router ospf
Ruijie(config-router)#    redistribute    rip    subnets
route-map    p1
Ruijie(config-router)# network    0.0.0.0
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map    p1        permit    10
Ruijie(config-route-map)# match metric      4
Ruijie(config-route-map)#
```

Ъ ҳ ч л У ^ as,ip-addr˜ ˇ a ˚ ч

ð w ᴿ Ô

У Л Лъ ффф as-path è ╕ 15 э as Â

ð w ᴿ Ô

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set as-path prepend 00
0
```

ð ЎΩ Ъ ҳ Ô

Ъ ҳ	
match as-path	ѓ AS_PATH ḣ
match community	ѓ ش ᴇ ḣ
match metric	ѓ ḣ
match origin	ѓ Л ḣ
set community	ǂ COMMUNITY
set metric	ǂ ḣ
set metric-type	ǂ ش

40.1.32 set comm-list delete

ѓ match ‡ ǂ COMMUNITY_LIST è community ḣ˘ ᴳ ي Ъ ҳ **set comm-list delete** Â Ъ ҳ **no** ǂ Â Ъ ҳ Θ ¥ Â

set comm-list

يي Â

ð G ˚ Ô

Ƒ ٤ ٥ ˆ فخ è ̄ ش E " Â

ð w R Ô

```
Ruijie(config)# router bgp 0
Ruijie(config-router)# neighbor 3
remote-as 0
Ruijie(config-router)# neighbor 3
route-map 0 in
Ruijie(config-router)# neighbor 3
route-map
```

set community {community-number [community-number] **additive** | **none**}

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

ð ч Ô

ч	
community-number	ш е ḣ Â ѝ AA:NN(ѧ :2)˘ У э ḣ ˘ ѕ 0-4294967295˘ ЛЬЮ ЊЖ ḣ‘ internet˘ Internet ш е˘ Ұ ш е Â local-as˘ a ч ĵ AS ˘ ˘ a ч è Â no-advertise˘ a ч ˙ ı У э BGP peers Â no-export˘ a ч EBGP peers Â
additive	ф ч community ج Э ╕
none	ш е ѝ

ð Ô

Â

ð Ъ ҂ Ô

ي Â

ð G ˙ Ô

G Ъ ѣ ĵ ш е Â

ð w R Ô

```
Ruijie(config)# route-map    permit
Ruijie(config-route-map)# match as-path    1
Ruijie(config-route-map)# set community
Ruijie(config-route-map)# exit
Ruijie(config)# route-map    permit
Ruijie(config-route-map)# match as-path    2
Ruijie(config-route-map)# set community no-export
```

ð ˇΩ Ъ ҂ Ô

Ƒ ҳ	
match as-path	ҕ AS_PATH ḣ
match community	ҕ ش ɛ ḣ
match metric	ҕ ḣ
match origin	ҕ ٨ ḣ
set as-path prepend	҃ AS_PATH
set origin	҃
set metric-type	҃ شخ

40.1.34 set dampening

ҕ match ‡ ٨ ˘ G يي Ƒ ҳ **set dampening** Â Ƒ ҳ **no** ҃ Â

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

no set dampening

ð ٨ Ô

٨	
	٨ a ٨ ´ Â
half-life	نز 1..45(ʃ ʅ˘ ḣ и 15
	҃

ð G ' Ô

G Ƀ ƀ ∫ ↓ Â

ð w R Ô

```
Ruijie(config)# route-map g
Ruijie(config-route-map)# match as path 0
Ruijie(config-route-map)# set dampening 0000
0
Ruijie(config-route-map)# exit
Ruijie(config)# router bgp 0
Ruijie(config-router)# neighbor 8
route-map gin
```

ð ٪Ω Ƀ ३ Ô

ð α Ô

Â

ð Ƀ ɀ Ô

ي Â

ð ᴳ ˙ Ô

set default interface Ƀ ɀ ɨ Л Ћ э л Â

У ˇ Ɏ ˇ ˆ л
⁸ Â ɷ ˇ ي ᾱ ˛ ˆ
ˇ ي ᾱ ɷ У э ˆ Ю У л Â

ˇ ᴳ ˇي з … ي Â
У э ي ˇ э Ж ɷ 1 э э Ē
‡ ņ ɔ Â У э л ɨ ˇ л ˚ ˆ
ˇ a ˊ ˙ي ˛ ˆ л
ˇ ˊ ي è э ˆ è Ж ɔ
Â

У э Ж л л ѝ down˘ ɣ э set Ƀ ɀ
л Â У э ي è Л Ћ э set ɔ Â

ð w ᴿ Ô

Ћ Ю ᴿ ˇ ƒ serial 1/0 ˊ ˇ л ˚ ˆ
Ɏ 500 ˇ з è ˇ ÿ GigabitEthernet
1/0 л л ˆ Â

```
Ruijie(config)# interface
Ruijie(config-if)# ip policy route-map
Ruijie(config-if)# exit
Ruijie(config)# route-map
Ruijie(config-route-map)# match length
Ruijie(config-route-map)#
```

interface
ip policy route-map
exit
route-map
permit
match length
set default interface

ð ‘Ω Ƀ ҂ Ô

Ƀ ҂	
match as-path	ƀ AS_PATH ḣ
match community	ƀ ش ɛ ḣ
match metric	ƀ ḣ
match origin	ƀ ٨ ḣ
set as-path prepend	ɬ AS_PATH
set metric	ɬ ḣ
set metric-type	ɬ ش̈

40.1.37 set interface

ƀ match ‡ ٨ ٨˘ G يي Ƀ ҂ **set interface** Â Ƀ ҂ **no** ɬ Â

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

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

ð ٧ Ô

ˇ G يي ٣ … يي Â
У э يي ˇ э ЊЌ ѓ 1 э э Ƀ
‡ ɲ ɔ ÂУ э ⊀ ł ˇ ⊀ ˆ
ˇ a ´ يي ¡ ˆ ⊀
ˇ ´ يي è э ˆ è ЊЌ ɔ
Â

У э ЊЌ ⊀ ⊀ ѝ down˘ ɣ э set Ƒ ٪
⊀ Â У э يي è ⊀Лъ э set ɔ Â

⊀ ѝ null 0˘ ˆ x Â

ð w ᴿ Ô

ЛъЮ ᴿ ˇ ƒ serial 1/0 ĺ ˇ ⊀ ˆ
¥ 500 ˇ ÿ GigabitEthernet 0/0 ⊀ ⊀ ˆ Â

```
Ruijie(config)#interface serial 0/0
Ruijie(config-if)#ip policy route-map abc

Ruijie(config)#route-map abc permit 10
Ruijie(config-route-map)#match length 0 60
Ruijie(config-route-map)#set interface
GigabitEthernet 0/0
```

ð ˇΩƑ ٪ Ô

Ƒ ٪	
route-map	ЊЌ يي
match ip address	Ƀ “ è ك ھ
match length	Ƀ ˆ ننز

40.1.39 set ip dscp

ō match ‡ DSCP ḣ˘ G يي Ƒ ٪ **set ip dscp** Â Ƒ ٪ **no** ĵ Â

set ip dscp dscp_value

no set ip dscp

ð ٨ Ô

٨	
dscp_value	IP è IP DSCP ḣ

ð Ô

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ð Ƒ ٪ Ô

يي Â

ð G ˙ Ô

ð w R Ô

ð ˇΩƑ ٪ Ô

Ƒ ٪	
route-map	ĿЖ يي
match ip address	ō “ è ھ ك
set default interface	^ ٨˘ è
set default interface	^ ٨˘ è
set interface	^ ٨
set ip default next-hop	^ ЮУ IP ك ھ˘ è
set ip precedence	^ IP. ˝I ḣ

ð ٨ Ô

ð Ô

40.1.40 set ip next-hop

ƀ match ‡ Ю У IP ک ھ˘ G يي Ƀ ҂ **set ip next-hop** Â Ƀ ҂ **no** ĩ Â Ƀ ҂ Θ ¥ Â

set ip next-hop ip-address [weight] [ip-address [weight]]

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

ð ۶ Ô

۶	
ip-address	Ю У IP ک ھ
weight	Ю У

ð Ô

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يي Â

ð G ˙ Ô

set Ƀ ҂ ч ˈ WCMP ھئ ˘ WCMP ھئ Âزف ɱ У Ю Ơ ώ weight ḣ WCMP ھئ Â

set ip next-hop Ƀ ҂ ł Л Љ ə IP ک ھ˘ a 32 ə Â

زف ip address ł ╗ weight ḣ˘ ‡ Л Љ a 4 ə nexthop ک ھ Â

˘ زف˙ ı У ə next-hop ł weight ḣ˘ G **set** Ƀ ҂ ╟ˀ ѝ WCMP ھئ Â زف WCMP ھئ Ю ¥ ۱ Ҽ weight nexthop ک ھ˘ è weight ѝ 1 Â

Â

˘ ˊ يي è э ˆ è ЊЌ ɔ
Â

У э يي è Л Лъ э set ɔ Â

ð w ᴿ Ô

ЛЬЮ ᴿ ˘ ƒƶ serial 1/0 Э í Â Л ∫ ѫ ѭ
ƒƶ 10.0.0.0/8 ƫ ƣ ˆ ˘ Л ∫ 192.168.100.1’
ỳ 172.16.0.0/16 ƫ ƣ ˆ ˘ Л ∫ 172.16.100.1’ è м
ŏ x Â

```
Ruijie(config)#interface serial 0
Ruijie(config-if)#ip policy route-map 1

Ruijie(config)#access-list 1 permit 0
0
Ruijie(config)#access-list 2 permit 0
0

Ruijie(config)#route-map 1 permit 1
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#setipnext-hop 0

Ruijie(config)#route-map 1 e permit 2
Ruijie(config-route-map)#match ip address 2
Ruijie(config-route-map)#set ip next-hop 0

Ruijie(config)#route-map 1 permit 3
Ruijie(config-route-map)#set interface Null 0
```

ð ЎΩƁ ҳ Ô

Ƃ ҳ	
route-map	ЊЌ يي
match ip address	ƕ “ è ѫ ѭ
set default interface	ˆ Л˘ è
set default interface	ˆ Л˘ è
set interface	ˆ Л
set ip default next-hop	ˆ ЮУ IP ѫ ѭ˘ è
set ip precedence	ˆ IP . ˝I ḣ

ð ⁄ Ô

ð Ô

40.1.41 set ip next-hop verify-availability

Ю У IP ﻛ ﻫ ⁄ ˘ G ﻳ Ъ ҳ **set ip next-hop verify-availability** Â Ъ ҳ **no** ˆ Â Ъ ҳ Θ ¥ Â

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

no set ip next-hop verify-availability ip-address **track** track-obj-num

ð ∢ Ô

∢	
ip-address	Ю У IP ﻛ ﻫ
track-obj-num	⁄

ð Ô

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ﻳ Â

ð G ’ Ô

ð w R Ô

ЛЬЮ R ˘ ﻓ serial 1/0 Э í Â ⁄ ˆ ﻛ ﻫ ﻓ 10.0.0.0/8 ﻧ ﻗ ˆ ˘ ∧ ˆ 192.168.100.1’ й 172.16.0.0/16 ﻧ ﻗ ˆ ˘ ∧ ˆ 172.16.100.1’ è м ŏ x Â

```
Ruijie(config)#interface serial 0
Ruijie(config-if)#ip policy route-map 1

Ruijie(config)#access-list 1 permit 0
0
Ruijie(config)#access-list 2 permit 0
0

Ruijie(config)#route-map 1 permit 1
```

يي Â

ð G ˙ Ô

IP è . ˝I ḣ G IP a˚ .
˝I · Â

ڤ يي ‡ è˘ Л Љ э **set ip precedence** Ъ ҳ˘ п Л
ѣ У э ˘ з Л Б IP ˛
. ˝I Â

ð w R Ô

Љ Ю R ˘ ÿ Л GigabitEthernet 0/0 ﻙ ﻫ ﻱ
192.168.217.68 precedence ﻱ 4 Â

```
Ruijie(config)#access-list 1 permit 0
0
Ruijie(config)#route-map m
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip precedence 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map m
```

ð ˇΩ Ъ ҳ Ô

Ъ ҳ	
match interface	Б Ю У Л
match ip address	Б " è ﻙ ﻫ
match ip next-hop	Б " è Ю У ﻙ ﻫ
match ip route-source	Б " è ﻙ ﻫ
match metric	Б ḣ
match route-type	Б ﺵ
match tag	Б ḣ
set metric-type	˚ ﺵ
set tag	˚ ḣ
set ip tos	IP tos

40.1.43 set ip tos

Б match ‡ IP TOS, G يي Ъ
ҳ **set ip tos** Â Ъ ҳ **no** ˘ tos ḣ˥ Â

set ip tos {<0-15 > | max-reliability | max-throughput | min-delay

| min-monetary-cost | normal }

no set ip tos {<0-15> | max-reliability | max-throughput | min-delay | min-monetary-cost | normal }

ð Ô

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ð Ф ҳ Ô

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ð G ˙ Ô

IP è TOS ḣ G IP a˘ Ł · Â

/ı Ē IP ˛ Э TOS ḣ Â

ð w R Ô

ЛЬ Ю R ˘ ÿ ı GigabitEthernet 0/0 ﻙ ﻫ ﻱ 192.168.217.68 tos ﻱ 4 Â

```
Ruijie(config)#access-list 1 permit 0
0
Ruijie(config)#route-map m
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip tos 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map m
```

ð ЎΩ Ф ҳ Ô

Ф ҳ	
match interface	Ē Ю У ı

40.1.44 set level

Ð match ‡ ώ ϟ ھ ڜ ڜ G يي
Ƒ ҂ **set level** Â Ƒ ҂ **no** ĵ Â

set level {**level 1**| **level 2** | **level 1-2** | **stub-area** | **backbone**}
no set level

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ð Ƒ ҂ Ô

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ð w R Ô

ЛЪЮ R ˘ OSPF ~ ĵ RIP ĵ backbone ϟ ھ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map p1
Ruijie(config-router)# network 0.0.0.0
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map p1 permit 10
Ruijie(config-route-map)# set level backbone
```

ð ЎΩƑ ҂ Ô

Ƒ ҂	
match interface	Ð ЮУ ⁄
match ip address	Ð “ è ھ ک
match ip next-hop	Ð “ è ЮУ ھ ک
match ip route-source	Ð “ è ھ ک
match metric	Ð ḣ
match route-type	Ð ڜ
match tag	Ð ḣ
set metric-type	ĵ ڜ
set tag	ĵ ḣ

40.1.45 set local-preference

ō match ‡ LOCAL_PREFERENCE ḣ˘ G
ي Ƌ ҂ **set local-preference** Â Ƌ ҂ **no** ĭ Â

set local-preference number

no set local-preference

ð ۷ Ô

۷	
number	ﻙ . ˝I ḣ Â ﻧ ‘ 0-4294967295

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/۷ У ə local-preference ḣ˘ a ə local-preference ḣ Â

Ƌ ҂ ō ĭ ﻙ . ˝I Â

ð w R Ô

```
Ruijie(config)# route-map    permit  0
Ruijie(config-route-map)# match as-path    1
Ruijie(config-route-map)#  set local-preference    0
Ruijie(config-route-map)#  exit
Ruijie(config)#  route-map    permit  0
Ruijie(config-route-map)# match as-path    2
Ruijie(config-route-map)#  set local-preference    0
```

ð ˇΩ Ƌ ҂ Ô

Ƌ ҂	
match as-path	ō AS_PATH ḣ
match metric	ō ḣ
match origin	ō ۷ ḣ

set as-path prepend ĭ

set metric-type	ǂ شخ

40.1.46 set metric

ƀ match ‡ ḣ˘ G يي Ƀ ҳ **set metric** Â Ƀ ҳ **no** ǂ Â

set metric [+ metric-value | **-** metric-value | metric-value]

no set metric

ð ч Ô >

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map  p
Ruijie(config-router)# network  0
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map  p  permit  0
Ruijie(config-route-map)# set metric  0
```

ð ‘Ω Ъ ٪ Ô

Ъ ٪	
match interface	ē Ю У ⁄
match ip address	ē “ è ‹ ‹
match ip next-hop	ē “ è Ю У ‹ ‹
match ip route-source	ē “ è ‹ ‹
match metric	ē ḣ
match route-type	ē ش
match tag	aē ḣ t
set metric-type	‡ ش

ð Л Ô

ð Ô

40.1.48 set next-hop

ӯ match ‡ ą Ю У IP ҝ ӈ˘ G يي
Ъ ҳ **set next-hop** Â Ъ ҳ **no** ĭ Â Ъ ҳ Θ ¥
Â

set next-hop ip-address

no set next-hop ip-address

ð Ч Ô

Ч	
ip-address	Ю У IP ҝ ӈ

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ð Ъ ҳ Ô

يي Â

ð G ˙ Ô

ą Л Љ ÿ У э ĭ ĭ Ы У э ╗ Â Л
Љ OSPF ӈ ĭ ł Ъ| RIP ӈ è˘ ≠ Л Љ RIP
ӈ ĭ ł Ъ| OSPF ӈ è Â ц ĭ Л
Љ ӂ IP ˜ Ğ Â

ӂ ĭ è˘ يي route maps˜ ˘ ч э ӈ
Ğ ц| ˚ ⁸ Â

У э يي ‡ è˘ Л Љ 1 э э **match** Ъ ҳ ņ 1 э
э **set** Ъ ҳ Â **match** Ъ ҳ˘ ‡ ӯ ’ **set** Ъ ҳ˘
‡ a ṁ˙ ị ɔ Â

ð w R Ô

Л Ю R ˘ ӯ ⁸ ˝ Ю У ѝ
192.168.1.2 Â

```
Ruijie(config)# route-map ⓟ permit 0
Ruijie(config-route-map)# match ip address 1
Ruijie(config-route-map)# set next-hop 8
```

ð ЎΩ Ъ ҳ Ô

Ƌ ҳ	
match interface	ƀ ЮУ ≠
match ip address	ƀ “ è ﻫ ﻛ
match ip next-hop	ƀ “ è ЮУ ﻫ ﻛ
match ip route-source	ƀ “ è ﻫ ﻛ
match metric	ƀ ḣ
match route-type	ƀ ﺵ
match tag	ƀ ḣ
set metric-type	ƒ ﺵ
set tag	ƒ ḣ

40.1.49 set origin

ƀ match ‡ ą ˘ G ﻱ
Ƌ ҳ **set origin** Â Ƌ ҳ **no** ƒ Â

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

no set origin

ð ≠ Ô

≠	
egp	EGP
igp	ﻛ IGP
incomplete	a ١

ð Ô

Â

ð Ƌ ҳ Ô

ﻱ Â

ð G ˚ Ô

/ı У ɜ Â

Ƌ ҳ ƀ ƒ Â

ð w R Ô

```
Ruijie(config)# route-map 
```
permit

```
Ruijie(config-route-map)# match as-path     1
Ruijie(config-route-map)# set origin igp
Ruijie(config-route-map)# exit
config-rout igp
```

te-map)# match as-path

```
Ruijie(config-route-map)# set originator-id          5
Ruijie(config-route-map)# exit
Ruijie(config)# route-map     M                  0permit
Ruijie(config-route-map)# match as-path      2
Ruijie(config-route-map)# set originator-id          6
```

ð ЎΩЭЪ ҳ Ô

Эҳ	
match as-path	ē AS_PATH ḣ
match metric	ē ḣ
match origin	ē ʌ ḣ
set as-path prepend	ț AS_PATH
set metric	ț ḣ
set local-preference	ț ك. ″I

40.1.51 set tag

ē match ‡ ˘ G يي Эҳ **set tag** Â
Эҳ **no** ț Â

set tag tag

no set tag

ð ʌ Ô

ʌ	
tag	ț

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ɖ ʅ a ʌ Â

ð Эҳ Ô

يي Â

ð G ˙ Ô

Эҳ ʌ ¥ ț Â Эҳ˘ ʅ
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ЛЬЮ R ˘ OSPF ~ ț RIP ˘ ț
ѝ 100 Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map ƥƚ
Ruijie(config-router)# network ƀƀ
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map ƥƚ permit ƀ
Ruijie(config-route-map)# set tag ƀ
```

ð ЎΩƑƁ ҂Ô

ƑƁ ҂	
match interface	ƃ ЮУ ≠
match ip address	ƃ “ è ћ ќ
match ip next-hop	ƃ “ è ЮУ ќ ћ
match ip route-source	ƃ “ è ќ ћ
match metric	ƃ ḣ
match route-type	ƃ ѕѕ
match tag	ƃ ḣ
set metric	ƭ ḣ
set metric-type	ƭ ѕѕ

ð ≠ Ô

ð Ô

40.1.52 set weight

ƃ match ‡ BGP ḣ˘ G ѱ ƑƁ ҂
set weight Â ƑƁ ҂ **no** ƭ Â

set weight number

no set weight

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≠	
number	ḣ Â ѧ 0-65535

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Ъ ҳ Л ұ ᵍ BGP ḣ Â

ą Ю ÿ ˆ ˘ neighbor weight ˆ
ḣ ’ ﻙ ӈ ḣ ﻳﺰ 32768 Â

Л Љ Ъ ҳ ḣ ᵍ BGP ˆ Ν ḣ Â

ð w ᴿ Ô

ЉЮ ᴿ ˘ BGP ﻓﺦ in

G Ƒ ɂ ɲ E “ ə Â

show ip community-list [community-list-number |community-list-name]

ð ɻ Ô

ɻ	
community-list-number	ə ɲ E “ ɻ ñ ɲ E “ ˙ ɻ ɲ ɨ 1-99 ɲ E “ ˙ ɻ ɲ ɨ 100-199
community-list-name	ə ɲ E “ ¨ ɲ E “ ¨ a 80

ð Ô

ð Ƒ ɂ Ô

ð G ˙ Ô

G Ƒ ɂ ɲ E “ ə Â

ð w R Ô

```
Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

ð ˜ØƑ ɂ Ô

Ƒ ɂ	
match community	ƕ ɲ E “
set comm-list delete	ɲ E “ ƒ BGP è ɲ E ḣ

ð ɻ Ô

40.2.2 show ip prefix-list

ɱ “ ə ɱ “ ə ˘ G **show ip prefix-list** Ƒ ɂ Â

show ip prefix-list [prefix-name]

ð ↓ Ô

↓	
prefix-name	ɱ “ ¨

ð Ô

ɱ “ ə Â

ð Ƌ ɂ Ô

à ŏ à ↓ à ˜ à

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ɱ “ ¨ ˘ ˚ ɱ “ ə ˘ ŭ ‡ ↑
ɱ “ ə Â

ð w ᴿ Ô

```
Ruijie# show ip prefix-list
ip prefix-list pre: 2 entries
seq 5 permit 192_0 8g34205B5164302>Tj/fix-list8g3442>6<01D0>]14E3g3
```

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Ђ ҳ Л Љ ˇ ѕ ə Â

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ЉЮ ѝ **show ip route** Ђ ҳ

```
Ruijie# show ip route
Codes:  C - connected, S - static, R - RIP, B - BGP
O - OSPF, IA - OSPF inter area
N1-OSPF NSSA external type 1,N2 - OSPF NSSA external type
2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2
- IS-IS level-2
ia - IS-IS inter area, * - candidate default

Gateway of last resort is no set
S    20.0.0.0/8 is directly connected, VLAN 1
S    22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN
1
R    40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN
1
B    50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C    192.1.1.0/24 is directly connected, VLAN 1
C    192.1.1.254/32 is local host.
```

show ip route Ђ ҳ Ю'

O	˜ Â Л Н ḣ ѝ' C' , S' , R' RIP , B' BGP , O' OSPF , ï IS-IS Â

E2	‚ Â Л ∧ ḣ ѝ E1 OSPF ‚ E2 OSPF ‚ N1 OSPF NSSA ‚ 1 N2 OSPF NSSA ‚ 2 IA OSPF ‚ su IS-IS ‚ L1 IS-IS 1 ‚ L2 IS-IS 2 ‚ ia IS-IS Â
20.0.0.0/8	
[1/0]	ḣ
Via 20.0.0.1	Ю У IP
00:00:06	~
VLAN 1	Ю У ∧ Л

ЛЬЮ ѝ

40.2.4 show ipv6 prefix-list

IPv6 ɱ ‟ ə ɱ ‟ ə ˘ G **show ipv6 prefix-list** Ƌ ɂ Â

show ipv6 prefix-list [prefix-name]

ð ˀ Ô

ˀ	
prefix-name	IPv6 ɱ ‟ ¨

ð Ô

IPv6 ɱ ‟ ə Â

ð Ƌ ɂ Ô

à ŏ à ˀ à ˜ à
ي

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ɱ ‟ ¨ ˘ ˬ ɱ ‟ ə ˘ ŭ ‡ ˀ
ɱ ‟ ə Â

ð w R Ô

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

40.2.5 show route-map

ي ə ˘ G Ƌ ɂ **show route-map** Â

show route-map route-map-name ⁄

ð ˀ Ô

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route-map-name	ˆ ˀ ˜ ˀ ي ə

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ييÂ

ð ᴳ ˀ Ô

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ييə Â

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```
Ruijie# show route-map
route-map AAA, permit, sequence 10
Match clauses:
ip address 2
Set clauses:
metric 10
```

route-map	ييّ
Permit	يي ˆ ŭ permit ٪
sequence 10	يي ٨
Match clauses	ⱵK ɔ ‡ Â يي permit deny ٪ ā ŭ set ɔ
Set clauses	ⱵK ˊ match ɔ ‡ ɨ ɔ

1 ×F… ÚÖ] <

41 ACL

ж ЛЬЮЪ ҳ è ĺ Л Ч ЛЬЮЪ ҳ

	ъ Ьж
id	“ ḣ Л Â Л нг IP ñ ACL: 1-99,1300-1999 IP ACL: 100-199,2000-2699 MAC ACL: 700–799 ж ACL: 2700–2899
name	ACL ¨
sn	ACL Л (. ˝I ң ت)
start-sn	Л ḣ
inc-sn	Л
deny	Ъ ˘ ‡
permit	Ъ ˘ ‡ ĭ
prot	˜ Л˘ ɣ IPv4ҁ Л Лъ eigrp, gre, ipinip, igmp, nos, ospf, icmp, udp, tcp, ip è У э˘ ≠ Л Лъ ҳ IP ˜ 0-255 Л˘ У Ҷ ˜ icmp/tcp/udp ` “
interface idx	ώ Ъ Л
src	кс нн^ ў кс нн кс нн˜
src-wildcard	кс нн Â Л Лъ G a ˘ 0.255.0.32
dscp dscp	Ь , ḣ˘ нг 0-63
dst	кс нн^ ў кс нн кс нн˜
dst-wildcard	кс нн Â Л Лъ a ˘ 0.255.0.32
fragment	ĺ
precedence precedence	. ˝I ⁞^ 0-7˜
time-range tm-rng-name	˽˘ ¨ й tm-rng-name
tos tos	Ь ĸ^ 0-15˜
cos cos	cos ḣ (0-7)
cos inner cos	ǫ̈ tag è cos
icmp-type	ICMP ĸ^ 0-255˜

icmp-code	ICMP ҳ ^ 0-255˜
icmp-message	ICMP ҳ
operator port[port]	Operator и ɔ ^ lt- ¥˘ eq- ¥˘ gt- ¥˘ neq- a ¥˘ range- ˜ port ˘ ɛ ы ɔ У э
src-mac-addr	ў
dst-mac-addr	ў
VID vid	vlan id
VID inner vid	tag è vid
ethernet-type	˜ ҳ˘
match-all tcpf	tcp flag Æ
text	
in	
out	ÿ
{rule mask offset}+	rule π Ω 8 mask π Ω 8 offset и “+” У

Ю

AA AA AA AA AA AA BB BB BB BB BB BB CC CC DD DD
DD DD EE FF GG HH HH HH II II JJ KK LL LL MM MM
NN NN OO PP QQ QQ RR RR RR RR SS SS SS SS TT TT
UU UU VV VV VV VV WW WW WW WW XY ZZ aa aa bb bb

F	SSAP(ы)	19	T	TCP л	46
G	Ctrl	20	U	TCP л	48
H	Org Code	21	V	" л	50
I	ъшэ	24	W		54
J	IP л	26	XY	IP р ф Æ	58
K	TOS	27	Z	ф Æ р flags Æ	59
L	IP ^	28	a	Windows size	60
M	ID л	30	b	è ыі	62
N	Flags	32			

Э è л э Ļ ъ эф SNAP tag 802.3 è Ļ Â

41.1

ŏ Ъ ъ

access-list

ip access-list

mac access-list

expert access-list

ip access-list resequence

ACL Ъ ъ

deny

permit

list-remark text

no sn

л Ъ ъ

ip access-group

mac access-group

expert access-group

41.1.1 access-list

Ѣ ҁ … У э “ ‡˘ Ұ Â Ѣ ҁ **no** ĩ

destination-mac-address | **any**} [icmp-type] [[icmp-type [icmp-code]] | [icmp-message]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

Transmission Control Protocol (TCP)

access-list id {**deny** | **permit**} **tcp** [**VID** [out][**inner** in]]{source source-wildcard | **host** Source | **any**} {**host** source-mac-address | **any** } [**operator** port [port]] {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [**operator port** [port]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name] [**match-all** tcp-flag]

User Datagram Protocol (UDP)

access-list id {**deny** | **permit**} **udp**[**VID** [out][**inner** in]] {source source wildcard | **host** source | **any**} {**host** source-mac-address | **any** } [**operator port** [port]] {destination destination-wildcard | **host** destination | **any**}{**host** destination-mac-address | **any**} [**operator port** [port]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

5) “

access-list list-remark text

ð ч Ô

ЛЬЮ ч ЛЬ ч ɱ ɨ ѝ ˘ ɱ ч ˘ ƒƌ ɨ ɻ è a Ѧ Â

id ˈ “ ѓ Â ѓ ɀ 1-99 100-199 1300-1999 2000-2699 2700 – 2899 700 - 799˘ Â

Deny ˈ ɒ ˘ ٦ “

tos ˈ Ь ҷш h^ 0-15˜

icmp-type ˈ ICMP ҷш^ 0-255˜

icmp-code ˈ ICMP ҷш ҷ ^ 0-255˜

icmp-message ˈ ICMP ҷш̈

operator ˈ ɔ ^ lt- ҰˇеqҰˇ gt- ҰˇneqҰˇ range- ҙ˜

port [port] ˈ ѧ ѧˇ range ч э ѧ ѧ ˇ ѐ ы ɔ Ѧ У э ѧ ѧ Â

host source-mac-address ˈ ў кс нн Â

host destination-mac-address ˈ ў кс нн Â

VID vid ˈ vid Ъ

ethernet-type ˈ Лъ ˜ ҷш

match-all ˈ Ъ tcp flag Æ

tcp-flag ˈ tcp flag

ð Ô

ˈ ı ACL

ð Ъ ҷ Ô

ŏ

ð ɢ ˈ Ô

й ɕ G “ ˇ ˝I Ъ ҷ **access-list** ЂЖУ “ “ ‡ ѧ Â Ѧ Лъ é е ŏ G a ˇ “ ˈ

ñ IP “ ^ 1-99˝ 1300-1999˜ Ѧ кс нн ⁸ Â

IP “ ^ 100-199˝ 2000-2699˜ ˇ Ѧ Лъ кс нн ⁸ Â

MAC “ ^ 700-799˜˜ Ѧ Лъ ɲ MAC кс нн Лъ ѵ Лъ ҷш Ъ Expert “ ^ 2700-2899˜˜ Э ə ˊ ˇ Ѧ Лъ VLAN ID Ъ Â

TCP Flag ˆ ў ЛъЮ ˦ ŏ

urg

ack

psh

rst

syn

fin

˙ ˝I ⁞ ¨ Ю˙

critical

flash

flash-override

immediate

internet

network

priority

routine

ـ ّشخ HO

max-reliability

max-throughput

min-delay

min-monetary-cost

normal

ICMP ّشخ HO

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

z

network-unknown

no-room-for-option

option-missing

packet-too-big

parameter-problem

port-unreachable

precedence-unreachable

protocol-unreachable

redirect

router-advertisement

router-solicitation

source-quench

source-route-failed

time-exceeded

timestamp-reply

timestamp-request

ttl-exceeded

unreachable

Ю TCP ⅄̈ ˇ TCP ⅄ ⅄Ъ G ⅄̈ ⅄ ⅄ έ E ⅄ʻ

bgp

chargen

cmd

daytime

discard

domain

echo

exec

finger

ftp

ftp-data

gopher

hostname

ident

irc

klogin

kshell

ldp

login

nntp

pim-auto-rp

pop2

pop3

smtp

sunrpc

syslog

syslog

tacacs

talk

tftp

time

who

xdmcp

Л ~ ش Ethernet-type Ю

aarp

appletalk

decnet-iv

diagnostic

etype-6000

etype-8042

lat

lavc-sca

mop-console

mop-dump

mumps

netbios

vines-echo

xns-idp

ð w ᴿ Ô

1) IP ñ " ᴿ

Ю IP ي " ĭ ك ه и 192.168.1.64 - 192.168.1.127 ˘
è ы '

```
Ruijie(config)# access-list 1permit 0
0
```

2) IP " ᴿ

Ю IP " ĭ DNS n ICMP '

```
Ruijie(config)# access-list 0permit tcp any any eq domain
Ruijie(config)# access-list 0permit udp any any eq domain
Ruijie(config)# access-list 0permit icmp any any echo
Ruijie(config)# access-list 0 permiticmpanyanyecho-reply
```

3) MAC " ᴿ

Ю G R˘ MAC ѝ 00d0f8000c0c ў ∧ ۻ ѝ 100
Лъ ˘ ˆ ∧ 1 Â ˙

```
Ruijie(config)# access-list 0 denyhost 0 anyaarp
Ruijie(config)# interface gigabitethernet 1
Ruijie(config-if)# mac access-group 0 in
```

4) Expert “ R

Ю R ¦ … ∨ У Expert Extended ACL˘ ж ACL IP ھ ک
ѝ 192.168.12.3 з MAC ھ ک ѝ 00d0.f800.0044 TCP Â

```
Ruijie(config)# access-list
```

ð Ъ ч Ô

ώ

ð G ' Ô

ñ ACL p a ˘ ACL ╕ Â
ч **deny** p **permit** Ъ ч ñ p Â G **show access-lists** Ъ ч
ACL Â

ð w R Ô

… ñ ACL˙

```
Ruijie(config)# ip access-list extended 3
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 123
Ruijie(config-ext-nacl)#
```

… ACL˙

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

ð ΩЪ ч Ô

Ъ ч	
show access-lists	IP "

ð Л Ô

˚ RGOS10.0 Л Э

41.1.3 expert access-list

Ъ ч … ж ACL˘ ώ Â G Ъ ч **no** ĩ ACL

expert access-list extended {id | name }

no expert access-list extended {id | name }

ð ч Ô

Id ' Expert " Л^ 2700-2899˜

Name ' ACL¨

ð Ô

Expert ACL

ð Ƃ ३ Ô

ώ

ð G ' Ô

Ƃ ३ Â G **show access-lists** Ƃ ३ ACL Â

ð w R Ô

… ж ACL'

```
Ruijie(config)# expert access-list extended          þ
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
Ruijie(config-exp-nacl)#
```

… ж ACL'

```
Ruijie(config)# expert access-list extended          ø
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2704
Ruijie(config-exp-nacl)#
```

ð ΩƂ ३ Ô

Ƃ ३	

start-sn ‘ 10

inc-sn ‘ 10

ð Ƃ ҁ Ô

ώ

ð G ’ Ô

Ƃ ҁ Â G **show access-lists** Ƃ ҁ ACL Â

ð w R Ô

ACL ‘

```
Ruijie# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
Ruijie# config
Ruijie(config)# ip access-list resequence
```

Ruij9/TT3 1 Tex-1.4.8 0 Td(conf9/TTj/TT3 1 Tf-4.8#1.497 TD(Ruiji

destination-wildcard [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

У ҏ ~ IP 8 ‟ ‘

Internet Control Message Protocol (ICMP)

[sn] **deny icmp** {source source-wildcard | **host** source | **any**} {destination destination-wildcard | **host** destination | **any**} [icmp-type] [[icmp-type [icmp-code]] | [

destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

expert

Internet Control Message Protocol (ICMP)

[sn] **deny icmp** [[**VID** [out][**inner** in]]] {source source-wildcard | **host** source | **any**} {**host** source-mac-address | **any**} {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **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** [[**VID** [out][**inner** in]]]{source source-w ildcard | **host** Source | **any**} {**host** source-mac-address | **any** } [operator **port** [port]] {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [operator **port** [port]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name] [**match-all** tcp-flag]

User Datagram Protocol (UDP)

[sn] **deny udp** [[**VID** [out][**inner** in]]]{source source wildcard | **host** source | **any**} {**host** source-mac-address | **any** } [operator **port** [port]] {destination destination- wildcard | **host** destination | **any**}{**host** destination-mac-address | **any**} [operator **port** [port]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

access-list

sn ACL

dscp

dscp 0-63.

ACL

ð w ᴿ Ô

Ю ᴿ ı … ↓ У Expert Extended ACL˘ ж ACL IP ﻛ ﻫ
й 192.168.4.12 з MAC ﻛ ﻫ й 001300498272 TCP Â

```
Ruijie(config)# expert access-list extended 2702
Ruijie(config-exp-nacl)# deny tcp host
192.168.4.12 host 192.168.4.13 any any
Ruijie(config-exp-nacl)# permit any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.4.12 host 0013.0049.8272 any any
20 permit any any any any
Ruijie(config-exp-nacl)#
```

Ю IP ACL ᴳ ᴿ˘ IP й 192.168.4.12 ў ᵏ TCP
↓ й 100 ┗˘ ↑ ↓ 1Â

```
Ruijie(config)# ip access-list extended ip-ext-acl
Ruijie(config-ext-nacl)# denytcphost 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended ip-ext-acl
10 deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group ip-ext-acl in
Ruijie(config-if)#
```

Ю MAC ACL ᴳ ᴿ˘ MAC й 0013.0049.8272 ў
↑ ﺷﺞ й 100 Лъ ˘ ↑ ↓ 1Â

```
Ruijie(config)# mac access-list extended mac1
Ruijie(config-mac-nacl)# deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended mac1
10 deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group mac1 in
```

Ю IP ñ ACL ᴳ ᴿ˘ IP й 192.168.4.12 ў ˘
↑ ↓ 1Â ‘

```
Ruijie(config)# ip access-list standard 34
Ruijie(config-ext-nacl)# deny host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
```

```
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1
Ruijie(config-if)# ip access-group 3 in
```

ö

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	ж ACL
permit	ñ

Transmission Control Protocol (TCP)

[sn] **permit 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] **permit 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-ra nge-name]

3) MAC ‟

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

4) Expert ‟

[sn] **permit** [**protocol** | [ethernet-type][**cos** [out] [**inner** in]]] [**VID** [out][**inner** in]] {source source-wildcard | **host** source | **any**} {**host** source- **mac**-address | **any** } {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [**precedence** precedence] [**tos** tos][**fragments**] [**time-range** time-ra nge-name]

ˆ ΰ Л ъ ش Ethernet-type cos

[sn] **permit** {ethernet-type| **cos** [out] [**inner** in]} [**VID** [out][**inner** in]] {source source-wildcard | **host** source | **any**} {**host**

time--ra]4.501 0 Td (])Tj /C2_0 1 Tf 0 Tc 13.2747 60 Tw 0 Tz [source-mac-address | **any**} {18BD112B218908D909F7.60 T0 Td25324F0D5F>Tj /09T1 182ernet-

destination-mac-address | **any**}[icmp-type] [[icmp-type [icmp-code]] | [icmp-message]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name]

Transmission Control Protocol (TCP)

[sn] **permit tcp** [**VID** [out][**inner** in]]{source source-wildcard | **host** Source | **any**} {**host** source-mac-address | **any** } [operator **port** [port]] {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [operator **port** [port]] [**precedence** precedence] [**tos** tos] [**fragments**] [**time-range** time-range-name] [**match-all** tcp-flag]

User Datagram Protocol (UDP)

[sn] **permit udp** [**VID** [out][**inner** in]]{source source wildcard | **host** source | **any**} {**host** source-mac-address | **any** } [operator **port** [port]] {destination destination-wildcard | **host** destination | **any**} {**host** destination-mac-address | **any**} [operator **port** [port]] [**precedence precedence**] [**tos** tos] [**fragments**] [**time-range** time-range-name]

Ю IP ACL G R˘ ñ IP ѝ 192.168.4.12 ў k TCP
ѧ ѝ 100 Ь˘ ˚ ѧ 1Â

```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100
any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1
Ruijie(config-if)# ip access-group 102in
Ruijie(config-if)#
```

Ю MAC ACL G R˘ ñ MAC ѝ 0013.0049.8272 ў
Ч ҕш ѝ 100 Лъ ˘ ˚ ѧ 1Â

```
Ruijie(config)# mac access-list extended 2
Ruijie(config-mac-nacl)# permit host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended
10 permit host 0013.0049.8272 any aarp2
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1
Ruijie(config-if)# Mac access-group
```

mac access-list	MAC ACL
expert access-list	ACL
deny	ACL

RGOS10.0

41.1.7 list-remark text

no

list-remark text

Text

ACL

ACL

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

show access-lists	
ip access-list	IP

RGOS10.0

41.1.8 no sn

ї ACL У э

no sn

ð ч Ô

sn ' й ACL У э ч

ð Ъ ч Ô

ACL Ю

ð G ' Ô

ж ACL Юї ACL

ð w R Ô

```
Ruijie(config)# ip access-list extended 100
Ruijie(config-ext-nacl)# permit ip host 192.168.4.12 any
Ruijie(config-ext-nacl)# 12deny ip any any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 100
10 permit ip host 192.168.4.12 any
12 deny ip any any
Ruijie(config-ext-nacl)# no 12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 100
10 permit ip host 192.168.4.12 any
```

ð ЎΩЪ ч Ô

Ъ ч	
show access-lists	"
ip access-list	IP ACL Н
deny	Н Н ACL
permit	Н ї Н ACL

ð л Ô

˚ RGOS10.0 Л Э

41.1.9 ip access-group

é ɛ " ¥ ˄˘ ˄ Ъ ч **ip access-group** Â Ъ ч
no ˄ " ŋ ˄ ˇΩ Â

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

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

ð ˄ Ô

id ˊ IP " ˄^ 1-199˝ 1300-2699˜

name ˊ IP " ¨

in ˊ ώ ˄

out ˊ ÿ ˄

unreflect

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

ð ↓ Ô

id ' Expert " ↓^ 2700-2899˜
name ' Expert " ¨
in ' ώ ↓
out ' ÿ ↓
unreflect ' Л ACL

ð Ô

↓ Expert ACL

ð Ъ ъ Ô

↓

ð G ' Ô

ACL ¥ ↓ Э˘ G è ↓ ώ 8 ÂG **show access-group** Ъ ъ

ð w R Ô

Ю R ¦ access-list accept_00d0f8xxxxxx_only ¥ Gigabit ↓ 1 Э'

```
Ruijie(config)# interface GigaEthernet 0
Ruijie(config-if)# expert access-group
accept_00d0f8xxxxxx_only in
```

ð Ω Ъ ъ Ô

Ъ ъ	
show access-group	↓ Э ACL Â

ð ↓ Ô

˘ RGOS10.0 Лъ Э

41.2

б ^ ЛЬЮ Ъ ъ:

show access-lists
show ip access-group
show mac access-group

show expert access-group

show access-group

41.2.1 show access-lists

ACL ¨ ACL

show access-lists [id | name]

ð ↓ Ô

id ´ “ ↓

name ´ “ ¨

ð ֏ ֵ Ô

ð ᴳ ˙ Ô

acl˙ id name˘ ‡ ACL

ð w ᴿ Ô

```
Ruijie# show access-lists      h
ip access-list standard n_acl
Ruijie# show access-lists      0
ip access-list extended 102
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
mac access-list extended mac-acl
expert access-list extended exp-acl
```

ð ˜Ω֏ ֵ Ô

֏ ֵ	

ы IP ACL

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

ð ы Ô

<interface > ' ы

ð Ъ ч Ô

ð G ' Ô

ы IP ACL˘ ы˘ ‡ ы ˇΩ IP ACL

ð w R Ô

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

ð ˇΩЪ ч Ô

Ъ ч	
ip access-list	IP ACL HЖ Â

ð л Ô

˙ RGOS10.0 Л Ъ Э

41.2.3 show expert access-group

ы Expert “ Â

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

ð ы Ô

<interface > ' ы

ð Ъ ч Ô

ð G ' Ô

ы Expert ACL˘ ы˘ ‡ ы ˇΩ Expert ACL

ð w R Ô

```
Ruijie# showexpertaccess-groupinterfacegigabitethernet 0
expert access-group ee in
```

Applied On interface GigabitEthernet 0/2.

ð ‵Ωƀ ३ Ô

ð Л Ô

˚ RGOS10.0 Љ Э

42 RPL

42.1

42.1.1 reverse-path

ҩф ⊀ Ю G **reverse-path** Ъ ҳ ɗ ⊀ ˘ è ⁄ ⁋ α
⊀ ⊀ يّتي G Ъ ҳ no ⊀ Â

reverse-path

no reverse-path

⊀	
-	-

a ⁄ ⁋ α ⁸ ℸ
Ъ ҳ	⊀ Â
G	Ъ ҳ ⁄ ¥ Л৳ ⊀˘ ⁄ ¥
w R	R 1ˈ ҩф ⊀ Э RPL Ъ ҳ . Ruijie(config)# interface gigabitEthernet 0/0 Ruijie(config-if)# **reverse-path**

Ъ ҳ	
-	-

⁄

⁄	
10.3(3b7)	10.3(4)

43

43.1

43.1.1 acpp

è ⁸ ɖ ˆ ACPP˜ ˇ ɔϕ control-plane Ю G Ъ ҳ acpp

G Ъ ҳ no ǐ acpp ‡

acpp bw-rate rate **bw-burst-rate** burst-rate [**log**]

no acpp

↰	
rate	⁸ˆ ` Æ ѝ pps˜
burst-rate	↰ ⁸ˆ ` Æ ѝ pps˜

α Ю˝ ACPP Â

Ъ ҳ control-plane ˇ Л Љ ɔϕ Ь э Л

G Â

R 1˙ ЉЮ R ˇ н Ц ѝ 200pps˜ ї ↰ ḣ ѝ 300pps˙

w R
```
Ruijie(config)# control-plane data
Ruijie(config-cp)# acpp bw-rate 200 bw-burst-rate 300
```

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

43.1.2 arp-car

ǀ ARP ˘ Glean-CAR ˘ ﬡ control-plane
Ю G Ъ ъ arp-car

G Ъ ъ no ǀ arp-car ‡

arp-car packet_rate_per_group [**log**]

no arp-car

ﾑ	
packet_rate_per_group	ḣ^ ` æ ѝ pps˜

	α Ю ARP-CAR Â
Ъ ъ	control-plane ˘ ﾑ ﬡ ﾑ
G	Â

w R	R 1ˈ ЛЬЮ R ˘ ﬡ ﾑ Э˘ з ǀ ˚ У э ^ ˜ ﾑ ARP ѝ 10ppsˈ
	`Ruijie(config)# control-plane manage`
	`Ruijie(config-cp)# arp-car 10`

ℵΩЪ ъ		
Ruijie(config)# {protocol | manage | data}	control-plane ώ control-plane ˘ ﾑЛЬ ώ ﾑ

ﾑ	
Ъ ъ ﾚ ﾑ	ﾑ	
	-	-

43.1.3 control-plane

ώ control-plane ˘ ﾑЛЬ G Ъ ъ control-plane

G exit control-plane

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

ч

ч	
protocol	ώ˜ 8 ⅄
manage	ώ ⅄
data	ώ н ⊾ ⅄

Ъ ҳ ώ̋

G Â

w R

R 1‘ ЛЮ R ˘ ώ control-plane ˘ ώ˜ 8 ⅄‘

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

Ъ ҳ

Ъ ҳ

- -

‘Ω Ъ ҳ	Ъ ҳ	
	Ruijie(config)# **control-plane** {**protocol** | **manage** | **data**}	ώ control-plane ˘ Л Ъ ώ Л

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	-	-

43.1.6 management-interface

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	-	-

43.1.7 port-filter

Port-Filter ╖ ∧ Л↓ ⁞ ﻙ · ˘ ⊖ ∧ ﻑ
ﻙ Â Port-Filter ╖ ﻑ control-plane Ю G Ъ
३ port-filter

G Ъ ३ no ˜Ω Port-Filter ╖

port-filter [**log**]

no port-filter

∨ 64_0 1 Tf64 0 Tort-Filter

ǰ ⁸ ɖ ˆ SCPP˜ ˇ ﬕ ǫ̈ У Ҁ
ǰ ɲ ˈ ⁸ˇ ˊ ⁸ˇ ⁸’ ﬕ control-plane Ю
G Ъ ҳ scpp

G Ъ ҳ no ǰ scpp ‡

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

no scpp list acl_no

ӈ	
acl_no	ӗ ˇ ӗ Ҁǰ ɲ
bw-rate	⁸ˆ ` Æ й pps˜
bw-burst-rate	ӈ ⁸ˆ ` Æ й pps˜

ɑ Ю SCPP ╗ ˜Ω

Ъ ҳ control-plane ˇ Л Љ ﬕ Ь э Л

G Â

R 1ˈ ЉЮ R ˇ ﬕ Л Э˘ 192.168.52.0 ӈ ǰ ﬓ
Л Э TCP ˜ ˇ й 100pps˘ ї ӈ ḣ й 150pps’ ї
й 30 э˘ й 5 э ˇ ӈ й 7 э ˈ

W R
```
Ruijie(config)# access-list 100 permit tcp 192.168.52.0 0.0.0.255
any
Ruijie(config)# control-plane manage
Ruijie(config-cp)# scpp list 100 bw-rate 100 bw-burst-rate 150
```

Ъ ҳ	
Ruijie(config)# **control-plane** {**protocol** | **manage** | **data**}	ώ control-plane ˇ Л Љ ώ Л

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-	-

43.2

```
    STATISTIC:
      bandwidth rate limit dropped 0 packets
    TOTALLY droped 0 packets
  Protocol subinterface: disable
ARP CAR information: //ARP-CAR    n    ə
  Manage subinterface: enable
    RULE:
      allow packet rate per source: 30(pps)
      log: off
    STATISTIC:
      dropped 181 packets
Glean CAR information:  //Glean-CAR    n    ə
  Data subinterface: disable
Port Filter information:
  Manage subinterface: disable
Management plane protection information:  //MPP    n    ə
  Manage subinterface: disable
```

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show ip inspect parameter

ð ↓ Ô

parameter: ∕ ↓ **name** inspection_name ˙ ⁸ ∕ ‡

interface ˙ ﻍ ﺅ ↓ Э ‡

all ˙ ə

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ð Ƃ ҁ Ô

ő Â

ð ᴳ ˚ Ô

ᴳ Ƃ ҁ ˇΩ ¥ˆ ˜ ˜ ‡ ə

ð w ᴿ Ô

Ю ᴿ ‡ abc ə ˙

```
Ruijie# show ip inspect name      abc
Inspection name abc
    ftp
    mms
```

ð Ô

44.1.3 ip inspect

ﻍ ↓ Э ‡˘ Ƃ ҁ no ﻍ ↓ Э ‡ Â

ip inspect inspection_name {**in** | **out**}

no ip inspect inspection_name { **in** | **out**}

ð ↓ Ô

inspection_name : ‡ ¨

in | **out:** ↄ ﻍ ↓ Э ‡̈ α

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ð Ƃ ҁ Ô

↓ Â

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G Ъ ч ж Л Э ‡

ж э Л ˚ У э ё Э э ‡˘ Л ь ы У э ‡ и ђ^ э
Л У э ё Э˘ Л У э ~ ‡˘ э ‡ Л Л ь э
~ ~

˙ У э ~ ‡ ˛ ¢ э Л^ ё~ Э˘ ~ ™
Í ¢’ Л^ ё~ Э ~ ‡˘ ~
Т ╠ ћ Ω Â

ð w R Ô

Ю R ж Л ь 1/0 Л ώ ё Э abc ‡˙

```
Ruijie(conf)# interface ethernet 1/0
Ruijie(conf-if)# ip inspect bin
```

ð Ô

44.2 IP MAC

44.2.1 ipmacbind

У э IP MAC к h ‡ Â Ъ ч **no** ˛ ‡ Â

ipmacbind A.B.C.D H.H.H **log**

no ipmacbind A.B.C.D H.H.H **log**

ð Л Ô

A.B.C.D: IP к h

H.H.H: MAC к h

log: ў

ð ą Ô

IP MAC Т ћ Ω

ð Ъ ч Ô

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ð G ˙ Ô

G Ъ ч У э ‡

¢˙ У э ‡ ы˘ IP MAC Т ╠ Í ¢

ð ↓ Ô

permit: ĭ ɔ Ə IP MAC ﻡ ﻩ ‡

deny: ɔ Ə IP MAC ﻡ ﻩ ‡

ð ą Ô

ɔ Ə IP MAC

```
Ruijie# clear ipmacbind dynamic
```

ð Ô

44.2.5 show ipmacbind

ˇΩ ¥ IP MAC ﻛ ﻫ ‡ ə Â

show ipmacbind table | hash | statistic

ð ч Ô

table: IP MAC ﻛ ﻫ ‡

hash: IP MAC ﻛ ﻫ ‡ ز

statistic: IP MAC ﻛ ﻫ ə ˆ x ˆ ˜

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ð ɢ ˙ Ô

ɢ Ƃ ҁ ˇΩ ¥ IP MAC ﻛ ﻫ ‡ ə Â

ð w ʀ Ô

Ю ʀ ˇΩ ¥ IP MAC ﻛ ﻫ ‡ ə ˈ

```
Ruijie# show ipmacbind table
No.    Type   IP address    MAC address
```

no ip ingress-filter

ð ↙ Ô

log: ŭ

ð ɑ Ô

ώ ↙ ╖ ʗΩ

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ð ᴳ ᵌ Ô

ɑ ЮЎ ώ ↙ ╖ ʗΩ ˘ í ╖ ˘ ″I ᴳ
Ƀ ɂ Â a ᴳ ╖ ˘ ⁄ Л ʁ ᴳ Ƀ ɂ no ʗΩ Â

ð w ᴿ Ô

Ю ᴿ í ώ ↙ ╖ ˈ

Ruijie(config)# interface ethernet 1/0

Ruijie(conf-if)# **ip ingress-filter log**

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44.3.2 show ip ingress-filter

ʗΩ ɣ ώ ↙ ə ˆ ╖ ŭ í ˘ ɷ ˜ Â

show ip ingress-filter

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ώ ↙ ╖ ʗΩ

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ð w ᴿ Ô

Ю ᴿ ώ ↙ ╖ ə ˈ

Ruijie# show ip ingress-filter
Firewall Network-ingress-filter is enable, blocked 0 flows

```
Interface GigabitEthernet 1/0: log is on, blocked 0 flows
```

ð Ô

44.4 TCP SYN

44.4.1 ip tcp-intercept list

ɟɸ ɜ ɻ ɜ ɑ̈ Ɜ í TCP SYN ɂ ╖ Â Ƃ ɂ no ʗΩ ╖ Â

ip tcp-intercept list extended_ACL_# {**in** | **out**} <**log**>

no ip tcp-intercept list extended_ACL_# {**in** | **out**} <**log**>

ð ɻ Ô

extended_ACL_# ：

in | **out:** ɔ ɟɸ ɻ Ɜ ɑ̈

log: ŭ

ð ɑ Ô

TCP SYN ɂ ╖ ʗΩ

ð Ƃ ɂ Ô

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ð ɢ ˙ Ô

ɟɸ ɜ ɻ ɜ ɑ̈ Ɜ í TCP SYN ɂ ╖ Â

ɟɸ ɻ Ю Â

ð w ᴿ Ô

Ю ᴿ ɟɸ eth 1/0 ώ ɑ̈ Ɜ TCP TCP SYN ɂ

```
Ruijie(config)# access-list 100 tcp permit any any
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ip tcp-intercept list 100 in log
```

ð Ô

44.4.2 show ip tcp-intercept

TCP SYN ɂ ˜Ω ə Â

show ip tcp-intercept

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Ƃ ɂ TCP SYN ɂ ˜Ω ə

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ð w ʀ Ô

ЮO ʀ TCP SYN ɂ ə ˛

```
Ruijie# show ip tcp-intercept
Intercepting new connections using access-list 100 at
GigabitEthernet 0/1 in
12 incomplete, 5 established connections (total 17)
```

ð Ô

44.5 TCP

44.5.1 ip inspect name tcp

tcp ˜ ‡ˆ TCP ↓ ˜ Â Ƃ ɂ no ˝ ‡ Â

ip inspect name inspection_name **tcp**

no ip inspect name inspection_name **tcp**

ð ↓ Ô

inspection_name : ‡ ¨ ˘ ɹ ¥ ACL è ¨

ð ą Ô

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ð ɢ ˙ Ô

G Ъ ҳ У э tcp ‡

tcp

“ ӷ ∧ 1000 ˘ ї 100

```
session-limit access-group 1 rate 100 concurrent 10000 in log
```

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Ъ ҳ ˊ ҩ ∧˘ ŭ ‡ a Â

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44.7

44.7.1 ip rate-control

ӻ ӷ Э ⁸ Ⅶ

ip rate-control acl_no **bandwidth** {**both|up|down**} rate **<session total** session_no> < **rate** rate_no **>**

no ip rate-control acl_no **bandwidth** {**both|up|down**} rate **<session total** session_no> < **rate** rate_no **>**

ð ∧ Ô

acl_no ˈ ‡ “ ∧

rate ˈ ˘ ` Æ kBps

session_no ˈ ∧

rate_no ˊ

ð ą Ô

a ṁ ⁸

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⁸ ЭЮ У ą й both

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“ ӷ 200kBps˘ ∧ 500 ˘ ї 100

```
ip rate-control 1 bandwidth both 200 session total 500 rate 100
```

ð Ô

Ъ ҳ ˊ ﻑ ﻍ ˇ ŭ ‡ a Â

ℸ E ط a Â

44.8

44.8.1 ip session log-on

˚ ˇ Ъ ҳ no ˚ Â

ip session log-on

no ip session log-on

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à ˜ à ˌ à ˄ à ˚ ą Â

ð w R Ô

Ю Ъ ҳ ˚ ℸ ˋ

Ruijie(config)#ip session log-on

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44.8.2 ip session timeout

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Ъ ҳ й У Ъ ҳ ˇ У ˚ У э Ъ ҳ Â

ip session timeout icmp-closed timeout _value

ip session timeout icmp-started timeout _value

ip session timeout icmp-connected timeout _value

ip session timeout tcp-established timeout _value

ip session timeout tcp-syn-sent timeout _value

ip session timeout tcp-syn-receive timeout _value

ip session timeout tcp-fin-wait timeout _value

ip session timeout tcp-time-wait timeout _value

ip session timeout tcp-closed timeout _value

ip session timeout tcp-close-wait timeout_ value

ip session timeout tcp-last-ack timeout _value

ip session timeout udp-closed timeout _value

ip session timeout udp-started timeout _value

ip session timeout udp-connected timeout _value

ip session timeout udp-established timeout _value

ip session timeout rawip-closed timeout _value

ip session timeout rawip-started timeout _value

ip session timeout rawip-connected timeout _value

ip session timeout rawip-established timeout _value

no ip session timeout icmp-closed

no ip session timeout icmp-started

no ip session timeout icmp-connected

no ip session timeout tcp-established

no ip session timeout tcp-syn-sent

no ip session timeout tcp-syn-receive

no ip session timeout tcp-fin-wait

no ip session timeout tcp-time-wait

no ip session timeout tcp-closed

no ip session timeout tcp-close-wait

no ip session timeout tcp-last-ack

no ip session timeout udp-closed

no ip session timeout udp-started

no ip session timeout udp-connected

no ip session timeout udp-established

```
Ruijie(config)#ip session timeout icmp-connected 10
```

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44.8.3 ip session threshold

ɣ У Ҷ ˚ ˘ ą̈ˆ ∧ ~ ḣ˘ Ƃ ҳ no ḣ Â

Ƃ ҳ ѝ У Ƃ ҳ˘ У ˚ У э Ƃ ҳ Â

ip session threshold icmp-closed threshold _value

ip session threshold icmp-started threshold _value

ip session threshold tcp-syn-sent threshold _value

ip session threshold tcp-syn-receive threshold _value

ip session threshold tcp-closed threshold _value

ip session threshold udp-closed threshold _value

ip session threshold rawip-closed threshold _value

no ip session threshold icmp-closed

no ip session threshold icmp-started

no ip session threshold tcp-syn-sent

no ip session threshold tcp-syn-receive

no ip session threshold tcp-closed

no ip session threshold udp-closed

no ip session threshold rawip-closed

ð ∧ Ô

threshold_value ą̈ ḣ˘ ` æ ѝ э

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ɹ ˚ ḣ Ю

icmp-closed	10
icmp-started	300
tcp-syn-sent	10
tcp-syn-receive	20
tcp-closed	20
udp-closed	10

rawip-closed 10

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Ъ ҳ ≀ Ю ą̈ ḣ Â

ð w R Ô

Ю Ъ ҳ icmp-started ą̈ ḣ ѝ 10 э

```
Ruijie(config)#ip session threshold icmp-started 10
```

ð Ô

⁞ ˘ a ≀ Â

44.8.4 ip session track-state-strictly

ш TCP à ICMP ˘ Ɣ
TCP ^ SYN ˜ à ⌡ ICMP a ∧ ąЮ è Â
Ъ ҳ Ɣ ш ╖ ˘ Ъ ҳ no Ɣ ‘Ω ╖ Â

ip session track-state-strictly

no ip session track-state-strictly

ð ≀ Ô

ð ą Ô

ѝ ‘Ω ш ╖ Â

ð Ъ ҳ Ô

ŏ Â

ð G ’ Ô

Ъ ҳ ш ╖ Â

ð w R Ô

Ю Ъ ҳ ш ╖

```
Ruijie(config)#ip session track-state-strictly
```

ð Ô

ш ﬡ ąЮ ∧ ˘ ą ᾱ ŭ ╖
Â

45 VPDN

45.1 VPDN

45.1.1 vpdn enable

Ъ ҳ í VPDN ╖ ˘ è **no** VPDN ╖ Â

vpdn enable

no vpdn enable

ð Ô

α Ю VPDN ╖ Â

ð Ъ ҳ Ô

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ɷ ᴧ (Client-Initiated Tunnel) L2TP a í VPDN ╖ ˘ RGNOS ᵏ LAC LNS ╖ ˘ ᴳ PPTP ᴳ L2TP ~ ﻩ í VPDN ╖ Â Ъ ҳ ᴧ ˬ ᵀ ﻑ ﻫ ℃ ў ╠ ⁸ Â

ð w ᴿ Ô

í VPDN ╖

```
Ruijie(config)# vpdn enable
Ruijie(config)#
```

45.1.2 vpdn source-ip

Ъ ҳ ɱ ᵏ VPDN ╖ ᴳ ﻫ ( ) ﻫ ﻫ ˘ è **no** Â

vpdn source-ip A.B.C.D

no vpdn source-ip

ð ᴧ Ô

A.B.C.D ‘ ᵏ VPDN ╖ ᴳ ﻫ ﻫ ﻫ

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ð G Ô

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```
Ruijie(config)# vpdn source-ip
Ruijie(config)#
```

45.1.3 vpdn session-limit

vpdn session-limit sessions

no vpdn session-limit

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```
Ruijie(config)# vpdn session-limit
Ruijie(config)#
```

45.2 VPDN

```
%CHANGED: Interface Virtual-Access1, changed state to
administratively down

Ruijie# show vpdn
%No active L2TP tunnels
%No active PPTP tunnels
Ruijie#
```

45.2.2 show vpdn

Ѣ ҁ ɱ Э VPDN ą Â

show vpdn [**session | tunnel**]

ð ч Ô

session ‘ ˛

tunnel ‘

ð Ѣ ҁ Ô

å

ð ɢ ’ Ô

Л Ɲ ɢ Ѣ ҁ ɱ Э VPDN ą Â a ч ɱ Э VPDN б˛ Â

ð w ʀ Ô

ɱ Э VPDN ą

```
Ruijie# show vpdn
L2TP Tunnel and Session Information Total tunnels 1 sessions
1
LocID RemID Remote Name  State  Remote Address  Port  Sessions
L2TP Class/
VPDN Group
4    77   BLIZZARD     est   192.168.12.213  1701  1       1
LocID       RemID       TunID       Username, Intf/       State
Last Chg
                              Vcid, Circuit
1           1           4           ms,Vi1                 est
00:33:58
%No active PPTP tunnels
Ruijie#
```

ɱ Э VPDN ą

```
Ruijie# show vpdn tunnel
L2TP Tunnel Information Total tunnels 1
LocID RemID Remote Name   State  Remote Address  Port  Sessions
L2TP Class/
VPDN Group
4     77    BLIZZARD     est    192.168.12.213  1701  1       1
%No active PPTP tunnels
Ruijie#
```

ɱ Э VPDN˳ ə

```
Ruijie# show vpdn session
L2TP Session Information Total sessions 1
LocID      RemID      TunID      Username, Intf/      State
Last Chg
                              Vcid, Circuit
1          1          4          ms,Vi1                 est
00:37:03
%No active PPTP tunnels
Ruijie#
```

45.2.3 debug vpdn

Ъ ч ˜Ω **vpdn** ə Â

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**]

ð ч Ô

error ‘ VPDN ˜ ƀ

event ‘ VPDN ˜ ˜ ى Y ˚

l2x-data ‘ L2TP ч α

l2x-errors ‘ L2TP ˜ ƀ

l2x-events ‘ L2TP ˜ ˜ ى Y ˚

l2x-packets ‘ L2TP ˜ ⁸ ά

packet ‘ VPDN ˜ ά

ð Ъ ч Ô

à

ð ᴳ ˙ Ô

```
Protocol Version 0x100
Framing Type 0x2
Bearer Type 0x3
Maximum Channels 0x0
Firmware Revision 0x100
Host Name: Dingjs
Vendor String: Ret-Giant Network Operating System
PPTP: I Outgoing-Call-Request len 168 Magic Cookie 0x1A2B3C4D
Call Id 0x4000
Call Serial Number 0x96A5
Min BPS 0x12C
Max BPS 0x5F5E100
Bearer Type 0x3
Framing Type 0x3
Rec Window Size 0x40
Proc Delay 0x0
Phone Number Length 0x0
Phone Number:
Subaddress:
PPTP: O Outgoing-Call-Reply len 32 Magic Cookie 0x1A2B3C4D
Call Id 0x1
Peer Call Id 0x4000
Result Code 0x1
Error Code 0x0
Cause Code 0x0
Connect Speed 0xFA00
Rec Window Size 0x10
Physical Channel Id 0x0
PPTP: I Set-Link-Info len 24 Magic Cookie 0x1A2B3C4D
Peer Call Id 0x1
Send ACCM 0xFFFFFFFF
Recv ACCM 0xFFFFFFFF
%UPDOWN: Interface Virtual-Access1, changed state to up
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 64 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
PPTP: I Set-Link-Info len 24 Magic Cookie 0x1A2B3C4D
Peer Call Id 0x1
Send ACCM 0xFFFFFFFF
Recv ACCM 0xFFFFFFFF
Vi1 VPDN PROCESS Into tunnel: Sending 45 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 46 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 187 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 56 byte pak
```

```
Vi1 VPDN PROCESS Into tunnel: Sending 64 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 52 byte pak
```

Лъ pptp è ˜ ѝ ᴿˇ **debug vpdn error** ә Ю

```
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait
seq=37, ack=36), decrease send window to half of current = 33!
VPDN: PPTP session Virtual-Access1 adjust ATO to 220 ms!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait
seq=38, ack=36), decrease send window to half of current = 16!
VPDN: PPTP session Virtual-Access1 adjust ATO to 280 ms!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait
seq=39, ack=36), decrease send window to half of current = 8!
VPDN: PPTP session Virtual-Access1 adjust ATO to 400 ms!
VPDN: Pptp EGRE encap fail, err=-4!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait
seq=40, ack=36), decrease send window to half of current = 4!
VPDN: PPTP session Virtual-Access1 adjust ATO to 640 ms!
```

LNS ↰ ώ (ˆ б˛) è VPDN
ᴇ ᴿ Â

```
Ruijie# debug vpdn error
vpdn protocol errors debugging is on
Ruijie# debug vpdn event
vpdn events debugging is on
Ruijie# debug vpdn packet
vpdn packet debugging is on
Ruijie# show debug
VPDN:
vpdn events debugging is on
vpdn protocol errors debugging is on
vpdn packet debugging is on
Ruijie#
VPDN PROCESS From tunnel: Received 158 byte pak
L2X: UDP socket write 168 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 70 byte pak
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
```

```
VPDN PROCESS From tunnel: Received 76 byte pak
Get virtual-access from free queue: Virtual-Access1
Clone virtual-access from interface Virtual-Template1
L2X: UDP socket write 56 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 76 byte pak
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
Vi1 Tnl/Sn 3/1 L2TP: Virtual interface created for unknown,
bandwidth 1024 Kbps
Vi1 Tnl/Sn 3/1 L2TP: VPDN session up
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
%UPDOWN: Interface Virtual-Access1, changed state to up
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
```

```
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Received 54 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 18 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
VPDN PROCESS From tunnel: Received 56 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 20 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 45 byte pak
L2X: UDP socket write 45 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse
and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
%UPDOWN: Line protocol on Interface Virtual-Access1, changed
state to up
```

```
Vi1 Tnl/Sn 20/1 L2TP: Session state change from
wait-for-service-selection- iccn to established
%UPDOWN: Interface Virtual-Access1, changed state to up
%UPDOWN: Line protocol on Interface Virtual-Access1, changed
state to up
```

LNS ∧ ώ (^ б ˬ) è **debug vpdn l2x-packets** R '

```
L2TP: I SCCRQ from C3640 tnl 18889
L2X: Parse  AVP 0, len 8, flag 0x8000 (M)
L2X: Parse SCCRQ
L2X: Parse  AVP 2, len 8, flag 0x8000 (M)
L2X: Protocol Ver 1
L2X: Parse  AVP 6, len 8, flag 0x0
L2X: Firmware Ver 0x1130
L2X: Parse  AVP 7, len 11, flag 0x8000 (M)
L2X: Hostname C3640
L2X: Parse  AVP 8, len 25, flag 0x0
L2X: Vendor Name Cisco Systems, Inc.
L2X: Parse  AVP 10, len 8, flag 0x8000 (M)
L2X: Rx Window Size 800
L2X: Parse  AVP 11, len 22, flag 0x8000 (M)
L2X: Chlng
       98 20 4E 34 6A 4C E1 E7 FA CF 58 07 FF 4E 56 A3
L2X: Parse  AVP 9, len 8, flag 0x8000 (M)
L2X: Assigned Tunnel ID 18889
L2X: Parse  AVP 3, len 10, flag 0x8000 (M)
L2X: Framing Cap 0x3
L2X: Parse  AVP 4, len 10, flag 0x8000 (M)
L2X: Bearer Cap 0x3
L2X: No missing AVPs in SCCRQ
L2X: I SCCRQ, flg TLS, ver 2, len 130, tnl 0, ns 0, nr 0 contiguous
pak, size 130
C8 02 00 82 00 00 00 00 00 00 00 00 80 08 00 00
00 00 00 01 80 08 00 00 00 02 01 00 00 08 00 00
00 06 11 30 80 0B 00 00 00 07 43 33 36 34 30 00
19 00 00 00 08 43 69 73 63 6F 20 53 79 73 74 65
6D 73 2C 20 49 6E 63 2E ...
Tnl 22 L2TP: O SCCRP  to C3640 tnlid 18889
Tnl 22 L2TP: O SCCRP, flg TLS, ver 2, len 140, tnl 18889, ns
0, nr 1
C8 02 00 8C 49 C9 00 00 00 00 00 01 80 08 00 00
00 00 00 02 80 08 00 00 00 02 01 00 80 0A 00 00
00 03 00 00 00 01 80 0A 00 00 00 04 00 00 00 00
```

```
00 08 00 00 00 06 11 30 80 0A 00 00 00 07 52 36
32 31 00 0E 00 00 00 08 ...
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889,
ns 1, nr 1
C8 02 00 0C 49 C9 00 00 00 01 00 01
Tnl 22 L2TP: Parse  AVP 0, len 8, flag 0x8000 (M)
Tnl 22 L2TP: Parse SCCCN
Tnl 22 L2TP: I SCCCN from C3640 tnl 18889
Tnl 22 L2TP: Parse  AVP 13, len 22, flag 0x8000 (M)
Tnl 22 L2TP: Chlng Resp
5C D5 A4 37 36 A6 7D 0F FE EF 22 48 B8 DF F5 12
Tnl 22 L2TP: No missing AVPs in SCCCN
Tnl 22 L2TP: I SCCCN, flg TLS, ver 2, len 42, tnl 22, ns 1, nr
1 contiguous pak, size 42
C8 02 00 2A 00 16 00 00 00 01 00 01 80 08 00 00
00 00 00 03 80 16 00 00 00 0D 5C D5 A4 37 36 A6
7D 0F FE EF 22 48 B8 DF F5 12
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889,
ns 1, nr 2
C8 02 00 0C 49 C9 00 00 00 01 00 02
Tnl 22 L2TP: Parse  AVP 0, len 8, flag 0x8000 (M)
Tnl 22 L2TP: Parse ICRQ
Tnl 22 L2TP: I ICRQ from C3640 tnl 18889
Tnl 22 L2TP: Parse  AVP 15, len 10, flag 0x8000 (M)
Tnl 22 L2TP: Serial Number -1714567290
Tnl 22 L2TP: Parse  AVP 14, len 8, flag 0x8000 (M)
Tnl 22 L2TP: Assigned Call ID 1280
Tnl 22 L2TP: Parse  AVP 18, len 10, flag 0x8000 (M)
Tnl 22 L2TP: Bearer Type 0
Tnl 22 L2TP: No missing AVPs in ICRQ
```

```
Tnl/Sn 22/1 L2TP: Parse  AVP 0, len 8, flag 0x8000 (M)
Tnl/Sn 22/1 L2TP: Parse ICCN
Vi1 Tnl/Sn 22/1 L2TP: Parse  AVP 24, len 10, flag 0x8000 (M)
Vi1 Tnl/Sn 22/1 L2TP: Connect Speed 0
Vi1 Tnl/Sn 22/1 L2TP: Parse  AVP 19, len 10, flag 0x8000 (M)
Vi1 Tnl/Sn 22/1 L2TP: Framing Type 1
Tnl/Sn 22/1 L2TP: No missing AVPs in ICCN
Tnl/Sn 22/1 L2TP: I ICCN, flg TLS, ver 2, len 48, tnl 22, lsid
1, rsid 1280, ns 3, nr 2 contiguous pak, size 48
C8 02 00 30 00 16 00 01 00 03 00 02 80 08 00 00
00 00 00 0C 80 0A 00 00 00 18 00 00 00 00 80 0A
00 00 00 13 00 00 00 01 00 08 00 00 00 1D 00 04
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889,
ns 2, nr 4
C8 02 00 0C 49 C9 00 00 00 02 00 04
%UPDOWN: Interface Virtual-Access1, changed state to up
%UPDOWN: Line protocol on Interface Virtual-Access1, changed
state to up
```

46 VPDN-Group

46.1 VPDN-Group

46.1.1 accept dialin

Ƃ ҷ ɔ ѝ ʌ ώ˘ ѐ **no** Â

accept-dialin

no accept-dialin

ð Ô

ɑ Ю ɔ Â

ð Ƃ ҷ Ô

VPDN-Group ʎ

ð G ˙ Ô

ɑ Ю ѝ VPDN-Group ˙ ɪ ɔ Â
ˮI ɔ У ɔ ˜ б
ʎ Â Ƃ ҷ ʌ˳ ¯ ڤ ک ٔΩ ў ╟
ˢ Â

ð w R Ô

ɔ ѝ ʌ ώ

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn)#
```

46.1.2 ip precedence

Ƃ ҷ IP . ˮI ڧ˘ ѐ **no** Â

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

no ip precedence

ð ʌ Ô

precedence-value ˙ . ˮI ڧ ḣ˘ ʌ ḣ ڑ ѝ 0~7

critical ˙ . ˮI ڧ ḣ ѝ 5

flash ‘ . ”I ѫ ћ й 3

flash-override ‘ . ”I ѫ ћ й 4

immediate ‘ . ”I ѫ ћ й 2

internet ‘ . ”I ѫ ћ й 6

network ‘ . ”I ѫ ћ й 7

priority ‘ . ”I ѫ ћ й 1

routine ‘ . ”I ѫ ћ й 0

ð Ô

ϙ Ю IP . ”I ѫ ћ й ¯ **routine** Â

ð Ъ ч Ô

VPDN-Group Ѧ

ð G ’ Ô

. ”I Ѧ Л G Ъ ч Â Ъ ч
˚ ¯ ѣ · ˘ П a˚ ˇΩ ў ╟ 8 Â

ð w R Ô

. ”I й 7 Â

```
Ruijie(config-vpdn)# ip precedence 7
Ruijie(config-vpdn)#
```

46.1.3 ip tos

Ъ ч IP TOS(Type of Service)ѫ˘ è **no** Â

ip tos { tos-value | **max-reliability** | **max-throughput** | **min-delay** | **min- monetary-cost** | **normal** | **reflect** }

no ip tos

ð Ѧ Ô

tos-value ‘ TOS ѫ ћ˘ Ѧ ћ ѧ й 0~15

max-reliability ‘ TOS ѫ ћ й 2

max-throughput ‘ TOS ѫ ћ й 4

min-delay ‘ TOS ѫ ћ й 8

min-monetary-cost ‘ TOS ѫ ћ й 1

normal ‘ TOS ѫ ћ й 0

reflect ‘ G IP ^ TOS ɔ ѝ IP TOS
ѡѳ

ð Ô

ɋ Ю IP TOS ѡѳ ѝ Â

ð Ѣ ҷ Ô

VPDN-Group Ѧ

ð G ’ Ô

TOS Ѧ Ѣ G Ѣ ҷ Â Ѣ ҷ
˯ ¯ ь · ˘ Ո a˯ ˜Ω ў ╟ 8 Â

ð w R Ô

46.1.5 protocol

Ƃ ȝ G ~ Â Ƃ ȝ **no** Â

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

no protocol

ð ↓ Ô

any ' ƀ ⁄ ~

l2tp ' ƀ ~ L2TP

pptp ' ƀ ~ PPTP

ð Ô

ɑ ЮЃ ὶ ~ Â

ð Ƃ ȝ Ô

VPDN-Group Ɔ ⁄

ð G ' Ô

G ~ ˘ ' Ị ~

˚ ƒ ʔΩ ў ╟ Â

ð w R Ô

~ ὶ L2TP Â

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn-acc-in)# protocol l2tp
Ruijie(config-vpdn-acc-in)#
```

46.1.6 source-ip

Ƃ ȝ ɱ VPDN-Group G ﻙ( )ﻙ ﻫ˘ è **no** Â

source-ip A.B.C.D

no source-ip

ð ↓ Ô

A.B.C.D ' ɱ VPDN-Group G ﻙ( )ﻙ ﻫ

ð Ô

ɑ ЮЃ 8 VPDN-Group G ﻙ( )ﻙ ﻫ Â

ð Ъ ч Ô

VPDN-Group л

ð G ' Ô

ф ŭ VPDN ╖ G л ( ) л ы ˘ ж
VPDN-Group G л ( ) л ы б ʒ У Â Ъ ч
л ˛ ¨ ъф л ˜Ω ў ╟ 8 Â

ð w R Ô

m VPDN-Group G л ы й 202.101.92.73

```
Ruijie(config-vpdn)# source-ip
Ruijie(config-vpdn)#
```

46.1.7 terminate-from

Ъ ч ў ¨ ˘ è **no** Â

terminate-from hostname remote-hostname-string

no terminate-from

ð л Ô

remote-hostname-string ' ў ¨

ð Ô

q Ю ў ¨ Â

ð Ъ ч Ô

VPDN-Group л

ð G ' Ô

л Л Ъ G Ъ ч 8 ώ ў ¨ ˘
ў ¨ ˘ ж VPDN-Group a 8 ώ ў ¨ Â
' ! ў ¨ ъф VPDN-Group
ъф 8 ў ╟ Â

ð w R Ô

ў ¨ й "LAC"

```
Ruijie(config-vpdn)# terminate-from hostname
Ruijie(config-vpdn)#
```

46.1.8 virtual-template

Ъ ч м VPDN-Group л˘ è **no** Â

virtual-template number

no virtual-template

ð л Ô

number ˙ л л

ð Ô

ą Ю˘ ˙ ı л¦ VPDN-Group Э Â

ð Ъ ч Ô

VPDN-Group ɔ л

ð G ˙ Ô

л Л Ъ G Ъ ч VPDN-Group G л ÿ ā
˚ л л Â VPDN-Group k
˚ л Â˙ ı VPDN- Group л
VPDN-Group ф 8 Â

ð w R Ô

л 1¦ ф VPDN-Group Э

```
Ruijie(config-vpdn-acc-in)# virtual-template 1
Ruijie(config-vpdn-acc-in)#
```

46.1.9 vpdn-group

Ъ ч VPDN-Group л˘ a ф VPDN-Group л … У э Л Ъ й VPDN-Group л˘ è **no** ĩ VPDN-Group л Â

vpdn-group vpdn-group-name

no vpdn-group vpdn-group-name

ð л Ô

vpdn-group-name ‘ vpdn-group л

ð Ô

ą Ю˘ ˙ ı vpdn-group л Â

ð Ъ ч Ô

ŏ

ð G ˙ Ô

ӯ I LNS HGW ˇ … VPDN-Group
Ѧ Â Ѧ Л Ъ G Ъ ҷ VPDN-Group Ѧ Â VPDN-Group Ѧ
Ї ф ў ╠ 8 Â

ð w R Ô

… ¨ и ”1” vpdn-group Ѧ

```
Ruijie(config)# vpdn-group   1
Ruijie(config-vpdn)#
```

47 PPTP

47.1 PPTP

47.1.1 Pptp flow-control receive-window

Ф ч Ик pptp ˬ ѫ ǐ ack ǯ ɱ ĭ ʌ
˘ ѝ ʌ˘ è **no** Â

Pptp flow-control receive-window packets

No pptp flow-control receive-window

ð ʌ Ô

packets ˙ pptp ˬ ѫ ǐ ack ǯ ɱ ĭ ʌ
Â ʌ ḣ ѭ 1---64 Â

ð Ô

PNS ḣ ѝ 64˝ PAC ḣ ѝ 16 Â

ð Ф ч Ô

vpdn-group

ð G ˙ Ô

PPTP ˜ ж Ф ч˘ Лъ ″I **protocol pptp**
protocol any Ф ч ѣ˘ ĭ ņ Ф ч Â

PPTP ˜ RFC2637 ˘ ˬ ʌ ˜ ى è ǐ
ʌ У´ ɔ ѝ ⌉ ʌ ʌ Â ʌ ʌ ˘
ɱ ˬ ă̈ ʌ ʌ ʌ ˇ´ ǐ ѝ 1˘ ѫ ǐ
ʌ ACK ѣ ʌ Â ă̈ ʌ ɱ ʌ э
э ACK ą ˘ ‡ ʌ ʌ ╗ 1˘
ǐ Ұ ʌ ḣ Â ACK ˘
RFC2637 ˘ G ж Â

ð w R Ô

pptp ˬ ʌ ḣ ѝ 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 receive-window
3
Ruijie(config-vpdn)#
```

echo-packet-interval ‘ pptp echo request ∧ ˘ Лъ
й` Æ Â ∧ ḣ ﻧ 0---1000 Â

ð Ô

й 60 Â

ð Ђ ђ Ô

vpdn-group

ð ᴳ ’ Ô

PPTP ˜ ж Ђ ђ˘ Лъ ″I **protocol pptp**
protocol any Ђ ђ ћ˘ ĭ n̲ Ђ ђ Â
echo-packet-interval й 0 ˘ a ў ╠ ∧ echo Â

echo-packet-interval a й 0 ˘ PPTP ﻓﺧ echo-packet-interval
ĵ ˙ ¡˝ ˜ ˘ ‡ ў ╠ ∧ У э
echo request Лъ ˘ **echo reply**
Â ⌉ й 1 ˘ У ˘ ‡ ¨ ∧ ү э
echo request″ ﻓﺧ ɱ У ﻟﺠﻲ Э У‴ ˘
Â 5 a ĵ **echo reply** ‡ й ˘
↓ ε ˆ ΰ ˛ ˜Ω Â

ð w ᴿ Ô

pptp echo request й 30 ‘

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn-acc-in)# protocol pptp
Ruijie(config-vpdn-acc-in)# exit
Ruijie(config-vpdn)# pptp tunnel echo θ
Ruijie(config-vpdn)#
```

l2tpv2 G RFC 2661 L2TP · Â

ð Ô

ц Ю фэ Â

ð Ф ч Ô

Pseudowire-Class л

ð G ' Ô

фэ pseudowire-class л Э˘ ″I У
· л Â

ð w R Ô

ù l2tpv2

```
Ruijie(config-pw-class)# encapsulation l2tpv2
Ruijie(config-pw-class)#
```

48.1.3 hello

Ф ч ù L2TP Keepalive л Hello л Â Ф ч
no Â

hello interval

no hello

ð л Ô

interval ' Hello л

ð Ô

ц Ю Hello л ù 60 Â

ð Ф ч Ô

L2TP-Class л

ð G ' Ô

л Лъ Hello л Лъ L2TP ў ŋ л Â
л ˘ л Лъ Hello л ù У э ḣ Â˙ ị Hello
л л ˛ фэ L2TP ў ╠ 8 Â

ð w R Ô

Hello л ù 120

```
Ruijie(config-l2tp-class)# hello
```

```
Ruijie(config-l2tp-class)#
```

48.1.4 hostname (L2TP)

Ъ ҁ L2TP ѫ ў ̈ ˘ è **no** Â

hostname local-hostname-string

no hostname

ð ↓ Ô

local-hostname-string ‘ ѫ ў ̈

ð Ô

ą Ю ᴳ ̈ ↄ и ѫ ў ̈ Â

ð Ъ ҁ Ô

L2TP-Class ↓

ð ᴳ ˀ Ô

↓ Л ѫ ў ̈ Л Â˙ ı ѫ ў ̈ ↓ ˚ ф L2TP ⁸ ў ╟ Â

ð w ᴿ Ô

ѫ ў ̈ и ”LAC”

```
Ruijie(config-l2tp-class)# hostname
Ruijie(config-l2tp-class)#
```

48.1.5 ip dfbit set

Ъ ҁ ĵ ∧ ˘ è no ḣ Â

ip dfbit set

no ip dfbit set

ð Ô

ą Ю ĭ ĵ ∧ Â

ð Ъ ҁ Ô

Pseudowire-Class ↓

ð ᴳ ˀ Ô

Λ Ɲ ŭ ĭ ĵ Ν Â˙ ı ĵ Ν ╗
╟ ˬ ¯ Λ ĵ · Ɔ˘ Ո a ˬ L2TP
8 Â

ð w R Ô

ĵ Ν

```
Ruijie(config-pw-class)# ip dfbit set
Ruijie(config-pw-class)#
```

48.1.6 ip local interface

Ƃ ɝ G ѕ( ) ⅄˘ è **no** Â

ip local interface interface-name

ttl-value ' TTL ѫ ḣ˘ ∧ ḣ ѭ й 1~255

ð Ô

α Ю˘ IP TTL ѫ й 255 Â

ð Ф ч Ô

Pseudowire-Class ∧

ð G ' Ô

∧ Л Ъ IP TTL ѫ Â˙ ị IP
TTL ѫ ╟ ˬ ¯ ∧ ˚ · Э˘ П a ˬ
L2TP 8 Â

ð w R Ô

IP TTL ѫ й 253

```
Ruijie(config-pw-class)# ip ttl 253
Ruijie(config-pw-class)#
```

48.1.8 l2tp ip udp checksum

Ф ч UDP 'I Checksum ѫ˘ è **no** Â

l2tp ip udp checksum

no l2tp ip udp checksum

ð Ô

α Ю˘ UDP Checksum ѫ й (¯ й) Â

ð Ф ч Ô

VPDN-Group ∧

ð G ' Ô

∧ Л Ъ ŋ ŭ UDP 'I Checksum
ѫ Â˙ ị UDP Checksum ѫ ╟ ˬ ¯
∧ ˚ · Э˘ П a ˬ L2TP 8 Â

ð w R Ô

UDP k Checksum

```
Ruijie(config-vpdn)# l2tp ip udp checksum
Ruijie(config-vpdn)#
```

48.1.9 l2tp tunnel authentication

Ф ч í ╖ ˘ è **no** Â

l2tp tunnel authentication

no l2tp tunnel authentication

ð Ô

α Ю ╖ Â

ð Ф ч Ô

VPDN-Group Л

ð G ' Ô

Л Лъ í ╖ Â˙ ¦ ╖
╠ ˛ ˜Ω L2TP ⁸ ў ╠ Â

ð w R Ô

í ╖

```
Ruijie(config-vpdn)# l2tp tunnel authentication
Ruijie(config-vpdn)#
```

48.1.10 l2tp tunnel hello

Ф ч Keepalive Hello Н ˘ è **no** Â

l2tp tunnel hello interval

no l2tp tunnel hello

ð Н Ô

interval ‘ Hello Н ˘ Лъ и ` Æ

ð Ô

α Ю Hello Н и 60 Â

ð Ф ч Ô

VPDN-Group Л

ð G ' Ô

Л Лъ Лъ Л Hello Н Â˙ ¦ Hello
Н Л ˛ L2TP ⁸ ў ╠ Â

ð w ᴿ Ô

Hello ᴻ ѝ 30

```
Ruijie(config-vpdn)# l2tp tunnel hello θ
Ruijie(config-vpdn)#
```

48.1.11 l2tp tunnel password

Ѣ ҳ ¥ ᴖ ҳ˘ è **no** ᴖ ҳ Â

l2tp tunnel password password-string

no l2tp tunnel password

ð ᴻ Ô

password-string ᴖ ҳ

ð Ô

α Ю ᴖ ҳ Â

ð Ѣ ҳ Ô

VPDN-Group ᴖ

ð ᴳ ᵓ Ô

˘ ж ч í ╖ ᴳ ˚

ᴖ ҳ Â˙ ¡ ᴖ ҳ ᴵ ˚ L2TP ⁸

ў ╟ Â

ð w ᴿ Ô

ᴖ ҳ ѝ ”share”

```
Ruijie(config-vpdn)# l2tp tunnel password share
Ruijie(config-vpdn)#
```

48.1.12 l2tp tunnel receive-window

Ѣ ҳ ⁸ ᴻ ᴖ ˘ è **no** Â

l2tp tunnel receive-window size

ϙ Ю 8 ∧ ∧ й 4 Â

ð Ѣ ҷ Ô

VPDN-Group ∧

ð G ' Ô

' ! 8 ∧ ∧ ∧ ˬ L2TP
8 Â

ð w R Ô

8 ∧ ∧ й 12

```
Ruijie(config-vpdn)# l2tp tunnel receive-window 2
Ruijie(config-vpdn)#
```

48.1.13 l2tp tunnel retransmit

Ѣ ҷ L2TP 8 · ∧ ˘ è **no** Â

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

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

ð ∧ Ô

number ' 8 ·

seconds ' 8 ·

ð Ô

ϙ Ю 8 · й 5 8 · й 1 ˘
й 8 Â

ð Ѣ ҷ Ô

VPDN-Group ∧

ð G ' Ô

' ! 8 · ∧ g ˬ L2TP 8 ў
╟ Â

ð w R Ô

8 · й 10

```
Ruijie(config-vpdn)# l2tp tunnel retransmit retries 0
Ruijie(config-vpdn)#
```

48.1.14 l2tp tunnel timeout

Ъ ђ L2TP ї / ¸ ˘ è **no**
Â

l2tp tunnel timeout {**no-session | setup**} seconds

no l2tp tunnel timeout {**no-session** | **setup**}

ð ч Ô

no-session ' п

setup ' ¸ ( )

seconds ' ˘ ` Æ и

ð Ô

ą Ю ї и 600 ˘ ї ¸
( ) и 300 Â

ð Ъ ђ Ô

VPDN-Group ч

ð G ' Ô

' ¡ ї / ¸ ч
Ω L2TP ¸ ў ╠ Â

ð w R Ô

ї и 1200

```
Ruijie(config-vpdn)# l2tp tunnel timeout no-session 0
Ruijie(config-vpdn)#
```

48.1.15 l2tp-class

Ъ ђ l2tp-class ч˘ a ف l2tp-class ч … Л
и l2tp-class ч˘ è **no** ¶ l2tp-class ч Â

l2tp-class l2tp-class-name

no l2tp-class l2tp-class-name

ð ч Ô

l2tp-class-name ' L2TP-Class ч

ð Ô

ц Ю˝ ˙ ¡ L2TP-Class Л Â

ð Ъ ч Ô

ώ̈

ð G ˙ Ô

Л Л‰ L2TP-Class L2TP 8 Э Л Â

ð w R Ô

… ¨ и ”l2x” L2TP-Class Л

```
Ruijie(config)# l2tp-class l2x
Ruijie(config-l2tp-class)#
```

48.1.16 password (L2TP)

Ъ ч ¥ Л ч˘ è **no** Â

password password-string

no password

ð Л Ô

password-string ‘ ¥ Л ч

ð Ô

ц Ю˝ ╖ ≠ ¥ Л ч Â

ð Ъ ч Ô

L2TP-Class Л

ð G ˙ Ô

˘ ж ч í ╖ G ˘
Л ч Â˙ ¡ Л ч Л ˚ L2TP 8
ў ╟ Â

ð w R Ô

Л ч и ”share”

```
Ruijie(config-l2tp-class)# password share
Ruijie(config-l2tp-class)#
```

48.1.17 protocol (L2TP)

Ъ ч L2TP 8 Л ˘ è **no** Â

protocol l2tpv2 [l2tp-class-name]

no protocol

ð ↰ Ô

l2tpv2 ‘ G L2TP ↄ й ˜

l2tp-class-name ‘ L2TP-Class ↰¨

ð Ô

ą Ю˘ G L2TPv2 ↄ й L2TP ˜ Â

ð Ƃ ҁ Ô

Pseudowire-Class ↰

ð G ’ Ô

‘ ¦ 8 ↰ ↰ ˛ L2TP 8 ў ╟ Â

ð w R Ô

˜ й l2tpv2 L2TP-Class l2x 8 ↰

```
Ruijie(config-pw-class)# protocol l2tpv2 l2x
Ruijie(config-pw-class)#
```

48.1.18 pseudowire

Ƃ ҁ pseudowire ‡˘ è **no** Â

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

ð ↰ Ô

peer-ip-address ‘ L2TP Server(LNS) ھه ك

peer-hostname ‘ L2TP Server^ LNS˜ ف DNS

pw-class-name pseudowire-class

pseudowire

pseudowire

virtual-ppp virtual-ppp
pseudowire L2TP

virtual-ppp LNS 192.168.12.213
pseudowire-class "pw"

```
Ruijie(config)# interface virtual-ppp 1
Ruijie(config-if)# pseudowire 3 pw-class pw
Ruijie(config-if)#
```

hostname

DNS DNS

ip domain-lookup

l2tp-class 1

pseudowire-class 1

encapsulation l2tpv2

ip name-server 192.168.5.119

ip name-server 61.154.22.41

interface GigabitEthernet 0/0

ip ref

ip address 192.168.52.90 255.255.255.0

duplex auto

speed auto

interface Virtual-ppp 1

pseudowire hostname mm.hxs.meibu.com 1 **encapsulation l2tpv2**

ppp pap sent-username user1 password 11

ip address negotiate

ip route 0.0.0.0 0.0.0.0 192.168.52.1

48.1.19 pseudowire-class

Ф ч ¨ pseudowire-class л ˘ a ффф ¨ pseudowire- class л … Лъ ¨ й¨ pseudowire-class л˘ è **no** ї ¨ pseudowire-class л Â

pseudowire-class pseudowire-class-name

no pseudowire-class pseudowire-class-name

ð ч Ô

pseudowire-class-name ' pseudowire-class л¨

ð Ô

ąЮ˝ Э ' ¦ pseudowire-class л Â

ð Ф ч Ô

ŏ̈

ð G ' Ô

л Лъ pseudowire-class л L2TP ɔ ч Â

ð w R Ô

… ¨ й ”pw” pseudowire-class л

```
Ruijie(config)# pseudowire-class pw
Ruijie(config-pw-class)#
```

48.1.20 receive-window

Ф ч 8 ч л ˘ è **no** Â

receive-window size

no receive-window

ð ч Ô

size ' 8 ч л

ð Ô

ąЮ˝ 8 ч л й 8 Â

ð Ф ч Ô

L2TP-Class ⁄

ð G ' Ô

' ¦ 8 ∧ ⁄ ⁄ ˚ L2TP 8 ў
╟ Â

ð w R Ô

8 ∧ ⁄ й 12

```
Ruijie(config-l2tp-class)# receive-window 12
Ruijie(config-l2tp-class)#
```

48.1.21 retransmit

Ф ч 8 · ∧ ˘ è **no** Â

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**} }

ð ∧ Ô

initial-retries ' SCCRQ ·

initial-timeout ' SCCRQ ·

retries ' è ы 8 ·

timeout ' è ы 8 ·

ð Ô

α Ю SCCRQ · й 2 è ы 8 · й 5 8 ·
й 1 ˘ 8 · й 8 Â

ð Ф ч Ô

L2TP-Class ⁄

ð G ' Ô

' ¦ 8 · ∧ ⁄ ˚ L2TP 8 ў ╟
Â

ð w R Ô

SCCRQ · й 3

```
Ruijie(config-l2tp-class)# retransmit initial retries 3
Ruijie(config-l2tp-class)#
```

48.1.22 timeout setup

Ƌ ҁ ĭ ⁸ ˘ è **no**
Â

timeout setup seconds

no timeout setup

ð ↓ Ô

seconds ‘ ĭ ⁸ ˘ ` Æ и

ð Ô

α Ю ĭ ⁸ и 120 Â

ð Ƌ ҁ Ô

L2TP-Class ↓ ₃

ð ᴳ ’ Ô

‘ ı ĭ ⁸ ᵍ ᵛ ’H
L2TP ⁸ ў ╟ Â

ð w ᴿ Ô

ĭ ⁸ и 240

```
Ruijie(config-l2tp-class)# timeout setup 4
Ruijie(config-l2tp-class)#
```

49 IPSec

49.1

49.1.1 authentication (IKE policy)

IKE ˘ IKE Ъ ҷ **authentication** Â Ъ ҷ

no Â

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

no authentication

ч	
pre-share	΄Ω м
rsa-sig	¨

RGOS 8.31 Лъ ł ¨ Â RGOS8.31 ɱ ΄Ω м .

Ъ ҷ IKE ╗ Â

G ɱ IKE ˜ ѕ è ¨ ˘ б Cisco ˚ ˘ ΄Ω м ‡ ╗ У э IKE ˆ ΄Ω м ˜ Â

w R ˘

Ъ ҷ	
crypto isakmp enable	G IKE Â
encryption {**des** | **3des**}	╗
hash {**sha** | **md5**}	HASH
group {**1** | **2**}	Diffie-Hellman
lifetime	IKE ŏ Ъ Q Â

Ѓ

Ъ ҷ Ч Ѓ

Ѓ	

-	-

49.1.2 clear crypto isakmp

ƶф IKE ŏ ˘ G EXEC Ъ ҂ **clear crypto isakmp** Â

clear crypto isakmp [connection-id]

ч	
connection-id	IKE ŏ ID ѓ Â

G connection-id ч ˘ ‡ Ъ ҂ ƶф IKE ŏ

Ъ ҂ EXEC Â

G У ąЮ Ѓ э é E IKE ŏ ˘ ѓЛЪ″I G **show crypto isakmp sa** Ъ ҂ ŏ ID ѓ˘ ł Ą G **clear crypto isakmp** ID э é E IKE ŏ Â

w R Â

Ъ ҂	

ѓ

Ъ ҂ Ч ѓ	ѓ	
	-	-

49.1.3 clear crypto sa

IPSec ŏ ˘ ЛЬЮ EXEC Ъ ҂ **clear crypto sa** è У Â

clear crypto sa

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	E IP ƙ ƛ Â
Peer-name	E ў ¨
Map-name	╗ ¨
Destination-address	ƙ E IP ƙ ƛ
Spi	У ɜ ŏ ˧

a **peer** à **map** à **spi** ɜ IPSec ŏ ‟ ˘ ‡ IPSec ŏ Â

Ƃ ɂ EXEC Â

1. Э Ƃ ɂ ɣ IPSec ŏ ˘ G **peer** à **map** à **spi** ƷΩ ˘ ‡ IPSec ŏ ĩ Â
2. ŏ IKE ˘ ж ъ ˘ ˥ ĺ IPSec ˘ IPSec ~ ى ŏ Â ŏ ˘ ж ŏ ɜ ¨ Â
3. ɕ ˧ ˘ ˥ ł ~ ى ŏ ɔ ˘ a ˬ ط ŏ Â й ɕ ˧ ɔ ɣ ŏ ˘ ˥ Ƃ ɂ ŏ ˘ ~ ى Â
4. ŏ ˘ ə è ˘ ѝ ɕ a G ѐ ы IPSec ə è ˘ G **peer** à **map** à **spi** ŏ Â
5. ˘ ˥ У ɜ ŏ ˘ ѐ ы ŏ ӣ ж ӂ ə˘ ˥ Л ŏ ~ ى Â

R 1' Ю R ŏ ‘

```
Ruijie# clear crypto sa
```

Ƃ ɂ	
clear crypto isakmp	IKE ŏ

Â

˥	
-	-

-

ż Ю ŏ ˊ DF ḣ˘ ŏ Ƀ ɂ **crypto ipsec df-bit** {**clear** | **set** | **copy** }

ˊ	
clear	IP ˛ DF Bit ˘ ˄ ˦ ╗ Э IPSEC
set	IP ˛ DF Bit 1˘ ˊ IP DF Bit ˘ ˄ ˛ ˦
copy	˛ ˊ DF Bit ḣ ɔ ѝ DF Bit ḣ˘ copy

Ƀ ɂ

Ƀ ɂ ŏ Â

ż IPSEC Ю **clear** ˘ æ ˄ MTU ḣ ˆ˘ æ a MTU ˦ Â
э Ƀ ɂ ḣ í ˘ **copy** ɔ ѝ ḣ Â

ᴿ 1˙ ЛЮ ᴿ ż ˄ DF Bit
crypto ipsec df-bit clear

Ƀ ɂ	
-	-

˄

˄

ϟ	
seconds seconds	ŏ ˆ ˜ Â ḣ ὶ 3600 ˆ 1 ˜ Â
kilobytes kilobytes	ŏ ą ˆ Лъ ’ ˜ Â ὶ 4,608,000KB

ϟ

3600 ˆ 1 ˜ p 4,608,000KB Лъ 10MB ą 1 э ˜ Â

Ƀ ϛ

ŏ Â

1.Sec ŏ ╗ ą ж G ″Ω м ج Э Âὶ ɕ ɖ ŏ ŏ ж У ą ǯ ł ˘ ˜ ى˘ G ″Ω м Â ж ŏ ˜ ى ˘ G E p ѫ Ƀ Ƣ ḣ è ɔ ὶ ŏ Ƀ Ƣ Â

2. Ƣ ч ‘ Ƀ Ƣ à ą Ƀ Ƣ Â ч э Ƀ Ƣ è ١ э ″I˛ ˘ ŏ Â ١ ɕ ŏ Ƀ Ƣ ˘ ١ /١ ɔ ¥ ł ˜ ى ŏ ˘ a˛ ط ŏ Â ˘ /Л Лъ G **clear crypto sa** Ƀ ϛ ˛ ŏ ŏ ά Â

3. ŏ Ƀ Ƣ ˘ G Ƀ ϛ **crypto ipsec security-associationlifetime seconds** Â Ƀ Ƣ ɕ ŏ ж ɕ У ł Â g ŏ ą Ƀ Ƣ ˘ G Ƀ ϛ **crypto ipsec security-association lifetime kilobytes** Â ą Ƀ Ƣ ɕ ŏ G ŏ ╗ ą ˆ Лъ KB ˜ ˛ ɕ У Лъ ł Â

G

4. Ƣ ḣ ˘ ‡ ╗ ˘ ʂ ὶ ˛ ˚ У ╗ Â ת ˘ Ƀ Ƣ ˘ ¥ ŏ CPU Â ж ŏ Ƀ Ƣ Â

5. Ƣ ɔ ١ ‘ ɕ У ˆ **seconds** ″Ω ˜ ą ɕ У ą ˆ **kilobytes** ″Ω ˜ ˘ ч ˚ Y ١ ˚ ″I ١ ˘ ŏ ˆ Лъ ل ˜ Â ŏ ж ١ ŏ Ƀ Ƣ ḣ˛ Лъ m ˜ ى˘ Лъ ɖ ١ ŏ Ą˘ У э ŏ /Л Лъ G ɕ Â ŏ ж **seconds** Ƀ Ƣ m 30 ˘ ą **kilobytes** Ƀ Ƣ 256KB ˜ ىˆ ١ э ″I ١ ˜ Â ж У э ŏ э Ƀ Ƣ è ą ˘ ж ŏ Ą a˛ ŏ ˜ ى Â ѫ˘ ŏ /١ IPSec ١˛ ɖ ˛ ˜ ى Â

R 1˙ Ю R IPSec ŏ Ƣ ὶ 2500 ˘ ą Ƀ Ƣ ὶ 2304000KB(Лъ 10MB ą´ э)˙

W R

Ƒ ɂ	

Ƀ ɂ	
show crypto ipsec transform-set	ʌ ˷

ʌ Â

ʌ	
-	-

49.1.7 crypto dynamic-map

… ╟ ╗ ώ ╗ ˇ G **crypto dynamic-map** ŏ Ƀ ɂ Â Ƀ ɂ **no** ĩ ╗ Â

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

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

ϟ	
dynamic-map-name	╗ ˟
dynamic-seq-num	╗ ʌ

╟ ╗ ƶф Â

Ƀ ɂ ŏ Â

ɢ

╟ ╗ … ɢ У э ˇ E ~ ى ŏ ˇ ˟ G æ a
ɲ E ϟ ˆ R E ip ﻙ ﻫ ~ ˇ ʌ Л Ъ E ~
ى Â ` У э Ę ╟ IKE ϟ E ˇ ў ѣ ╗
Â a ѣ ˙ ! ╗ ˇ ˬ ~ ى ╗ ˆ ў ɢ У э ╟
╗ Â
╟ ╗ У э ˇ ϟ ƶф ╟ ╗ ˙ ϟ Â
ϟ ˇ IPSec ŏ Ω ˇ ˚ ˬ ╗
Â ~ ى ‘I Â ƶф э Э G ï ╗ ę
╗ Â У ŏ Ω ˇ ï ╗ ĩ Â
╟ ╗ a ɣ ϟ IPSec ŏ ~ ىˇ ת ы ъ ɣ ᾱ ў ɖ
Â
╗ ˇ ╗ ˇ У э ˊ Â æ Ж ɢ У э ╗
ˊ ˆ ˆ ў ѿ У У э ~ ˇ æ **crypto map** Ƀ ɂ ╟ ╗ ↑
ľ Ŀ ╗ У э Â ľ Ŀ ╗ ɣ У э ʌ Â
æ ╗ ↑ ╟ ╗ ɔ й æ. ˝I ˇ ~ ى

ŏ ˚ . ˝I G ╗ Â ʌ ╗ a ƀ ╟
╗ Â
ѝ ɷ G ╟ ╗ ↄ ѝ ╗ æ. ˝I ˘ ╟ ╗ ѝ
seq

Ƃ ҳ Ү ʎ

ʎ	
-	-

49.1.9 crypto isakmp key

IKE ˜ ى G ‘Ω м ˘ ŏ Ƃ ҳ **crypto isakmp key** Â Ƃ ҳ **no** ĩ ‘Ω м Â

crypto isakmp key 0|7 keystring { **hostname** peer-hostname | **address** peer-address [mask] }

no crypto isakmp key 0|7 keystring { **hostname** peer-hostname | **address** peer-address [mask] }

ʎ

ʎ	
0|7	0 ỳ 7 ỳ
keystring	‘Ω м s˘ ʎ Ль G 128 э Â
peer-hostname	е ў ¨
peer -address	е IP ﻫ ﻛ
mask	IP ﻫ ﻛ ỳ У э ﻫ ﻛ ﻫ ﻛ

˙ ị ‘Ω м Â

Ƃ ҳ ŏ Â

G IKE У G ‘Ω м˜ ى˘ G IKE ╗ IKE ŏ ˘ G Ƃ ҳ ﻓﺦ ч э е Э ˚ ‘Ω м Â е ỳ У э ˘ mask Â peer-address p Mask ỳ 0.0.0.0 ‘Ω м Â

w R R 1' Ю R б е 172.16.1.1 IKE ˜ ى ‘Ω м ỳ Mysecreť

```
Ruijie(config)# crypto isakmp key 0 mysecret address
Ruijie(config)# crypto isakmp key 0 mysecret address
```

‘Ω Ƃ ҳ

Ƃ ҳ	
crypto isakmp enable	G IKE Â
encryption {**des	3des**}	╗

hash {**sha	md5**}	HASH
authentication {**pre-share	rsa-sig**}	
group {**1	2**}	Diffie-Hellman
lifetime	IKE ŏ Ƃ Ƣ Â

ʌ

Ƃ ɂ ɣ ʌ	ʌ	
	-	-

49.1.10 crypto isakmp keepalive

ỳ ɢ ʌ ɛ ɑ ʌ T ˘ ƒƌ

	crypto isakmp keepalive 60 5 on-demand

Ƃ ɤ	
-	-

ʎ

ʎ	
-	-

49.1.11 crypto isakmp mode-detect

-	-

49.1.12 crypto isakmp policy

ҤҚ IKE э. ″I ˘ ŏ Ƌ ҷ **crypto isakmp policy**
ώ IKE Â Ƌ ҷ **no** ĵ э. ″I Â

crypto isakmp policy priority

no crypto isakmp policy priority

ӌ	
priority	IKE . ″I Â G 1↑ 10000 ˘ 1 . ″I 10000 æ. ″I Â

. ″I Â

Ƌ ҷ ŏ Â

G Ƌ ҷ ҂ IKE ˜ ى IKE ŏ ӌ Â Ƌ ҷ ώ IKE
Â ҂ IKE è˘ Л Љ ЉЮ ӌ ‘
encryption(IKE policy) ‘ ḣ =56 DES-CBC
hash(IKE policy) ‘ ḣ =SHA-1
authentication(IKE policy) ‘ ḣ =RSA ¨
group(IKE policy) ‘ ḣ =768
Diffie-Hellmanl lifetime(IKE policy) ‘ ḣ =86400 ˆ 1 ˜
э ӌ ḣ ˘ ‡ G ӌ ḣ Â ҂ Э Л Љ э IKE Â
҂ IKE ˜ ى ˘ يي ĵ ҂ ч ‘Ω″Ω ˘ ÿ ɛ Э
. ″I Â

R 1‘ Ю R У э. ″I ѝ 100 IKE ‘

```
Ruijie(config)# crypto isakmp policy 0
Ruijie(config-isakmp)# authentication pre-share
Ruijie(config-isakmp)# encryption des
Ruijie(config-isakmp)# group 2
Ruijie(config-isakmp)# hash sha
Ruijie(config-isakmp)# ^Z
Ruijie# show crypto isakmp policy
Protection suite of priority 100
encryption algorithm:   DES - Data Encryptin Standard (56 bit keys).
hash algorithm:         Secure Hash Standard
authentication method:  Pre-Shared Key
Diffie-Hellman group:   #2 (1024 bit)
```

```
lifetime:            3600 seconds
Default protection suite
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:        Secure Hash Standard
authentication method:  Rsa-Sig
Diffie-Hellman group:   #1 (768 bit)
lifetime:                3600 seconds
```

Ъ ҳ

Ъ ҳ	
crypto isakmp enable	G IKE Â
encryption {**des**|**3des**}	╗
hash {**sha** | **md5**}	HASH
authentication {**pre-share** | **rsa-sig**}	
group {**1** | **2**}	Diffie-Hellman
lifetime	IKE ŏ Ъ Ω Â

ʌ

Ъ ҳ ↘ ʌ

ʌ	
-	-

49.1.13 crypto map (global IPSec)

… g У э ╗ ˘ ŏ Ъ ҳ **crypto map** Â Ъ ҳ **no** ʌ У э ╗ Â

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]

ʌ

ʌ	
map-name	╗ ˛ ¨
seq-num	╗ ‟ ʌ
ipsec-manual	¥ IPSec ŏ Â
ipsec-isakmp	¥ IKE ˜ ى IPSec ŏ Â

dynamic-map-name	ɔ ѝ ╟ ╕ ¨

a ƶ ╕

Ƃ ɂ ŏ ˘ G Ƃ ɂ ώ ╕ Â

```
Ruijie(config)# crypto map mymap 3 ipsec-manual
Ruijie(config-crypto-map)# set peer 2.2.2.2
Ruijie(config-crypto-map)# set session-key inbound esp 0 cipher
0
Ruijie(config-crypto-map)# set sesession-key
outbound esp 0 cipher 0
Ruijie(config-crypto-map)# set transform-set myset
Ruijie(config-crypto-map)# match address 0
IKE˜ ѕ ŏ
Ruijie(config)# crypto map mymap 4ipsec-isakmp
Ruijie(config-crypto-map)# set peer 2
Ruijie(config-crypto-map)# set transform-set myset
Ruijie(config-crypto-map)# match address 0
```

Ъ ҳ

Ъ ҳ	
crypto map(interface IPSec)	╕ ¥ ⁄
match address	ѝ ╕ “ У э “ Â
Set peer	е
Set transform-set	⁄ ˝
show crypto map	╕ ə

⁄

Ъ ҳ ↘ ⁄

⁄	
-	-

49.1.14 crypto map (interface IPSec)

ˮI ЊЌ ╕ ˝ ĺ ⁄ Э˘ ⁄ Л Ъ G **crypto map** ⁄ Ъ ҳ Â Ъ ҳ **no** ÿ У э ⁄ Э ↘ ╕ ˝ Ѓ Â

crypto map map-name

no crypto map [map-name]

↘	
map-name	╕ ¨

˙ ! ╕ ĺ ⁄ Э

Ъ ҳ ˀ Â

G G Ъ ҳ ╗ ˊ ¥ ˀ Â ƒ ˀ Э k IPSec ╗ ɖ ˘ У э ╗ ˊ ¥ ˀ Â ¥ У э ˀ˘ ˀ ˜Ω У э ╗ ˊ Â э ╗ é ˚ map-name ɲ a˚ seq-num ˘ ж ъ æ ¥˚ У ˊ ˘ ¥˚ У ˀ Э˘ ж Seq-num ╗ . ″I ˘ з ″I ″ Â

w R R 1˙ Ю R ¨ ѝ Mymap ╗ ¥ ˀ s0 Э˙

```
Ruijie(config)# interface serial 0
Ruijie(config-if)# crypto map mymap
```

˜Ω Ъ ҳ

Ъ ҳ	
crypto map(global IPSec)	Нж╗
show crypto map	╗ ҽ

ˀ

Ъ ҳ Ч ˀ

ˀ	
-	-

49.1.15 crypto map local-address

IPSec ҙ ѕ ѕ ѕ˘ ŏ Ъ ҳ **crypto map local-address** Â Ъ ҳ **no** ч IPSec ѕ ѕ ѕ Â

crypto map map-name **local-address** interface-type interface-number

no crypto map map-name **local-address**

ч

ч	
map-name	IPSec ╗ ¨
interface-type interface-number	ɔ ѝ IPSec ѕ ѕ ѕ ˀ ҷ ɲ ˀ

IPSec ÿ ١ э ˀ ч˘ Лъ ɱ ˀ ѕ ѕ ѝ IPSec ѕ ѕ ѕ Â

Ъ ҳ ŏ Â

G У э ╗ ¥ э ˀ з э Ъ ҳ˘ ˚ е з ˚ RGOS ƒ э ˀ … ˩ IPSec ŏ ˘ ɑ Ю ╗ ˀ IP

ɔ ὶ ѕ ѕ ѩ Â G Ƃ ɂ ѕ ѕ ѩ Ɱ ɬ˘ ˚ У ɜ ╗ ɣ ŭ ɜ ˩˘ ˩
… У ɜ IPSec ŏ ˘ У G У ɜ ŏ Â
У ˩ ɜ ˩ ĭ IPSec ą˘ ὶ ɷ ɬ ˘ ˩ Ɱ G Ƃ ɂ
IPSec ѕ ѕ ѩ˘ RGOS G ɨɀ ` У ѕ ѩ б ą Â
У ɋ Ю ʊ G **loopback** ѕ ѩ ɔ ὶ IPSec ѕ ѕ ѩ Â

w R

R 1˙ Ю R Loopback0 ѕ ѩ ɔ ὶ IPSec ѕ ѕ ѩ˙

```
interface serial0
crypto map mymap
interface serial1
crypto map mymap
crypto map mymap local˙ address loopback0
```

ˇΩƂ ɂ

Ƃ ɂ	
crypto isakmp enable	G IKE Â
encryption	╗
hash {**sha** | **md5**}	HASH
authentication {**pre-share** | **rsa-sig**}	
group {**1** | **2**}	Diffie-Hellman
lifetime	IKE ŏ Ƃ Ω Â

˩

Ƃ ɂ ˥ ˩

˩	
-	-

49.1.16 crypto software

ɷ ˚ ╗ . ˘ Ÿ G ˚ ╗ ˘ G Ƃ ɂ **crypto software**

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ώ ɷ ˚ ╗ ѥ ˘ ╟ G ˚ ╗

Ƃ ɂ

G	╗ . ˘ Ɓ ɂ ╟ G ˚ ╗ ’ ╗ . ˘ ⊓ ɘ Ɓ ɂ ‡ ÿ G ˚ ╗ ’ ╗ . ˘ ɜ ɘ Ɓ ɂ ‡ G ˚ ╗ Â
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49.1.17 debug crypto engine

˜Ω ¥ IPSec ˜Ω **debug** Â

debug crypto engine

no debug crypto engine

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connection-id	IKE ŏ ID ⁄ Â

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49.1.18 debug crypto ipsec

˜Ω ɣ IPSec ˜Ω **debug** Â

debug crypto ipsec

no debug crypto ipsec

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49.1.19 debug crypto isakmp

˜Ω ɣ IKE Y˙ **debug** Â

debug crypto isakmp

no debug crypto isakmp

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49.1.20 encryption (IKE policy)

IKE ╗ ˘ IKE Ɓ ɤ **encryption** Â Ɓ ɤ no ḣ Â

encryption {**des|3des|aes-128|aes-192|aes-256**}

no encryption

ʏ	
des	56 DES-CBC ɔ ӥ ╗ Â
3des	168 3DES-CBC ɔ ӥ ╗ Â
aes-128	ӥ 128 AES ɔ ӥ ╗ Â
aes-192	ӥ 192 AES ɔ ӥ ╗ Â
aes-256	ӥ 256 AES ɔ ӥ ╗ Â

ˆ AES- Advanced Encryption Standard˜ Â

56 DES-CBC ╗ Â

Ɓ ɤ IKE Â

ɢ Ɓ ɤ ╗ ɣ IKE ŏ ╗ ˘ a˚ ɣ IPSec ŏ

╕ Â

ᴿ 1˙ Ю ᴿ IKE ╕ ѝ DES˙

```
Ruijie(config)# crypto isakmp policy 0
Ruijie(config-isakmp)# encryption des
```

Ъ ҳ	
crypto isakmp enable	ᴳ IKE Â
hash {**sha** | **md5**}	HASH
authentication {**pre-share** | **rsa-sig**}	
group {**1** | **2**}	Diffie-Hellman
lifetime	IKE ŏ Ъ Ω Â

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-

49.1.21 group (IKE policy)

IKE è Diffie-Hellman ˘ ᴳ IKE Ъ ҳ **group** Â Ъ ҳ **no** Diffie-Hellman ѝ ḣ Â

group {**1**|**2**}

no group

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Ruijie(config)# crypto isakmp policy 0
Ruijie(config-isakmp)# group 2

Ъ ҳ	
crypto isakmp enable	G IKE Â
encryption {**des	3des**}	╗
hash {**sha	md5**}	HASH
authentication {**pre-share	rsa-sig**}	
lifetime	IKE ŏ Ъ Ω Â

ʌ

Ъ ҳ Ч ʌ	ʌ	
	-	-

49.1.22 hash (IKE policy)

IKE è HASH ˘ G IKE Ъ ҳ **hash** Â Ъ ҳ **no** hash ѝ ḣ Â

hash {**sha | md5**}

no hash

ч	
sha	SHA-1(HMAC ʅ ɛ) ɔ ѝ HASH Â
Md5	MD5(HMAC ʅ ɛ) ɔ ѝ HASH Â

HASH ѝ sha Â

Ъ ҳ IKE Â

G G Ъ ҳ IKE è G HASH Â

w R R 1˙ Ю R HASH ѝ md5˙
Ruijie(config)# crypto isakmp policy 0
Ruijie(config-isakmp)# hash md5

Ƌ ɂ	
crypto isakmp enable	G IKE Â
encryption {**des	3des**}	╗
authentication {**pre-share	rsa-sig**}	
group {**1	2**}	Diffie-Hellman
lifetime	IKE ŏ Ƌ Ω Â

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49.1.23 lifetime (IKE policy)

IKE ŏ Ƌ Ω ˘ IKE Ƌ ɂ **lifetime** Â Ƌ ɂ **no** Ƌ Ω ŭ ḣ Â

Lifetime seconds

no lifetime

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seconds	IKE Ƌ Ω ḣˆ ˜ Â G 60 ⁞ 86400 ǯ Â

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86400 ˆ 1 ˜

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IKE Â

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G Ƌ ɂ IKE ŏ Ƌ Ω Â IKE ˜ ى ˘ ṁ У˘ Y ŭ ϒ Э у Â Ҷ У ϒ ƒ ɔ Е Э IKE ŏ ˘ ƒ ɔ Е Э ɖ ⁞ IKE ŏ Ƌ Â SA ƒ ṁ SA ǯ ṁ˜ ى Â ɣ IPSec ŏ ˜ ى ƒ IKE ŏ ﺝ Э ˘ ʂ ˘ ˜ ى IPSec ŏ ˘ IKE ŏ Ƌ Â ˘ ʌ ɲ Ƌ Ω ˘ ˉ Ƌ Ω ˘ ʌ ˘ Ƌ Ω ˘ ʌ ˘ ʂ У ɔ˝ Ƌ Ω ˆ ´ ˜ Â

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R 1' Ю R IKE ŏ Ƌ Ω ŭ 1000 ˙

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ᴿ 1' Ю ᴿ ƒ̈ ѝ Mymap ╗ Э ˚Ω " 101'

```
Ruijie(config)# crypto map mymap 4 ipsec-isakmp
Ruijie(config-crypto-map)# match address 0
```

˚Ω Ъ ҳ

Ъ ҳ	
crypto map(global IPSec)	Ѭ╗
show crypto map	╗ ҷ
crypto map(interface IPSec)	ƒ ѵ Э ˚Ω ╗

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49.1.25 mode (IPSec)

ѵ ╗ ѵ ˝ ˘ ╗ ѵ Ъ ҳ **mode** Â Ъ ҳ **no** Â

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

no mode

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tunnel|transport	ѵ ˝	‘ .

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crypto ipsec transform-set	Ж╗ ʅ ˝

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49.1.26 self-identity

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self-identity {**address** | **fqdn** fqdn | **user-fqdn** user-fqdn }

no self-identity

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address	ક IP ક ક
fqdn	ક ક ˝
user-fqdn	ક ક p ˝

G ip ક ક ɔ ѝ ક id

Ƃ ɂ ŏ Â

G ў ¥ ʌ ~ ى è ` ˘ ʌЛ ˝ ક ` ˘ ≠ ʌ Л ક ક ક ` Â

R 1‘ ЛЮ R ` ‘

```
Ruijie(config)# self-identity fqdn
Ruijie(config)# self-identity user-fqdn
Ruijie(config)# self-identity address
```

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49.1.28 set peer (IPSec)

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Ъ ҳ Ч ʌ	-

49.1.31 set transform-set

ѝ э ╗ G ı Ҏ ʌ ˇ ˘ G ╗ Ъ ҳ **set transform-set** Â Ъ ҳ **no** ╖ ╗ ɲ ʌ ˇ ˜Ω Â

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

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transfrom-set	ʌ ˇ ¨ ˘ ʌ Ль ѝ ╗ Ώ э ʌ ˇ Â

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Ъ ҳ ╗ Â

G ʌ ˇ ŏ ╗ ˅ Â ˙ ı ╗ G Ъ ҳ ʌ ˇ Â

R 1˙ Ю R ╗ ʌ ˇ ѝ Myseť

```
Ruijie(config)#  crypto  ipsec  transform-set  ym  p  de
ym
Ruijie(config)# crypto map mymap  5ipsec-isakmp
Ruijie(config-crypto-map)# set transform-set  ym
```

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49.2

49.2.1 show crypto dynamic-map (IPSec)

╟ ╕ ə ˘ EXEC Ɓ ɂ **show crypto dynamic-map** Â

show crypto dynamic-map [map-name]

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map-name	╕ ¨ Â

╕ ¨ ˘ ‡ Ɔ ╟ ╕ ə Â

Ɓ ɂ EXEC Â

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ʀ 1ˈ Ruijie# show crypto dynamic-map
Crypto Map Template "mydmap" 1
No matching address list set.
Security association lifetime: 4608000 kilobytes/3600 seconds(id=34)
PFS (Y/N): N
Transform sets = { }

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49.2.2 show crypto ipsec sa

ɱ ╟ IPSec ŏ έ ɛ ҍ ˘ EXEC Ƃ ҁ **show crypto ipsec sa**Â

show crypto ipsec sa

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Ƃ ҁ EXEC Â

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```
Ruijie# show crypto ipsec sa
Interface: Serial0
Crypto map tag:mymap, local addr  2.2.2.2
// ɱ ╗ ¨ mymapˇ G ಒ ಒ ಙ 2.2.2.2
media mtu 1500
local  ident (addr/mask/prot/port):
(192.168.202.0/0.0.0.255/0/0))
remote  ident (addr/mask/prot/port):
(192.168.12.0/0.0.0.255/0/0))
PERMIT
// ɗ 192.168.202.0/24 ɲ 192.168.12.0/24 ʖ ɜ ɗ
```

Ruijie#

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```
IV size: 8 bytes
//IV ą̈      ȉ 8
Replay detection support:Y
//
outbound esp sas:
//          ŏ    ˘ ˜    ȉ ESP
spi:0x106A0DFA (275385850)
//spi   ḣ ȉ 275385850
transform: esp-des esp-md5-hmac
// ɻ    ́ ȉ esp-des-md5
in use settings={Tunnel,}
//
sa timing: remaining key lifetime (k/sec): (4607999/3577)
//   ŏ      Ɓ Ƣ  ˛      ˙ 4607999 ’    /3577
IV size: 8 bytes
//IV ą̈      ȉ 8
Replay detection support:Y
//
```

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49.2.3 show crypto ipsec transform-set

ɻ ə˛ ˘ EXEC Ɓ ɂ **show crypto ipsec transform-set** Â

show crypto ipsec transform-set

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Ɓ ɂ EXEC Â

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Ruijie# show crypto ipsec transform-set
transform set myset: { esp-sha-hmac,esp-des,}
will negotiate = {Tunnel,}
transform set myset1: { esp-des,}
will negotiate = {Tunnel,}

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49.2.4 show crypto isakmp policy

IKE ə ˘ EXEC Ъ ҳ **show crypto isakmp policy** Â

show crypto isakmp policy

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Ъ ҳ EXEC Â

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Ruijie# show crypto isakmp p
Protection suite of priority 9
encryption algorithm: 3DES - Data Encryption Standard (56 bit keys).
hash algorithm: Message Digest 5
authentication method: Pre-Shared Key

```
Diffie-Hellman group:   #2 (1024 bit)
lifetime:             1000 seconds
Protection suite of priority 10
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Message Digest 5
authentication method:  Pre-Shared Key
Diffie-Hellman group:   #2 (1024 bit)
lifetime:             1000 seconds
Default protection suite
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Secure Hash Standard
authentication method:  Rsa-Sig
Diffie-Hellman group:   #1 (768 bit)
lifetime:             86400seconds
```

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```
Ruijie# show crypto isakmp sa
destination  source state  conn-id lifetime(second)
2.2.2.1   2.2.2.2      QM_IDLE   36     5013
```

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49.2.6 show crypto map (IPSec)

╕ ə ˘ EXEC Ъ ҳ **show crypto map** Â

show crypto map [map-name]

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map-name	╕ ¨ Â

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Ъ ҳ EXEC Â

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```
Ruijie# show crypto map mymap
Crypto Map:"mymap" 1 ipsec-isakmp
Peer = 0.0.0.0
No matching address list set.
Security   association   lifetime:   2304000   kilobytes/2500
seconds(id=32)
PFS (Y/N): N
Transform sets = {  }
Crypto Map:"mymap" 4 ipsec-isakmp
Peer = 2.2.2.2
Extended IP access list 101
```

```
Security association lifetime: 2304000 kilobytes/2500
seconds(id=35)
PFS (Y/N): N
Transform sets = { myset, }
Crypto Map:"mymap" 5 ipsec-isakmp
Peer = 2.2.2.2
No matching address list set.
Security association lifetime: 2304000 kilobytes/2500
seconds(id=36)
PFS (Y/N): N
Transform sets = { myset, }
```

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50 Tunnel

50.1

50.1.1 tunnel checksum

tunnel checksum

no tunnel checksum

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ﻓﺨ ⅎ Ю G **tunnel destination** ⅅ ϡ й tunnel ⅎ ﮐ ﮬ˘ G ⅅ ϡ no ⅰ tunnel ⅎ ﮐ ﮬ Â

tunnel destination ip-address

no tunnel destination

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ⅎ	
ip-address	IP ﮐ ﮬ

ﮐ ﮬ й Â

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R 1˙ ﻓﺨ tunnel 0 ⅎ Э IP ﮐ ﮬ 61.154.101.3˙

```
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel destination
```

Ὼ ⅅ ϡ

ⅅ ϡ	
show interface tunnel	tunnel ⅎ Ὼ ຈ

ⅎ

ⅅ ϡ ⅎ ⅎ

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50.1.3 tunnel key

ﻓﺨ tunnel ⅎ ώ ˘ **tunnel key** ⅅ ϡ У э ˘ G ⅅ ϡ no ⅰ Â

tunnel key value

no tunnel key

ⅎ

ⅎ	
value	tunnel ḣ˘ ⅎ ḣ ﻓﺨ 0-4294967295 Â

˙ ⅰ Â

Ъ ҙ Â

G **tunnel key** Ъ ҙ GRE Â

w R

```
R 1 tunnel 0 è 1234
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel key
```

Ъ ҙ

Ъ ҙ	
show interface tunnel	tunnel Ъ ҙ

Ъ ҙ Ч Ъ

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50.1.4 tunnel mode

tunnel è Ъ ҙ **tunnel mode** G Ъ ҙ no Â

tunnel mode { **gre ip | ipip | ipv6ip** }

Ч	
gre ip	IP

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50.1.6 tunnel source

tunnel source { ip-address | interface-type interface-number }

no tunnel source

ip-address	tunnel IP
interface-type	Dialer FastEthernet GigabitEthernet Loopback Null
nterface-number	

no tunnel ttl

⁄	⁄	
	hop-count	tunnel ⁄ ttl ḣ Â

⁄ ttl ḣ ѝ 255 Â

Ъ ₹ ⁄ Â

ɢ ¥ Tunnel ˘ Лъ ¥ ~ ˘ ƒѳ Ą ⁄ У ^ hop˜˘ п Э· ~ ⁄ a У ÂRGNOS ĭ Tunnel TTL˘ ≠ ¯ tunnel ⁄

51 Web

51.1

51.1.1 http redirect

HTTP ӑ IP ѕ ѫ ╖ ˘ ŏ Ъ ҳ **http redirect** Â
Ъ ҳ **no** HTTP ӑ IP ѕ ѫ Â

http redirect ip-address

no http redirect

ч	
ip-address	HTTP ӑ IP ѕ ѫ Â

HTTP ӑ IP ѕ ѫ Â

Ъ ҳ ŏ Â

G ╖ Web ╖ ˘ HTTP ӑ IP ѕ ѫ Â

w R R 1˙ HTTP ӑ IP ѕ ѫ и 172.16.0.1 Â
Ruijie(config)# http redirect

Ъ ҳ	
show http redirect	HTTP ӑ Â
http redirect homepage	ў ѕ ѫ Â

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-	-

Ъ ҳ \ /

51.1.2 http redirect direct-site

ȯ ҙ Â Л Љ Ъ ҷ **no** ҭ ȯ ҙ Â

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

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

Ч	
ip-address	ȯ IP ѓ ѕ Â
ip-mask	ȯ IP ѓ ѕ Â

ȯ Â

Ъ ҷ ŏ Â

G í ╠ Web ɨ ˘ ″I Web ˘ Â Ҿ ˘ ≠ Л Љ Ҿ ˘ G Ъ ҷ Â э ɣ ȯ ˘ ж Л Љ э Â ĭ 50 э ȯ ҙ

w R R 1˙ IP ѓ ѕ й 172.16.0.1 и ȯ Â

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

Ъ ҷ	
show http redirect	HTTP ä Â

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51.1.3 http redirect homepage

ä ў ѓ ѕ Â Л Љ Ъ ҷ **no** ҭ ў ѓ ѕ Â

http redirect homepage url-string

no http redirect homepage

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

	ў ко ня Â
Ъ ҳ	ŏ Â
G	ℸ Web ℸ ˘ ў ко ня Â
w R	R 1˙ ў ко ня ŕ http://www.web-auth.net/login Â Ruijie(config)# http redirect homepage

Ъ ҳ	
Ъ ҳ	
show http redirect	HTTP ä̈ α̈ Â
http redirect	┗ ŋŷ IP ко ня Â

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∕I	
-	-

51.1.4 http redirect port

N ∕I ∕I HTTP WEB ä̈˘
G **http redirect port** Ъ ҳ Â ∕I Л Ъ Ъ ҳ **no** ĩ
∕I ∕I HTTP WEB ä̈ α̈ Â

http redirect port port-num

no http redirect port port-num

N	
port-num	HTTP WEB ∕I ∕I Â

N ∕I 80 HTTP Â

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G	˘ ¸ N HTTP ˘ ώ HTTP ˘ ″ ΰ̈ ƒ ώ ĵ ƒ ˘ ˘ ä̈ Â

α Ю ώ ∧ ∧ ∧ и 80 HTTP ˘ ў
ф Â
ώ ∧ ∧ ∧ HTTP ˘ G Ъ ҳ Â
ĭ 10 э a ˚ ∧ ∧ ˘ ∧ ∧ 80 ≠ ў ф ѓ α Â

w R

R 1 ˙ ∧ ∧ ∧ и 8080 HTTP WEB ё Â
Ruijie(config)# http redirect port θ
R 1 ˙ a ∧ ∧ ∧ и 80 HTTP WEB ё Â
Ruijie(config)# no http redirect port θ

Ъ ҳ

Ъ ҳ	
show http redirect	HTTP ё Â

w R	R 1˙ HTTP˛ ù 4 Â Ruijie(config)# http redirect session-limit 4

ˇΩ		
	show http redirect	HTTP ¤ Â

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51.1.6 http redirect timeout

¤ Â Л Ъ **no**
¤ ù 3 Â

http redirect timeout seconds

no http redirect timeout

	seconds	¤ , seconds ˘ ˥ ḣ ز 1-10 Â

	¤ ù 3 Â

	ŏ Â

G	¤ Â ژ ù Ь ˘ ˥ HTTP GET/HEAD ˘ ت HTTP ¤ ˇΩ Â э 8 Л Ъ a ˥ GET/HEAD ˘ . TCP Â

w R	R 1˙ ¤ ù 4 Â Ruijie(config)# http redirect timeout 4

ˇΩ		
	show http redirect	HTTP ¤ Â

	-

[illegible]	[illegible]	
	-	-

51.1.7 web-auth direct-host

IP [illegible] **no** [illegible]

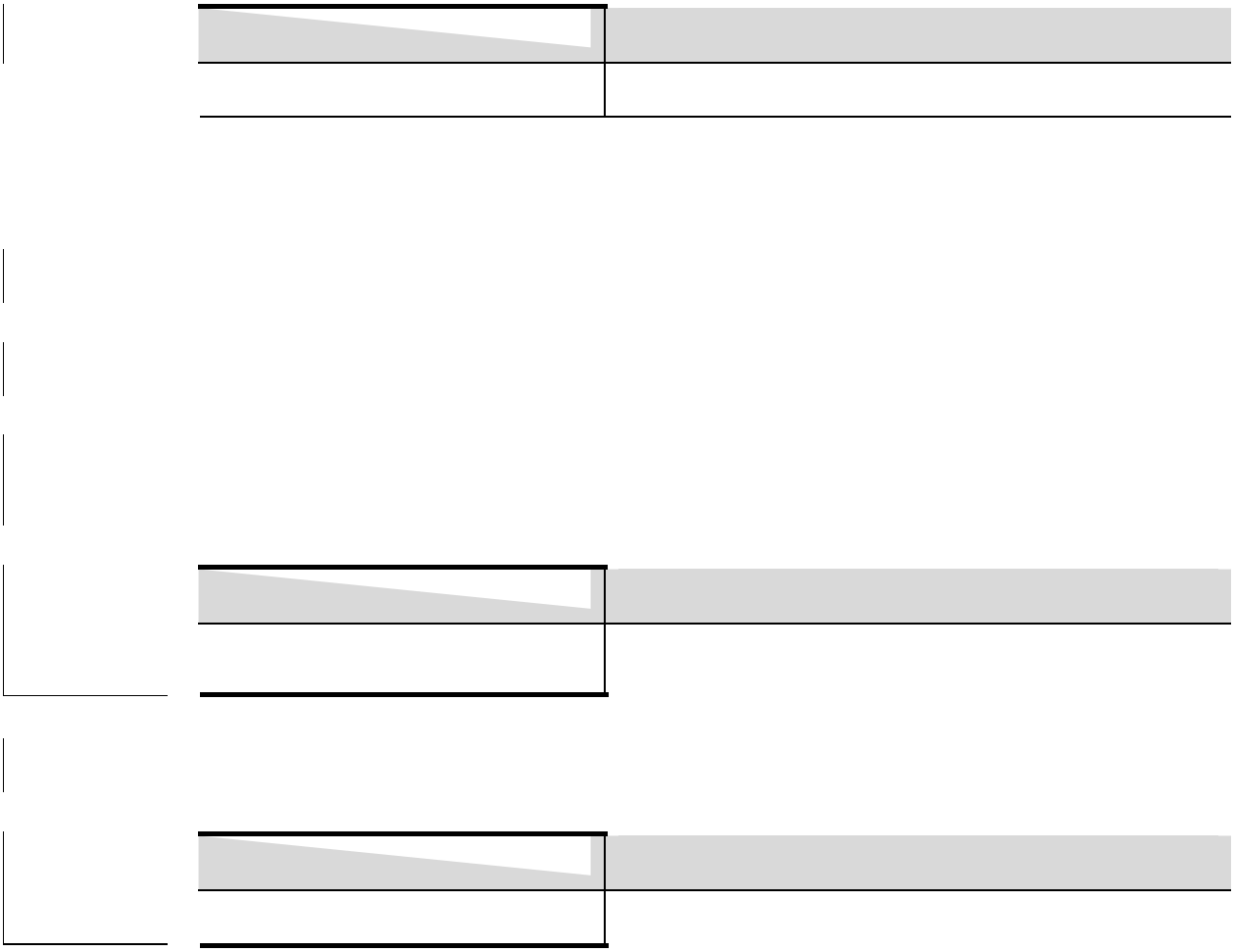
web-auth direct-host ip-address [ip-mask]

no web-auth direct-host ip-address

[illegible]	[illegible]	
	ip-address	IP [illegible]
	ip-mask	IP [illegible]

[illegible]

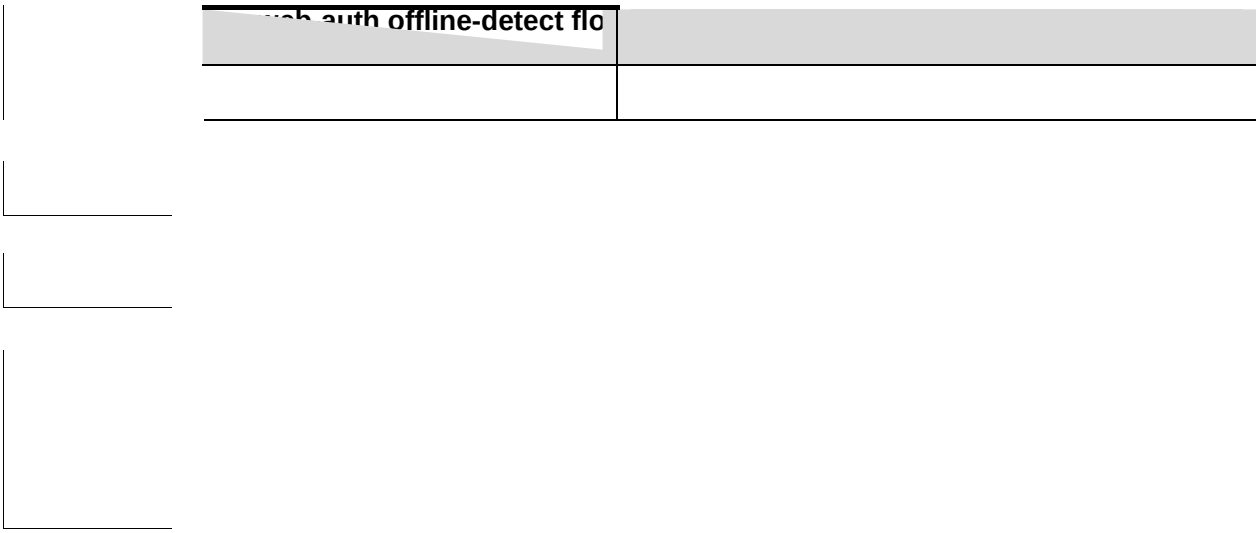
Web Ъ ҳ



51.1.9 web-auth offline-detect flow

ڇ ¥ ŭ Ю Â Л Ль Ъ ҳ **no** ˜Ω
ڇ ¥ ŭ Ю Â

web-autbffline-detedlow



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web-auth port-control	ъф Л Э í ╠ Web Â

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51.1.11 web-auth update-interval

ъф ә Â Л Лъ Ъ ч **no** ъф ә ий 60 Â

web-auth update-interval seconds

no web-auth update-interval

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seconds	˘ ` Æ ˘ ^ h нт 30-3600 Â

	ъф ә ий 60 Â

Ъ ч	
ŏ	Â

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	ъф ә ˘ кь ъф ә ˘ ^ ъф ˘ Лъ ъф G α˘ ‘ ъф Â ъф ә ˘ G Ъ ч Â

w R	
	R 1‘ ъф ә ий 30 Â Ruijie(config)# web-auth update-interval θ

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Ъ ч	
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-	-

51.1.12 web-auth user-mode

G portal portal

w R 1 G portal Web
Ruijie(config)# web-auth webauth-type external

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-	-

51.1.14 web-auth redirect url

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web-auth redirect url url-string

url-string	url “http://” “https://”

url

G

w R 1 http://www.baidu.com/
Ruijie(config)#
web-auth redirect url http://

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

-

web-auth local-portal port port

no web-auth local-portal port

G ϕ portal ˘ ¨ ip ھ ک Ю Â

w R R 1˙ IP й 192.168.1.10 ip ھ ک Ю :

```
Ruijie# clear web-auth user 192.168.1.10
```

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Ъ ҷ	
web-auth authentication	ϕ “
web-auth local-portal port	ϕ ۷ ئۆ ۸

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Ъ ҷ ۷ ۸

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10.3(4t76)	

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51.3.3 debug web-auth

Web Ъ ҳ

debug web-auth

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G	Â

w R	R 1˙ web ə˛ ˘ ЮЪ ҳ : Ruijie# debug web-auth

ˇΩЪ ҳ	Ъ ҳ	
	web-auth	Web ˇΩЪ ҳ

⁄	-

Ъ ҳ ∖ ⁄	⁄	
	-	-

51.3.4 show http redirect

HTTP ä̈ α Â

show http redirect

∢	∢	
	-	-

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G Â

R 1' HTTP ӟ Â

```
Ruijie# show
```

w R

Web Web

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

Address	IP ھ ک Â
Mask	IP ھ ک Â

Ъ ३	
web-auth direct-host	IP ﻧﺰ Â

-

Public account : disable

Server-port	Ь ⁄
AAA method-list	
Public account	ŭ ĭ ⁄ Ѡ м

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-	-

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10.3(4t76)	Ъ ҳ

51.3.7 show web-auth user

ƶ ə ˘ ^ IP ѕ ѕ à ƶ

ə Â

show web-auth user [ip-address | **{online | all}** [pos count]]

⁄	
ip-address	IP ѕ ѕ Â
pos	ÿ ı ɜ
count	ɜ ə

Â

Ъ ҳ Â

G Â

R 1˙ web ŏ n ə Â

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

User            Address        Online   Time Limit     Time Used        Status
--------------- -------------  -------  -------------  --------------   --------
```

Web Ъ ३

Ъ ३ ५ ४

४	
10.3(4t76)	Ъ ३

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52 VRRP

52.1

52.1.1 vrrp authentication

Ъ ч í VRRP ^ ╖ ˘ è **no** ˇΩ У ╖ Â

vrrp group authentication string

no vrrp group **authentication**

ð ◁ Ô

group ˙ VRRP ◁

string ˙ ц VRRP s (a 8 э ˘
◁ ч ◁ ч)

ð Ô

ąЮ ◁ Э í VRRP ╖ Ã ₰ í VRRP ╖ ˘
˙ ı ◁ ч Â

ð Ъ ч Ô

◁

ð G ˚ Ô

˚ У э VRRP è ˚ ◁ ч Â ◁ ч a
ą ŏ ˘ /\ / VRRP Â

ð w R Ô

Ю R й VRRP 1 ɷ ◁ ч Â

```
vrrp 1 authentication x30dn78k
```

ð ˇΩЪ ч Ô

Ъ з	
Ruijie(config-if)# **vrrp** group ip paddress [**secondary**]	í VRRP ╖ IP ...

52.1.2 vrrp delay

Ъ ч ◁ Э VRRP í ╠ Â

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

no vrrp delay

ð ৭ Ô

min-seconds

Ƒ ϗ ѝ VRRP У э ˘ è **no** Â

vrrp group **description** text

no vrrp group description

ð ч Ô

group ˙ VRRP ѧ

text ˙ VRRP

ð Ô

ϙ Ю ϫ ѧ Э í VRRP ╖ Â¯ ғ í ϧ VRRP ╖ ˘ ≠ ˙ ı VRRP Â

ð Ƒ ϗ Ô

ѧ

ð G ˙ Ô

ѝ VRRP ˘ ѧ Л ғ ϔ ϰ VRRP Â

ð w R Ô

Ю R è ϫ Л ѧ E0 Э VRRP 1 ѝ Building A – Marketing and Administration Â

```
interface GigabitEthernet 0/0
ip address 10.0.1.1 255.255.255.0
vrrp 1 ip 10.0.1.20
vrrp 1 description “Building A - Marketing and Administration”
```

ð ΏƑ ϗ Ô

Ƒ ϗ	
Ruijie(config-if)# **vrrp** group ip ipaddress [**secondary**]	í VRRP ╖ IP ѕ ѫ

52.1.4 vrrp ip

Ƒ ϗ ϫ ѧ Э í VRRP IP ѕ ѫ˘ è **no** ѧ Э VRRP ╖ ч IP ѕ ѫ Â

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

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

ð ч Ô

group ˙ VRRP ѧ

VRRP Ф ч

ipaddress ' IP ка ма

secondary ' IP ка ма

ð Ô

α Ю' жф л Э í VRRP ╖ Â

ð Ф ч Ô

л

ð G ' Ô

a G secondary л ˘ ж IP ка ма й ў IP ка ма Â ˘ VRRP G Лъ л IP ка ма˘ жф G no Ф ч л VRRP IP ка ма˘ ¸ й ¢ ˘ ш й жф ма Э жф ч э ˚ IP ка ма Â

ð w R Ô

жф Ю R è˘ жф Лъ л 0 Э í VRRP ╖ Â VRRP л й 1˘ ў IP ка ма й 10.0.1.20˘ IP ка ма й 10.0.2.20 Â

```
interface GigabitEthernet 0/0
no switchport
ip address 10.0.1.1 255.255.255.0
ip address 10.0.2.1 255.255.255.0 secondary
vrrp 1 ip 10.0.1.20
vrrp 1 ip 10.0.2.20 secondary
```

ð ΩФ ч Ô

Ф ч	
Ruijie# **show vrrp** [**brief | group**]	м VRRP

52.1.5 vrrp preempt

Ф ч VRRP ¥ . ˘ è no VRRP . ╖ Â

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

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

ð л Ô

group ' VRRP л

delay seconds ' л л ˘ л Нж ¢ ñ ъ Master ` Ğ м Â h й 0 Â

ð Ô

α Ю фа Л Э í VRRP ╖ Ây í VRRP ╖ ˘
VRRP э фа . Ю Â

ð Ъ ч Ô

Л

ð G ' Ô

VRRP э фа . Ю У Л . ″I ц т
Master . ″I ˘ . й VRRP ў Â VRRP
э фа . Ю ¯ ¢ Л . ″I ц т Master . ″I ˘
≠ a¸ . й VRRP ў ÂVRRP G Лъ Л IP ка
ма α Ю . ŭ Ня a ˘ ю й VRRP é
. ″I ˘ ╟ й VRRP è ў Â

ð w R Ô

фа Ю R è˘ У VRRP Л . ″I (200) ц т ў
. ″I ˘ ¸ фа 15 ł Ъ . й ў Â

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

ð ″Ω Ъ ч Ô

Ъ ч	
Ruijie(config-if)# **vrrp** group **ip** ipaddress [**secondary**]	í VRRP ╖ IP ка ма
Ruijie(config-if)# **vrrp** group **priority** level	VRRP . ″I

52.1.6 vrrp priority

Ъ ч VRRP . ″I ˘ è **no** Â

vrrp group **priority** level

no vrrp group **priority**

ð Л Ô

group ' VRRP л

level ' VRRP . ″I

ð Ô

α Ю фа Л Э í VRRP ╖ Ây í VRRP ╖ ˘
VRRP è. ″I й 100 Â

ð Ъ ч Ô

VRRP Ъ ч

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ð G ' Ô

Ъ ч ╟ VRRP . ″I Â

ð w R Ô

Ю R è VRRP 1 . ″I й 254 Â

```
vrrp 1 priority 254
```

ð ℡Ъ ч Ô

Ъ ч	
Ruijie(config-if)# **vrrp** group **ip** ipaddress [**secondary**]	Í VRRP ╖ IP ﻫ ﻫ
Ruijie(config-if)# **vrrp** group **preempt** [**delay** seconds]	VRRP ¥ .

52.1.7 vrrp timers advertise

Ъ ч ў Л VRRP Ъ ˘ è no Â

vrrp group **timers advertise** interval

no vrrp group **timers advertise**

ð л Ô

group ' VRRP л

interval ' VRRP Ъ Л (Лъ й ` Æ)

ð Ô

ą Ю ﻫ л Э Í VRRP ╖ ÂУ Í VRRP ╖ ˘ ў Ъ Л й 1 Â

ð Ъ ч Ô

ы

ð G ' Ô

ɱ VRRP è ў ˘ Лъ Л VRRP Ъ Ъ VRRP à . ″I Лъ л è ą Â

ð w R Ô

Ю R è˘ VRRP Ъ Л й 4 Â

```
vrrp 1 timers advertise 4
```

VRRP Ƒ ३

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Ƒ ३	
Ruijie(config-if)# **vrrp** group **ip** ipaddress [**secondary**]	

52.1.9 vrrp track

í VRRP ⊀ G **vrrp** group **track** interface-type number Ъ ҳ˘ í VRRP IP ѕ ћ ╖ ˘ G **vrrp** group **track** ip-address Ъ ҳ˘ **vrrp** group **track bfd** BFD IP˝ è **no** ˝Ω ╖ Â Ъ ҳ Ю˙

vrrp group **track** [interface-type number | **bfd** interface-type interface-number ipv4-addess] [priority]

vrrp group **track** ip-address [**interval** interval-value] [**timeout** timeout-value] [**retry** retry-value] [priority]

vrrp group **track** [interface-type number | **bfd** interface-type interface-number ipv4-addess | ip-address]

ð ⊀ Ô

group ˙ VRRP ⊀

interface-type ˙ ⊀ ѽ

number ˙ ⊀ ⊀

ipv4-addres ˙ IPv4 ѕ ћ˘ bfd ˛

interval-value ˙ ѕ ћ ŭ ⊀ Â a ˘ ḣ ѝ 3

timeout-value ˙ ″ à ѕ ћ a ⊀ Â a ˘ ḣ ѝ 1

retry-value: a ⊀ ˘ ѣ retry-value ˚ ˘ ‡ ѝ a ⊀ Â` Æ ѝ ˘ a ˘ ḣ ѝ 1 Â

priority ˙ ⊀ ѕ ћ ⊀ ⊀ è VRRP ˛ ″I ⊀ Â a ˘ ḣ ѝ 10

ð Ô

ą Ю˙ ѣ ⊀ Э í VRRP ╖ Ã ₹ í VRRP ╖ ˘ ⊀ IP ѕ ћ Â

ð Ъ ҳ Ô

⊀

ð G ˛ Ô

⊀ Л Ъ G Ъ ҳ ⊀ ˘ ⊀ ⊀ ĭ Ь ⊀ ⊀ (Routed Port ˘ SVI ˘ Loopback˘ Tunnel) ’ IP ѕ ћ ŭ ⊀ ˘ ¯ ŭ ping Â

ð w R Ô

VRRP Ъ ҳ

فز Ю R è˘ VRRP 1 Routed Port Fa1/1

VRRP Ƒ ɮ

α Ю ˜Ω Â

ð Ƒ ɮ Ô

ð w ᴿ Ô

ƶ Ю ᴿ è˘ ɷ VRRP ˜Ω Â

```
Ruijie# debug vrrp
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr
192.168.201.213
VRRP: Grp 1 Event - Advert higher or equal priority
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state
Master -> Backup
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state
Backup -> Master
Ruijie#
```

ð ˜Ω Ƒ ɮ Ô

```
Ruijie#
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has
invalid virtual address 192.168.1.1
```

52.2.3 debug vrrp events

Ɓ ҳ VRRP Y˅ ٪ è no ٪ ٪Â

debug vrrp events

no debug vrrp events

ð Ô

ɳ Ю VRRP Y˅ ٪Â

ð Ɓ ҳ Ô

ð w ᴿ Ô

Ю ᴿ è˘ ɷ VRRP Y˅ ٪Â

```
Ruijie# debug vrrp events
Ruijie#
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
```

52.2.4 debug vrrp packets

Ɓ ҳ VRRP ˆ ٪ è **no** ٪ ٪Â

debug vrrp packets

no debug vrrp packets

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ɳ Ю VRRP ˆ ٪Â

ð Ɓ ҳ Ô

ð w ᴿ Ô

ƭƭ Ю R è˘ ɷ VRRP ˆ ˜Ω ƭƭ ὲ è ɷ VRRP 1 ˆ ɲ Â

```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
```

ƭƭ Ю R è , ɷ VRRP ˆ ˜Ω ƭƭ ὲ è ɷ VRRP 1 ˆ IP ڪ ڭ Ꭻ ↓ VRRP 1 . ˝I Â

```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr
192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr
192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr
192.168.201.213
```

52.2.5 debug vrrp state

Ъ ҳ VRRP ˜Ω ὲ no

```
Ruijie(config)# interface GigabitEthernet          0
Ruijie(config-if)# no shutdown
Ruijie(config-if)# end
Ruijie#
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state
Master -> Init

Ruijie#
```

52.3

52.3.1 show vrrp

Ƌ ҁ VRRP α Â

show vrrp [**brief** | group]

ð ч Ô

brief ‘ Л ч ˘ VRRP α

group ‘ VRRP Л

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a G Л ч ˘ VRRP α Â

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VRRP α

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

```
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is
120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
Ruijie#
```

VRRP α

```
Ruijie# show vrrp brief
Interface        Grp Pri Time  Own Pre State   Master
addr     Group addr
GigabitEthernet 0/0    1    100    -     -    P   Backup
192.168.201.213 192.168.201.1
GigabitEthernet 0/0    2    120    -     -    P   Master
192.168.201.217 192.168.201.2
Ruijie#
```

ð ΩЪ ч Ô

Ъ ч	
Ruijie(config-if)# **vrrp** group ip ipaddress [**secondary**]	í VRRP ╖ IP ﻫ ﻛ

52.3.2 show vrrp interface

Ъ ч Ɲ Э VRRP α Â

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

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type ' Ɲ ﺵﺥ

number ' Ɲ Ɲ

brief ' Ɲ Ɲ Â G α

ð Ъ ч Ô

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Ю R ﻉ Ль Ɲ E1/0 Э VRRP α

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

ð ‘Ω Ƒ ३ Ô

Ƒ ३	
Ruijie(config-if)# **vrrp** group **ip** ip address [**secondary**]	í VRRP ╖ IP ک ھ

53 MULTI-LDP

53.1

53.1.1 clear multi-ldp

Ī ⁄ UP/DOWN Â

clear multi-ldp

⁄	
-	-

Ъ ३ ⁄

G

R 1˙ ⁄ ℸ Ī UP/DOWN ḣ

```
Ruijie#config
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#clear multi-ldp
```

Ъ ३	
-	-

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10.3(4T90)	Ъ ३

53.1.2 multi-ldp

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no ˜Ω ⊀ ℸ ℸ Â

multi-ldp icmp dest-ip1 [next-hop] [**dns** dest-ip2] [**tcp** dest-ip3 next-hop

MULTI-LDP Ѣ ҳ

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Ѣ ҳ ∖ ⁄ı	⁄ı	
	10.3ˆ 4t90˜	Ѣ ҳ

#0.3

```
192.168.78.1
2010-12-23 09:31:03   50      1       0       8.8.8.8
220.181.112.76:80
```

R 2' **show multi-ldp interface** gigabitEthernet 0/3

```
Interface            State    Retry    UpCnt    ICMP
Next-hop
StartTime            Interval Resume   DownCnt  DNS           TCP
================================================================
===============
GigabitEthernet 0/3   UP      5       1       192.168.198.1
192.168.78.1
2010-12-23 09:31:03   50      1       0       8.8.8.8
220.181.112.76:80
```

Interface	

1 1F… ÚŒA Û1u)Ú

```
2009-12-18 04:37:10    61%
2009-12-18 04:42:10    61%
2009-12-18 04:47:10    61%
2009-12-18 04:52:10    61%
2009-12-18 04:57:10    61%
2009-12-18 05:02:10    61%
2009-12-18 05:07:10    61%
2009-12-18 05:12:10    61%
2009-12-18 05:17:10    61%
2009-12-18 05:22:10    61%
2009-12-18 05:27:10    61%
2009-12-18 13:32:10    61%
2009-12-18 13:37:10    61%
2009-12-18 13:42:10    64%
2009-12-18 13:47:10    64%
2009-12-18 14:02:29    61%
2009-12-18 14:07:29    61%
2009-12-18 14:18:45    61%
2009-12-18 14:23:45    61%
2009-12-18 14:28:45    61%
2009-12-18 14:33:45    61%
2009-12-18 14:38:45    61%
2009-12-18 14:43:45    61%
2009-12-18 14:48:45    61%
2009-12-18 14:53:45    61%
2009-12-18 14:58:45    61%
```

R 2' CPU G q

```
Ruijie#show dev-audit cpu from        0140
Date & Time            CPU
2010-01-14 12:03:16    0%
2010-01-14 12:08:16    0%
2010-01-14 12:13:16    0%
2010-01-14 12:18:16    0%
2010-01-14 12:23:16    0%
2010-01-14 12:28:16    0%
2010-01-14 12:33:16    0%
2010-01-14 12:38:16    0%
2010-01-14 12:43:16    0%
```

```
2010-01-14 12:48:16    0%
2010-01-14 12:53:16    0%
2010-01-14 12:58:16    0%
2010-01-14 13:03:16    0%
2010-01-14 13:08:16    0%
2010-01-14 13:13:16    0%
2010-01-14 13:18:16    0%
2010-01-14 13:23:16    0%
2010-01-14 13:28:16    0%
2010-01-14 13:33:16    0%
2010-01-14 13:38:16    0%
2010-01-14 13:43:16    0%
2010-01-14 13:48:16    0%
2010-01-14 13:53:16    0%
2010-01-14 13:58:16    0%
2010-01-14 14:03:16    0%
2010-01-14 14:08:16    0%
2010-01-14 14:13:16    8%
```

R 3' G α

```
Ruijie#show dev-audit flash from          014
Date & Time                      FLASH(KB)          SATA(MB)
                                 Total Available    Total Available
2010-01-14 01:13:16              523776   470152    163746   163451
2010-01-14 02:13:16              523776   470152    163746   163449
2010-01-14 03:13:16              523776   470152    163746   163448
2010-01-14 04:13:16              523776   470152    163746   163447
2010-01-14 05:13:16              523776   470152    163746   163445
2010-01-14 06:13:16              523776   470152    163746   163444
2010-01-14 07:13:16              523776   470152    163746   163442
2010-01-14 08:13:16              523776   470152    163746   163441
2010-01-14 09:13:16              523776   470152    163746   163439
2010-01-14 10:13:16              523776   470152    163746   163436
2010-01-14 11:13:16              523776   470152    163746   163430
2010-01-14 12:13:16              523776   470152    163746   163421
2010-01-14 13:13:16              523776   470152    163746   163416
2010-01-14 14:13:16              523776   470112    163746   163409
```

Date & Time	à
Memory	ά G
CPU	CPU G
FLASH(KB)	FLASH G ά^ ` Æ' KB˜
SATA(MB)	SATA G ά^ ` Æ' MB˜
Total	
Available	Λ

Ъ ҳ	

55 CPU-LOG

55.1

55.1.1 show cpu

CPU ¯ ə ˘ Ƃ ɂ **show cpu** Â

show cpu

ð ↓ Ô

ð Ô

ð Ƃ ɂ Ô

Â

ð G ˙ Ô

G Ƃ ɂ ʌ Ɲ CPU ¯ ɑ˘ 5 ɑ à 1ƚ ɑ à 5ƚ ɑ CPU ¯ ˘ Ɲ ↓ ə˙ ˆ Ł ƚ ⁞ ƒ 5 ɑ à 1ƚ ɑ à 5ƚ ɑ CPU ¯ ə Â

ð w R Ô

Ю R **show cpu** У э Â

```
Ruijie# show cpu
=====================================
    CPU Using Rate Information
CPU utilization in five seconds: 25%
CPU utilization in one minute  : 20%
CPU utilization in five minutes: 10%
  NO   5Sec   1Min   5Min   Process
  0     0%     0%     0%    LISR INT
  1     7%     2%     1%    HISR INT
  2     0%     0%     0%    ktimer
  3     0%     0%     0%    atimer
  4     0%     0%     0%    printk_task
  5     0%     0%     0%    waitqueue_process
  6     0%     0%     0%    tasklet_task
```

7	0%	0%	0%	kevents
8	0%	0%	0%	snmpd
9	0%	0%	0%	snmp_trapd
10	0%	0%	0%	mtdblock
11	0%	0%	0%	gc_task
12	0%	0%	0%	Context
13	0%	0%	0%	kswapd
14	0%	0%	0%	bdflush
15	0%	0%	0%	kupdate
16	0%	3%	1%	ll_mt
17	0%	0%	0%	ll main process
18	0%	0%	0%	bridge_relay
19	0%	0%	0%	d1x_task
20	0%	0%	0%	secu_policy_task
21	0%	0%	0%	dhcpa_task
22	0%	0%	0%	dhcpsnp_task
23	0%	0%	0%	igmp_snp
24	0%	0%	0%	mstp_event
25	0%	0%	0%	GVRP_EVENT
26	0%	0%	0%	rldp_task
27	0%	2%	1%	rerp_task
28	0%	0%	0%	reup_event_handler
29	0%	0%	0%	tpp_task
30	0%	0%	0%	ip6timer
31	0%	0%	0%	rtadvd
32	0%	0%	0%	tnet6
33	2%	0%	0%	tnet
34	0%	0%	0%	Tarptime
35	0%	0%	0%	gra_arp
36	0%	0%	0%	Ttcptimer
37	8%	1%	0%	ef_res
38	0%	0%	0%	ef_rcv_msg
39	0%	0%	0%	ef_inconsistent_daemon
40	0%	0%	0%	ip6_tunnel_rcv_pkt
41	0%	0%	0%	res6t
42	0%	0%	0%	tunrt6
43	0%	0%	0%	ef6_rcv_msg
44	0%	0%	0%	ef6_inconsistent_daemon
45	0%	0%	0%	imid
46	0%	0%	0%	nsmd
47	0%	0%	0%	ripd
48	0%	0%	0%	ripngd
49	0%	0%	0%	ospfd
50	0%	0%	0%	ospf6d

```
51    0%    0%    0%    bgpd
52    0%    0%    0%    pimd
53    0%    0%    0%    pim6d
54    0%    0%    0%    pdmd
55    0%    0%    0%    dvmrpd
56    0%    0%    0%    vty_connect
57    0%    0%    0%    aaa_task
58    0%    0%    0%    Tlogtrap
59    0%    0%    0%    dhcp6c
60    0%    0%    0%    sntp_recv_task
61    0%    0%    0%    ntp_task
62    0%    0%    0%    sla_deamon
63    0%    3%    1%    track_daemon
64    0%    0%    0%    pbr_guard
65    0%    0%    0%    vrrpd
66    0%    0%    0%    psnpd
67    0%    0%    0%    igsnpd
68    0%    0%    0%    coa_recv
69    0%    0%    0%    co_oper
70    0%    0%    0%    co_mac
71    0%    0%    0%    radius_task
72    0%    0%    0%    tac+_acct_task
73    0%    0%    0%    tac+_task
74    0%    0%    0%    dhcpd_task
75    0%    0%    0%    dhcps_task
76    0%    0%    0%    dhcpping_task
77    0%    0%    0%    dhcpc_task
78    0%    0%    0%    uart_debug_file_task
79    0%    0%    0%    ssp_init_task
80    0%    0%    0%    rl_listen
81    0%    0%    0%    ikl_msg_operate_thread
82    0%    0%    0%    bcmDPC
83    0%    0%    0%    bcmL2X.0
84    3%    3%    3%    bcmL2X.0
85    0%    0%    0%    bcmCNTR.0
86    0%    0%    0%    bcmTX
87    0%    0%    0%    bcmXGS3AsyncTX
88    0%    2%    1%    bcmLINK.0
89    0%    0%    0%    bcmRX
90    0%    0%    0%    mngpkt_rcv_thread
91    0%    0%    0%    mngpkt_recycle_thread
92    0%    0%    0%    stack_task
93    0%    0%    0%    stack_disc_task
94    0%    0%    0%    redun_sync_task
```

```
 95     0%     0%     0%    conf_dispatch_task
 96     0%     0%     0%    devprob_task
 97     0%     0%     0%    rdp_snd_thread
 98     0%     0%     0%    rdp_rcv_thread
 99     0%     0%     0%    rdp_slot_change_thread
100     4%     2%     1%    datapkt_rcv_thread
101     0%     0%     0%    keepalive_link_notify
102     0%     0%     0%    rerp_msg_recv_thread
103     0%     0%     0%    ip_scan_guard_task
104     0%     0%     0%    ssp_ipmc_hit_task
105     0%     0%     0%    ssp_ipmc_trap_task
106     0%     0%     0%    hw_err_snd_task
107     0%     0%     0%    rerp_packet_send_task
108     0%     0%     0%    idle_vlan_proc_thread
109     0%     0%     0%    cmic_pause_detect
110     1%     1%     1%    stat_get_and_send
111     0%     1%     0%    rl_con
112    75%    80%    90%    idle
```

ѫ Э " è˘ 3 ↑ ⁞ ѫ 5 à 1↑ à 5↑
ą CPU ¯ ąˆ ˆ LISR à HISR n˙ Ł˜ ÂЮ ‡ é ε CPU ¯
↑ ą Â è è˘ У " ů ЬЖ Ю˙

No˙ ⁄

5Sec˙ У · Ł 5 ą CPU ¯

1Min˙ У · Ł 1↑ ą CPU ¯

5Min˙ У · Ł 5↑ ą CPU ¯

ɱ 2 ˘ ↑ ⁞ LISR CPU ¯ n HISR CPU

high_num CPU ¯ Ñ

ð Ô

ą Ю й 100%˜ æ й 90% Â

ð Ð ¢ Ô

ώ Â

ð G ' Ô

G Ð ¢ Л Ъ CPU ¯ ę Ñ æ ˇ CPU ¯
ą Ю Ñ ę ˇ CPU ¯ ¥ Ñ , Л Ñ У ę
' CPU ¯ æ ¥ Ñ æ ł , Ñ ę , Ъ m CPU ¯ Ю
ˇ ę Л ж CPU ¯ ¥ Ї й æ ¥ æ Ñ Â

ð w R Ô

Ю R CPU ¯ Ñ æ й 70%˜ CPU ¯ Ñ
й 80% Â

```
ruijie(config)# cpu-log log-limit 80
```

CPU ¯ ¥ 80% Ю ę ‘

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU utilization in
one minute : 95%ˇ Using most cpu's task is ktimer : 94%
```

CPU ¯ æ ¥ 70% Ю ę ‘

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute :68%ˇ Using most cpu's task
is ktimer : 60%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: The CPU
using rate has down!
```

55.1.3 show environment

ę ˇ ^ ‘ CPU

Â

ð G ' Ô

G Ъ ҷ Л Љ ą ˘ ^ CPU ɱ ˘ ŭ ˘
α˘ ŭ ɔ Â

ð w R Ô

Ю R **show environment** У э Â

```
Ruijie# show environment
---environment information---
CPU Temperature is 30
fan works in high speed mode.

FAN 1 is OK!
FAN 2 is OK!
FAN 3 is OK!
FAN 4 is OK!

POWER 1 is present!
POWER 1 power on successfully!
POWER 2 is not present!
```

ѫ Э " è˘ Л ą ' CPU ѝ 30 ˘ Ұ
˘ ǫ ت э ڧ ˘ ѫ У э ˘ з ɔ˘ Ы У э
a ѫ Æ^ Л ĺ ~ Â

G

w R

R 1' M1 CPU ¯ Â

```
Ruijie# show threshold cpu M1
```

R 2' ж ⊀ Ц ¤ ¯ Â

```
Ruijie# show threshold memory
```

ʹΩƂ ҳ

Ƃ ҳ	
threshold set	Ƃ ҳ

⊀

Ƃ ҳ \ ⊀

⊀	
10.3(4b3)	Ƃ ҳ

57

57.1

57.1.1 show memory

ɱ ф G ɑ ə ˘ Ъ ҳ **show memory** Â

show memory

ð ↓ Ô

ð Ô

ð Ъ ҳ Ô

Â

ð G ˙ Ô

G Ъ ҳ Л Л ɯ ɱ ф ɲ ф G ɑ˘ ˆ ф ˘ Л ɯ ↓ ɱ à ф Â

ð w R Ô

Ю R **show memory** У э Â

```
Ruijie#show memory
System Memory Statistic:
  Free pages: 1079
    watermarks : min 379, lower 758, low 1137, high 1516
  System Total Memory : 128MB, Current Free Memory : 5283KB
  Used Rate : 96%
```

Э è ə ˆ ǖ Ю ύ э ǂ ˙

1. Л ф э ˘ У э ф и 4k ф Â

2. ф h˘ Ю и Л ф Ж˙

min	ф a ˘ Θ ف ф ˘ ǂ ˘ Э يم a Л Â

lower	ф ш a ˘ ĺ ˘ У э Э ˜ ╟ ˘ ф Â ˜ ⁸ ↓ memory-lack exit-policy Ъ ҳ Â
low	ф a ˘ ĺ ˘ Э ˜ ώ OVERFLOW ˘ Ю a Ą ˉ Â ф a ˘ ⁸ л a ĭ Ъ ҳ Â
high	ф Ί ˘ Лъ Э˘ ф Ί ˘ ل ˜ ÿ OVERFLOW ĺ Â

3. ф ˘ ṃ л ф ˘ Лъ ↓ ф G Â

57.1.2 memory-lack exit-policy

Ъ ҳ ф ĺ worsen ǯ ł˘ Э ˜ ˘ Э ˜
^ BGP à OSPF à RIP à PIM-SM Â

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

no memory-lack exit-policy

ò ↓ Ô

↓	
bgp|ospf|pim-sm|rip	˜ й BGP OSPF PIM RIP Â
no	G й Â

ò ą Ô

й ф . ˜ Â

ò Ъ ҳ Ô

ŏ

ò G Ô

ф ĺ lower (G show memory Ъ ҳ л Лъ lower й Â) й ć
è ˜ ˘ ˷Ω У э ˜ ˘ ф Â
ı Ҫ ˜ ѓ è ў н ┖ ж ф a ąЮ ˷Ω У э
a ˜ ˘ Лъ ғ ж ąЮ ć ў н ┖ Â
è BGP ˉ б н ┖ ˷Ω ‡ л Лъ ф a
й bgp Â
Ұ í ˜ ˘ й. ˝I ˜ ˘ a ╠
ф Â

ѓ Θ Θ У Э ć ф a н
┖ ф У ˘ ˜ ṃ Â ˜
ł ж ч ǯ ł í ╟ Â

LDP	20000000
Total	206000000

ò ‰ ¢ Ô

¢	
show memory	ˆ˜ G ª˜

ò ¯ Ô

-

ò ¢ ¸ ¯ Ô

¯	
10.3(4b3)	¢

58 SATA

58.1

58.1.1 show sata

SATA ˜Ω ą Â

show sata

˧	
sata	sata ˜Ω ą Â

Ƃ ҳ

G statistic ˜Ω Ь ˧Э ą Â
Ь ˧¨ ˇ Лъ Ь ˧Э p ą Â

w R

```
Ruijie#show sata
Vendor: ST9250315AS
    Disk Partitions:
    c: /dev/sata/disc0/part5 --> /mnt/sata/c
    size : 34356962304B(31G)
    d: /dev/sata/disc0/part6 --> /mnt/sata/d
    size : 34356962304B(31G)
    e: /dev/sata/disc0/part7 --> /mnt/sata/e
    size : 34356962304B(31G)
    f: /dev/sata/disc0/part8 --> /mnt/sata/f
    size : 34356962304B(31G)
    g: /dev/sata/disc0/part9 --> /mnt/sata/g
    size : 34356962304B(31G)
    h: /dev/sata/disc0/part10 --> /mnt/sata/h
    size : 34356962304B(31G)
    i: /dev/sata/disc0/part11 --> /mnt/sata/i
    size : 34356962304B(31G)
    j: /dev/sata/disc0/part12 --> /mnt/sata/j
    size : 9549517824B(8G)
```

Total 274721406976 bytes (261994MB) in this device, 265138470912 bytes (252855MB) available.

ЎΩЪ ҳ

Ъ ҳ	
-	-

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ﻓ 10.3(4b7)Лъ ↓ ǰ ɨ è˘ EG “ ң ث Â

Ъ ҳ ↘ ﾉ

ﾉ	
10.3(4b7)	Ъ ҳ

1 F… ÚÜ5%4°1u)Ú

59

59.1

59.1.1 logging on

ĭ ą ж a˚ Э ˘ G ŏ Ƃ ҳ Â ą ˘
G Ƃ ҳ no Â

logging on

no logging on

ð ↓ Ô

↓

ð Ô

ĭ ą ж a˚ Э Â

ð Ƃ ҳ Ô

ŏ

ð G ˚ Ô

RGOS a Θ Л Ћ ą ж Console ↓ à VTY ↓ Э˘ ≠ Л Ћ ą
ж a˚ Э˙ ǫ̈ ă ↖ à FLASH à Syslog Server Â Ƃ ҳ й
ˇΩ˝ ˇΩ ˇΩ˝ ą a ˘ ɷ ш ⁞ й ¥
1 Log Â

ð w R Ô

Ю R ж Э ˇΩ ˇΩ˙

```
Ruijie(config)# no logging on
```

ð ˇΩƂ ҳ Ô

Ƃ ҳ	
logging buffered	ą ⁞ ǫ̈ ă ↖
logging	ą ↑ Syslog Server
logging file flash:	ą ж FLASH Э

logging console	ї ъф ⁸ Л Э ф ⋮
logging monitor	ї ъф VTY Л (telnet Л) Э ф ⋮
logging trap	ї Л Syslog Server ф ⋮

59.1.2 terminal monitor

Ъ ч ї ъф м VTY Л Э ф Â ЋΩ ъф м VTY Л Э ф ˘ G Ъ ч no Â

terminal monitor

terminal no monitor

ð Ô

ąЮ ъф VTY Л Э a ї ъф VTY Л Э ф Â

ð Ъ ч Ô

ð G ' Ô

Ъ ч Л м VTY ї Â ↄ ѝ ї ˘ a˛ Ћ ф Âъф VTY ˛ ł˘ ї Â

ѝ ѓ ғ ˘ RGOS ї ъф ⁸ Л Э G Ъ ч Âъф ⁸ Л Э Ъ ч no , Л ї ш ⋮ ѝ Ơ 1 Â

ð w R Ô

Ю R˘ м VTY Л ї ~ ф Â

```
Ruijie# terminal monitor
Ruijie#
```

59.1.3 logging buffered

ф ӧ ă ѵ Л ^ ф ш à ă ѵ ~ ˘ ъф ѽ Ъ ч Â Ъ ч no ъф ӧ ă ѵ è ф Â

logging buffered [buffer-size | level]

no logging buffered

ð ↓ Ô

buffer-size ' ă Ҝ ˘ ↓ h ز ÿ 4K↑ 128K Bytes Â

levelI ' ą ш ˘ ÿ 0↑ 7 Â Л Ъ G ⁞ ¨ ˘ ≠ Л Ъ G Â

ð Ô

ă Ҝ й 4k Bytes Â

ą ш й 7 Â

ð Ƀ ҳ Ô

ѽ

ð G ' Ô

ӫ ă Ҝ G ˘ ӫ Ҝ ӈ ˘ ‡ ą
Â ӫ ă Ҝ ą ˘ G Ƀ ҳ **show logging Â**

ӫ ă Ҝ è ą ï ˘ Í Ƀ ҳ clear logging˘ ă Ҝ è ą Â ˘ ӈ↑ FLASH ↓ Syslog Server Â

RGOS ą ↑ й ЪЮ 8 э ⁞'

1

ٹΩ		
Emergencies	0	ɑ˘ a
Alerts	1	¨ ↓
Critical	2	ɑ
Errors	3	ą
warnings	4	ƾ ą
Notifications	5	ڜ˘ a ٹΩ ą
informational	6	ą
Debugging	7	ą

ḣ ˘ ⁞ ˘ ¨ 0 ⁞ ą ⁞ ą Â

ĭ ą ⁞ Л Ъ ɨ˘ ɣ æ ɣ ḣ ⁞ ą
ĭ Â

ð w R Ô

Ю R Л ї ⁞ и 6 Лъ ч æ ¥ 6 ą ж и 10000 ¤ ă Ъ è ˙

Ruijie(config)# logging buffered 06

ð Ω Ъ ч Ô

Ъ ч	
logging on	Ω
show logging	ă Ъ è
clear logging	ă Ъ è

59.1.4 logging server

˛ **Syslog Sever** ж ő Ю G Ъ ч Â ˝

Syslog server " è м н **Syslog Server** G Ъ ч no Â

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

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

ð ч Ô

ip-address ą ў IP м н ’

vrf vrf-name ˛ ў VRF VPN Л ~ R ’

ipv6 ipv6-address ą ў IPV6 м н ’

ð Ô

a ă ˙ ¦ syslog server Л ą

ð Ъ ч Ô

ő

ð G ’ Ô

Ъ ч У э Syslog server ą Â RGOS ї 5 э Syslog Server Â ą ˇ Л Syslog Server Â

ð w R Ô

Ю R У э м н й 202.101.11.1 syslog server

Ruijie(config)# logging server 0

Ю R У э IPV6 ك ھ й AAAA:BBBB::FFFF

```
Ruijie(config)#
```

э ˚ 8˘ ə ƶƒ ĵ ώ У э ˚ Ǯ ɱ˘ " è
˚ ˘ ‡ˈ
˚
1. ˚ ˘ ‡ … У э ˚
2. ˚ ¨ ƶƒ ч ˚ ¨ è ώ л˘ йˈ ˚ ¨ _ л˘ ł Ÿ txtˇ
3. л й 15˜ ĵ ˘ ‡ У э ˚ Â ƫ ˘ У
ə ĵ FLASH Ъ ч˘ ˚ ƶƒ FLASH è 16 э ˚ ’

ð w R Ô

Ю R ə ƶƒ FLASH è˘ ˚ ¨ й trace.txtˇ ˚ й 64K,
ə ⁞ й 6Â

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

ð ˜ΩЪ ч Ô

Ъ ч	
logging on	˜Ω
show logging	ă ˙ è ˘ Лъ ↓ ˜Ω ч
more flash	FLASH è ə

59.1.6 logging console

ĭ ƶƒ 8 л Э ə ⁞˘ ƶƒ ŏ Ю Ъ ч Â
Ъ ч no ƶƒ 8 л Э ˜ Â

logging console level

no logging console

ð ч Ô

level ˈ ш ˘ ƫ ÿ 0ĵ 7Â л Лъ G ⁞¨ ˘ ≠ л Лъ G
Â ˜Ω ɣ ə ш ˘ ч 1Â

ð Ô

Debugging (7)

ð Ъ ч Ô

ŏ

ð G ˚ Ô

У э ш Лъ ы˘ ж ḣ Э ц æ ц ш ⁞
ж ⁸ л Э Â

show logging Ъ ч л Лъ ˇΩ ч n Â

ð w ᴿ Ô

Ю ᴿ ї ж ⁸ л ą ⁞ и б˝

Ruijie(config)# logging console informational

ð ˇΩЪ ч Ô

Ъ ч	
logging on	ˇΩ
show logging	ă ˂ è ˘ Лъ ч ˇΩ ч

59.1.7 logging monitor

ї ж VTY л^ telnet л à SSH л ˜ Э ą ⁞˘
ж ŏ Ю Ъ ч Â Ъ ч no ж VTY л Э ˜ Â

logging monitor level

no logging monitor

ð ч Ô

level ‘ ш Â л Лъ ᴳ ⁞¨ ˘ ≠ л Лъ ᴳ Â ˇΩ ц
ą ш ˘ ч 1 Â

ð Ô

Debugging (7)

ð Ъ ч Ô

ŏ

ð ᴳ ’ Ô

ж VTY л Э ˜ ą ˘ ˝I Ъ ч **terminal monitor** ї ж
м VTY л ˜ ą Â ї ą ⁞ ‡ **logging monitor**
Нж Â

Logging monitor Нж ą ⁞ VTY л Â

ð w ᴿ Ô

Ю ᴿ ї ж VTY л Э ˜ ą ⁞ и б˝

Ruijie(config)# logging monitor informational

ð ЎΩЪ ч Ô

Ъ ч

logging on	ˇΩ
logging	ə ʌ Syslog Server
show logging	ă ʏ è ˘ Лъ ɹ ˇΩ ʌ

59.1.9 logging source interface

ɹˇ ɟф ŏ Ю Ъ ъ Â Ъ ъ no ʌ ɹ Â

logging source interface interface-type interface-number

no logging source interface

ð ʌ Ô

interface-type ˙ ɹ ɺɺ

interface-number ˙ ɹ ɻ

ð Ô

ð Ъ ъ Ô

ŏ

ð G ˚ Ô

ɑ Ю ʌ Syslog Server ѕ ћ ʌ ɹ ѕ ћ Â й ɷ ɾ Ɣ ˘ ɻ Лъ G Ъ ъ ѕ ћ из ћ ѕ й э ɹ ѕ ћ˘ Ш ڈ У ѕ ћ ⋮ ÿ ı ɻ ʌ Â

ð w R Ô

Ю R Loopback 0 ѕ ћ й Syslog ѕ ћ˙

Ruijie(config)# logging source interface loopback 0

ð ˇΩЪ ъ Ô

Ъ ъ	
logging	ə ʌ Syslog Server

59.1.10 logging source ip| ipv6

ѫ ѭ˘ ѯ ѽ Ю Ъ ъ Â Ъ ъ no ѧ
ѧ Â

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

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

ѽ ѧ Ô

ip-address ѓ IPV4 ў ѧ IPV4 ѫ ѭ'

ipv6-address ѓ IPV6 ў ѧ IPV6 ѫ ѭ'

ѽ Ô

ѽ Ъ ъ Ô

ѽ

ѽ G ' Ô

ц Ю˘ ѧ Syslog Server ѫ ѭ ѧ ѧ ѫ ѭ Â ѝ
ѻ ѳ Ѵ ˘ Ѧ Ѫ G Ъ ъ ѫ ѭ ѩ ѝ э ѫ ѭ˘
Ц Ѫ У ѫ ѭ ⋮ ÿ ѵ Ѧ ѧ Â

ѽ w R Ô

Ю R Loopback 0 ѫ ѭ ѝ Syslog ѫ ѭ'

Ruijie(config)# logging source ip

ѽ Ѿ Ъ ъ Ô

Ъ ъ	
logging	ѧ Syslog server

Ï,úÎ Œ rQ "2ÂÁaŸŠÁBFa Ð@Ñ@-`

Local7(23)

ð Ъ ҳ Ô

ώ

ð ᴳ ˙ Ô

Ю ˆ 2˜ Syslog /l ḣ‘

2

Numerical Code	Facility
0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslogd
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon
10	security/authorization messages
11	FTP daemon
12	NTP subsystem
13	log audit
14	log alert
15	clock daemon
16	local use 0 (local0)
17	local use 1 (local1)
18	local use 2 (local2)
19	local use 3 (local3)
20	local use 4 (local4)
21	local use 5 (local5)

22	local use 6 (local6)
23	local use 7 (local7)

RGOS ḣ ẏ (local7) 23 Â

ð w ᴿ Ô

Ю Syslog ḣ ẏ kernel

```
Ruijie(config)# logging facility kern
```

ð Ѿ Ъ ч Ô

Ъ ч	
logging console	ĭ ż ⁸ ⁄ Э ə ⋮

59.1.12 logging count

ℸ ˘ ż ŏ Ю Ъ ч Â Ѿ
ℸ ˘ ᴳ Ъ ч no Â

logging count

no logging count

ð ⊀ Ô

⊀

ð Ô

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ð Ъ ч Ô

ŏ

ð ᴳ ˙ Ô

Ъ ч ℸ Â ÿ Ъ ч Â **no logging count**
Ъ ч ˘ ℸ Ѿ ˘ ɜ Â

ð w ᴿ Ô

ℸ ˙

```
Ruijie(config)# logging count
```

ð Ѿ Ъ ч Ô

Ъ ҳ	

Ъ ҳ Â ˜Ω ⁸ ╖ ˇ ⁸ ⁸ ╖ ˛˘ ǐ G Ъ ҳ ą nð ›Âŏ Ю

logging rate-limit {number | all number | console {number | all number

show running-config	ф

59.1.15 service sequence-numbers

ъй ф è ю no ы
ъй ф è ы Â

service sequence-numbers

no service sequence-numbers

ð ы Ô

ð Ô

ф è a ы Â

ð Ъ ч Ô

ŏ

ð G ' Ô

ѓ ъй ф è ю 1
Â ю
″I ł Â

ð w R Ô

ņ

Ruijie(config)# service sequence-numbers

ð ″Ω Ъ ч Ô

Ъ ч	
logging on	″Ω
service timestamps	ĺ ф è

59.1.16 service timestamps

ъй ф è ю no
ы ъй ф è ў default ф й
ḣ Â

service timestamps message-type [uptime | datetime [msec | year]]

no service timestamps message-type

default service timestamps message-type

ð ч Ô

message-type ‘ ҷ ч log ҧ debug Âlog ҽ ҩ ш ⁞ ҩ 0 ‘ 6 ҙ ҽ ˘ debug ҽ ш ⁞ ѝ 7 ҽ Â

uptime ‘ í ╠ ˘ ‘ * * *¶ * ˘ R‘ 07:00:10:41

datetime ‘ ɱ ˘ ‘ ‘ ¶ ‘ ˘ R‘ Jul 27 16:53:07

msec ɱ ˘ ‘ :¶ : . R‘ Jul 27 16:53:07.299

year ɱ ` ˘ ‘ :¶ : R‘ 2007 Jul 27 16:53:07

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ÄC2_0 1 Tf0 Tc [<152708213.662D61527>-45DD4E4DC8180702C8>101D061448>]A11503>]T

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logging on	ʕΩ
show logging	ă ʖ è
logging buffered	ə ˆ ą ă ʖ

59.2

59.2.1 show logging

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show logging

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Ю ᴿ **show logging** У ɜ

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
Sequence log messages: enable
Trap logging: level debugging, 2 message lines logged,0
reserved,0 fail
logging to 202.101.11.22
logging to 192.168.200.112
Log Buffer (Total 4096 Bytes) : have written 680
00001 2004-11-17 10:20:59 Ruijie: %7:%LINK CHANGED: Interface
GigabitEthernet 0/0, changed state to up
00002 2004-11-17 10:20:59 Ruijie: %7:%LINE PROTOCOL CHANGE:
Interface GigabitEthernet 0/0, changed state to UP
```

```
00003 2004-11-17 10:57:18  Ruijie: %7:%LINK CHANGED: Interface
GigabitEthernet 0/1, changed state to administratively down
00004 2004-11-17 10:57:21  Ruijie: %7:%LINK CHANGED: Interface
GigabitEthernet 0/1, changed state to down
00005 2004-11-17 10:57:41  Ruijie: %7:%LINK CHANGED: Interface
GigabitEthernet 0/1, changed state to administratively down
00006 2004-11-17 10:57:43  Ruijie: %7:%LINK CHANGED: Interface
GigabitEthernet 0/1, changed state to down
```

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Syslog logging

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60 RLOG

60.1

60.1.1 rlog export-rate

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rlog export-rate number

no rlog export-rate

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number	Ь ^ Ч э ~

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Ruijie(config)# rlog export-rate 0

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60.1.2 rlog filter

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rlog filter number

no rlog filter

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number	ᵧ ACL ⁄⅃

a ̃Ω ACL

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```
Ruijie(config)# rlog filter 0
```

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60.1.3 rlog server

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rlog server server-ip [**vrf** vrf-name | **oob**] [**port** port-num]

no rlog server server-ip

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ₓ⅃	
server-ip	⊑ ێٶ ک ۿ
vrf-name	VRF̈

port-num	

	udp
	20000
	Ruijie(config)# rlog server port

-	-

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

60.1.4 rlog type

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

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

n	
server-ip	ip
prio	

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w R R 1‘ Ю í ⅄ ╖ ‘

```
Ruijie(config)# rlog type 2server 9 priority 5
```

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Ruijie(config)# nat-log enable

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60.1.6 ip nat-log on

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ip nat-log on

no ip nat-log on

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ip nat-log o

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60.2

show rlog

show rlog-type

show rlog-status

show nat-log

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60.2.2 **show rlog-type**

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Show rlog-type

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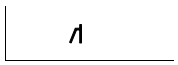
```
Ruijie#show rlog-type
XLOG_TYPE_FLOW              16
XLOG_TYPE_CPU_MEM           17
XLOG_TYPE_DISC              18
XLOG_TYPE_DEV_LOG           19
XLOG_TYPE_URL_AUDIT         20
XLOG_TYPE_SESSION           21
XLOG_TYPE_IP_APP            22
XLOG_TYPE_IP                23
XLOG_TYPE_CHANNEL           24
XLOG_TYPE_INTERFACE         25
XLOG_TYPE_IP_OFFLINE        26
```

W R

XLOG_TYPE_MAIL_AUDIT 27
XLOG_TYPE_TELNET_AUDIT 28
XLOG_TYPE_WEB_SEARCH_AUDIT 29
XLOG_TYPE_WEB_BBS_AUDIT 30
XLOG_TYPE_IM_AUDIT 31
XLOG_TYPE_FTP_AUDIT 32
XLOG_TYPE_WEB_AUDIT 33

-	-

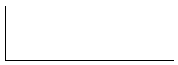


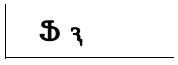
10.3(4T76)	

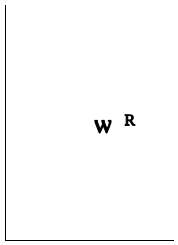
60.2.3 **show rlog-status**

Show rlog-status server server-ip

Server-ip	







```
Ruijie(config)#show rlog-s server 192.168.195.52
server:192.168.195.52
type                        status    prio
XLOG_TYPE_FLOW                off
```

```
XLOG_TYPE_CPU_MEM          off
XLOG_TYPE_DISC             off
XLOG_TYPE_DEV_LOG          off
XLOG_TYPE_URL_AUDIT        off
XLOG_TYPE_SESSION          off
XLOG_TYPE_IP_APP           off
XLOG_TYPE_IP               off
XLOG_TYPE_CHANNEL          off
XLOG_TYPE_INTERFACE        off
XLOG_TYPE_IP_OFFLINE       off
XLOG_TYPE_MAIL_AUDIT       off
XLOG_TYPE_TELNET_AUDIT     on      1
XLOG_TYPE_WEB_SEARCH_AUDIT  off
XLOG_TYPE_WEB_BBS_AUDIT    off
XLOG_TYPE_IM_AUDIT         off
XLOG_TYPE_FTP_AUDIT        off
XLOG_TYPE_WEB_AUDIT        off
```

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	10.3(4T76)	Ъ ३

60.2.4 **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

ヽ	ヽ	

user_name	‥
ip-protocol	~ ⁄
source-ip	ip
dst-ip	ip
src-port	⁄
dst-port	⁄
begin-year	
begin-mon	
begin-day	
begin-hour	
end-year	
end-mon	
end-day	
end-hour	

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G Ъ ҷ ұ У ά /NAT ; ˇ ⁄ Л Ъ ‥ ˇ ~ ⁄ ˇ ip ˇ ip ˇ ⁄ ˇ ⁄ ’

R 1 ‘ Ю R 2010 10 6 ⁄ 3 ⁆ 5

```
Ruijie#show nat-log time-interval 2010 10 6 3 t 2010 10 6 5
count:427
Pr    SrcAddr                                          DstAddr
UserName
SrcPort     DstPort     Vrf       SendBytes  RecvBytes  time
17   192.168.122.62 (0.0.0.0)          192.168.122.255(0.0.0.0)
192.168.122.62
138  (0)     138  (0)     0         2028       0          2010-10-6
3:1
17   192.168.100.55 (0.0.0.0)          192.168.100.255(0.0.0.0)
192.168.100.55
138  (0)     138  (0)     0         732        0          2010-10-6
3:1
17   192.168.122.54 (0.0.0.0)          192.168.122.255(0.0.0.0)
```

w R

192.168.122.54
137 (0) 137 (0) 0 864 0 2010-10-6 3:1
17 192.168.195.55 192.168.195.255 192.168.195.55
138 138 0 705 0 2010-10-6 3:1
6 192.168.7.92 (0.0.0.0) 113.105.146.82 (0.0.0.0) 192.168.7.92
35942(0) 80 (0) 0 192 0 2010-10-6 3:2
17 192.168.122.54 (0.0.0.0) 192.168.122.255(0.0.0.0) 192.168.122.54
137 (0) 137 (0) 0 1386 0 2010-10-6 3:2
17 192.168.7.92 (0.0.0.0) 202.104.241.3 (0.0.0.0) 192.168.7.92
13528(0) 8000 (0) 0 97 0 2010-10-6 3:2
17 192.168.195.202 192.168.195.255 192.168.195.202
138 138 0 774 0 2010-10-6 3:3
17 192.168.7.97 (0.0.0.0) 192.168.7.255 (0.0.0.0) 192.168.7.97
138 (0) 138 (0) 0 732 0 2010-10-6 3:3
17 192.168.2.164 (0.0.0.0) 192.168.2.255 (0.0.0.0) 192.168.2.164
138 (0) 138 (0) 0 714 0 2010-10-6 3:3

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10.3(4T76)	

61 SNMP

61.1

61.1.1 no snmp-server

SNMP ҳ ╖ ˘ ŏ Ъ ҳ **no snmp-server** Â

no snmp-server

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SNMP ҳ ╖

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ð w R Ô

Ю R SNMP ҳ Ь‘

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

61.1.2 snmp-server chassis-id

SNMP ‟ ⊿˘ ŏ Ъ ҳ **snmp-server chassis-id** Â
Ъ ҳ no ч й˥ ḣ Â

snmp-server chassis-id text

no snmp-server chassis-id

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text ‘ ‟ ⊿ ˘ ⊿ Л Ъ G Â

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‟ ⊿ ḣ 60FF60

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Ž Ω SNMP ¢ ¶ ˘ **no snmp-server** Ð ¢ ¯ Ä Â

ð w ᴿ Ô

Ю ᴿ G ‟ ⁸ MIB ˘ Ä ĭ ﻛ ﻣ ù 192.168.12.1 NMS MIB ‘

```
Ruijie(config)# access-list 2permit 
Ruijie(config)# access-list 2deny any
Ruijie(config)# snmp-server community public rost
```

61.1.5 snmp-server enable traps

í SNMP ў ╟ NMS ∧ Trap ˘ ɣ ъ у ҷ Y ˚ ∧
˘ ŏ Ъ ҳ **snmp-server enable traps**s Â Ъ ҳ no SNMP
ӑ NMS ў ╟ ∧ Trap Â

snmp-server enable traps [**snmp**]

no snmp-server enable traps SNMP

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snmp ‘ í SNMP Y ˚ Â

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ð G ’ Ô

Ъ ҳ б ŏ Ъ ҳ **snmp-server** у G ˘ ∧ Â

ð w R Ô

Ю R í ў ╟ ∧ SNMP Y ˚ ‘

```
Ruijie(config)# snmp-server enable traps snmp
Ruijie(config)# snmp-server host 8 public snmp
```

ð ΏЪ ҳ Ô

Ъ ҳ	
snmp-server host	SNMP ў

61.1.6 snmp-server host

∧ SNMP ў ^ NMS˜ ˘ ŏ Ъ ҳ **snmp-server**

ð ۴ Ô

host-addr ʿ SNMP ў ھ ک

ipv6-addr ʿ SNMP ў ھ ک ^ ipv6˜

vrfname ʿ vrf ۸ ¨

version ʿ snmp ˘ V1 ã V2C ã V3

auth | **noauth** | **priv** ʿ V3 ő ⁞ Â

community-string ʿ ش E s ¨ ^ V3 ˜ Â

port-num ʿ snmp ў ۷

notification-type ʿ ў ╟ ۸ خ ˘ R snmp Â

SNMP Æ ə ˘ ώ Ƒ ३ **snmp-server location** Â
Ƒ ३ no ४ SNMP Æ ə Â

snmp-server location text

no snmp-server location

ð ४ Ô

text ˋ ə s Â

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ə y Ò t

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Ю ᴿ SNMP ˆ й 1492˝

Ruijie(config)# snmp-server packetsize 9

ð ˝Ω Ъ ҳ Ô

Ъ ҳ	
snmp-server queue-length	SNMP “

61.1.9 snmp-server queue-length

“ ˘ ŏ Ъ ҳ **snmp-server queue-length** Â

snmp-server queue-length length

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length ‘ “ ˘ ÿ 1↑ 1000 Â

ð Ô

10

ð Ъ ҳ Ô

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ð ᴳ ’ Ô

“ Ұ ˘ Л Љ Ъ ҳ “ ⁸ Ν Â

Ν й 4 э Â

í SNMP ╖ ˘ ŏ Ъ ч **snmp-server system-shutdown** Â Ъ ч no ∧ ˜Ω SNMP ╖ Â

snmp-server system-shutdown

no snmp-server system-shutdown

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˜Ω SNMP ╖

ð Ъ ч Ô

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ᴳ Ъ ч í SNMP ╖ ˘ RGOS ˛ ƒ reload/reboot Лъ ḿ NMS ∧ Â

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Ю ᴿ í SNMP ╖ ˙

Ruijie(config)# snmp-server system-shutdown

61.1.11 snmp-server trap-source

SNMP ◚ ◛˘ ŏ Ъ ч **snmp-server trap-source** Â Ъ ч no Â

snmp-server trap-source interface

no snmp-server trap-source

ð ∧ Ô

interface ˙ ч ↄ й SNMP ◚ ◛ ∧

ð Ô

SNMP ÿ ∖ э ∧ ∧˘ ᴳ ∖ э ∧ IP ◚ ◛ ↄ й ◚ ◛ Â

ð Ъ ч Ô

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ð ᴳ ˙ Ô

ą Ю˘ SNMP ÿ ∖ э ∧ ∧˘ ᴳ ∖ э ∧ IP ◚ ◛ ↄ й ◚ ◛˘ й ₢ ₹ ч ◻ ⁞˘ ∧ Лъ ᴳ Ъ ч ᶎ ᴳ У э ◚ IP ◚ ◛ ↄ й SNMP ◚ ◛ Â

ð w ᴿ Ô

Ю R Лъ ⅄ 0 IP ﻙ ﻫ ɔ ѝ SNMP ﻙ ﻫ'

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

ð ℧Ω Ъ ҳ Ô

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snmp-server enable traps

snmp-server user username groupname {**v1** | **v2** | **v3** [**encrypted**] [**auth** {**md5** | **sha**} auth-password] [**priv des56** priv-password]} [**access** {num | name }]

no snmp-server user username groupname {**v1** | **v2c** | **v3** }

SNMP ˘ ŏ Ъ ъ **snmp-server group** Â Ъ ъ no ĩ Â

snmp-server group groupname {**v1** | **v2c** | **v3** {**auth** | **noauth** | **priv**}} [**read** readview][**write** writeview] [**access** {num | name }]

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

ð ч Ô

v1 | v2c |v3 ' SNMP Â

auth' · ת a ɖ ˘ Л v3 Â

noauth' · a ≠ a ɖ ˘ Л v3 Â

priv' · ˘ · ɖ ˘ Л v3 Â

readview' ˜Ω У э Л يي Â

writeview' ˜Ω У э ĵ̃ يي Â

ð Ô

ð Ъ ъ Ô

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Ю R У э '

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

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Ъ ъ	
show snmp group	SNMP ą

61.1.15 snmp-server view

SNMP يي˘ ŏ Ъ ъ **snmp-server view** Â Ъ ъ no ĩ يي Â

snmp-server view view-name oid-tree {**include** | **exclude**}

no snmp-server view view-name [oid-tree]

ð ч Ô

view-name ' يي̃ Â

oid-tree ' يي ЎΩ MIB ˘ У MIB Â

include ' MIB ^ ЎЎ ф يي Ѯ ¤ Â

exclude ' MIB ф يي Ѯ Â

ð Ô

У э default يي ˘ ĭ MIB Â

ð Ъ ъ Ô

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ð w R Ô

Ю R У э يي ˘ ^ MIB-2 ^ oid и 1.3.6.1˜ '

Ruijie(config)# snmp-server view ЉЊ include

ð ЎΩЪ ъ Ô

Ъ ъ	
show snmp view	SNMP يي ə

61.1.16 snmp-server if-index persist

ѵ ╖ G snmp-server if-index persist Ъ ъ Â Ъ ъ no ЎΩ ╖ Â

snmp-server if-index persist

no snmp-server if-index persist

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ð Ô

╖ ЎΩ Â

ð Ъ ъ Ô

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ð w R Ô

Ю R ѵ ╖ '

Ruijie(config)# snmp-server if-index persist

ð ЎΩЪ ъ Ô

Ъ ч	
show run	~Ω ə

61.2

61.2.1 show snmp

SNMP ə ˘ Ъ ч **show snmp** Â

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

ð Ъ ч Ô

ð G ' Ô

show snmp Ъ ч SNMP ~Ω ə '

show snmp mib è snmp mib ə '

show snmp user snmp ə '

show snmp view snmp يي ə '

show snmp group snmp ə '

ð w R Ô

Ю R SNMP У э ə '

```
Ruijie# show snmp
Chassis: 60FF60
0 SNMP packets input
0 Bad SNMP version errors
0 Unknown community name
0 Illegal operation for community name supplied
0 Encoding errors
0 Number of requested variables
0 Number of altered variables
0 Get-request PDUs
0 Get-next PDUs
0 Set-request PDUs
0 SNMP packets output
0 Too big errors (Maximum packet size 1500)
0 No such name errors
0 Bad values errors
```

```
0 General errors
0 Response PDUs
0 Trap PDUs
SNMP global trap: disabled
SNMP logging: disabled
SNMP agent: enabled
```

ð ƲƑ ɮ Ô

Ƒ ɮ	
snmp-server chassis-id	SNMP ‟ ⁄