Ihu ȝ ”Ą

RG-NPE

ʎ

RGOS 10.3(4b7)

(4 1J

Ὼ ᾽ ©2000-2010

Ὼ ᾽ ˘ Ậ ˥ ˡ ¯ Â

ˡ Ὼ ᾽ ˩˘ a Ⱡ Ậ

ˡ ⁸ à à à à à è à è ˡ ك

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ŸĄ ˚ ѝ' RGOS®10.3(4b7) Â

ʌ Ю ˜

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1.

' 5 ʌ Â

ɱń ʌ ╕ б Â

' Courier New ˘ ˘ 5 ʌ˘

Â ÿ ˘ ╕ Â

[ ] ' [ ] ˇ Ъ ч Â

{ x | y | ... }' ÿ ч Â

[x | y | ...]' ÿ ч a Â

//' Â

ч ˇ

Ю'

~ ' à ^ à Y Â

& ' à à à Ґ Â

&

1) Ą ˛ ص ل a ˇ ч p
ص

2) Ą ˛ ل ű è p ˇ é
^ p ص ا à ~ Ц й Â

---

1 CLI

1.1 alias

alias

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

mode
command-alias
original-command

EXEC

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

a **no alias exec**

... ?

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

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

ħυ ϡ ⁞ ɻ ╠ ˘ ѯ ⁞ ɻ ɱ ⁄ *˜ ˘ ɜ ЛЮ '

command-alias=original-command

˘ ѯ EXEC ЮЎ ħυ ϡ ⁞ ɻ ”s” ”show” Â ‡ ”s?” ↓Л↓ ↓’s’ Ո ⁞ ɻ ╠ '

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

⁞ ɻ ϡ ħυ ϡ a ´ ˘ ‡ ⁄ ħυ ϡ ↑ Â ˘ ѯ EXEC ЮЎ ⁞ ɻ ”sv” ϡ ħυ ϡ ”**show version**” ‡'

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

⁞ ɻ ÿ ħυ ϡ ˘ ɱ a Â Э ˘ ѯ ħυ ϡ ɱ ˘ a ⁄ ⁞ ɻ'

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

ħυ ϡ ⁞ ɻ ≠ ↓Л↓ ↓ħυ ϡ ↓ ╠ ˘ ↓ ЮЎ ħυ ϡ ⁞ ɻ ”ia” ϡ ”ip address” ‡ ѯ ↓ ЮЎ

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

”**ip address**” ħυ ϡ ɻ ↓ ˘ ɜ ⁞ ɻ ħυ ϡ Â

ħυ ϡ ⁞ ɻ ѯ ˘ ї ‡ a ⁞ Â

show aliases ħυ ϡ ↓Л↓ ⁞ ɻ Â

ð Ô

ЛЮ ˘ ЮЎ ħυ ϡ ⁞ ɻ ”def-route” ϡ ”ip route 0.0.0.0 0.0.0.0 192.168.1.1”

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

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

ð ħυ ϡ Ô

ħυ ϡ	
show aliases	⁞ ﻝ

1.2 privilege

ħυ ϡ ħυ ϡ ⁞˘ ﻝ Λυﺝ ЮО **privilege** ħυ ϡ Â ħυ ϡ **no** ﻝ Λυ ħυ ϡ ﻯ Â

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

ð ٩ Ô

mode ' ħυ ϡ CLI ħυ ϡ Â

[**all**] ' ħυ ϡ ħυ ϡ ˘ ﻝ ﻯ ﻝ ⁞ Â

level *level* ' ħυ ϡ ħυ ϡ ⁞˘ ⁞ ﺕ 0-15 Â

reset ' ħυ ϡ ﻯ ⁞ Â

command-string ' ħυ ϡ Â

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ЮО ⁞ ﺝ **privilege** ħυ ϡ ﻝ CLI ħυ ϡ ˘ a ﻝ ˘ ﻝ ħυ ϡ ﻝ ﻝ ﻝ ﻱ˘ ﺝ ЮЎ ﻝ Λυ **privilege ?** ﻣﻯ ﻝ CLI ħυ ϡ Â

config	

exec	
interface	٨
ip-dhcp-pool	DHCP فخ سم
keychain	KeyChain
keychain-key	KeyChain-key
time-range	Time-Range

ð Ô

ЛυЮ ˘ CLI ⁞ 1 ٨ ٪ ѝ "test"˝ **reload** ħυ ٪ ˘ ↲Л υ Æ Â

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

˘ ⁞ 1 CLI ˘ ↲ ↲Л υ **reload** ħυ ٪'

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

reload ħυ ٪ ⁞ 1 ˘ ‡ ↲Л υ **all** '

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

˘ ⁞ 1 CLI ˘ ↲ ↲Л υ **reload** ħυ ٪'

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

ð ħυ ٪ Ô

ħυ ٪	
enable secret	CLI ⁞ ٨ ٪

1.3 show aliases

ħυ ٪ ⁞ ٫ ħυ ٪ Ю ħυ ٪ ⁞ ٫˘ ↲Л υ جم EXEC Ю˝ **show aliases** ħυ ٪ Â

show aliases [*mode*]

ð ¶ Ô

mode ' ⁞ ⁄ ʒ ƫυ ɜ ƫυ ɜ Â

2

2.1

2.1.1 cd

ſ ˘

cd *DIRECTORY*

ð ٩ Ô

DIRECTORY'

ð Ô

Â

ð Ъυ ϡ Ô

Â

ð ´ Ô

Э ٩ ὶ ˘ è Э “..” ˘ “.” ˘ è
ل Ո ɱ ﻩ Æ ˘ Ո Â
ﻩ ﺍ ل Ո ﺍ **ls** Ъυ ϡ Â

ð Ô

ЮО ɱ tmp ╟ '

Ruijie# **cd** *tmp*

ð Ъυ ϡ Ô

Ъυ ϡ	
ls	ɱ

2.1.2 cp

˚ , ˚ ſ ˚ Â

cp dest {*DESTINE_FILE*

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

ð ٩ Ô

DESTINE_FILE' ˚

DIRECTORY' ⁸ ˚

SOURCE_FILE' ⁸ ˚ ɻ (↑)

ð Ô

Â

ð Ъu ҂ Ô

Â

ð ´ Ô

˚ ˚ ˘ ˚ ‡

Â

a_ÉÊÊ,XcpQ§ÕG9ïÂXÄï_Ê

Ruijie# **cp sour** *log.txt* **dest** *../log_*

ð Ъu ҂ Ô

2.1.3 ls

ɱ ЮO ˚ Â

ls *PATHNAME*

ð ٩ Ô

PATHNAME' ɻ ٩ ˘ ˘ ѝ ɱ ЮO

ð Ô

ɻ ɱ ЮO Â

ð Ъu ҂ Ô

Â

ð ´ Ô

ЮO ˚ ˘ ٩

ЮO ˚ Â

ﻝ a .

ð Ô

ɱ ЮO ˚

Ruijie# **ls**

tmp ЮO ˚

Ruijie# **ls** *tmp*

ð Ъu ҷ Ô

Ъu ҷ

2.1.4 mkdir

…

mkdir *DIRECTORY*

ð ٩ Ô

DIRECTORY' … ﻝ

ð Ô

Â

ð Ъu ҷ Ô

Â

ð ´ Ô

… ﻝ . ﻝ (↑) Â

Э ﻩ a ﻩ ˘ … Â

ð Ô

ﻩ ЮO… test '

Ruijie# **mkdir** *test*

ð Ъu ҷ Ô

2.1.5 mv

╟ ˚ ˥ ˩ ˚

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

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

ð ٩ Ô

SOURCE_FILE' ╟ ˚

DESTINE_FILE/DIRECTORY' ˥ ˚

ð Ô

Â

ð Ъυ ϟ Ô

Â

ð ´ Ô

Ъυ ϟ Э ٩ ˘ ص ˚ ˥ Â
ﻩ ' a à (**type** Ո **file**); b à '?' ╟ ˘ ﻩ
a ﻫ ٩ ˘ ˫ Л∪ '? ' Ъυ ϟ ,Л∪ Ъυ
ϟ Â

ð Ô

Ю log.txt ╟˥ Э , ˫ и config.txt, ˫ ˫ ˚ , ‡
٧ ˫ ˫ ˚ '

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

Ю log.txt ╟˥ tmp Ю'

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

ð Ъυ ϟ Ô

Ъυ ϟ

2.1.6 pwd

ɱ

pwd

ð ٩ Ô

٩

pwd	ґґ

ð Ô

Â

ð Ъ ч Ô

Â

ð ´ Ô

ґґ Æ Â

ð Ô

ЮО ґґ Â

```
Ruijie# pwd
```

ð Ъ ч Ô

Ъ ч

2.1.7 rm

Ї ˚ Â

rm *FILE*

ð ч Ô

FILE Ї ˚ ɹ (↑ ŭ)

ð Ô

Â

ð Ъ ч Ô

Â

ð ´ Ô

a , a ˚ Ո Ї Ш Ї Â ɿ ˘ Ї
ʌ ˘ a : Ч ˚ Â

ð Ô

Ї ґґ ЮО log.txt ˚ '

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

ð Ъυ ϡ Ô

Ъυ ϡ	
rmdir	╗ , ⍨ и Ъυ ϡ , Л∪ rm Ъυ ϡ ≠ ⅃ Л∪╗

2.1.8 rmdir

╗ Â

rmdir *DIRECTORY*

ð ↰ Ô

DIRECTORY ′ ╗ ⅄ , и

ð Ô

Â

ð Ъυ ϡ Ô

Â

ð ´ Ô

a , ╗ и Â Ъυ ϡ , ⍨ **rm** Ъυ ϡ
⅄ ⅃ Л∪ ╗ Â

ð Ô

ɱ Ю tmp ˘ з ˚ Â

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

ð Ъυ ϡ Ô

Ъυ ϡ

3

3.1

ѫ ў CLI Ю COPY Ђ ҳ ˇ Â

¸ Xmodem ˜ ˇ ' **copy xmodem** Ђ ҳ

¸ Tftp ˜ ˇ ' **copy tftp** Ђ ҳ

3.1.1 copy xmodem

xmodem ˜ ˇ Ђ ҳˇ xmodem ˜ Э ՈЮ Â

copy flash: *filename* **xmodem**

copy xmodem flash: *filename*

~

˚ ɻ ˇ ˚ ɻ ╗ Э ʌˇ '

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

ð ٩ Ô

filename' Э ˚ ɻ

ð Ô

Â

ð Ђ ҳ Ô

ð ´ Ô

╗ ˇ ‡ ˚ Â ǐ ‡ˇ Â Xmodem ˜ ɻ Ո ˚ ˇ ў ˚ à٩ ˚ ÂXmodem ٩ ˆ ٩˜ Â

Ю : ÿ ў xmodem ˜ ˚ ĵ ' γ Э ˚ xmodem ˜ Э ĵ ў Â

ð Ô

Ю Э ՈЮ :

```
Ruijie# copy xmodem flash: config.text
Ruijie# copy flash: config.text xmodem
```

ð Ъυ ϟ Ô

Ъυ ϟ

3.1.2 copy tftp

tftp ˜ ˇ Ъυ ϟˇ tftp ˜ Э ΩЮ Â

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

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

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

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

˜

˚ ɻ ˇ tftp ╗ Э ʃˇ '

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

ɻ ˇ ˚ ɻ ˇ ≠ ˚ ɻ ╗ Э ʃ

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

ð ϟ Ô

filename' Э ˚ ɻ

vrfname' vrf ɻ

ð Ô

Â

ð Ъυ ϟ Ô

ð ´ Ô

╗ ˇ ‡ ˚ Â ĭ ‡ˇ Â TFTP ɹ Л∪
˚ ˇ ў ˚ à ϟ ˚ Â TFTP ϟ Â

ð Ô

Ю : ÿ ѕ ў ^ ip 192.168.12. 1˜˜ ϟ
˚ ^ config.bak˜ ⎪ ; γ ÿ ˚ ^ switch.bin˜ ⎪ ѕ ў ^ ip 192.168.12.1˜ :

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

ð Ъυ ϟ Ô

Ъυ ϟ

4 HTTP

4.1.1 http check-version

HTTP ˘ Â

http check-version

٧	٧	
	-	-

ħυ ȝ

ħυ ȝ ˘ ˚ صˇ ٱ ᵾ ɓ سم ˚ Â

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.
```

ħυ ȝ	

╟ ˘ ˚ Â

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

٧	
web	WEB ˚
route-db	ڤذ سم
config	˚
character-db	
normal	˚
url-db	URL ˚

٧

Ъυ ҳ

Ъυ ҳ ص ˚ ˘ Â ˘ ╖ ٨˘ ╟ Â

1' ╟ ˘ WEB ˚ Ո '

```
Ruijie#http update web character-db
updating files, please wait...
update success!
```

Ъυ ҳ	
-	-

Ъυ ҳ

٨ 10.3(4b7)Лυ ٦ ٨ ˘ NPE50 ã NPE80 NPE ѕ Â

٨	
10.3(4b7)	Ъυ ҳ

Ъυ ҳ ٦ ٨

4.1.3 http update mode

HTTP ˘ ѝ ╟ ˘ ã ╟ ˘ Ո ╟ Â

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

Ruijie#**config**

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

Ъυ ʒ

Ъυ ʒ	
-	-

ʌ

10.3(4b7)ЛЪ ʅ ʌ ˘ NPE50 ã NPE80 NPE ʁ Â

Ъυ ʒ ˥ ʌ

ʌ	
10.3(4b7)	Ъυ ʒ

4.1.6 http update time

HTTP ╟ ˘ Â

http update time daily *hh:mm*

ʅ

ʅ	
hh:mm	˘

Ъυ ҳ ˥ ˩

/ǀ	
10.3(4b7)	Ъυ ҳ

5

Ъ ٶ Л ٴ Ъ ٶ ٭ ˘ ↑ Л ٴ ٴ Ъ ٶ˘ Л
ٸ LAN Л ٴ Â

5.1

5.1.1 bandwidth

ج ٴ Ю **bandwidth** Ъ ٶ ٴ ٴ ˘ Ъ ٶ **no**
ٴ Â

bandwidth *kilobits*

no bandwidth

ð ٴ Ô

kilobits ' ˘ Л K ѝ ´ Æ

ð Ъ ٶ Ô

ٴ

ð Ô

ٴ **bandwidth** Ъ ٶ ٴ ˘ ج Ю **show interface**
Ъ ٶ è

ð ´ Ô

bandwidth Ъ ٶ a ; ٴ ˘ ٸ ˜ ٴ
˘ ˘ Л ٴ ثن ˘ Serial ٴ Async ٴ
a ٸ˘ ٸ Л Â Bandwidth ٸ ٴ ˘ a
; ٴ Â

ð Ô

ЛЮ ٴ ٴ ѝ 64Kbps'

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

5.1.2 clear counters

ح hO hu ɤ clear **counters**

clea(counters)Tj/TT0 1 Tf0.0020 Tc 0

	ʎ ص
async	ʎ
dialer	/ʃ ʎ
GigabitEthernet	10/100M Л∪ ʎ
Group-async	/ʃ ʎ
loopback	Loopback ʎ
null	ʎ
serial	⊿ ʎ

ð Ô

ЛUЮ Æ ʎ s10 ˚ '

```
Ruijie# clear interface serial 1/0
```

5.1.4 debug vlan

ج Ю **debug** vlan ƫ ɮ VLAN ˘ ƫ ɮ **no** VLAN Â

debug vlan

no debug vlan

ð ƫ ɮ Ô

ð Ô

Ю VLAN ↑ '

```
Ruijie# debug vlan
```

5.1.5 description

ج ʎ Ю **description** ƫ ɮ ʎ ˘ ƫ ɮ **no** ╕ ʎ Â

description *string*

no description

ð ʎ Ô

string ' ʎ

ð ƅu ʒ Ô

ʎ

ð Ô

ʎ

ð Ô

ھ ⅄ ʎ Ɜ˘ ʎ ' Ⅰ' 2M ˘ ˚ Ŀ Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# description ShanDong-Bandwidth2M
```

5.1.6 duplex

ھ ʎ Ю duplex

ð hu ʒ Ô

ð Ô

ʃU ʎ

```
Ruijie(config)# interface gigabitEthernet 1/2
Ruijie(config-if)#
```

ð hu ʒ Ô

hu ʒ	
show interface	ʎ ˚ ʃU ˥

5.1.9 ip address

ج ʎ hO **ip** address hu ʒ ʎ IP سم فخ˘ hu ʒ **no** ī ʎ IP سم فخ Â

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

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

ð ʎ Ô

ip-address ' IPV4 ˜ سم فخ Â

sub-mask ' IP سم فخ Â

/Ħ@Ñ@Ä

secondary ' ʎ

ð hu ʒ Ô

ʎ

ð Ô

ʎ IP سم فخ

ð ´ Ô

a IP ˜ ˘ ī ‡ ʎ a ʎ˘

سم فخ Â **ip address** è Â

ج IPسم فخ ˘ ƒIP سم فخ ‡˘ Ո è ʎ

˘ Ո ɹ ﷺ è ў Ь a ɹ

ɻ ʎ ɻ Л ɻ IP ѕ ф ˘ з a ʎ ч ˘ ɻ Л
secondary ʎ Â

ð Ô

ЛЬЮ ж Л ʎ Э IP ѕ ф '

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

ð Ъu ʒ Ô

Ъu ʒ	
ip unnumbered	è ʎ IP ѕ ф

serial	ㅗ ㅓ
Bri	ISDN ㅓ

ð Ô

ЛυЮ Loopback 0 ㅓ IP ㅍㅈㅅ *192.168.12.1/24* ㅓ 0

```
Ruijie(config)# loopback 0
Ruijie(config-if)# ip address 192.168.12.1 255.255.255.0
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip unnumbered loopback 0
```

5.1.11 keepalive

ㅏ ㅋ ŭ ㅓ keepalive ㅓ ㅠ ˘ ў ㅓ keepalive Â è **no keepalive** ㅠ Â

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

no keepalive

ð ㅓ Ô

keep-period ' RGOS ㅓ keepalive □ ˘ ´ Æ ㅣ Â ㅣ 0˝ RGOS a ㅓ keepalive Â ㅣ 10 Â

Лυ ㅓ˘ ㅏ ㅋ ㅗ Лυ Ю Ь ^ ╟ Лυ ㅓ ~ '

dns *ip'* ㅏ ㅋ ㅓ dns ㄴ ㅈ ˘ ㅊ keepalive □ ㅣ ㅗ ip ㅍㅈㅅ ㅓ dns ˘ 3 aㅣ ㅎ ˘ ‡ Лυ ㅓ Â

ping *ip'* ㅏ ㅋ ㅓ ip ㅍㅈㅅ ping ˘ ㅊ keepalive □ ㅣ ㅗ ip ㅍㅈㅅ ㅓ ping ˘ 3 aㅣ ㅎ ˘ ‡ Лυ ㅓ Â

ð Ô

Ю˝ Лυ ㅓ ŭ keepalive ㅠ Â

è ㅆ ㅓ˘ ㅆ ~ keepalive □ a ㅗ˘ a Â

ð ㅏ ㅋ Ô

ㅓ

ð ´ Ô

ɯ ɯ ʎ Ɜˇ ~ ɯ Ɜ keepalive ⁸ˇ Ʌu
~ ˇ ɥu ʒˇ ɻ Ʌu ~ keepalive □
ˇ ÿ ⁸ ɻ keepalive Â

ɯ Ʌu ʎ Ɜˇ ɥu ʒ ɻ Ʌu ˇ ɻ ping dns ˇ

30

ð ´ Ô

æ ˆ Ъ ђ ˙ Л

30 Ո Â ˘ æ ˆ

GigabitEthernet 0/0 ˆ 180 ˘ **show interface GigabitEthernet 0/0** ˙ Л ˛ '

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

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

ð Ô

ЛЬЮ æ GigabitEthernet 0/0 180

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# load-interval 180
```

ð Ъ ђ Ô

Ъ ђ	
show interface	ˆ ˚ Л ˉ

5.1.13 mac-address

Л υ ʎ ږ MAC فخ سم Â ˘ Л υ ʎ MAC فخ سم
ل Л υ ˘ ل ﷺ Э MAC فخ سم ږ ÂMAC فخ سم ل
ﷺ ˘ Ю˘ a MAC فخ سم Â

ð Ô

Л υ Ю ج Л υ ʎ MAC فخ سم'

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# mac-address 00d0:f8fb:110d
```

5.1.14 media-type

media-type ƕ ʒ ج ʃ Л υ ʎ Э ص˘ ƕ ʒ
no Â

*Ruijie(config-if)#*ia-t9(pe)]TJ/C2_0 1 Tf0.0050 Tc 2 Tc 1282117-28.3834-27.7.994<9961E
media-type {

ㅊ ㅓ Ю **mtu** ㅂ ㅋ Л ㅓ ´ Ĩ MTU Maxiumum Transmission Unit˜ ˘ ㅂ ㅋ **no** Â

mtu *size*

no mtu

ð ㅓ Ô

size ' MTU ˘ ㅓ ن ÿ 64-65535˜ Л ㅒ ´ Æ Â 1500 Â

ð ㅂ ㅋ Ô

ㅓ

ð Ô

MTU ㅒ 1500

ð ´ Ô

MTU ㄹ ! ă ㅅ Ո ˘ ɜ MTU Ł Ո ㅅ Â Ł ㅅ ˘ è Ł ɜ ˘ ˘ ㅓ Ł a é ㄱ ´ ˘ FTP Â ˘ MTU ˘ ¯ a ㄹ Ł ß† Â

ð Ô

ㅊ Л ㅓ ㅓ 0 MTU 576

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# mtu 576
```

5.1.16 shutdown

ㅊ ㅓ Ю **shutdown** ㅂ ㅋ ㅓ˘ ㅂ ㅋ **no** ŭ ╟ ㅓ Â

shutdown

no shutdown

ð ㅂ ㅋ Ô

ㅓ

ð ´ Ô

ㅊ ㅓ Э ㅂ ㅋ˘ Գ ㅓ Â ㅊ ㄹ ㅓ˘ DTR Ո RTS ˘ Modem DTR RTS ㅀ ˘ ㅛ Â ㅊ ㄹ ㅓ ≠ Â

ʎ ˘ Ъu ʒ **show interface** ˩ Л∪ ↑ is administratively down Â

ð Ô

Л∪Ю GigabitEthernet 0/0

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# shutdown
%LINK CHANGED: Interface GigabitEthernet 0/0, changed state to
administratively down
```

ð Ъu ʒ Ô

Ъu ʒ	
show interface	ʎ ˚ Л∪ ˥

5.1.17 speed

æ ʎ Ю **speed** Ъu ʒ Л∪ ʎ ˘ Ъu ʒ **no** й Â

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

no speed

ð ʎ Ô

10 ' Л∪ ʎ й 10M Â

100 ' Л∪ ʎ й 100M Â

1000' Л∪ ʎ й 1000M Â

auto ' Л∪ ʎ ˘ ʎ Ы à γ à ´ ╟ ʎ æ 10M˝ 100M 1000M Â

ð Ъu ʒ Ô

ʎ

ð Ô

ð ´ Ô

æ ʎ ℸ ˘ **speed è** Л∪ ˘

dulpex	speed	
full	10	ㅊ 10M ㅓ
Full	100	ㅊ 100M ㅓ
Half	10	ㅊ 10M ` ㅓ
Half	100	ㅊ 100M ` ㅓ
Auto	auto	ㅁ ㅓ ㅊ

ð Ô

ㅁㅏㅇ ㅊ ㅁ ㅓ 0/0

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# speed auto
```

5.2

5.2.1 show interface

ㅊ ㅏㅇ **show interface** ㅏ ㅋ ㅓ

Â

show interface *type interface-number*

ð ㅓ Ô

type ' ㅓ ص

interface-number ' ㅓ ㅓ ㅓ

ð ㅏ ㅋ Ô

ð ´ Ô

show interface ㅏ ㅋ ㅓ ㅁ ' ㅓ ㅠ ~ à MTU à Bandwidth à Loopback à ㅓ ㅠ à ~ à ㅓ Э ㅁ ㅓ ˇ Â ㅓ ㅁ ″ ㅓ ㅁㅏㅇ ˇ ㅏ ㅋ ㅑ Â

ㅊ æ ㅓ Э˘ ㅓ WFQ Â

ㅊ ㅓ Э˘ ㅓ FIFO ^ ≠ ″I ″I ~ ˘ **show interface** ㅏ ㅋ ㅓ ㅁ ' Queueing strategy: fifo Output queue

0/40, 0 drops; input queue 0/75, 0 drops˘ ɱ 0˘ 40˘ ↑ 0˘
ɱ 0˘ 75˘ ↑ 0

ð Ô

ʃ∪ ʌ **GigabitEthernet** *0/0*

```
Ruijie# show interface GigabitEthernet 0/0
GigabitEthernet 0/0 is UP  , line protocol is UP
Hardware is Nat-Semi DP83815DVNG GigabitEthernet, address is
0a0b.0c0d.0e0f (bia 0a0b.0c0d.0e0f)
Interface address is: no ip address
ARP type: ARPA,ARP Timeout: 3600 seconds
MTU 1500 bytes, BW 100000 Kbit
Encapsulation protocol is Ethernet-II, loopback not set
Keepalive interval is 10 sec , set
Carrier delay is 2 sec
RXload is 1 ,Txload is 1
Queueing strategy: FIFO
Output queue 0/40, 0 drops;
Input queue 0/75, 0 drops
5 minutes input rate 0 bits/sec, 0 packets/sec
5 minutes output rate 0 bits/sec, 0 packets/sec
782 packets input, 88920 bytes, 0 no buffer
Received 782 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
```

6

6.1

6.1.1 interface giagbitEthernet

Ъυ ϗ Ъυ ϗ˘ ¯ ¨I Πυ ʌ˘ ʌ Â

interface gigabitEthernet *mod-num/port-num*

ð ʌ Ô

mod-num/port-num ' ⁄ʌ /

ð ´ Ô

Ƅυ ʒ **no** ˘ ص ʎ a ˩ Â **show interfaces** **show interfaces tenGigabitEthernet** Ƅυ ʒ ʎ

ð Ô

```
Ruijie(config)# interface tenGigabitEthernet 1/2
Ruijie(config-if)#
```

ð Ƅυ ʒ Ô

Ƅυ ʒ	
show interfaces	ʎ Ո Â

ð ɻ Ô

6.1.3 medium-type

ʎ ص Â Ƅυ ʒ **no** .

medium-type { **fiber | copper** }

no medium-type

ð ʎ Ô

fiber ' ˝I ʎ

copper ' ʎ

ð Ô

ʎ Â

ð Ƅυ ʒ Ô

ʎ ˆ ʎ˘ a ˥ Ap Ո SVI˜

ð ´ Ô

ɻ ʎ ɻ ՄՆ ˝I ʎ Ո ʎ ч ص˘ ʎ è Â
ص ɻ˘ ج ʎ ˘ à ɻ à ⁸ Ո ˘
ʎ ɱ ص Â ɻ ʎ ص ɻ˘ ص ʎ ы è
˘ ɻ ՄՆ Â

ð Ô

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

```
Ruijie(config-if)# medium-type copper
```

ð ƅu ɮ Ô

ƅu ɮ	
show interfaces	ʎ Ո· Â

ð ɻ Ô

24SFP/12GT ´ 12 SFP ʎ Ո· 12 10/100/1000M BASE-T ʎ ╠ ╔ Â

a ʎ ╠ ″ ɱ ح SFP ʎ 10/100/1000M BASE-T ʎ Â

6.1.4 descriptioin

ʎ ⁞ ɻ Â ƅu ɮ no .

description *string*

no description

ð ʎ Ô

string ʎ ⁞ ɻ Â

ð Ô

⁞ ɻ Â

ð ƅu ɮ Ô

ʎ

ð ´ Ô

show interfaces ƅu ɮ ʎ ˘ ↑ ⁞ ɻ Â

ð Ô

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

ð ƅu ɮ Ô

ƅu ɮ	
show interfaces	ʎ Ո· Â

6.1.5 shutdown

ฉ ฯ ˘ ใบ ๅ ฯ Â ใบ ๅ **no** ฯ

shutdown

10G' ʎ й 10Gbps Â

auto ' ʎ й Â

ð Ô

Â

ð ƅu ʒ Ô

ʎ

ð ´ Ô

ʎ Ap ˜ ˇ ‡ ʎ Ap ā ˇ ˩Ƨ ʎ ˇ
a Â ʎ Ap Â **show interfaces** ƅu ʒ
Â ʎ ص a ˩ˇ ص ≠ a ˩ Â ˇ SFP ص
ʎ a й 10M 100M Â

ð Ô

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# speed 100
```

ð ƅu ʒ Ô

ƅu ʒ	
show interfaces	ʎ Ո Â

6.1.7 duplex

ج ʎ ƗŐ ƅu ʒ ʎ ˧ Â ƅu ʒ **no**
й

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

no duplex

ð ʎ Ô

auto ' ˧ Ո ` ˧ Â

full ' ˧ Â

half' ` ˧ Â

ð Ô

˧ Ո ` ˧ Â

ð ƅu ʒ Ô

ʎ

ð ´ Ô

ٴ ٴ б ٴ ص Â ٴ Ƚ **show interfaces** ƀ ٶ ٴ ٴ Â

ð Ô

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

ð ƀ ٶ Ô

ƀ ٶ	
show interfaces	ٴ Ո Â

6.1.8 mtu

ٴ mtu

Mtu *num*

ð ٴ Ô

num' 64 9216(65536 p a ٴ a ٴ)

ð Ô

й 1500 Â

ð ƀ ٶ Ô

ٴ

ð ´ Ô

ٴ mtuˆ ˜ Â ɱ ٴ ٴ

ð Ô

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mtu 9216
```

ð ƀ ٶ Ô

ƀ ٶ	
show interfaces	ٴ Ո Â

6.1.9 carrier-delay

ج ʌ Ю Ъu ʒ **carrier-delay** ج ʌ ˘ Ъu ʒ **no**
ھ Â

carrier-delay [*seconds*]

no carrier-delay

ð ʌ Ô

seconds ' ˩ ʌ ˘ Л и´ Æ˘ تن 1· 60

ð Ô

2

ð Ъu ʒ Ô

ʌ

ð ´ Ô

ʌ ʌ /ʃ DCD ÿ Down ¦ Up ˘
DCD ج ˩ ˩ ע˘ ѫ ˩ ע a Э
˜ ك Â

DCD ˘ ѫ ʌ ˘ ˩ Л ╗

˘ Л ˩ Л Â ˩˘ DCD
˘ ѫ ʌ ˘ Л Â

ð Ô

ЛъЮ ʌ и 5 '

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(coinfig)# carrier-delay 5
```

6.1.10 clear counters

ʌ ⅄

clear counters [*interface-id*]

ð ʌ Ô

interface-id ' ʌ صՈ ʌ /ʃ Â

ð Ъu ʒ Ô

ð ´ Ô

ﻥ ﻑ ﻱ ﻭ ﻷ ﻵ ، ﻝ ﻡ ﻩ ﻻ ﺟ

ج ㅓ Л υ ⩩ ㅓ ĭ ㅓ ㅓ LinkTrapˇ ╖ ˇ ㅓ
ㅓ Link ㅓ ㅛˇ SNMP ㅓ LinkTrap, ㅓ ‡ a ㅓ Â ħυ ɤ **no** SNMP a ㅓ LinkTrap Â

snmp trap link-status

no snmp trap link-status

ð Ô

Ю˘ ╖ ˇ ㅓ ㅓ Link ㅓ ㅛˇ SNMP ㅓ LinkTrap Â

ð ħυ ɤ Ô

ㅓ

ð ´ Ô

ㅓˆ Л υ ㅓ à Ap ㅓ à SVI ㅓ ˜ ˇ ħυ ɤ ĭ ㅓ ㅓ LinkTrapˇ ╖ ˇ ㅓ ㅓ Link ㅓ ㅛˇ SNMP ㅓ LinkTrap, ㅓ ‡ a ㅓ Â

ð Ô

Ю ㅓ ŕ a ㅓ Link trap:

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# no snmp trap link-status
```

Ю ㅓ ŕ ㅓ Link trap:

```
Ruijie(config)# interface gigabitEthernet 1/1
Ruijie(config-if)# snmp trap link-status
```

ð ħυ ɤ Ô

ħυ ɤ	
Ruijie(config-if)# **snmp trap link-status**	ㅓ ㅓ link trap ╖ .

ð ㅓ Ô

interface-id ' ㅓ ˆ ↑ Л ㅓ à aggregateport ㅓ à SVI ㅓ à loopback ㅓ ˜

counters ' ㅓ Â

description' ㅓ ˘ ↑ link Â

status' ɣ ㅓ ㅏ ˘ ↑ à ㄱ Â

ð Ô

ㅓ Â

ð ㅾ ㅋ Ô

ð ´ Ô

a ╗ ㅓ ˘ ‡ ㅓ ㎚ Â

ð Ô

```
Ruijie#
```

7

7.1

7.1.1 bridge-map

ű

Ъυ ϡ Ъυ ϡ Â

bridge-map *bridge-num*

ϥ

7.1.2 link-mode

ᛋ Ո- ᛘ Â

Ъυ ҳ no ᛘ ᛋ Ո- ᛘ Â

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

ᛋ

ᛋ	
interface-name1	ᛋˇ ᛋ a ᛋ Â
interface-name2	ᛋˇ ᛋ a ᛋ Â
forward	ᛋ ᚓ forward ˇ ᛘ Л∪ ᛘ ⁞ˇ ˇ 8ˇ Â
sniffer	ᛋ ᚓ sniffer ˇ ᛘ Л∪ ᛘ ⁞ˇ Â
bypass	ᛋ ᚓ ˚ bypass ˇ ᛘ ᛘ ᛋ ᛘ ᛘ ᛗ ᛘ Â

Ъυ ҳ Ъυ ҳ

forward Ю˘ ᛘ Л∪ ᛘ ⁞ˇ ˇ 8ˇ Â

sniffer Ю˘ ᛘ Л∪ ᛘ ⁞ˇ Â

˚ bypass Ю˘ ᛘ ᛘ ᛋ ᛘ ᛗ ᛘ Â

a ᛗ ᛘ Л∪ a ᛗ ˇ ᛋ GigabitEthernet 0/0 Ո- ᛋ GigabitEthernet 0/1 ᚓ forward Ю˘ ᛋ GigabitEthernet 0/2 Ո- ᛋ GigabitEthernet 0/3 ᚓ sniffer Ю Â

1' ᛋ GigabitEthernet 0/0 Ո- ᛋ GigabitEthernet 0/1 ᚓ forward Ю'

Ruijie(config)#**bridge-map** *1*

Ruijie(config-bridge-map)#**link-mode** *GigabitEthernet 0/0 GigabitEthernet 0/1 forward*

Ъυ ҳ

Ъυ ҳ	
-	-

ᴊ

10.3(4b7)Лυ ᐟ ᴊ ˇ NPE50 ầ NPE80 NPE ⅋ Â

10.3(4b7)	Ъυ ҳ

7.1.4 specify interface

ʌ à Â

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

Ъυ ҳ no ʌ ʌ ѝ

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

ʌ

ʌ	
interface-name	ʌ Â
Lan	ѝ ʌ Â
Wan	ѝ ʌ Â

Ъυ ҳ Â

æ ЮЎ ʌ ˘ no Ъυ ҳ ʌ ↑ Â

1' GigabitEthernet 0/0 ѝ ʌ'

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

2' GigabitEthernet 0/0 ѝ ʌ'

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

3' GigabitEthernet 0/0 ѝ '

```
Ruijie(config)#no specify interface GigabitEthernet 0/0
```

Ъυ ҳ

Ъυ ҳ	
-	-

ʃ 10.3(4b7)Лъ ч ʃ ˘ NPE50 à NPE80 NPE Ѕ Â

Ъυ ҳ ˥ ʃ

ʃ	
10.3(4b7)	Ъυ ҳ

7.1.5 sys-mode

й Â ⅃Л Ъυ ҳ no й
˘ й Â

[no] sys-mode gateway

⅂	
-	-

Ю й ˘ no ⅃Л й

Ъυ ҳ

Ъυ ҳ ж Â
ж Ю ˘ ⅃ ˘ ⅃Л NAT ˘
⅂ й Ь ⅂˘ ⅃Л IP ﻓﺨﺴﻢ Â
ж Ю ˘ ⅃ ˘ a NAT ˘
⅂ й γ ⅂˘ ⅂ a IP ﻓﺨﺴﻢ Â

1' й '

```
Ruijie#config
Ruijie(config)#no sys-mode gateway
```

Ъυ ҳ	
-	-

⅄ 10.3(4b7)Л Ⅎ ⅄ ˘ NPE50 à NPE80 NPE ⅋ Â

⅄	
10.3(4b7)	Ъυ ҳ

7.1.6 vlan-enable

⅂ vlan id й 1-4088 Â

vlan-enable

ЂU ҳ no ↓ ∧ vlan id ѝ 1-4088

[**no**] **vlan-enable**

∧	

ٴ

ٴ	
xaui-mode	ٴ ҷ ¨I ٴ Â
slot	slot
slot-num	slot ٵ

Ъυ ҳ Â

4 ¯ ¨I ٴ‚ ¨I ٴ Â

1' XAUI ¨I ٴ ὖ '

```
Ruijie(config)#xaui-mode slot 0
```

Ъυ ҳ

Ъυ ҳ	
-	-

ٵ ҷ 10.3(4b7)ЛЪ ٹ ٵ ˇ NPE60 V1.0 Â

Ъυ ҳ ٦ ٵ

ٵ	
10.3(4b7)	Ъυ ҳ

7.2

7.2.1 show bridge-map

Â

show bridge-map [*bridge-num*]

ٴ

ٴ	
bridge-num	ٵ Â ٴˇ Â ' Ь ٴˇ ‡ ٴ ںت ٸ 0~2 Â

Ъυ ҳ

Â

a ˘ ‡ Â

1' Л й 0 '

```
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
```

Ъυ ҳ	
-	-

10.3(4b7)Лυ ч Л ˘ NPE50 à NPE80 NPE ѕ Â

Л	
10.3(4b7)	Ъυ ҳ

7.2.2 show sys-mode

˘ Н wan à lan Â

show sys-mode

Н	
Н	ђ ˘ Лυ ч Н wan lan Â ' ђ ˘ LAN ь ¨I sys-mode

Ъυ ҳ

```
Ruijie#show sys-mode
System is gateway mode.
LAN: GigabitEthernet 0/0 GigabitEthernet 0/3
WAN: GigabitEthernet 0/1 GigabitEthernet 0/2 GigabitEthernet 0/4
```

Ъυ ҳ

Ъυ ҳ	
-	-

ʌ

10.3(4b7)Лυ ч ʌ ˘ NPE50 à NPE80 NPE ѕ Â

Ъυ ҳ ʔ ʌ

ʌ	
10.3(4b7)	Ъυ ҳ

8

8.1

? è ъ **mtu** à à à **flowcontrol** à **description** Ω **shutdown** æ

б Ж б è ы л Л ы ї ы ъ ы Ь æ a Ä Â

8.1.1 copy

ъ л ў б ў ў ¸ Â

copy *source-url destination-url*

ы		
ы	source-url	ў ¸ URL
	destination-url	ў ¸ URL

ъ

copy ъ url **tftp** ґ ˘ ў ¸ ˘ ґ и **oob_tftp** Â

1' ¯ TFTP ¸ rgos.bin'

```
Ruijie#copy oob_tftp://192.168.1.1/rgos.bin flash:rgos.bin
Accessing tftp://192.168.1.1/rgos.bin...

Transmission finished, file length 11305856

Download file [rgos.bin] to file system is OK.
```

ъ		
ъ	-	-

٨	NPE40 à NPE60 p Â

Ьυ ٪ ٦ ٨

٨	
10.3(4b7)	Ьυ ٪

8.1.2 gateway

MGMT ٨ Â

gateway *ip-address*

٨	٨	
	ip-address	MGMT ٨ IPv4 فخ سم

Ьυ ٪ ٨

MGMT ٨ صر MGMT˝ ٨ ثن ѝ 0 Â

1' MGMT ٨ '

```
Ruijie#config
Ruijie(config)#interface mgmt 0
Ruijie(config-if-Mgmt 0)#gateway 192.168.0.1
Ruijie(config-if-Mgmt 0)#end
Ruijie#
```

Ьυ ٪

Ьυ ٪	
show interface mgmt	MGMT ٨

٨	NPE40 à NPE60 p ك Â

Ьυ ٪ ٦ ٨

٨	

8.1.3 ip address

Ъ υ ҳ MGMT ٨ IP ٍ ف ز س ٍ б Â

ip address *ip-address subnet-mask*

٨		
٨	ip-address	IP ٍ ف ز س ٍ
	subnet-mask	

Ъ υ ҳ ٨ Â

MGMT ٨ ص MGMT ̃ ٨ ث ن ٍ и 0 Â

1' MGMT ٨ IP ٍ ف ز س ٍ'

ы

ы	
host	ў IP ѕ ѓ

ћ ђ

б MGMT ы ў Â

1' ў *192.168.0.1* б MGMT ы '

```
Ruijie#ping oob 192.168.0.1
Sending 5, 100-byte ICMP Echoes to 192.168.196.1, timeout is 2
seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/10/10
ms
```

ћ ђ

ћ ђ	
-	-

ѓ NPE40 à NPE60 p ѕ Â

ћ ђ ї ѓ

ѓ	
10.3(4b7)	ћ ђ

8.1.5 sntp enable oob

б MGMT ы ў ѝ SNTP ╟ Â

sntp enable oob

ы

ы	
-	-

ћ ぇ

б MGMT ㄴ SNTP ╟ Â

1' ΰ SNTP ╖ '

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

ћ ぇ

ћ ぇ	
-	-

10.3(4b7)Л ㄱ ㅅ ˘ NPE50 à NPE80 NPE ß Â

ћ ぇ ㄱ ㅅ

ㅅ	
10.3(4b7)	ћ ぇ

8.1.6 telnet oob

б MGMT ㄴ ў Â

telnet oob *host*

ㄴ

ㄴ	
host	ў IP ㅅ

ћ ぇ

б MGMT ㄴ ў Â

1' ↑ ў 192.168.200.1'

```
Ruijie#telnet oob 192.168.200.1
User Access Verification

Password:
```

ЬЬ ٦	

NPE40 à NPE60 р ж Â

10.3(4b7)	ъ

9 LINE

9.1 LINE

9.1.1 line

ĵ LINE ˘ ΛUĦOħu ϗ'

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

ð ٩ Ô

٩	
aux	٨˘ ھ Ы p Э
console	8 ٨
tty	٨˘ ھ Ы p Э
vty	˘ telnet/ssh
First-line	first-line ٨
Last-line	last-line ٨

ð Ô

ð ħu ϗ Ô

ð ´ Ô

LINE

ð Ô

ĵ LINE VTY 1ĵ 3 LINE '

```
Ruijie(config)# line vty 1 3
```

ð ħu ϗ Ô

9.1.2 line vty

Þu ¢ ⊣Ծ ╗ ⅈ⊣Ծ VTY Â Þu ¢ **no** ⅋ ⊣Ծ ⅈ⊣Ծ VTY Â

line vty *line-number*

no line vty *line-number*

ð Ô

ЮЎ ⊣ VTY й 5Ў Л й 0--4Â

ð Þu ¢ Ô

ð ´ Ô

╗ ⊣ VTY ˘ ⊣Ծ Э Þu ¢ Â

ð Ô

⊣ VTY ╗ⁱ 20Ў ⊣ VTY Л تن й 0--19Â

```
Ruijie(config)# line vty 19
```

⊣ VTY ⁱ 10Ў ⊣ VTY Л تن й 0—9Â

```
Ruijie(config)# line vty 10
```

ð Þu ¢ Ô

9.1.3 transport input

Line Ю⊣Ծ ˜ ˘ **transport input** Þu ¢ Line Ю⊣Ծ ˜ Â **default transport input** й LINE Ю ˜ й Â

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

default transport input

ð ⅋ Ô

⅋	
all	Line ЮЎ ˜ Â
ssh	Line ЮЎ ⊣ SSH ˜ Â
telnet	Line ЮЎ ⊣ Telnet ˜ Â

none	Line ЮЎ a ˜ Â

ð Ô

ˇ VTY ˜ Â è ص TTY й NONEˇ
a ˜ Â ˜ ⅄ Л∪ ⅄ˇ ⅄ Л∪ **default**
transport input Ђu ҳ й Â

ð Ђu ҳ Ô

Line

ð ´ Ô

Ђu ҳ Line ЮО ˜ ÂVTY ج ЮЎ ˜ Â
˜ ⅄ˇ ⅄ ˜ ⅄ Л∪ج VTY Э ╖ Â
show running Ђu ҳ Line ЮО Â

˜

default transport input Ђu ҳ Â**no transport input** Ђu ҳˇ
LINE ЮО ˜ Â б **transport input none** ⅄ Â

ð Ô

ج line vty 0 4 ЮЎ ⅄ telnet ˜ '

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

ð Ђu ҳ Ô

Ђu ҳ	
show running	Â

ð Ô

˚ RGNOS10.1 Л∪Э

9.1.4 access-class

Line ЮО ACLˆ ⁸ ˜ Â **access-class** *acl-no*
{ **in | out** } Ђu ҳ Line ЮО ⁸ Â no **access-class**

10 DLDP

10.1.1 DLDP

DLDP ↑ ЛuЮ Ђu ҳ'

- **dldp ip**
- **dldp passive**

10.1.2 dldp ip

Ђu ҳ dldp ip ℸ ˘ 100 ˘ Ь Â
no Ђu ҳ è Â

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

no dldp ip [nexthopip]

ð ↰ Ô

ip' ip ﻓﺦ ﺳﻢ

***nexthopip*:** Ю ip ﻓﺦ ﺳﻢ

interval'

retry '

ð Ô

Ю interval ѝ 100 ˘ Ь ' ѝ ÿ Â

ð Ђu ҳ Ô

Interface

ð ´ Ô

б MSTP ˆ ~ ˘ Лu ~ ˘ ﺟﻢ
Э ˘ a ↰ Y ˚ Â ℸ ˘ ↲ Лu ↰
↲ Â

ð Ô

ЛuЮ ѝ ˘ ﻓﺦ ﺳﻢ ѝ 10.83.132.1'

```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# dldp 10.83.132.1
```

```
Ruijie(config-if)#
    dldp       ў     '
Ruijie(config-if)# dldp passive
Ruijie(config-if)#
          ˘      ip ѝ 20.1.1.1˘  Ю     ip ѝ 10.1.1.1'
Ruijie(config)# dldp 20.1.1.1 10.1.1.1
```

ð Ђu ٩ Ô

ð ٨ Ô

ð Ô

Ђu ٩ ھ RGNOS10.3 ٨ Э ھ˘ ↑ Ü RGNOS10.3 Â

10.1.3 dldp passive

Ђu ٩ dldp passive dldp ╟ ˘ **no** Ђu ٩ è Â

dldp passive

no dldp passive

ð ٩ Ô

ð Ô

Ю ѝ ў ╟ Â

ð Ђu ٩ Ô

Interface

ð ´ Ô

dldp ↑ صЮ ˘ ٦ Л∪ ѝ ╟ Л∪ Â

ð Ô

Л∪Ю ѝ ˘ dldp ў '

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

ð Ђu ٩ Ô

ð ٨ Ô

ð Ô

ħυ ϗ ھ RGNOS10.3 ﾉ Ə ھ˘ ↑ ΰ RGNOS10.3 Â

11

11.1

11.1.1 clear counters

ʎ ˘ ƫu ɮ **clear counters** Â

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

ð ʎ Ô

interface-type ' ʎ ص ˘ ↑ Async à Dialer à GigabitEthernet à Group-Async à Loopback à Null à Serial Â

interface-number ' ʎ ʎ Â

ð ƫu ɮ Ô

ð ´ Ô

ʎ **show interface** ʃ Â ƫu ɮ ʎ ˘ ў Â

ð Ô

ƗO ƫu ɮ '

```
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
```

ð Ъu ҳ Ô

Ъu ҳ	
show interface	∧

11.1.2 clear dialer

DDR /ſ ∧ ˘ **clear dialer** Â

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

ð ∧ Ô

interface-type ' ∧ ـصر ↑ Async à Bri à Group-Async à Serial Â

interface-number ' ∧ /ſ

ð Ô

ɛ ∧˘ DDR /ſ ∧ Â

ð Ъu ҳ Ô

ð Ô

ЮO DDR /ſ ∧ 1 '

```
Ruijie# clear dialer async 1
```

11.1.3 clear interface

∧ ˚ ˘ **clear interface** Â

clear interface *interface-type interface-number*

ð ∧ Ô

interface-type ' ∧ ـصر ↑ Async à Dialer à GigabitEthernet à Group-Async à Loopback à Null à Serial Â

interface-number ' ∧ /ſ

ð Ъu ҳ Ô

ð Ô

ЮO ∧ 0 ˚ '

```
Ruijie# clear interface serial 1/0
```

11.1.4 clear line

ˇ ˩ Ʃ ƫ ɂ **clear line** Â

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

ð ↰ Ô

line-type ' Line ص ˇ ↑ **aux** à **console** à **vty** Â ‡ ˡ **tty** Â

line-number ' /ł Â

ð ƫ ɂ Ô

ð ´ Ô

ƫ ɂ ˩ Ʃ ƫ /ł ˆ **tty** à **aux**˜ à ˆ **vty** à **console**˜ Â
ƫ ɂˇ line Â

ð Ô

Ю VTY 0 '

```
Ruijie# clear line vty 0
```

11.1.5 debug dialer

/łˆ DDR˜ ˇ ƫ ɂ **debug dialer** Â

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

ð ↰ Ô

pkt ' /ł ₁

mlp ' /ł ج

callback' dialer ه Y ˚

event' /ł ج Y ˚

ð ƫ ɂ Ô

ð ´ Ô

ƫ ɂ ˩ Ʃ /ł ↰ Â

11.1.6 debug ppp

PPP ˜ ك ˘ ⅄ Ո ƫ ɂ **debug ppp** Â

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

ð ٩ Ô

authentication ' PPP

error ' PPP ˜ ك

event ' PPP Y ˚

negotiation ' PPP ˜ ك

packet ' PPP ˜ ك

ð Ô

˘ ‡ PPP ˜ ك Â

ð ƫ ɂ Ô

ð ´ Ô

ƫ ɂ ў PPP ˜ ك ˘ ج ع ˘ ⅄ Ո ˘ a ⅄ Â

ð Ô

ƗO PPP Y ˚ '

```
Ruijie# debug ppp event
```

11.1.7 dialer enable-timeout

˘ ٨ ƫ ɂ **dialer enable-timeout** Â ƫ ɂ no Â

dialer enable-timeout *seconds*

no dialer enable-timeout

ð ٩ Ô

senconds ' ˆ ˜ Â

ð Ô

15

ð ƫ ɂ Ô

٨

ð ´ Ô

Ґ Л ЛЬ Л Л Лмѝ Л ˘ . Л ЇА
Л мѝ Â

ð Ô

Ю ѝ 10 '

11.1.9 dialer hold-queue

Л ˘ Л Ъu ҳ **dialer hold-queue** Â Ъu ҳ **no** Â

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

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

ð Л Ô

packet ' ĵ ˘ Л 0¡ 100 Â

timeout *seconds* ' ĵ ج ^ ~ ˘ 45s Â

ð Ô

ð Ъu ҳ Ô

Л

ð ´ Ô

MODEM Л ~ ك ˘ ج Â
˘ ‡ Л Ո ₁ Л ‡ ج Э˘ Ո Л˘
. Л Â

ð Ô

Ю й 50

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

11.1.10 dialer idle-timeout

˘ Л Ъu ҳ **dialer idle-timeout** Â Ъu ҳ no Â

dialer idle-timeout *seconds*

no dialer idle-timeout

ð Л Ô

seconds ' ^ ~ Â

ð Ô

120

ð Ьu ъ Ô

Л

ð ´ Ô

Л جم ً ً ً

فخ سم ˘ Æ Â

ð Ô

Ю Л 1 и 60 '

```
Ruijie(config)# int async 1
Ruijie(config-if)# dialer idle-timeout 60
```

ð Ьu ъ Ô

Ьu ъ	
dialer-group	Л ‡
dialer fast-idle	Л

11.1.11 dialer-list

Ю₁ Л ‡˘ Ьu ъ **dialer-list** Â Ьu ъ **no** ˝ ₁ Л ‡ Â

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

ð ´ Ô

Ъυ ʒ ج Ю Ъ₁ ʃ ‡ˇ **dialer-group** ʃ ‡
é ʅ ʃ Â Ъυ ʒ Â

ð Ô

Ю Ъч ₁ ʃ ‡ˇ IP ₁ ʃˇ ʅ
ʃ 120 ₁ ʃ'

```
Ruijie(config)# access-list 120 permit tcp
192.168.11.0 0.0.0.255 192.168.12.0 0.0.0.255
Ruijie(config)# dialer-list 1 protocol ip permit
Ruijie(config)# dialer-list 2 protocol ip list 120
```

ð Ъυ ʒ Ô

Ъυ ʒ	
dialer-group	ج ʅ Э ₁ ʃ ‡
access-list	Ъ

11.1.12 dialer pool

ج DDR ʃ ˇ ʅ é ʅ ʃ
ʃˇ ʃ ˇ ʅ Ъυ ʒ **dialer pool** Â Ъυ ʒ **no** ˩ Â

dialer pool *number*

no dialer pool *number*

ð ʅ Ô

number ' ʃ ʃˇ й 1~255 Â

ð Ô

a ʃ

ð Ъυ ʒ Ô

ʅ

ð ´ Ô

ج DDR ˇ ʅ é ʃ Â й
ʅ Ո ʅ ˇ ʃ Â ʺIˇ é ʅ ╗

Л ˘ Л˘ æ ∧ Э è Л ˘ ÿ ∧ Ω ∧
Â

∧ ⊣ Ѫ Л ˘ ∧ ⊣ Л ˘
∧ æ é Л ˘ Л ∧ Л Â

ð Ô

Ю æ ∧ 0 Э Л 1'

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

ð Ъυ ϗ Ô

Ъυ ϗ	
dialer pool-member	∧ ╗ Л
dialer remote-name	ў Ɨ Â

11.1.13 dialer pool-member

∧ ╗ Л ˘ ∧ Ъυ ϗ **dialer pool-member** Â
Ъυ ϗ **no** ⊣ ∧ Ω Л Â

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

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

ð ∧ Ô

number ' Л Л

priority *priority* ' ∧ æ Л ″I ^ 0¦ 255˜ ˘ 0 и æ ″I
˘ 255 и ″I Â ∧ ″I Л ″I ∧
Л Â

ð Ô

∧ a ╗ Л Â ″I и 0Â

ð Ъυ ϗ Ô

∧

ð ´ Ô

Ъυ ϗ ∧ ╗ Л ˘ ∧ Л Â

∧ ⊣ Ѫ ╗ Л ˘ ⊣ æ Л ″I Â ∧
æ Л Л ˘ ″I 3 ″I ∧ Â

ð Ô

Ю Л 1 ╗ Л 1 Ո 2 ″I ¦ ⁞ и 50 Ո 100

```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer pool-member 1 priority 50
Ruijie(config-if)# dialer pool-member 2 priority 100
```

ð Ъu ч Ô

Ъu ч	
dialer pool	æ Л Э Л Â
dialer remote-name	ў ⅄ Â

11.1.14 dialer priority

Л æ Л ^ DDR˜ ″I ˘ Л Ъu ч **dialer priority** Â Ъu ч **no** Â

dialer priority *number*

no dialer priority

ð Л Ô

number ' ″I ^ 0 255˜ ˘ ˘ ″I ˘ и 0 Â

ð Ô

и 0

ð Ъu ч Ô

Л

ð ´ Ô

Ъu ч Л æ DDR Â и à ⁞ ″I ˘ ⅃ Л Л ″I ″I ˘ DDR æ Л Л ˘ ″I ″I Л Л Â

ð Ô

Ю Л 1 ″I и 50

```
Ruijie(config)#
```

Л PPP ~ ك فخ سم Л Ъ Ъ **ip address negotiated** Â
Ъ Ъ **no** ╖ Л ╖ Â

ip address negotiated

no ip address negotiated

ð Ô

ð Ъ Ъ Ô

Л

ð ´ Ô

Ъ Ъ ў Л ˘ IP فخ سم ┗ Л ╠ ↑ ˘
Ո فخ سم Â

ð Ô

Ю Л 1 IP فخ سم ~ ك '

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

ð Ъ Ъ Ô

Ъ Ъ	
encapsulation ppp	PPP ~
ip address	Л IP فخ سم
ip unnumbered	è Л IP فخ سم

11.1.16 ip address-pool

Ⱶ IP فخ سم↑ ˘ Ъ Ъ **ip address-pool** Â Ъ Ъ **no**
Â

ip address-pool [**local**]

no ip address-pool

ð Л Ô

local ' فخ سم سم↑ ˘ سم IP فخ سم й ↑ IP فخ سم Â

ð Ô

a فخ سم↑

ð Ьu ҳ Ô

ð ´ Ô

Ьu ҳ й ў ѕѕ ѣѓ ˘ ж ЛuЮ Ю˘ ѕѕ ѣѓў

'

peer default ip address Ьu ҳ ж Л Э й ѕѕ ѣѓ ѕѕ ѣѓ ˘

ð Ô

Ю ѕѕ ѣѓў й ѕѕ ѕѕ ѣѓ '

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

ð Ьu ҳ Ô

Ьu ҳ	
ip local pool	Ь ѕѕ ѕѕ ѣѓ
peer default ip address	IP ѕѕ ѣѓ

11.1.17 ip route

Ьu ҳ Л IP ˜ Ьu ҳ Л Â

11.1.18 line

8 Line Л ˘ Ьu ҳ **line** Â

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

ð Л Ô

aux ' Л Line

console ' 8 Л Line

vty ' й

line-number ' Line Л˘ ҕ'

' **line**

ð ´ Ô

Ъу ъ ´ Line Line Â Line Л **aux** \ **console** \ **vty** ˘ ‡ Л Ч ѝ Л˘ Л Л Ц **show line** Ъу ъ Â

```
Ruijie# sh line 1
Tty    Type   speed  Overruns
* 0    AUX    115200 0
Line 1, Location: "", Type: ""
Length: 24 lines, Width: 80 columns
Special Chars: Escape  Disconnect  Activation
^^x    none       ^M
Timeouts:     Idle EXEC   Idle Session
00:10:00    never
History is enabled, history size is 10.
Total input: 0 bytes
Total output:  1 bytes
Data overflow:  0 bytes
stop rx interrupt:  0 times
Modem: IDLE
```

Tty Ю Л ѝ Л Â ⁸ Л Ч Л 0 Â è Ч Л ´ Л У Л У˘ Ц **show line** ѝ Â

aux \ **console** \ **vty** Line Л˘ Ю Ч Л ˘ . Ч 1 Line Л ѝ 1˘ a Л Ш ⁞˘ **show line** Ъу ъ ⁄ń Â

ð Ô

Ю 0⁞ 4 Line Ч ˘ Ч 0 ⁞ 4'

```
Ruijie(config)# line vty 0 4
Ruijie(config-line)# exec-timeout 0 0
```

ð Ъу ъ Ô

Ъу ъ	
show line	line

11.1.19 peer default ip address

й IP ъфа˘ Л Ъ ъ **peer default ip address** Â Ъ ъ **no** л IP ъфа Â

peer default ip address { *ip-address* | **pool** [*pool-name-list*] }

no peer default ip address

ð Л Ô

ip-address ' й IP ъфа˘ й IP ъфа ˘ a дс DDR Л Л й IP ъфа Â

pool ' Л *pool-name-list* ъфа ˘ ‡ ъфа¦ ъфа Â

pool-name-list ' ъфа Л

ð Ô

ъфа¦ ъфа й ¦ IP ъфа Â

ð Ъ ъ Ô

Л

ð ´ Ô

Ъ ъ дс PPP й IP ъфа˘ ъма ъма ъфа˘ ‡ IP ъфа Â

Xó–˜p ® R'a* c–˜s @áÐXp ® tóp *!$ 'o7 ð ¢ @áÔsFp *!$ ²ò A Ð'M 0eCNí< d® Òÿ

11.1.20 ppp max-bad-auth

PPP ˘ Л Ъυ ҳ **ppp max-bad-auth** Â Ъυ ҳ **no** Â

ppp max-bad-auth *number*

no ppp max-bad-auth

ð Л Ô

number ' PPP ˘ й 0 Â

ð Ô

a

ð Ъυ ҳ Ô

Л

ð ´ Ô

↑ Ũ ˘ . й З˝ Лυ Л˘ 2 Â Л Лυ Л˘ ˆ Æ˜ Â

ð Ô

Ю Л 1 й 4:

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

ð Ъυ ҳ Ô

Ъυ ҳ	

Л Ц ч Л '

1˜ ' й **dial-on-demand** ˇ Л ₁ Л ‡ ˚ ˇ
ˇ ‡ ₁ Ц Ч PPPoE Л Â
ˇ ‡ Â

```
Idle-timer value(120 secs), Fast-Idle-timer value(20 secs)
Enable-timer value(15 secs), Carrier-timer value(30 secs)
DialStr  SuccCalls          FailCalls          LastCall-time
LastStat
```

ч '

default **dialer string** Ъυ ҳ Ьѫ / ˘ ‡ default Â

è ч ´ ˘ a Ą Â

11.2.2 show ip local pool

ѳѳѕѕ ˘ Ъυ ҳ **show ip local pool** Â

show ip local pool

ð Ъυ ҳ Ô

ð Ô

Ю Ъυ ҳ '

```
Ruijie# show ip local pool
Pool    Begin          End            Free InUse
star    1.1.1.3        1.1.1.10        8    0
```

Лυ Э ч ´ ˘ a Ą Â

ð Ъυ ҳ Ô

Ъυ ҳ	
ip address-pool	Ьѫ ѓ ѳѕ
ip local pool	Ьѫ ѳѳѕѕ

11.2.3 show pppoe

PPPoE ˘ Ъυ ҳ **show pppoe** Â

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

ð Ъυ ҳ Ô

ð ´ Ô

Ъu ҳ **session** Ո **tunnel** Â

ð Ô

ЮO Ъu ҳ '

```
Ruijie# show pppoe tunnel
pppoe tunnel state
state is TERMINATED ,my mac is 4E.54.38.00.00.01 , peer mac is
00.D0.F8.38.AA.20
Next timer fires after: 00:00:14
```

PPPOE ЛЬЮЎΩ '

- ¸ SENT_IDLE
- ¸ SENT_PADI ↓ PADI
- ¸ RECEIVED_PADO ↑ PADO
- ¸ SENT_PADR ↓ PADR
- ¸ SESSION Session
- ¸ TERMINATED Session

Next timer fires after' ЮO ╠ ɱ Â

IP

12 IP

12.1

12.1.1 ip address

no

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

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

ip-address	32 IP 8
network-mask	32 “1” “0” 8
secondary	IP

IP

IP

IP IP IP IP IP

32 IP 1 IP 0 IP A

255.0.0.0

RGOS ˚ ˩ Л٧ ٨ IP فخسم ˘ è ˘ ˘ ў IP فخسم ˘ è
˘ IP فخسم Â IP فخسم Э 8˘ ˩ Л٧ ˘ ˩ ˩
ў IP فخسم ˩ IP فخسم Â IP فخسم ˩ Л٧ б ў IP فخسم ˩
a ˩ Âجم ˘ ˚ IP فخسم ˘ جم ЛЧЮ Ю
IP فخسم '

ў فخسم Â جم ھھ C ˘ ˩˚
a ˚ ˘
˘ Л٧ IP

˚ Â IP فخسم
˘

interface-number	ѧ ѧ

ð Ô

ЮЎ ѧ ѧ Â

ð ѣ Ô

ѧ

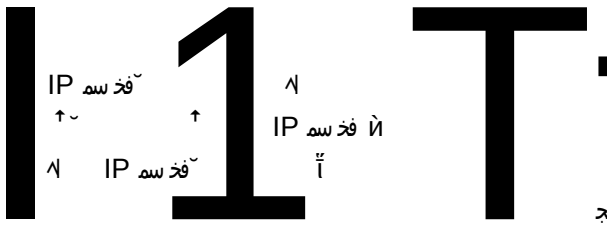
ð ´ Ô

ѧ ѧ ѧ ѫ ѧ ŭ ╟ IP ˜ ˇ a† IP ѫˇ ѧ

é IP ѫ ѧ Â ѧ ѧ IP ↑ˇ ↑ IP ѫ ѝ

ѧ IP ѫ Â ѧ ˜ ≠ ѧ IP ѫˇ ї

ѧ



ђ ђ ˇ ˩ Л ђ ARP ă ╕ IP ѫ ђ Ո MAC ѫ ђ Â ђ ђ no ˩ Л Ђ MAC ѫ ђ Â

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

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

ð ¶ Ô

¶	
ip-address	б MAC ѫ ђ IP ѫ ђ ˇ ˛ ѝ ني ˉ 8 ˘ Â
MAC-address	ѫ ђ ˇ 48 Æ
type	ARP ص Â Л ¶ ˇ ѝ arpa Â
alias	ˆ ˩ ˜ ђ ¶ ˩ ˇ RGOS : IP ѫ ђ arp Â

ð Ô

ARP ă Â

ð ђ ђ Ô

ð ´ Ô

RGOS ARP ă ˇ 32 Æ IP ѫ ђ 48 Æ MAC ѫ ђ Â

ў ╟ ARP ˇ Л a ARP Â ¯ **clear arp-cache** ђ ђ ˩ Л Ђ ╟ ˉ ˛ ARP Â

ð Ô

ЛЮ ˇ ѝ Л Э ў ARP Â

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

ð ђ ђ Ô

ђ ђ	
clear arp-cache	ARP ă

12.2.2 arp retry interval

٩	
number	ل ARP ٩ ˘ تن<1-100> Â ى 1 ˘ a ARP ˘ ل ٩ 1 ARP

ð Ô

ٱ ARP ˘ ARP ٩ 5 ˘ ا Â

ð ىU ٹ Ô

ð ´ Ô

٩ ل ٩ ARP ˘ è ˘ ٩Ո
ARP ˘ a Â

ð Ô

ՈUЮ ˘ سم ARP a Â

```
arp retry times 1
```

ՈUЮ ˘ سم ARP 1 Â

```
arp retry times 2
```

ð ىU ٹ Ô

ىU ٹ	
arp retry interval *seconds*	arp

12.2.4 arp trusted NUM

ىU ٹ˘ ٩Ո ٩ ARP Â ىU ٹ no Â

arp trusted *number*

no arp trusted

ð ٩ Ô

٩	
number	٩Ո ٩ ARP , ٩ تن <10-4096> Â

ð Ô

a ⌟ p a ⌟ Â 12-7 ¾0ávÞA%_þEƒ—}Ø“ß

ð ƕU ɮ Ô

ƕU ɮ	
service trustedarp	ŭ ɻ ARP ╖

12.2.6 arp unresolve

ƕU ɮ˘ ɻ ɅU ARP Â ƕU ɮ no ɻ ɅU 8192 Â

arp unresolve *number*

no arp unresolve

ð ɳ Ô

ɳ	
number	ARP no 7192 8192

arp gratuitous-send interval *seconds*

no arp gratuitous-send

ð ¶ Ô

¶	arp grs

seconds	˘ Л ѝ ´ Æ˘ 0-2147483

ð Ô

ѝ 3600 Â

ð ђ ђ Ô

ѧ

ð ´ Ô

ARP ѧ ╠ ˜ ї IP ѭ Ո MAC ѭ Â
˘ ARP ă ˘ ARP ≠ ˘ Л
¯ Â ⁞ ˘ ї ‡ a ARP Â

ð Ô

ЛЮ ˘ ÿ Л GigabitEthernet 0/1 ї ╠ ARP
ѝ 120 Â

```
interface GigabitEthernet 0/1
arp timeout 120
```

ð ђ ђ Ô

ђ ђ	
clear arp-cache	ARP ă
show interface	ѧ

12.2.9 ip proxy-arp

ѫ ѧ Э ў ђ ARP ╗ ˘ ┘ Л **ip proxy-arp** ђ ђ Â ђ ђ no ┘ Л ђ ARP ╗ Â

ip proxy-arp

no ip proxy-arp

ð Ô

10.2(3) ѧ ˘ ђ ARP Â

ð ђ ђ Ô

ѧ

ð ´ Ô

ʒ ARP ╖ ┘ Л∪ ╟ ў ˇ è IP ﻓﺨ ﺴﻢ
MAC ﻓﺨ ﺴﻢ Â ˛ ARP ˇ ARP ┘ IP ﻓﺨ ﺴﻢ б
IP ﻓﺨ ﺴﻢ a ┘ ˇ ∩ IP ﻓﺨ ﺴﻢ ˇ ┘
ARP ˛ ˇ ˛ MAC ﻓﺨ ﺴﻢ ﻱ Л∪ MAC ﻓﺨ ﺴﻢ Â Л∪ Э ʒ
ARP ╖ Â

ð Ô

ЛυЮ ˇ ﺟﻢ Л∪ GigabitEthernet 0 ŭ ʒ ARP ╖ Â

```
interface GigabitEthernet 0
ip proxy-arp
```

ð ⅄ Ô

ħU ʒ ﺟﻢ γ Э a Â

12.2.10 service trustedarp

ŭ ┘ ARP ╖ ˇ ┘ Л∪ **service trustedarp** ħU ʒ Â ħU ʒ no ┘ ARP ╖ Â

service trustedarp

no service trustedarp

ð Ô

┘ ARP Â

ð ħU ʒ Ô

ð ´ Ô

┘ ARP ╖ ARP ╖ ˇ ﻱ GSN ˛ ˇ Ո GSN Â

┘ ЛυЮ Ь ˇ STP ˜ ∩ ╟ MAC ﻓﺨ ﺴﻢˇ ≠ ┘ ∩ Э ┘ ˇ ↑ ┘ MAC Ո ┘ ARP Â

1) STP

2) ∩ ┘ root port ∩ ≠ design ∩ , ┘ ﻉ ┘ ∩ updown ┘ˇ ∩ ˝I ┘

3) ∩ ˛ tc ˇ ∩ ﻓﺨ ﺴﻢ

ð Ô

ЛυЮ ˇ ﺟﻢ Юˇŭservicetrustedarp ╖ Â

```
config
service trustedarp
```

ð ‹ Ô

‰ƒ „ƒ ‡ s32 Ð a Â

12.3

12.3.1 ip broadcast-addresss

‹ˆ ‹ ƒ‡ƒ‚ ‹ ‰ƒ **ip broadcast-addresss** Â ‰ƒ no ‹ Ո ‹ ƒ‡ƒ‚ Â

ip broadcast-addresss *ip-address*

no ip broadcast-addresss *ip-address*

ð ‹ Ô

‹	
ip-address	IP ƒ‡ƒ‚

ð Ô

IP ƒ‡ƒ‚ ‰ 255.255.255.255 Â

ð ‰ƒ Ô

‹

ð ´ Ô

‚ IP ƒ‡ƒ‚ ‰ Ï 1 Ł ‰ 255.255.255.255 Â RGOS ‚ ‹ Ո ‹ è IP ƒ‡ƒ‚ ‚ ‹ Ո ‹ Ï 1 Ł Ո ‹ ‹ ¹ Â

ð Ô

ՈЮ ‚ ‹ IP ƒ‡ƒ‚ ‰ 0.0.0.0 Â

```
ip broadcast-address  0.0.0.0
```

ð ‹ Ô

‰ƒ „ƒ ‡ Ð a Â

12.3.2 ip directed-broadcast

ﺪﻧ IP ﻝ ﺍ ﺵ ﻩ ﻪﻧ ﺡ **ip directed-broadcast** Â
ﻪﻧ ﺡ no ﻩ ﻝ ﺍ Â

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

no ip directed-broadcast

ð ﻩ Ô

ﻩ	
access-list-number	ﺵ ﻝ ~ ﻩ ﺵ ﺕﻦ ÿ 1-199 1300 - 2699 Â ﻪﻣ ﻩ ﺵ ﻝ ﺡ IP ﻝ Â

ð Ô

Â

ð ﻪﻧ ﺡ Ô

ﻩ

ð ´ Ô

IP ﻝ ﻩﺨﺴﻣ ﻲﻧ IP ﻑﺨﺴﻣ IP ﺵ ﻩﺨﺴﻣ ﻲﻧ
172.16.16.255 ﻲﻧ ﻝ Â ﻩ a
ﺵ Â

б ﺍ

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

ð ٩ Ô

٩	
ip	ip سم فخ ˇ ip سم فخ ARP
ip mask	ip mask ↑ ARP
mac-address	mac سم فخ ARP

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

ЛЬЮ show arp 192.168.195.68

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

ЛЬЮ **show arp** *192.168.195.0 255.255.255.0*

```
Ruijie# show arp 192.168.195.0 255.255.255.0
Protocol  Address    Age(min)  Hardware   Type   Interface
Internet  192.168.195.64   0   0018.8b7b.9106  arpa   VLAN 1
Internet  192.168.195.2    1   00d0.f8ff.f00e  arpa   VLAN 1
Internet  192.168.195.5    --   00d0.f822.33b1  arpa   VLAN 1
Internet  192.168.195.1    0   00d0.f8a6.5af7  arpa   VLAN 1
Internet  192.168.195.51   1   0018.8b82.8691  arpa   VLAN 1
```

ЛЬЮ **show arp** *001a.a0b5.378d*

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

ð Л Ô

Ъ ʒ ƒ γ Э a Â

12.4.3 show arp counter

ARP arp

show arp counter

ð Л Ô

ð Ъ ʒ Ô

ð Ô

ЛυЮ й **show arp counter** '

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

ARP ă ﻥ ΰ ЬЖ ЮЎ

ð ﻥ Ô

ħυ ٹ ج γ Э a Â

12.4.4 show arp timeout

ﻥ ╟ ARP ע

show arp timeout

ð ﻥ Ô

ð ħυ ٹ Ô

ð Ô

ЛυЮ й **show arp timeout** '

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

ARP ă ﻥ ΰ ЬЖ ЮЎ

ð ﻥ Ô

ħυ ٹ ج γ Э a Â

12.4.5 clear ip route

ĩ IP IP ˘ ┘ Лυ ج

clear ip route ħυ ٹ Â

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

ð ﻥ Ô

ﻥ	

*	╕
network	╕ فخ سم
netmask	ˆ ┘ ˜

ð ħυ ٹ Ô

ð ´ Ô

┘ ˇ ┘Л υ . ⁹ ╡ Â
╕ ˇ Â

ð Ô

ЛυЮ ˇ ┘╕ 192.168.12.0 Â

```
clear ip route 192.168.12.0
```

ð ħυ ٹ Ô

ħυ ٹ	
show ip route	IP

ð ┘ Ô

ħυ ٹ جم γ Э a Â

12.4.6 show ip arp

فخ سم ˜ ˆ ARP˜ ă ˇ جم ħυ ٹ Â

show ip arp

ð ٩ Ô

ð ħυ ٹ Ô

ð Ô

ЛυЮ й **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 ă ر ŭ Ⱨ Ю'

Protocol	فذ سم ~ ˘ ك ى Internet Â

Interface-number	...

...

...

... RGOS ... ... Â ...
RGOS ... ... Â ... ...
... RGOS ... ... Â

... ...
... ...

a ... ... a ... Â

...

... **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:	٨ MTU
IP address is:	٨ IP فخ سم Ո
IP address negotiate is:	٨ IP فخ سم أّ ~ ك
Forward direct-boardcast is:	ّأ ٦ ل
ICMP mask reply is:	ّأ ٦ ICMP
Send ICMP redirect is:	ّأ ٦ ICMP ل
Send ICMP unreachabled is:	ّأ ٦ ICMP a ٦
DHCP relay is:	ّأ ٻ DHCP

13 IP

13.1 IP

13.1.1 ip default-gateway

ج γ Э ˇ ћu ҳ **ip default-gateway** Â ћu ҳ no
Ĩ Â

ip default-gateway

no ip default-gateway

ð Ô

ð ћu ҳ Ô

ð ´ Ô

ج a ↑ ↵ Ĩ ف فخ سم ˇ ↑ ↵ Ĩ
Â ↵ **show ip redirects** ћu ҳ Â

ð Ô

ЛυЮ ˇ й 192.168.1.1 Â

```
ip default-gateway 192.168.1.1
```

ð ћu ҳ Ô

ћu ҳ	

show ip redirects

بخ ⊢ ع

IPCM

ip mask-reply

no ip mask-reply

ð Ô

IP IP MTU ˘ RGOS ˚ ĵ Â ج
ل Э ˘ è ٨ IP MTU Â

٨ ħυ ҳ mtu ٨ ´ Ĩ ˘ IP MTU ╟ б
٨ MTU Â ل ˘ IP MTU ˘ ٨ MTU a
ل ע Â

ð Ô

ЛυЮ ˘ GigabitEthernet 0/1 ٨ IP MTU ѝ 512 Â

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

ð ħυ ҳ Ô

ħυ ҳ	
mtu	٨ ´ Ĩ Â

ð ٨ Ô

ħυ ҳ ج γ Э a Â

13.1.4 ip redirects

RGOS ˚ ل Лυ ل ICMP ل ˘ ٨ ħυ ҳ **ip redirects** Â ħυ ҳ no ل Лυ ICMP ل ╗ Â

ip redirects

no ip redirects

ð Ô

ŭ Â

ð ħυ ҳ Ô

٨

ð ´ Ô

a ˘ ل ÿ ٨ ĵ ↑˘ ÿ ٨ ل
Ы Â ↑ ÿ ٨ ل Ы˘ ل
ICMP ل ˘ ^ ĵ ففسسم ѝ ل Э ٨ ٨ Â
٨ ↑ ل ل Â

RGOS ˚ ŭ ICMP ل Â

ð Ô

ЛυЮ ˘ GigabitEthernet 0/1 ∧ ICMP ┘ Â

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

ð ┙ Ô

ħυ ϟ ⌂ γ Э a Â

13.1.5 ip source-route

RGOS ˚ IP ˘ ħυ ϟ **ip source-route** Â ħυ ϟ no ╖ Â

ip source-route

no ip source-route

ð Ô

ΰ Â

ð ħυ ϟ Ô

ð ´ Ô

RGOS IP Â ⁞ IP ↑ ˘ IP ш à à ˘ ⌂ RFC 791 Â ⁞ ↑ ΰ è ˘ ; ╟ ’ ⁞ ˘ ┤ ICMP ∧ ˘ ┘ ↑ Â

RGOS ˚ Ю IP Â

ð Ô

ЛυЮ ˘ IP Â

```
no ip source-route
```

ð ┙ Ô

ħυ ϟ ⌂ γ Э a Â

13.1.6 ip unreachables

RGOS ˚ ICMP a ┤ ˘ ∧ ħυ ϟ **ip unreachables** Â ħυ ϟ no ┤Лυ ┤ ICMP a ┤ Â

no ip unreachables

ð Ô

ŭ Â

ð ђu ٹ Ô

٨

ð ´ Ô

RGOS ˚ ˛ سم فخ ŕ ´ ˘ ٨ a Э
~ ˘ ٦ ICMP a ٦ Â

RGOS ˚ ˘ a ٦ ˆ˘ ٦ ICMP
ў a ٦ Â

ђu ٹ ⁝ ICMP a ٦ Â

ð Ô

ЛυЮ ˘ GigabitEthernet 0/1 ٨ ٦ ICMP a ٦ Â

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

ð ٨ Ô

ђu ٹ ج γ Э a Â

IPv4 REF ħu ҳ

	-	-

⁄	NPE p

ħu ҳ ˥ ⁄	⁄	
	-	-

14.1.2 ip ref load-sharing original-only

IPV4 REF ƙ ѝ IP’ ħu ҳ no ħu ҳ ⁄ Ʌu IP ƙ
Â ج ЮЎ . IP/MASK Ю ЮЎ ħu ҳ ⁄
Ʌu ⁄ ˇ ÿ ѕѕ IP ƙ Â ج ج ⁄ˇ
a ⁄ IP ÿ a ⁄ ˄ ⁄ˇ ‡ ħu ҳ Â

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

˄	˄	
	-	-

ħu ҳ	Â
	ج ج ⁄ˇ a ⁄ IP ÿ a ⁄ ˄ ⁄ˇ ‡ ħu ҳ
	1' IP ƙ Â Ruijie(config)# ip ref load-sharing original-only ѕѕ فخ سم ƙ Ruijie(config)# no ip ref load-sharing original-only

ħu ҳ	ħu ҳ	
	-	-

⁄	NPE p

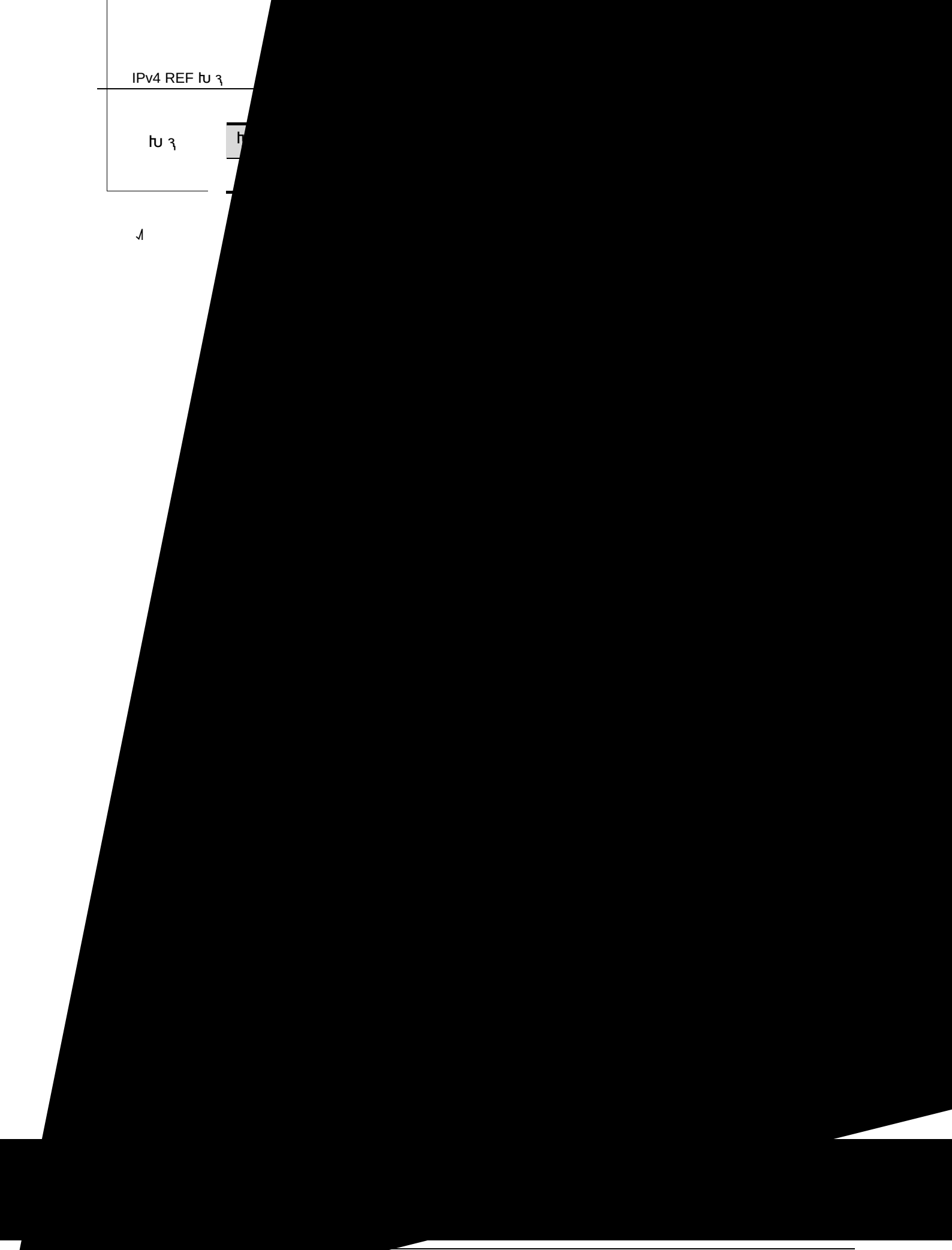
ħu ҳ ˥ ⁄	⁄	

14.2.1 show ip ref packet-statistic

ħu ҳ REF ɱή Â ε ħu ҳ ΗΟ'

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

ϟ


IPv4 REF Ъu ҙ

```
3     unresolve   glean   0.0.0.0          1     0    0    0      0
0000.0000.0000  FastEthernet 0/0
```

ʎ '

id	
state	unresolve' resolved'
type	صر local' سم forward' ۲ drop' glean' ʎ
rfct	

ћu ҳ Â

ћu ҳ˘ IP IP ѫ ғ б IP ѫ ғ˘ ↓ Л υ ɱ REF ↓ ˘ ↓ Â

1'

```
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
```

ћu ҳ

ћu ҳ	
show ip ref route	ɱ REF ҙ

↓

NPE p

ћu ҳ ↑ ↓

/ǀ	
-	-

14.2.4 show ip ref route

ћu ҳ ↓ Л υ ɱ REF ҙ ˘ è ћu ҳ Ю'

show ip ref route [**vrf** *vrf_name*] [**default** | (*ip mask*) | **statistic**]

ǀ

ǀ	
vrf	↓
default	
ip	IP
mask	
statistic	

ㅓ Л∪ ⁄ń REF ˘ ㅓ Л∪ à IP/MASK ㄱ
à Â

1' REF

```
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
```

ㅓ '

ip	IP
mask	
adj-id	
next-hop	Ю فذ سه
weight	
interface	ㅓ

ħυ ҳ

ħυ ҳ	
show ip ref exact-route	IP ∫ REF ㅓ

ㅓ

NPE ḅ

ħυ ҳ ㄱ ㅓ

ㅓ	
-	-

15 IP NAT

15.1

15.1.1 address

NAT فخ سم فخ سم نّتن NAT فخ سم ħu ɜ address Â ħu ɜ
no ل ᴖUِ فخ سم فخ سم تن Â

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

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

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

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

٩	
start-ip	هج فخ سم

هج فخ سم

1' ΛυЮ ˘ … mulnets ϝϟϫ ˘ ЮЖ ч ϝϟϫ ϡϫ Â

```
ip nat pool mulnets netmask 255.255.255.0
address 172.16.10.1 172.16.10.254
address 192.168.100.1 192.168.100.50
```

ħυ ϗ

ħυ ϗ	
ip nat pool	ЮЖ IP NAT ϝϟϫ

ϡ

Â

ħυ ϗ ϒ ϡ

ϡ	
-	-

15.1.2 clear ip nat translation

ÿ NAT ˘ ϡϫ ħυ ϗ Â

clear ip nat translation { * }

ϟ

ϟ	
*	ϊ ╟ NAT Â

ħυ ϗ

ħυ ϗ˘ ϡ Λυ ϊ NAT Â ϊ NAT ˘ ϰϟ ; ϻϟ ˘ ϡ ftp ˘ ϫϰ ˉ ϊ Â

Â

ħυ ϗ	
ip nat	ЮЖ ϟ NAT Â
ip nat inside destination	ϑ ϝϟϫ NAT Â
ip nat inside source	ϑ ϝϟϫ NAT Â
ip nat outside source	ϑ ϝϟϫ NAT Â

ip nat pool	ⱨ IP NAT ﻓﺬ ﺳﻢ

ip-addr } [**vrf** vrf_*name*]

٧	
list-num	fفخ سم سم , fفخ سم ٦ ˚
dest-ip	٦ fفخ سم . ˇfفخ سم ٦ fفخ سم ˇ ˚ ٧ ˇ ... NAT Â fفخ سم ٦ mń ĦŘ fفخ سم 3 fفخ سم ٦ fفخ سم
tcp *dest-ip port-num*	٦ fفخ سم ∫U ٦ ٧ˇ ٧ tcp ˇ ... NAT Â ٦ mń ĦŘ ˚ ٧ ٦ fفخ سم ∩ fفخ سم 3 fفخ سم
udp *dest-ip port-num*	٦ fفخ سم ∫U ٦ ٧ˇ ٧ udp ˇ ... NAT Â ٦ mń ĦŘ ˚ ٧ ٦ fفخ سم ∩ fفخ سم 3 fفخ سم
dest-change *ip-addr port-num*	˚ fفخ سم ∫U ٦ ٧
src-change *ip-addr*	˚ fفخ سم
vrf vrf_*name*	vrf ٦ˇ جم vrf

ĦŘ ‡ Â

ħu ʒ ˇ NPE80 Э a ħu ʒ Â

جم NAT جم ٦ˇ IP fفخ سم fفخ سم Â
٦ ∫U ↑ ħu ʒ Â Ю ħu ʒ ٦ ˇ ٦ (DNS relay) Â
ħu ʒ جم ٧ Э Â

1' جم ∫UЮ 192.168.1.0 ў DNS ٧ ٦ NAT inside
٧ IP' 192.168.1.1ˇ ٧ NAT ╖ ў DNS ٦
DNS ٧ 202.101.98.55ˇ DNS ٦ ў Â ip nat
application ħu ʒ ╖ ˇ ĦŘ ' fفخ سم access-list 1 à fفخ سم
192.168.1.1 à ٧ 53 UDP ˇ ‡ IP fفخ سم й
202.101.98.55 à ٧ й 53 Â έ ħu ʒ Ю'

```
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
interface GigabitEthernet 0/0
ip address 192.168.1.1 255.255.255.0
ip nat inside
!
interface GigabitEthernet 1/0
ip address 200.168.12.1 255.255.255.0
ip nat outside
```

```
!
ip nat pool net200 200.168.12.2 200.168.12.10 netmask 255.255.255.0
!
ip nat inside source list 1 pool net200
ip nat application source list 1 destination udp 192.168.1.1 53
dest-change 202.101.98.55 53
!
```

ħu ҳ

ħu ҳ	
address	ħ fخ سم هج fخ سم تن
clear ip nat translation	NAT Â
ip nat	ħ ٨ NAT Â
ip nat inside destination	ŏ fخ سم NAT Â
ip nat inside source	ŏ fخ سم NAT Â
ip nat outside source	ŏ fخ سم NAT Â
show ip nat statistics	IP NAT Â
show ip nat translations	IP NAT Â

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15.1.5 ip nat inside destination

ŏ NAT fخ سم ˘ ħu ҳ **ip nat inside destination** Â ħu ҳ **no** NAT Â

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

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

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list access-list-number	ˇفخ سم فخ سم pool ىا IP ٦ ACL Â	ىاخ ىاخ ˇفخ سم فخ سمسم Â IP 100-199 تن

ip nat inside source	ὖ فخ سم NAT Â
ip nat outside source	ὖ فخ سم NAT Â
ip nat pool	ⱡ IP NAT فخ سم
show ip nat statistics	IP NAT Â
show ip nat translations	IP NAT Â

⅄

Overload	ˆ ˩ ˜ pool ѳѯѫѯ ˩ Л∪ ˘ NAPT Â ⁄ ѵ ѯѫѯ ≠ Â Л∪ ╗ ѵ ѝ cisco ђu ҳ Â
static local-ip global-ip	ђѫ ´ NAT Â local-ip ѝ ѳѯѫѯ˘ global-ip ѝ ѳѯѫѯ Â
static protocol	ђѫ NAT Â protocol ˩ Л∪ ѝ TCP UDP Â
local-port	ѳѯѫѯ Ь ѵ ⁄ Â TCP UDP ѵ ⁄˘ Ь Ь ѵ Â
global-port	ѳѯѫѯ Ь ѵ ⁄ Â ѵ ў Ь Â ѵ ⁄ ˩ Л∪ б local-port a ˩ Â
permit-inside	ѵ ѥ ip nat inside source static ђu ҳ ˘ Л∪ global-ip local-ip ў Â ѥ ⅄ Э Â
vrf vrf_name	vrf ˫˘ ѥ vrf
match	ѵ
netmask *mask*	˛ ѳѯѫѯ

ѳѯѫѯ NAT ˩ Â

ђu ҳ Â

IP ѳѯѫѯ ѝ ѳѯѫѯ˘ ѵ б ˘ NAT45 109364487 0:0F56

```
ip address 192.168.12.6 255.255.255.0
ip nat inside
!
interface GigabitEthernet1
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
```

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ħυ ϗ	
clear ip nat translation	NAT Â
ip nat	ħ Ѫ ٨ NAT Â
ip nat inside destination	ŭ فخ سم NAT Â
ip nat outside source	ŭ فخ سم NAT Â
ip nat pool	ħ Ѫ IP NAT فخ سم Â
show ip nat statistics	IP NAT Â
show ip nat translations	IP NAT Â

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ħυ ϗ ٦ ٨	/ا
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15.1.7 ip nat outside source

فخ سم NAT˜ ٨ Ո ħυ ϗ **ip nat outside source** Â ħυ ϗ **no** ٨ Ո ٨ فخ سم NAT Â

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

۷	
list access-list-number	ف س Â ۷ ف س ٦ ˘ … NAT Â
pool pool-name	¯ ف س ف س س NAT Â
static global-ip local-ip	Ђ ´ NAT Â local-ip ى ف س س ˘ global-ip ى ف س Â
static protocol	Ђ NAT˘ protocol ۴ Л ى TCP UDP Â
local-port	ف س س Ь ۷ ۸ Â TCP UDP ۷ ۸˘ Ь Ь ۷ Â ۷ ۸ ۴ Л б global-port a Â
global-port	ف س Ь ۷ ۸ Â
vrf vrf_name	vrf ۴˘ ج vrf

ف س NAT ۴ Â

Ђ ҳ

˘ NPE80 a Ђ ҳ Â

ف س NAT ў ج ۷ ف س ف س Â ч ſ ۴ IP ف س˘ Ω Ώ ſ ۴ IP ف س˘ ى ف س ۷ Â ч ۷ ف س ў a ۴ ˘ ڃ ى ى ў ج س Â ۷ ف س NAT ж ۷ ف س ˘ ۷ ف س NAT˘ ў ف س ج ى ۷ ў ف س˘ ۴ Â ۷ ف س NAT ˘ è ſ ى ч ſ ' 1˜ ف س NAT ' 2˜ س ف NAT ˘ ۴ б ف س ۷ ف س ˘ س ف ۴ Л NAT ╟ NAT Â

ſ Ą IP ف س˘ б ˘ ۴ ف س ۷ Â ۵ ۴ ў ˘ ڃ Ы DNS NAT Â

1' ЛЮ ˘ 92.168.12.0/24 б ف س ۷ Â ۸˘ ў ۴ Л 192.168.12.0/24 ف س 92.168.12.0/24 ў Â

```
ip nat outside
encapsulation ppp
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat pool net192 192.168.12.1 192.168.12.254 prefix-length 24
ip nat inside source list  1 pool net200
ip nat outside source list 1 pool net192
access-list 1 permit 92.168.12.0 0.0.0.255
!
ip route 192.168.12.0 255.255.255.0 92.168.100.2
```

ÿ inside↑ outside ⅃ ↑˘ ˝I ″ ᾱ ΐ̈ NAT ˉ ҷ

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ħυ ҳ	
clear ip nat translation	NAT Â
ip nat	ⱻ ∧ NAT Â
ip nat inside destination	ὐ فخ سم NAT Â
ip nat inside source	ὐ فخ سم NAT Â
ip nat pool	ⱻ IP NAT فخ سم
show ip nat statistics	IP NAT Â
show ip nat translations	IP NAT Â

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15.1.8 ip nat p2p-rate-limit

∧ ⅃ BT ˘ ⅃Ո **ip nat p2p-rate-limit** ∧ ħυ ҳ Â ħυ ҳ **no** ˘ ⅃Ո ∧ a ̈Ạ BT Â

ip nat p2p-rate-limit { **in** | **out** } *NUM*

no ip nat p2p-rate-limit { **in** | **out** }

∧

∧	
in	∧ ⅃ Э BT

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Ђу ѓ	
Ip nat { inside | outside }	ѓ NAT ѓ

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Ђу ѓ ѓ ѓ

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15.1.9 ip nat pool

ЂЖ NAT ѕѕ ѕ ˇ ѓ Л Ђу ѓ **ip nat pool** Â Ђу ѓ no ѓ Л ѕѕ Â ѓ ˇ ѕ NPE80 Э γ Ђу ѓ ѓ ╠ Â

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

NPE80 è '

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

NPE80

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

no ip nat pool *pool-name*

ѓ	
pool-name	NAT ѕѕ ѕ ѓ Â
start-ip	NAT ѕѕ ѕ IP ѕѕ ѕ Â
end-ip	NAT ѕѕ ѕ IP ѕѕ ѕ Â
netmask *netmask*	NAT ѕѕ ѕ ѕѕ ѕ Â
Prefix-length *prefix-length*	NAT ѕѕ ѕ ѕѕ ѕ Â
Type	NAT ѕѕ ѕ ѕ Â rotary й ѕ ˇ ѕѕ ѕ ѕ Â rotary ѕ Â Л rotary ѓ б cisco Ђу ѓ Â
Hardware	NPE80 ˇ ˚ ѕ ѕѕ ѕ ˇ ѕ NAT ‡ ˚ ˇ ѓ Л ѕ Â

فخ سم ₧ Â

ħυ ҙ Â

فخ سم ₧ فخ سم ҷ ˘ ‡ ˝l … فخ سم ˘ ﾉ ₧فخ سم تن Â

1' ЛЬЮ ˘ … ﾉ ѝ net192 فخ سم ˘ فخ سم ѝ 192.168.12.1˘
فخ سم ѝ 192.168.12.254˝ ѝ 24 Æ Â

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

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dns-timeout	⊮ DNS UDP

1' ЛuЮ ˘ ICMP NAT й 30 Â

```
ip nat translation icmp-timeout 30
```

ЛuЮ ˘ 192.168.5.112 ⁸ й 600 Â ⅓Ю

⁸ 500 Â

```
ip nat translation per-user 0.0.0.0 500
ip nat translation per-user 192.168.5.112 600
```

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ћu ҳ	
show ip nat translations	IP NAT Â

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15.2

15.2.1 show ip nat statistics

IP NAT ˘ ﾖ **show ip nat statistics** ћu ҳ Â

show ip nat statistics [*suspicious-pc* | *per-user* [*NUM*]]

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show ip nat statistics *per-user* [*NUM*] ﾉ PC

ﾍ ﾚ ﾙ ˘ IP à à

Â è ћu ҳ ﾍ NUM . ﾉ NUM ˘

NUM Â

show ip nat statistics *suspicious-pc* ћu ҳ ﾚ ﾙ IP Лu ﾍ

135 Ո 445 Â ﾉ ﾙ ﾙ 135 ﾍ 445 ﾍ 10

Лu Э Â

show ip nat statistics ћu ҳ ﾚ Лu IP NAT ﾑ ˘ ↑ ｍ NAT àoutside

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15.2.2 show ip nat translations

NAT ˘ ﺝ show ip nat translations ħυ ҳ Â

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

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ﻧ	
icmp	ﻝ icmp nat Â
tcp	ﻝ tcp nat Â
udp	ﻝ udp nat Â
acl_num	acl ﻡ , ﻝ acl˘
vrf_name	vrf ﻝ˘ vrf ﻝ
verbose	NAT Â

ħυ ҳ Â

ħυ ҳ ﻝ Ʌυ IP NAT ˘ ˜ ˘ ﻓﺧﺳ ٦ ﻧ ﻡ à ﻓﺧﺳﺳﻣ ٦ ﻧ ﻡ à ﻓﺧﺳﺳﻣ ٦ ﻧ ﻡ à ﻓﺧﺳﻣ ٦ ﻧ ﻡ Â **verbose** ﻧ ﻝ Ʌυ ˘ ↑ ﻝ timeout ˘ ⅓ à Â

1' ɅυЮ ὶ show ip nat translations verbose ħυ ҳ Â

```
Ruijie# show ip nat translations verbose
timeout for NAT TCP flows: 86400
timeout for NAT TCP flows after a FIN or RST: 60
timeout for NAT TCP flows after a SYN : 60
timeout for NAT UDP flows: 300
timeout for NAT DNS flows: 60
timeout for NAT ICMP flows: 60
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

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Pro	~ Ър Â “udp” й UDP ’ “tcp” й TCP Â“icmp” й ICMP Â
Inside global	ф ъ ъ Ы Â
Inside local	ф ъ ъ Ы Â
Outside local	ф ъ ъ Ы Â
Outside global	ф ъ ъ Ы Â
timeout	NAT ˘ ´ Æ Â
vrf	ф vrf

Ъ ъ

Ъ ъ	
clear ip nat translation	NAT Â
ip nat	Ъ Ы NAT Â
ip nat inside destination	Ъ ф NAT Â
ip nat inside source	Ъ ф NAT Â
ip nat outside source	Ъ ф NAT Â
ip nat pool	Ъ IP NAT ф
show ip nat translations	IP NAT Â

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no mllb policy

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bandwidth	ƙ
latency	ƙ
load	ƙ
intelligent	ƴ ˘ ˘ ƙ
no	ƙ

ƙ

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ƙ ƻ bandwidth â latency â load â intelligent è ˘ ƒ ǹ è
ƙ mllb policy ƕ ƺ ǹ ' no mllb policy ƙ
ǹ bandwidth Â

1' ƙ ǹ **load**
`Ruijie(config)#` **mllb policy load**

2' ƙ ǹ
`Ruijie(config)#` **no mllb policy load**

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mllb enble	ŭ ƙ ǁ
bandwidth	

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10.3(4b7)	ƕ ƺ

16.1.3 mllb policy intelligent

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

no mllb policy intelligent

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ﻝ	
bandwidth *base1*	ﺝ ﻣ ﺍ ﺗ 1-100
latency *base2*	ﺝ ﻣ ﺍ ﺗ 1-100
load *base3*	ﺝ ﻣ ﺍ ﺗ 1-100
no	ﺝ ﻯ

ﻣ 1.

ﻩ ﻍ

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percent	ƚ
no	ƙ

ƙ 100

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ƙ ƚ ˇ ƴ ن 1-100 Â

1' ƙ 95

```
Ruijie(config)# mllb threshold 95
```

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mllb enable	ŏ ƙ ╗

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10.3(4b7)	ƕ ƒ

16.1.5 mllb load-sharing original

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mllb load-sharing original

no mllb load-sharing original

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	ƴ IP ƴ ƴ ƴ
no	

ƴ IP ÿ a ƴ ƴ ƴ

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ƒ ƕ ƒ mllb policy bandwidth Â

1' ƙ ƒ IP ƒ ƒ ƒ
```
Ruijie(config)# mllb load-sharing original
```

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	mllb enable	ƍ ƙ ƚ

ƒ NPE ƥ ƙ

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	10.3(4b7)	ƕ ƒ

16.2

16.2.1 show mllb config

show mllb config ƕ ƒ ƙ Â

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show mllb config

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ƒ ƞ ƙ

1' ƞ ƙ '
```
Ruijie(config)# show mllb config
 muti-link load balance configure:
 muti-link load balance state: enabled
 muti-link load balance threshold: 95
```

3 classify enable

Ъ γ Ь ǂ ⋮ ╖ ˘ ┘ Л∪ ђ ҙ no ╖ Â

[no] layer23 classify enable

↰	

Ю γ Ь ǂ ⋮ ╖ Â

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ŭ γ Ь ǂ ⋮ ⅄ ┘ Л∪ vlan à ↰ ⋮ Â

1 ╖ ╖ 525.02 ₀ 4136 12 7422 5 Т 234 6 3 2.1 4 refB.6 52545.66 Tmh358 164526 r135-64 1526-

18

```
----------   -----------    ---------    ------  ----------
any          9              0            0
vlan1        0              0            0       1
vlan2        0              0            0       3-5
vlan3        0              0            0       7,9
```

2' l' vlan1 Ł '

```
Ruijie#show vlan-group vlan1
vlan-group   police_flow    police_url   flow    vlan id
----------   -----------    ---------    ------  ----------
any          9              0            0
vlan1        0              0            0       1
```

show vlan-group ħυ ϗ '

Vlan-group	vlan ɻ
Police_flow	‡
Police_url	url ‡
Flow	
Vlan id	vlan ↑ ΰ vlan id

ħυ ϗ

ħυ ϗ	
vlan-group *name* **vlan** *vid-list*	vlan ħυ ϗ

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10.3(4b7)	ħυ ϗ

19

19.1

19.1.1 subscriber export

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

name	ɻ

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ɻ Ʌυ ˆ avoid-monitor˜ Ո ˆ deny˜ ˘ ч
ɻ ˘ ˮI Â

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Ŀ '

Ruijie#**config**

Ruijie(config)# subscriber set *1* attribute avoid-monitor

2' ɬ ľ 1 Ŀ '

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

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

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10.3(4b7)Ʌυ ч ɻ ˘ NPE50 à NPE80 NPE ȷ

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10.3(4b7)	Ъυ ҳ

19.1.4 subscriber static

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

no subscriber static name *name*

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ʅ	
name	ɻ
parent	

ip-addr	´ ip ѫѣѭ ip ѫѣѭ
mac-addr	mac ѫѣѭ
subnet	Ip ѫѣѭ ↑ ΰ
mask	
start	Ip ѫѣѭ тп ip ѫѣѭ
end	Ip ѫѣѭ тп ip ѫѣѭ

Â

Ъυ ϛ Â

ip ѫѣѭ a Ո ѯ ă ˘ mac ѫѣѭ ‡ a Ո è ă Â Л Ս ip ѫѣѭ ǂ ´ ip ѫѣѭ à ip ѫѣѭ Ո ip тп ѫѣѭ Ь ˘ Л Ս mac ѫѣѭ ǂ ↑ ΰ mac ѫѣѭ Ո a ↑ ΰ mac ѫѣѭ ч ˘ è ´ ip ѫѣѭ ⅃ Л Ս ⅃ ↑ ΰ mac ѫѣѭ ˘ ip ѫѣѭ Ո ip тп ѫѣѭ a ⅃ Л Ս ⅃ ↑ ΰ mac ѫѣѭ Â mac ѫѣѭ Ո ip ѫѣѭ ⅃ ϖ ˘ Л Ս mac ѫѣѭ ϖ й Â

ѯ ľ / Ŀ, ΰ γ Ь ǂ ⁞ ╗ ˘ ip ѫѣѭ ϖ a è ‡ ϖ Â

~	a ⅃ ⅃ a ⅃

1' ľ 1 Ŀ˘ ip ѫѣѭ ľ 192.168.196.156 Ŀ˘ è ľ 1 Ŀ˘ ľ 1 Ŀ ľ Ŀ'

Ruijie#**config**

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

// ⅃ ľ /

⁄	10.3(4b7)ЛЪ ⊣ ⁄ ˘ NPE50 à NPE80 NPE ⅋ Â

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	10.3(4b7)	Ъυ ҳ

19.2

19.2.1 show subscriber

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

Avoid	
Deny	
Ip	ip

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

ϳ

10.3(4b7)ЛЪ ч ϳ ˘ NPE50 ä NPE80 NPE ⅈ Â

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10.3(4b7)	Ъυ ϡ

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20.1

20.1.1 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*

ħυ ҳ	

show network-group [name]

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

2' network1 '

```
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 ħυ ϡ '

Network-group	ɻ
Police_flow	‡
Police_url	url ‡
Flow	
Ip	↑ ΰ ip

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

ɻ 10.3(4b7)ΛυϤ ɻ ˘ NPE50 à NPE80 NPE ȴ Â

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10.3(4b7)	ħυ ϡ

21

21.1

21.1.1 identify-application custom

ԋ ‡ Â ⅃ Ո ԋ ϗ no ⅂ ԋ ‡ Â

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

↰	
software-name	˚ ⅃ Â

im˘ ϰ й 111˘ ϰ تن й 2020˘ ˜ ص й udp'

Ruijie#**config**

Ruijie(config)# **identify-application custom name** *myqq* **class** *im* **udp sport** *111 111* **dport** *2020 2020*

Ъυ ϗ	
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	‡ Ъυ ϗ

10.3(4b7)Лυ ϥ ϰ ˘ NPE50 à NPE80 NPE ϰ Â

Ъυ ϗ ϒ ϰ	
10.3(4b7)	Ъυ ϗ

21.1.2 identify-application enable

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

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Ю й ╖

Ъυ ϗ

Ъυ ϗ ϟ Лυ ϋ ⁞ ╖ Â

1' ϋ ⁞ ╖ '

Ruijie#**config**

Ruijie(config)#**identify-application enable**

Ъυ ϗ	Ъυ ϗ	

10.3(4b7)	Ъυ ϗ

21.1.4 identify-application key

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identify-application key *app-name*

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app-name	ɻ

a ℸ

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Ъυ ϗ ɻ ΠΥ ℸ Â

1' FTP ℸ '

```
Ruijie#config
Ruijie(config)#identify-application key FTP
```

Ъυ ϗ	
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	‡ Ъυ ϗ

ɻ 10.3(4b7)ΠΥ ϟ ɻ ˘ NPE50 à NPE80 NPE ϐ Â

Ъυ ϗ ϒ ɻ

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10.3(4b7)	Ъυ ϗ

21.1.5 identify-application signature update

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identify-application signature update

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1' ˘ '

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

ԋ ϗ	
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	‡ ԋ ϗ

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1'

```
Ruijie#show identity-application
any 255-4095-63-48
```

˚ 14-0-0-0

15-0-0-0

RFC 16-0-0-0

è 17-0-0-0

ⱶ 248-0-0-0

myp2p 249-0-0-0

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21.2.3 show identify-application group-state

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show identify-application group-state

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```
Ruijie#show identity-application group-state
app group state: on  //on  ƽ ˇ 8 ˇ
     ⵐ
```

ﻝ 10.3(4b7)ﻝυ ⊣ ﻝ ˘ NPE50 à NPE80 NPE ﻟ Â

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10.3(4b7)	ƙυ ҳ

21.2.4 show identify-application inhibitive

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show identity-application inhibitive

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```
Ruijie#show identity-application inhibitive
```

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ﻝ 10.3(4b7)ﻝυ ⊣ ﻝ ˘ NPE50 à NPE80 NPE ﻟ Â

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21.2.5 show identify-application key

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show identity-application key

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

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21.2.6 show identify-application userdef-rule

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```
Ruijie#show identity-application userdef-rule
TYPE  NAME              CLASS             SPL    SPH    DPL    DPH
TCP                     ƙ                 1      10     1      100
TCP   myqq                                any    any    200    888
UDP   myxunlei          myp2p             18     18     any    any
```

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10.3(4b7)ʃ ƙ ɻ ɻ ˇ NPE50 à NPE80 NPE ɮ Â

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21.2.7 show identity-application version

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show identify-application version

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```
Ruijie#show identity-application version
Version' 1.0
Date' 2010-1-8
```

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21.3

21.3.1 identify-application clear key-inhibitive group

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identify-application clear key-inhibitive group

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1' ÿ Ո ⁸ ⁋ '

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

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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	‡ ƕ ɂ

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10.3(4b7)	ƕ ɮ

22

22.1

ϯ ΰ ЛυЮЪυ ϗ'

- Â change-priority
- Â channel-default
- Â channel-group
- Â channel-tree
- Â flow-control
- Â flow-policy
- Â flow-rule

22.1.1 change-priority

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change-priority rule1 *rule1-pri-num* **rule2** *rule2-pri-num*

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rule1-pri-num	‡ ″I Λ
rule2-pri-num	γ ‡ ″I Λ

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session-limit *session_limit_num*	**per-mask** й 32 . й IP Per-net Л 8 IP 1 65535 a 8 IP

Ю

… **pri** ″I й 4 **schedule-type** й **fifo**

Ћ ҷ **channel-tree** Â

1. Л **cir** Ո **pir** й
2. **cir** **cir** б è Ί **cir** Ո **cir** **pir** **pir** **pir**
3. ″I ″I Ю æ’
4. **sfq** Ո **per-net** й Ω Л Ю Ћ è Ω Л
5. **per-net** **limit** **per-net** Л ″I æ **limit** ″I

Ї test Ь Ю Э… й Ї root Ь

```
Ruijie(config)#flow-control test
Ruijie(config-flow-control)#channel-tree inbound
Ruijie(config-channel-tree)#channel-group root parent null cir 50000 pir 50000 pri 4 schedule-type fifo
```

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channel-default	
channel-tree	…

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NPE40 NPE60

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name	⁸ ⅄ Â

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1' group1 ↑ Gi 0/1 Э'

```
Ruijie#config
Ruijie(config)#interface gi 0/1
Ruijie(config-if-GigabitEthernet 0/1)#flow-policy group1
Ruijie(config-if-GigabitEthernet 0/1)#
```

2' group2 ↑ Gi 0/2 Э'

```
Ruijie#config
Ruijie(config)#interface gi 0/2
Ruijie(config-if-GigabitEthernet 0/2)#flow-policy group2
Ruijie(config-if-GigabitEthernet 0/2)#
```

3' Gi 0/1 ٩ Э ٧ 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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10.3(4b7)	Ъυ ҳ

22.1.7 flow-rule

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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*]

no flow-rule *num*

pass out-channel *Л* *3М*

2' ж 8 group2 Ю 8 Ѽ Л Ь Э a sinaў a 8'

```
Ruijie#config
Ruijie(config)#flow-control group1
Ruijie(config-flow-control)#flow-rule 1 vlan-group any subscriber
       Ь network-group sina app-group any time-rang work
Ruijie(config-flow-control)#flow-rule 1 session-limit 0 action
drop
```

3' ў 8 group1 Ю ‡ 1'

```
Ruijie#config
Ruijie(config)#flow-control group1
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

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22.2.3 show flow-control-policy rule

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show flow-control-policy rule [group *name***]**

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name	⁸ ⁄ Â

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```
Ruijie#show flow-control-policy rule
Pri_num grp_id rule_num ifx   vlan_id    subs_id    net_wk
```

1 NA 0 2000 0

Pri-num	‡ ¨I /¹ Â
grp_id	⁸ /¹ Â
rule_num	‡ /¹ Â
ifx	‡ ¹ ˘ ¼ 0 ‡ ج ⁸ ¦ ¹ Â
vlan_id	‡ vlan-group id¨ ¼ 0 vlan-group Â
subs_id	‡ subscriber id¨ ¼ 0 subscriber Â
net_wk_id	‡ network-group id¨ ¼ 0 network-group Â
app_id	‡ app-group id¨ ¼ 0 app-group Â
inchl_id	‡ in-channel id¨ id ¼ 0 ˘ NA ‡ in-channel Â
ochl_id	‡ out-channel id¨ id ¼ 0 ˘ NA ‡ out-channel Â
ses_num	⁄¹ ¬ ¦ ‡ Â
ses_lim	‡ ¬ Â
effec	‡ ˘ ¼ 0 ˘ ¼ 1 Â

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23.1

23.1.1 flow-audit enable

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flow-audit enable

no flow-audit enable

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1' ў ╖ '

```
Ruijie#config
Ruijie(config)#flow-audit enable
```

2' ╖ '

```
Ruijie#config
Ruijie(config)#no flow-audit enable
```

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23.2

23.2.1 show flowrate application

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show flowrate application {**interface** *interface-name* **| bridge** *bridge-name*}

s | bridg]49f 0.0002 Tc 0.3 0.00 Td0 1 Tf -36.891 ([460.00 Td[1 Tf -0.0002 Tc 0.35 91 0 3 0.00 Tc

day-interval ' Ƕ ǯ ' by-group by-type

1' Ǿ gigabitEthernet 0/1 '

```
Ruijie#show flowrate application interface gigabitEthernet 0/1
path:GigabitEthernet 0/1
Application           Subscriber-num
PASS:         Upload(bps)         Download(bps)       Upload(pps)
Download(pps)
DROP:         Upload(bps)         Download(bps)       Upload(pps)
Download(pps)
App1        46
  62597             65955             15                17
  0                 0                 0                 0
```

2' Ǿ bridge 0 '

```
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
```

3' Ǿ bridge 0 2010 1 9 2010 1 9 '

```
Ruijie# show flowrate application bridge 0 by-group day-interval
2010 1 9 to 2010 1 9
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

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channel_groupC/ channel_nameC

down 39632 , 61

0 , 0

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23.2.4 show flowrate ip

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show flowrate ip {**interface** *interface-name* **| bridge** *bridge-name*} [**subscriber-group** *subscriber-group*] {[**by-group**] |[**subscriber** *subscriber-name*] [**ip** *ip-address*] [**application** *application-name*] [**application-group** *application-group*] [**application-type** *application-type*] }[**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**} {**desc** | **asc**}[**top** *n* [**detail**]]]

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interface-name	ɻ
hour	
subscriber-name	ɻ
subscriber-group	ɻ
Ip-address	IP فخ سم
application-name	ɻ
application-group	ɻ
application-type	صر
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	ɱ n

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Ю ˘ ɱ IP ’ a
ɱ ℸ ˘ day-interval,hour-interval Л υ ٦ ٧

begin-year begin-month begin-day end-year end-month end-day begin-hour end-hour begin-hour2 end-hour2 ج ˘ 2 ’ order-by ‡˘ top n ɱn n ’

1' ЮЎ ʌ gigabitEthernet 0/1 ɱn ’

```
Ruijie#show flowrate ip interface gigabitEthernet 0/1
Subscriber                Application-num
PASS: Upload(bps)    Download(bps)   Upload(pps)    Download(pps)
DROP: Upload(bps)    Download(bps)   Upload(pps)    Download(pps)
/User_groupA/User_nameA 1
  230              134              0               0
1
```

	0	0	0	0

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NPE	p a day-interval

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23.2.5 show flowrate ip-application

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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 te i76 0.24 0.4*] [

begin-hour2	2
end-hour2	2
n	n

Ru

HO n IP IP '

day-interval '

1' HO A gigabitEthernet 0/1 n IP '

```
Ruijie#show flowrate ip-application interface gigabitEthernet 0/1
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
```

2' HO bridge 0 2010 1 9 '

```
Ruijie# show flowrate ip-application bridge 0 day-interval 2010 1
9 to 2010 1 9
 path:bridge-map 0
day-interval: 2010-1-9 ~ 2010-1-9
time-interval(min): 60
count:5
Subscriber          Application
PASS:  Upload(KB)          Download(KB)           Upload(packets)
Download(packets)51  TD(time-ici(c18iFF5>6<14E300(wnload(KB)        )-6(
```

```
0               0               0               0
/User_groupB/User_nameB          NETBIOS-DGM
0               56              0               346
0               0               0               0
/User_groupC/User_nameC          NETBIOS-NS
0               31              0               699
0               0               0               0
/User_groupD/User_nameD               TCP
0               6               0               29
0               0               0               0
/User_groupE/User_nameE               UDP
0               82              0               156
0               0               0               0
```

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ﻝ NPE p a day-interval

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23.2.6 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*]}] **[]]**

[{

```
IP                AuthType     LoginTime          OnlineTime(min)
PASS-Upload(KB)          PASS-Download(KB)          DROP-Upload(KB)
DROP-Download(KB)
/User_groupA/User_nameA
 192.168.196.37                2010-1-7 20:43        1255
  485103           7718860          0               0
/User_groupB/User_nameB
 192.168.203.27                2010-1-8 9:5          514
  65293            2320266          0               0
/User_groupC/User_nameC
 192.168.196.63                2010-1-7 13:47        1671
  79176            1410420          0               0
/User_groupD/User_nameD
 192.168.196.74                2010-1-7 9:37         1922
  5830311          1275917          0               0
/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
```

3' Ю˘ Ѧ gigabitEthernet 0/1 ѫ 2010 1 8 Ѧ 1 ↑ 3 ip Э Ո ˘ Ю ⅄'

Ruijie# **show online ip interface** *gigabitEthernet 0/1* **day-interval 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
```

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NPE p a day-interval

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23.2.7 show online ip-application

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show online ip-application {**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*]]

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interface-name	Ь ʏ ɻ ˘ ҽ Ю
bridge-name	ɻ˘ ҽ Ю

subscriber-name	ɻ
subscriber-group	ɻ
Ip-address	IP فخ سم
application-name	ɻ
application-group	ɻ
application-type	صر
n	ɱɲ n

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Ю ɱɲ ҷе IP à Э à Â
ip,subscriber,subscriber-group,application,application-group ˚ ˘
order-by ’ top n ɻ ɱɲ n

1' ҷе Ю˘ bridge-map0 ɱɲ ҷе IP Э ˘ ’

```
Ruijie#show online ip-application bridge 0
path:bridge-map 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
```

2' Ю˘ ٨ gigabitEthernet 0/1 IP ѝ 192.168.196.70 IP ҷе ˘

```
Ruijie#show online ip-application  interface gigabitEthernet 0/1 ip
192.168.196.70
```

path:GigabitEthernet 0/1

Subscriber

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a ЮЎ ٧ЮО ⁽ⁿ⁄₀ج IP Ո٠ ’
detail ج é IP ˘ ’ recent
Ո٠٧ hour IP ٠١ ˘ time-interval Ո٠٧
begin-hour begin-day begin-month begin-year to end-hour end-day end-month
end-year IP ٠١ ’

1' ج ЮЎ bridge-map0 ⁽ⁿ⁄₀ IP ˘

```
Ruijie#show
```

8	99	666
9	97	542
10	96	885
11	97	986
12	95	820

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24.1

24.1.1 ping

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Â Ъυ ҳ Юՙ

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

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٩	
vrf-name	VRF ⅄
[redacted]	IPv4 فخ سم Â
length	⅃ ↑

[redacted]

˘ ˘ Ո· ping ╖ ˘ ﾉ ≠ Â
ﾟ ﾉ ╖ ˘ ‡ ˝I ﾟ ﾉ ┺ ﾚ˘ é ヘ DNS ↑ ÂVRF ╖
ヘ ﾋ RSR Э Â

ð Ô

ping '

Ip-address

```
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 υ ѕм ∫ ˘ ÿ ƒ ѕм IP ƒ ѕм й 202.108.37.42 ў ˘
ˆ ф ˆ 1˙ 17˜ ˘ з 4 Â

```
Ruijie# traceroute www.ietf.org

Translating " www.ietf.org "...[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 ⊀ Ô

Ъυ ҳ ⋒ Э ⊻ Â è VRF ╖ ⊀ ⋒ RSR Э Â

24.1.3 Line-detect

line-detect Ъυ ҳ˘ ⊣ Л Â

line-detect

ð ⊰ Ô

ð Ъυ ҳ Ô

⊀

ð ´ Ô

line-detect Ъυ ҳ ў ˘ ⋒ ^ ~ ˘
Æ ⊣ Æ Â

ð Ô

```
Ruijie(config)#int gigabitEthernet 3/1
Ruijie(config-if)#line-detect
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state     length(meters)
---- ---------- --------------
A      Ok          2
B      Ok          1
C      Short       1
D      Short       1
```

Ъυ ҳ '
pairs' ↑ Ü ˘ ⊣ ني ⊀ Â
State' ⋔ ˘ Ь ' OK˜ ~ ˘ Short˜ ~ ˘ Open^ ~ Â
Ю˜ ˜I ⊣ A à B ч й OK˜ C à D ч й Short Â˜ ˜I ⊣
A à B à C à D ني ⊻ й OK Â
Length: ˘ ´ Æ й Â ⊰ state й OK Â ⊀ ˘
⊀ ˘ Л ⊣ ⋒ Â
й Short Open length ⊀ Â

ð ✓ Ô

DHCP ใน ๆ

25.1.2 client-identifier

‹ DHCP ‹ ‹ ‹ ‹ DHCP ‹
‹ › **client-identifier** ‹ ‹ › **no** ‹ ‹

client-identifier *unique-identifier*

no client-identifier

› ‹ ‹

‹	
unique-identifier	DHCP ‹ ‹ ‹ 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 ‹

› ‹

‹

› ‹ ‹

DHCP ‹

› ‹ ‹

DHCP DHCP ‹ IP ‹ ‹ ‹
› ‹ MAC ‹ ‹ ‹ MAC ‹
‹ 00d0.f822.33b4 ‹ ‹ GigabitEthernet 0/1 ‹
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 ‹ 01 ›
‹ ‹
67.6967.6162.6974.4574.6865.726e.6574.302f.31 ‹
GigabitEthernet0/1 ‹ ‹ ‹ ‹ RFC1700
‹ Address Resolution Protocol Parameters ‹

‹ ‹ DHCP ‹ ‹ ‹ ‹

› ‹

‹ MAC ‹ 00d0.f822.33b4 ‹ DHCP
‹

```
client-identifier
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f
.31
```

› ‹ ‹

ħυ ३

host	ƛ IP ƴ ƒ Ո Â DHCP Â
ip dhcp pool	ƛ DHCP ƴ ƒ ɻ ˘ DHCP ƴ ƒ Â

ƴ

25.1.4 default-router

ƛ DHCP ˘ DHCP ƴ ƒ ƫ ȝ **default-router** Ð Â ƫ
ȝ **no** ɻ Ʊ ƛ Â ȝ¨Ω

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

no default-router

ð ¶ Ô

¶	DHCP DHCP
ip-address	ƛ IP ƴ ƒ Â Â
ip-address2…ip-address8	ˆ ɻ ˜ ɻ Ʊ 8 Â

ð Ô

ƛ Â ð ¶ ȝ ɻ DHCP

25.1.5 dns-server

‡ DHCP DNS ‰ ‹ DHCP „ ‡ **dns-server** Â
‡ ‚ **no** ‹ ‚ DNS ‰ ‹ ‡ Â

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

no dns-server

ð ¶ Ô

¶	
ip-address	‡ DNS ‰ ‹ IP „ Â Â
ip-address2…ip-address8	ˆ ‹ ~ ‹ ‚ 8 DNS ‰ ‹ Â
use-dhcp-client *interface-type* *interface-number*	RGOS ° DHCP ¡ DNS ‰ ‹ ˇ ‡ DHCP DNS ‰ ‹ Â

ð Ô

‡ DNS ‰ ‹ Â

ð ‡ ‚ Ô

DHCP „

ð ´ Ô

‡ DNS ‰ ‹ ˇ ‚ ¨ ˇ DHCP ‹ б ‚
DNS ‰ ‹ ˇ Ю DNS ‰ ‹ Â

RGOS ° ‹ ≠ DHCP ˇ ‹ ‚ DNS ‰ ‹ ˇ
DHCP Â

ð Ô

‚Ю ˇ ‡ DHCP DNS ‰ ‹ 192.168.12.3 Â

```
dns-server 192.168.12.3
```

ð ‡ ‚ Ô

‡ ‚	
domain-name	‡ DHCP ‚ ‚ ‚ Â
ip address dhcp	‹ ‡ DHCP ‹ IP „ Â

ip dhcp pool	Þ DHCP ¬ ¡ ¯ DHCP ¬

25.1.6 domain-name

Þ DHCP ¡ ¬ ¯ DHCP ¬ Þu ¾ **domain-name** Þu ¾ **no** ¬ ¡ ¬ Â

domain-name *domain-name*

no domain-name

ð ¶

¶	
domain-name	Þ DHCP ¡ ¬

ð

¡ ¬ Â

ð Þu ¾

DHCP ¬

ð ´

DHCP ¡ ¬ ¡ ¯ É ¬ ¡ ¡ ¬ ÿ ¯ ÿ ¡ ¬ Â

ð

ÆÞÒ ¯ DHCP Þ ¡ ¬ i-net.com.cn Â

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

ð Þu ¾

Þu ¾	
dns-server	Þ DHCP DNS ¶
ip dhcp pool	Þ DHCP ¬ ¡ ¯ DHCP ¬

25.1.7 hardware-address

ꟾ DHCP ˚ ѕ ˇ DHCP ѕ ħυ ३ **hardware-address** Â
ħυ ३ **no** ˩ ⊓ ˚ ѕ ꟾ Â

hardware-address *hardware-address type*

no hardware-address

ð ٩ Ô

٩	
hardware-address	ꟾ DHCP MAC ѕ Â

DHCP

type

25.1.8 host

ΙϞ DHCP ў IP ѫ ϡ Ո· ˘ DHCP ѫ ϡ ħυ ϛ **host** Â
ħυ ϛ **no** ϟ ΠϬ DHCP IP ѫ ϡ Ո· ΙϞ Â

host *ip-address* [*netmask*]

no host

ð ϥ Ô

ϥ	
ip-address	ΙϞ DHCP ў IP ѫ ϡ Â
netmask	ΙϞ DHCP ў Â

ų Ô IP ѫ ϡ Ո· Â

ê ħυ DHCP ѫ ϡ

	â D5 (5 1 1 65 7 c 8 0 Td1CE10875B30

25.1.9 ip address dhcp

ЛυPPP ǎHDLC ǎFR ∧DHCP IP ѫ ˘
∧ħυ ϡ **ip address dhcp** Â ħυ ϡ **no** ⅃ЛυⅣ Â

ip address dhcp

no ip address dhcp

ð Ô

∧a DHCP IP ѫ Â

ð ħυ ϡ Ô

∧

ð ´ Ô

RGOS ˚ DHCP ˘ ѭ IP ѫ ˘ DHCP Ł⅃
∧ ' 1˜ DHCP 1˜ ' 2˜ DHCP 3˜ ⅃ Э
' 3˜ DHCP 6˜ DNS Ł⅃ ' 4˜ DHCP 15˜ ў Ⅰ
ѫ ⅃' DHCP 44˜ WINS Ł⅃ Â

RGOS ˚ ѭ PPP ǎFR ǎHDLC Э dhcp ѫ˘
Ł⅃ ˘ ɱ Ł⅃ ╖

ð Ô

ЛυЮ ˘ GigabitEthernet 0 ∧ ╟ IP ѫ Â

```
interface GigabitEthernet 0
ip address dhcp
```

ð ħυ ϡ Ô

ħυ ϡ	
dns-server	Ю DHCP DNS Ł⅃
ip dhcp pool	Ю DHCP ѫ ⅃ ˘ DHCP ѫ Â

25.1.10 ip dhcp excluded-address

Ю IP ѫ˘ DHCP Ł⅃a è¦ DHCP ˘
ħυ ϡ **ip dhcp excluded-address** Â ħυ ϡ **no** ⅃ЛυⅣ Ю Â

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

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

ð ¶ Ô

¶	
low-ip-address	IP سم فخ IP سم فخ˘ تن IP سم فخ Â
high-ip-address	IP سم فخ Â تن فخ سم

ð Ô

DHCP ┺ ℵ┦ فخ سم IP سم فخ Â

ð ħυ ϛ Ô

ð ´ Ô

IP سم فخ˘ DHCP ┺ ℵ ڤي DHCP سم فخ IP سم
فخ Â ħυ ϛ ┘ Л υ ŷ IP سم فخ˘ فخ سم ┦ DHCP
Â سم ₦ IP سم فخ˘ ≠ ┘ Л DHCP ┺ ℵ┦ فخ سم ă
Â

ð Ô

ЛυЮ ˘ DHCP ┺ ℵ a ڤي 192.168.12.100~150 تن IP سم
فخ Â

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

ð ħυ ϛ Ô

ħυ ϛ	

৭	
number	ˆ ل ~ تن ÿ 0¦ 1Ơ 0 ping Â ping ч ↑ Â

ð Ô

ping ↑ л ѝ 2 Â

ð ћu ҙ Ô

ð ´ Ô

DHCP Ь Ы ÿ DHCP فخ سم في IP فخ سم ˇ ping فخ سم
Ї è ў ´ ˇ ´ Ю ˇ ´ ¦ DHCP Â
Ping ѝ ч ч ↑˘ л Лu ч 10 ↑ Â

ð Ô

ЛuЮ ˇ ping ч ↑ ѝ 3 Â

```
ip dhcp ping packets 3
```

ð ћu ҙ Ô

ћu ҙ	g46L17Z1380B30C301C4>T0162 0 Td(0.246D

milli-seconds	DHCP Ь Л ping ^ Л ~ Â ч тн й 100 ¦ 10000 Â

ð Ô

й 500 Â

ð Ђ ғ Ô

ð ´ Ô

Ђ ping ↑ Â

ð Ô

ЛЏЮ ˘ ping ↑ й 600ms Â

```
ip dhcp ping timeout 600
```

ð Ђ ғ Ô

Ђ ғ	
clear ip dhcp conflict	DHCP ˥ ч ă Â
ip dhcp ping packets	Ђ DHCP Ь Л ¦ ф ˘ ф ă ping ч ↑ Â
show ip dhcp conflict	DHCP Ь Л ¦ ф ˘ ¦ ф ă Â

25.1.13 ip dhcp pool

Ђ DHCP ф ғ Ч DHCP ф ˘ Ђ ғ **ip dhcp pool** Â Ђ ғ **no** ч Л¦ DHCP ф Â

ip dhcp pool *pool-name*

no ip dhcp pool *pool-name*

ð ч Ô

ч	
pool-name	ч Л Ո Â mypool 1 Â

ð Ô

ƫ DHCP ƒ Â

ð ƫ ʒ Ô

ð ´ Ô

ƫ ʒ˘ DHCP ƒ ˘ ƞ'

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

ج ˘ ˩ Ʌ IP ƒ تن à DNS ┗ ƛ à ʔ Â

ð Ô

ɅƱO ˘ ƫ ɻ ƞ mypool0 DHCP ƒ Â

```
ip dhcp pool mypool0
```

ð ƫ ʒ Ô

ƫ ʒ	
host	ƫ IP ƒ Ո Â DHCP Â
ip dhcp excluded-address	ƫ DHCP ┗ ƛ a ʈ IP ƒ Â
networkˆ DHCP˜	ƫ DHCP ƒ ʔ Ո Â

25.1.14 lease

ƫ DHCP ┗ ƛʈ ƒ ˘ DHCP ƒ ƫ ʒ **lease** Â ƫ ʒ **no** Â

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

no lease

ð ʔ Ô

ʔ	
days	ƫ ˘ Ʌ ƞ´ Æ Â
hours	ˆ ˩ ~ ƫ ˘ Ʌ ƞ´ Æ Â ƫ ɱ ƫ Â

minutes

ip-address2…ip-address8	ˆ ˩ ˜ ˩ ΠU 8 WINS Ł ˪ Â

ð Ô

ĦŘ WINS Ł ˪ Â

ð ħu ϡ Ô

DHCP ϡ ϕ ϟ ϩ

ð ´ Ô

ĦŘ WINS Ł ˪ ˘ ϫ ϻ ˝I ˘ DHCP ˩ б ϫ ϻ WINS Ł ˪ ˘ Ю WINS Ł ˪ Â

ð Ô

ΠUЮ ˘ й DHCP WINS Ł ˪ 192.168.12.3 Â

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

ð ħu ϡ Ô

ħu ϡ	
ip address dhcp	˧ ŭ DHCP ˩ IP ϡ ϕ ϟ ϩ Â
ip dhcp pool	ĦŘ DHCP ϡ ϕ ϟ ϩ ˩ ˘ DHCP ϡ ϕ ϟ ϩ Â

25.1.16 netbios-node-type

ĦŘ DHCP ў NetBIOS ϟ˘ DHCP ϡ ϕ ϟ ϩ ħu ϡ **netbios-node-type** Â ħu ϡ **no** ˩ ΠU NetBIOS ϟ ϩ Â

netbios-node-type *type*

no netbios-node-type

ð ˧ Ô

˧	

type	ћ NetBIOS صر ч Â ћ تن ÿ 0~FF ´ Ω ⁸ ˇ ٧ ٧ ЛЬЮ ' Õ 1˘ ҷ b-node' Õ 2˘ ҷ p-node' Õ 4˘ ҷ m-node' Õ 8˘ ҷ h-node Â ћ' Õ b-node˘ صر ' Õ p-node˘ صر ' Õ m-node˘ ٨ صر ' Õ h-node˘ ٨ صر Â

ð Ô

ћ NetBIOS صر Â

ð ћu ҷ Ô

DHCP فخ سم

ð ´ Ô

DHCP NetBIOS صر ني ' 1˜ Broadcast˘ صر ˇ
NetBIOS ٨ ' 2˜ Peer-to-peer˘ صر ˇ
WINS Ь ٨ NetBIOS ٨ ' 3˜ Mixed˘ ٨ صر ˇ ˝I
٨ ˇ ٨ б WINS Ь ٨ ٨ ' 4˜ Hybrid˘ ٨ صر
ˇ ˝I WINS Ь ٨ NetBIOS ٨ ˇ ˚ ˇ
NetBIOS ٨ Â

Ю˘ صر й صر ٨ صر Â WINS
Ь ٨˘ й صر ' WINS Ь ٨˘ й ٨ صر Â
NetBIOS صر й Hybrid Â

ð Ô

ЛЬЮ ˇ DHCP NetBIOS й ٨ صر Â

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

ð ћu ҷ Ô

25.1.17 network DHCP

ᛯ DHCP ѫ ѯ ᚢ ˘ DHCP ѫ ѯ ħυ ϗ **network** Â ħυ ϗ **no** ᚳ ᚢ ᛯ Â

network *net-number net-mask*

no network

ð ¶ Ô

¶	
net-number	DHCP ѫ ѯ IP ѫ ѯ ᚠ Â
net-mask	DHCP ѫ ѯ IP ѫ ѯ Â ᛯ ˘ ѝ Â

ð Ô

ᛯ ᚠ Â

ð ħυ ϗ Ô

DHCP ѫ ѯ

ð ´ Ô

ᛯ ѫ ѯ ᚴ è ˘ ѝ DHCP Ь ᚳ ᚴ ѯ ѯ ѯ Â ѫ ѯ ˘ ї ‡ ѫ ѯ ѫ ѯ ᚴ ᛁ Â DHCP ѫ ᛁ ѫ ѯ ѫ ѯ ˘ ˘ ѫ ѯ ѫ DHCP ᛁ ѫ ѯ ѫ ѫ ˘ Ю ѫ ѯ ˘ ᛁ ᛁ ѯ ѫ Â

ѯ ѫ ᛁ ᚴ **show ip dhcp binding** ħυ ϗ ˘ ѯ ѫ ă ᚴ **show ip dhcp conflict** ħυ ϗ Â

ð Ô

ᚳ Ю ˘ ᛯ DHCP ѫ ѯ ᚠ ѝ 192.168.12.0˘ ѝ 255.255.255.240 Â

```
network 192.168.12.0 255.255.255.240
```

ð ħυ ϗ Ô

ħυ ϗ	
ip dhcp excluded-address	ᛯ DHCP Ь ᚳ a ᛁ IP ѫ ѯ Â

ip dhcp pool	ƫ DHCP ƒ ʃ ˘ DHCP ƒ Â

25.1.18 next-server

ƫ DHCP ŭ ╟ ŭ ╟ ┕ ˘ DHCP ƒ
ƫu ʒ **next-server** Â ƫu ʒ **no** ˩ ⎍ ŭ ╟ ┕ ƫ Â

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

no next-server

ð ¶ Ô

¶	
ip-address	ƫ ŭ ╟ ┕ IP ƒ ˘ ŕ TFTP ┕ Â Â
ip-address2…ip-address8	ˆ ˩ ˜ ˩ ⎍ 8 ŭ ╟ ┕ Â

ð Ô

Â

ð ƫu ʒ Ô

DHCP ƒ

ð ´ Ô

ƫ ŭ ╟ ┕ ˘ ж ⍝ ˘ DHCP ˩ б ж ⍝ ŭ
╟ ┕ ˘ Ю ŭ ╟ ┕ Â

ð Ô

ЛЬЮ ˘ ŕ DHCP ŭ ╟ ┕ 192.168.12.4 Â

```
next-server 192.168.12.4
```

ð ƫu ʒ Ô

ƫu ʒ	
bootfile	ƫ DHCP ŭ ╟ ˘ ʃ
ip dhcp pool	ƫ DHCP ƒ ʃ ˘ DHCP ƒ Â
ip help-address	¶ ƫ Helper ƒ
option	RGOS ˘ DHCP ┕ Â

25.1.19 option

DHCP Ŀ ϳ ˘ DHCP ѫ ϗ **option** Â Ħυ ϗ **no** ϟ Ո option Ħ Â

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

no option

ð ϟ Ô

ϟ	
code	Ħ DHCP ϗ Â
ascii *string*	Ħ ASCII

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

ð ħυ ϩ Ô

ħυ ϩ	
ip dhcp pool	₩ DHCP ففخ سم ل ˘ DHCP ففخ سم Â

25.1.20 service dhcp

ھ Э ὖ DHCP ᒧ ᒪ Ո ϩ ˘ ħυ ϩ **service dhcp** Â
ħυ ϩ **no** ᒣ Ո DHCP ᒧ ᒪ Ո ϩ Â

service dhcp

no service dhcp

ð ᒣ Ô

ð Ô

DHCP ᒧ ᒪ Ո ϩ Â

ð ħυ ϩ Ô

ð ´ Ô

DHCP ᒧ ᒪ ᒣ Ո ╟ ἶ IP ففخ سم˘ DNS ᒧ ᒪ à
Â DHCP ᒣ Ո DHCP ᒣ ᒣ è ᒧ ᒪ˘ ھى
DHCP ↑ ھ ᒣ DHCP ˘ DHCP Â

ھ p Э ᒪ DHCP ╥ Ո è ╥ ă ˘ é
p ˘ Ո ᒣ Â

ð Ô

ՈυЮ ˘ ὖ DHCP ᒧ ᒪ Ո Â

```
service dhcp
```

ð ħυ ϩ Ô

ħυ ϩ	
show ip dhcp server statistics	DHCP ᒧ ᒪ ᒧ Â

25.2

25.2.1 clear ip dhcp binding

DHCP

ð ¶ Ô

¶	
*	╗ DCHP ѕ ƒ ă Â
ip-address	╗ IP ѕ ƒ ă Â

ð Ô

ѝ Â

ð ħυ ϛ Ô

ð ´ Ô

DHCP ┺ ⅄ ѕ ƒ ă ping ˘ DHCP ѕ ƒ ă ѕ ƒ ˜ ˆ ARP˜ Â **clear ip dhcp conflict** ┘ Л╗ ┐ ┘ ă Â

ð Ô

ЛЬЮ ˘ ѕ ƒ ă Â

```
clear ip dhcp conflict *
```

ð ħυ ϛ Ô

ħυ ϛ	
ip dhcp ping packets	⅍ DHCP ┺ ⅄ ј ѕ ƒ ˘ ѕ ƒ ă ping ┘ ↑ Â
show ip dhcp conflict	DHCP ┺ ⅄ ј ѕ ƒ ˘ ╽ ѕ ƒ ă Â

25.2.3 clear ip dhcp server statistics

Æ DHCP ┺ ⅄ ⅄ ˘ ј **clear ip dhcp server statistics** ħυ ϛ Â

clear ip dhcp server statistics

ð Ô

ѝ Â

ð ħυ ϛ Ô

DHCP Server ˘ ϑ **debug ip dhcp server** ħυ ϡ Â

debug ip dhcp server

no debug ip dhcp server

ð ٩ Ô

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ħυ ϡ dhcp server ϑ ў ˘ ЛυЧ Â

ð Ô

ЛυЮ ˘ Э dhcp Ь Ы Â

```
debug ip dhcp server
```

ð ħυ ϡ Ô

25.2.6 show dhcp lease

DHCP ˘ EXEC ħυ ϡ **show dhcp lease** Â

show dhcp lease

ð ٩ Ô

ð Ô

й Â

ð ħυ ϡ Ô

ð ´ Ô

Ħ IP ϑ˘ ϑ Â Ħ IP ϑ˘ ٧ IP ϑ Â

ð Ô

ЛuЮ 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
```

25.2.7 show ip dhcp binding

DHCP ѳ ѣ ˇ EXEC ћu ҙ **show ip dhcp binding** Â

show ip dhcp binding [*ip-address*]

ð ¶ Ô

¶	
ip-address	ˆ ˩ ˜ ˩ IP ѳ ѣ Â

ð Ô

й Â

ð ћu ҙ Ô

ð ´ Ô

ћ IP ѳ ѣ˜ ѳ ѣ Â ћ IP ѳ ѣ˜ ˩ IP ѳ ѣ Â

ð Ô

ЛuЮ 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
```

˪ ѽ ћ ЮÂ

IP address	ѓ DHCP IP ѫ Â
Client-Id/ Hardware address	DHCP client identifier ѯ ѫ
Lease expiration	ѓ Â Infinite 8’ IDLE ѭ ѫ ѯ ѭ ѵ ѡ ѵ DHCP ў ╟ Â
Type	ѫ ѱ Â Automatic ╟ѓ ’ Manual ѓ Â

ð ћu ҙ Ô

ћu ҙ	
clear ip dhcp binding	DHCP ѫ

25.2.8 show ip dhcp conflict

DHCP ┺ѵ ă ˇ EXEC ћu ҙ **show ip dhcp conflict** Â

show ip dhcp conflict

ð ч Ô

ð Ô

и Â

ð ћu ҙ Ô

ð ´ Ô

ћu ҙ ┘Ս DHCP ┺ѵ ѓ ă ѫ Ո ѫ Â

ð Ô

ՍսЮ и **show ip dhcp conflict** ћu ҙ Â

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

dhcpd excluded ipaddress
192.168.12.100
```

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

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

ส Ü ĦR ĦO Â

Address pools	ฟอ สม
Automatic bindings	ฟอ สม╟ Â
Manual bindings	ฟอ สม Â
Expired bindings	ฟอ สม Â

26 DHCP Relay

26.1 DHCP Relay

26.1.1 service dhcp

ج Э ŭ DHCP ʒ ˇ ħu ʒ **service dhcp** Â ħu ʒ no ˩ Л∪ DHCP ʒ Â

service dhcp

no service dhcp

ð Ô

DHCP ʒ Â

ð ħu ʒ Ô

ð ´ Ô

DHCP ˩ Л∪ DHCP ˩ è ŀ ˘ ھ DHCP ↑ ج ˩ DHCP ˇ DHCP Â

ð Ô

ЛυЮ ˇ ŭ DHCP ŀ ˩ Ո Â

```
service dhcp
```

ð ħu ʒ Ô

ħu ʒ	
ip helper-address [**vrf**] *A.B.C.D*	╗ DHCP server فخ سم

26.1.2 ip helper-address

ħu ʒ ˩ Л∪ ╗ DHCP ŀ ˩ فخ سم Â ħu ʒ no ˇ ĩ ŀ ˩ فخ سم Â

ŀ ˩ فخ سم ˩ Л∪ ˇ ≠ ˩ Л∪ ∧ Â ﭽ ħu ʒ ˩ Л∪ ج Ю˘ ≠ ˩ Л∪ج ∧ Ю ˇ ĩ ⋮ ╗ Ю DHCP ŀ ˩ Â

ð Ô

Ł ɣ Â

ð ħυ ϡ Ô

/ ʌ

ð ´ Ô

ϑϵ ɻ Ʌυ dhcp Ł ɣ ϩϫ ˘ ʌ DHCP ɻ
ʃ Ł ɣ Â ɻ Ʌυ ÿ Â

ϑϵ vrf ʌ ˘ ϰϰ Ո ϰϰ ʌ a ɹ’ ϰϰ
a vrf ʌ ˘ ɱ Ł ɣ a vrf Ł ɣ ϩϫ ϵ’
ϰϰ ʌ a vrf ʌ ˘ ɱ Ł ɣ Ո ʌ ɻ vrf

ð Ô

ɅυЮ ˘ ч Ł ɣ ϩϫ ˘ ʃ ⋮ ɻ vrf Ł ɣ ѝ 61.154.26.49˘
Ʌυ ʅ ϰϰ vrf ɹ ѝ local Ł ɣ ѝ 192.168.197.1 Â

```
ip helper-address 61.154.26.49
ip helper-address vrf local 192.168.197.1
```

ð ħυ ϡ Ô

ħυ ϡ	
service dhcp	DHCP ϡ

26.1.3 ip dhcp relay information option dot1x

ħυ ϡ **dhcp option dot1x** ╖ ˘ ħυ ϡ no **dhcp option dot1x** ╖ Â

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ħυ ϡ ˝I DHCP relay˘ ʅ ʅ 802.1x Â

ð Ô

```
Ip dhcp relay information option dot1x
```

ð ƫu ҳ Ô

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

ð ´ Ô

ħυ ϡ б option dot1x ħυ ϡ Â

ð Ô

```
Ip dhcp relay information option82
```

ð ħυ ϡ Ô

ħυ ϡ	
Service dhcp	DHCP ϡ
ip dhcp relay information option dot1x	DHCP option dot1x ╖

26.1.6 ip dhcp relay check server-id

ħυ ϡ **ip dhcp relay check** *server-id* ╖ ˘ ħυ ϡ no **ip dhcp relay information check** *server-id* ╖ Â

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ħυ ϡ˘ ѫ ч DHCP REQUEST server-id option ч server Â

ð Ô

```
Ip dhcp relay check server-id
```

ð ħυ ϡ Ô

ħυ ϡ	
Service dhcp	DHCP ϡ

26.1.7 ip dhcp relay suppression

Ħυ ϗ DHCP ╖ ˘ Ħυ ϗ no DHCP
╖ ∧ DHCP relay ⁸ ╖ Â

ð Ô

ð Ħυ ϗ Ô

∧

ð ´ Ô

⊣ Ħυ ϗ Л˘ ∧ DHCP request a relay Â

ð Ô

ЛυЮ ˘ ∧ 1 relay ⁸ ╖ Â

```
Ruijie#
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if)# ip dhcp relay suppression
Ruijie(config-if)# exit
Ruijie(config)#
```

ð Ħυ ϗ Ô

Ħυ ϗ	
service dhcp	DHCP ϗ

ð ¶ Ô

¶	
ip-address	IP

ð Ô

ð Ô

ð ´ Ô

DNS Server IP Â DNS Server Â
ÿ Server DNS Server
6 DNS Server ip-address
DNS Â

ð Ô

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

ð Ô

show hosts	DNS Â

ð Ô

RGNOS10.1 Â

27.1.3 ip host

IP Â no Â

ip host *host-name ip-address*

no ip host *host-name ip-address*

ð ¶ Ô

¶	
host-name	
ip-address	IP

ð Ъu ъ Ô

ð ´ Ô

ї ў ˘ ┘Л **no ip host host-name ip-address** Ъu ъ ї

ð Ô

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

ð Ъu ъ Ô

Ъu ъ	
show hosts	DNS Â

ð Ô

Ъu ъ ⌐ж RGNOS10.1 Э Â

27.1.4 clear host

╠ ў ┘ ă ˘ ┘Л ж Ъu ъ Â

clear host [*host-name*]

ð ¶ Ô

¶	
host-name	┘Лї ╠ ў ┘ ă Â "*" ъ ╠ ў ┘ ă Â

ð Ъu ъ Ô

ð ´ Ô

ў ┘ ă ˘ ч ' 1˜ ip host ' 2˜ DNS ╠ ¯ Â Ъu ъ˘ ї ⌐ж DNS ╠ ¯ ↑ ў ┘ Â

ð Ô

ЛЬО ˘ ї ў ┘ -IP ⌐ж ă ╠ ¯ ↑ Â

```
clear host *
```

ð Ъu ъ Ô

show hosts	ÿ ɹ ă

ð Ô

RGNOS10.1 Ə Â

27.1.5 show hosts

DNS Â

show hosts

ð Ô

ð ´ Ô

DNS Â

ð Ô

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

ð Ô

ip host	ÿ ɹ Ո IP
ip name-server	DNS

ð Ô

RGNOS10.1 Ə Â

28 NTP

28.1 NTP

28.1.1 no ntp

ntp ⸗ ⊾˘ б ⊾⸤ ⸗ ˘ ntp Â

no ntp

ð ↰ Ô

Â

ð Ô

Ю NTP ⊾ Â

ð Ђu ҳ Ô

Â

ð ´ Ô

ᵭ Ю˘ NTP ╖ ˘ ↙ NTP ⊾⸤ NTP ⁞
⁸˘ NTP ╖ Â

ð Ô

ЛuЮ ˘ NTP ⊾Â

no ntp

ð Ђu ҳ Ô

Ђu ҳ	
ntp server	NTP ⊾⸤

28.1.2 ntp access-group

NTP ⊾ ⁸ ˘ Ђu ҳ 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 ٩ Ô

٩	
peer	ѕѫ NTP Ь Ո ˇ ≠ ѫ б ˆ ~ Â
serve	ѕѫ NTP Ь Ո ˇ a ѫ б Â
serve-only	ѕѫ NTP Ь Â
query-only	ѕѫ NTP Ь Â
access-list-number	IP Л’ تn й 1˙ 99 Ո 1300˙ 1999
access-list-name	IP ѓ Â

ð Ô

Ю NTP Â

ð Ђu ҙ Ô

Â

ð ´ Ô

ѫ NTP Ь Â ˇ
NTP Â

ѓ ˇ NTP Ь ÿ ѓ Â
ך ‡ˇ Ѧ ך ѓ ‡ й Â ך й peer à serve à serve-only à query-only Â

~

ґЛ Â Э ‡ ך ˇ ٦ѓ б
Â

Â Â
‡ˇ ‡ ‡ Â

ð Ô

ѦЮ 1 Л ѫ à
Ո ‚ ’ 2 Л ѫ Â

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

ð Þu ¾ Ô

Þu ¾

28.1.4 ntp authentication-key

й NTP Ь NTP Â

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

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

ð ¶ Ô

¶	
key-id	ID'
key-string	'
enc-type	^ ˩ ~ ĭ ╗ ˇ 0 ╗ ˇ 7 ´ ╗ '

ð Ô

Â

ð Ђ ђ Ô

Â

ð ´ Ô

ˇ md5 ╗ ˇ ر key-id ˇ
˩Л **ntp trusted-key** key-id й Â

Э й 1024 ˇ Ь Ы

ð Ô

ЛЪЮ ID й 6

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

ð Ђ ђ Ô

Ђ ђ	
ntp authenticate	⋮ 8
ntp trusted-key	
ntp server	NTP Ь Ы

28.1.5 ntp disable

ᛋ NTP ᛏ Â

ntp disable

ð ᛋ Ô

Â

ð Ô

Ю ᛋ ᒐ Л ᒐ NTP Â

ð Ђ ҂ Ô

ᛋ Â

ð ´ Ô

ᚓ Ю˘ ᛋ Э ᒐ NTP ᒐ Л ˘
ᛏ ˘ ᒐ Л ᛋ Э ˛ NTP Â

~

ᒧ ᛋ IP ᒐ ᛋ˘ ᚓ è ᛋ Э
Ђ ҂ Â

ð Ô

ЛЮ ˘ ᛋ NTP Â

```
no ntp
```

ð Ђ ҂ Ô

Â

28.1.6 ntp master

ѕѕ й NTP ў ^ ѕѕ ᛋ ᒐ ~˘ й è ᒧ Â
Ђ ҂ no й ᒐ NTP ў Â

ntp master *[stratum]*
no ntp master

ð ᛋ Ô

ᛋ	
stratum	ѕѕ ˘ тп й 1˙ 15’ a ᛋ ‡ й 8 Â

ð Ô

a NTP ў ╖ Â

ð Ђ ҳ Ô

Â

ð ´ Ô

ج Ю˘ ѕѕ ѕѕ б ⅄ Â
Ⅵ ج ѕѕ б ⅄ ˘ ⅄ Л Ђ ҳ
ѕѕ ∜ ⅄ ˘ й è ⅄ Â

˘ a б è ⅄ Â

~

Ђ ҳ ⋮ Â ѕѕ й ў ˆ è æ
~ ⅄ Â ⅄
Ђ ҳ˘ ‡ ⅄ ⅄ a Â

∧ ˘ Ђ ҳ ґ ÿ б ⅄ ˘ ‡ ⅄ ╟
Л Ђ è a Â

ð Ô

ЛЂЮ ѕѕ ∜ ⅄ ˘ è й 12 Â

```
Ruijie(config)# ntp master 12
```

ð Ђ ҳ Ô

28.1.7 ntp server

й NTP NTP ⊾ ⅄ Â

ntp server *ip-addr* [**version** *version*] [**source** *if-name*] [**key** *keyid*][**prefer**]

no ntp server *ip-addr*

ð ∜ Ô

∜	

ip-addr NTP ⊾ ⅄ IP ѕѕ فذ˘ IPv4 Ո IPv6ʾ

version	ˆ ˩ ˜ NTP ˆ 1-3˜˘ NTPv3 ,
if-name	ˆ ˩ ˜ ˩ NTP ˥̂ Ь ˥˜’

ð ч Ô

Â

ð Ô

Â

ð ђu ҳ Ô

Â

ð ´ Ô

NTP б Ь Ы й 8 ˘ Л й ĵ Л
˘ ж ╟ Л ˘ . Л ˘ ‡ Л Л ђu ҳ

ð Ô

ЛЬЮ ˘ NTP Л Â

```
Ntp synchronize
```

ð ђu ҳ Ô

ђu ҳ	
ntp server	NTP Ь Ы Л

ЛυЮ NTP ˚ '

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

ð ħυ ϗ Ô

28.2

28.2.1 debug ntp

NTP Â

debug ntp

no debug ntp

ð ٩ Ô

Â

ð Ô

Â

ð ħυ ϗ Ô

Â

ð ´ Ô

NTP ╗ ˘ ┘Л ħυ ϗ ˘ Ո-Ո
Â

ð Ô

ЛυЮ ˘ NTP Â

```
debug ntp
```

ð ħυ ϗ Ô

Â

28.2.2 show ntp status

NTP Â

show ntp status

ð ٩ Ô

Â

ð Ô

ѝ Â

ð Ђu ҳ Ô

ð ´ Ô

NTP Ь ˘ ѽ NTP ˘ ج ╗ ⊿ Ь ⊻

ѽ Ђu ҳ a . Â

ð Ô

ЛUЮ ˘ ѽ NTP Â

```
show ntp status
```

ð Ђu ҳ Ô

29 SNTP

29.1

29.1.1 sntp enable

Ђ ѓ SNTP ╖ ˘ Ђ ѓ **no** и
—Disable Â

[**no**] **sntp enable**

ð ¶ Ô

ð Ô

SNTP Disable

ð Ђ ѓ Ô

ð ´ Ô

show sntp Ђ ѓ SNTP ¶

ð Ô

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

ð Ђ ѓ Ô

Ђ ѓ	
show sntp	SNTP
clock update-calendar	˚ ┘ ˚
clock set	˚

ð ┘ Ô

˚ RGOS10.0 Л Э

29.1.2 sntp server

Ђυ ϗ SNTP Serverў SNTP ~ Ո NTP ˇ Л Server
ل Л internet Э Ώ NTP Server Â

sntp server ip-addr

no sntp server

ð ٩ Ô

ip-addr ' NTP/SNTP ᄂ ᄀ IP ف س

ð Ô

NTP/SNTP ᄂ ᄀ

ð Ђυ ϗ Ô

ð ´ Ô

show sntp Ђυ ϗ SNTP ٩

ð Ô

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

ð Ђυ ϗ Ô

Ђυ ϗ	
show sntp	SNTP
sntp enable	SNTP

ð ل Ô

˙ RGOS10.0 Л Э

29.1.3 sntp interval

ð ħu ɜ Ô

ð ´ Ô

show sntp ħu ɜ SNTP ¶ Â

ð Ô

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

ð ħu ɜ Ô

ħu ɜ	SNTP	5 Í Æ

ð ´ Ô

show sntp Ђ ї SNTP ٩

ð Ô

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

ð Ђ ї Ô

Ђ ї	
sntp enable	SNTP
show sntp	SNTP ٩

ð ٭ Ô

˚ RGOS10.0 Л Э

30 SSH

30.1 SSH

30.1.1 crypto key generate

Ь Л Ъ ў Ю Ю'

crypto key generate {**rsa | dsa**}

ð ¶ Ô

¶	
rsa	RSA
dsa	DSA

ð Ô

Ю SSH Server Ъ Â

ð Ю ў Ô

ð ´ Ô

SSH Server Ь ў Ю ў SSH Ь Л Ъ Â Л
enable service ssh-server Ю ў SSH Server ╖ Â SSH 1 RSA
' SSH 2 RSA DSA Â ў ў ‡ SSH1
б SSH2 Л Л ' DSA ў ‡ SSH2 Л Л Â

~
Ї ў a ў Ю ў **no crypto key generate** ў Ю ў **crypto key zeroize** Ю ў Ї Â

ð Ô

Ruijie# **configure terminal**
Ruijie(config)# **crypto key generate rsa**

ð Ю ў Ô

Ћu ҳ	
show ip ssh	SSH Server ґґ Â
crypto key zeroize {**rsa | dsa**}	╗ DSA б RSA ˘ SSH Server ╖ Â

ð Ô

˚ RGOS10.1 Л Э

30.1.2 crypto key zeroize

╗ SSH Ь Ы Ώ ˘ ж Ю˘ Ћu ҳ'

crypto key zeroize {**rsa** | **dsa**}

ð ч Ô

ч	
rsa	╗ RSA
dsa	╗ DSA

ð Ô

ð Ћu ҳ Ô

ð ´ Ô

Ћu ҳ ╗ Ь Ы Ώ Â ╗ Л˘ SSH Server и и DISABLE Â SSH Server˘ **no enable service ssh-server** Ћu ҳ Â

ð Ô

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

ð Ћu ҳ Ô

Ћu ҳ	
show ip ssh	SSH Server ґґ Â
crypto key generate {rsa|dsa}	DSA б RSA Â

30.1.4 ip ssh time-out

SSH Server Â ħυ ҳ **no**
ѝ Â

ip ssh time-out *time*

no ip ssh time-out

ð ¶ Ô

¶	

time Â

SSH Server Â ħυ ϩ no
ϰ Â

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

ð ϟ Ô

ϟ	
retry times	Â

ð Ô

Ю ϰ 3 Â Л˘ **no ip ssh authentication-retries** ħυ ϩ ≠ ┘Л∪ ϰ Â

ð ħυ ϩ Ô

ð ´ Ô

ħυ ϩ SSH Server Â SSH Server
˘ Ÿ ╖˘ ‡ ϰ Â **show ip ssh** ħυ ϩ
SSH Server Â

ð Ô

ϰ 2'

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

ð ħυ ϩ Ô

ħυ ϩ	
show ip ssh	SSH Server ɱ Â

ð Ô

˚ RGOS10.1 Л∪ Э

30.2 SSH

30.2.1 show ip ssh

SSH Server ɱ Â

show ip ssh

ð ٩ Ô

ð Ô

ð ħυ ϗ Ô

ð ´ Ô

ð Ъυ ϟ Ô

ð ´ Ô

SSH Â ↑ ' ´ VTY Ѝ à SSH à
╗ à à à ˩ Â

ð Ô

Ruijie# **show ssh**

ð Ъυ ϟ Ô

ð Ô

˚ RGOS10.1 Л Э

30.2.3 show crypto key mypubkey

SSH Server Ὼ Ὼ ϯ Â

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

ð ϒ Ô

ϒ	
rsa	RSA Ὼ ϯ
dsa	DSA Ὼ ϯ

ð Ô

ð Ъυ ϟ Ô

ð ´ Ô

SSH Server Ὼ Ὼ ϯ Â ↑ '
à ˩ à Ὼ ϯ Â

ð Ô

Ruijie# **show crypto key mypubkey rsa**

˚ RGOS10.1 Л Э

31 UDP-Helper ж ћ ђ

31.1

31.1.1 udp-helper enable

udp-helper enable ћ ђ ў ╠ UDP ┘ ╗ Â**no udp-helper enable** ћ ђ UDP ┘ ╗ Â

Ю UDP ┘ Â

udp-helper enable

no udp-helper enable

ð ┤ Ô

ð Ô

UDP ┘

ð ћ ђ Ô

ð ´ Ô

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

ð Ô

Ю ў ╠ UDP ┘ ╗ :

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

ð ћ ђ Ô

¸ ћ ђ	¸
ip forward-protocol	┘ UDP ┤

ð Ô

ћ ђ ґ ж RGNOS10.1 Э Â

31.1.2 ip helper-address

UDP ч Ь Й Â no ї UDP
ч Ь Й Â

ip helper-address *address*

no ip helper-address *address*

ð ¶ Ô

¶	
address	UDP ч Ь ˘ ù ї ¯ ¸ ˘ ¶ 20 Ь Й ѕ ф Â

ð Ô

UDP ч Ь Й

ð Ъu ђ Ô

¶

ð ´ Ô

ч Л υ ù ¶ 20 Ь Й Â ч Ь Й ж
¶ Э , ‡ ж ŭ ╠ UDP-Helper ╖ Л˘ ÿ ¶ UDP ¶
˘ Л´ ч ї ¶ Э Ь Й Э Â

no ip helper-address ч ч ї Ь Й Â

ð Ô

Ю UDP ч Ь Й:

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

ð Ъu ђ Ô

Ъu ђ	
ip forward-protocol	ч UDP ¶

ip forward-protocol udp [*port* | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

no ip forward-protocol udp [*port* | **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**]

ð ¶ Ô

¶	
port	¬ ¶˘ a ¶ ‡ 69,53,37,137,138,49 ¶ ¬ Â
tftp	Trivial File Transfer Protocol(69) ¶ ˘ UDP ¶ ⁄ ˙ 69 ¬ Â
domain	Domain Name System(53) ¶ ˘ UDP ¶ ⁄ ˙ 53 ¬ Â
time	Time service(37) ¶ ˘ UDP ¶ ⁄ ˙ 37 ¬ Â
netbios-ns	NetBIOS Name Service(137) ¶ ˘ UDP ¶ ⁄ ˙ 137 ¬ Â
netbios-dgm	NetBIOS Datagram Service(138) ¶ ˘ UDP ¶ ⁄ ˙ 138 ¬ Â
tacacs	TAC Access Control System(49) ¶ ˘ UDP ¶ ⁄ ˙ 49 ¬ Â

ð Ô

¬ UDP ¶ Â

ð Ô

ð ´ Ô

UDP-Helper ╖ ˘ ‡ 69,53,37,137,138,49 ¶ UDP ¬˘ a ⁄ ˘ ‡ Â

```
Ruijie(config)# ip forward-protocol udp 134
```

ð Ô Ô

32

32.1

32.1.1 ip policy route-map

ѫ ฯ ษ ˘ ฯ Ъυ ҳ **ip policy route-map** Â
Ъυ ҳ **no** Â

ip policy route-map *route-map*

no ip policy route-map

ð Ô

ЛЬЮ ˘ Лb ٧ FE0 ˆ ˘
ﻡﺧﺳ ﻯ 10.0.0.1˘ ‡ Ю ﻯ 196.168.4.6˝ ﻡﺧﺳ ﻯ 20.0.0.1
‡ Ю ﻯ 196.168.5.6˝ Ї ‡ ٧ Â

```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
exit
route-map lab1 permit 20
match ip address 2
set ip next-hop 196.168.5.6
exit
interface GigabitEthernet 0/0
ip policy route-map lab1
exit
```

ð Ъu ъ Ô

Ъu ъ	
access-list	ﻫﺧ ‡ Â
route-map	ﻫﺧ ﻲﻓ Â
set ip next-hop	ﻫﺧ Ю
set ip default next-hop	ﻫﺧ Ю
set interface	ﻫﺧ ٧

ip local policy route-map *route-map*

no ip local policy route-map

ð ٩ Ô

4 Ю ˘ ECMP ↓Л 32 Ю Â Ю
˝ ↑ ARP Ю Â

ð Ô

ЛЪЮ ˘ ف nexthop, ج Ю
Л˘ ‡ ج EF0 Э ↓ ف
nexthop ˘ ↓ Â

```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
set ip next-hop 196.168.4.7
set ip next-hop 196.168.4.8
exit
route-map lab1 permit 20
match ip address 2
set ip next-hop 196.168.5.6
set ip next-hop 196.168.5.7
set ip next-hop 196.168.5.8
exit
interface GigabitEthernet 0/0
ip policy route-map lab1
exit
ip policy redundance
```

33

33.1

33.1.1 route-auto-choose

فذسم ԽՍ ҳ Â ⅃Ո ԽՍ ҳ no ĩ ԽՍ ҳ Â

[**no**

33.1.2 route-auto-choose update

‰ ‹ Œ Ž ‘ ’ “ ” • – — ˜ ™ š › œ ž Ÿ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ À Á Â

route-auto-choose update

-	-

Ю й ╖

‡ ‰ ‹ Œ

‡ ‰ ‹ Œ Ž ‘ ’ “ ” • – — ˜ ™ š › œ ž Ÿ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ À Á Â

1' Ў ┊ ╖ '

```
Ruijie#config
Ruijie(config)#route-auto-choose update
```

-	-

10.3(4b7)P1 NPE50 à NPE80 NPE Â

34 RIP

34.1

34.1.1 address-family RIP

fخ سم RIP ~ ˘ fخ سم ħu ʒ
address-family˘ ˥ ~ fخ سم ˘ ħu ʒ
no Â

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

ð ٩ Ô

٩	
vrf *vrf-name*	ħu ʒ VRF ɻ Â

ð Ô

a RIP ˜ fخ سم Â

ð ħu ʒ Ô

Â

ð ´ Ô

address-family ħu ʒ fخ سم ˆ ŷ '
(config-router-af)#˜ Â VRF ˘ RIP …
VRF RIP Â ج ЮЎ ˩ Л∪ VRF RIP
Â

˥ fخ سم ھی ˘
exit-address-family **exit** ħu ʒ Â

ð Ô

ЛЮ ˘ … ɻ ŷ vpn1 VRF˜ ŷ vrf …
RIP Â

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

```
255.255.255.0
Ruijie(config)# router rip
Ruijie(config-router)# address-family ipv4 vrf vpn1
Ruijie(config-router-af)# network 192.168.1.0
Ruijie(config-router-af)# exit-address-family
```

ð ħu ɮ Ô

ħu ɮ	
exit-address-family	فخ سم Â
ip vrf	… VRF Â

ð ⊿ Ô

ð Ô

34.1.2 auto-summary (RIP)

ŭ RIP ╟ ╖ ˘ ˜ ħu ɮ **auto-summary** Â
ħu ɮ **no** ╟ ╖ Â

auto-summary

no auto-summary

ð ⅂ Ô

Â

ð Ô

ŭ ╟ ╖ Â

ð ħu ɮ Ô

Â

ð ´ Ô

RIP ╟ ˘ ˘ ╟
Â RIPv1 Ո RIPv2 Ю ╟ Â

RIP ╟ ╖ ˘ Ո Â
ج˘ ج a⎱ ↑ ŭ ج ˘ ⅃ Л
Â

˘ ў ЛЮ ج '

¸ RIP ˘ ⎱ ˝I '

¸ RIP ˘ ˘ Â

¸ ⅃ ⎱ ɛ ˘ a ⅃ ⎱ ⊿

RIP

ӀӾ ˘ default-metric ӀӾ Â a ħu ҳ ‡ default-metric ѝ 1 Â

ð Ô

ЛυЮ ˘ RIP ˜ OSPF ˜ ˚ ˚ ˘ ˚ RIP ѝ 3 Â

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

ð ħu ҳ Ô

ħu ҳ	
redistribute	ÿ ѕѕ ˚ ˚ ۸ ѕѕ Â

ð ۸ Ô

ð Ô

34.1.4 default-information originate(RIP)

ѧ RIP ˘ ۷ Лυ ħu ҳ **default-information originate** ħu ҳ˘ ħu ҳ **no** ۷ Â

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

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

ð ۹ Ô

۹	
always	ˆ ۷ ˜ RIP ˚ ˘ a ѕѕ ї ѧ Â
metric *metric-value*	ˆ ۷ ˜ ˘ *metric-value* ۷ ѧ 1-15 Â
route-map *map-name*	ˆ ۷ ˜ route-map ۸ , route-map

ð Ô

, metric ѝ 1 Â

ð ħu ҳ Ô

Â

ð ´ Ô

æ ˘ RIP a ˩ ˆ
˘ **default-information originate** ħυ ϡ
˘ ˩ ˆ Â

always ϰ ˘ RIP a ĭ æ ˘ ˩
ˆ ˘ a æ ѫ Â
ĭ ˘ ˩ Л **show ip rip database** RIP
Â

RIP ˆ 8˘ ˩ Л **route-map** ϰ ˘
' **set metric** ‡ Â

˩ Л **metric** ϰ ˆ ˘ ”I æ
route-map **set metric** ‡’ **metric** ϰ ˘ ‡
RIP Â

~

RIP ħυ ϡ ˘ ѫ RIP a ¨Ą ˉ
ˆ Â

ip default-network ˘ Ÿ
default-information originate ħυ ϡ ĺ RIP Â

ð Ô

ЛЬЮ ĺ RIP Â

```
Ruijie(config-router)# default-information originate
always
```

ð ħυ ϡ Ô

ip rip default-information	æ ϰ ˆ

distance *distance* [*ip-address wildcard*]

no distance [*distance ip-address wildcard*]

ð ৭ Ô

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

ð Ô

34.1.7 distribute-list out (o-n)8(um)5(ber _1 1 TTf 1.913 0Tw 2 15.

address-family	فذ سم Â

ð ⊀ Ô

ð Ô

34.1.9 ip rip authentication key-chain

ŭ RIP ˘ RIP ˘ ∧ Ђu ҳ **ip rip authentication key-chain** Â Ђu ҳ **no** ĩ Â

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

no ip rip authentication key-chain

ð ∧ Ô

∧	
name-of-keychain	⊀ ˘ RIP Â

ð Ô

Â

ð Ђu ҳ Ô

∧ Â

ð ´ Ô

ج ∧ ˘ ¯ **key chain** Ђu ҳ ⊮ a RIP ↑ Â

RIPv1 a RIP ↑ ˘ ∧ RIPv2 Â

ð Ô

ЛЬЮ ˘ Serial 0 ∧ ŭ RIP ˘ й ripchain Â

```
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication key-chain
ripchain
```

ð Ђu ҳ Ô

Ђu ҳ	
ip rip authentication mode	⊮ RIP Â
ip rip authentication text-password	RIP Â
key chain	… ˘ Â

authentication mode

ÍÆ RIP ˘ ʌ Íu ʒ **ip rip authentication ode** Â Íu ʒ **no** RIP Â

rip authentication mode {**text** | **md5**}

ip rip authentication mode

ʌ	
ext	RIP ù Â
nd5	RIP ù MD5 Â

34.1.11 ip rip authentication text-password

RIP ˘ ʌ Ъu ҳ **ip rip authentication text-password** Â Ъu ҳ **no** ĩ Â

ip rip authentication text-password *password-string*

no ip rip authentication text-password

ð ʌ Ô

ʌ	
password-string	˘ 1˙ 16 Â

ð Ô

Â

ð Ъu ҳ Ô

ʌ Â

ð ´ Ô

ŭ RIP ╗ ˘ ˩ Л∪ Ъu ҳ
˘ ≠ ˩ Л∪ ˩ ˘ ˥ ˝I ɱ Â

RIPv1 a RIP ↑ ˘ ʌ RIPv2 Â

ð Ô

Л∪Ю ˘ Serial 0 ʌ ŭ RIP ˘
ѝ ruijie Â

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

ð Ъu ҳ Ô

Ъu ҳ	
ip rip authentication mode	Ⱨ RIP

34.1.12 ip rip default-information

ÿ ∧ ˆ RIP ˇ ∧ ħu ҳ **ip rip default-information** Â ħu ҳ **no** ∨ ج ∧ ˆ Â

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

no ip rip default-information

ð ∧ Ô

∧	
only	ˆ ˇ a ˆ è Â
originate	ˆ ˇ ≠ ˆ è Â
metric *metric-value*	ˇ ∨ تن 1-15 Â

ð Ô

Â

ŭ ╟ ˆ ∧ˇ *metric* ѝ 1 Â

ð ħu ҳ Ô

∧ Â

ð ´ Ô

ج ∧ ħu ҳ ∧ˇ ÿ ∧ ˆ ∨ Â

∠ ∧ Ю **ip rip default-information** Ո RIP **default-information originate**ˇ ‡ ∨ ˆ ∧ Â

~

1 à ∨ ∧ **ip rip default-information**ˇ RIP a Ą ˉ ˆ Â ˉ ˚ ˇ ˚ ˥ Â

2 à ∧ Э **ip rip default-information**ˇ a . ∟ ˇ ج Ю ˆ Â

ð Ô

ЛъЮ ˇ ج ∧ ethernet0/0 Э… ˇ ∧ ∨ ˆ Â

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

ð ħu ҳ Ô

ħu ҳ	

default-information originate	ª RIP

ð ✓ Ô

ð Ô

ð Ô

34.1.14 ip rip receive version

ƫ RIP ﻉ ٨ Э ف RIP ↑˘ ٨ ƫu ʒ **ip rip receive version** Â ƫu ʒ **no** Â

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

no ip rip receive version

ð ٨ Ô

٨	
1	ˆ ˩ ˜ ٨ RIPv1 ↑ Â
2	ˆ ˩ ˜ ٨ RIPv2 ↑ Â

ð Ô

ƞ ˩ ᾱ **version** ƫu ʒ Â

ð ƫu ʒ Ô

٨ Â

ð ´ Ô

ƫu ʒ ˘ ˩Л **vesion** ƫu ʒ Â ƫu ʒ ٨ ⁝ ٨ RIP ƞ˘ ˩Л ٨ ˩ RIPv1 Ո RIPv2 ↑ Â ƫu ʒ a ٨ ‡ ƞ ˩ ᾱ version Â

ð Ô

ЛЬЮ ˘ GigabitEthernet 0/0 ٨ ˩Л RIPv1 Ո RIPv2 ↑ Â

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

ð ƫu ʒ Ô

ƫu ʒ	
version	ƫ ٨ ˩ RIP ↑ Â

ð ˩ Ô

ð Ô

34.1.15 ip rip send enable

RIP ﻉ ﻥ Э ﻝ RIP ↑˘ ﻥ ħu ʒ **ip rip send enable** Â ħu ʒ **no** RIP ﻉ ﻥ Э ﻝ RIP ↑ Â

ip rip send enable

no ip rip send enable

ð ﻥ Ô

Â

ð Ô

ﻥ ﻝ RIP ↑

ð ħu ʒ Ô

ﻥ

ð ´ Ô

ﻥ ﻝ RIP ↑˘ ﻉ ﻥ ﻥ ЮO ħu ʒ **no** Â ħu ʒ ħu ʒ ﻥ Â ﻝ ħu ʒ **default** ﻥ ﻝ RIP ↑ Â

ð Ô

ЛυЮ ˘ GigabitEthernet 0/0 ﻥ ﻝ RIP ↑ Â

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

ð ħu ʒ Ô

ħu ʒ	
ip rip receive enable	ﻥ RIP

no ip rip send version

ð ٩ Ô

٩	
1	ˆ ل ˜ ل RIPv1 ↑ Â
2	ˆ ل ˜ ل RIPv2 ↑ Â

ð Ô

ϋ ل ā **version** ħυ ϗ Â

ð ħυ ϗ Ô

٩ Â

ð ´ Ô

ħυ ϗ ˇ لЛυ **vesion** ħυ ϗ Â ħυ ϗ ل :
٩ ل RIP ϋˇ لЛυ ٩ ل ل RIPv1 Ո RIPv2
↑ Â ħυ ϗ a ٩ ‡ ϋ ل ā version Â

ð Ô

ЛυЮ ˇ GigabitEthernet 0/0 ٩ لЛυ ل RIPv1 Ո RIPv2
↑ Â

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

ð ħυ ϗ Ô

ħυ ϗ ⊦

Â

ð Ô

ϧ ϟ ¤ **version** ħυ ϗ Â

ð ħυ ϗ Ô

ϟ Â

ð ´ Ô

ħυ ϗ ˘ ϟ Л **vesion** ħυ ϗ Â ħυ ϗ ϟ ⁝ ϟ ϟ RIP ϧ˘ ϟ Л ϟ ϟ ϟ RIPv1 Ո RIPv2 ↑ Â ħυ ϗ a ϟ ‡ ϧ ϟ ¤ version Â

ð Ô

ЛЬЮ ˘ GigabitEthernet 0/0 ϟ Л ϟ RIPv2 Â

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

ð ħυ ϗ Ô

ħυ ϗ	
version	⊮ ϟ ϟ RIP ↑ Â

ð ϟ Ô

ð Ô

34.1.18 ip split-horizon (RIP)

ŭ RIP ↾ → ╖ ˘ ϟ ħυ ϗ **ip split-horizon** Â ħυ ϗ no RIP ↾ → ╖ Â

ip split-horizon

no ip split-horizon

ð ϟ Ô

Â

ð Ô

ЮЎ ↾ → ⌀ ϟ Э Â

ð ħυ ϗ Ô

ϟ Â

ð ´ Ô

ﻯ ﺝ IP ﺹ Ɔ˘ ﻧ ﻝ ~ ˘
ſ → ⁸ Л Â ſ → ﻝ Л
ÿ ˝ ſ ﻧ ˆ ﻯ˘ ﻯ ﻉ
Â

ˆ à X.25 ~ ˘ ſ → ﻝ
ſ ˝ aſ Âﺝ Ю˝ ﻝ
ſ → Â ﻧ IP ﺱ ﻑ˘ ≠ ſ → Â

RIP ~ ﻝ ~ ˘ ﺝ ſ →
Â a ﻧ ĭ ŭ ſ →˘ ﻝ Л **show ip rip** ħu
ʒ ″ Âﻯ **neighbor** ħu ʒ ħ ˘ a ﻝſ RIP
ſ → : Â

ð Ô

ЛЮ ˘ GigabitEthernet 0/0 ﻧ RIP ſ → ╗ Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip split-horizon
```

ð ħu ʒ Ô

ħu ʒ	
neighbor˄ RIP˜	ħ RIP IP ﺱ ﻑ Â
validate update source	ŭ RIP ﺱ ﻑ Â

ð ﻯ Ô

ð Ô

34.1.19 ip summary-address rip

ﺝ ﻧ Ю RIP ﻧ ˘ ﺝ ﻧ Ю ħu ʒ **ip summary-address rip** Â ħu ʒ no ﺱ ﻑ
Â

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

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

ð ﻧ Ô

ﻧ	
ip-address	IP ﺱ ﻑ
ip-network-mask	ﻱ IP ﺱ ﻑ

ð Ô

RIP ╟ ↑ Â

ð ħu ɮ Ô

ﻥ Â

ð ´ Ô

ħu ɮ **ip summary-address rip** ﺝ ﻥ Ю ﻑﺫ ﺱﻡ
Â RIP ╟ ↑ Â ﻥ ﻥ Â

ð Ô

ЛъЮ ˘ RIPv2 ╟ Â ﻥ ˘ ﻥ
GigabitEthernet 1/0 ˆ ﻝ 172.16.0.0/16 Â

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

ð ħu ɮ Ô

wildcard	ѣѫ IP ѫѣѕѫ Æ˘ 0 ך ˘ 1 a Â

ð Ô

ð ђu ҳ Ô

Â

ð ´ Ô

ل Л ل *network-number* Ո- *wildcard* ٧ ˘ ج ѕѫ ѣѫ تن ٧ ѕѫ ѣѫ ٧ б RIP Â

wildcard ٧ ˘ RGOS ѕѫ ѣѫ تن ˘ ج ѕѫ ѣѫ تن ٧ ѕѫ ѣѫ ٧ б RIP Â

ل ٧ ѕѫ ѣѫ ج RIP ѣѫ ˘ ٧ ل Л ل RIP ˘ RIP Â

ð Ô

Л Ю ˘ ѣѫ б RIP ч /٧˘ ج 192.168.12.0/24 Ո- 172.16.0.0/24 تن ٧ ѕѫ ѣѫ ٧ б RIP '

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

ð ђu ҳ Ô

ð ل Ô

ð Ô

34.1.21 neighbor (RIP)

ѣѫ RIP IP ѫѣѕѫ˘ ل Л ђu ҳ **neighbor** Â ђu ҳ **no** ך ѣѫ Â

neighbor *ip-address*

no neighbor

ð ٧ Ô

٧	
ip-address	IP ѫѣѕѫ Â ѕѫ ѫѣѕѫ Â

ð Ô

ѣѫ Â

ð ħu ϗ Ô

Â

ð ´ Ô

RIPv1 IP ﻡﺳ ﻑﻓ^ 255.255.255.255~ ~^ ~ RIPv2
ﻡﺳ ﻑﻓ^ 224.0.0.9~ ~^ Â a
Ə ~ ƙ ɻ ˥ ~ ɻ ɲ
ħu ϗ **passive-interface** ʎ ѝ ╟ ʎ˘ ʃ ɻ ⊮
ɻ ɲ ˥ Â ħu ϗ a : RIP Â
passive ʎ˘ ŭ ʃ ≠ a ɻ Â

ð Ô

ð ħu ϗ Ô

ð ɻ Ô

ð Ô

34.1.22 offset-list(RIP)

╕ ɻ RIP metric ~ ɻ ɲ ħu ϗ
offset-list ħu ϗ **no** ╛ offset

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

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

ð ʎ Ô

ʎ	
access-list-number	acl ʃ
in	acl metric
out	acl ɻ metric
offset	metric ɻ ╟
interface-type	acl˥ ʎ
interface-number	ʎ ʃ

ð Ô

offset Â

ð ħu ϗ Ô

Â

ð ´ Ô

RIP ⅄ ∀ offset-list ⅃u ⊣ ∀
offset-list‴ ‡ RIP ╗ ∀ offset-list metric

ð Ô

⅃uЮ ˘ ج acl 7 تن RIP metric ╗ 7 Â

```
Ruijie(config-router)# offset-list 7 out 7
```

⅃uЮ ˘ GigabitEthernet1/0 ˉ ج acl 8 تن
RIP metric ╗ 7 Â

```
Ruijie(config-router)# offset-list 7 in 7
Ruijie(config-router)#  offset-list  8  in  7
GigabitEthernet 1/0
```

ð ħu ʒ Ô

ð ⅄ Ô

ð Ô

34.1.23 output-delay

⅄ RIP ⊣ ˘ ħu ʒ
output-delay‴ ħu ʒ **no** ⅄ ⊣ Â

output-delay *delay*

no output-delay

ð ∀ Ô

∀	
delay	⊣ ˘ ´ Æ ٭ ˘ تن <8-50>

ð Ô

٭ ⊣ Â

ð ħu ʒ Ô

Â

ð ´ Ô

Ю‴ RIP ٭ 512 ˘ ⅄⅃u ↑ ü 25 ˘
25‴ ⊣ ˘ Ю

ˇ ⅄ æ ↰ ˇ æ ↲ a
ˇ Â ˇ **output-delay**
Ђu ҳ ╗ ↰ ˇ æ
Â

ð Ô

ЛЬЮ ˇ RIP ↰ й 30

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

ð Ђu ҳ Ô

ð ↓ Ô

ð Ô

34.1.24 passive-interface

↓ ѧ ↑ Э ↰ ╗ ˇ ↑ Ђu ҳ
passive-interface Ђu ҳ Â Ђu ҳ **no** ŭ ↰ ╗
Â

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

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

ð ↑ Ô

↑	
default	↑ ↑ й passive
interface-type interface-num	↑ صر б ↑

ð Ô

Ю˘ ↑ й passive Â

ð Ђu ҳ Ô

Â

ð ´ Ô

passive-interface default Ђu ҳ ↑ й passive ˇ ↲
ЛЬ **no passive-interface** *intface-type interface-num* Ђu ҳ
↑ й passive Â

ѧ **ip rip send enable** Ђu ҳ Ո **ip rip receive enable** Ђu ҳ ↑
й ↰ Ո RIP Ю˘ Ђu ҳ ↑ й
passive ˇ a ¨Ą ↰ RIP ˇ ↲Лu RIP ’

ĭ ϟ ˘ **ip rip send enable** ħu ϗ Ո **ip rip receive enable** ħu ϗ ⁸ Â

ð Ô

ЛъЮ ϟ ѝ passive ˘ ϡ ethernet0/0 ѝ passive

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

ð ħu ϗ Ô

ħu ϗ	
ip rip receive enable	ϟ RIP ↑
ip rip send enable	ϟ ϟ RIP ↑

ð ϡ Ô

ð Ô

34.1.25 redistribute RIP

ϯ ϟ ˘ ϧ ЮО **redistribute** ħu ϗ Â ϡ ϯ ϟ ˘ ħu ϗ **no** Â

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

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

ð ϟ Ô

ϟ	
bgp	**isis**	**ospf**	**connected**	**static**	ϯ ~
metric	ϯ ϟ metric
route-map	ϯ ‡
match	ϯ ospf ص
process-name	ISIS ϳ

<1-65535>	OSPF Л

ð Ô

Ю˝

ŕ OSPF˝ ‡ ŕ ص ’

ŕ ISIS˝ ‡ ŕ level-2 ص ’

è Ю˝ ŕ ص ’

ŕ Л metric ѝ 1’

a route-map Â

ð ħu ҳ Ô

Â

ð ´ Ô

ħu ҳ ŕ ŕ RIP Â

ŕ ˘ ~ Л ~

˘ ҷ ѝ a л ~ a л ÂRIP

ѫ ˘ OSPF ѫ ˘ ҷ

л Â ŕ ˘ Ч ˘ ї̆ ‡

ŕ Â

ŕ **isis** ˘ a level Ч ˘ Ч ŕ Ч level-2

˘ ŕ ˘ level Ч ˘ ‡ ŕ Ч level

Ч Â ˘ ѝ ˘ л level 1, level 2 ˘ Л

ѝ level-1-2 Ч Â

ŕ **ospf** ˘ a match Ч ˘ ŕ Ч

ص ospf ’ Л match Ч ѝ match Ч

˘ ŕ Ч Ч ך ص ŕ Ч’ no ħu ҳ

match Ч ѝ Â

ð Ô

ЛъЮħu ҳ ŕ ŕ RIP

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

ð ħu ҳ Ô

ħu ҳ	
default-metric *metric*	ŕ

ð Л Ô

ð Ô

34.1.26 router rip

… RIP ˘ ħu ɮ
router rip Â ħu ɮ **no** ĩ RIP Â

router rip

no router rip

ð ¶ Ô

Â

ð Ô

RIP ₰ Â

ð ħu ɮ Ô

Â

ð ´ Ô

RIP ˘ ₩ /ı Â Э ╠
˜ ˘ ₰ ¶ **async default routing** Â

ð Ô

ЛЬЮ ˘ … RIP ˘
Â

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

ð ħu ɮ Ô

ħu ɮ	
network (RIP)	₩ RIP /ı Â

ð ⁄ Ô

ð Ô

34.1.27 timers basic

RIP ˘ ħu ɮ **timers basic** Â ħu ɮ
no Â

timers basic *update invalid flush*

no timers basic

ð ¶ Ô

34.1.29 version (RIP)

ɨ RIP ʌ ħu ɮ **version** Â ħu ɮ **no** Â

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

no version

ð ɬ Ô

ɬ	
1	ɨ RIP ʌ ɣ 1 Â
2	ɨ RIP ʌ ɣ 2 Â

ð Ô

ɻ Ɲ RIPv1 Ո RIPv2 ˇ ɻ ɻ RIPv1 Â

ð ħu ɮ Ô

Â

ð ´ Ô

ɨ RIP ʌ Â ɻ Ɲ **ip rip receive version** à **ip rip send version** ħu ɮˇ ɻ ف RIP ` ƀ

34.2

34.2.1 show ip rip

RIP ˜ ˜ ˇ **show ip rip** Â

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

ð ٩ Ô

٩	
vrf *vrf-name*	ˆ ٦ ˜ VRF RIP

ð Ô

Â

ð ħu ɮ Ô

à à Â

ð ´ Ô

٦ RIP ˜ Ь ٧ à ƫ ٤ à ƫ
٦ à ٩ rip à rip ٩ б تà metric б distance Â
VRF

```
192.168.26.0 255.255.255.0
192.168.64.0 255.255.255.0
Distance: (default is 50)
```

ЛυЮ ˘ vrf˝ RIP ▒▒ '

```
Ruijie(config-router)# sh ip rip vrf 1
VRF 1  VRF-id:1
Routing Protocol is "rip"
Sending updates every 30 seconds
Invalid after 180 seconds, flushed after 120 seconds
Outgoing update filter list for all interface is: not
set
Incoming update filter list for all interface is: not
set
Default redistribution metric is 1
Redistributing:
Default version control: send version 1, receive any
version
Routing for Networks:
Distance: (default is 120)
```

ð ħu ɮ Ô

ð ⅄ Ô

ð Ô

34.2.2 show ip rip database

RIP ˘ **show ip rip database** Â

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

ð ↰ Ô

↰	
vrf *vrf-name*	ˆ ⅃ ˜ VRF RIP
network-number	ˆ ⅃ ˜ ⅄ Â
network-mask	Â ⅄ ˘

ð Ô

Â

ð ħu ɮ Ô

à à Â

```
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 ħu ɜ Ô

ħu ɜ	
show ip rip	ɱń ˜ Â

ð ↓ Ô

ð Ô

35 OSPF2

35.1

35.1.1 area

Ш ѫ˘ ħυ ३ **no** ╕ OSPF Ш ѫ Â

area area-id

no area area-id

ð ٩ Ô

¸ ٩	¸
¸ area-id	¸ ŭ OSPF Ш ѫ ٨ Â Ш ѫ ٨ ٦ Л ⁸ ˘ ≠ ٦ Л IP ѡ D Ơ ђ ٢

Ъ ъ	
network area	Ѭ ѧ OSPF ѵ Ѫ ѩ OSPF Ш ѓѓ

ð ѯ Ô

ð Ô

35.1.2 area authentication

ѿ OSPF Ш ѓѓ ѵ Ъ ъ **area authentication** Â Ъ ъ **no** OSPF Ш ѓѓ Â

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

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

ð ѧ Ô

ѧ	
area-id	ѿ OSPF Ш ѓѓ ѯ Â Ш ѓѓ ѯ ѩ Ѫ ˉ ⁸ ˇ ≠ ѩ Ѫ IP ѓѓ Â
message-digest	ˆ ѩ ˜ MD5 message digest 5˜ Â

ð Ô

Â

ð Ъ ъ Ô

Â

ð ´ Ô

RGOS ˚ ѩ Ѫ Ь صر˙ ˝ ˜ صر˚ ˇ a ˇ Ъ ъ ѿ OSPF ˇ OSPF ↑ ص ѝ˚ ' ˇ ˜ ص ˝ ˇ ѝ ˇ Ъ ъ ˇ **message-digest** ' ˙ ˜ صر˘ ˇ ѝ MD5 ˇ Ъ ъ ˇ **message-digest** Â

OSPF Ш ѓѓ ˇ ѩ ص Â ѿ ˇ ѣ ѧ Â ѧ Ъ ъ **ip ospf authentication-key** ѩ Ѫ ѧ ъ' ѧ Ъ ъ **ip ospf message-digest-key** ѩ Ѫ MD5 ѧ ъ Â

ð Ô

ЛЬЮ ˘ OSPF Ш ѫ 0 Ш ѫ˜ MD5 ˘
ʌ ϟ и backbone Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip address 192.168.12.1
255.255.255.0
Ruijie(config-if)# ip ospf message-digest-key 1 md5
backbone
```

OSPF ˜

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0
0.0.0.255 area 0
Ruijie(config-router)# area 0 authentication
message-digest
```

ð Ħυ ϟ Ô

Ħυ ϟ	
ip ospf authentication-key	ĦѪ OSPF ʌ ϟ Â
ip ospf message-digest-key	ĦѪ OSPF MD5 ʌ ϟ Â
area virtual-link	ĦѪ Â

ð ʎ Ô

ð Ô

35.1.3 area default-cost

ĦѪ ˋ STUB Ш ѫ NSSA ˆ OSPF
˜ ˘ Ħυ ϟ **area default-cost** Â Ħυ ϟ **no**
Â

area *area-id* **default-cost** *cost*

no area *area-id* **default-cost**

ð ʅ Ô

ʅ	
area-id	STUB Ш ѫ NSSA Ш ѫ Ո Â
cost	STUB Ш ѫ NSSA Â

ð Ô

ϳ΄ Â

ð ћυ ϗ Ô

Â

ð ΄ Ô

ћυ ϗ ϟ ѧ ABR΄ Ш ѩ ~ Э ˘ з ABR
STUB Ш ѩ^ ϳ ѩ~ NSSA Â ABR
˘ Ш ѩ ˘ ϡ Ш ѩ Â

OSPF Ш ѩ ϳ STUB NSSA ч Ь ћυ ϗ **area stub˘ area nssa** Ո **area default-cost** Â ⎡ STUB Э˘ **area stub** ћυ ϗ˘ ⎡ NSSA Ш ѩ **area nssa** ћυ ϗ˘ **area default-cost** ћυ ϗ ϟ ѧ ABR Э Â

ð Ô

ЛЬЮ ћυ ϗ˘ ϳ 50 Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255
area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 1
Ruijie(config-router)# area 1 stub
Ruijie(config-router)# area 1 default-cost 50
```

ð ћυ ϗ Ô

ћυ ϗ	
area stub	OSPF Ш ѩ ϳ ѩ Â
area nssa	OSPF Ш ѩ ϳ NSSA Ш ѩ

ð ϡ Ô

ð Ô

35.1.4 area filter-list

ABR Э ˘ a ϡ Ш intra-area ˝ Â

area *area-id* **filter-list** [**access** *acl-name*| **prefix** *prefix-name*] [**in** | **out**]

no area *area-id* **filter-list** [**access** *acl-name* | **prefix** *prefix-name*] [**in** | **out**]

ð ϟ Ô

๗	

٧	
area-id	NSSA ʍ ෂ ʍ ෂ ٨ Â
no-redistribution	ˆ ل ˜ nssa ABR ˘ ٧ ʃ ل ħυ ʒ ʍ a nssa ʍ ˘ ل Л Э Â
default-information-originate	ˆ ل ˜ ص 7 LSA nssa ʍ ˘ ٧ ج NSSA ABR ASBR Э Â
no-summary	ˆ ل ˜ nssa (ABR) ٧ Ь Ո ني LSA nssa ʍ ෂ Â

ð Ô

ⱷ NSSA ʍ ෂ Â

ð ħυ ʒ Ô

Â

ð ´ Ô

٧ **default-information-originate** Type-7 LSA˘ ج nssa ABR Ո ASBR Э ⁞˘ ج ABR Э ï̈ ج ˘ Type-7 LSA ˘ ج ASBR Э(ل ≠ a ABR) ج ˘ Type-7 LSA Â

٧ **no-redistribution** ج ASBR Э OSPF redistribute ħυ ʒ è a ٧ ʃ NSSA ʍ Â NSSA ASBR ٧ ABR ˘ ل Л nssa Â

ѝ ٧ ʃ NSSA ʍ ෂ ˆ LSA˜ ˘ ل Л ج ABR Э no-sμmmary ˘ ABR ل NSSA ʍ ෂ ٧ summary LSAs˜ Type-3 LSA˜ Â

٨ **area default-cost** ج ج NSSA ʍ ෂ ABR Э Â ħυ ʒ ʍ ෂ ٧ ʃ NSSA ʍ ෂ Â Ю˘ ٧ ʃ NSSA ѝ 1 Â

ð Ô

ЛЮ ˘ ʍ ෂ 1 ѝ ෂ˘ ʍ ෂ Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255
area 0
```

```
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 1
Ruijie(config-router)# area 1 nssa
```

ð ћ ђ Ô

ћ ђ	
area default-cost	ћ ˆ NSSA ˆ OSPF ˜ Â

ð ѓ Ô

ð Ô

35.1.6 area range

OSPF Ш ѕ ˘ ћ ђ **area range** Â ћ ђ **no** ї ˘ **no** ґ б **cost** ѓ ѓ ѓ Л ˘ a ї 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 ѓ Ô

ѓ	
area-id	OSPF Ш ѕ Л Â Ш ѕ Л Л ˘ 8 ˘ ≠ Л Л IP ѕ Â
ip-address	ћ Â
advertise | **not-advertise**	ћ ї Ὼ ˘ Ὼ
cost *cost*	Â

ð Ô

Ш ѕ Â

б ї RFC1583 ˘
RFC1583 ˘ cost ˘ ї ‡
cost Â

ð ћ ђ Ô

Â

Â

ð ´ Ô

OSPF **area stub** Ъ ъ Â ABR ы л ы Ь (LSA)' 1˜ 1˜ LSA' 2˜ 2˜ LSA' 3˜ 3˜ LSA Â ÿ ˘ ОЫ ы ˝ ¦ OSPF ОЫ ˘ ↑ ABR Â ОЫ a ˝ ¦ OSPF ОЫ Â

ОЫ˘ ы ОЖ ABR Э **area stub** Ъ ъ ˘ no-summary Â ОЫ ы ¦ Ш ОЫ ˘ Л ы ABR Â

OSPF Ш ОЫ й ОЫ ч Ъ ъ **area stub** Ո **area default-cost** Â ¦ ОЫ Э˘ **area stub** Ъ ъ˘ **area default-cost** Ъ ъ ы ОЖ ABR Э Â **area default-cost** Ъ ъ Ьж ^ ˜ Â

ð Ô

ЛЪЮ ˘ Ш ОЫ 1 й ОЫ˘ Ш ОЫ Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255
area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 1
Ruijie(config-router)# area 1 stub
```

ð Ъ ъ Ô

Ъ ъ	
area default-cost	Ьж ˆ STUB Ш ОЫ ^ OSPF ˜ Â

01.1.8 area virtual-link

no area *area-id* **virtual-link** *router-id*

ð ¶ Ô

¶	
area-id	OSPF Ш ѫ Л Â Ш ѫ Л ⊣ Л∪ ˉ 8 ˘ ≠ ⊣ Л∪ IP ѭ ڧ Â
router-id	Â ⊣ Л∪ show ip ospf ħυ ϗ Â

ˆ ⊣ ~ ⅋ ˆ ˘ Л∪

dead-interval *seconds* и´ Æ˘ и 40 T

a ;

è ‹ Â

ð Ђ ђ Ô

Â

ð ´ Ô

ѓ OSPF ѓ ˘ Ш ѓ б ѓ ˘ ѓ ˘
ѓ ˘ Ї ‡ Â
ѓ ч Ш ѓ ^ ABR˜ … ˘ ч ABR ›
Ш ѓ й Ш ѓ Â ѓ^ Stub Area˜ Ո NSSA a й Ш
ѓ Â ≠ › Л Ъ è Ш ѓ Â

router-id й OSPF ˘ a router-id ˘
show ip ospf neighbor Ђ ђ Â› Л Ъ Loopback ѕѫ
Â

area virtual-link Ђ ђ ‹ Ћ ˘ Ў
Ш ѓ OSPF ˘ Ђ ђ **area authentication** Â

ð Ô

ЛЪЮ ˘ Л Ъ Ш ѓ 1 й Ш ѓ˘ б 2.2.2.2 Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.15.255 area
0
Ruijie(config-router)# network 172.16.17.0
0.0.15.255area 1
Ruijie(config-router)# area 1 virtual-link 2.2.2.2
```

ЛЪЮ ˘ Л Ъ Ш ѓ 1 й Ш ѓ˘ б 1.1.1.1
Â Ш ѓ 10 Ո Ш ѓ˘ OSPF
˘ й MD5 Â

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

ð Ђ ђ Ô

ħυ ३	
area authentication	ὖ OSPF Ш ꟷ ⊣ Â
show ip ospf	OSPF ˘ ↑ Â

ð ⊿ Ô

ð Ô

35.1.9 auto-cost

ħυ ३ ╟ ३ ╖ Ո ⊿ ⊣ ˘ ⊣ ╟ ⊣ ३ ˘ ħυ ३ **no** ⊿ Ո ╟ ३ ╖ ˘ ⊿ Ո ⊣ Â

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

no auto-cost [**reference-bandwidth**]

ð ⊣ Ô

⊣	
ref-bw	⊣ Â Ո Mbps ѝ ´ Æ˘ تن: 1-4294967

ð Ô

ѝ 100Mbps Â

ð ħυ ३ Ô

Â

ð ´ Ô

ħυ ३ ╟ ⊣ ३ ⊣ ,

```
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area
0
Ruijie(config-router)# auto-cost reference-bandwidth 10
```

ð ħυ ϡ Ô

ħυ ϡ	
show ip ospf	ospf

ð ⁄ Ô

ð Ô

35.1.10 clear ip ospf process

ŭ OSPF Â

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

ð ¶ Ô

¶	
process-id	˘ ŭ OSPF Â /! ˘ ŭ ح OSPF Â

ð Ô

RFC2328 ‡ Â

ð ħυ ϡ Ô

Â

ð ´ Ô

Æ OSPF ˘ ˘ ~ ; ' Л υ ħυ ϡ ˘ ĭ '

ð Ô

ЛυЮ ħυ ϡ ŭ OSPF 1

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

ð ħυ ϡ Ô

ð ⁄ Ô

ð Ô

35.1.11 compatible rfc1583

ϑ AS ϑ ħυ ϡ RFC1583 ″I ‡ RFC2328 ″I ‡ Â

commpatible rfc1583

no commpatible rfc1583

ð ¶ Ô

¶	
ħυ ϡ ¶	

ð Ô

RFC1583 ‡ Â

ð ħυ ϡ Ô

Â

ð Ô

ЛυЮ rfc 2328 ‡ Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no commpatible rfc1583
```

ð ħυ ϡ Ô

ħυ ϡ	
show ip ospf	ospf

ð ⁄ Ô

ð Ô

35.1.12 default-information originate OSPF

OSPF ħυ ϡ **default-information originate** Â ħυ ϡ **no** Â

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

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

ð ¶ Ô

¶	

always	^ ˩ ~ OSPF ˚ ˘ a ѕѕ Ї̆ ج Â
metric *metric*	^ ˩ ~ ˘ ѝ 1 Â
metric-type *type*	^ ˩ ~ ѕ Â OSPF ч ѕ' ѕ 1˘ a ˩ Э ˛ a ' ѕ 2˘ ˛ Â ѕ 1 ѕ 2 ˩ Â ѝ ѕ 2 Â
route-map *map-name*	route-map ˩ , route-map

ð Ô

a Â

ð ħυ ʒ Ô

Â

ð ´ Ô

redistribute default-information ħυ ʒ ˘ OSPF ╟ ˩ ѝ ASBR˘ ѕѕ ~ Â ASBR a ╟ ˘ ˆ OSPF ѕѕ Â ASBR ˘ **default-information originate** ħυ ʒ Â

always ˥ ˘ OSPF a Ї̆ ج ˘ ˩ ˆ Â ѕѕ a ˘ Ї̆ ˘ ˩ Л **show ip ospf database** OSPF ˘ ѝ 0.0.0.0 Â OSPF **show ip route** ħυ ʒ˘ ˩ Л ˛ Â

˘ ˥ **default-information originate** ħυ ʒ ⊮˘ a ħυ ʒ **default-metric** Â

OSPF ч ˘ ѕ 1 ˩˘ ѕ 2 ѕ 1 a ˩ Â˛ ش ج ч ˘ ˩ ˘ ѕ 1 ѕ 2 ˝I ˘ Л **show ip route** ˥ ѕ 1 Â

STUB Ш ѕѕ a ˩ Л Â

ð Ô

ЛЬЮ ˘ OSPF ˘ ˛ OSPF ѕѕ ˘ ѕ ѝ 1˘ ѝ 50 Â

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

```
Ruijie(config-router)# network 172.16.24.0 0.0.0.255
area 0
Ruijie(config-router)# default-information originate
always metric 50 metric-type 1
```

ð ћ ђ Ô

ћ ђ	
show ip ospf database	OSPF Â
show ip route	IP Â

ð ѓ Ô

ð Ô

35.1.13 default-metric

OSPF ї ў ћ ђ
default-metric Â ћ ђ **no** Â

default-metric *metric*

no default-metric

ð ќ Ô

ќ	
metric	ћ OSPF ї Â

ð Ô

ѝ 20 Â

ð ћ ђ Ô

Â

ð ґ Ô

default-metric ћ ђ б **redistribute** ћ ђ ѓ ў ѕ Л ї у Â

default-metric ћ ђ ў Л **default-information originate** OSPF ѡ a Â

ð Ô

ЛЮ ў OSPF ї у ѝ 50 Â

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

```
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# router  ospf
Ruijie(config-router)# network 172.16.10.0 0.0.0.255
area 0
Ruijie(config-router)# default-metric 50
Ruijie(config-router)#redistribute rip subnets
```

ð ħu ҳ Ô

ħu ҳ	
redistribute	¦ è Â
show ip ospf	ospf

ð ⁄ Ô

ð Ô

35.1.14 distance ospf

a ˩ ص OSPF

ЛъЮ ˘ OSPF й 160

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

ð ħυ ҳ Ô

ð ⁄ Ô

ð Ô

35.1.15 distribute-list in

LSA

distribute-list {*listname* | **gateway** *plist-name* | **prefix** *plist-name* }
in [**tn-T2(pTs:|Ta1eTf-0.0[(lis543ist)Tj/TT0 1 TTJTT0 1 Tf88 0 Tdt-name)]Tnu(s)mj/TT4**

```
Ruijie(config-router)# distribute-list 3 in ethernet
1/0
Ruijie(config-router)# distribute-list 3 in ethernet
1/1
```

ð ħυ ϡ Ô

ð ↓ Ô

ð Ô

35.1.16 distribute-list out

ǂ ˘ ╖ **redistribute** ħυ ϡ

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

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

ð ↰ Ô

↰	
listname	acl ‡
gateway *plist-name*	gateway ‡
prefix *plist-name*	prefix-list ‡
[**bgp** | **connected** | **isis** *area-tag* **| ospf** *process-id* | **rip** | **static**]	

ð Ô

ѝ ˘ Â

ð ħυ ϡ Ô

Â

ð ´ Ô

distribute-list out б **redistribute route-map** ħυ ϡ ˘ ÿ è ˜ ǂ ǂ OSPF

ħυ ३	
show ip ospf	OSPF

lsa	б lsa traps ˘ ϒ ϟ Л Ю lsa traps ' **lsdbapproachoverflow** LSA ϳ Э ϳ ˊ **lsdboverflow** LSA ϳ Э **maxagelsa** LSA ϳ ы **originatelsa** LSA
retransmit	б retransmit traps ˘ ϒ ϟ Л Ю retransmit traps ' **iftxretransmit** ϒ Э ϟ **virtiftxretransmit** ϒ Э ϟ
state-change	б state-change traps ˘ ϒ ϟ Л Ю state-change traps ' **ifstatechange** ϒ ϟ ы **nbrstatechange** ϟ ы **virtifstatechange** ϒ ϟ ы **virtnbrstatechange** ϟ ы

ð Ô

Ю˘ TRAP Â

ð ħυ ϗ Ô

Â

ð ´ Ô

ħυ ϗ ϡ **snmp-server** ħυ ϗ 8˘ ˝I **snmp-server enable traps ospf** Л ˙˘ ħυ ϗ ϟ Л Â

ħυ ϗ a ϡ MIB 8˘ a ϡ ϡ TRAP Â

ð Ô

ЛЮ ˘ OSPFv2 100 TRAP

ð Ô

35.1.19 ip ospf authentication

ħυ ϗ ϰ ˘ **no** ϟ Л∪ ϶ Â

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

no ip ospf authentication

ð ϰ Ô

ϰ	
message-digest	ϧ ϰ Э MD5 ╗ Â
null	a Â

ð Ô

ϰ Э , ϰ Э ϧ Ш ϗ صر Â

ð ħυ ϗ Ô

ϰ Â

ð ´ Ô

ħυ ϗ Л a . ϧ

no ˘ Ї ϰ ϧ Ш Э ā ˘ ϶ **null** ‡ ⁸ ϶ a , ϰ Э Ո ϰ ϧ Ш ϗ , ″I ϰ Э Â

ð Ô

ЛЬЮ ˘ GigabitEthernet 0/0 ϰ OSPF صر ϶ MD5 Â

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

ð ħυ ϗ Ô

ħυ ϗ	
area authentication	ŭ OSPF Ш ϗ Ⱨ Â
ip ospf authentication-key	OSPF Â

ip ospf message-digest-key	OSPF MD5 Â

ð ⊀ Ô

ð Ô

35.1.20 ip ospf authentication-key

OSPF ˘ ⊀ ħυ ҳ **ip ospf authentication-key** Â ħυ ҳ **no** ĩ Â

ip ospf authentication-key *key*

no ip ospf authentication-key

ð ⊀ Ô

⊀	
Key	˘ ⊣ Л∪ 8 Â

ð Ô

Â

ð ħυ ҳ Ô

⊀ Â

ð ´ Ô

ip ospf authentication-key ħυ ҳ ˘ OSPF Â ҷ a ˘ ч ⊀ a OSPF ˘ ≠ a Â

a ⊣ ⊀ ⊣ Л∪ a ˘ ⊣ Э ˘ Â

OSPF Ш ⋘ ĩ ŭ ˘ ħυ ҳ **area authentication** Â

⊣ ⊀ Э ≠ ⊣ Л∪´ ŭ , ⊀ Ю ħυ ҳ **ip ospf authentication** , Ш ⋘ Ո ⊀ ″I ⊀ ⊀ ص.

ð Ô

ЛυЮ ˘ GigabitEthernet 0/0 ⊀ OSPF й ospfauth Â

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

```
Ruijie(config-if)# ip ospf authentication-key ospfauth
```

ð ħυ ϧ Ô

ħυ ϧ	
area authentication	ὖ OSPF Ψ ﷺ ⱻ Â
Ip ospf authentication	ὖ ϰ Э ⱻ

ð ϡ Ô

ð Ô

35.1.21 ip ospf cost

OSPF ϰ ϟ ↑ ^ OSPF ~ ˘ ϰ
ħυ ϧ **ip ospf cost** Â ħυ ϧ **no** Â

ip ospf cost *cost*

no ip ospf cost

ð ϰ Ô

ϰ	
cost	OSPF ϰ Â

ð Ô

ϰ ὶ ϰ /Bandwidthˆ ϰ ὶ 100Mbps˜ Â

ð ħυ ϧ Ô

ϰ Â

ð ´ Ô

ⱷ˜ OSPF ϰ ὶ 100Mbps/Bandwidthˇ è Bandwidth
ὶ ϰ ˘ ϰ ħυ ϧ bandwidth Â

ἡ ص OSPF ϰ ὶ'

¸ 64K ˘ cost ὶ 1562'

¸ E1 ˘ cost ὶ 48'

¸ 10M Л ˘ cost ὶ 10'

¸ 100M Л ˘ cost ὶ˝ Â

ip ospf cost ħυ ϧ OSPF ˘ Â

ð Ô

ЛъЮ ˘ serial 1/0 ∧ OSPF й 100 Â

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

ð ħυ ҳ Ô

ħυ ҳ	
bandwidth	∧ Â a ; Â
show ip ospf	Ospf

ð ∧ Ô

ð Ô

35.1.22 ip ospf database-filter all out

ħυ ҳ ∧ a ∧ LSA ˘ a ج ∧ Э ∢ LSA , ħυ ҳ **no** ∢ Лъ

ip ospf database-filter all out

no ip ospf database-filter

ð ∧ Ô

∧

```
Ruijie(config-if)# ip ospf database-filter all out
```

ð ⊀ Ô

ð Ô

35.1.23 ip ospf dead-interval

OSPF ″ ∧ ˘ ∧ ħυ ϧ **ip ospf dead-interval** Â ħυ ϧ **no** Â

ip ospf dead-interval *seconds*

no ip ospf dead-interval

ð ∧ Ô

∧	
seconds	ħ₹ ″ ˘ Л∪ и´ Æ Â

ð Ô

и **ip ospf hello-interval** " Â

ð ħυ ϧ Ô

∧ Â

ð ´ Ô

OSPF ↑ ΰ ج Hello Â OSPF ج ˘ ∫ ⊣ Hello ˘ ˜ ÿ ∃ Â и hello 4 ˘ hello ˘ ╟ Â

ħυ ϧ ⊣Л∪ OSPF ″ ˘ ´ ∫ Â ч '

¸ ˘ a hello '

¸ ⊿ Э Â

ð Ô

ЛЮ ˘ serial 1/0 ∧ OSPF ″ и 30 Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf dead-interval 30
```

ð ħυ ϧ Ô

ħυ ϗ	
ip ospf hello-interval	OSPF ϟ Hello Â

ð ϡ Ô

ð Ô

35.1.24 ip ospf disable all

ϟ a Ą ospf Â

ip ospf disable all

no ip ospf disable all

ð ϟ Ô

ħυ ϗ ϟ

ð Ô

ð ħυ ϗ Ô

ϟ Â

ð ´ Ô

ħυ ϗ ϟ **network area** ĭ ϧ ˘ ħυ ϗ ϡ˘ ϟ network˘ ≠ a Ą ospf Â ϱ a Ո ϟ OSPF ˘ ≠ a ϟ б OSPF Â

ð Ô

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# ip ospf disable all
```

ð ħυ ϗ Ô

ð ϡ Ô

ð Ô

35.1.25 ip ospf hello-interval

OSPF ϟ Hello ˘ ϟ ħυ ϗ **ip ospf hello-interval** Â ħυ ϗ **no** Â

ip ospf hello-interval *seconds*

no ip ospf hello-interval

ð ϟ Ô

ϟ	
seconds	OSPF ϟ hello ˘ Л υ й ´ Æ Â

ð Ô

¸ Л υ 10 ’
¸ PPP à HDLC ϟ 10 ’
¸ ˚ ϟ 10 ’
¸ ˚ ϟ à .25 ϟ 30 Â

ð ħυ ϛ Ô

ϟ Â

ð ´ Ô

hello ↑ ΰ ج hello Â ˘ OSPF ˚
ϟ ע ≠ ˘ ╗ Â ϟ Э
hello

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

no ip ospf message-digest-key

ð ٩ Ô

٩	
Key	˘ ٫ Л∪ 16 Â
Key-id	˘ ÿ˝ ˛ 255 Â

ð Ô

MD5 Â

ð ħυ ϡ Ô

٩ Â

ð ´ Ô

ip ospf message-digest-key ħυ ϡ ˘ OSPF
Â ق a ˘ ч ٫ a OSPF
˘ ≠ a Â

a ٫ ٩ ٫ Л∪ a ˘ ج ٫ Э
˘ Â ٫
Â

OSPF ш ﷺ ĭ ŭ Б

```
Ruijie(config-if)# ip ospf message-digest-key 5 md5
hello5
```

╗ Л˘ ╖ Â

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

ð Ю ў Ô

Ю ў	
area authentication	ў OSPF Ш ѫ Ю Â
ip ospf authentication	ў Н Э Ю

ð Л Ô

ð Ô

35.1.27 ip ospf mtu-ignore

Н ѧ ї Л **mtu** Л Л Ю ў Â
Ю ў **no** Â

ip ospf mtu-ignore

no ip ospf mtu-ignore

ð Н Ô

Н	
Ю ў Н	

ð Ô

mtu Â

ð Ю ў Ô

Н Â

ð ´ Ô

OSPF ѧ ї Н MTU Ո Н
MTU ї Л , ї Н MTU
Н MTU, ѫ a , Л Л MTU
ā Â

ð Ô

ЛЬЮ ˘ serial 1/0 MTU ╗ Â

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

ð ⊀ Ô

ð Ô

35.1.28 ip ospf network

OSPF ر˘ ∧ ħυ ҙ **ip ospf network** Â ħυ ҙ **no** Â

ip ospf networķ broadcast ¸ non-broadcast ¸ point-to-multip oint [**non-broadcast**]¸ **point-to-point**

no ip ospf networķ broadcast ¸ non-broadcast ¸ point-to-mul tipoint [**non-broadcast**]¸ **point-to-point**

ð ∧ Ô

∧	
broadcast	∧ OSPF ر ѝ ر Â
non-broadcast	∧ OSPF ر ѝ ر˘ NBMA Â
point-to-multipoint [**non-broadcast**]	∧ OSPF ر ѝ ĵ ر Â ĵ ر, non-broadcast ѝ ĵ ر Â
point-to-point	∧ OSPF ر ѝ ر Â

ð Ô

¸ ĵ ر' PPP à SLIP à ĵ ∧ à X.25 ĵ ∧ '

¸ NBMA ر' ˆ ĵ ∧ ˜ à X.25 ˆ ĵ ∧ ˜ '

¸ ر' Л '

¸ ر ѝ ĵ ر Â

ð ħυ ҙ Ô

∧ Â

ð ´ Ô

a ⊀ ˘ OSPF ĵ ѝ Ь ر'

¸ ˆ Л ˘ ҙ ˘ FDDI˜

¸ ˆ ˘ X.25˜

¸ Î ^ HDLC˜ PPP˜ SLIP˜

è ˘ OSPF a ⅄ ∀Î ὶ ч ص'

¸ (NBMA) ص ÂNBMA

˘ ∀ Î ˘ SVC

^ X.25˜ ˘ PVC˜ ˜

Â OSPF ج NBMA Э б Э ˘

^ Designated Router˜ ˘ ˆ NBMA

Â

¸ Î ص Â a ˘

OSPF ∀ ص Î ص Âج Î

ص ˘ OSPF Î ˘ Л

Â Î ص ∀Î ὶ Ո ص,

ص .

a ∀ ص ж˘ ⅄ Л ὶ ص Â ⅄ Л

^ ˘ X.25˜ ˘ ج OSPF

˘ ∀ Â **X.25 map** Ո

frame-relay map ħυ ʒ˘ ⅄ Л X.25 Ո é Ғ˘

OSPF ⅄ Л X.25 Ո Â

Î ∀ ⅄ Л ˘ OSPF Î

ص ˘ ў Â Î ص б ص

ЛЮ '

¸ ˘ a ˘ ≠ ,

¸ ʒ˙ ˘ a Â

/∀ à Л ⅂ X.25 ˘ IP فذ سم ˘

broadcast .

ð Ô

ЛЮ ˘ ∀ ὶ ص˘ /

Â

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

ЛЮ ˘ ∀ ὶ Î ص˘ /

Â

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# ip address 172.16.24.4
255.255.255.0
Ruijie(config-if)# encapsulation frame-relay
```

OSPF ٨ ″I ↑ ΰ ج hello Â OSPF ص ٤
DR/BDR ˆ ˜ ˘ ″I
˘ ى DR BDR Â ″I ˘
ى DR BDR Â ″I ى˚ ˘ a ٤ ى DR
BDR Â ħυ ҳ ٨ OSPF **broadcast** Ո **non-broadcast** ص
Â

~

ج DR Ո BDR ҙ ٨ ″I a . ˘
٤ ج Ю DR Ո BDR ˚ ٨ ″I .

ð ´ Ô

æ LSU ɱ LSAsˆ ˜ Age
ǁˇ ǁ ʌ ħυ ϗ **ip ospf transmit delay** ħ Â

ЛυЮ ˘ ↓ ע Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# log-adj-changes detail
```

ð ħυ ҳ Ô

ħυ ҳ	
show ip ospf	ospf Â

ð ↓ Ô

ð Ô

35.1.33 max-concurrent-dd

↓ DD Â

max-concurrent-dd <*1-65535*>

ð ↰ Ô

↰	
<*1-65535*>	DD

ð Ô

й 5 Â

ð ħυ ҳ Ô

↰ Â

ð ´ Ô

б ↓ ˘ è ↓ˆ : ˘ ħυ ҳ˘
↓ ⁸ OSPF ↓ ↓ DD ↑ Â

ð Ô

ЛυЮ ˘ DD ↑ й 4 Â

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

ð ħυ ҳ Ô

ð ↓ Ô

ð Ô

35.1.34 neighbor

ѣѫ OSPF ˘ ћυ ϩ **neighbor** Â ћυ ϩ **no** ˥ Â

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

no neighbor *ip-address*

ð ٩ Ô

٩	
ip-address	٩ IP ѫѕ Â
poll-interval *seconds*	ˆ ل ~ ˘ Л∪ ѝ´ Æ˘ 120 ÂNon-broadcast(NBMA) ص Â
priority *priority*	ˆ ل ~ ˝I ˘ ѝ˚ Â Non-broadcast(NBMA) ص
Cost *cost*	ˆ ل ~ ˆ ˆ ˘ ѣѫ, ٩ Э cost Âpoint-to-multipoi nt [non-broadcast] ص Â

ð Ô

ѣѫ Â

ð ћυ ϩ Ô

Â

ð ´ Ô

RGOS ˚ ѝ ˘ Â
IP ѫѕ˘ ѝ ٩ ў IP ѫѕ Â

ѫ NBMA Э ل ѝ a ˘ ѫ
˥ Hello ˘ OSPF ل Hello ˘ ل Hello
ѝ Â OSPF ˘ ٩ ل ˝I
a ѝ 0 ل Hello ˘ ˝I ѝ 0 a ٩
б DR/BDR Â DR/BDR Л∪ л˘ DR/BDR л ل
Hello Â

ѫ ˆ Э, ҷ ѝ a é ┣ Л∪ ╟ ل
, ҷ ћυ ϩ ѝ è , ٨ ˆ ص

ЛЬЮ ˘ OSPF ˘ è IP ѫ ѯ ѝ
172.16.24.2˝ ˝I ѝ 1˘ ѝ 150 Â

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

ð ħυ ϩ Ô

ħυ ϩ	
ip ospf priority	OSPF ˝I Â
ip ospf network	OSPF ѵ

ð ѧ Ô

ð Ô

35.1.35 network area

ѭف ϰ OSPF˝ Лυ ϥ OSPF ѱ ѫ˘
ħυ ϩ **network area** Â ħυ ϩ **no** ĩ ϰ OSPF ѱ ѫ ѭ Â

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

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

ð ϰ Ô

ϰ	
ip-address	ϰ IP ѫ Â
wildcard	ѭ IP ѫ Æ˘ ° ˘ ˝ a Â
area-id	OSPF ѱ ѫ Â OSPF ѱ ѫ ѫ ѯ ˘ ≠ ϥ Лυ ѝ OSPF ѱ ѫ Â

ð Ô

OSPF ѱ ѫ Â

ð ħυ ϩ Ô

Â

ð ´ Ô

OSPF2

ð Ô

ð ħu ҷ Ô

Â

ð ´ Ô

OSPF ˘ **hard** ٩ ˘ a OSPF˝
٩ ˆ ˘ **soft** ٩

ð Ô

ЛъЮħu ҷ LSA 10 ˘ OSPF 10 Â

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

ð ħu ҷ Ô

ð ٨ Ô

ð Ô

35.1.37 overflow database external

ħu ҷ external LSA б ÿ
Â

overflow database external *max-dbsize wait-time*

no overflow database external

ð ٩ Ô

٩	
max-dbsize	external lsa ˆ ٨ AS ٨˜ ˘ ٨ تن' 0-2147483647 Â
wait-time	ÿ ˘ ٨ تن' 0-65535 Â

ð Ô

a ⁸ external-LSA Â

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

ð ħu ҷ Ô

Â

ð ´ Ô

ð Ô

external-LSA *max-dbsize* ˘ ˘
ĦÕ a Ą ╗ external-LSA˘ ѫ external-LSA Â
wait-time ˘ ˘ ╗ external-LSA Â

```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database external 10 3
```

ð ħu ʒ Ô

ð ⊿ Ô

ð Ô

35.1.38 overflow memory-lack

ħu ʒ ѫ a OSPF OVERFLOW Â ħu ʒ
no ╗ Â

overflow memory-lack

no overflow memory-lack

⊀	
no	ѫ a OSPF OVERFLOW ╗ Â

⊀

1' OSPF ⍥ a ЮЎ a OVERFLOW '

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

ħυ ϗ

ħυ ϗ	
clear ip ospf process	OSPF Æ
show ip protocols ospf	OSPF

ϡ

ħυ ϗ ˥ ϡ

ʌ	
10.3(4b3)	ħυ ϗ

35.1.39 passive-interface

ħυ ϗ ϰ ϰ ѝ ╟ ϰ Â
ħυ ϗ **no** Â

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

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

ð ϰ Ô

ϰ	
type number	ѝ ╟ ϰ ϰ Â
default	ϰ ѝ ╟ ϰ Â

ð Ô

ЮЎ ϰ ѝ ╟ ϰ, ϰ ϟ OSPF

ð ħυ ϗ Ô

Â

ð ´ Ô

ѝ è ╟ ˝ ˚ ˘ ϟ Л

ϰ ѝ ╟ ϰ Â

ð Ô

OSPF2 ใบ ๓

route-map	ϯ ‡ Â
tag	ϯ ϯ OSPF tag Â
subnets	ϟ ϯ Â

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ħυ ϡ ϗ˘ ϟ ϰ ASBR˘ OSPF ϰϰ ˘ Л type-5 LSA ϯ ϰϰ è OSPF Â

ϯ ˘ BGP metric ϰ 1˘ è ص LSA metric ϰ 20

ϯ **isis** ˘ a level ϡ ˘ ϡ ϯ ϟ level-2 ˘ ϯ ˘ level ϡ ˘ ‡ ϯ ϟ level ϡ Â ˘ ϰ ˘ ϟ level 1, level 2 ˘ ϗ ϰ level-1-2 ϡ Â ϡ Â

ϯ **ospf** ˘ a match ϡ ˘ ϯ ϟ ص ospf ’ ϗ match ϡ ϰ match ϡ ˘ ϯ ϟ ϡ ϩ ص ϯ ϟ’ no ħυ ϡ match ϡ ϰ Â ϡ Â

ϯ ˘ route-map ˘ route-map match ‡ ϯ ϟ ϓ ϡ ϩ ’ ϯ ϟ OSPF ISIS ˘ ϡ ϯ ϟ match level ‡˘ Ą route-map ″ Â

ð Ô

ЛυЮħυ ϡ ϯ ϯ OSPF ϰϰ

```
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 isis-001
Ruijie(config-router)#  redistribute  isis  isis-001
level-1
```

Show run Ю

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

```
redistribute isis isis-001 level-1-2
```

ð ħυ ϩ Ô

ð ⊀ Ô

ð Ô

35.1.41 router ospf

… OSPF ˘ ħυ ϩ **router ospf** Â ħυ ϩ **no** ╣ ⊮ OSPF Â

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

no router ospf *process-id*

ð ⅂ Ô

⅂	
process-id	ospf ⁄
vrf-name	⋒ VRF ḡ ˘ OSPF VRF

ð Ô

a ⋒ OSPF Â

ð ħυ ϩ Ô

Â

ð ´ Ô

RGOS10.1 ⋒ ⅄ ⋔ Э ╗ ⅂ ' ⁄˘ ⅈ ospf Â a ⊀ ospf ˘ ⊀Ʌ ⅈ ч a ˜ Â

ð Ô

ɅυЮ ˘ ⋒ **vrf** *vpn_1* … OSPF 10 Â

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

ð ħυ ϩ Ô

ħυ ϩ	
show ip protocols	ⅈ ˜ Â
show ip ospf	ⅈ ospf Â

ð ⊀ Ô

ð Ô

35.1.42 router-id

ID, ħυ ϡ **no** ϟ ΠϬ Router ID˘ Router ID Â

router-id *router-id*

no router-id

ð ϟ Ô

ϟ	
router-id	ID,ΠυIP فخ سم Â

ð Ô

OSPF ϡ ip فخ سم ϧ Â

OSPF ˘ ħu ३

area range	ж OSPF Ш ш Э Â

ð Л Ô

ð Ô

35.1.44 timers lsa-group-pacing

Ю ђ LSA Ї Л 9 Л Ю Ч У
˘ Ю ђ **no** Â

timers lsa-group-pacing *seconds*

no timers lsa-group-pacing

ð Ч Ô

Ч	
seconds	LSA ˘ Ґ ˘ У Â тп: 10-1800

ð Ô

: 240 Â

ð Ю ђ Ô

Â

ð ´ Ô

ˆ LSA˜ ˘ Ґ ˘ У ˘
Л ш ¯ Â й 4 Ї Â Ч a
Â б LSA Й Â ˘
10000 LSA˘ æ Â Й 40~100
˘ ‡ Ї 10~20Ї Й Â

ð Ô

ЛЮ ˘ й 120 Â

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

ð Ю ђ Ô

Ю ђ	
show ip ospf	ospf

ð Л Ô

ð Ô

35.1.45 timers spf

OSPF ج ˆ ˩ ˯ ˇ SPF ˇ Л
˧ ч SPF ˇ Ћ ҳ **timers spf** Â
Ћ ҳ no Â

timers spf *spf-delay spf-holdtime*

no timers spf

ð ¶ Ô

¶	
spf-delay	Ћ SPF ˇ Л и´ Æ Â OSPF ˆ ˩ ˯ˇ ˊˇ SPF Â
spf-holdtime	Ћ ч SPF ˇ Л и ´ Æ Â ˆ ˇ ч ˆ ˇ a SPF Â

ð Ô

spf-delay 5 ’ *spf-holdtime* 10 Â

ð Ћ ҳ Ô

Â

ð ´ Ô

spf-delay Ո *spf-holdtime* ˇ OSPF ˩ ˯
≠ ˇ ≠ ˇ ´ CPU
Â

ð Ô

ЛЮ ˇ OSPF Ո ˆ ⁞ и 3 Ո 9 Â

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

ð Ћ ҳ Ô

Ћ ҳ	
show ip ospf	ospf

ð ˊ Ô

ð Ô

35.2

35.2.1 show ip ospf

OSPF ˘ ħυ ϡ **show ip ospf** Â

show ip ospf [*process-id*]

ð ϥ Ô

ϥ	
process-id	ospf /ϥ

ð Ô

ϳϧ Â

ð ħυ ϡ Ô

Â

ð ´ Ô

ħυ ϡ ϟ/Ʊ OSPF Â

ð Ô

ЛЬЮ ϳϧ **show ip ospf** ħυ ϡ '

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

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

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Router ID	Â
Process uptime	OSPF ˆ router-id ѝ 0.0.0.0 a ˜
Bound to VRF	OSPF VRF
Conforms to RFC2328	б RFC2328

ѽ RFC1583

RFC1583Compatibility flag

LsaGroupPacing	LSA ˘ Ո ˘ ע
Incomming current DD exchange neighbors	ﻩ ˘ incomming exstart
Outgoing current DD exchange neighbors	ﻩ ˘ outgoing ÿ ھ exstart
Number of external LSA	LSA
External LSA Checksum Sum	LSA Ո Ո
Number of opaque LSA	opaque-LSA
Opaque LSA Checksum Sum	opaque-LSA Ո Ո
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 ĭ overflow
Number of LSA originated	LSA
Number of LSA received	ˆ LSA
Log Neighbor Adjency Changes	˩ ע ĭ
Number of areas attached to this router	Э Ш ﷺ
Area type	Ш ﷺ صر, Default, Stub,NSSA
Number of interfaces in this area	Ш ﷺ ٨
Number of fully adjacent neighbors in this area	Ш ﷺ Full
Number of fully adjacent virtual neighbors through this area	Ш ﷺ Full ' ٨ ﻩ ' صر Ш ﷺ '
Area authentication	Ш ﷺ
SPF algorithm last executed	Э SPF ˆ ɱ
SPF algorithm executed times	SPF

Number of LSA	Ш ѫ LSA
Checksum Sum	Ш ѫ LSA Ո Ո
NSSA Translator State	Ї NSSA LSA ѝ External LSA’ NSSA Ш˘ з ABR OSPF ’

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35.2.2 show ip ospf border-routers

ĵ ABR/ASBR OSPF ˘ ħυ ҳ

show ip ospf border-routers Â

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

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I	ѝ Ш ѫ Â
1.1.1.1	OSPF Â
[2]	ˆ cost˜ Â
via 10.0.0.1	Ю Â
GigabitEthernet 0/1	∧ Â
ABR, ASBR	˜صر ABR Ո ASBR ч ˘ ⊿ Ո ⊿ ABR Ո ASBR Â
Area 0.0.0.1	Ш ѫ Â
select	ASBR ˘ select ɱ Â

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**]

external	ˆ ˩ ˜ OSPF Â
nssa-external	ˆ ˩ ˜ OSPF Â
opaque-area	ˆ ˩ ˜ ˊ LSA
opaque-as	ˆ ˩ ˜ ˊ LSA
opaque-link	ˆ ˩ ˜ LSA
database-summary	ˆ ˩ ˜ OSPF ˌ LSA

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OSPF ˘ ˛ ˊ ˛ Â ѕѕ
ħυ ϡ˘ ╠ OSPF Â

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ЛЬЮ ὶ **show ip ospf database** ħυ ϡ '

```
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 IDDDDDDDDDADVk(Routeru)-6DDDDDAge  Seq#DDDDDDDCkSum

        Area 0.0.0.0)

         Link(Routerru)-6D(RouTw-75.797 -u)8061  0]TJ0 -1.453-6DN
         Link06 IDDu
```

```
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 ħυ ϛ ⁄ ЮÂ

Age	ह्म Â
Seq#	ภ˘

Length	˘ Л υ й ´ Æ Â
Network Mask	Â
Metric Type	ср Â
TOS	TOS ˘ ґґ ч й 0 Â
Metric	Â
Forward Address	ў ˘ ч ў IP ѕѓ ѕѓ Â ѕѓ ѕѓ й 0.0.0.0 ‡ ч ў Â
External Route Tag	˘ 32 Â OSPF a ˘ ж è ў OSPF ў Â

ЛЬЮ й **show ip ospf database network** ћυ ϗ '

```
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 ћυ ϗ ч Ю Â

Link State ID	Â
Advertising Router	˜ Â
LS Seq Number	Л Â
Checksum	Ո Â
Length	ˇ Л ѝ ´ Æ Â
Network Mask	Â
Attached Router	Э Â

Л Ю ѝ **show ip ospf database router** Ђ ѓ '

```
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 ѓ Л Ю Â

OSPF Router with ID	Л Ю б OSPF Л Â
Router Link States	Л Ю ѝ Â
LS age	ج Â
Options	
Flag	router
LS Type	ص Â

Link State ID	Â
Advertising Router	` Â
LS Seq Number	ภ Â
Checksum	Ո Â
Length	ˇ Ո ѝ´ Æ Â
Number of Links	Â
Link connected to	ˇ Ո ۱ صر Â
(Link ID)	Â
(Link Data)	Â
Number of TOS metrics	TOS ˇ ۷ TOS0 Â

Link State ID	Â
Advertising Router	˜ Â
LS Seq Number	⁄ Â
Checksum	Ω Â
Length	ˇ Л υ ϶ ´ Æ Â
Network Mask	Â
TOS	TOS ˇ ⁄ ⁄ ϶ 0 Â
Metric	Â

ЛЬЮ ϶ **show ip ospf database nssa-external** ħυ ϡ '

```
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 ħυ ϡ ⁄
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Options	Â
LS Type	صر Â
Link State ID	Â
Advertising Router	˜ Â
LS Seq Number	ʌ Â
Checksum	Ω Â
Length	˘ Л∪ ϶ ´ Æ Â
Network Mask	Â
Metric Type	صر Â
TOS	TOS ˘ ɱʌ ۷ ϶ 0 Â
Metric	Â
NSSA:Forward Address	ʃ ˘ ۷ʃ IP فخ سم Â فخ سم ϶ 0.0.0.0˝ ‡ ۷ʃ Â
External Route Tag	˘ 32 Â OSPF a ˘ جم È ʃ OSPF ʃ Â

ЛЮ ϶ **show ip ospf database external** ћυ ϡ '

```
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 ћυ ϡ ʌ Ю Â

OSPF Router with ID	ЛЬЮ б OSPF Л Â
Type-7 AS External Link States	ЛЬЮ ѝ ѽ Â
LS age	ѥ Â

Options hecksum2_0 1 TTf 0 Tc 0 Tw 100 Td <1C122F0E41B9

OSPF2 ใบ ๓

```
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* ħυ ϡ ٨ ЮÂ

GigabitEthernet 0/0 State	٨ ˘ UP ˘ Down Â
Internet Address	٨ IP فخ سم Â
Area	٨ OSPF ש ىش Â
MTU	MTU
Matching network config	OSPF network area
Process ID	/١
Router ID	OSPF Â
Network Type	OSPF صر Â
Cost	OSPF ٨ Â
Transmit Delay is	OSPF ٨ Â
State	DR/BDR Â
Priority	٨ ″I
Designated Router(ID)	٨ DR
DR's Interface address	٨ DR ٨ فخ سم
Backup designated router(ID)	٨ BDR

BDR's Interface address	٨ BDR ٨ فخ سم
Time intervals configured	٨ Helloˇ Deadˇ Waitˇ Retransmit
Hello due in	Э HELLO ٦
Neighbor count	
Adjacent neighbor count	Full
Crypt Sequence Number	٨ md5 /١
Hello received send	¦ б ٦ HELLO Â
DD received send	¦ б ٦ DD Â
LS-Req received send	¦ б ٦ LS Â
LS-Upd received send	¦ б ٦ LS Â
LS-Ack received send	¦ б ٦ LS ؛ Â
Discard	OSPF Â

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35.2.5 show ip ospf neighbor

OSPF ˘ ħυ ҳ **show ip ospf neighbor** Â OSPF

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ЛЬЮ ѝ **show ip ospf neighbor** ħυ ȝ '

```
Ruijie# show ip ospf neighbor
OSPF process 1, 1 Neighbors, 1 is Full:
Neighbor ID     Pri   State                Dead Time
Address         Interface
3.3.3.3           1   Full/BDR             00:00:32
192.88.88.72    GigabitEthernet 1/0

Ruijie# show ip ospf neighbor detail
Neighbor 3.3.3.3, interface address 192.88.88.72
In the area 0.0.0.0 via interface GigabitEthernet 1/0
Neighbor priority is 1, State is Full, 11 state changes
DR is 192.88.88.27, BDR is 192.88.88.72
Options is 0x52 (*|O|-|EA|-|-|E|-)
Dead timer due in 00:00:32
Neighbor is up for 05:11:27
Database Summary List 0
Link State Request List 0
Link State Retransmission List 0
Crypt Sequence Number is 0
Thread Inactivity Timer on
Thread Database Description Retransmission off
Thread Link State Request Retransmission off
Thread Link State Update Retransmission off
Thread Poll Timer on
```

show ip ospf neighbor ħυ ȝ ȷ Ю'

Neighbor ID	Â
Pri	″I ^ DR ˜
State	
Dead Time	ĵ Dead ⅓
Address	٨ فذ سم

Interface	٨
interface address	٨ سم فذ
In the area	ـ ٱ ھف ש
via interface	ٱ ٨ Â
Neighbor priority	OSPF ″I Â
State	OSPF ÂFULL ' DR ٸ ' BDR ٸ ' DROTHER a DR/BDR Â ٱ صر DR BDR Â
State changes times	٧ ل
Dead Time	'
DR	DR ٨ سم فذ (Hello DR)
BDR	BDR ٨ سم فذ (Hello BDR)
Options	Hello E ˘ 0 ש ھف ٸ STUB' ˘ ש ھف a STUB ש ھف Â
Dead timer due in	Â
Neighbor up time	٦ ٱ جم
Database Summary List	DD
Link State Request List	LS
Link State Retransmission List	
Crypt Sequence Number	ש ھف MD5
Thread Inactivity Timer	٧
Thread Database Description Retransmission	٨ DD ٧
Thread Link State Request Retransmission	٨ LS ٧
Thread Link State Update Retransmission	٨ LS ٧
Thread Poll Timer	˘ Poll Timer ŏ ╠

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35.2.6 show ip ospf route

ospf Â

show ip ospf [*process-id*] **route**[**count**]

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process-id	ospf ⁄ˇ ¶ ospf Â
count	⁄ ospf 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 ħu ʒ ⁄ Ю'

codes	صЛu ¬
100.0.0.0/24	⁄ Â
[1]	cost
via	Ю б ¶

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35.2.7 show ip ospf summary-address

OSPF ĭ ˘ ħυ ҳ

show ip ospf summary-address Â

show ip ospf summary-address

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ЛЬЮ ὶ **show ip ospf summary-address** ħυ ҳ '

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

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35.2.8 show ip ospf virtual-link

OSPF ˘ ħυ ҳ **show ip ospf virtual-link** Â

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

ð ৭ Ô **11..06 gC.62 re16 614.00. r.91011..0.62 88q305.d69 2275 00. 11..06 852003.62 88q6 61469**

via interface	٨ Â
Local address	٨ فذ سم
Remote Address	٨ فذ سم
Transmit Delay	Â
State	٨
Time intervals configured	٨ Hello˘ Dead˘ Wait˘ Retransmit
Adjacency State	Â FULL ѝ Â

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36

36.1

36.1.1 distribute-list in

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distribute-list in Â Ъυ ҳ **no** ╕ ⊮Ã Â

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

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

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ˆ Â Ъυ ҳ OSPF ˜ ˘ ֍ ѝ
OSPF ˆ a ɛ ˘ Â

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ЛυЮ ˘ RIP ÿ GigabitEthernet 0/0 ᴎ ˘
⁸ ˘ ˩ 172.16 Â

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
Ruijie(config-router)# distribute-list 10 in
1C4£B0A080config-router#distributno auto-summary 1 f-18.6 -1.44( di(
```

access-list-number	/ſ /ſ تن' 1-99˘ 1300-1999 /ſ تن' 100-199˘ 2000-2699
access-list-name	ɻ
prefix *prefix-list-name*	ɱſ
Interface	(ɻ) ǂ ˘ ˆ 8 ɻ جھ /ſ
protocol	(ɻ) ǂ ˘ ǂ

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Ю ҳ Ю ☰ BGP ☲ Â

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```
Ruijie(config)# ip community-list standard test deny
100:20 200:20
Ruijie(config)# ip community-list standard test2 permit
internet
```

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Ю ҳ	
match community	ҭ ☲
set comm-list delete	☲ ☳ BGP ☲
show ip community-list	☲
show ip bgp community-list	ҭ ☲ BGP

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36.1.4 ip default-network

˘ Ю ҳ **ip default-network** Â Ю ҳ no ✓ Л☳ Â

ip default-network *network*

no ip default-network *network*

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✓	
network	Л Â

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и 0.0.0.0/0 Â

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seq-number	ɱή Ѧυ Ѧ Âὲ ن↑ 1ⅈ 2147483647 Â Ъυ ҳ ΰ Ѧ˘ ‡ ὴ ɱή ⅉ Ѧ Â Ѧ 5˝ Ѧ Ѧ ɱή Ѧ 5
deny	ך
permit	ך

ip-prefix

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre1 permit 201.1.1.0/24
Ruijie(config)# router ospf
Ruijie(config-router)# distribute-list prefix pre1 out
rip
Ruijie(config-router)# end
```

36.1.6 ip prefix-list description

ѝ ⁄ ╗ ˘ **ip prefix-list description** Ъυ ҳ Â
Ъυ ҳ **no** ╖ ⁄ Â

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

ð ¶ Ô

n0.852 g175.56 515.9 ET5B21992.62 r 0 0610.852 g180.72 519.62323.6

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

36.1.8 ip route

˘ Ъu ҳ ip route Â Ъu ҳ no ╛ 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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↓Л∪ ˘ ˘
↓ ѝ ╠ Â OSPF ˜ ѝ 110˘ ↓Л∪
ѝ 125˘ OSPF ˘
↓Л∪ǐ ǐ Э Â

↓Л∪ vrf˘ ‡ ╗ǐ vrf Â

ѝ 1˘ ↓Л∪ **show ip route weight** Ъυ ҳ
Â ↓ weight WCMP ╖ Â Ы
WCMP ⁸ ѝ 32 Â

⁸ ї˘ ˘ ‡ a ↓ Â
↓ ˘ ǐ ˘ ї˘ ‡ ѫ Â

Л∪ ↓ ˘ Ю ѝ ↓^ ip route 0.0.0.0 0.0.0.0 GigabitEthernet 0/0˜ Â
˘ ѫ GigabitEthernet 0/0 ↓˘ ҭ ў
↓ ARP ˘ ´ CPU Ո Â Л∪ a
↓Л∪ ↓ Â

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ЛЮ ˘ ╗ ǐ 172.16.100.0/24 ˘
Ю ѝ 192.168.12.1˘ ѝ 115 Â

```
ip route 172.16.100.0 255.255.255.0 192.168.12.1 115
```

↓˘ ↓ ↓ ˘ ↓
ÿ è ↓ ↓ Â ↓ ˘ ↓ ÂЛЮ
˘ ǐ 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
```

ð Ъυ ҳ Ô

Ъυ ҳ	
show ip route	IP Â

ð ↓ Ô

Ъυ ҳ ѫ γ Э a Â

36.1.9 ip routing

˜ Ъ ҳ

Э ѝ ⁸ ˘ **ip static route-limit** Э Л Ю ˘
a Э Â **show running-config** ⅃ Л∪ ⅏ Э Â

ð Ô

ЛυЮ ˘ Э ѝ 900 ˘ Л Â

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

ð Л Ô

Ъυ ϧ ϫ γ Э a Â

36.1.11 ipv6 prefix-list

… IPv6 ⅏ ╗ ⅏ ˘ **ipv6 prefix-list** Ъυ ϧ Â Ъυ ϧ **no** ╖ ⅏ ⅏ Â

Ipv6 prefix-list *prefix-lis-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*][**le** *maximum-prefix- length*]

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

ð ⅂ Ô

prefix-lis-name	⅏ Л Â ⅏ Л∪ /⅂ Âè تن 1╷ 2147483647 Â

seq-number

maximum-prefix- length	ˆ ˧ ˜ تن (تن) ˈ **le** ʢ

ð Ô

… ɱ Â

ð ƕʋ ʢ Ô

Â

ð ˊ Ô

ipv6 prefix-list ƕʋ ʢ IPv6 ɱ Â ɱ permit deny ᾱ جـ ר Ю Ռ ˩ ╟ Â

ɱ ㅒ ɱ ר تن ר Âge le ㅒ ר ɱ تن˘ ˊ ipv6-prefix ╗ ר Â ƕʋ ʢ ge le ˘ ‡ ipv6-prefix ɱ تن ר Â ge˘ ‡ ר تن minimum-prefix-length ꜛ 32 Â le˘ ‡ ר تن ipv6-prefix ꜛ maximum-prefix- length Â γ ˘ ‡ ר تن ÿ minimum-prefix-length ꜛ maximum-prefix- length Â . ˘ ipv6-prefix ä minimum-prefix-length Ռ maximum-prefix-length ˈ ipv6-prefix < minimum-prefix-length < maximum-prefix-length <= 128 Â

ð Ô

ЛʋЮ ѝ ꜛ ˧ ˘ RIP ˜ ꜛ ˧ OSPF 1 ꜛ ˧ IP ˘ ‡ جـ IPv6 ɱ ㅒ(˧ IP جـ 2222::/64

prefix-lis-name	IPv6 ɱń ɻ
descripton-text	IPv6 ɱń

ð Ô

╕ ɱń

ð Ъu ҳ Ô

ð ´ Ô

ð Ô

ЛυЮ ѝ IPv6 ɱń pre ╕ **Deny routes from Net-A'**

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre description Deny routes from Net-A
```

36.1.13 ipv6 prefix-list sequence-number

ѝ IPv6 ɱń ŭ ╖ ˘ **ipv6 prefix-list description** Ъu ҳ Â Ъu ҳ **no** ↓ ɱń ╖ Â

ipv6 prefix-list sequence-number

ð ↰ Ô

ð Ô

╕ ɱń

ð Ъu ҳ Ô

ð ´ Ô

ð Ô

ЛυЮ ѝ IPv6 ɱń ŭ ╖ '

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list sequence-number
```

36.1.14 match as-path

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

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

ð ٩ Ô

ip community-list	ڍ
match as-path	ך AS_PATH
match metric	ך
match origin	ך ן
set as-path prepend	׀ AS_PATH Â
set comm-list delete	ׁ ך ڍ
set community	ڍ
set metric	׀

36.1.16 match interface

ך Ю ٨ ٸ ٨˘ ڤي Ъυ ϗ **match interface** Â Ъυ ϗ **no** ׁ Â

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

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

ð ٩ Ô

٩	
interface-type	٨ صر
interface-number	٨ ٨

ð Ô

Â

ð Ъυ ϗ Ô

ڤي Â

ð ´ Ô

match interface Ъυ ϗ ٨ ڵ ڵ Ծ ٨ Â

ڵ Ծ ÿ ׀ ׀ ٨ ╗ Â ڵ Ծ OSPF ׀ ٨ ˆ ׀ RIP ˘ ≠ ڵ Ծ RIP ׀ ٨ ˆ ׀ OSPF Â

ج ׀ ˘ ڤي route maps˜ ˘ ч ׀ ˘ ⁸ Â

ڧي ‡ ˘ ⊿Л 1 **match** Ъυ ҳ Ո 1
set Ъυ ҳ Â **match** Ъυ ҳ˘ ‡ ך ’ **set** Ъυ ҳ˘
‡ a Â

ð Ô

ڧي ˉ ǐ ˘ ⊿Л جھ ǐ Ո Э Â a
ڧي˘ è Ы ˘ ⊿ Ъυ ҳ a ⊿ Â
. ⊿ جھ ǐ Э˘ a ⊿ ˜ ڧي˘ è
Ъυ ҳ ≠ a ⊿ Â

ЛЬЮ ˘ OSPF ˜ ǐ RIP ˘ ⊿ ǐ Ю
и GigabitEthernet 0/0 RIP Â

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)#      match      interface
GigabitEthernet 0/0
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match ip address	ך فخ سم
match ip next-hop	ך Ю فخ سم
match ip route-source	ך فخ سم
match metric	ך
match route-type	ך صر
match tag	ך
set metric	ǐ
set metric-type	ǐ صر
set tag	ǐ

ð ⊿ Ô

ð Ô

36.1.17 match ip address

ϯ ɱή ˘ ڤي
Ъυ ϗ **match ip address** Â Ъυ ϗ **no** ϯ Â

match ip address {*access-list-number* [*access-list-number...* | *access-list-name...*] |*access-list-name* [*access-list-number...*| *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]}

no match ip address {*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]}

ð ٩ Ô

٩	
access-list-number	٨ ˘99-1 ' تن ٨ 1300-1999 ˘199-100 ' تن ٨ 2000-2699
access-list-name	٨
prefix-list *prefix-list-name*	٦ ɱή ٨

ð Ô

Â

ð Ъυ ϗ Ô

ڤي Â

ð ´ Ô

match ip address Ъυ ϗ ٨ ٦ Л٥ ٨ ٨ Â

٦ Л٥ ÿ ϯ ϯ ٨ ╖ Â ٦ Л٥ OSPF ϯ ٨ ˆ ϯ RIP ˘ ≠ ٦ Л٥ RIP ϯ ٨ ˆ ϯ OSPF Â ϯ ٦ Л٥ IP ˜ Â

ϯ ˘ ڤي route maps˜ ˘ ч ϯ ˚ ⁸ Â

ڤي ‡ ˘ ٦ Л٥ 1 **match** Ъυ ϗ Ո 1 **set** Ъυ ϗ Â **match** Ъυ ϗ˘ ‡ ٦ ' **set** Ъυ ϗ˘ ‡ a Â

ð Ô

ڤي ˆ ϯ ˘ ٦ Л٥ ϯ Ո Э Â a ڤي˘ è ٧ ˘ ٦ Ъυ ϗ a ٦ Â

. ɹ ﺠ ᛏ Э˘ a ɹ ˜ ﻓﻲ˘ ἐ
ƕ ͽ ≠ a ɹ Â

ЉЮ ˘ OSPF ˜ ᛏ RIP ˘ ɹ ᛏ
ʎ 10 RIP ˘ ﺠ OSPF ﻌﻌ ˘ ﺻﺮ Й
type-1˘ й 40 Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit 200.168.23.0 0.0.0.255
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip address 10
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
```

ӧ ƕ ͽ Ô

ƕ ͽ	
access-list	ꞓ ‡
match interface	٦ Ю ٩
match ip next-hop	٦ Ю ﻓﺨ ﺳﻢ
match ip route-source	٦ ﻓﺨ ﺳﻢ
match metric	٦
match route-type	٦ ﺻﺮ
match tag	٦
set metric	ᛏ
set metric-type	ᛏ ﺻﺮ
set tag	ᛏ

ӧ ɺ Ô

ӧ Ô

36.1.18 match ip next-hop

ϯ ЮO IP ϡϧϫ ϕ ⁄ ‡ ˘
ϣϔ Ъυ ϗ **match ip next-hop** Â Ъυ ϗ **no** ϯ Â

match ip next-hop {*access-list-number* [*access-list-number...* | *access-list-name...*] |*access-list-name* [*access-list-number...*| *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]}

no match ip next-hop {*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]}

ð ϟ Ô

ϟ	
access-list-number	⁄ ⁄ ˙تن 1-99˘ 1300-1999 ⁄ ˙تن 100-199˘ 2000-2699
access-list-name	ϳ
prefix-list *prefix-list-name*	ϧ ⁄ ϳ

ð Ô

Â

ð Ъυ ϗ Ô

ϣϔ Â

ð ´ Ô

match ip next-hop Ъυ ϗ ϕ ϥ∩ ⁄ ϳ Â

ϥ∩ ÿ ϯ ϯ ϟ ╖ Â
ϥ∩ OSPF ϡϧ ϯ ϯ ϟ ╖ Â ϥ∩
OSPF ϡϧ ϯ ϕ ˜ ϯ RIP ϡϧ ˘ ≠ ϥ∩ RIP
ϡϧ ϯ ϕ ˜ ϯ OSPF ϡϧ Â ϯ ϥ
∩ϡϩ IP ˜ Â

ϡϩ ϯ ˘ ϣϔ route maps˜ ˘ Ч ϡϧ
ϯ ˚ ⁸ Â

ϣϔ ‡ ˘ ϥ∩ 1 **match** Ъυ ϗ ∩ 1
set Ъυ ϗ Â **match** Ъυ ϗ˘ ‡ ϧ ’ **set** Ъυ ϗ˘
‡ a Â

ð Ô

ЛЪЮ ˇ OSPF ˜ ∤ RIP Â ∢ RIP Ю
فخ سم ∧ 10 20ˇ OSPF è ∤ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map redrip
Ruijie(config-router)# 44 01(Ruijie(config-router A109orrkuijie(con
```

no match ip route-source {*access-list-number* [*access-list-number...* | *access-list-name...*

ل Л υ ÿ ٭ ٭ ٨ ╗ Â ل
Л υ OSPF ﷺ ٭ ٨ ˆ ٭ RIP ﷺ ˇ ≠ ل Л υ RIP
ﷺ ٭ ٨ ˆ ٭ OSPF ﷺ Â ٭ ل
Л υ ﺟ IP ˜ Â

ﺟ ٭ ˇ ﻲ route maps˜ ˇ ч ﷺ
٭ ˚ ⁸ Â

ﻲ ‡ ˇ ل Л υ 1 **match** Ъυ ҳ Ո 1
set

set metric-type	ϔ صر
set tag	ϔ

ð ⊀ Ô

ð Ô

36.1.21 match ipv6 next-hop

ϔ ЮO IPv6 فخ سم ⊀ ɱή ‡
˘ في Ъυ ϗ **match ipv6 address** Â Ъυ ϗ **no** ϔ
Â

match ipv6 next-hop { *access-list-name* | **prefix-list** *prefix-list-name* }

no match ipv6 next-hop

ð ٧ Ô

٧	
access-list-name	⊀
prefix-list *prefix-list-name*	٦ IPv6 ɱή ⊀

ð Ô

Â

ð Ъυ ϗ Ô

في Â

ð ´ Ô

⊀ Л υ ÿ ϔ ϔ ⊀ ℸ Â ⊀
Л υ OSPF ﻋﻤ ϔ ⊀ ˆ ϔ RIP ﻋﻤ ˘ ≠ ⊀ Л υ RIP
ﻋﻤ ϔ ⊀ ˆ ϔ OSPF ﻋﻤ Â ϔ ⊀
Л υ ﺝﻤ IP ˜ Â

ﺝﻤ ϔ ˘ في route maps˜ ˘ ч ﻋﻤ
ϔ ˘ ⁸ Â

في ‡ ˘ ⊀ Л υ 1 **match** Ъυ ϗ ∩ 1
set Ъυ ϗ Â **match** Ъυ ϗ˘ ‡ ٦ ’ **set** Ъυ ϗ˘
‡ a Â

ð Ô

. ل جھ ſ Э˘ a ل ˜ ھفي ˘ ٤
Ъυ ϗ ≠ a ل Â

ЛЪЮ ˘ OSPF ˜ ſ RIP ˘ ل ſ
ﻝ 10 RIP ˘ جھ OSPF ھھ ˘ صر ﻯ
type-1˘ ﻯ 40 Â

```
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets
route-map redrip
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 2720::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 next-hop v6acl
Ruijie(config-route-map)# set metric 40
```

ð Ъυ ϗ Ô

Ъυ ϗ	
ipv6 access-list	Ⱨ IPv6 ‡
match interface	ך ЮО ﻝ
match ipv6 address	ך IPv6 ЮО فخ سم
match ipv6 route-source	ך IPv6 فخ سم
match metric	ך
match route-type	ך صر
match tag	ך
set metric	ſ
set metric-type	ſ صر
set tag	ſ

ð ﻝ Ô

ð Ô

36.1.22 match ipv6 route-source

ſ ЮО IPv6 فخ سم ﻝ ﻣﻰ ‡
˘ ھفي Ъυ ϗ **match ipv6 address** Â Ъυ ϗ **no** ſ
Â

match ipv6 route-source { *access-list-name* | **prefix-list** *prefix-list-name* }

no match ipv6 route-source

ð ٩ Ô

```
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 route-source
v6acl
Ruijie(config-route-map)# set metric 50
```

ð Ъu ҙ Ô

Ъu ҙ

ð ƕ ɂ Ô

في Â

ð ´ Ô

ƽ ≠ ╗ ƨ

ϧ ˘ في Ъυ ϗ **match metric** Â Ъυ ϗ **no** ΐ Â

match metric *metric*

no match metric

ð ٩ Ô

٩	
metric	٧ تن 0-4294967295

ð Ô

Â

ð Ъυ ϗ Ô

في Â

ð ´ Ô

٧ Л∪ ÿ ΐ ΐ ٨ ╖ Â ٧ Л∪ OSPF ΐ ٨ ΐ RIP ˘ ≠ ٧ Л∪ RIP ΐ ٨ ΐ OSPF Â ΐ ٧ Л∪ IP ˜ Â

ΐ ˘ في route maps˜ ˘ ч ΐ ˚ ⁸ Â

في ‡ ˘ ٧ Л∪ 1 **match** Ъυ ϗ Ո 1 **set** Ъυ ϗ Â **match** Ъυ ϗ˘ ‡ ϧ ’ **set** Ъυ ϗ˘ ‡ a Â

ð Ô

ЛυЮ ˘ OSPF ˜ ΐ RIP Â ٧ ѝ 10 RIP ˘ OSPF ΐ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map redist-rip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redist-rip permit 10
Ruijie(config-route-map)# match metric 10
```

ð Ъυ ϗ Ô

Ъυ ϗ	

access-list	ЪЖ ‡
match ip address	ך فخ سم
match interface	ך ЪO ٨
match ip next-hop	ך ЪO فخ سم
match ip route-source	ך فخ سم
match route-type	ך صر
match tag	ך
set metric	ǂ
set metric-type	ǂ صر
set tag	ǂ

ð ⊿ Ô

ð Ô

36.1.25 match origin

ǂ ˘ في Ъu ҳ **match origin** è Ъu ҳ **no** ǂ è

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

ð ٩ Ô

٩	
egp	EGP
igp	سم IGP
Incomplete	a صر

ð Ô

è

ð Ъu ҳ Ô

في è

ð ´ Ô

٨ ך ˘ a ⊿ ך صر è

Ъυ ҳ ┐ ˚ Â

ð Ô

```
Ruijie(config)# route-map MY_MAP 10 permit
Ruijie(config-route-map)# match origin egp
Ruijie(config-route-map)# set community 109
Ruijie(config-route-map)# exit
Ruijie(config)# route-map MAP20 20 permit
Ruijie(config-route-map)# match origin incomplete
Ruijie(config-route-map)# set community no-export
```

ð Ъυ ҳ Ô

set metric-type	ǂ صر
set tag	ǂ

ð ⊿ Ô

ð Ô

36.1.27 match tag

ך ˘ في Ъυ ҳ **match tag** Â Ъυ ҳ **no** ǂ Â

match tag *tag* [*…tag*]

no match tag *tag* [*…tag*]

ð ٩ Ô

٩	
tag	

ð Ô

Â

ð Ъυ ҳ Ô

في Â

ð ´ Ô

match tag Ъυ ҳ ⊿ ⊣ Л tag Â

⊣ Л ÿ ǂ ǂ ⊿ Â ⊣ Л OSPF ǂ ǂ ⊿ ˆ ǂ RIP ǂ ˘ ≠ ⊣ Л RIP ǂ ǂ ⊿ ˆ ǂ OSPF ǂ Â ǂ ⊣ Л ج IP ˜ Â

ج ǂ ˘ في route maps˜ ˘ ч ǂ ǂ ˚ ⁸ Â

في ‡ ˘ ⊣ Л 1 **match** Ъυ ҳ Ո 1 **set** Ъυ ҳ Â **match** Ъυ ҳ˘ ‡ ך ’ **set** Ъυ ҳ˘ ‡ a Â

ð Ô

ЛЪЮ ˘ RIP ˜ ǂ OSPF ÂRIP ⊣ ǂ OSPF ǂ и 50 Ո 80 Â

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

```
Ruijie(config-router)# redistribute ospf 100 route-map
redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match tag 50 80
```

ð Ih ɂ Ô

Ih ɂ	
access-list	Ihx ‡
match ip address	٦ فخ سم
match interface	٦ IO ٨
match ip route-source	٦ فخ سم
match metric	٦
match ip next-hop	٦ IO فخ سم
match route-type	٦ صر
set metric	أ

permit	ˆ ȷ ˜ ⱵⱾ permit ˇ ∀ ∧ match ⱵⱾ ך ‡ Â ‡ set Ƕ ȝ ˚ 8’ ˇ set Ƕ ȝ ↑ ȷ 8 Â ففي Â ⱵⱾ permit ˇ a ∧ match ⱵⱾ ך ‡ Â ‡ ɣ ففي Â ˚ set Ƕ ȝ
deny	ˆ ȷ ˜ ⱵⱾ deny ˇ ∀ ∧ match ⱵⱾ ך ‡ Â ‡ a ˇ ففي a ˚ ˇ 3 ففي Â ⱵⱾ deny ˇ a ∧ match ⱵⱾ ך ‡ Â ‡ ⱷO ففي Â ˚ set Ƕ ȝ Â
sequence-number	ففي ∧ Â æ ∧ ¨I ˚ ˇ ڃ ∧ Â

ð Ô

ففي Â

ð Ƕ ȝ Ô

Â

ð ´ Ô

ɱ RGIOS ˚ ففي ў جھ ч ѕѕ ' ˝ ˜ ˚ 8’ ˇ ˜ Â

˝ ˜ ˚ 8

ȷ Ո ÿ ˚ ˚ ∧ ╗ Â ȷ

Ո OSPF ﷺ ˚ ∧ ˆ ˚ RIP ﷺ ˇ ≠ ȷ Ո RIP

ﷺ ˚ ∧ ˆ ˚ OSPF ﷺ Â ˚ ȷ

Ո جھ

match !¨ V Ã !¦ V Ã

ڤي ˇ ڤي ,

ڤي ˇ ⁄ˇ ‡ Â جھ

ð Ô

ЛЬЮ ˇ OSPF ˜ ϳ RIP ˇ ϟ ϳ
ϧ 4 RIP ˇ جھ OSPF ھھ ˇ صر ϧ type-1˜
ϧ 40˜ ϧ 40 Â

```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets
route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match metric 4
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
Ruijie(config-route-map)# set tag 40
```

ð Ћυ ϗ Ô

Ћυ ϗ	
Redistribute	ϳ

ð ⁄ Ô

ð Ô

36.1.30 set aggregator as

ϗ match ‡ ⁄ AS ˇ
ڤي Ћυ ϗ **set aggregator as** Â Ћυ ϗ **no** ϊ Â
Ћυ ϗ Â

set aggregator as *as-num ip_addr*

no set aggregator as [*as-num ip_addr*]

ð ϟ Ô

ϟ	
as-number	⁄ AS ھھ ⁄
ip_addr	⁄ فخ سم

ð Ô

Â

ð ħu ɮ Ô

ﻓﻲ Â

ð ´ Ô

ħu ɮ ﺟﻢ BGP ˘ ﻯ Â

ħu ɮ ﻯ ﻝ ˆ as,ip-addr˜ ˘ a ﻝ ﻯ

ð Ô

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set aggregator as 3 2.2.2.2
```

ð ħu ɮ Ô

ħu ɮ	
match as-path	ﺡ AS_PATH
match community	ﺡ ﻳﺦ
match metric	ﺡ
match origin	ﺡ ﻝ
set community	ﺇ COMMUNITY
set metric	ﺇ
set metric-type	ﺇ ﺹﺭ

36.1.31 set as-path prepend

ﺡ match ‡ ╗ AS_PATH ˘
ﻓﻲ ħu ɮ **set as-path prepend** Â ħu ɮ **no** ╔ Â
ħu ɮ Â

set as-path prepend *as-number*

no set as-path prepend [*as-number*]

ð ﻯ Ô

ﻯ	
as-number	╗ AS_PATH AS ﻯ

ð Ô

Â

ð Ъυ ϟ Ô

في Â

ð ´ Ô

Ъυ ϟ ϧ ΐ ╗ AS_PATH

ل Лυ جـ as-path ╗ 15 as Â

ð Ô

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set as-path prepend 100 101
102
```

ð Ъυ ϟ Ô

Ъυ ϟ	
match as-path	ϧ AS_PATH
match community	ϧ يخ
match metric	ϧ
match origin	ϧ ل
set community	ΐ COMMUNITY
set metric	ΐ
set metric-type	ΐ صر

36.1.32 set comm-list delete

ϧ match ‡ ΐ COMMUNITY_LIST community ˘ في Ъυ ϟ **set comm-list delete** Â Ъυ ϟ **no** ΐ Â Ъυ ϟ Â

set comm-list *community-list-number* | *community-list-name* **delete**

no comm-list *community-list-number* | *community-list-name* **delete**

ð ٩ Ô

٩	

˜ Ъ ҳ

match origin	ך ל
set as-path prepend	ׁ AS_PATH
set comm-list delete	ׁ ך ֵי
set local-preference	ׁ ֶס ״ו

36.1.33 set community

ך match ‡ COMMUNITY ˘ ِفي
ħυ ɮ

ð ´ Ô

Ъυ ר ׀ ڍ Â

ð Ô

```
Ruijie(config)# route-map SET_COMMUNITY 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set community 109:10
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_COMMUNITY 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set community no-export
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match as-path	ר AS_PATH

match community

suppress	˘ ⁸ Â تن 1..20000ˇ 2000 Â
max-suppress-time	⁸ Â تن 1..255(ʃ)ˇ ѝ 4* half-life

ð Ô

Â

ð Ъυ ҳ Ô

ﻓﻲ Â

ð ´ Ô

Ъυ ך ʲ ٧ Â

ð Ô

```
Ruijie(config)# route-map tag
Ruijie(config-route-map)# match as path 10
Ruijie(config-route-map)# set dampening 30 1500 10000
120
Ruijie(config-route-map)# exit
Ruijie(config)# router bgp 100
Ruijie(config-router)#     neighbor     172.16.233.52
route-map tag in
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match as-path	ך AS_PATH
match community	ך ﻱﺦ
match metric	ך
match origin	ך ٧
set as-path prepend	ʲ AS_PATH
set metric	ʲ
set local-preference	ʲ ﺳﻢ ˮI

36.1.35 set default interface

ϩ match ‡ ϶ ϰ ↑ ϟ ϰ˘
في Ъυ ϧ **set default interface** Â Ъυ ϧ **no** ĩ
Â

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

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

ð ϰ Ô

ϰ	
interface-type	ϰ صر
interface-number	ϰ

ð Ô

Â

ð Ъυ ϧ Ô

في Â

ð ´ Ô

set default interface Ъυ ϧ ϗ ϟ Л Ъ ϰ Â

ѕѕ ╕ ↑ ϟ
ϐ Â ˘ في ᾱ
˘ في ᾱ ↑ Ю ϟ Â

˘ في˘ ϶ … في Â
في ˘ Ѫ 1 ϩ
‡ Ո Â ϰ ϗ˘ ϰ ↑ ↑
˘ a ϗ في ↑ ϟ
˘ ϗ في ↑ Ѫ
Â

Ѫ ϰ ϟ и down˘ γ set Ъυ ϧ
ϰ Â في ϟ Л Ъ set Â

ð Ô

ЛЪЮ ˘ ج serial 1/0 ŭ ˘ ϰ ↑
500 ˘ ϶ ˘ ÿ GigabitEthernet 1/0 ϰ ϟ ↑ Â

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
```

```
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)#  set  default  interface
GigabitEthernet 1/0
```

ð Ъυ ٪ Ô

Ъυ ٪	
route-map	Ⱶ٣ في
match ip address	٦ فخ سم
match length	٦ ↑ تن
set interface	↑ ٨
set ip default next-hop	↑ ⱵO IP فخ سم˘
set ip next-hop	↑ ⱵO IP فخ سم
set ip precedence	↑ IP ˝I

ð ٧ Ô

36.1.36 set extcommunity

٦ match ‡ يخ ˘ في Ъυ ٪ **set extcommunity** Â Ъυ ٪ **no** ˝ Â Ъυ ٪ Â

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

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

ð ٩ Ô

٩	
rt	RT
soo	SOO
extend-community-value	يخ

ð Ô

Â

ð Ъυ ٪ Ô

ﻓﻲ Â

ð ´ Ô

Ъυ ר ׀ ﺞ Â

ð Ô

```
Ruijie(config)# access-list 2 permit 192.168.78.0
255.255.255.0
Ruijie(config)# route-map MAP_NAME permit 10
Ruijie(config-route-map)# match ip-address 2
Ruijie(config-route-map)# set extcommunity rt 100:2
```

ð Ъυ ҳ Ô

Ъυ ҳ	

ð Ъυ ϩ Ô

ف Â

ð ´ Ô

set interface Ъυ ϩ ʌ ˩ Л∪ ʌ Â

ª Â ˘ ف ᾱ ˘ ف ᾱ ↑ Ю ˩ Â

˘ ف˘ 3 … ف Â

ف ˘ Ѭ 1 ϩ

‡ Ո Â ʌ ʌ˘ ʌ ˚ ↑

˘ a ʌ ف ↑ ˩

˘ ʌ ف ↑ Ѭ

Â

Ѭ ʌ ˩ и down˘ γ set Ъυ ϩ

ʌ Â ف ˩ Л∪ set Â

ʌ и null 0˘ ↑ Â

ð Ô

Л∪Ю ˘ ج serial 1/0 ŏ ˘ ʌ ˚ ↑

500 ˘ ÿ GigabitEthernet 0/0 ʌ ˩ ↑ Â

```
Ruijie(config)#interface serial 1/0
Ruijie(config-if)#ip policy route-map smallpak

Ruijie(config)#route-map smallpak permit 10
Ruijie(config-route-map)#match length 0 500
Ruijie(config-route-map)#set                    interface
GigabitEthernet 0/0
```

ð Ъυ ϩ Ô

Ъυ ϩ	
route-map	Ѭ ف
match ip address	ϩ فخ سم
match length	ϩ ↑ تن
set default interface	↑ ʌ˘
set ip default next-hop	↑ Ю IP فخ سم˘
set ip next-hop	↑ Ю IP فخ سم

set ip precedence	↑ IP ˝I

ð ⊀ Ô

36.1.38 set ip default next-hop

ך match ‡ ↑ Ю IP سم فخ˘ في
Ъu ҂ **set ip next-hop** Â Ъu ҂ **no** ╕ Â

set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

no set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

ð ⅋ Ô

⅋	
ip-address	Ю IP سم فخ
weight	Ю

ð Ô

Â

ð Ъu ҂ Ô

في Â

ð ´ Ô

set Ъu ҂ ч ' WCMP ⅄ ˘ WCMP
⅄ Â ج ⅏ Ю˘ weight
WCMP ⅄ Â

set ip default next-hop Ъu ҂ ⊀ ⊣ Л∪ IP سم فخ˘ a 32
Â

ج ip address ⊀ ╗ weight ˘ ‡ ⊣ Л∪ a 4
nexthop سم فخ Â

˘ ج next-hop ⊀ weight ˘ set Ъu ҂
╟╡ и WCMP ⅄ Â ج WCMP ⅄
Ю˘ ف weight nexthop سم فخ˘ è weight
и 1 Â

set ip next-hop ∩ **set ip default next-hop** Ъu ҂ Ш ⋮ ج ' **NÀÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~**

Ъυ ϗ й ⁸ ╗ Â ˚ Э
й ч ∫ ч ˘ ‡ ч∫ Ъυ ϗ Ю
(nexthop) Э Â

˘ ففي˘ 3 … ففي Â
ففي ˘ Ѭ 1 ϧ
‡ Ո Â ∧ ∧˘ ∧ ∫ ↑
˘ a ∧ ففي ↑ ч
˘ ∧ ففي ↑ Ѭ
Â

ففي ч Л∪ set Â

ð Ô

ЛЪЮ ч a ∠ ч ∫ ⋮ ч∫ a ∠ Э ∨ Â

جھ ∠ ∧ 1 Э ÿ 1.1.1.1 ч ˘ ˚ a∫ ч
˘ ч∫ 6.6.6.6 ∨’ ∫ ÿ 2.2.2.2 ч ˘
˚ a∫ ч ˘ ч∫ 7.7.7.7 ∨ Â è
˚ a∫ ч Â

```
Ruijie(config)#access-list 1 permit ip 1.1.1.1 0.0.0.0
Ruijie(config)#access-list 2 permit ip 2.2.2.2 0.0.0.0

Ruijie(config)#interface async 1
Ruijie(config-if)#ip policy route-map equal-access

Ruijie(config)#route-map equal-access permit 10
Ruijie(config- route-map)#match ip address 1
Ruijie(config-route-map)#set ip default next-hop
6.6.6.6
Ruijie(config)#route-map equal-access permit 20
Ruijie(config-route-map)#match ip address 2
Ruijie(config-route-map)#set ip default next-hop
7.7.7.7
Ruijie(config)#route-map equal-access permit 30
Ruijie(config- route-map)#set default interface null 0
```

ð Ъυ ϗ Ô

Ъυ ϗ	
route-map	Ѭ ففي
match ip address	ϧ فخ سم
set default interface	↑ ∧˘
set default interface	↑ ∧˘

set interface	↑ ∧

set ip default next-hop	↑ ƗO IP سم ˇفخ
set ip precedence	↑ IP ˝I

ð ⊀ Ô

ð Ô

36.1.40 set ip next-hop

عي سم ר″ match ‡ ↑ ƗO YIP سم אˇفخ ⊥ ⊂ ˋ ג

set default interface	↑ ٨˘
set interface	↑ ٨
set ip default next-hop	↑ ЮO IP فخ سم˘
set ip precedence	↑ IP ˝I

ð ٨ Ô

ð Ô

36.1.41 set ip next-hop verify-availability

ЮO IP فخ سم ٦ ˘ في Ъu ҳ **set ip next-hop verify-availability** Â Ъu ҳ **no** ĩ Â Ъu ҳ Â

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

no set ip next-hop verify-availability *ip-address* **track** *track-obj-num*

ð ٨ Ô

٨	
ip-address	ЮO IP فخ سم
track-obj-num	٨

ð Ô

Â

ð Ъu ҳ Ô

في Â

ð ´ Ô

ð Ô

ЛЪЮ ˘ جم serial 1/0 Э ŭ Â ٨ ĵ فخ سم
جم 10.0.0.0/8 تن ↑ ˘ ٦ ĵ 192.168.100.1’
й 172.16.0.0/16 تن ↑ ˘ ٦ ĵ 172.16.100.1’ è
Â

```
Ruijie(config)#interface serial 1/0
Ruijie(config-if)#ip policy route-map load-balance

Ruijie(config)#access-list 10 permit 10.0.0.0
0.255.255.255
Ruijie(config)#access-list 20 permit 172.16.0.0
0.0.255.255

Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#set ip next-hop
192.168.100.1

Ruijie(config)#route-map load-balance permit 20
Ruijie(config--route-map)#match ip address 20
Ruijie(config-route-map)#set ip next-hop 172.16.100.1

                                        rmit 30
                                        ull 0
```


[(s.5).72 4 .7003)Tute- a

set ip precedence {*<0-7>* | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }

no set ip precedence {*<0-7>* | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }

ð Ô

Â

ð Ъυ ҳ Ô

ففي Â

ð ´ Ô

IP ″I IP a ٦
″I Â

جم ففي ‡ ˘ ٦Л **set ip precedence** Ъυ ҳ˘ ٨
Л ˘ з ٨ ך IP
″I Â

ð Ô

ЛυЮ ˘ ÿ ٨ GigabitEthernet 0/0 فخ سم ѝ
192.168.217.68 precedence ѝ 4 Â

```
Ruijie(config)#access-list 1 permit 192.168.217.68
0.0.0.0
Ruijie(config)#route-map name
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 name
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match interface	ך Ю ٨
match ip address	ך فخ سم
match ip next-hop	ך Ю فخ سم
match ip route-source	ך فخ سم
match metric	ך
match route-type	ך صر
match tag	ך
set metric-type	ʃ صر

set tag	‡
set ip tos	IP tos

36.1.43 set ip tos

ך match ‡ IP TOS, في Ъu ҳ **set ip tos** Â Ъu ҳ **no** ˘ tos ‡ 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

Â

ð Ъu ҳ Ô

في Â

ð ´ Ô

IP TOS IP a ﻠ Ⴑ Â

ﻨ ך IP Э TOS Â

ð Ô

ЛЪЮ ˘ ÿ ﻨ GigabitEthernet 0/0 سم فخ ﻯ 192.168.217.68 tos ﻯ 4 Â

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
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 name
```

ð Ъu ҳ Ô

Ъu ҳ	
match interface	ך Ю ﻨ
match ip address	ך سم فخ
match ip next-hop	ך Ю سم فخ

match ip route-source	ϩ فخ سم
match metric	ϩ
match route-type	ϩ صر
match tag	ϩ
set metric-type	ϳ صر
set tag	ϳ
set ip precedence	IP ″I

36.1.44 set level

ϩ match ‡ ϣ ھ ˘صر في
Ъυ ϟ **set level** Â Ъυ ϟ **no** ϳ Â

set level {**level 1**| **level 2** | **level 1-2** | **stub-area** | **backbone**}

no set level

ð Ô

Â

ð Ъυ ϟ Ô

في Â

ð ´ Ô

ð Ô

ЛЪЮ ˘ OSPF ˜ ϳ RIP ϳ backbone ϣ ھ Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets
route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255
area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set level backbone
```

ð Ъυ ϟ Ô

Ъυ ϟ	
match interface	ϩ ЮО ∧
match ip address	ϩ فخ سم

match ip next-hop	┐ Ю فخ سم
match ip route-source	┐ فخ سم
match metric	┐
match route-type	┐ صر
match tag	┐
set metric-type	˛ صر
set tag	˛

36.1.45 set local-preference

┐ match ‡ LOCAL_PREFERENCE ˘
في Ъυ ϩ **set local-preference** Â Ъυ ϩ **no** ˛ Â

set local-preference *number*

no set local-preference

ð ٧ Ô

٧	
number	سم ˝I Â ˈ تن 0-4294967295

ð Ô

Â

ð Ъυ ϩ Ô

في Â

ð ´ Ô

ٮ local-preference ˘ a local-preference Â

Ъυ ϩ ┐ ˛ سم ˝I Â

ð Ô

```
Ruijie(config)# route-map SET_PREF permit 10
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set local-preference 6800
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_PREF permit 20
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set local-preference 50
```

ð Ъυ ϗ Ô

Ъυ ϗ	
match as-path	ϗ AS_PATH
match metric	ϗ
match origin	ϗ ϟ
set as-path prepend	ϳ AS_PATH
set metric	ϳ
set metric-type	ϳ صر

36.1.46 set metric

ϗ match ‡ ˘ في Ъυ ϗ **set metric** Â Ъυ ϗ **no** ϳ Â

set metric [+ *metric-value* | **-** *metric-value* | *metric-value*]

no set metric

ð ϟ Ô

ѕѕ ƚ ⁄ ˆ ƚ OSPF ѕѕ Â ƚ ⅃
Л∪ ѓ IP ˜ Â

ѓ ƚ ˇ ڤي route maps˜ ˇ ч ѕѕ
ƚ ˚ ⁸ Â

ڤي ‡ ˇ ⅃Л∪ 1 **match** Ъυ ҳ Ո 1
set Ъυ ҳ Â **match** Ъυ ҳˇ ‡ ך ’

ר match ‡ ّصر ففي ħυ ҳ

set metric-type Â ħυ ҳ **no** ╕ Â

set metric-type *type*

no set metric-type

ð ٩ Ô

٩	
type	▯

match ip address	ϗ فخ سم
match ip next-hop	ϗ Ю فخ سم
match ip route-source	ϗ فخ سم
match metric	ϗ
match route-type	ϗ صر
match tag	ϗ
set metric	ϳ
set tag	ϳ

ð ⊿ Ô

ð Ô

36.1.48 set next-hop

ϗ match ‡ Ю IP فخ سم˜ في
Ъυ ϗ **set next-hop** Â Ъυ ϗ **no** ϳ Â Ъυ ϗ
Â

set next-hop *ip-address*

no set next-hop *ip-address*

ð ⅋ Ô

⅋	
i*p-address*	Ю IP فخ سم

ð Ô

Â

ð Ъυ ϗ Ô

في Â

ð ´ Ô

⊿ Лυ ÿ ϳ ϳ ⊿ ℸ Â ⊿
Лυ OSPF ϧϧ ϳ ⊿ ˆ ϳ RIP ϧϧ ˇ ≠ ⊿ Лυ RIP
ϧϧ ϳ ⊿ ˆ ϳ OSPF ϧϧ Â ϳ ⊿
Лυ ϫ IP ˜ Â

ϫ ϳ ˇ في route maps˜ ˇ ч ϧϧ
ϳ ˚ ⁸ Â

ڧي ώ ۓ Л 1 **match** Ъυ ϗ Ո 1
set Ъυ ϗ Â **match** Ъυ ϗ˘ **set** Ъυ ϗ˘

ð Ô

Л Ю ˘ Ɔ ⁸ ˝ Ю й
192.168.1.2 Â

```
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip address 1
Ruijie(config-route-map)# set next-hop 192.168.1.2
```

ð Ъυ ϗ Ô

Ъυ ϗ	
match interface	Ɔ
match ip address	Ɔ
match ip next-hop	Ɔ
match ip route-source	Ɔ
match metric	Ɔ
match route-type	Ɔ
match tag	Ɔ
set metric-type	ϯ صر
set tag	ϯ

36.1.49 set origin

Ɔ match ϑ˜ ˘ ڧي
Ъυ ϗ **set origin** Â Ъυ ϗ **no** ϯ Â

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

no set origin

ð ٩ Ô

٩	
egp	EGP
igp	سم IGP
incomplete	a ف

ð Ô

Â

ð Ъυ ҳ Ô

في Â

ð ´ Ô

ﻝ Â

Ъυ ҳ ך ׀ Â

ð Ô

```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set origin igp
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set origin egp
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match as-path	ך AS_PATH
match metric	ך
match origin	ך ﻝ
set as-path prepend	׀ AS_PATH
set metric	׀
set local-preference	׀ سم ״ا

36.1.50 set originator-id

ך match ‡ ﻝ ˘ في Ъυ ҳ
set originator-id Â Ъυ ҳ **no** ׀ Â

set originator-id *ip-addr*

no originator-id [*ip-addr*]

ð ٩ Ô

٩	
ip-addr	ﻝ فخ سم

ð Ô

Â

ð Ъυ ҳ Ô

ﻓﻲ Â

ð ´ Ô

Ъυ ҳ ר ׀ ׳ Â

ð Ô

```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set originator-id 5.5.5.5
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set originator-id 5.5.5.6
```

ð Ъυ ҳ Ô

ɣ a ɻ Â

ð ƕ ɂ Ô

ﻓﻲ Â

ð ´ Ô

ƕ ɂ ɸ ɟ Â ƕ ɂ˘ ɣ

Â

" ɟ N ƕ Â

ר match ‡ BGP ˘ في Ъυ ҳ
set weight Â Ъυ ҳ **no** ĩ Â

set weight *number*

no set weight

ð ٩ Ô

٩	
number	Â ثن 0-65535

ð Ô

Â

ð Ъυ ҳ Ô

في Â

ð ´ Ô

Ъυ ҳ ٧ BGP Â

ЮЎ ÿ ĵ ˘ neighbor weight ĵ
, سم ثن 32768 Â

٧ Л Ъυ ҳ BGP ĵ ٧ Â

ð Ô

ЛЮЮ ˘ BGP جم in Ы Э ˘ ÿ
1.1.1.1 ĵ и 100 Â

```
Ruijie(config)# router bgp 1
Ruijie(config-router)# neighbor 1.1.1.1 route-map
nei-rmap-in in
Ruijie(config-router)# exit
Ruijie(config)# route-map nei-rmap-in permit 10
Ruijie(config-route-map)# set weight 100
```

ð Ъυ ҳ Ô

Ъυ ҳ	
match as-path	ר AS_PATH
match community	ר يخ
match metric	ר
match origin	ר ٧
set community	ĵ COMMUNITY

set metric	ĵ
set metric-type	ĵ صر

ð ⁄ Ô

ð Ô

36.2

36.2.1 show ip community-list

Ъυ ҳ يخ Â

show ip community-list [*community-list-number*|*community-list-name*]

ð ٧ Ô

٧	
community-list-number	يخ ⁄٧ يخ ' ⁄٧ تن ﻯ 1-99 يخ ' ⁄٧ تن ﻯ 100-199
community-list-name	يخ ⁄ر يخ ⁄ر a 80

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Ъυ ҳ يخ Â

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```
Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

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Ъυ ҳ	

match community	ϯ ϑ

```
C    192.1.1.254/32 is local host.
```

show ip route Ъu ҙ Ю'

O	˜ Â ⌟ ⌟ й' C' , S' , R' RIP , B' BGP , O' OSPF , ї IS-IS Â
E2	ср Â ⌟ ⌟ й' E1' OSPF ср˝ , E2' OSPF ср˘ , N1' OSPF NSSA ср 1' N2' OSPF NSSA ср 2' IA' OSPF , su' IS-IS , L1' IS-IS 1 , L2' IS-IS 2 , 5l -13.194 -1.44 Td(E2)21009 Tw 6/C2_0

ЛЪЮ ѝ **show ip route count** Ъu ҙ '

```
Ruijie# show ip route count
--------- route info ----------
the num of active route: 5
```

ЛЪЮ ѝ **show ip route weight** Ъu ҙ '

```
Ruijie# show ip route weight
------------[distance/metric/weight]-----------
S   23.0.0.0/8 [1/0/2] via 192.1.1.20
S   172.0.0.0/16 [1/0/4] via 192.0.0.1
```

36.2.4 show ipv6 prefix-list

IPv6 ŋń ŋń ˘ **show ipv6 prefix-list** Ъu ҙ Â

show ipv6 prefix-list [*prefix-name*]

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٩	
prefix-name	IPv6 ŋń ɻ

ð Ô

ي ˘ Ъυ ϗ **show route-map** Â

show route-map *route-map-name*

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route-map-name	ˆ ل ˜ ل ي

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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	ي ا
Permit	ي ↑ ŭ permit
sequence 10	ي ٨
Match clauses	Ѭ ٦ ‡ Â ي permit deny ᾱ ĭ set
Set clauses	Ѭ ا match ٦ ‡ ا

37 ACL

ѫ ЛьЮЋu ҳ ĵ ⌟ ⌝ ЛьЮЋu ҳ

	ѝ ѭ
id	⌝ Â ⌟ ىن IP ACL: 1-99,1300-1999 IP ACL: 100-199,2000-2699 MAC ACL: 700–799 ж ACL: 2700–2899
name	ACL ⅄
sn	ACL ⌝ (˝I p)
start-sn	⌝
inc-sn	⌝
deny	⌝ ˘ ‡
permit	⌝ ˘ ‡

~ ⌝˘

prot

	ŏ ѭ			ŏ ѭ	
A	MAC	0	O	TTL	34
B	MAC	6	P	˜ ⁄	35
C		12	Q	IP Ո	36
D	VLAN tag	14	R	ip فخ سه	38
E	DSAP(ㄴ)	18	S	ip فخ سه	42
F	SSAP(ㄴ)	19	T	TCP ⁄	46
G	Ctrl	20	U	TCP ⁄	48
H	Org Code				

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

ʌ ħυ ϗ

- **ip access-group**
- **mac access-group**
- **expert access-group**
- **ipv6 traffic-filter**

37.1.1 access-list

ħυ ϗ … ‡˘ Â ħυ ϗ **no** ĩ Â

1) IP ˆ 1 - 99˝ 1300 - 1999˜

access-list *id* {**deny** | **permit**} {*source source-wildcard* | **host** *source* | **any**}

2) IP ˆ 100 - 199˝ 2000 - 2699˜

access-list *id* {**deny** | **permit**} **protocol** {*source source-wildcard* | **host** *source* | **any**} {*destination destination-wildcard* | **host** *destination* | **any**} [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

3) MAC ˆ 700 - 799˜

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

4) Expert ˆ 2700 - 2899˜

access-list *id* {**deny** | **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-range-name*]

ˆ ΰ Л صر Ethernet-type cos '

access-list *id* {**deny** | **permit**} {*ethernet-type*| **cos** [*out*][**inner** *in*]} [**VID** [*out*][**inner** *in*]] {**s***ource source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**time-range** *time-range-name*]

˜ Protocol '

access-list *id* {**deny** | **permit**}

source-wildcard ' فخ سم Â ⊣ Л∪ a ˘ 0.255.0.32

protocol ' IP ˜ /!˘ ⊣ Л∪ EIGRP

ר Â

TCP Flag ↑ ŭ ЛυЮ ↑

- **urg**
- **ack**
- **psh**
- **rst**
- **syn**
- **fin**

″I ⁞ ɻ Ю'

- **critical**
- **flash**
- **flash-override**
- **immediate**
- **internet**
- **network**
- **priority**
- **routine**

ᒐ ص ɻ Ю'

- **max-reliability**
- **max-throughput**
- **min-delay**
- **min-monetary-cost**
- **normal**

ICMP ص ɻ Ю'

- **administratively-prohibited**
- **dod-host-prohibited**
- **dod-net-prohibited**
- **echo**
- **echo-reply**
- **fragment-time-exceeded**
- **general-parameter-problem**
- **host-isolated**
- **host-precedence-unreachable**
- **host-redirect**
- **host-tos-redirect**

- **host-tos-unreachable**
- **host-unknown**
- **host-unreachable**
- **information-reply**
- **information-request**
- **mask-reply**
- **mask-request**
- **mobile-redirect**
- **net-redirect**
- **net-tos-redirect**
- **net-tos-unreachable**
- **net-unreachable**
- **network-unknown**
- **no-room-for-option**
- **option-missing**
- **packet-too-big**
- **parameter-problem**
- **port-unreachable**
- **precedence-unreachable**
- **protocol-unreachable**
- **redirect**
- **router-advertisement**
- **router-solicitation**
- **source-quench**
- **source-route-failed**
- **time-exceeded**
- **timestamp-reply**
- **timestamp-request**
- **ttl-exceeded**
- **unreachable**

ЮTCP ㅓ ㅣ ˘ TCP ㄱ Ո ㅓ ㅣ ㅓ ㅕ é ㅓ'

- **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**
- **tacacs**
- **talk**
- **telnet**
- **time**
- **uucp**
- **whois**
- **www**

Ю UDP ٨ ٱ ˘ UDP ٦ Л٥ ٨ ٱ ٨ ٨ ė ٨' ¸

- **isakmp**
- **mobile-ip**
- **nameserver**
- **netbios-dgm**
- **netbios-ns**
- **netbios-ss**
- **ntp**
- **pim-auto-rp**
- **rip**
- **snmp**
- **snmptrap**
- **sunrpc**
- **syslog**
- **tacacs**
- **talk**
- **tftp**
- **time**
- **who**
- **xdmcp**

Л υ ~ ص 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 Ô

1) IP

Ю IP ﷺ ﻓﺨ ﺳﻢ й 192.168.1.64 - 192.168.1.127 ˘
è '

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

2) IP

Ю IP DNS Ո ICMP '

```
Ruijie(config)# access-list 102 permit tcp any any eq domain
Ruijie(config)# access-list 102 permit udp any any eq domain
Ruijie(config)# access-list 102 permit icmp any any echo
Ruijie(config)# access-list 102 permit icmp any any echo-reply
```

3) MAC

Ю ˘ MAC й 00d0f8000c0c ў ч ﺻ й 100
Лυ ˘ ¦ ∧ 1 Â '

```
Ruijie(config)# access-list 702 deny host 00d0f8000c0c any aarp
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in
```

4) Expert

Ю … ч Expert Extended ACLˇ ж ACL IP ﻓﺨ ﺳﻢ
й 192.168.12.3 з MAC ﻓﺨ ﺳﻢ й 00d0.f800.0044 TCP Â

```
Ruijie(config)# access-list 2702 deny tcp host
192.168.12.3 mac 00d0.f800.0044 any any
Ruijie(config)# access-list 2702 permit any any any any
Ruijie(config)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.12.3 mac 00d0.f800.0044 any any
10 permit any any any any
```

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ħυ ϡ	
show access-lists	
mac access-group	ﺟﻢ ∧ Э MAC

ħu ɮ … IP ACL IP ACL˘ Â ħu ɮ **no** ǐ ACL

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

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

ð ٩ Ô

id IP /ٰ˘ ˆ 1-99˝ 1300-1999˜ ˘ ˆ 100-199˝ 2000-2699˜

name ' IP ȷ

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ACL

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ACL Ո a ȷ˘ ACL ╗ Â ٩ **deny** Ո **permit** ħu ɮ Ո Â **show access-lists** ħu ɮ ACL Â

ð Ô

… ACL'

```
Ruijie(config)# ip access-list extended 123
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 ħu ɮ Ô

ħu ɮ	
show access-lists	IP

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˘ RGOS10.0 ΠυЭ

37.1.3 expert access-list

ħu ɜ … ж ACL˘ Â ħu ɜ **no** ˥ ACL

expert access-list extended {

ħu ϡ ip ص ACL ˘ … IPV6 ACL˘ Â
ħu ϡ **no**

ip access-list resequence {*id* | *name*} **start-sn inc-sn**

no ip access-list resequence {*id* | *name*}

ð ٩ Ô

Id' ACL ٨

Name' ACL ٱ

start-sn'

˚ RGOS10.0 Л Э

37.1.5 deny

(deny) ˚ Л ᾱ ч Âҕ ACL
Ю˘ ҕ ACL ˜ Â

1) IP

[*sn*] **deny** {*source source-wildcard* | **host** *source* | **any**}

2) IP

[*sn*] **deny protocol** *source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

˜ 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*]] | [*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

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

User Datagram Protocol (UDP)

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

3) MAC

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

4) Expert

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

ACL ħu ҳ

source-ipv6-address} {*destination-ipv6-prefix / prefix-length* | **any** | *hostdestination-ipv6-address*} [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**time-range** *time-range-name*]

˜ IPV6 8 '

Internet Control Message Protocol (ICMP)

[*sn*]**deny icmp** {*source-ipv6-prefix / prefix-length* | *any source-ipv6-address* | **host**} {*destination-ipv6-prefix / prefix-length* | **host** *destination-ipv6-address* | **any**} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

[*sn*] **deny tcp** {*source-ipv6-prefix / prefix-length* | **host** *source-ipv6-address* | **any**}[*operator* **port**[*port*]] {*destination-ipv6-prefix /prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator* **port** [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**time-range** *time-range-name*] [**match-all** *tcp-flag*]

User Datagram Protocol (UDP)

[sn] **deny udp** {*source-ipv6-prefix/prefix-length* | **host** *source-ipv6-address* | **any**} [*operator* **port** [*port*]] {*destination-ipv6-prefix /prefix-length* | **host** *destination-ipv6-address* | **any**}[*operator* **port** [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**time-range** *time-range-name*]

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ЛυЮ ĵ ٩ **access-list**

Sn ′ ACL /١

source-ipv6-prefix ' IPv6 فخ سم صر.

destination-ipv6-prefix ′ IPv6 فخ سم صر

prefix-length ′ Æ Æ

source-ipv6-address ′ IPv6 فخ سم

destination-ipv6-address ′ IPv6 فخ سم

dscp ' Ь

dscp ' ˘ تن 0-63.

flow-label '

flow-label ' ˘ تن 0-1048575.

protocol ' IPV6 ٦ ѝ IPV6 | icmp | tcp | udp ٩ <0-255>

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ACL Ю

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ج ACL Ю ACL ˚

ð Ô

Ю … ۱ Expert Extended ACL˘ ж ACL IP فخ سم
й 192.168.4.12 з MAC فخ سم й 001300498272 TCP Â

```
Ruijie(config)# expert access-list extended 2702
Ruijie(config-exp-nacl)# deny tcp  host
192.168.4.12 host 0013.0049.8272 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 ˘ IP й 192.168.4.12 ў TCP
۸ й 100 Ь˘ ↑ ۸ 1 Â

```
Ruijie(config)# ip access-list extended ip-ext-acl
Ruijie(config-ext-nacl)# deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended ip-ext-acl
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 ˘ MAC й 0013.0049.8272 ў
۱ صر й 100 Лu ˘ ↑ ۸ 1 Â

```
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
```

ĦO IP ACL

37.1.6 permit

(**permit**) ˚ Ʌu ᾱ ↓ Â ج ACL
ЮЎ ج ACL ~ Â

1) IP

[*sn*] **permit** {*source source-wildcard* | **host** *source* | **any**}

2) IP

[*sn*] **permit protocol** *source source-wildcard destination*

destination-wildcard [**precedence** *precedence*] [**tos** *tos*] [**fragments**]

[**time-range** *time-range-name*]

~ IP 8 '

Internet Control Message Protocol (ICMP)

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

Transmission Control Protocol (TCP)

[*sn*] **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-range-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-range-name*]

↑ ΰ Ո صر Ethernet-type cos

[*sn*] **permit** {*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**} [**time-range** *time-range-name*]

˜ Protocol

[*sn*] **permit protocol** [**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-range-name*]

˜ Expert '

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** [**VID** [*out*][**inner** *in*]] {*source source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } {*destination destination-wildcard*

| *hostdestination-ipv6-address*} [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [*94efrangfname*]

˜ IPV6 8 '

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** {*source-ipv6-prefix* / *prefix-length* | **any** *source-ipv6-address* | **host**

```
Ruijie(config-exp-nacl)# permit tcp  host  192.168.4.12 host
0013.0049.8272 any any
Ruijie(config-exp-nacl)# deny any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
10 permit tcp  host  192.168.4.12 host 0013.0049.8272 any any
20 deny any any any any
Ruijie(config-exp-nacl)#
```

Ю IP ACL ˘ IP й 192.168.4.12 ў TCP ٨ й 100 Ĺ˘ ˛ ٨ 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 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#
```

Ю MAC ACL ˘ MAC й 0013.0049.8272 ў ٦ ص й 100 Лu ˘ ˛ ٨ 1Â

```
Ruijie(config)# mac access-list extended 702
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 aarp702
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in
```

Ю ip ACL ˘ IP й 192.168.4.12 ў ˘

Ю IPV6 ACL ˘ IP ѝ 192.168.4.12 ў ˘

ACL

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ѝ ACL ╕

ð Ô

```
Ruijie# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark this acl is to filter the
host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

ð ħu ҳ Ô

	ħu ҳ			

show access-lists

```
Ruijie(config-ipv6-nacl)# 12 deny ipv6 host any any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
12 deny ipv6 any any
Ruijie(config-ipv6-nacl)# no 12
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)#
```

ð ħu ɮ Ô

ʎ

ð ´ Ô

ip access-group ħu ɮ ʎˇ . ŭ Â

ð Ô

ĦO æ GigabitEthernet0/0 Э 120 '

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)#ip access-group 120 in
```

ð ħu ɮ Ô

ħu ɮ	
access-list	ĦѪ Â
show access-lists	

ð ɻ Ô

˚ RGOS10.0 Лυ Э

37.1.10 expert access-group

EXPERT ACL ʃ ʎ Â ħu ɮ **no** ɻ Â

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

ð ʎ Ô

id ' Expert Лˆ 2700-2899˜

name ' Expert ɻ

in ' ʎ

out ' ÿ ʎ

unreflect ' ɬ ACL

ð Ô

ʎ Expert ACL

ð ħu ɮ Ô

ʎ

ð ´ Ô

ACL ʌ Э˘ è ʌ ⁸ Â **show access-group** Ъu ҳ

ð Ô

Ю access-list accept_00d0f8xxxxxx_only Gigabit ʌ 1 Э'

```
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if)# expert access-group
accept_00d0f8xxxxxx_only in
```

ð Ъu ҳ Ô

Ъu ҳ	
show access-group	ʌ Э ACL Â

ð ʌ Ô

˚ RGOS10.0 Лu Э

37.1.11 ipv6 traffic-filter

IPV6 ACL ʃ ʌ Â Ъu ҳ no ʌ Â

ipv6 traffic-filter *name* {**in** | **out**}
no ipv6 traffic-filter *name* {**in** | **out**}

ð ʌ Ô

name ' IPV6 ɻ
in ' ʌ
out ' ÿ ʌ

ð Ô

ʌ IPV6 ACL

ð Ъu ҳ Ô

ʌ

ð ´ Ô

ACL ʌ Э˘ è ʌ ⁸ Â **show ipv6 traffic-filter** Ъu ҳ

ð Ô

```
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

ð Ħυ ϧ Ô

Ħυ ϧ	
show access-group	∧ Э ACL Â

ð ∧ Ô

˚ RGOS10.0 Л Э

37.2

б ↑ ЛЮĦυ ϧ :

¸ **show access-lists**

¸ **show ip access-group**

¸

```
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
ipv6 access-list extended v6-acl
```

ð ħu ɤ Ô

ħu ɤ	
ip access-list	IP ACL ĦR Â

ip access-list	IP ACL ⅎ Â

ð ⊀ Ô

˚ RGOS10.0 Л Э

37.2.3 show expert access-group

∧ Expert Â

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

ð ∧ Ô

<*interface*> ' ∧

ð ħυ ϟ Ô

ð ´ Ô

∧ Expert ACL˘ ∧˘ ‡ ∧ Expert ACL

ð Ô

```
Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

ð ħυ ϟ Ô

ħυ ϟ	
expert access-list	Expert ACL ⅎ

ð ⊀ Ô

˚ RGOS10.0 Л Э

37.2.4 show ipv6 traffic-filter

∧ IPV6

show ipv6 traffic-filter [**interface** <*interface*>]

ð ∧ Ô

<*interface*> ' ∧

ð ħυ ϟ Ô

ð ´ Ô

ʎ IPv6 ACLˇ ʎˇ ‡ ʎ IPv6 ACL

ð Ô

```
Ruijie# show ipv6 traffic-filter interface gigabitethernet 0/4
ipv6 traffic-filter v6 in
Applied On interface GigabitEthernet 0/4.
```

ð ħu ɮ Ô

ħu ɮ	
ipv6 access-list	IPV6 ص ACL Ⱨ

ð ɻ Ô

˚ RGOS10.0 Л Э

37.2.5 show access-group

ʎ Э ACL

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

ð ʎ Ô

<*interface*> ' ʎ

ð ħu ɮ Ô

ð ´ Ô

ʎ Э ACLˇ a ʎ Э ACL

ð Ô

```
Ruijie# show access-group
ip access-list standard ipstd3
Applied On interface GigabitEthernet 0/1.
ip access-list standard ipstd4
Applied On interface GigabitEthernet 0/2.
ip access-list extended 101
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
```

ð ħυ ϡ Ô

ħυ ϡ	
ip access-group	ip ⊬Ѫ

macref0 gBE⊔Ѫ2>Tj/TT0 1 Tf015007 Tc 0 Tw 17.634 0.023 TMACACL

38 RPL

38.1

38.1.1 reverse-path

ҷ ۸ ЮO **reverse-path** ħu ҳ ۸ ˇ è ۷ ۷
۸ ۱ ۿˇ ħu ҳ no ۷ Â

reverse-path

no reverse-path

۸	
-	-

a ۷ ۷ [8] ╖

ħu ҳ ۸ Â

ħu ҳ ۷ Ո ۸ˇ ۷

1' ҷ ۸ Э RPL ħu ҳ .

```
Ruijie(config)# interface gigabitEthernet 0/0
Ruijie(config-if)# reverse-path
```

ħu ҳ	
-	-

۶۷

ħu ҳ ٦ ۶۷	
10.3(3b7)	10.3(4)

39

39.1

39.1.1 acpp

ppp authentication {**chap** | **pap** | **chap pap** | **pap chap**} [**callin**]

no ppp authentication {**chap** | **pap}**

rate pps

burst-rate pps

control-plane

1' ЛЮ ий 200pps ий 300pps

```
Ruijie(config)# control-plane data
Ruijie(config-cp)# acpp bw-rate 200 bw-burst-rate 300
```

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

५	
protocol	~ ४ ५
manage	५
data	६ ५

hu ३

Â

1' ЛuЮ ˘ control-plane ˘ ~ ४ ५'

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

hu ३	
-	-

Â

५	
-	-

39.1.4 debug ef-rnfp

˘ hu ३ debug ef-rnfp

hu ३ no

debug ef-rnfp [**acpp** | **scpp** | **glean-car** | **arp-car** | **port-filter** | **mpp | all**]

no debug ef-rnfp [**acpp** | **scpp** | **glean-car** | **arp-car** | **port-filter** | **mpp | all**]

५	
-	-

hO˝

hu ३

Â

1' ЛυЮ ˘ arp-car ℸ '

```
Ruijie# debug ef-rnfp arp-car
```

Ъυ ҳ

Ъυ ҳ	
Ruijie# **show ef-rnfp debug-buf** [**clear** | **echo**]	ˆ REF˜ a . ˘ Л show ef-rnfp debug-buf [clear | echo] Â

ᐧ

Ъυ ҳ ˥ ᐧ

ᐧ	
-	-

39.1.5 ef-rnfp

‡ Ո ὖ ˘ ᐧ Л Ъυ ҳ ef-rnfp enable

‡˘ ᐧ Л Ъυ ҳ ef-rnfp disable

ef-rnfp enable

ef-rnfp disable

ᐧ

ᐧ	
-	-

Ю˘ ὖ ˘ ‡ Ո

Ъυ ҳ

control-plane

1' ЛυЮ ˘ ‡'

```
Ruijie(config)# control-plane
Ruijie(config-cp)# ef-rnfp disable
```

Ъυ ҳ

Ъυ ҳ	

Ruijie(config)# control-plane {protocol | manage | data}	control-plane ˘ ⅃Л ∧

⅃

Ъυ ҳ ⅂ ⅃

/∧	
-	-

39.1.6 glean-car

⅄ ⅂ ⌡ IP ˘ Glean-CAR ˘ ⇜ control-plane Ю Ъυ ҳ glean-car

Ъυ ҳ no ⌡ glean-car ‡

glean-car *packet_rate_per_group* [**log**]

no glean-car

∧

∧	
packet_rate_per_group	ˆ ´ Æ ѝ pps˜

Ю˝ Glean-CAR ǔ ˘ ⅋ ⌡ ⅃ ˆ ˜ ⅃ ⅂ ⌡ Glean ѝ 5pps Â

Ъυ ҳ control-plane ˘ ⅃ ⇜ Ь ∧

Â

1' ЛЪЮ ˘ ⅋ ⌡ ⅃ ˆ ˜ ⅃ ⅂ ⌡ Glean ѝ 10pps'

```
Ruijie(config)# control-plane data
Ruijie(config-cp)# glean-car 10
```

Ъυ ҳ

Ъυ ҳ	
Ruijie(config)# **control-plane** {**protocol** | **manage** | **data**}	control-plane ˘ ⅃Л ∧

⅃ Â

Ъυ ҳ ⅂ ⅃

/∧	

	-	-

39.1.7 management-interface

ˆ MPP˜ ╖ ЎMPP ∧ и

Port-Filter ╖ ┘ Л Ъ ╬ ▒▒ ▀ ▄ ╣ ╓
▒▒ Â Port-Filter ╖ ╓ control-plane Ю Ъ
ч port-filter

Ъ ч no Port-Filter ╖

port-filter [**log**]

no port-filter

╣	╣	
	-	-

no scpp list acl_no

٩	

acl_no

‡ ˘ ˘ ˘ ƕ ɂ show ef-rnfp

show ef-rnfp [**acpp** | **scpp** | **glean-car** | **arp-car** | **port-filter** | **mpp | all | debug-buf** [**clear** | **echo**]]

¶	¶	
	-	-

```
    TOTALLY droped 0 packets
  Protocol subinterface: disable
ARP CAR information: //ARP-CAR    Ո
  Manage subinterface: enable
    RULE:
      allow packet rate per source: 30(pps)
      log: off
    STATISTIC:
      dropped 181 packets
Glean CAR information:   //Glean-CAR    Ո
  Data subinterface: disable
Port Filter information:
  Manage subinterface: disable
Management plane protection information:  //MPP    Ո
  Manage subinterface: disable
```

2' ЛЬЮ '

```
Ruijie#show ef-rnfp debug-buf echo
-----------------------------------------------------
       echo EF-RNFP debug record buffer
total: 65536Byte  used: 10560Byte  percentage: 16%
-----------------------------------------------------
FUNC: ef_rnfp_pkt_classify         LINE: 164  INFO: origin reserve
reason EXT: 0xc
FUNC:  ef_rnfp_pkt_classify             LINE:  348   INFO:  detail
classify ok EXT: 0x1
FUNC: ef_rnfp_pkt_acpp            LINE: 383  INFO: token_num EXT:
0xf41fe
FUNC: ef_rnfp_pkt_acpp            LINE: 393  INFO: acpp permit
FUNC:  ef_rnfp_pkt_scpp               LINE: 1008 INFO: flow priv
do_scpp is 0
FUNC: ef_rnfp_pkt_scpp            LINE: 1050 INFO: estab flow, no
flow_event happen
FUNC: ef_rnfp_pkt_scpp            LINE: 1055 INFO: estab flow, no
flow_event
happen, no need scpp handle
FUNC: ef_rnfp_pkt_main_process      LINE: 1460 INFO: ef rnfp pkt
proc ok, permit EXT: 0x1
FUNC: ef_rnfp_pkt_classify         LINE: 164  INFO: origin reserve
reason EXT: 0x18
```

40

40.1

40.1.1 ip inspect name

˜ ‡ Â Ћυ ҳ no ‡ Â

ip inspect name *inspection_name protocol*

no ip inspect name *inspection_name protocol*

ð ٩ Ô

inspection_name: ‡ ɻ

protocol: ˜ ɻ ˇ ɱ ٫ Ո Ю ˜ ' **ftp˘ mms˘ rtsp˘ sip˘ h323, tcp**

ð Ô

ð Ћυ ҳ Ô

Â

ð ´ Ô

Ћυ ҳ ‡

‡ ٫ Ո ˜ ˆ ٩ ˜

ð Ô

Ю ч ‡˘ abc ftp Ո mms ˜ ˇ 123 mms Ո h.323 ˜ '

```
Ruijie(config)# ip inspect name abc ftp
Ruijie(config)# ip inspect name abc mms
Ruijie(config)# ip inspect name 123 mms
Ruijie(config)# ip inspect name 123 h323
```

ð Ô

40.1.2 show ip inspect

˜ ‡ Â

show ip inspect *parameter*

ð ↰ Ô

parameter: ↲ ↰ **name** *inspection_name* ⁸ ↲ ‡

interface ' ج ⅄ ↰ Э ‡

all '

ð Ô

Ö S7×,Ö /?UX u ¹?˜ í,X µ

ð Ъu ҳ Ô

Â

ð ´ Ô

Ъu ҳ ^ ~ ~ ‡

ð Ô

ЮO ‡ abc '

```
Ruijie# show ip inspect name abc
Inspection name abc
   ftp
```

Ъυ ϩ ϫ ϟ Э ‡

ϫ ϟ ϡ Э ‡ˇ Л υ ϡ ‡ ϔ ˆ
ϟ ϡ Э ˇ ϟ ~ ‡ˇ ‡ ϡ Л υ
~ ~

~ ‡ ˚ ϟˆ ϡ ~ Э ˇ ~ ϫ
Ъ ’ ϟˆ ϡ ~ Э ~ ‡ˇ ~
Т ╠ Â

ð Ô

Ю ϫ Л υ 1/0 ϟ Э abc ‡'

```
Ruijie(conf)# interface ethernet 1/0
Ruijie(conf-if)# ip inspect abc in
```

ð Ô

40.2 IP MAC

40.2.1 ipmacbind

IP MAC ϭ ‡ Â Ъυ ϩ **no** ˚ ‡ Â

ipmacbind *A.B.C.D H.H.H* **log**

no ipmacbind *A.B.C.D H.H.H* **log**

ð ϟ Ô

A.B.C.D: IP ϭ

H.H.H: MAC ϭ

log: ΐ

ð Ô

IP MAC Т

ð Ъυ ϩ Ô

Â

ð ´ Ô

Ъυ ϩ ‡

‡ ϡˇ IP MAC Т ╠ Ъ

ĩ ‡ ⁄ˇ IP MAC ╖ ╟

MAC ﬀ ﬁ Э ⊣ ⁄Ц IP ﬁ ﬀˇ IP ﬁ ﬀ ⊣ MAC ﬁ ﬀ Â

ð Ô

Ю ‡'

```
Ruijie(config)# ipmacbind 192.168.52.66 52e1.5d33.aa21 log
```

ð Ô

40.2.2 ipmacbind auto

ÿ ARP IP MAC ﬁ ﬀ ‡ Â

ipmacbind auto log

ð ⊣ Ô

log: ĩ

ð Ô

IP MAC ╖

ð ħυ ϧ Ô

Â

ð ´ Ô

ħυ ϧ ÿ ARP IP MAC ﬁ ﬀ ‡ˇ IP MAC ╖ ╟ ŭ Â

ð Ô

Ю ÿ ARP IP MAC ﬁ ﬀ ‡'

```
Ruijie(config)# ipmacbind auto
```

ð Ô

40.2.3 ipmacbind default action

¬ Э IP MAC ﬁ ﬀ ‡ ╟ ˆ / ˜ Â

ipmacbind default action {permit | deny}

ð ¶ Ô

permit: ┐ Э IP MAC ﻓﺦ ﺳﻢ ‡

deny: ┐ Э IP MAC ﻓﺦ ﺳﻢ ‡

ð Ô

┐ Э IP MAC ﻓﺦ ﺳﻢ ‡

ð ћu ҳ Ô

Â

ð ´ Ô

ð Ô

ЮО ┐ Э IP MAC ﻓﺦ ﺳﻢ ‡ '

Ruijie(config)# **ipmacbind** default action permit

ð Ô

40.2.4 clear ipmacbind

IP MAC ﻓﺦ ﺳﻢ ‡ Â

clear ipmacbind {**dynamic** | **all**}

ð ¶ Ô

dynamic: ÿ ARP ╟ IP MAC ‡'

all: IP MAC ‡

ð Ô

IP MAC ╖

ð ћu ҳ Ô

Â

ð ´ Ô

IP MAC ﻓﺦ ﺳﻢ ‡ ˘ IP MAC ╖ ≠ ╟ Â

ð Ô

ЮО ÿ ARP ╟ IP MAC ‡'

```
Ruijie# clear ipmacbind dynamic
```

ð Ô

40.2.5 show ipmacbind

IP MAC ƒ‰ ‡ Â

show ipmacbind table | hash | statistic

ð ¶ Ô

table: IP MAC ƒ‰ ‡

hash: IP MAC ƒ‰ ‡ Ÿ

statistic: IP MAC ƒ‰ ˆ ‰ ~

ð Ô

ð ћu ҳ Ô

Â

ð ´ Ô

ћu ҳ IP MAC ƒ‰ ‡ Â

ð Ô

ĦO IP MAC ƒ‰ ‡ '

```
Ruijie# show ipmacbind table
No.    Type   IP address    MAC address         Log
1      static 192.168.52.66    52e1.5d33.aa21   on
2      auto   192.168.52.50    112e.3ca4.3381   off
<-- output omitted -- >
```

ð Ô

40.3

40.3.1 ip ingress-filter

ŭ ¶ ¶ Â ћu ҳ no ¶ ¶ Â

ip ingress-filter log

no ip ingress-filter

ð ٩ Ô

log: ĭ

ð Ô

٩ ℸ

ð Ъu ҳ Ô

٩ Â

ð ´ Ô

ЮЎ ٩ ℸ ˘ ŭ ℸ ˘ ″l
Ъu ҳ Â a ℸ ˘ ⅃Ʊ Ъu ҳ no Â

ð Ô

Ю ŭ ٩ ℸ '

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

Ruijie(conf-if)# **ip ingress-filter log**

ð Ô

40.3.2 show ip ingress-filter

٩ ˆ ℸ ĭ ŭˇ ~ Â

show ip ingress-filter

ð ٩ Ô

ð Ô

٩ ℸ

ð Ъu ҳ Ô

Â

ð ´ Ô

ð Ô

Ю show ٩ ℸ '

Ruijie# **show**

```
Interface GigabitEthernet 1/0: log is on, blocked 0 flows
```

ð Ô

40.4 TCP SYN

40.4.1 ip tcp-intercept list

æ ʌ ⊥ Э ὖ TCP SYN ҳ ╖ Â Ћu ҳ no ╖ Â

ip tcp-intercept list *extended_ACL_#* {**in** | **out**} <**log**>

no ip tcp-intercept list *extended_ACL_#* {**in** | **out**} <**log**>

ð ʌ Ô

extended_ACL_#:

in | **out:** æ ʌ Э ⊥

log: ĭ

ð Ô

TCP SYN ҳ ╖

ð Ћu ҳ Ô

ʌ Â

ð ´ Ô

æ ʌ ⊥ Э ὖ TCP SYN ҳ ╖ Â

æ ʌ Ю Â

ð Ô

Ю æ eth 1/0 ⊥ Э TCP TCP SYN ҳ '

```
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

40.4.2 show ip tcp-intercept

TCP SYN ҳ Â

show ip tcp-intercept

ð ٩ Ô

ð Ô

ð Ћu ҳ Ô

Â

ð ´ Ô

Ћu ҳ TCP SYN ҳ

ў ↑ ' ҳ ˘ ҳ ˘

ð Ô

ЮО TCP SYN ҳ '

```
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

40.5 TCP

40.5.1 ip inspect name tcp

tcp ˜ ‡ˆ TCP Л ˜ Â Ћu ҳ no ‡ Â

ip inspect name *inspection_name* **tcp**

no ip inspect name *inspection_name* **tcp**

ð ٩ Ô

inspection_name: ‡ ⅄ ˇ ACL ⅄

ð Ô

ð Ћu ҳ Ô

Â

ð ´ Ô

ħυ ϗ tcp ‡

tcp ‡ ʃ ʌ Ɔ˘ **ip inspect** ħυ ϗ Â

tcp ‡ ˘ **show ip inspec**t ħυ ϗ Â

ð Ô

ĦO tcp ‡ tcp_inspec'

```
Ruijie(config)# ip inspect name tcp_inspec tcp
```

ð Ô

ip inspect name ħυ ϗ ʅ Â ≠ ﺧ

ϟ 1000ͨ ˘ 100

```
session-limit access-group 1 rate 100 concurrent 10000 in log
```

ð Ô

ħυ ϗ ϧ ϡ ϰ˘ ΐ ‡ a Â

ℸ ⁝ a Â

40.7

40.7.1 ip rate-control

ϫ ⁸ ℸ

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 ϟ Ô

*acl_no*ˈ ‡ ϟ

*rate*ˈ ˘ ´ Æ kBps

*session_no*ˈ ϟ

*rate_no*ˈ

ð Ô

a ⁸

ð ħυ ϗ Ô

ϰ Â

ð ´ Ô

⁸ ЭЮ й both

ħυ ϗ ϡ ϰ

ð Ô

200kBpsˇ ϟ 500 ˘ 100

```
ip rate-control 1 bandwidth both 200 session total 500 rate 100
```

ð Ô

Ђu ҳ ﾉ ﾎ ﾍ ǐ ‡ a Â

ℸ : a Â

40.8

40.8.1 ip session log-on

ˇ Ђu ҳ no Â

ip session log-on

no ip session log-on

ð ﾍ Ô

ð Ô

ò Ђu ҳ Ô

Â

ð ´ Ô

Ђu ҳ ℸ ˇ ﾉ ﾚﾙ ' à

à ˜ à ﾍ à ﾍ à Â

ð Ô

ЮO Ђu ҳ ℸ '

```
Ruijie(config)#ip session log-on
```

ð Ô

ˇ ﾍ ˇ ﾍ ﾓ à ﾚﾙ

ｆ ﾚ ﾓ ｉ Â

40.8.2 ip session timeout

ˇ Ђu ҳ no Â

Ђu ҳ й Ђu ҳˇ Ђu 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

no ip session timeout rawip-closed

no ip session timeout rawip-started

no ip session timeout rawip-connected

no ip session timeout rawip-established

ð ۴ Ô

timeout_value ˘ ´ Æ ѝ

ð Ô

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icmp-closed 10

icmp-started 10

icmp-connected 10

tcp-established 1800

tcp-syn-sent 10

tcp-syn-receive 10

tcp-fin-wait 60

tcp-time-wait 10

tcp-closed 10

tcp-close-wait 60

tcp-last-ack 30

udp-closed 10

udp-started 60

udp-connected 30

udp-established 600

rawip-closed 10

rawip-started 300

rawip-connected 300

rawip-established 300

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ЮЎ Ћυ ҳ icmp-connected ѝ 10 '

```
Ruijie(config)#ip session timeout icmp-connected 10
```

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40.8.3 ip session threshold

ˇ ⊥^ ↓ ~ ˇ Ћυ ҳ no

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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

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threshold_value ⊥ ˇ ´ Æ ѝ

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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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Ю ћυ ҳ icmp-started ↓ й 10 '

```
Ruijie(config)#ip session threshold icmp-started 10
```

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⁞ ˘ a ↓ Â

40.8.4 ip session track-state-strictly

ш ↑ TCP àICMP ˘
TCP ˆ SYN ↑ ~ à ⁞ ICMP a ↓ Ю Â
ћυ ҳ ш ╗ ˘ ћυ ҳ no ╗ Â

ip session track-state-strictly

no ip session track-state-strictly

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ћυ ҳ ш ╗ Â

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Ю ћυ ҳ ш ╗ '

```
Ruijie(config)#ip session track-state-strictly
```

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41 VPDN

41.1 VPDN

ð Ô

ЮЎ ѝ VPDN ╖ سم( )سم فخ Â

ð ħυ ϡ Ô

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LNS(L2TP) HGW(PPTP)╖ ˘ ⊿υ ħυ ϡ ɱή
⊿ سم فخ ѝ سم فخ Â ħυ ϡ ⊿
. سم جم ў ╟ ⁸ Â

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ɱή ⊿ سم فخ ѝ 192.168.12.223

```
Ruijie(config)# vpdn source-ip 192.168.12.223
Ruijie(config)#
```

41.1.3 vpdn session-limit

ħυ ϡ ɱή VPDN ╖ ˘ è **no**
Â

vpdn session-limit *sessions*

no vpdn session-limit

ð ¶ Ô

sessions ' VPDN ╖

ð Ô

ЮЎ ѝ ˘ è 36 ѝ 300 Â

ð ħυ ϡ Ô

ð ´ Ô

⊿ VPDN ⁝⌈ ˘ ⊿ ħυ ϡ
⁸ Â

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ɱή ⊿ ѝ 100

```
Ruijie(config)# vpdn session-limit 100
Ruijie(config)#
```

41.2 VPDN

41.2.1 clear vpdn tunnel

ħυ ३ ⁸ Â

clear vpdn tunnel [{**l2tp** | **pptp** }[*remote-host-name*]]

ð ৭ Ô

l2tp ' L2TP

pptp ' PPTP

remote-host-*name* ' ў ɻ

ð ħυ ३ Ô

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ħυ ३ ⁸ Â a ৭ ˘ ਸ ⁸ ⁂
(↑ PPTP б L2TP)' ~ ˘ ਸ ⁸
~ , ў ɻ ˘ ਸ ⁸ ~
ў ɻ ٦ ɻ Â

ð Ô

⁂ L2TP

```
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
1    1    BLIZZARD  est   192.168.12.213  1701  1  1
LocID     RemID     TunID     Username, Intf/
```

```
%CHANGED: Interface Virtual-Access1, changed state to
administratively down

Ruijie# show vpdn
%No active L2TP tunnels
%No active PPTP tunnels
Ruijie#
```

41.2.2 show vpdn

ħυ ϡ ɱ Э VPDN Â

show vpdn [**session | tunnel**]

ð ↰ Ô

session '

tunnel '

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à

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↲Ո ħυ ϡ ɱ Э VPDN Â a ↰ ɱ Э VPDN б Â

ð Ô

ɱ Э VPDN

```
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

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æ à ˘ ⊣ Л υ ħυ ҳ VPDN ⊣
… ⊣ Y ˚ à Ո ⁸ Â ∀ error à event à packet
VPDN ˜ ˆ L2TP Ո PPTP˜ Ω ˘ è ∀ ⊣ L2TP ˜ Â

ð Ô

… pptp Ո **debug vpdn event** Ю '

```
VPDN: Pptp recv start-control-connection-request from host
192.168.200.114
PPTP: New tunnel socket id =9
VPDN: Pptp get tunnel info for 192.168.200.114 ok!
VPDN: Pptp send start-control-connection-reply, ok
VPDN: Pptp tunnel id 0 state change: idle --> estbed
PPTP: Add send-echo-request timer, interval = 60
VPDN: Pptp tunnel id 0 recv outgoing-call-request!
Pptp: Tunnel to 192.168.200.114 get config para. from vpdn-group
pptp!
VPDN: Must process using ACCEPT_DIALIN parameters
Pptp: Session va0 get config para. from vpdn-group pptp!
VPDN: Pptp session va0 state change: idle --> connected
PPTP: Receive outcall request,process ok!assign local call id
= 1
VPDN: Pptp tunnel id 0 send out-call reply
%LINK CHANGED: Interface virtual-access 0, changed state to up
VPDN: Pptp tunnel to 192.168.200.114 peer callid 1 recv
set-linkinfo
VPDN: Pptp tunnel to 192.168.200.114 peer callid 1 recv
set-linkinfo
%LINE PROTOCOL CHANGE: Interface virtual-access 0, changed state
to UP
```

… pptp Ո **debug vpdn packet** Ю '

```
PPTP: I Start-Control-Connection-Request len 156 Magic Cookie
0x1A2B3C4D
Protocol Version 0x100
Framing Type 0x1
Bearer Type 0x1
Maximum Channels 0x0
Firmware Revision 0x893
Host Name:
endor String: Microsoft Windows NT
PPTP: O Start-Control-Connection-Reply len 156 Magic Cookie
0x1A2B3C4D
```

```
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
```

Л pptp . й ˇ **debug vpdn error** 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 ↓ (б) VPDN

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```
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
```

LNS ↓ (↑ б) **debug vpdn l2x-data** '

```
L2X: Punting to L2TP control message queue
L2X: Punting to L2TP control message queue
L2X: Punting to L2TP control message queue
L2X: Punting to L2TP control message queue
L2X: Punting to L2TP control message queue
L2X: Punting to L2TP control message queue
%UPDOWN: Interface Virtual-Access1, changed state to up
%UPDOWN: Line protocol on Interface Virtual-Access1, changed
state to up
```

L2TP **debug vpdn l2x-error** '

```
Tnl 14 L2TP: Tunnel auth failed for BLIZZARD
Tnl 14 L2TP: Expected
9E 8D 7A 8E 78 EA 41 9F A1 74 01 21 DE 4F F3 F0
Tnl 14 L2TP: Got
84 E5 62 69 AE 46 A5 98 4E FE E2 38 EE F2 B7 E2
```

LNS ↓ (↑ б) **debug vpdn l2x-events** '

```
L2TP: I SCCRQ from C3640 tnl 26656
New tunnel created for remote C3640, address 192.168.12.242
Tnl 0 L2TP: Got a challenge in SCCRQ, C3640
Tnl 20 L2TP: O SCCRP  to C3640 tnlid 26656
Tnl 20 L2TP: Control channel retransmit delay set to 1 seconds
Tnl 20 L2TP: Tunnel state change from idle to wait-ctl-conn
Tnl 20 L2TP: I SCCCN from C3640 tnl 26656
Tnl 20 L2TP: Got a Challenge Response in SCCCN, C3640
Tnl 20 L2TP: Tunnel Authentication success
Tnl 20 L2TP: Tunnel state change from wait-ctl-conn to
established
Tnl 20 L2TP: SM State established
Tnl 20 L2TP: I ICRQ from C3640 tnl 26656
Tnl/Sn 20/1 L2TP: Accepted ICRQ, new session created
Tnl/Sn 20/1 L2TP: O ICRP to C3640 26656/1279
Tnl/Sn 20/1 L2TP: Session state change from idle to wait-connect
Tnl 20 L2TP: Control channel retransmit delay set to 1 seconds
Tnl/Sn 20/1 L2TP: I ICCN from C3640 tnl 26656, cl 1279
Tnl/Sn 20/1 L2TP: Session state change from wait-connect to
wait-for-service-sel
ection-iccn
```

```
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 ↓ (↑ б) **debug vpdn l2x-packets** '

```
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 22 L2TP: I ICRQ, flg TLS, ver 2, len 48, tnl 22, ns 2, nr
1 contiguous pak,size 48
C8 02 00 30 00 16 00 00 00 02 00 01 80 08 00 00
00 00 00 0A 80 0A 00 00 00 0F 99 CD C7 86 80 08
00 00 00 0E 05 00 80 0A 00 00 00 12 00 00 00 00
Tnl/Sn 22/1 L2TP: O ICRP to C3640 18889/1280
Tnl/Sn 22/1 L2TP: O ICRP, flg TLS, ver 2, len 28, tnl 18889,
lsid 1, rsid 1280,ns 1, nr 3
C8 02 00 1C 49 C9 05 00 00 01 00 03 80 08 00 00
00 00 00 0B 80 08 00 00 00 0E 00 01
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889,
ns 2, nr 3
C8 02 00 0C 49 C9 00 00 00 02 00 03
Tnl/Sn 22/1 L2TP: I ICCN from C3640 tnl 18889, cl 1280
```

```
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
```

42 VPDN-Group

42.1 VPDN-Group

42.1.1 accept dialin

ħυ ҳ й ↓ ˘ è **no** Â

accept-dialin

no accept-dialin

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VPDN-Group ↑

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ЮЎ й VPDN-Group Â
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↑ Â ħυ ҳ ↓ . ѕм јм ў ╟
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й ↓

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn)#
```

42.1.2 ip precedence

ħυ ҳ IP ˝I ѓЎ è **no** Â

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

no ip precedence

ð ↑ Ô

precedence-value ' ˝I ѓ Ў ↓ тп й 0~7

critical ' ˝I ѓ й 5

flash' ″I ⎓ ϰ 3

flash-override' ″I ⎓ ϰ 4

immediate ' ″I ⎓ ϰ 2

internet ' ″I ⎓ ϰ 6

network ' ″I ⎓ ϰ 7

priority ' ″I ⎓ ϰ 1

routine ' ″I ⎓ ϰ 0

ð Ô

ЮЎ IP ″I ⎓ ϰ . **routine** Â

ð ħu ٹ Ô

VPDN-Group ٨

ð ´ Ô

″I ٤ Л∪ ħu ٹ Â ħu ٹ
. ⁝ ˘ a ў ╟ ⁸ Â

ð Ô

″I ϰ 7 Â

```
Ruijie(config-vpdn)# ip precedence 7
Ruijie(config-vpdn)#
```

42.1.3 ip tos

ħu ٹ IP TOS(Type of Service)⎓˘ è **no**
Â

ip tos { *tos-value* | **max-reliability** | **max-throughput** | **min-delay** | **min- monetary-cost** | **normal** | **reflect** }

no ip tos

ð ٨ Ô

tos-value ′ TOS ⎓ ˘ ٤ تن ϰ 0~15

max-reliability ' TOS ⎓ ϰ 2

max-throughput ' TOS ⎓ ϰ 4

min-delay ' TOS ⎓ ϰ 8

min-monetary-cost ' TOS ⎓ ϰ 1

normal ' TOS ⎓ ϰ 0

reflect ' IP ↑ TOS й IP TOS

ð Ô

Ю˘ IP TOS й Â

ð ħu ʒ Ô

VPDN-Group ٨

ð ´ Ô

TOS ٦Л ħu ʒ Â ħu ʒ
. ! ˘ a ў ╟ ⁸ Â

ð Ô

TOS й **min-delay** Â

```
Ruijie(config-vpdn)# ip tos min-delay
Ruijie(config-vpdn)#
```

42.1.4 local name

ħu ʒ ѕѫ ў ɻ ˘ è **no** Â

local name *local-hostname-string*

no local name

ð ٨ Ô

local-hostname-*string* ' ѕѫ ў ɻ

ð Ô

Ю˘ Ы ɻ й ѕѫ ў ɻ Â

ð ħu ʒ Ô

VPDN-Group ٨

ð ´ Ô

٦Лѿ Ы Э ѕѫ ў ɻ Л Â ħu ʒ
٦ . ѕѫѿ ў ╟ ⁸ Â

ð Ô

ѕѫ ў ɻ й”LNS”

```
Ruijie(config-vpdn)# local name LNS
Ruijie(config-vpdn)#
```

42.1.5 protocol

ħυ ҳ ˜ Â ħυ ҳ **no**

ð ħu ɜ Ô

VPDN-Group ʌ

ð ´ Ô

VPDN ╖ ѫ ( )PDN

ħu ҳ ɱή VPDN-Group ٨˘ è **no**
Â

virtual-template *number*

no virtual-template

ð ٨ Ô

number ' ٨ /٨

ð Ô

ЮЎ ٨¦ VPDN-Group Э Â

ð ħu ҳ Ô

VPDN-Group ٨

ð ´ Ô

٦ Л∪ ħu ҳ VPDN-Group ٨ ÿ ā
٨ ٨ Â VPDN-Group
٨ Â VPDN- Group ٨
VPDN-Group

ϰ ΄Ι LNS HGW΅ … VPDN-Group
ϟ Â ϫ Λυ ħυ ϡ VPDN-Group ϟ ÂVPDN-Group ϟ
Ϊ ϶ ў ╟ ⁸ Â

ð Ô

… ϫ ϋ ”1” vpdn-group ϟ

```
Ruijie(config)# vpdn-group 1
Ruijie(config-vpdn)#
```

43 PPTP

43.1 PPTP

43.1.1 Pptp flow-control receive-window

ħυ ϗ ⅎ pptp ᵹ ᶩ ack ɱ ϟ
˘ ὶ ϟ˘ è **no** Â

Pptp flow-control receive-window *packets*

echo-packet-interval ' pptp echo request ϟ ˘ Ʌυ
ϧ´ Æ Â ϟ ىن 0---1000 Â

ð Ô

ϧ 60 Â

ð Ħυ ϗ Ô

vpdn-group

ð ´ Ô

PPTP ˜ ж Ħυ ϗ˘ Ʌυ ¨I **protocol pptp**
protocol any Ħυ ϗ Ʌ˘ Ո Ħυ ϗ Â
echo-packet-interval ϧ 0 ˘ a ў ╠ ϟ echo Â

echo-packet-interval a ϧ 0 ˘ PPTP ѫ *echo-packet-interval*
ſ Ʌ ˜ ˘ ‡ ў ╠ ϟ
echo request Ʌυ ˘ **echo reply**
Â ϧ 1 ˘ ˘ ‡ . ϟ γ
echo request˘ ѫ ґ ѩ Э ˘
Â 5 a ſ **echo reply** ‡ ϧ ˘
ϟ ѐ ↑ Ü Â

ð Ô

pptp echo request ϧ 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 30
Ruijie(config-vpdn)#
```

44 L2TP

44.1 L2TP

44.1.1 authentication (L2TP)

Ħυ ϗ ΰ ╖ ˘ è **no** Â

authentication

no authentication

ð Ô

ĦØ˘ ╖ Â

ð Ħυ ϗ Ô

L2TP-Class ϟ

ð ´ Ô

ϟ Ʌυ ΰ ╖ Â ╖ ϟ
L2TP-Class ў ╠ ⁸ Â

ð Ô

ΰ ╖

```
Ruijie(config-l2tp-class)# authentication
Ruijie(config-l2tp-class)#
```

ð Ħυ ϗ Ô

Ħυ ϗ	

l2tpv2 RFC 2661 L2TP Â

ð Ô

ЮЎ æ Â

ð ħυ ϡ Ô

Pseudowire-Class ϰ

ð ´ Ô

æ pseudowire-class ϰ Э˘ ˝I
ϰ Â

ð Ô

ѝ l2tpv2

```
Ruijie(config-pw-class)# encapsulation l2tpv2
Ruijie(config-pw-class)#
```

44.1.3 hello

ħυ ϡ ѝ L2TP Keepalive ϟ Hello ϟ Â ħυ ϡ **no** Â

hello *interval*

no hello

ð ϰ Ô

interval ' Hello ϟ

ð Ô

ЮЎ Hello ϟ ѝ 60 Â

ð ħυ ϡ Ô

L2TP-Class ϰ

ð ´ Ô

ϟ Л Hello ϟ Л L2TP ĭ ϟ Â
ϟ ˘ ϟ Л Hello ϟ ѝ Â Hello
ϟ ϟ æ L2TP ў ╠ ⁸ Â

ð Ô

Hello ϟ ѝ 120

```
Ruijie(config-l2tp-class)# hello 120
```

```
Ruijie(config-l2tp-class)#
```

44.1.4 hostname (L2TP)

ħυ ҳ L2TP ₈ ₩ ﷺ Å ὸ ヽ Ά 5 ,Õ ™ ‰ ß È2Ï4³ S*üCÃ+ <,X á/Ä 0

ɻ Л∪ ĭ ɻ Â ɻ ╗
╟ . ɻ ɻ Э˘ a L2TP
8 Â

ð Ô

ɻ ɻ

```
Ruijie(config-pw-class)# ip dfbit set
Ruijie(config-pw-class)#
```

44.1.6 ip local interface

Ъu ҳ ѫ( ) ɳ˘ è **no** Â

ip local interface *interface-name*

no ip local interface *interface-name*

ð ɳ Ô

interface-name ' ѫ ɳ ɻ

ð Ô

Ю˘ ѫ( ) ɳ Â

ð Ъu ҳ Ô

Pseudowire-Class ɳ

ð ´ Ô

ɻ Л∪ Ɣ Э ɳ й ѫ( ) ɳ Â ѫ( )
ɳ ɻ L2TP ў ╟ 8 Â

ð Ô

ѫ( ) ɳ й Serial 0

```
Ruijie(config-pw-class)# ip local interface serial 0
Ruijie(config-pw-class)#
```

44.1.7 ip ttl

Ъu ҳ IP TTL ѭ˘ è **no** Â

ip ttl *ttl-value*

no ip ttl

ð ɳ Ô

ttl-value ' TTL ꯍ ˘ ৸ ন ท 1~255

ð Ô

44.1.9 l2tp tunnel authentication

Þu ¾ ß̈ ╖ ˘ è **no** Â

l2tp tunnel authentication

no l2tp tunnel authentication

ð Ô

ð Ô

Hello ɬ ѝ 30

```
Ruijie(config-vpdn)# l2tp tunnel hello 30
Ruijie(config-vpdn)#
```

44.1.11 l2tp tunnel password

ƫυ ȝ ʌ ȝˇ è **no** ʌ ȝ Â

l2tp tunnel password *password-string*

no l2tp tunnel password

ð ʅ Ô

password-string ' ʌ ȝ

ð Ô

ƗƠˇ ʌ ȝ Â

ð ƫυ ȝ Ô

VPDN-Group ʌ

ð ´ Ô

ˇ ȣ ч ǔ ╖ ┘
ʌ ȝ Â ʌ ȝ ┘ L2TP ⁸
ў ╟ Â

ð Ô

ʌ ȝ ѝ ”share”

```
Ruijie(config-vpdn)# l2tp tunnel password share
Ruijie(config-vpdn)#
```

44.1.12 l2tp tunnel receive-window

ƫυ ȝ ⁸ ↓ ʌ ˇ è **no** Â

l2tp tunnel receive-window *size*

no l2tp tunnel receive-window

ð ʅ Ô

size ' ⁸ ↓ ʌ

ð Ô

ЮЎ 8 ↓ ↰ й 4 Â

ð ħυ ҳ Ô

VPDN-Group ↰

ð ´ Ô

8 ↓ ↰ ↓ L2TP
8 Â

ð Ô

8 ↓ ↰ й 12

```
Ruijie(config-vpdn)# l2tp tunnel receive-window 12
Ruijie(config-vpdn)#
```

44.1.13 l2tp tunnel retransmit

ħυ ҳ 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

ЮЎ 8 й 5˜ 8 й 1 ˘
й 8 Â

ð ħυ ҳ Ô

VPDN-Group ↰

ð ´ Ô

8 ↰ L2TP 8 ў
╟ Â

ð Ô

8 й 10

```
Ruijie(config-vpdn)# l2tp tunnel retransmit retries 10
Ruijie(config-vpdn)#
```

ЮЎ L2TP-Class ٨ Â

ð Ъu ҙ Ô

ð ´ Ô

٦ Л∪ L2TP-Class L2TP ⁸ ٨ Â

ð Ô

… ٦ ѝ ”l2x” L2TP-Class ٨

```
Ruijie(config)# l2tp-class l2x
Ruijie(config-l2tp-class)#
```

44.1.16 password (L2TP)

Ъu ҙ ٨ ҙ˘ è **no** Â

password *password-string*

no password

ð ٩ Ô

password-string 9 B 7 > T j / T T 0 1 T f 9

٦ ЮЎ ٨

protocol l2tpv2 [*l2tp-class-name*]

no protocol

ð ٩ Ô

l2tpv2 ' L2TP й ~

l2tp-class-name ' L2TP-Class ٩ ل

ð Ô

Ю˘ L2TPv2 й L2TP ~ Â

ð ћu ҳ Ô

Pseudowire-Class ٩

ð ´ Ô

⁸ ٩ ل L2TP ⁸ ў ╟ Â

ð Ô

~ й l2tpv2 L2TP-Class l2x ⁸ ٩

```
Ruijie(config-pw-class)# protocol l2tpv2 l2x
Ruijie(config-pw-class)#
```

44.1.18 pseudowire

ћu ҳ pseudowire ‡˘ è **no** Â

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

no pseudowire

hostname ٩ **pseudowire**

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

no pseudowire

ð ٩ Ô

peer-ip-address ' L2TP Server(LNS)فذسه

peer-hostname' L2TP Serverˆ LNS˜ جم DNS Э Ä Ո ѐ فذسه hostname

vcid ' **pseudowire**

l2tpv2 ' l2tpv2(RFC 2661) й ~

pw-class-name ' pseudowire-class ´ ĩ ɹ

ð Ô

ĦØ̆ pseudowire ‡ Â

ð ħυ ϗ Ô

ϰ

ð ´ Ô

pseudowire ‡ ϰ ج virtual-ppp ϰ Э Â virtual-ppp ϰ Э
pseudowire ‡ ɻ L2TP ⁸ ў ╠ Â

ð Ô

ج virtual-ppp ϰ Э pseudowire ‡˘ è LNS سفذ ѝ 192.168.12.213
pseudowire-class ϰ ”pw”

```
Ruijie(config)# interface virtual-ppp 1
Ruijie(config-if)# pseudowire 192.168.12.213 33 pw-class pw
Ruijie(config-if)#
```

hostname '

DNS ᴸ˘ DNS ᴸ لا سفذ˘ ˛ ᴸ لا

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 negotiate

ip route 0.0.0.0 0.0.0.0 192.168.52.1

44.1.19 pseudowire-class

ħυ ϡ ɻ pseudowire-class ʌ ˇ a ҿ ɻ
pseudowire- class ʌ … Ո ɻ ѝ ɻ

ð ħυ ϡ Ô

L2TP-Class ϰ

ð ´ Ô

⁸ ↓ ϰ ↓ L2TP ⁸ ў
╟ Â

ð Ô

⁸ ↓ ϰ й 12

```
Ruijie(config-l2tp-class)# receive-window 12
Ruijie(config-l2tp-class)#
```

44.1.21 retransmit

ħυ ϡ ⁸ ϰ ˘ ὲ **no** Â

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

no retransmit { ₽ **1Gnitialretrie**

```
Ruijie(config-l2tp-class)# retransmit initial retries 3
Ruijie(config-l2tp-class)#
```

44.1.22 timeout setup

Ћυ ٶ ⁸ ˘ è **no**
Â

timeout setup *seconds*

no timeout setup

ð ٩ Ô

seconds ' ⁸ ˘ ´ Æ ѝ

ð Ô

Ю˘ ⁸ ѝ 120 Â

ð Ћυ ٶ Ô

L2TP-Class ٩

ð ´ Ô

⁸
L2TP ⁸ ў ╟ Â

ð Ô

⁸ ѝ 240

```
Ruijie(config-l2tp-class)# timeout setup 240
Ruijie(config-l2tp-class)#
```

45

ЮO ⊮ AAA Enable Â ″I ゟ

ŭ AAA Ĺ˘ AAA Login ˜ ڷ Â
aaa authentication login ħυ ϗ ϟ
Login Â

ϟ ɱ ϟ ˘ ϳ Â

Login ϳ˘ è ح Login Ə˘ ĭ
‡ a Â

ð Ô

Ю ⱷ ϳ ŕ list-1 AAA Login Â ″I
RADIUS Ĺ ˘ RADIUS Ĺ ϟ ˘ ‡
ѕ Â

```
Ruijie(config)# aaa authentication login list-1 group radius
local
```

ð ħυ ϗ Ô

ħυ ϗ	
aaa new-model	AAA Ĺ
username	ⱷ ѕ
login authentication	ح Ə Login

45.1.3 aaa authentication ppp

AAA PPP ˘ ħυ ϗ **aaa authentication ppp**
PPP Â ħυ ϗ no ĩ Â

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

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

ð ϟ Ô

default ' ϟ ˘ ‡ ϳ ⱷ ŕ PPP Â

list-name ' ⱷ PPP ˘ ϟ Ո Â

method ' Ю ˘ 4 '

local	ѕ ϳ
none	a

group	ᒪ ᔦ ˇ ɱ RADIUS ᒪ ᔦ

ð Ô

ð ħu ϗ Ô

Â

ð ´ Ô

ΰ AAA PPP ᒪˇ AAA PPP ˜ ك Â
aaa authentication ppp ħu ϗ ᔧ PPP Â

ᔧ ɱ ᔧ ˇ ᔪ Â

ð Ô

ĦO ĦՋ ᔪ ᕯ rds_ppp AAA PPP Â ″I
RADIUS ᒪ ᔦ ˇ RADIUS ᒪ ᔦ ᔧ ˇ ‡
ѕѕ Â

```
Ruijie(config)# aaa authentication ppp rds_ppp group radius
local
```

ð ħu ϗ Ô

ħu ϗ	
aaa new-model	AAA ᒪ
ppp authentication	PPP ˜
username	ĦՋ ѕѕ

45.1.4 login authentication

ѧ Э Logiñ ˜ ℼ ˇ ѧ ĦO **login authentication** ħu ϗ Login Â ħu ϗ no ĩ ѧ Э Â

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

no login authentication

ð ᔭ Ô

default ' ᔭ ˇ Login Â

list-name ' ћѫ Login Â

ð Ô

ð ћυ ϟ Ô

Â

ð ´ Ô

Login ˘ ╟ ˛ Э Â ج Э
Login ˘ ۷ ϟ Â في ћѫ
˘ ‡ ˆ ˘ Э Login a ˘ ћѫ
Login Â

ð Ô

Ю ћѫ ۸ ѝ list-1 AAA Login Â
ѩ Â ۸ ج VTY 0 - 4 Э Â

```
Ruijie(config)# aaa authentication login list-1 local
Ruijie(config)# line vty 0 4
Ruijie(config-line)# login authentication list-1
```

ð ћυ ϟ Ô

ћυ ϟ

ð ۹ Ô

level ' ħυ ҙ ⁞ˇ تن 0~15˜ ā ف ⁞ ħυ ҙ ⁄
Â

default defau325532A

45.2.2 aaa authorization config-commands

AAA ˆ ↑ ⊣ è ˜ ЮЂ ħυ ३ ˘
ħυ ३ **aaa authorization config-commands** Â ħυ ३ no AAA
ЮЂ ħυ ३ ╖ Â

aaa authorization config-commands

no aaa authorization config-commands

ð ↰ Ô

ħυ ३ ↰ Â

ð Ô

a ЮЂħυ ३ Â

ð ħυ ३ Ô

Â

ð ´ Ô

↲ ˆ ˜ ЮЂ ħυ ३ ˘ ↲ Л∪ ħυ ३ no
╖ ˘ ‡ ⊣ è ЮЂ ħυ ३ a ħυ ३
↲ Л∪ Â

ð Ô

ЮЂ ЮЂħυ ३ ╖ '

```
Ruijie(config)# aaa authorization config-commands
```

ð ħυ ३ Ô

ħυ ३	
aaa new-model	AAA ┺
aaa authorization commands	ЂЖ AAA ħυ ३

45.2.3 aaa authorization console

AAA ⁸ ↲ ˘ ħυ ३ ˘ ħυ ३
aaa authorization console Â ħυ ३ no AAA ⁸ ↲
ħυ ३ ╖ Â

aaa authorization console

no aaa authorization console

ð ٩ Ô

ħυ ϡ ٩ Â

ð Ô

a ⁸ ٨ ħυ ϡ Â

ð ħυ ϡ Ô

Â

ð ´ Ô

Ш ⁸ ٨ Ո ὲ ˘ ٫ Ո ⁸ ٨
˘ ï ħυ ϡ Â ⁸ ٨ ħυ ϡ ╖ ˘ ‡ ˚
⁸ ٨ ħυ ϡ a Â

ð Ô

Ю ⁸ ٨ ħυ ϡ ╖ '

```
Ruijie(config)# aaa authorization console
```

ð ħυ ϡ Ô

ħυ ϡ	
aaa new-model	AAA Ŀ
aaa authorization commands	Ⱨ AAA ħυ ϡ
authorization commands	₰ Э ħυ ϡ

45.2.4 aaa authorization exec

AAA ˚ NAS CLI Exec ˘ ὲ ⁞˘
ħυ ϡ **aaa authorization exec** Â ħυ ϡ no AAA Exec
╖ Â

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

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

ð ٩ Ô

default ' ٩ ˘ ‡ ٨ Ⱨ ὶ Exec Â

list-name ' Ⱨ Exec ˘ ٫ Ո Â

method ' Ю ˘ 4 '

local	ѕѡ ⅃
none	a
group	⊧ ⅄ ˇ ɱ RADIUS ∩ TACACS+ ⊧ ⅄

ð Ô

AAA Exec ╖ Â

ð ħυ ϛ Ô

Â

ð ´ Ô

⁞ NAS

ð ٩ Ô

default ' ٩ ˘ ‡ ﻠ ﻫ ﻫ ﻫ Network Â

method ' ﻫ ˘ 4 '

none	a
group	ﻫ ﻫ ˘ ﻫ RADIUS ﻫ ﻫ

ð Ô

AAA Network ﻫ Â

ð ħυ ϗ Ô

Â

ð ´ Ô

ﻫ PPP à SLIP ˜ Â
˘ ‡ ﻫ ﻫ Â

ﻫ ﻫ Ь a ﻫ ˘ б ˘ ﻫ ﻫ ﻫ ˘
ﻠ ˘ ﻫ ˘ ‡ a Ä è ﻠ
Â

RADIUS ﻫ ﻫ ﻫ Â ﻫ
RADIUS ﻫ RADIUS ﻫ Э ˘ ﻫ RADIUS
ﻫ ﻫ RADIUS Â

ð Ô

ﻫ RADIUS ﻫ ﻫ '

```
Ruijie(config)# aaa authorization network default group radius
```

ð ħυ ϗ Ô

ħυ ϗ	

ħυ ϡ ج Ɔ˘ ħυ ϡ **authorization commands** Â ħυ ϡ no ↓ Ɔ ħυ ϡ ╖ Â

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

no authorization commands *level*

ð ↰ Ô

level ' ħυ ϡ ⁞˘ تن 0~15˜ ā ف ⁞ ħυ ϡ ∧ Â

default ' ↰ ˘ ħυ ϡ Â

list-name ' ⊮ ħυ ϡ Â

ð Ô

AAA ħυ ϡ ╖ Â

ð ħυ ϡ Ô

Â

ð ´ Ô

ħυ ϡ ˘ ╟ ↑ Ɔ Â ج Ɔ ħυ ϡ ˘ ↓ ϡ Â في ⊮ ˘ ‡ ˆ ˘ Ɔ ħυ ϡ a ˘ ⊮ ħυ ϡ Â

ð Ô

Ю ∧ и cmd ħυ ϡ ˘ 15 ħυ ϡ ˘ TACACS+ и ┺ ⅄˘ ┺ ⅄ : none Â ∧ ↑ VTY 0 – 4 Ɔ'

```
Ruijie(config)# aaa authorization commands 15 cmd group tacacs+
none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization commands 15 cmd
```

ð ħυ ϡ Ô

ħυ ϡ	
aaa new-model	AAA ┺
aaa authorization commands	⊮ AAA ħυ ϡ

45.2.7 authorization exec

Exec ЋЭ Э˘ ЂU Є **authorization exec** Â ЂU Є no ЎЌ Э Exec ЋЋ Â

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

no authorization exec

ð ЎЌ Ô

default ' ЎЌ ˘ Exec Â

list-name ' ЂЖ Exec Â

ð Ô

AAA Exec ЋЋ Â

ð ЂU Є Ô

Â

ð ´ Ô

Exec ˘ ╠ ĵ Э Â Ћ Э Exec ˘ ЎЌ Є Â ЂЖ ˘ ‡ ˜ ˘ Э Exec a ˘ ЂЖ Exec Â

ð Ô

ЮО ЈЙ exec-1 Exec ˘ RADIUS Й ЬЛ˘ ЬЛ : none Â Ј ĵ VTY 0 – 4 Э'

```
Ruijie(config)# aaa authorization exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization exec exec-1
```

ð ЂU Є Ô

ЂU Є	
aaa new-model	AAA Ь
aaa authorization commands	ЂЖ AAA Exec

45.3

45.3.1 aaa accounting commands

ǁ ˇ ˆ NAS Ɔ ƫ ɂ ǁ ˇ
ƫ ɂ **aaa accounting commands** Â ƫ ɂ no ɻ ƫ ɂ
ȶ Â

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

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

ð ɻ Ô

level ' ƫ ɂ ¦ˇ ت 0~15 ā ف ¦ ƫ ɂ ˇ
Â

default ' ɻ ˇ ‡ ɹ Ƙ ƞ ƫ ɂ Â

list-name ' Ƙ ƫ ɂ ˇ ɻ ɅƱ Â

method ' Ю ˇ 4 '

none	a
group	Ŀ ɭ ˇ ɱ TACACS+ Ŀ ɭ

ð Ô

ȶ

ð ƫ ɂ Ô

Â

ð ´ Ô

ɻ ƕ ɹˇ ŭ ƫ ɂ ȶ ˇ
ƞ none ˇ ‡ a ƫ ɂ Â ŭ ȶ ɹˇ ƕ
¦ ƫ ɂ ɹˇ ƫ ɂ ˇ ɻ Ŀ ɭ Â

ƫ ɂ ɹˇ è ƕ ƫ ɂ Ɔˇ ĭ ‡
a Â

ð Ô

Ю TACACS+ ƫ ɂ ˇ ƫ ɂ ¦
ƞ 15 '

```
Ruijie(config)# aaa accounting commands 15 default start-stop
group tacacs+
```

ð ƫ ɂ Ô

ƫ ɂ	

aaa new-model	AAA ⊾
aaa authentication	⊮ AAA

Ю RADIUS NAS ╟ ˘ ⌂ Ո ┤

'

```
Ruijie(config)# aaa accounting exec default start-stop group
radius
```

ð Ħυ ϗ Ô

Ħυ ϗ	
aaa new-model	AAA Ŀ
aaa authentication	Ⱨ AAA
accounting commands	⌂ Э Exec

45.3.3 aaa accounting network

╟˘ ╟ ˘

Ħυ ϗ **aaa accounting network** Â Ħυ ϗ no ┤ ╖ Â

aaa accounting network {**default** | *list-name*} **start-stop group radius**

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

ð ┐ Ô

network ' Ŀ ˘ ↑ DOT1X˝ PPP Â

resource ' Â

list-name ' ɹ Â

start-stop ' ⌂ ╟ Ո ɮ ┤ ˘
Ĭ ╖ Ŭ ˘ Â

group ' Ŀ ⅄

radius ' RADIUS Ŀ ⅄

ð Ô

╖

ð Ħυ ϗ Ô

Â

ð ´ Ô

Ŀ ⅄ ┤ ╟ Â

start-stop˝ ⁸ Â

ð Ô

ĦO RADIUS

ð ħυ ϟ Ô

ħυ ϟ	
aaa new-model	AAA Ł
aaa accounting network	ħ

45.3.5 aaa accounting update periodic

ΰ ΐ ˘ ħυ ϟ **aaa accounting update periodic** ħυ ϟ˘ ħυ ϟ Â ħυ ϟ no Â

aaa accounting update periodic *interval*

no aaa accounting update periodic

ð ϥ Ô

interval ' ˘ Ʌυ¦ ϶ ´ Æ˘ ϶ 1¦ Â

ð Ô

5 minutes Â

ð ħυ ϟ Ô

Â

ð ´ Ô

ΰ AAA Ł˘ ‡ a Â ΰ AAA Ł˘ ‡ ħυ ϟ Â

ð Ô

ΗΟ 1¦ Â

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
Ruijie(config)# aaa accounting update periodic 1
```

ð ħυ ϟ Ô

ħυ ϟ	
aaa new-model	AAA Ł
aaa accounting network	ħ

45.3.6 accounting commands

ƫυ ϗ ج Ɔ˘ ƫυ ϗ **accounting commands** Â ƫυ ϗ no ٧ Ɔ ƫυ ϗ ╖ Â

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

no accounting commands *level*

ð ٧ Ô

level ' ƫυ ϗ ⁞˘ تن 0~15˘ ā ف ⁞ ƫυ ϗ Â

default ' ٧ ˘ ƫυ ϗ Â

list-name ' ⱨ ƫυ ϗ Â

ð Ô

╖

ð ƫυ ϗ Ô

Â

ð ´ Ô

ƫυ ϗ ˘ ╟ ˛ Ɔ Â ج Ɔ
ƫυ ϗ ˘ ٧ ϗ Â في ⱨ ˘
‡ ˆ ˘ Ɔ ƫυ ϗ a ˘ ⱨ ƫυ ϗ
Â

ð Ô

Ю ٫ ѝ cmd ƫυ ϗ ˘ 15 ƫυ ϗ ˘
TACACS+ ѝ ⊧⊻˘ ⊧⊻ ː none Â ٫ ˛
VTY 0 – 4 Ɔ'

```
Ruijie(config)# aaa accounting commands 15 cmd group tacacs+
none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# accounting commands 15 cmd
```

ð ƫυ ϗ Ô

ƫυ ϗ	
aaa new-model	AAA ⊧
aaa accounting commands	ⱨ AAA ƫυ ϗ

45.3.7 accounting exec

Exec ह Ɔ˘ ħυ ३ **accounting exec** Â ħυ ३ no ४ Ɔ Exec ╖ Â

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

no accounting exec

ð ५ Ô

default ' ५ ˘ Exec Â

list-name ' ⊮ Exec Â

45.4.1 aaa group server

AAA ᴸ ⅄ Â ħυ ϛ no ΐ Ȯ ﻓﺨ !

ð Ô

ð ƫυ ɮ Ô

ᴸ ɻ Â

ð ´ Ô

ѝ ᴸ ɻ vrf Â

ð Ô

ƗO Â

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf-name
Ruijie(config-gs-radius)# end
```

ð ƫυ ɮ Ô

ƫυ ɮ	
aaa group server	aaa ᴸ ɻ
show aaa group	aaa ᴸ ɻ

45.4.3 server

╗ AAA ᴸ ɻ ᴸ ɻ˘ no ╛ Â

server *ip-address* [**auth-port** *port1*] [**acct-port** *port2*]

no server *ip-address* [**auth-port** *port1*] [**acct-port** *port2*]

ð ٩ Ô

ip-address ' ᴸ ɻ ip فخ سه

port1 ' ᴸ ɻ ٨ˆ RADIUS ᴸ ɻ ~

port2 ' ᴸ ɻ ٨ˆ RADIUS ᴸ ɻ ~

ð Ô

ᴸ ɻ

ð ƫυ ɮ Ô

ᴸ ɣ Â

Ю '

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication attempts 6
```

ð ħυ ϟ Ô

ħυ ϟ	
show running-config	ɱ
show aaa lockout	ɱ login ٧

45.5.2 aaa local authentication lockout-time

login ˘

aaa local authentication lockout-time *lockout-time*

ð ٧ Ô

lockout-time ˆ ´ Æ' ˜˜ ٧ ىن 1~2147483647

ð Ô

ы 15

ð ħυ ϟ Ô

Â

ð ´ Ô

login ˘

ð Ô

Ю '

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication lockout-time 5
```

ð ħυ ϟ Ô

45.5.3 aaa new-model

AAA ┗╖ ˘ ħu ɮ **aaa new-model** AAA Â ħu ɮ **no** AAA ┗ Â

aaa new-model

no aaa new-model

ð ↰ Ô

ħu ɮ ↰ Â

ð Ô

AAA ┗

ð ħu ɮ Ô

Â

ð ´ Ô

ħu ɮ AAA ħu ɮ˘ AAA ┗˘ **aaa new-model** AAA ┗ Â ŭ AAA˘ ‡ AAA ħu ɮ a ↓ Â

ð Ô

ĦO AAA ┗ Â

```
Ruijie(config)# aaa new-model
```

ð ħu ɮ Ô

ð Ô

ð ƫυ ϗ Ô

Â

ð ´ Ô

˘ ˩ ΠU ≠ ˩ ΠU

ð Ô

ƗO '

Ruijie# **clear aaa local user lockout all**

ð ƫυ ϗ Ô

ƫυ ϗ	
show running-config	ɱɲ
show aaa lockout	ɱɲ login ϟ

45.5.5 debug aaa

AAA Ł Â ƫυ ϗ **no** Â

debug aaa event

no debug aaa event

ð ϟ Ô

ϟ Â

ð ƫυ ϗ Ô

EXEC Â

45.5.6 show aaa method-list

AAA Â

show aaa method-list

ð ϟ Ô

ƫυ ϗ ϟ Â

ð Ô

ð ƫu ɮ Ô

Â

ð ´ Ô

ƫu ɮ AAA Â

ð Ô

ƗO AAA Â

```
Ruijie# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local  group angel group rain
none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorizating network default group radius
```

ð ƫu ɮ Ô

ƫu ɮ	
aaa authentication	ƗƘ
aaa authorization	ƗƘ
aaa accounting	ƗƘ

45.5.7 show aaa user lockout

ɲń Â

show aaa user lockout {**all** | **user-name** <*word*>}

ð ɳ Ô

<*word*>' ID

ð Ô

ð ƫu ɮ Ô

Â

ð ´ Ô

ɱ ˘ Ʌυ ˥ Â

ð Ô

ĦO '

```
Ruijie# show aaa user lockout all
```

ð Ħυ ϡ Ô

Ħυ ϡ	
show running-config	ɱ
show aaa lockout	ɱ login ˬ

46 RADIUS

46.1 RADIUS

46.1.1 ip radius source-interface

radius ﻓﺪ ﺳﻪ ħυ ३ **ip radius source-interface** Â
ħυ ३ **no** ĩ

46.1.2 radius-server host

RADIUS Ь Л ў ˘ Ъу ъ **radius-server** Â Ъу ъ **no** ї RADIUS Ь Л ў Â

radius-server host {*hostname* | *ip-address*} [**auth-port** *port-number*] [**acct-port** *port-number*]

no radius-server host {*hostname* | *ip-address*}

ð ч Ô

Hostname: RADIUS Ь Л ў DNS ѕ Â

ip-address: RADIUS Ь Л ў IP فذ سم Â

auth-port: RADIUS UDP ч

port-number: RADIUS UDP ч ѓ˘ й Ơ ‡ ў a Â

acct-port: Radius UDP ч

port-number: RADIUS UDP ч ѓ˘ й Ơ ‡ ў a Â

ð Ô

RADIUS ў Â

ð Ъу ъ Ô

Â

ð ´ Ô

й RADIUS AAA Ь˘ Ьж ь

radius-server timeout	ƫ RADIUS ɻ

46.1.3 radius-server key

ƫ ɻˆ ˜ б RADIUS ɻ ʌ ɂ˘
ƫu ɂ **radius-server key** Â ƫu ɂ no ʌ ʌ ɂ Â

radius-server key *text-string*

no radius-server key

ð ʅ Ô

text-string ʌ ɂ

ð Ô

ʌ ɂ Â

ð ƫu ɂ Ô

Â

ð ´ Ô

ʌ ɂ Ո RADIUS ɻ ɯ Â ɲ Ո
RADIUS ɻ ˘ ɷ Ո RADIUS ɻ Э ƫ ɹ
ʌ ɂ Â

ð Ô

Ю ƫ RADIUS ɻ ʌ ɂ ɲ aaa'

```
Ruijie(config)# radius-server key aaa
```

ð ƫu ɂ Ô

radius-server retransmit *retries*

no radius-server retransmit

ð ϟ Ô

retries' RADIUS ϟ Â

ð Ô

ϟ ϳ 3Â

ð ħu ϗ Ô

Â

ð ´ Ô

AAA ϧ Ю ϻ ϻ Ь ϟ Â
" Ь ϟ Ь ϧ ϟ RADIUS
ϰ ˘ ϟ Â

ð Ô

Ю ϟ ϳ 4'

```
Ruijie(config)# radius-server retransmit 4
```

ð ħu ϗ Ô

ħu ϗ	
radius-server host	ĦRADIUS Ь ў
radius-server key	ĦRADIUS ϡ ϗ
radius-server timeout	ĦRADIUS ϰ

46.1.5 radius-server timeout

ϟ RADIUS Ь ˘ ħu ϗ
radius-server timeout Â ħu ϗ **no** ˘ Â

radius-server timeout *seconds*

no radius-server timeout

ð ϟ Ô

seconds' ˆ ´ Æ ϳ ˜ Â ϟ ϫ ϳ 1-1000 Â

ð Ô

5

ð Ю ч Ô

Â

ð ´ Ô

Ю ч ч Â

ð Ô

Ю Ю й 10 '

```
Ruijie(config)# radius-server timeout 10
```

ð Ю ч Ô

Ю ч	
radius-server host	Ю RADIUS Ь Л ў
radius-server retransmit	Ю RADIUS ч
radius-server key	Ю RADIUS ы ч

46.1.6 radius-server deadtime

ч ы ж t т ї ш ~ ‡ й Ь Л ~ t й
^ deadtime~ ~ RGOS RADIUS ~
Ю ч **radius-server deadtime** Â Ю ч **no** ~ Â

radius-server deadtime *minnutes*

no radius-server deadtime

ð ы Ô

minnutes ^ ´ Æ й ~ Â ч т й 1-1000 Â

ð Ô

5 ¦

ð Ю ч Ô

Â

ð ´ Ô

Ю ч ч Â

ð Ô

Ю Ю й 10 ¦ '

```
Ruijie(config)# radius-server deadtime 10
```

ð ħu ɮ Ô

ħu ɮ	
radius-server host	ŀѫ RADIUS ᴸ ⅄ ў
radius-server retransmit	ŀѫ RADIUS ᐧ
radius-server key	ŀѫ RADIUS ᐱ ɮ
radius-server timeout	ŀѫ RADIUS

46.1.7 radius attribute

radius ttribute{<*id*≻⌈*d*down-rate-limit -3( )TjET.ttate-ctup-limitdeadt}/TT5 1 Tf0.0006 Tc 2.00

L2TP ħu ɜ

15	file-name-4	15
16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilige	22
23	login privilige	42
24	limit to user number	50

ð ħυ ϡ Ô

Â

ð ´ Ô

ħυ ϡ صر Â

ð Ô

ЮO max up-rate صر ЊЖ и 211'

```
Ruijie(config)# radius attribute 16 vendor-type 211
```

ð Ô

qos ѝ dscp

ð ћυ ϩ Ô

Â

ð ´ Ô

ћυ ϩ˘ ⅄Ո Ю qos ѝ cos ˘ ѝ dscp

ð Ô

Ю '

```
Ruijie(config)# radius set qos cos
```

ð ћυ ϩ Ô

ћυ ϩ	
radius vendor-specific extend	Radius ѝ a ѡ ⁞ ˝ ك id

46.1.9 radius vendor-specific extend

ѝ a ѡ ⁞ ˝ ك id Â

radius vendor-specific extend

no radius vendor-specific extend

ð ٩ Ô

ð Ô

⅄ ⁞ ⅄ ˝ ك id

ð ћυ ϩ Ô

Â

ð ´ Ô

ћυ ϩ ⅄ ˝ ك id صر ⁞ Â

ð Ô

Ю '

```
Ruijie(config)# radius vendor-specific extend
```

ð ħυ ϡ Ô

ħυ ϡ	
radius attribute	٨ صر
radius set	qos ĭ cos

46.2 RADIUS

46.2.1 debug radius

RADIUS Â ħυ ϡ no RADIUS Â

debug radius [**event | detail**]

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

ð ٩ Ô

٩ Â

ð ħυ ϡ Ô

EXEC Â

46.2.2 show radius server

RADIUS ٰ ٮ Â

show radius server

ð ٩ Ô

Â

ð Ô

ð ħυ ϡ Ô

Â

ð ´ Ô

ħυ ϡ radius ٰ ٮ Â

ð Ô

```
Ruijie# show radius server
```

```
server ip : 192.168.4.12
acct  port: 23
authen  port: 77
server state: ready
server ip : 192.168.4.13
acct  port: 45
authen  port: 74
server state: ready
```

ð ħu ɮ Ô

ħu ɮ	
radius-server host	ĦRADIUS ŁʞĬ ў
radius-server retransmit	ĦRADIUS ˧
radius-server key	ĦRADIUS ˄ ɮ
radius-server timeout	ĦRADIUS

46.2.3 show radius parameter

RADIUS ŁʞĬ ˄ Â

show radius parameter

ð ˄ Ô

ð Ô

ð ħu ɮ Ô

Â

ð ´ Ô

ħu ɮ radius ŁʞĬ ˄ Â

ð Ô

```
Ruijie# show radius parameter
Server Timout:   5 Seconds
Server Deadtime: 5 Minutes
Server Retries:  3
Server Key:      ******
```

ð ƫu ɝ Ô

```
12   file-name-1          12
13   file-name-2          13
14   file-name-3          14
15   file-name-4          15
16   max up-rate          75
17   version to server    17
18   flux-max-high32      18
19   flux-max-low32       19
20   proxy-avoid          20
21   dailup-avoid         21
22   ip privilige         22
23   login privilige      42
24   limit to user number 50
```

ð ħυ ϡ Ô

ħυ ϡ	
radius-server host	ⱨ RADIUS ⊧ ⱬ ў
radius-server retransmit	ⱨ RADIUS ⊣
radius-server key	ⱨ RADIUS ∧ ϡ
radius-server timeout	ⱨ RADIUS

47 VRRP

47.1

47.1.1 vrrp authentication

ħυ ϗ ΰ VRRP ↑ ╖ ˘ è **no** ╖ Â

vrrp group authentication *string*

no vrrp *group* **authentication**

ð ∀ Ô

group ' VRRP ∕∤

string ' VRRP (a 8 ˘ ∀ ϗ ∀ ϗ)

ð Ô

ЮЎ ج ∀ Э ΰ VRRP ╖ Â. ΰ VRRP ╖ ˘ ∀ ϗ Â

ð ħυ ϗ Ô

∀

ð ´ Ô

ج ∠ VRRP ∠ ∀ ϗ Â ∀ ϗ a ˘ ∀ / VRRP Â

ð Ô

ЮО и VRRP 1 ∀ ϗ Â

```
vrrp 1 authentication x30dn78k
```

ð ħυ ϗ Ô

ħυ ϗ	
Ruijie(config-if)# **vrrp** *group ip ipaddress* [**secondary**]	ΰ VRRP ╖ IP فخ سم

47.1.2 vrrp delay

Ђu ҳ ٨ Э VRRP ў ╠ Â

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

no vrrp delay

ð ٨ Ô

min-seconds ' ٨ ل ѝ ╠ ˘ VRRP *min-seconds* ٨ ў ╠'

reload-seconds ' ў ╠ VRRP ў ╠ Â *min-seconds* *reload-seconds*˘ ‡ ў ╠ VRRP *min-seconds* Â

ð Ô

Ю˘ ج ٨ Э VRRP ў ╠ ╥ Â

ð Ђu ҳ Ô

٨

ð ´ Ô

ج ў ╠ à ٨ ل ѝ UP ˘ ٨ Э VRRP a ў ╠ à Ą ў ╠ ˘ ل ¯ Ђu ҳ ج ٨ Э VRRP ў ╠ Â ч ٨ تن 0~60 Â

ð Ô

Ю ج Л٥ ٨ GigabitEthernet 0/1 Э VRRP ў ╠ ѝ 10 ' ж ٨ ل ѝ UP ˘ ٨ Э VRRP 1 10 ٨ Ą ў ╠'

```
interface GigabitEthernet 0/1
shutdown
ip address 10.0.1.1 255.255.255.0
vrrp delay minimum 10
vrrp 1 ip 10.0.1.20
no shutdown
show vrrp 1
```

ð Ђu ҳ Ô

Ђu ҳ	
Ruijie(config-if)# **vrrp** *group* ip *ipaddress* [**secondary**]	ў VRRP ╥ IP فخ سم

ð Ô

Ђu ҳ ÿ RGNOS10.3(4) Â

47.1.3 vrrp description

ђυ ҳ и VRRP ˘ è **no**

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

ð ¶ Ô

group ' VRRP /ا

ipaddress ' IP فذ سم

secondary ' IP فذ سم **IP** 5 /ا ĞŠ7ĞP2./C2412355F2.8 Tc

group ' VRRP /ſ

delay *seconds* ' ⅃ ſ ˘ ſ ⊮ ˆ Master

ð Ô

ЮЎ æ ∧ Э ў VRRP ╖ Â ў VRRP ╖ ˘ VRRP è ″I и 100 Â

ð ћu ҙ Ô

∧

ð ´ Ô

ћu ҙ ╟ VRRP ″I Â

ð Ô

Ю VRRP 1 ″I и 254 Â

```
vrrp 1 priority 254
```

ð ћu ҙ Ô

ћu ҙ	
Ruijie(config-if)# **vrrp** *group* **ip** *ipaddress* [**secondary**]	ў VRRP ╖ IP فخ سم
Ruijie(config-if)# **vrrp** *group* **preempt** [**delay** *seconds*]	VRRP ´

47.1.7 vrrp timers advertise

ћu ҙ ў ∟ VRRP ˆ ˘ è no Â

vrrp *group* **timers advertise** *interval*

no vrrp *group* **timers advertise**

ð ∧ Ô

group ' VRRP ∕∧

interval ' VRRP ˆ ∟ (Л∪ и´ Æ)

ð Ô

ЮЎ æ ∧ Э ў VRRP ╖ Â ў VRRP ╖ ˘ ў ˆ ∟ и 1 Â

ð ћu ҙ Ô

∧

ð ´ Ô

ѭ VRRP ў ˘ Л ч VRRP ˆ ˆ
VRRP à ¨I Л ч è Â

ð Ô

Ю ˘ VRRP ˆ ч и 4 Â

ƫ ȝ	
Ruijie(config-if)# **vrrp** *group* **ip** *ipaddress* [**secondary**]	ŏ VRRP ╖ IP ﻓﺨ ﺳﻢ
Ruijie(config-if)# **vrrp** *group* **timers advertise** [**msec**] *interval*	VRRP ˆ ˩

47.1.9 vrrp track

ŏ VRRP ˄ **vrrp** *group* **track** *interface-type number* ƫ ȝ˘ ŏ VRRP IP ﻓﺨ ﺳﻢ ╖ ˘ **vrrp** *group* **track** *ip-address* ƫ ȝ˘ **vrrp** *group* **track bfd** BFD IP˝ è **no** ╖ Â ƫ ȝ 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*] *priority*]

vrrp *group* **track [***interface-type number***|** **bfd** *interface-type interface-number ipv4-addess* | *ip-address*]

ð ˄ Ô

group ' VRRP /˄

interface-type ' ˄ ﺻﺮ

number ' ˄ /˄

ipv4-addres ' IPv4 ﻓﺨ ﺳﻢ˘ bfd

interval-value ' ﻓﺨ ﺳﻢ ĭ ˩ Â a ˘ ˥ 3

timeout-value ' " à ﻓﺨ ﺳﻢ a ˩ Â a ˘ ˥ 1

priority ' ˄ ﻓﺨ ﺳﻢ ˩ ˩ è VRRP ˝I ˩ Â a ˘ ˥ 10

ð Ô

Ю˘ ﺟﻢ ˄ Э ŏ VRRP ╖ Â. ŏ VRRP ╖ ˘ ˄ IP ﻓﺨ ﺳﻢ Â

ð ƫ ȝ Ô

˄

ð ´ Ô

ϟ Ѭ Ъυ ϛ ϰ ˘ ϰ ϟ Ь ϟ
ϰ (Routed Port ˘ SVI ˘ Loopback˘ Tunnel) ’ IP
ѫ ї ϟ ˘ . ї ping Â

ð Ô

ѫ Ю ˘ VRRP 1 Routed Port Fa1/1 Â Fa1/1
˘ VRRP ″I 30′ ѫ Fa1/1 Ѧ˘ VRRP 1 ″I
Â

```
vrrp 1 track GigabitEthernet 1/1 30
```

VRRP BFD 192.168.1.3

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface GigabitEthernet 0/1
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.1.1 255.255.255.0
Ruijie(config-if)#bfd interval 50 min_rx 50 multiplier          multiplier
                                                                  50  multipl
```

ħυ ϟ VRRP à VRRP Y˚ à VRRP Л υ ⊣ ˘ è **no**
ℸ Â

debug vrrp

no debug vrrp

ð Ô

ЮЎ Â

ð ħυ ϟ Ô

ð Ô

ج Ю ˘ VRRP Â

```
Ruijie# debug vrrp
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Event - Advert higher or equal priority
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state Master ->
Backup
VRRP: Grp 1 Advertisement from 192.168.201.213 has invalid
virtual address 192.168.1.1
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 1 state Backup ->
Master
Ruijie#
```

ð ħυ ϟ Ô

ħυ ϟ	
Ruijie# **debug vrrp errors**	VRRP
Ruijie# **debug vrrp events**	VRRP Y˚
Ruijie# **debug vrrp state**	VRRP

47.2.2 debug vrrp errors

ħυ ϟ VRRP ˘ è no Â

debug vrrp errors

no debug vrrp errors

ð Ô

ЮЎ VRRP Â

ð ħu ҳ Ô

ð Ô

ح ĦO ˘ VRRP Â

```
Ruijie# debug vrrp errors
Ruijie#
VRRP: Grp 1 Advertisement from 192.168.201.213 has invalid
virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has invalid
virtual address 192.168.1.1
VRRP: Grp 1 Advertisement from 192.168.201.213 has invalid
virtual address 192.168.1.1
```

47.2.3 debug vrrp events

ħu ҳ VRRP Y˚ ˘ è no Â

debug vrrp events

no debug vrrp events

ð Ô

ĦŎ VRRP Y˚ Â

ð ħu ҳ Ô

ð Ô

ĦO ˘ 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
```

47.2.4 debug vrrp packets

ħu ҳ VRRP ↑ ˘ è **no** Â

debug vrrp packets

no debug vrrp packets

ð Ô

ЮЎ VRRP ↑ Â

ð ħu ҷ Ô

ð Ô

ѫ ЮЎ ˘ VRRP ↑ ˘ ѫ è VRRP 1 ↑ Ո 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
```

ѫ ЮЎ , VRRP ↑ ˘ ѫ è VRRP 1 ↑ IP ѫ ڤ ЛЧ 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
```

47.2.5 debug vrrp state

ħu ҷ VRRP ˘ è no Â

debug vrrp state

no debug vrrp state

ð Ô

ЮЎ VRRP Â

ð ħu ҷ Ô

ð Ô

ЮЎ ˘ VRRP Â

```
Ruijie# debug vrrp state
Ruijie#
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Master ->
Backup
```

```
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Backup ->
Master

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

Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no shutdown
Ruijie(config-if)# end
```

brief ' ↓ ↰ Â

ð ħu ʒ Ô

ð Ô

Ю Л∪ ↰ E1/0 Э VRRP

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

ð ħu ʒ Ô

ħu ʒ	
Ruijie(config-if)# **vrrp** *group* **ip** *ip address* [**secondary**]	Ŭ VRRP ╖ IP فخ سم

48 CPU-LOG

48.1

48.1.1 show cpu

CPU ¯ ˘ ħυ ϟ **show cpu** Â

show cpu

ð ٩ Ô

ð Ô

ð ħυ ϟ Ô

Â

ð ´ Ô

ħυ ϟ ٫ Л CPU ¯ ˘ ↑ 5 à 1ǂ à 5ǂ CPU ¯ ˘ Л ٩ ┗ǂ ⋮ ج 5 à 1ǂ à 5ǂ CPU ¯ Â

ð Ô

ĦO **show cpu** 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
```

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

ح Э ˘ 3 ˛ ⁞ ح 5 à 1˛ à 5˛

CPU ¯ ˆ ↑ LISR à HISR Ո ╘˜ ÂЮ ‡ έ

high_num CPU ¯ ↓

ð Ô

Ю й 100%˜ æ й 90% Â

ð ħυ ϗ Ô

Â

ð ´ Ô

ħυ ϗ ↓Л CPU ¯ ↓ æ ˇ CPU ¯
Ю↓ ˇ CPU ¯ ↓ , ↓ ↓
' CPU ¯ æ ↓æ Л , ↓ , ˆ ɱ CPU ¯ Ю
ˇ ↓ æ CPU ¯ ↓ й æ æ ↓ Â

ð Ô

Ю CPU ¯ ↓æ й 70%˜ CPU ¯ ↓
й 80% Â

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

CPU ¯ 80% Ю '

```
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU utilization in
one minute : 95%ˇ Using most cpu's task is ktimer : 94%
```

CPU ¯ æ 70% Ю '

```
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!
```

48.1.3 show environment

ˇ ↑ ' CPU ˇ à Â

ħυ ϗ **show environment** Â

show environment

ð ↰ Ô

ð Ô

ð ħυ ϗ Ô

Â

ð ´ Ô

Ђ ђ ⊿ Л CPU ґ

Â

ð Ô

Ю **show environment** 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!
```

ѓ Э ⊿ ' CPU й 30

49

49.1

49.1.1 threshold set

ﻝ ˇ ﻝ 3 ˇ ǂ ⋮ ﻱ CPU ¯ ầ
¯ ầ Â PU ¯ Ո ¯ ˇ ў
MIB ﻝˇ CPU Ո ˇ syslog Â ˇ
ˇ ﺟ ˇ . syslog Â

ﻝ **no** Â

threshold set {cpu | memory emperature} [M1 | M2 | slot *n* | **member** *n***]** *warning_value critical_value*

no threshold set {cpu | memor temperature}

ﻥ	
cpu | memory | temperature	صˇ Ь ˇ **cpu** CPU ¯ ˇ **memory** ﻱ ¯ ˇ **emperature** ﻱ

1' M1 ¯ Â

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

2' ҷ ʃ γ ʃ ˘ CPU ¯ Â

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

Ъu ҳ	
show threshold	Ъu ҳ

ʃ

ʃ	
10.3(4b3)	Ъu ҳ

49.2

49.2.1 show threshold

Â

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

ʅ	
cpu | memory | temperature	˘ **cpu** й CPU ¯ ˘ **memory** й ¯ ˘ **temperature** й
M1 | M2 | slot *n*	Э ˘ *n* й
member *n*	ҷ ʃ ˘ ҷ ʃ Э ˘ *n* й ҷ ʃ ˘

Â

1' M1 CPU ¯ Â

```
Ruijie# show threshold cpu M1
```

2' ﺞﺠ ۱ ˜ ¯ Â

```
Ruijie# show threshold memory
```

ЪU ҂	ЪU ҂	

50

50.1

50.1.1 show memory

ɱή ˘ Ъυ ϡ **show memory** Â

show memory

ð ٩ Ô

ð Ô

ð Ъυ ϡ Ô

Â

ð ´ Ô

Ъυ ϡ ˩ Ʌυ ɱή Ո· ˘ ↑
˘ Ʌυ ٩ ɱή à Â

ð Ô

Ю **show memory** 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 ↑ Ü Ю ʃ '

1. ˩ ˘ ѝ 4k Â

2. ˘ Ю ѝ ٨ Ⱡ'

min	a ˘ ˘ Э a ˩ Â

ð Ô

1' ЛЬЮ й BGP й ″I ~ Â

```
Ruijie(config)# memory-lack exit-policy bgp
```

ð Ъu ҳ Ô

Ъu ҳ	
show memory	

ð ⊿ Ô

-

ð Ъu ҳ ⅂ ⊿ Ô

⁄I	
10.3(4b3)	Ъu ҳ

50.1.3 show memory protocols

Ъu ҳ ⁄ ~ ´ Â

show memory protocols

ð ⅋ Ô

⅋	

ð Ъu ҳ Ô

ð Ô

Ъu ҳ ⁄ ~ ´ Â

& a ⊿ ⅂ ~ a ⊿˘ ў ~
BGP,OSPF,RIP,LDP,PIM,ISIS Â

ð Ô

1' Ю й show memory protocols

```
Ruijie(config)# show memory protocols
==================================================
protocol      |memory(byte)
BGP            102000000
OSPF            24000000
RIP             10000000
PIM             50000000
```

LDP	20000000
Total	206000000

ồ **Ъu ҳ Ô**

51 USB

51.1

æ ў CLI Ю Ђu ҳ Ո USB Â

¸ USB ' **show usb** Ђu ҳ

¸ USB ' **usb remove** Ђu ҳ

51.1.1 show usb

USB

ID ' ID ʌ^ remove ~

Lun ' ´ Ĩ ʌ˘ Ю ID ´ Ĩ id ʌ Â

Disk Partitions ' ʃ ш Â Э ˘ ʃ ш˘ ʃ ш
˚ ѝ /dev/uba/disc0/part1˘ ʃ /mnt/uba Â ˩ ˚ ђυ ҳ cd /mnt/uba
ʃ Ю˘ ʃ ш Â

ð ђυ ҳ Ô

ђυ ҳ

51.1.2 usb remove

usb remove *Device_ID*

ð ٩ Ô

Device_ID' USB ʌ

ð Ô

Â

ð ђυ ҳ Ô

ð ´ Ô

ﻩ usb ɱ˘ ђυ ҳ ˘ ЛЬ ﻩ Â
ℿ˘ . ˘ ˩ Â ˘
2 USB ˘ ‡ Ѧ Â

ð Ô

Ю ѝ Э usb Â

```
Ruijie# usb remove 778
OK, now you can pull out the device 778.
```

52 SD

52.1

52.1.1 sd remove

╕ SD´ Â

sd remove

¶	
remove	╕ SD´ Â

ħυ ३ Â

æ sd´ ɱ˘ ħυ ३ ˘ ⅄υ æ Â

Ⅶ˘ . ˘ ⅃ ² Ⅶ` Y æ

52.2.1 show sd

SD Â

show sd

¶	
sd	sd Â

ħu ϡ

sd´ ˘ ‡ ˘ ï ‡

```
Ruijie#show sd
Product name: SD
Product serial number: d72185e3
    Disk Partitions:
    1: /dev/sd0/disc0/part1 --> /mnt/sd0
    size 1017643008B(970MB).
```

ħu ϡ	
-	-

ϡ æ 10.3(4b7)ЛυϤ ϡ ˘ NPE p Â

ħu ϡ ϶ ϡ	
10.3(4b7)	ħu ϡ

53

53.1

53.1.1 logging on

æ a ⊿ Э ˘ Ђυ ҳ Â ˘
Ђυ ҳ no Â

logging on

no logging on

ð ٩ Ô

٩

ð Ô

æ a ⊿ Э Â

ð Ђυ ҳ Ô

ð ´ Ô

RGOS a ⊿Л Æ Console ٩ à VTY ٩ Э˘ ≠ ⊿Л
æ a ⊿ Э' ă ш à FLASH à Syslog Server Â Ђυ ҳ й
˘ ˘ a ˘ ш ⁞ й

1 Log Â

ð Ô

Ю æ Э '

```
Ruijie(config)# no logging on
```

ð Ђυ ҳ Ô

Ђυ ҳ	
logging buffered	ĵ ă ш
logging	⊣ Syslog Server
logging file flash:	æ FLASH Э

logging console	æ ⁸ ⅄ Э ⁞
logging monitor	æ VTY ⅄(telnet ⅄)Э ⁞
logging trap	⅃ Syslog Server ⁞

53.1.2 terminal monitor

Ћu ҳ æ ɱ VTY ⅄ Э Â æ ɱ VTY ⅄ Э ˘ Ћu ҳ no Â

terminal monitor

terminal no monitor

ð Ô

ЮЎ æ VTY ⅄ Э a æ VTY ⅄ Э Â

ð Ћu ҳ Ô

ð ´ Ô

Ћu ҳ ⅄ ɱ VTY Â ѝ ˘ a Âæ VTY ⅄˘ Â

&

ѝ ˘ RGOS æ ⁸ ⅄ Э Ћu ҳ Âæ ⁸ ⅄ Э Ћu ҳ no , ⅄ ш ⁞ ѝ Ў 1 Â

ð Ô

ЮЎ ˘ ɱ VTY ⅄ . Â

```
Ruijie# terminal monitor
Ruijie#
```

53.1.3 logging buffered

ă ѡ ⅄ ˆ ш à ă ѡ ~ ˘ æ Ћu ҳ Â Ћu ҳ no æ ă ѡ Â

logging buffered [*buffer-size*

ð Ô

ЮО ↓ ⁞ и 6 Лυ ч æ 6 ⁄ и 10000 ă ш '

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

ð Ъυ ҳ Ô

Ъυ ҳ	
logging on	
show logging	ă ш
clear logging	ă ш

53.1.4 logging server

ĵ **Syslog Sever**ў ⁄ ЮО Ъυ ҳ Â ĵ **Syslog server** ⁄ фхзм **Syslog Server**ў Ъυ ҳ no Â

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

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

ð ↰ Ô

ip-address ў IP фхзм'

vrf vrf-name ĵ ў VRFˆ VPN ↓ ~ '

ipv6 ipv6-address ў IPV6 фхзм'

ð Ô

a ↓ syslog server ↓

ð Ъυ ҳ Ô

ð ´ Ô

Ъυ ҳ Syslog server Â RGOS 5 Syslog Server Â ↓ ↓ Syslog Server Â

ð Ô

ЮО фхзм и 202.101.11.1 syslog serverў

```
Ruijie(config)# logging server 202.101.11.1
```

˚ 8˘ ѫ ˚ ѭ˘ " è
˚ ˘ ‡'

1. ˘ ‡ …
2. ˚ ɻ ѫ \ ˚ ɻ Л˘ ѝ' ˚ ɻ _ Л˘ Л Ÿ txt
3. Л ѝ 15˜ ˚ ˘ ‡ ˚ Â ҭ ˘
˚ FLASH Ъυ ҳ˘ ѫ FLASH 16 ˚ ,

ð Ô

Ю ѫ FLASH ˘ ˚ ɻ ѝ trace.txt˜ ˚ ѝ 64K,
⁞ ѝ 6 Â

ш Л∪ Л˘ æ Э æ ш ⁞
æ ⁸ ⅄ Э Â

show logging Ъυ ҳ ⅃ Л∪ ⅄ Ո Â

ð Ô

Ю æ ⁸ ⅄ ⁞ и б'

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

ð Ъυ ҳ Ô

Ъυ ҳ	
logging on	
show logging	ă Ш ˘ Л∪ ⅂ ⅄

53.1.7 logging monitor

æ VTY ⅄^ telnet ⅄ à SSH ⅄ ˜ Э ⁞˘
æ Ю Ъυ ҳ Â Ъυ ҳ no æ VTY ⅄ Э . Â

logging monitor *level*

no logging monitor

ð ⅄ Ô

level ' ш Â ⅃ Л∪ ⁞ ⅈ ˘ ≠ ⅃ Л∪ Â
ш ˘ ⅄ 1 Â

ð Ô

Debugging (7)

ð Ъυ ҳ Ô

ð ´ Ô

æ VTY ⅄ Э . ˘ ˮI Ъυ ҳ **terminal monitor** æ
ɱ VTY ⅄ . Â ⁞ ‡ **logging monitor**
Ⱨ Â

Logging monitor Ⱨ ⁞ VTY ⅄ Â

ð Ô

Ю æ VTY ⅄ Э . ⁞ и б'

```
Ruijie(config)# logging monitor informational
```

ð Ъυ ҳ Ô

Ъυ ҳ	
logging on	
show logging	ă ѡ ˘ Ѧυ ㄱ ㄱ

53.1.8 logging trap

ㄴ Syslog Server ⁞˘ ㅊ Ю Ъυ ҳ Â Ъυ ҳ no ㄴ Syslog Server Â

logging trap *level*

no logging trap

ð ㄱ Ô

level ' ш Â ㄴѦυ ⁞ ㅈ ˘ ≠ ㄴѦυ Â ш ˘ ㄱ 1 Â

ð Ô (6)7 Tc 0 Tw 2 Tr -8 -2.177 TdCF09961B4442>6<1BE2>6<0Tf-0.0B90A947AB180 Tc 0 Tr 6.023 0 T

logging on	

logging ┘

ϡ فخ سم ˘ جم Ю ħυ ϗ Â ħυ ϗ no ي
ٸ Â

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

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

ð ٸ Ô

ip-address ٱ IPV4 ў ي IPV4 فخ سم'

ipv6-address ٱ IPV6 ў ي IPV6 فخ سم'

ð Ô

ð ħυ ϗ Ô

ð ´ Ô

Ю˘ ي Syslog Server فخ سم ي ٸ فخ سم Â ى
˘ ي Л ħυ ϗ فخ سم ثن ى فخ سم ˘
Â ي ف ٸ ⋮ ÿ فخ سم ِ ˜

ð Ô

Ю Loopback 0 فخ سم ى Syslog فخ سم'

```
Ruijie(config)# logging source ip 192.168.1.1
```

ð ħυ ϗ Ô

ħυ ϗ	
logging	ي Syslog server

53.1.11 logging facility

˘ جم Ю ħυ ϗ Â ħυ ϗ no ˘
ى (23) Â

logging facility *facility-type*

no logging facility

ð ٸ Ô

facility-type ' Syslog ˘ ε ٸ ´ Â

ð Ô

Local7(23)

ð Ъυ ҳ Ô

ð ´ Ô

Ю ˆ 2˜ Syslog ˩ '

2

Numerical Code	Facility
0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated iny2 .6824 1 511k4nally b511k5( )8023C2_d147.54 5

22	local use 6 (local6)
23	local use 7 (local7)

RGOS ϧ (local7) 23 Â

ð Ô

ÞÒ Syslog ϧ kernel

```
Ruijie(config)# logging facility kern
```

ð Þυ ϗ Ô

Ђ ѓ	
show logging count	ѓ ѕ
show logging	ѕ ѕѕ б ă Ш

53.1.13 logging rate-limit

ѕ ℸ ˘ ѕ ˘ ѕ Ю
Ђ ѓ Â ѕ ℸ ˘ Ђ ѓ no Â

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

no logging rate-limit

ð ч Ô

number ˘ ѭ й 1—10000ў

all ѕ˘ ↑ 0—7 ’

console ѕ ѓ ѕ ѓ Э ’

except ш ⁞ ˘ a ѕ’ ⁞ й error(3)˘ error ⁞ a ѕ’

severity ш ⁞˘ ⁞ ˘ ш ˘ ѭ й 0—7;

ð Ô

Ю˘ a ѕ Â

ð Ђ ѓ Ô

ð ´ Ô

Ђ ѓ ѕ Â Ђ ѓ˘ ѓ Л Â

ð Ô

ˆ ↑ debug˜ й 10 ˘ warning ѓ ш ⁞ a ѕ'

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

ð Ђ ѓ Ô

Ђ ѓ	

show logging count	ﺭ ﻫﺞ

ﻫ ﻳ ﻩ **show logging** ﻳ ﻩ ﻫﺞ ﻍ ﻫﺞ ﻫ ﻳ ﻩ ﻩ ﻫﻢ

show running-config	

53.1.15 service sequence-numbers

æ ╗ Э Л˘ æ Ю Ђυ ҳ Â Ђυ ҳ no ↓
æ Л Â

service sequence-numbers

no service sequence-numbers

ð ↰ Ô

ð Ô

a Л Â

ð Ђυ ҳ Ô

ð ´ Ô

æ ╗ Э Л˘ ↓ Лæ ╗ Э Л˘ Л ÿ 1
Â ╗ Э Л Л Л˘ ↓ Л ѫ ˘ Л ↰
˝І Л Â

ð Ô

Ю æ ╗ Э Л'

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

ð Ђυ ҳ Ô

Ђυ ҳ	
logging on	
service timestamps	ŭ

53.1.16 service timestamps

æ ╗ Э ˘ æ Ю Ђυ ҳ Â Ђυ ҳ no
↓ æ Э Âdefault ѝ
Â

service timestamps *message-type* [*uptime* | *datetime* [*msec* | *year*]]

no service timestamps *message-type*

default service timestamps *message-type*

ð ¶ Ô

message-type ' ص˘ ч log Ո debug Âlog ج ш ⋮ ج 0 ˙ 6 ˘ debug ш ⋮ и 7 Â

uptime' ŭ ╟ ˘ ' * * *¶ * ˘ ' 07:00:10:41

datetime' ₥ ˘ ' ' ¶ ' ˘ ' Jul 27 16:53:07

msec ₥ ˘ ' :¶ : . ' Jul 27 16:53:07.299

year ₥ ˘ ' :¶ : ' 2007 Jul 27 16:53:07

ð Ô

˘ и ₥ Â RTC˘ ‡ ╟ и ŭ ╟ Â

ð Ю ч Ô

more flash:filename

ð ٩ Ô

Filename ' ˚ ɻ

ð Ъυ ҳ Ô

ð ´ Ô

ح FLASH ˚ ˚ ɻ ɱ ”//f2/˝ ”//f3/’ ˚ Â Ъυ ҳ ٩ ˚ ˘ a Ъυ ҳ ٩ è ˚ Â

ð Ô

ЮO FLASH ˚ '

```
Ruijie# more flash://f2/log.txt
look up file in the extended flash://f2/log.txt
00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by
Administrator. Reload Reason :Reload command
```

ð Ъυ ҳ Ô

Ъυ ҳ	
logging file flash:	ح FLASH Э

53.1.19 clear logging

ă ш ˘ ح ЮO Ъυ ҳ Â

clear logging

ð Ъυ ҳ Ô

ð ´ Ô

Ъυ ҳ ٩ ă ш Â a Â

ð Ô

ЮO ă ш Â

```
Ruijie# clear logging
```

ð Ъυ ҳ Ô

Ъυ ҳ	
logging on	
show logging	ă ш
logging buffered	↑ ă ш

53.2

53.2.1 show logging

ч à ˘ Лυ ч ă ш ˘ æ
Ъυ ҳ Â

show logging

ð ч Ô

ð Ъυ ҳ Ô

ð Ô

Ю **show logging** '

```
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
FD2BrTh>Nnet 0/0, changed state to up
00002 2004-11-17 10:20:59 Ruijie: %7:%LINE PROTOCOL CHANGE:
Interface FD2BrTh>Nnet 0/0, changed state to UP
```

```
00003 2004-11-17 10:57:18  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to administratively down
00004 2004-11-17 10:57:21  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to down
00005 2004-11-17 10:57:41  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to administratively down
00006 2004-11-17 10:57:43  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to down
```

Syslog logging	enabled, disabled
Console logging	. æ ⁸ ⅄ Э ⁞˘ Л ⅂
Monitor logging	. æ VTY ∧ Э ⁞˘ Л ⅂
Buffer logging	æ ă Ш ⁞˘ Л ⅂
Timestamp debug messages	Debug
Timestamp log messages	Log
Sequence log messages	⅄
Trap logging	⅂ Syslog Server ⁞˘ Л ⅂
Log Buffer	æ ă Ш

ð Ъυ ҳ Ô

Ъυ ҳ	
logging on	
clear logging	ă Ш

53.2.2 show logging count

⅄ ⁂ ˘ Л ⅂ ⅄ ˘ æ

Ю Ъυ ҳ Â

show logging count

ð ¶ Ô

ð Ю ч Ô

ð ´ Ô

й ╖ ˘ æ Ю **logging count** Ю ч Â
show logging count Ю ч˘ ┘Л ˘ ˘ Л
Â

show logging Ю ч˘ ┘Л ↑ ╖ ї Â

ð Ô

Ю **show logging count** '

```
Ruijie# show logging count
Module Name   Message Name Sev Occur     Last Time
==================================================SYS
CONFIG_I        5   1        Jul 6 10:29:57
--------------------------------------------------SYS
TOTAL                        1
```

ð Ю ч Ô

Ю ч	
logging count	╖
show logging	æ ээ б ă ш
clear logging	ă ш

54 RLOG

54.1 RLOG

54.1.1 rlog server

Ь ϰϡ ϩϧ Ո VRF˘ Ь ╖

rlog server *server-ip* [**vrf** *vrf-name*]

no rlog server

ð ϟ Ô

server-ip ' Ь ϰϡ ϩϧ

vrf-name ' VRF ϳ

ð Ô

Ю Ь

ð ħυ ϗ Ô

ð ´ Ô

Ь ϰϡ ϳϊ ħυ ϗ Â ϧϩ Ь ϰϡ Ю˘ a

ϟ ˚ Ь ϰϡ Â

Ь ϰϡ ħυ ϗ ϟ ˘ ΰ ╟ ϧϩ˘ Л udp

ϟ ϟϡ Â

ð Ô

Ю Ь ϰϡ ϩϧ'

Ruijie(config)# **rlog server** *10.1.1.1*

ð Ô

Ь ϰϡ ħυ ϗ ϟ Ь˘ ΰ˘ ´ ħυ

ϗ a Â **ip session log-on˘** ´ Â

54.1.2 **rlog mtu**

Â **no rlog mtu**

ð ϟ Ô

Number '

ð Ô

й 1500

ð ћu ҳ Ô

Â

ð ´ Ô

ð Ô

Ю '

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

ð Ô

54.1.3 rlog port

Ь ∧ /\ Â

rlog port *number*

no rlog port

ð ∧ Ô

Number ' Ь ∧ /\

ð Ô

Ь ∧ /\ й 10000

ð ћu ҳ Ô

Â

ð ´ Ô

ð Ô

Ю Ь ∧ /\'

Ruijie(config)# **rlog mtu** *13000*

ð Ô

Ь ∧ /\

54.1.4 rlog export-rate

Ь

rlog export-rate *number*

no rlog export-rate

ð ∧ Ô

Number ' Ь ^ ∨ ~

ð ¶ Ô

ð Ô

ð ƫu ɜ Ô

Â

ð ´ Ô

ƫu ɜ Ł Â

ð Ô

ƗO Ł '

55 SNMP

55.1

55.1.1 no snmp-server

SNMP ϗ ╖ ˇ Ħυ ϗ **no snmp-server** Â

no snmp-server

ð Ô

SNMP ϗ ╖

ð Ħυ ϗ Ô

ð ´ Ô

Ħυ ϗ SNMP ϗ Ŀ Â

ð Ô

ЮO SNMP ϗ Ŀ'

```
Ruijie(config)# no snmp-server
```

55.1.2 snmp-server chassis-id

SNMP /ˇ Ħυ ϗ **snmp-server chassis-id** Â

Ħυ ϗ no Ɬ и Â

snmp-server chassis-id *text*

no snmp-server chassis-id

ð ¶ Ô

text ' /ƚ ˇ ┘Ɽυ Â

ð Ô

/ƚ 60FF60

ð Ħυ ϗ Ô

ð ´ Ô

SNMP Л Ы Л˘ Лu ⁞ Â Л Л Лu
show snmp Ъu ъ Â

ð Ô

Ъ O SNMP Л й 123456:

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

ð Ъu ъ Ô

Ъu ъ	
show snmp	SNMP

55.1.3 snmp-server community

SNMP ъ ˘ Ъu ъ **snmp-server community** Â
Ъu ъ no л SNMP ъ Â

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

no snmp-server community *string*

ð Л Ô

string ' ъ ˘ NMS Ո SNMP ъ Â

view-name' ي ل ˘ ي Â

ro ' NMS MIB л л ˘ a Â

rw ' NMS MIB л л л Â

number ' Л^ 0-99˜ ˘ ˘ MIB
NMS Â

ipaddr ' NMS ˘ MIB NMS Â

ð Ô

ъ й л

ð Ъu ъ Ô

ð ´ Ô

Ъu ъ й ŏ SNMP ъ Ъ Ъu ъ˘ ъ à
MIB NMS Â

SNMP ʒ ╖ ˘ **no snmp-server** Ħu ʒ. ↓ Â

ð Ô

Ю ⁸ MIB ˘ ↓ فذسم ѝ 192.168.12.1 NMS MIB '

```
Ruijie(config)# access-list 2 permit 192.168.12.1
Ruijie(config)# access-list 2 deny any
Ruijie(config)# snmp-server community public ro 2
```

ð Ħu ʒ Ô

Ħu ʒ	
access-list	Ħ

55.1.4 snmp-server contact

SNMP ˘ Ħu ʒ **snmp-server contact** Â Ħu ʒ no ĩ SNMP Â

snmp-server contact *text*

no snmp-server contact

ð ↰ Ô

text '

ð Ô

ѝ Â

ð Ħu ʒ Ô

ð Ô

Ю SNMP ѝ i-net800@i-net.com.cn '

```
Ruijie(config)# snmp-server contact i-net800@i-net.com.cn
```

ð Ħu ʒ Ô

Ħu ʒ	
show snmp-server	SNMP
no snmp-server	SNMP ʒ ╖

ð ٩ Ô

host-addr ' SNMP ў ڤخ سم

ipv6-addr ′ SNMP ў ڤخ سمˆ ipv6˜

vrfname ' vrf ٤ ٫

version ' snmp ˇ V1 à V2C à V3

auth | **noauth** | **priv** ' V3 ⁞ Â

community-string ' څ ٫ˆ V3 ˜ Â

port-num ' snmp ў ٨

notification-type ' ў ╟ ٤ صر˘ snmp Â

ð Ô

ЮЎ SNMP ў Â

صر˘ ‡ ↑ ص Â

ð ħυ ϩ Ô

ð ´ Ô

ħυ ϩ б ħυ ϩ **snmp-server enable traps** ˇ ў ╟ NMS ٤ Â

٤ Л∪ a ٫ SNMP ў ˇ ў ٤ Л∪ a ٫ ص ٨˘ a ٫ ٨˘ a ٫ vrf ٤ ˇ ٫ ў [٫ ٨ à ٫ vrf]˜ ٫ Ω ή ٨ ˇ . ٫ ў ٤ a ٫ ˇ ٤ Л∪ ⁞ a ٫ ˇ ٨ ∫ Â

ð Ô

ЮЎ SNMP ў ˇ SNMP Y ˚ '

```
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
```

ð ħυ ϩ Ô

ħυ ϩ	
snmp-server enable traps	ŭ ٤

55.1.7 snmp-server location

SNMP Æ ˘ Ъu ҙ **snmp-server location** Â
Ъu ҙ no ↓ SNMP Æ Â

snmp-server location *text*

no snmp-server location

ð ↰ Ô

text ' Â

ð Ô

и

ð Ъu ҙ Ô

ð Ô

Ю '

ð Ô

ЮO SNMP ↑ и 1492'

```
Ruijie(config)# snmp-server packetsize 1492
```

ð Ђu ҳ Ô

Ђu ҳ	
snmp-server queue-length	SNMP

ŭ SNMP ˘ ħu ʒ **snmp-server system-shutdown** Â ħu ʒ no ˩ SNMP Â

snmp-server system-shutdown

no snmp-server system-shutdown

ð Ô

SNMP

ð ħu ʒ Ô

ð ´ Ô

ħu ʒ ŭ SNMP RGOS reload/reboot ЛυⰻЙ NMS ˩ Â

ð Ô

ЮO ŭ SNMP '

```
Ruijie(config)# snmp-server system-shutdown
```

55.1.11 snmp-server trap-source

SNMP ˘ ħu ʒ **snmp-server trap-source** Â ħu ʒ no Â

snmp-server trap-source *interface*

no snmp-server trap-source

ð ˥ Ô

interface ' й SNMP ˥

ð Ô

SNMP ÿ ف ˥ ˘ ف ˥ IP й Â

ð ħu ʒ Ô

ð ´ Ô

ЮO˘ SNMP ÿ ف ˥ ˘ ف ˥ IP й ˘ й Ո ⁞ ˘ ˩Л ħu ʒ ثن IP й SNMP Â

ð Ô

SNMP ħu ३

snmp-server user *username groupname* {**v1** | **v2** | **v3** [**encrypted**]
[**auth** {**md5** | **sha**} *auth-password*] [**priv des56** *priv-password*]}
[**access** {*num* | *name*}]

no snmp-server user *username groupname* {**v1** | **v2c** | **v3** }

ð ٩ Ô

username ' ɹ Â *auth-passw̃ord* ٩

٩ ҳ Â ,ß0Ü Ð

groupname' ɹ ,ßpp SNMP Â ٩ v3 ɻ ٩*d* Â ð

encrypted ' ‡ ╗ Â

Л ˘ ‡ 16 ð⁸ Ô Â

и 16 ˘ SHA ˜ и 20 Â Л ч

Â ╗ Â ,ß0Ð ǐ Â **md5**

ð ħυ ҳ Â Ô

ħυ ҳ	
show snmp user	

5511.14 snmp-server group

oid-tree ' في MIB ˘ MIB Â

include ' MIB ↑ Ü جم في Â

exclude ' MIB جم في Â

ð Ô

default ˜في MIB Â

ð ћu ъ Ô

ð Ô

ЊО ˜في ↑ MIB-2 ˆ oid ѝ 1.3.6.1˜ '

```
Ruijie(config)# snmp-server view mib2 1.3.6.1 include
```

ð ћu ъ Ô

ћu ъ	
show snmp view	SNMP في

55.1.16 snmp-server if-index persist

ʌ ℸ **snmp-server if-index persist** ћu ъ Â ћu ъ **no** ℸ Â

snmp-server if-index persist

no snmp-server if-index persist

ð ʌ Ô

ð Ô

ℸ Â

ð ћu ъ Ô

ð Ô

ЊО ʌ ℸ '

```
Ruijie(config)# snmp-server if-index persist
```

ð ћu ъ Ô

ħu ɜ	
show run	

55.2

55.2.1 show snmp

SNMP ˘ ħu ɜ **show snmp** Â

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

ð ħu ɜ Ô

ð ´ Ô

show snmp ħu ɜ SNMP ’

show snmp mib snmp mib ’

show snmp user snmp ’

show snmp view snmp في ’

show snmp group snmp ’

ð Ô

ĦO SNMP '

```
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 ħu ʒ Ô

```
Ruijie(config-if)# rmon collection stats 1 zhansan
```

ð ħυ ϗ Ô

ħυ ϗ	
rmon collection history *index* [**owner** *owner-name*] **buckets** *bucket-number* **interval** *seconds*	╗ ˥ ˩ 8

56.1.2 rmon collection history

Ʌυ ˄ ˥ ˩ ħυ ϗ Â **no** ˩ Â

rmon collection history *index* [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]

no rmon collection history *index*

ð Ô

ð ħυ ϗ Ô

˄

ð ´ Ô

ﻩ RGOS ˚ ˇ Ʌυ ˥ ˩ ˇ ↑ owner à buckets Ʌυ ˧ interval ˇ ↑ Ò

56.1.3 rmon alarm

MIB ↓ ħu ɜ Â no ↓ Â

rmon alarm *number variable interval* {**absolute** | **delta** } **rising-threshold** *value* [*event-number*] **falling-threshold** *value* [*event-number*] [**owner** *ownername*]

no rmon alarm *number*

ð Ô

ð ħu ɜ Ô

ð ´ Ô

ﻩ RGOS ˚ ˘ Л↓ ˘ ↑ variable à interval à absolute/delta à owner à interval à rising-threadhold/falling-threadhold ↑ è event ˘ a . ˘ ↑ ЮO Y˚ ↓ ˘ ’

ð Ô

ЛↄЮ ˘ MIB ↓ ifInNUcastPkts.6 Â

```
Ruijie(config)# rmon alarm 10 1.3.6.1.2.1.2.2.1.12.6 30 delta
rising-threshold 
```

56TjB02dj/ Tf1(/C2_0TdTc 2.034 0 Td[<09AC0 Td(0

```
DropEvents : 0
Octets : 1884085
Pkts : 3096
BroadcastPkts : 161
MulticastPkts : 97
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 1200
Fragments : 0
Jabbers : 0
Collisions : 0
Pkts64Octets : 128
Pkts65to127Octets : 336
Pkts128to255Octets : 229
Pkts256to511Octets : 3
Pkts512to1023Octets : 0
Pkts1024to1518Octets : 1200
Owner : zhangsan
```

ð ħυ ϡ Ô

ħυ ϡ	
rmon collection stats *index* [**owner** *owner-string*]	╕

56.2.2 show rmon history

Â

show rmon history

ð Ô

ð ħυ ϡ Ô

ð ´ Ô

ð Ô

ЛЬЮ ˘ '

```
Ruijie#  show rmon history
Entry : 1
Data source : Gi1/1
Buckets requested : 65535
Buckets granted : 10
Interval : 1
Owner : zhangsan
Sample : 198
Interval start : 0d:0h:15m:0s
DropEvents : 0
Octets : 67988
Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
```

ð ħu ɜ Ô

ħu ɜ	

rmon collection history *index*
[**owner**

ð Ô

ð Ô

ЛυЮ ˘ '

```
Ruijie#  show rmon event
Alarm : 1
Interval : 1
Variable : 1.3.6.1.2.1.4.2.0
Sample type : absolute
Last value : 64
Startup alarm : 3
Rising threshold : 10
Falling threshold : 22
Rising event : 0
Falling event : 0
Owner : zhangsan
```

ð ħυ ϟ Ô

ħυ ϟ	

IPv6

57 IPv6

57.1

57.1.1 ping ipv6

ƕƱ ʢ IPV6 Â

ping ipv6 [*ipv6-address*]

ð ٩ Ô

ipv6-address ' فخسم

ð ƕƱ ʢ Ô

ð ´ Ô

ﻣﺠ ƕƱ ʢ a فخسم ‡ ˘ ˧ Ꮑ έ ɦ ٩ Â ﻣﺠ ping ﻫﯽ ɦ ʎ ȕ ʱ Ю'

ʎ	ȕ ʱ
!	˧ ỉ
.	˧ ﻣﺠ ỉ
U	ỉ ÿ
R	٩
F	
A	فخسم
D	٩ Down ٩ IPV6 ╖ (ỉ فخسم ά)
?	

ð Ô

```
Ruijie# ping ipv6 fec0::1
```

57.1.2 ipv6 address

ϳй ϰ IPV6 ѫѭѣѩ, ħυ ϗ no ϯ ѫѭѣѩ Â

ipv6 address *ipv6-prefix*/*prefix-length* [**eui-64**]

no ipv6 address [*ipv6-prefix*/*prefix-length*] [**eui-64**]

ð ϰ Ô

ipv6-prefix ' IPV6 ѫѭѣѩ, RFC2373 ЊѪ ѫѭѣѩ ˘ ѫѭѣѩ ѭѫ /ϰ ˘ ѭѫ´ 16 ˘ ˊ Ώ ⁸

prefix-length ' IPV6 ɱϧ . IPV6 ѫѭѣѩ ϗ ϯ Â

eui-64 ' IPV6 ѫѭѣѩ ѫѭѣѩ ɱϧ Ո 64 ϰ ID

ð ħυ ϗ Ô

ϰ

ð ´ Ô

eui-64 ɱϧ ϳй 64˝ IPV6 ϰ … ϶ ϳй Up ѫ ϳй ϰ ╟ ѫѭѣѩ Â

no ipv6 address a ϯ Ɛ ѫѭѣѩ˘ ѫ ϯ ѫѭѣѩ Â

no ipv6 address ipv6-*prefix*/*prefix-length* **eui-64** ϟ Ѧϯ ħυ ϗ **ipv6 address** *ipv6-prefix*/*prefix-length* **eui-64** ѫѭѣѩ Â

ð Ô

```
Ruijie(config-if)# ipv6 address 2001:1::1/64
Ruijie(config-if)# no ipv6 address 2001:1::1/64
Ruijie(config-if)# ipv6 address 2002:1::1/64 eui-64
Ruijie(config-if)# no ipv6 address 2002:1::1/64 eui-64
```

57.1.303E84A/2 0]nable

ħυ ϗ ϰ IPv6 ╚ no ϟ Ѧυ IPv6 ╚ **pЂ,ÕLáĝa Uð**

2 ɻ Ʌu ʌ Ɔ IPv6 ╗ ˘ ج ʌ Ю **ipv6 enable** ħu ʒ , γ
ج ʌ Ю IPv6 سم فخ Â

' ج ʌ Ɔ IPv6 سم فخ ⌧ ʌ IPv6 ╗ ╟ ˘ .
no ipv6 enable ≠ a IPV6 ╗ Â

ð Ô

```
Ruijie(config-if)# ipv6 enable
```

ð ħu ʒ Ô

ħu ʒ	
show ipv6 interface	ʌ

57.1.4 ipv6 hop-limit

ج Ю ħu ʒ ɻ ´ Â

ipv6 hop-limit value

no ipv6 hop-limit

ð Ô

64 Â

ð ħu ʒ Ô

ð ´ Ô

ħu ʒ ɻ ´ ˘ Â

ð Ô

```
Ruijie(config)# ipv6 hop-limit 100
```

57.1.5 ipv6 neighbor

ħu ʒ ˘ ħu ʒ no ɻ Ʌu Â

ipv6 neighbor *ipv6-address interface-id hardware-address*

no ipv6 neighbor *ipv6-address interface-id*

ð ʌ Ô

ipv6-address ' IPV6 سم فخ˘ RFC2373 ⌧ سم فخ

interface-id ' جھ ٨ ↑ Routed Port,L3 AP ٨ Ո SVI ٨ ˜ Â

hardware-address ' سھ فخ ˇ . Л∪ XXXX.XXXX.XXXX 48 Æ
MAC سھ فخ ˇ 'X' ˆ Ώ ⁸

ð Ô

Â

ð ђu ҳ Ô

ð ´ Ô

ҷц й 0 صر ' ل Ь ˘ Л∪ جم
Ю ل IPv6 ˘ Ÿ فخ سم
0 صر IPv6 Â

ð Ô

```
Ruijie(conifg)# no ipv6 source-route
```

ð ђu ҳ Ô

57.1.7 ipv6 route

ђu ҳ IPV6 ˘ ђu ҳ no ╗ Â

ipv6 route *ipv6-prefix*/*prefix-length* {*ipv6-address* | *interface-id* [*ipv6-address*]}

no ipv6 route *ipv6-prefix*/*prefix-length* {*ipv6-address* | *interface-id* [*ipv6-address*]}

ð ٧ Ô

ipv6-prefix ' IPV6 ٨˘ RFC2373 فخ سم *prefix-length*
IPV6 ⎎ ˘ ⎎ ╗ Э'/'

ipv6-address ' ⎡ Ю فخ سم˘ RFC2373 فخ سم
Â Ю فخ سم ل Л∪ Ո-Ю ٨ ل Â Ю فخ سم
فخ سم سم˘ ѫ ٨ Â

interface-id ' ⎡ ٨˘
٨ Ю فخ سم˘ ѫ й جم سم ٨ Э˘
. Â Ю فخ سم
فخ سم سم˘ ѫ ٨ Â

ð ђu ҳ Ô

ð ´ Ô

' فخ سم Ю فخ سم فخ سم سم ѫ ٨ , 3
فخ سم فخ سم سم Ю ≠ فخ سم سم Â جم
فخ سم Ո-Ю فخ سم a فخ سم˘ Ю Ո ٨ ˘
ѫ Ю ¬ ٨ Ո ٨ Â

ð Ô

```
Ruijie(config)# ipv6 route 2001::/64 vlan 1 2005::1
```

ð Ħυ ϗ Ô

Ħυ ϗ	
show ipv6 route	IPV6

57.1.8 ipv6 ns-linklocal-src

Ħυ ϗ˘ ϟ فخسمسم Ù فخسم Â ľ **no ipv6 ns-linklocal-src** ľ˘ ϟ فخسم Ù فخسم Â

ipv6 ns-linklocal-src

no ipv6 ns-linklocal-src

ð Ô

ϟ ˘ Л فخسمسم Ù فخسم Â

ð Ħυ ϗ Ô

ð ´ Ô

ð Ô

```
Ruijie(config)# no ipv6 ns-linklocal-src
```

ج ϰ Ώ (RA) ϧ 0( )ϔ ج ϟ ϧ
ϧ 1000ms(1)

ð ħυ ϗ Ô

ϡ

ð ´ Ô

ج ϰ Ώ (RA) ϟ ϶ϔ ϟ ≠ Â
a Â

ð Ô

```
Ruijie(conifg-if)# ipv6 nd ns-interval 2000
```

ð ħυ ϗ Ô

ħυ ϗ	
show ipv6 interface	ϡ

57.1.10 ipv6 nd reachable-time

ħυ ϗ ϡ Ɔ NDP ╟ ί ج ϟ ϰϔ ϧ
ϟί ˘ ħυ ϗ no

ipv6 nd reachable-time *milliseconds*

no ipv6 nd reachable-time

ð ϡ Ô

milliseconds ' ϧ ϟί ˘ ϽU ϧ´ Æ˘ ' 0-3600000

ð Ô

ج ϰ Ώ (RA) ϧ 0( )ϔ ج ϟ ϧ
ϧ ϟί ϧ 30000ms(30)

ð ħυ ϗ Ô

ϡ

ð ´ Ô

a ϟ ˘ Ϥ ϟϽU
ί ˘ à Â ج a
Â

ج ϰ Ώ (RA) ϟ ϶ϔ ϟ ≠ Â
ϧ 0 ˘ . Â

RFC4861 ˘ ل جم ﷺ Э

╟˘ جم تن 0.5 ˆ 1.5 Â

ð Ô

```
Ruijie(conifg-if)# ipv6 nd reachable-time 1000000
```

ð ħu ʒ Ô

ð Ô

Ώ ɱ æ ∧ Э IPV6 address ђu ҙ ɱ Â ɱ æ
Ы Ώ ∧ Ю:

valid-lifetime: 2592000 (30)

preferred-lifetime: 604800 (7),

ɱ Ώ ˘ з ⊣ Л∪ on-link ″ ˘ ⊣ Л∪ ѕѧѓѕ ╟

ð ђu ҙ Ô

∧

ð ´ Ô

ђu ҙ ⊣ Л∪ ⁞ ɱ ∕ ∧ ˘ ↑ ї Ώ ɱ ˘
Ю Ы Ώ (RA)Ώ ɱ æ ∧ Э ipv6 address ђu ҙ
ɱ ˘ ╕ è ɱ ⊣ Л∪ ђu ҙ Â

ipv6 nd prefix default

∧ Э ∧ ˘. ╕ ɱ ˘ ∧ ˘
ѫ ipv6 nd prefix default ∧ ѝ ɱ ∧ Â
ѝ ɱ ∧ Л∪ ∕ a Ӭ ѝ ∧ Â Л∪ ∕ ipv6 nd
prefix default ⊣ ∧ a Ы ɱ ˘ ⊣
∧ ɱ Â

at *valid-date preferred-date*

ɱ 2 ' æ Ώ ɱ ѽ
' ∕ ˘ ѫ ⊣ Ы Ώ ɱ
˘ ⁞ ѝ 0 Â

ð Ô

æ ∧ SVI 1 Э ╕ ɱ

```
Ruijie(conifg)#interface vlan 1
Ruijie(conifg-if)# ipv6 nd prefix 2001::/64 infinite 2592000
```

∧ SVI 1 Э ɱ ∧ (a ⊣ ѕѧѓѕ ╟)

```
Ruijie(conifg)# interface vlan 1
Ruijie(conifg-if)# ipv6 nd default no-autoconfig
```

æ Ю ╕ ɱ ˘ a ∧ ˘ ѫ ∧ .
ɱ ≠ a ⊣ ѕѧѓѕ ╟ Â

ð ђu ҙ Ô

ђu ҙ	

IPv6 ħu ʒ

Ђu ҳ ∧ Э ч Ы Ґ (RA) ˘ Ђu ҳ no
Â

ipv6 nd ra-interval {*seconds* | *min-max min_value max_value*}

no ipv6 nd ra-interval

ð ∧ Ô

seconds' Ы Ґ (RA)'Ґ ˆ ч Â Л∪ и´ Æ Â

min-max: ˆ ч Ո

min_value: ˆ ч

max_value: ˆ ч

ð Ô

200 ˘ ч ж 200 Э Ю ╠ 20 Â

ð Ђu ҳ Ô

∧

ð ´ Ô

Ґ ˘ ж a Ы
Â ∧ ˘ и Э è ⊿ ч Ы Ґ ´ ˘
Л∪ ч ж Э ╠ ↑ γ Â

min-max˘ ж ч ж Ո
Â

ð Ô

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd ra-interval 110
Ruijie(config-if)# ipv6 nd ra-interval min-max 110 120
```

ð Ђu ҳ Ô

Ђu ҳ	
show ipv6 interface	∧ **ra-info**
ipv6 nd ra-lifetime	
ipv6 nd ra-hoplimit	Ы Ґ
ipv6 nd ra-mtu	Ы Ґ MTU

57.1.14 ipv6 nd ra-hoplimit

ħυ ҳ ٨ Ǝ ٦ ɣ Ώ̃ (RA) ˘ ħυ ҳ
no Â

ipv6 nd ra-hoplimit

ð Ô

ϰ IPv6 MTU

ð ħυ ϛ Ô

ϰ

ð ´ Ô

ϳ ϑ ϗΩ a MTU Â

ð Ô

```
Ruijie(config)# interface vlan 1
Ruijie(config -if)# ipv6 nd ra-mtu 1400
```

ð ħυ ϛ Ô

ħυ ϛ	
show ipv6 interface	ϰ **ra-info**
ipv6 nd ra-lifetime	
ipv6 nd ra-interval	ϗΩ ϙ
ipv6 nd ra-hoplimit	ϗΩ

57.1.16 ipv6 nd managed-config-flag

ħυ ϛ ϗΩ “**managed address configuration**” Æ
ħυ ϛ no Æ Â

ipv6 nd managed-config-flag

no ipv6 managed-config-flag

ð Ô

ϧ ϗΩ Æ Â

ð ħυ ϛ Ô

ϰ

ð ´ Ô

Æ ā ĵ ϗΩ ў ĭ ╟ ϙ
ϩϡ Â Æ ˘ ╟ ϩϡ ˘ ĭ ‡ a Â

ð Ô

```
Ruijie(config)# int vlan 1
Ruijie(config)# ipv6 nd managed-config-flag
```

ð ђu ҳ Ô

ђu ҳ	
show ipv6 interface	٨ ra-info
ipv6 nd other-config-flag	╠ ٧ ﻑ ﺳ Æ

57.1.17 ipv6 nd dad attempts

ђu ҳ ﺝ ٨ Э ѝ IPV6 ﺳ ﻑ ﺳ ﻑ ă ٧
(NS) Â ђu ҳ no Â

ipv6 nd dad attempts *value*

no ipv6 nd dad attempts

ð ٨ Ô

value ' (NS) Â ѝ 0 ѝ ٨ Э Ipv6
ﺳ ﻑ ů ╠ ﺳ ﻑ ă Â تن: 0-600

ð Ô

1

ð ђu ҳ Ô

٨

ð ´ Ô

ﺝ ٨ Э IPV6 ﺳ ﻑ ˘ ﺝ ﺳ ﻑ ٨ ѧ ѝ ů ╠
ﺳ ﻑ ă ˘ ﺳ ﻑ ”tentative”( ) Â ﺳ ﻑ ă ˘
ĭ ă ˘ ﺳ ﻑ ﺱ ٧ ˘ ĭ ă ˘ 3
ﺳ ﻑ ٨ EUI-64 ˘ ﺱ ﺝ Э ﺝ
ﺳ ﻑ ˘ ﺱ ╠ ٨ (ﺝ ٨ Э IPV6
) ˘ ٧ ﺳ ﻑ ˘ ”Ą down/up ٨
ů ╠ ﺳ ﻑ ă Â Ю ٨ ÿ down ٧ ѝ up ѝ
٨ Э ﺳ ﻑ ů ╠ ﺳ ﻑ ă Â

ð Ô

```
Ruijie(conifgf)# interface vlan 1
Ruijie(conifg-if)# ipv6 nd dad attempts 3
```

ð ђu ҳ Ô

ђu ҙ	

ð ħυ ϟ Ô

ϰ

ð ´ Ô

ICMPv6 ↑ ⁸ ˘ ┘Л┘
100 ICMPv6 (100pps) Â

ð Ô

```
Ruijie(conifgf)# interface vlan 1
Ruijie(config-if)# ipv6 redirects
```

ð ħυ ϟ Ô

ħυ ϟ	
show ipv6 interface	ϰ

57.1.20 clear ipv6 neighbors

╟ ˝ ˚ Â

clrear ipv6 neighbors

ð ħυ ϟ Ô

ð ´ Ô

ħυ ϟ ┘Л RDP ╟ ˝ ˚ ˘ a Â

ð Ô

```
Ruijie# clear ipv6 neighbors
```

ð ħυ ϟ Ô

ħυ ϟ	
ipv6 neighbor	
show ipv6 neighbors	

57.1.21 tunnel mode ipv6ip

ħu ҳ IPV6 ص, ħu ҳ no ħu ҳ
IPv6 ص Â

tunnel mode ipv6ip [**6to4** | **isatap**]

no tunnel mode

ð ٨ Ô

6to4 ' ى 6to4 ╟

isatap ' ى ISATAP ╟

ð Ô

… IPv6 ص ى Â

ð ħu ҳ Ô

٨

2HRGB QF4 QF45g#(

ð ´ Ô

٨ … ى ˘ ħu ҳ tunnel mode ipv6ip a
≠ ى Â ╟ ى è سم ف Â
ú ì ÿ ! ó

ð Ô

ЮO 6to4 '

ipv4-address ' фѣ ѕм , ⁄ IPv4 фѣ ѕм

ð Ô

фѣ ѕм Â

ð ђu ҙ Ô

⁄

ð ´ Ô

a ѓ ⁄ Э è ѕр à фѣ ѕм Ո фѣ ѕм ⁄ Â

~

╟ (6to4 Ո isatap) a фѣ ѕм Â

ð Ô

IPv6 :

```
Ruijie(config)# interface tunnel 1
Ruijie(config-if)# tunnel mode ipv6ip
Ruijie(config-if)# tunnel source vlan 1
Ruijie(config-if)# tunnel destination 192.168.5.1
```

ð ђu ҙ Ô

ђu ҙ	
tunnel source	фѣ ѕм
tunnel mode	
tunnel ttl	TTL

57.1.23 tunnel source

ђu ҙ ѝ ⁄ è фѣ ѕм , ђu ҙ no ђu ҙ ї фѣ ѕм Â

tunnel source {*ipv4-address* | *interface-type interface-number*}

no tunnel source

ð ⁄ Ô

ipv4-address ' IPv4 фѣ ѕм˘ IPv4 фѣ ѕм ѝ ѓ

фѣ ѕм Â

interface-type interface-number ′ ∧˘ ∧ ў IPv4
ѫ ϕ ѝ ж IPv4 ѫ ϕ Â

ð Ô

ѫ ϕ Â

ð ħυ ϛ Ô

∧

ð ´ Ô

ѫ ϕ ⅃ Ʊ IPv4 ѫ ϕ ≠ ⅃ Ʊ ∧ Э IPv4 ѫ ϕ ,
╟ (6to4 Ո isatap) ∧ è ѫ ϕ Â

~
a ж ∧ Э è ѻ à ѫ ϕ Ո ѫ ϕ ⅃ Â
ж ╟ ˘ ╟ ѫ ϕ a ⅃ Â

ð Ô

IPv6 '

```
Ruijie(config)# interface tunnel 1
Ruijie(config-if)# tunnel mode ipv6ip
Ruijie(config-if)# tunnel source vlan 1
Ruijie(config-if)# tunnel destination 192.168.5.1
```

ð ħυ ϛ Ô

ħυ ϛ	
tunnel mode	
tunnel destination	ѫ ϕ
tunnel ttl	TTL

57.1.24 tunnel ttl

ħυ ϛ IPv6 IPv4 TTL , ħυ ϛ no ħυ ϛ
128 Â

tunnel ttl *value*

no tunnel ttl

ð ∧ Ô

value' TTL

ð Ô

128 Â

ð ƫυ ʒ Ô

ʌ

ð ´ Ô

ƫυ ʒ ˩ ʃυ IPv6 IPv4 TTL Â

ð Ô

```
Ruijie(config)# interface tunnel 1
Ruijie(config-if)# tunnel ttl 64
```

ð ƫυ ʒ Ô

ƫυ ʒ	
tunnel mode	
tunnel source	فخ سم
tunnel destination	فخ سم

57.2

57.2.1 show ipv6 route

IPV6 Â

show ipv6 route [**static**] [**local**] [**connected**]

ð ʌ Ô

static '

local ' سم

connected '

ð ƫυ ʒ Ô

ð ´ Ô

ƫυ ʒ ˩ ʃυ Â

ð Ô

```
Ruijie# show ipv6 route
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       I1 - ISIS L1, I2 - ISIS L2, IA - IIS interarea
L    ::1/128
      via ::1, loopback 0
C    fa::/64
      via ::, vlan 1
L    fa::1/128
      via ::, loopback 0
C    2001::/64
      via ::, vlan 2
L    2001::1/128
      via ::, loopback 0
L    fe80::/10
      via ::1, Null0
C    fe80::/64
      via ::, vlan 1
L    fe80::200:ff:fe00:1/128
      via ::, loopback 0
C    fe80::/64
      via ::, vlan 2
```

ð ħυ ϗ Ô

ħυ ϗ	
ipv6 route	

57.2.2 show ipv6 neighbors

IPV6 Â

show ipv6 neighbors [**verbose**] [*interface-id*] [*ipv6-address*]

ð ϟ Ô

verbose '

interface-id ' ϟ Ɔ

ipv6-addres '

ð ħυ ϗ Ô

	MAX_UNICAST_SOLICIT(3) ?— /R— ὴ /H— ὴ ў
Age	ὴ ⊣⍭ ˘ ’-‘ ⊣ ˘ ΐ̈ ⊣ Â ’expired’ ὴ ⊣ ⍭ ˘ ⊣ NUD Â
Asked	ج فذ سم ⊿ ⊣ (NS) Â

ð Ô

```
Ruijie# show ipv6 neighbors
```

ð ħυ ϗ Ô

ħυ ϗ	
ipv6 neighbor	

57.2.3 show ipv6 interface

IPV6 ⍲ Â

show ipv6 interface [*interface-id*] [**ra-info**]

ð ⍲ Ô

interface-id ' ⍲ˆ ↑ Ʌυ ⍲ à aggregateport ⍲ à SVI ⍲˜

ra-info ' ⍲ Э ⊣ RA ⍲

ð ħυ ϗ Ô

ð ´ Ô

ħυ ϗ ⊣Ʌυ IPV6 ⍲ Э فذ سم à ND Ʌυ ⍱ Â

ð Ô

```
Ruijie# show ipv6 interface vlan 1
Interface vlan 1 is Up, ifindex: 2001
address(es):
Mac Address: 00:00:00:00:00:01
INET6: fe80::200:ff:fe00:1 , subnet is fe80::/64
```

```
INET6: 2001::1 , subnet is 2001::/64 [TENTATIVE]
Joined group address(es):
ff01:1::1
ff02:1::1
ff02:1::2
ff02:1::1:ff00:1
MTU is 1500 bytes
ICMP error messages limited to one every 10 milliseconds
ICMP redirects are enabled
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 milliseconds
ND retransmit interval is 1000 milliseconds
ND advertised retransmit interval is 0 milliseconds
ND router advertisements are sent every 200 seconds<240--160>
ND router advertisements live for 1800 seconds
```

ѫ Э ۔ Л∪ ۽ INET6: 2001::1 , subnet is 2001::/64 [TENTATIVE] ˘ ' INET6 ѫ ѳ ۸ [ ] Æ Ũ ђ Ю

Æ	Ũ ђ
ANYCAST	ѫ ѳ Ѝ ѫ ѳ

```
ND advertised retransmit time is 0 milliseconds
ND advertised CurHopLimit is 64
Prefixes: (total: 1)
fec0:1:1:1::/64(Def,Auto,vltime:  2592000,  pltime:  604800,
flags: LA)
```

ra-info ሐ ӧ ዘ

	ӧ ዘ
RA timer is stopped (on)	ኅ ሏ Ѽ ሏ ї
waits	ኵ ሏ ѝ è
initcount	RA ሏ ӧ ╟ ኅ ሏ Ѽ
RA(out/in/inconsistent)	out: ኅ ሏ Ѽ in: ኵ ሏ Ѽ inconsistent: ኵ ሏ Ѽ ∩ ሏ Ѽ ሃ a
RS(input)	ኵ ሏ
Link-layer address	ሃ فذ سم
Physical MTU	ሃ MTU
!M | M	!M ሏ Ѽ managed-config-flag Æ Э M: б Э ኅ
!O | O	!O ሏ Ѽ other-config-flag Æ Э O: б Э ኅ

ra-info ᵯ (Prefix) ሐ '

	ӧ ዘ
total	ሃ ᵯ
fec0:1:1:1::/64	έ ᵯ

Def	ɱ ᴧ ɱ ᴧ
Auto | CFG	Auto ɱ ج ᴧ IPV6 سه فخ ╟ ɱ , CFG ɱ
!Adv	ɱ a Ὼ
vltime	ɱ ( )
pltime	ɱ ( )
L | !L	L ɱ on-link Æ Э !L б Э ᶇ
A | !A	A ɱ auto-config Æ Э , !A б Э ᶇ