•´ Ñ ƒ

Jä K5%4°©2014

Jä K5%4°(Ý È J ±+- Í `ž Ä â,X Ô Û ý Ä

þ k Jä K5%4°,X :M6AŒ Ã È Ï) Ž á k ¹ Ï) • ã ê 6 ã Í `Y,X Ï)F¼ ÚE¯> á Ã ,) Ã Û Ñ Ã Â Ã ô • Ã5Ï
A¥ ä J ªAÁ?Ô Ã Ú J <F¼ êF¼ Ú*ü b î*üEè Ä

Ã Ã Ã Ã

Ã Ã RGOS® Ã

• ¯ y ƒ

` Í h,XEC Ê(Ö RGOS 10.4(2b2)

~ À * Š

:EÖ Ü ß ë Ž ,KÙAÏ

5%4° ¹/ß Ü

T | S Ž ,

5%4°1u)Ú ,

ê ± V

Jä K5%4° l •5%0- Öhttp://www.ruijie.com.cn/ Ä

Jä K5%4° ü4“ v á Öhttp://webchat.ruijie.com.cnÄ

Jä K5%4°E°/ß T Õ — Öhttp://www.ruijie.com.cn/service.aspx Ä

7 h 24 ã Ê T á u&Á4“ Ö 4008-111-000

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ü » ž j

` á/Ä	AÈ â
{ •]>™ `	` Ÿ4¡ Z { • ü s6Ñ `(=)Ú Þ,X Ô o(M û È ¤ o ZA’ Û]>™!9Px Ã.@ Ê Lp fL8 Ã õ + T ?˜ È ¹ ž+ 4Ú `E² y <,X?˜ ` S*ü š í1 Ä
{ • G!5B `	` Í { • Õ,X Ø5%4° #A, ž J r)„ s)ÚE¯> Z £EÄ È JG! ÝAº4š,XG!5B r _ Ä
{ • WEB 1u)Ú `	` Í { • Õ,X Ø s6Ñ,X WEB + M6E¯> £EÄ È JG! ÝAº4š,XG!5B r _ Ä

¯ / ,

1) Q ¸> ã4z n

Q ¸> ã ã V ß Ö

2k '

1 CLI

1.1

1.1.1 alias 310 T0 0 4770.5 Tc 130.5 98 13597.56.7 790.3F554003 Tm 03D41D35C1

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

V p ÿ á ·><,X Q ¸ á!6 Ô þ)A¡ È í î S*ü é Ë Ú Q ¸ Ù ÀCK 9 Ä _ V È ü EXEC
õ ã ßG!5B ÿ á”sv” · Ó Q ¸ ”show version

Q ¸ Z Æ	(Ë	AÈ â
	-	-

1.1.2 privilege

?U Ú Ô 5 Q ¸,X ;> L$ \ \ Ô þ Q ¸4{ ÿ È Ã ¹ ü < G!5B õ ã ß S*ü privilege Q ¸ Ä S*ü A¹ Q ¸,X no EÝNM Ã ¹ Ú Ô 5 Q ¸,X ;> L$ 6 á T¬Ax Ä

privilege *mode* [all] {level *level* | reset} *command-string*

no privilege *mode* [all] [level *level*] *command-string*

– DAÈ â	– D	£EÄ
	mode	?U \ ,X Q ¸ 2,X CLI Q ¸ õ ã Ä
	[all]	Ú Û n Q ¸,X Ý $ Q ¸,X L$ È ¬ ,Ì à,X L$4{ ÿ Ä
	level *level*	Û n Q ¸ ê $ Q ¸,XE¤> L$4{ ÿ È4{ ÿ,X8× È 0-15 Ä
	reset	Ú Q ¸,X ;> L$ 6 á T¬Ax4{ ÿ Ä
	command-string	?U \ ,X Q ¸ +0ú Ä

5 ,ÕG!5B	"u Ý5 ,Õ

Q ¸ õ ã	< G!5B õ ã

S*ü Û Ð	ß>< / ÔF¼ Ú ü privilege Q ¸ ÃE¯> \ ,X CLI Q ¸ õ ã GK + È á à,XA' Û È Ã \ ,X Q ¸ õ ã DG£ Ã6Ñ î ¥*ó ¬ ê È ü < G!5B õ ã ß È Ã ¹ S*ü privilege ? ë Î ' ! Ý Ã \ ,X CLI Q ¸ õ ã Ä

õ ã	AÈ â
config	< G!5B õ ã
exec	(M õ ã
interface	y ·G!5B õ ã
ip-dhcp-pool	DHCP "4G!5B õ ã
keychain	KeyChain G!5B õ ã
keychain-key	KeyChain-key G!5B õ ã
time-range	Time-Range G!5B õ ã

G!5B _	¹ ß _ $ ÈA'5B CLI 4{ ÿ 1 ,X · ¸ "test" È JA'5B ;> reload Q ¸,X L$ È Ã ¹ á !A' Û Ä

```
Ruijie(config)# enable secret level 1 0  test
Ruijie(config)# privilege exec level 1 reload
!8 Ê È S*ü4{ ÿ  1 E¯ 9 CLI + M6 È ¥)„ Ã ¹ S*ü  reload  Q ¸ Ö
Ruijie> reload ?
<cr>
 V p?U Ú reload ,X <F¼ $ Q ¸FÑ \ 4-4{ ÿ  1 ,X*ü  È í Ã ¹ S*ü  all  GK  + Ö
Ruijie(config)# privilege exec all level 1 reload
!8 Ê È S*ü4{ ÿ  1 E¯ 9 CLI + M6 È ¥)„ Ã ¹ S*ü  reload  ,X <F¼ $ Q ¸ Ö
Ruijie> reload ?
at                    reload at a specific time/date
cancel                cancel pending reload scheme
in                    reload after a time interval
<cr>
```

,Ì G Q ¸

Q ¸	£EÄ
enable secret	A'5B CLI 4{ ÿ,X · ¸

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

1.2

1.2.1 show aliases

?U / Ý,X Q ¸ ÿ á ê(M n Q ¸ õ ã ß,X Q ¸ ÿ á È Ã ¹ ü EXEC õ ã ß È S*ü show aliases Q ¸ Ä

show aliases [*mode*]

– DAÈ â

– D	£EÄ
mode	ÿ á ·><,X Q ¸ Ø,X Q ¸ õ ã Ä

5 ,ÕG!5B "u Ý5 ,Õ

Q ¸ õ ã EXEC õ ã

S*ü Û Ð V p"u ÝEg 9 Q ¸ õ ã È í / Ý,X Q ¸ ÿ áA'5B Ä

5 ,ÕG!5B	´
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	Eî ´NOEg 9 t š2O _ Ä Ô8 ™ ‰ ß È ¾ Ý ' á J2lC + A' Û t šE›,X · ¸ Ê È !LÔ ?UEg 9 t š2O _ Ä Ý · ¸ n V ß Ö ™NO Ù ÿ1 26 þ û ã m +!¡ ` D + +0ú Ä · ¸ !M6 Ã ¹ Ý ! Ð0N È >• Ñ+9 Ä KÈ ž4§ ,X0N í 0 · ¸,X ÔF¼ Ú Ä
"¼ ã	V p Û n Z t š2O _ È' âEg 9 Ô 5 â [· ¸ È í á6ÑG¡ „E¯ 9(M EXEC õ ã Ä á6Ñ 6 á*ü Ï ã •"© t š,X Æ ö · ¸ Ä ¾6ÑG¡ „G!5B A' Û · ¸ Ä
G!5B _	ßM6,X/ _A'5B · ¸ pw10 Ö `Ruijie(config)# enable password pw10`

Q ¸

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ·¸ Ú password ` security ·¸ ø/¡ Ä password 1T ) t š,X ·¸ È ¾6ÑA'5B 15 4{ ·¸ Ä security ·¸ ] < t š ·¸ È Ã ¹ 0 15 4{A'5B ·¸ Ä V p2Ï4³ È à4{ ÿ à Ê , ü ¹ Þ ø/¡ ·¸ È í password ·¸ á*ó Ä V pA'5BM2 15 4{,X password ·¸ È í î4- ÎA: ¤/ ÈJ7¾ |E@ security ·¸ ×V pA'5B 15 4{,X password ·¸ ` security ·¸ ` <,Ì à È í î4- ÎA: ¤/ × ·¸ ™NO ¹ t š 6 ã ± , È password ·¸ S*ü1T) t š È security ·¸ S*ü] < t š Ä

G!5B – ßM6,X/ _A'5B] < ·¸ pw10 Ö

```
Ruijie(config)# enable secret 0 pw10
```

,Ì G Q ¸

Q ¸	£EÄ
enable password	A'5B á à L$4{ ÿ,X ·¸ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.1.5 enable service

?U ' Ô â GKÁ Û n,X á u ÄSSH Server/Telnet Server/Web Server/Snmp Agent Å È üG!5B õ ã ß È Ã ¹ S*ü Q ¸ enable service Q ¸ Ö

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

– DAÈ â

– D	£EÄ
ssh-sesrver	' Ô â GKÁ SSH Server ÈA¹ Q ¸ à Ê ' Ô IPv4 ` IPv6 á u ×
telnet-server	' Ô â GKÁ Telnet Server ÈA¹ Q ¸ à Ê ' Ô IPv4 ` IPv6 á u ×
web-server	' Ô â GKÁ Http Server ÈA¹ Q ¸ à Ê ' Ô IPv4 ` IPv6 á u ×
snmp-agent	' Ô â GKÁ Snmp Agent ÈA¹ Q ¸ à Ê ' Ô IPv4 ` IPv6 á u ×

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ Q ¸*ü b ' Ô â GKÁ Û n,X á u Ä S*ü no enable service Q ¸ GKÁ Û n,X á u Ä

G!5B _ ßM6,X/ _ Q ¸ ×enable service ssh-sesrver, ' Ô SSH Server s6Ñ Ö

```
Ruijie(Config Å# enable service ssh-sesrver
```

,Ì G Q ¸

Q ¸	£EÄ
show service	¹,ß2Ï4³ ' !,X á u(Š Õ ×

G ÄAÈ â ´

å Telnet s6Ñ È [Ê Y • V ß Ö

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

;> 4§ p Ö

```
Ruijie# execute flash:line_rcms_script.text
executing script file line_rcms_script.text ......
executing done
Ruijie# configure terminal
Enter configuration commands, one per line.  End with  CNTL/Z.
Ruijie(config)# line vty 1 16
Ruijie(config-line)# transport input all
Ruijie(config-line)# no exec
Ruijie(config-line)# end
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.1.7 ip http authentication

ü S*ü Http Server ,X Ê í ÈLÔ?UE¯> ,O)AxA• !6ÑE¯ 9 Web NIM6 Ä?UA'5B Web ,O)AxA•,X • ã È üG!5B õ ã ß È Ã ¹ S*ü ip http authentication Q ¸ Ö

ip http authentication { enable | local }

– DAÈ â

– D	£EÄ
enable	G›*ü enable password ê enable secret Q ¸A'5B ,X · ¸E¯> AxA• È · ¸ ™NO 15 4{,X Ä 2Ï4³T¬AxG›*ü enable AxA• • ã Ä
local	G›*ü username Q ¸A'5B,X*ü á ` · ¸E¯> Ax A• ÈA¹*ü ™NO4¥ n15 4{ L$ Ä

5 ,ÕG!5B	2Ï4³T¬AxG›*ü enable AxA• • ã Ä
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	A¹ Q ¸*ü bA'5B Web ,O)AxA• • ã Ä S*ü no ip http authentication Q ¸ ÚA'5B 6 á T¬Ax Ä
G!5B –	ßM6,X/ _ Q ¸ ÈA'5B Web ,O) ÊG›*ü local AxA• • ã Ö `Ruijie(config)# ip http authentication local`

,Ì G Q ¸

Q ¸	£EÄ
enable service	' Ô â GKÁ Û n,X á u Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.1.8 ip http port

?UA'5BHTTP á u,X0Ã · È üG!5B õ ã ß È Ã ¹ S*ü ip http port Q ¸ Ö

ip http port *number*

– DAÈ â

– D	£EÄ
number	A'5B HTTP Server 0Ã · ÈT¬Ax 80 Ä

5 ,ÕG!5B T¬Ax 80 Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ Q ¸*ü bA'5B HTTP á u,X0Ã · Ä S*ü no ip http port Q ¸ Ú0Ã ·A'5B 6 á T¬Ax Ä

G!5B –

ßM6,X/ _ Q ¸ ÈA'5B HTTP á u0Ã · 8080 Ö

`Ruijie(config)# ip http port 8080`

,Ì G Q ¸

Q ¸	£EÄ
enable service	' Ô â GKÁ Û n,X á u Ä

G ÄAÈ â ´

(Ë	AÈ â

?U ü4œ0Ã ÞA’5B Ô þ V Ê,X · ¸ ÈAË ;> EXEC õ ã Q ¸ lock Ä

lock

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð

4EîE›A’5B Ê · ¸,X • ã È ü ± ÕE² y ²A±,X à Ê ÈJÕ #4œ0Ã+ M6 ¹L !6A“KÂ ÄEîE› ¹ ß!9PxJÕ #4œ0Ã+ M6 Ö

1 Ô&• ÖEg 9 lock Q ¸ È2Ï4³ î ¤/ Eg 9 · ¸ ×

1 `&• ÖEg 9 · ¸ È Ã ¹ Ï ã +0ú ÄEg 9 â È2Ï4³ î ¤/ .BAxEg 9,X · ¸ È' â È2Ï4³ î#ÙL8 #) È J / Locked µ C ×

?U Õ ü4œ0Ã Þ S*ülock Q ¸ È Ã ¹ ü line G!5B õ ã ß ;> lockable Q ¸ È4œ0Ã ü5 ,Õ ™ ‰ ß á Õ lock Q ¸ Ä S*ü no Q ¸ ª#\A'5B Ä

lockable

no lockable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã line G!5B õ ã

S*ü Û Đ A¹ Q ¸*ü b ü,Ì h4"CÃ Þ ÕJÕ #4œ0Ã,X(M û È?UJÕ #4œ0Ã Ã ¹EîE› ü EXEC õ ã ß ; > lock Q ¸ Ä

G!5B _

ßM6,X/ _ ü { Ä · Þ ' ÔJÕ #4œ0Ã,X s6Ñ È JJÕ # { Ä Ö

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

login

no login

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	line G!5B õ ã

S*ü Û Đ	V p"u Ý *ü AAA] < á u È íA¹ Q ¸*ü b,O)AxA• Ê 01T),X · ¸ õP` ÄE-G ,X · ¸ Û VTY ê console y · G!5B,X · ¸ Ä

G!5B _	ßM6,X/ _$è/ ü VTY ÞA'5B,O) · ¸ õP` Ä `Ruijie(config)# no aaa new-model` `Ruijie(config)# line vty 0` `Ruijie(config-line)# password 0 normatest` `Ruijie(config-line)# login`

Q ¸	

5 ,ÕG!5B ´

Q ¸ õ ã line G!5B õ ã

	-	-

2.1.16 password

?UG!5Bline 4“CÃ,O) · ¸ ÈAË ;> line G!5B Q ¸ password ÄA¹ Q ¸,X no 6 ã ôL8 line ,O) · ¸ Ä

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

no password

– DAÈ â	– D	£EÄ
	password	E°/ß*ü line 4“CÃ,X · ¸ Ä
	0|*7*	· ¸,X t š2O _ È0 ´ t š È7 1T) t š Ä
	encrypted-password	· ¸ [Ä

5 ,ÕG!5B	´
Q ¸ õ ã	line G!5B õ ã
S*ü Û Ð	A¹ Q ¸*ü bG!5B ÍE°/ß*ü A© Ò,O) line 4“CÃE¯> AxA•,X · ¸ Ä

G!5B _	ßM6,X/ _ Û n line ,O) · ¸ red Ö
	`Ruijie(config)# line vty 0`
	`Ruijie(config-line)# password red`

,Ì G Q ¸	Q ¸	£EÄ
	login	ü y · ÞG!5B,O)P`A• • ã 1T ) · ¸P`A• • ã

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

2.1.17 service password-encryption

?U Í · ¸E¯> t š ÈAË ;> service password-encryption Q ¸ ÈA¹ Q ¸,X no 6 á 5 ,Õ(Š Õ È Æ4£ ¬ ä š [,X á î 6 á â [Ä

service password-encryption

– DAÈ â	– D	
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	< G!5B õ ã

S*ü Û Ð

S*ü service password-encryption Q ¸E¯> { ÈA¹ Q ¸T¬Ax GKÁ,X È ´!8 Ø/¡ password ¹ â [/ È8M2 ,È y S*ü š [G!5B,X × Ô service password-encryption Q ¸ ¹ â È Æ¯> show running ê write ± , ¹ â È¸Ì G

interface *interface-name*	Û n Telnet v 0Ã S*ü,X$d y ·
/vrf *vrf-name*	Û n ¹A¶,X VRF CÃ+ ><

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð

A¹ Q ¸*ü b,O) Ô Ä telnet á u < Ä

"¼ ã /ipv6 GK + È ™ ü Õ IPV6 ,XA' Û EÖ*ü

G!5B _

_ 1 Ö ßM6,X _ $ Ètelnet ,X,Â,XA' Û IPV4 192.168.1.1 È0Ã · S*üT¬Ax È Û n $d y · vlan 1 È Û n ¹A¶,X VRF CÃ+ >< vpn1 ×

```
Ruijie# telnet 192.168.1.1 /source interface vlan 1 /vrf vpn1
```

_ 2 Ö ßM6,X _ $ Ètelnet ,X,Â,XA' Û IPV6 2AAA:BBBB::CCCC ×

```
Ruijie# telnet 2AAA:BBBB::CCCC
```

,Ì G Q ¸

Q ¸	£EÄ
ip telnet so urce-interface	Û n y · Þ,X IP 0 Telnet E² y ,X$d ×
show session	¹,ßEîE› ' ! TTY Î0Ÿ,X îA± ×
exit	EÔ Î ' !E² y ×

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.1.19 username

?UA'5B *ü á ÈAË ;> < G!5B õ ã Q ¸ username Ä

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

username *name* privilege *privilege-level*

no username *name*

– DAÈ â

– D	£EÄ
name	*ü á Ä

password	*ü · ¸ Ä
0|7	· ¸,X t š2O _ È0 ´ t š È7 1T) t š Ä
encrypted-password	· ¸ [Ä
privilege-level	*ü 4¥ n L$1 4{ Ä

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

A¹ Q ¸*ü b Î0Ÿ *ü D B g È oAxA• S*ü Ä

"¼ ã	V p Û n t š2O _ 7 È íEg 9,X Ü"© š [KS z ™NO J D Ä Eî ´NO Û n t š2O _ 7 ÄÔ8 ™ ‰ ß È¾ Ý ' á J2lC Æ4£ t š E›,X · ¸ Ê È !LÔ?U Û n t š2O _ 7 Ä

G!5B _ ßM6,X/ _G!5B Ô þ*ü á ` · ¸ È J4¥ n*ü 4{ ÿ 15 4{ Ö

```
Ruijie(config)# username test privilege 15 password 0 pw15
```

¸Ì G Q ¸

Q ¸	£EÄ
login local	E¯> AxA• Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.2

2.2.1 banner login

?UG!5B,O) ÛNl µ C ÈAË ü < G!5B õ ã ß ;> Q ¸ banner login Ä?U ª#\,O) ÛNl µ C,X G!5B È S*ü no banner login Q ¸ Ä

banner login c message c

– DAÈ â

– D	£EÄ
c	,O) ÛNl µ C,X ÚLh0ú È!£ ¹Eî µ KÈ á AŒ Î)„KÈ Lh0ú

message G!5B,O) ÛNl µ C Y •

K 94§ 3,X ÚLh0ú â ¡' Eg 9 +0ú È íE- o +0ú Ú>•2Ï4³ ö × Ä

G!5B –

ßM6,X/ _E¯> !£ ¹Eî-¹ µ C,XA'5B Ö

```
Ruijie(config)# banner motd $ hello,world $
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-
-	-

2.2.3 boot system

A'5BA' Û,X | /ß c [Ê á È S*üA¹ Q ¸,X no 6 ã 6 áA' Û,X Î V5 ,Õ | /ß c áG!5B Ä

boot system url

no boot system

– DAÈ â

– D	£EÄ
url	*ü b é Ð [Ê,X Ä

5 ,ÕG!5B T¬AxA'5B,X Ã é Ð /ß c [Ê á Ö flash:/rgos.bin Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

"¼ ã	1 Ã A¹ Q ¸ ™ Õ flash !4Ô,X URL È G ¾6ÑG!5B flash Þ,X [Ê 0 | [Ê á Ä 2 Ã + b2Ï4³ ü é ÐL !‰ ½ ó ™NO S*üA¹ Q ¸,XG!5B È¯!8A¹G!5B , bA' Û,X Boot ROM Y5à JM2 ± , bG!5B [Ê Ä

!8 Q ¸ Ã ¹ A' ÛG!5B*ü b é Ð,X /ß c á Ä üA' Û é ÐL !‰2Ï4³ Ý'; – D url Û n,X [ÊE¯> é Ð Ä ý*ü!8 s6Ñ Ã ¹ ü á à,XEC Ê(KÈ r)„ ¿Eó Û 6 Ä

G!5B –

¹ ß/ 8× V)EîE›G!5BA' Û,X /ß c á ü á àEC Ê(KÈ r)„ Û 6 Ä

```
Ruijie#show boot system
system boot file: flash:/rgos.bin

Ruijie#dir
Directory of flash:/
   11015744 2008-01-01 08:00:46  rgos.bin
   12019754 2008-02-01 08:00:46  s5750_10_4.bin
       399 2006-01-01 08:01:37  config.text
33,030,144 bytes total. (10,590,592 bytes free)

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

'A' ÛG¡ „ |,X Ê í È2Ï4³ Ú é Ð s5750_10_4.bin E¤> Ä

,Ì G Q ¸

Q ¸	£EÄ
show boot system	/ A' Û,X é Ð,Ì GG!5B µ C Ä

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.2.4 clock set

?U ¹G!5B2Ï4³ ÊJs È Ã ¹ S*ü(M *ü Q ¸ clock set ø/¡ 6 ã ,X Ô/¡ Ö

clock set *hh:mm:ss month day year*

– DAÈ â

– D	£EÄ
hh:mm:ss	' ! ÊKÈ È ã ã Ê Ä24 ã Ê Å: ÚJs : /¦
day	¹ ó Ä1-31 Å È Ô þ Ü ,X ¹ ó Ä
month	Ü Ñ Ä1-12 Å È Ô H ,X Ü Ñ
year	@ H Ä 1993-2035 Å È á6Ñ S*ü4ý m Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Đ

S*üA¹ Q ¸A'5B2Ï4³ ÊKÈ È • "1u)Ú Ä
Í b"u Ý ¤ o.@ Ê ÊJs,X5%4°A' Û È S*ü clock set A'5B5%4°A' Û Þ,X ÊKÈ ™ Í õE¤>
Ý È '5%4°A' Û ß+ â È ¹A'5B,X ÊKÈ Ú Ä

G!5B –

ßM6,X/ _A'5B ' ! ÊKÈ 2003 H 3 Ü 17 ¹ Þ 10 &• 20 Ú 30 /¦ Ö

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

,Ì G Q ¸

Q ¸	£EÄ
show clock	¹,ß ' ! ÊJs

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.2.5 clock update-calendar

Ú2Ï4³,X.@ Ê ÊJs È „ ' !EC Ê ÊJs Ä

clock update-calendar

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Đ

Ô o G ÄL8EC Ê ÊJs êE¬ K Û.@ Ê ÊJs Ækalendar Å Ä.@ Ê ÊJs+ + "4PE | È G S üA' Û GKÁ êG¡ ,X ™ ‰ ß 36Ñ Õ4ÁCD Ê Ä
V p2Ï4³,XEC Ê ÊJs `.@ Ê ÊJs á à!9 È+ bEC Ê ÊJs È 2' š,X4ì ÈLÔ?UEîE›A¹ Q ¸ ÚEC Ê ÊJs š.B,X ÊKÈ ` ¹ ó á .@ Ê ÊJs • Ä

G!5B _	S*ü V ß Q ¸ Ã ¹ Ú ' !EC Ê ÊJs,X ÊKÈ ` ¹ ó á .@ Ê ÊJs Ä `Ruijie# clock update-calendar`

,Ì G Q ¸		
	Q ¸	£EÄ
	-	-

G ÄAÈ â	-

Q ¸ Z Æ		
	(Ë	AÈ â
	-	-

2.2.6 exec-timeout

?UG!5B LINE ß,X !8A' Û,XE² yCY Ê ÊKÈ È S*ü exec-timeout Q ¸ ÆîE› no exec-timeout Q ¸ È ª#\ LINE ß,XE² yCY Ê ÈE² y" áCY Ê Ä

exec-timeout *minutes* [

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

2.2.7 hostname

?U u€ràŠ Â A’ r–v*ƒ*•H á Âœ±*ƒ*³â sÁ! ¸

– DAÈ â

– D	£EÄ
string	Q ¸ ¤/ 0ú +0ú È ÔKS Ã ¹G!5B 32 þ +0ú

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð V p 4"u ÝG!5B Q ¸ ¤/ 0ú È í2Ï4³ á/Ä . ¤/ 0ú È ¤/ 0ú ÚLc- 2Ï4³ á/Ä,X ¬ ê5à ¬ ê Ä Q ¸ ¤/ 0ú ¾ Í EXEC õ ã Ý Ä

G!5B _ ßM6,X/ _ ÚG!5B Q ¸ ¤/ 0ú RGOS Ö

```
Ruijie(config)# prompt RGOS
Ruijie(config)# end
RGOS
```

(-)Tj272.394 0 Td (-)Tj ET 66.84 37312 0.24 0.48 re f 141.6 37312 394.98 0.48 re f 66.843538 0.24 201

,Ì G Q ¸

Q ¸		£EÄ
-		-

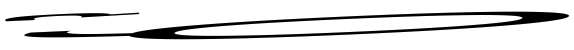
G ÄAÈ â ´

(Ë

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Đ



	-	-

2.2.12 write

Ú2Ï4³G!5B Ärunning-config Å ± , Û n !5B Ä

write [memory | network | terminal]

	– D	£EÄ
– DAÈ â	memory	Ú2Ï4³G!5B m 9 NVRAM È1 à b copy running-config startup-config Ä
	network	Ú2Ï4³G!5B ± , TFTP á u < Þ È1 à b copy running-config tftp Ä
	terminal	/ 2Ï4³G!5B È1 à b show running-config Ä

5 ,ÕG!5B

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð A¹ Q ¸<Q' Ý Ó · Q ¸ È + b J S"¯,X S*ü `>• û ŠAx Ã È ¹ q' ±+- ß 9 • "*ü S*ü Ä

G!5B _

_ 1 Ö ¹ ß/ 8× V) ü á Õ boot config Q ¸,XA' Û Þ ± ,2Ï4³G!5B Ö

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

_ 2 Ö ¹ ß/ 8× ü Õ boot config Q ¸,XA' Û ÞA'5B |G!5B [Ê U ,¬ Þ [Ê â È ü/ÏL8 U ,¬ ! â ;> write Q ¸,X á à> Ö

```
Ruijie(config)# boot config /mnt/usb1/config.text
Ruijie# write
Building configuration...
Write to boot config file: [/mnt/usb1/config.text]
[OK]
Ruijie# usb remove 1
0:1:1:38 Ruijie: USB-5-USB_DISK_REMOVED: USB Device <USB Mass Storage Device> Removed!
Ruijie# write
Building configuration...
Write to boot config file: [/mnt/usb1/config.text]
```

```
[Failed]
The device [usb1] does not exist, write to the default config file
[/config.text]? [no] yes
Write to the default config file: [/config.text]
[OK]
```

,Ì G Q ¸

Q ¸	£EÄ
boot config	A'5BA' Û,X |G!5B [Ê á
copy	ÍA' ÛG!5B [ÊE¯> á
show running-config	¹,ß2Ï4³G!5B

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.3

2.3.1 show clock

?U ¹,ß2Ï4³ ÊKÈ ÈAË ;> (M *ü õ ã Q ¸ show clock Ä

show clock

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð S*üA¹ Q ¸ Ã ¹ ¹,ß ' !2Ï4³ ÊJs È detail EÝNM Ú / 2Ï4³ ÊJs 9$d Ä

G!5B _ ßM6,X/ _ ;> show clock Q ¸,X Ô þ/ _ Ö

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

,Ì G Q ¸	Q ¸	£EÄ
	clock set	A'5B2Ï4³ ÊJs

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

2.3.2 show line

?U ¹,ß4"CÃ,XG!5B µ C È ü(M õ ã ß È ;> Q ¸ show line Ä

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

– DAÈ â	– D	£EÄ
	console	¹,ß { Ä4"CÃ,XG!5B µ C
	aux	¹,ß aux 4"CÃ,XG!5B µ C
	vty	¹,ß vty 4"CÃ,XG!5B µ C
	line-num	¹,ß,X line 4"CÃ

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð S*üA¹ Q ¸ È ¹,ß!£ 54"CÃ,XG!5B µ C Ä

G!5B _

ßM6,X/ _ Ú ¹,ß console ·,XG!5B µ C Ö

```
Ruijie# show line console 0
CON     Type    speed   Overruns
* 0     CON     9600    45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape  Disconnect  Activation
               ^^x     none        ^M
Timeouts:      Idle EXEC    Idle Session
               never        never
History is enabled, history size is 10.
```

```
Total input: 53564 bytes
Total output:  395756 bytes
Data overflow:  27697 bytes
stop rx interrupt:  0 times
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

2.3.3 show reload

?U ¹,ß2Ï4³,XG¡ „ |A'5B ÈAË ü(M *ü õ ã ß ;> Q ¸ show reload Ä

show reload

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð S*üA¹ Q ¸ Ã ¹ ¹,ß2Ï4³,XG¡ „ |A'5B Ä

ßM6,X/ _ ¹,ß2Ï4³G¡ „ |,XA'5B Ö

```
Ruijie# show reload
```

G!5B _

Q ¸ Z Æ	(Ë	AÈ â
	-	-

2.3.4 show running-config

?U ' !A' Û2Ï4³!7 üE¤> ,XG!5B µ C ÈAË ;> (M *ü õ ã Q ¸ show running-config Ä show running-config

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð ´

G!5B _ ´

Q ¸	

```
By Ruijie Network
System start time: 1970-6-14 11:49:53
System uptime: 3:17:1:17
System hardware version: 2.0
System software version: RGOS 10.3.00(4), Release(34679)
System boot version: 10.2.34077
System CTRL version: 10.2.24136
System serial number: 1234942570001
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

3 LINE

3.1 LINE

3.1.1 access-class

A'5B Line ß h*ü,X ACL ÄA"KÂ { ë>< Å Ä S*ü access-class *acl-no* { in | out } Q ¸G! 5BLine ß,XA"KÂ { ë>< ÄS*ü no access-class *access-list-number* {in | out } Q ¸ ª#\ LINE ß,X ACL G!5B Ä

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

– DAÈ â

– D	£EÄ
access-list-number	Û n+ access-list n ,XA"KÂ { ë>< Ä
in	Í y «E² yE¯> A"KÂ { E›$¸ Ä
out	Í ê ÎE² yE¯> A"KÂ { E›$¸ Ä

5 ,ÕG!5B

5 ,ÕA'5B Ê È Line ß"u ÝG!5B Ï)A"KÂ { ë>< Ä y ÝE² y È J AŒ Ý ê Î,XE² y Ä

Q ¸ õ ã

Line G!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸G!5B Line ß,XA"KÂ { ë>< Ä¬Ax ™ ‰ ß AŒ y « ÝE¯ 9,XE² y â ê Î,XE² y È áE¯> E² yE›$¸ Ä 'G!5B Z access-class **â** È ¾ ÝEîE› access list E›$¸,XA"KÂ È ! Ã ¹ E² y ä s Ä S*ü show running Q ¸ ¹,ß Line ß,XG!5B µ C Ä

G!5B _

A'5B ü line vty 0 4 ß È Í b y «,XE² yG!5B access-list 10 Ö

```
Ruijie# configure terminal
Ruijie(config)# line vty 0 4
Ruijie(config-line)# access-class 10 in
```

,Ì G Q ¸

Q ¸	£EÄ
show running	¹,ß,X(Š Õ µ C Ä

G ÄAÈ â

EC Ê(RGOS10.1 ¹ Þ

A¹ Q ¸ Ã ¹ r t ' ! Ã ¹ S*ü,X VTY E² y D,Â ÄEîE›A¹ Q ¸,X no – D Ã ¹ £ å ' ! Ã ¹ S *ü,X VTY E² y D,Â Ä

line vty *line-number*

no line vty *line-number*

telnet	G!5BA¹Line ß È ¾ AŒTelnet #A,EîAƒ Ä
none	G!5BA¹Line ß È á AŒ Ï) #A,EîAƒ Ä

5 ,ÕG!5B

5 ,ÕA'5B Ê ÈVTY AŒ Ý,X #A,EîAƒ Ä5à J W2O _,X TTY ,XT¬Ax NONE È á AŒ Ï) #A,EîAƒ Ä 'A'5B Z,Ì h,X #A, Ã ¹EîAƒ â È Ã ¹ S*ü default transport input Q ¸ ÚA'5B 6 á T¬Ax Ä

Q ¸ õ ã

Line G!5B õ ã

S*ü Û Ð

A¹ Q ¸G!5B Line õ ã ß AŒEîAƒ,X #A, Ä VTY üT¬Ax ™ ‰ ß È AŒ Ý #A,Eî µ Ä 'G!5B Z AŒEîAƒ,X #A, â È ¾ ÝG!5B,X #A, ! Ã ¹ ü Í h,X VTY ÞE² y ä s Ä S*ü show running Q ¸ ¹,ß Line ß,XG!5B µ C Ä

AÈ â	6 áT¬AxG!5B S*üdefault transport inpu t Q ¸ Ä no transport input Q ¸ È Ú/U!6 Í h LINE õ ã ß Ý,XEî µ #A, ÄA'5B4§ p â transport input none ,Ì à Ä

G!5B _

A'5B ü line vty 0 4 ß È ¾ AŒtelnet #A,,O) Ö

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

,Ì G Q ¸

Q ¸	£EÄ
show running	¹,ß,X(Š Õ µ C Ä

G ÄAÈ â

EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

4

4.1

4.1.1 ping

A¹ Q ¸*ü 9# A©5%4°,XE²Eî û È Ã ¹ Ý ,X }*ü Až • Ã n !5%4° ,XE²Eî ûKÂNl Ä Q ¸ ã V ß Ö

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

	– D	£EÄ
– DAÈ â	*vrf-name*	VRF á +
	ip-address	Û n IPv4 Ä
	length	Û n ¥EÕ D B Ù,XKS z
	times	Û n ¥EÕ D B Ù,X þ D
	seconds	Û nCY Ê,X ÊKÈ
	data	Û n ? Ö B
	source	Û n$d IPv4 ê$d y · ÄJ È)ƒ ² y · Ä _ V 127.0.0.1 Å á AŒ 0 $d Ä
	df-bit	A'5B IP ,X DF ÛAš ! È ' DF !>•A'5B 1 Ê È></ á Í D B ÙE¯> Ú!‰ Ø)Ú ÈT¬Ax DF ! 0 Ä
	validate	A'5B ú õP` ¡ h y [

5 ,ÕG!5B 5 ,Õ ü Û n,X ÊKÈÄ5 ,Õ 2 /¦ Å Y ÈEÕ5 þKS z 100Byte ,X D B Ù Û n,X IP Ä

Q ¸ õ ã (M *ü õ ã

Ping Q ¸E¤> ü BEî*ü õ ã `(M *ü õzã ß È 1 BEî*ü 0 õBã ßyÈ ¾6Ñõ ð€..Pî*ü d =ð,€›ãaÁ ¸ õ á •Á - #

S*ü Û Ð

K 'G!5BAË –5× DNS G!5BF¼ Ú Ä

G!5B _

_ 1 Ö BEî ping ,X r _ Ö

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

_ 2 Ö =) ping ,X r _ Ö

```
Ruijie# ping 192.168.5.197     length 1500 ntimes 100 timeout 3 data ffff
source 192.168.4.10
 Sending 100, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3 seconds:
  < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 2/2/3 ms
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

A¹ Q ¸ ü ÝA' Û Þ Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

4.1.2 ping ipv6

A¹ Q ¸*ü 9# A©5%4°,XE²Eî û È Ã ¹ Ý ,X }*ü Až • Ã n !5%4° ,XE²Eî ûKÂNl Ä Q ¸ ã V ß Ö

ping [ipv6] [*ip-address* [length *length*] [ntimes *times*] [timeout *seconds*] [data *datata*

-	-

G ÄAÈ â A¹ Q ¸ ü Ý Õ ipv6 A' Û Þ Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

4.1.3 traceroute

;> traceroute Q ¸ È Ã ¹ / *ü b# A©,X D B Ù ¢$d ,Â,X 4£E›,X Ý5% G.

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

– DAÈ â

– D	£EÄ
vrf-name	VRF á +
Ip-address	Û n IPv4 Ä
number	Û n ¥EÕ,X v# ,X DG£
source	Û n$d IPv4 ê$d y · ÄJ È)ƒ ² y · Ä _ V 127.0.0.1 Å á AŒ 0 $d Ä
seconds	Û nCY Ê ÊKÈ
minimum maximum	Û n Ô ã ` Ô û TTL

5 ,ÕG!5B

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

¢ ÞM6,X4§ p È Ã ¹#Ù . ,ß È ¢$d ?UA“KÂ IP 61.154.22.36 ,X È5%4° D B ÙFÑ4£E› Z ¾ o5% G ÆÉ6 Å È à Ê4- Î Z E’A¹5% G 8…C ,X ÊKÈ ÈE- Í b5%4° Ú d È M2 Ý*ü,X Ä

_ 2 Ö5%4° ¤ o5% G áEî,X traceroute _ $ Ö

```
Ruijie# traceroute 202.108.37.42
< press Ctrl+C to break >
Tracing the route to 202.108.37.42
1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2      0 msec  4 msec 4 msec
3     192.168.110.1    16 msec  12 msec  16 msec
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
```

¢ ÞM6,X4§ p È Ã ¹#Ù . ,ß È ¢$d ?UA“KÂ IP 202.108.37.42 ,X È5%4° D B ÙFÑ4£E› Z ¾ o5% G ÄÉ17 Å È J è5% G 4 Î)„ Z Lp Ä

```
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
```

5 ,ÕG!5B	´
Q ¸ õ ã	(M *ü õ ã
S*ü Û Ð	Traceroute ipv6 Q ¸ ?U*ü b ” ¹5%4°,XE²Eî û È J ü5%4° Lp ¥*ó Ê È š.B,X n ! Lp ¥*ó,X !5B Ä?U S*ü ³ á s6Ñ È í?U G!5B ³ á á u < È K 'G!5BAË –5× DNS G!5BF¼ Ú Ä
G!5B _	¹ ß h*ü traceroute ipv6 ,X ø þ _ $ È Ô þ 5%4°E² y+ Eî È Ô þ 5%4°E² y , ü ¤ o5% G áEî,X ™ ‰ Ä _ 1 Ö5%4°+ Eî,Xtraceroute ipv6 _ $ Ö Ruijie# **traceroute ipv6** 3004::1 < press Ctrl+C to break > Tracing the route to 3004::1 1 3000::1 0 msec 0 msec 0 msec 2 3001::1 4 msec 4 msec 4 msec 3 3002::1 8 msec 8 msec 4 msec 4 3004::1 4 msec 28 msec 12 msec ¢ ÞM6,X4§ p Ã ¹#Ù . ,ß È ¢$d ?UA“KÂ IP 3004::1 ,X È5%4° D B ÙFÑ4£E› Z ¾ o5% G ÆÉ4 Å È à Ê4- Î Z E’A¹5% G 8…C ,X ÊKÈ ÈE- Í b5%4° Ú d È M2 Ý*ü,X Ä _ 2 Ö5%4° ¤ o5% G áEî,X traceroute ipv6 _ $ Ö Ruijie# **traceroute ipv6** 3004::1 < press Ctrl+C to break > Tracing the route to 3004::1 1 3000::1 0 msec 0 msec 0 msec 2 3001::1 4 msec 4 msec 4 msec 3 3002::1 8 msec 8 msec 4 msec 4 * * * 5 3004::1 4 msec 28 msec 12 msec ¢ ÞM6,X4§ p Ã ¹#Ù . ,ß È ¢$d ?UA“KÂ IP 3004::1 ,X È5%4° D B ÙFÑ4£E› Z ¾ o5% G ÆÉ5 Å È J è5% G 4 Î)„ Z Lp Ä

Q ¸ Z Æ	(Ë	AÈ â
	-	-

G!5B y · Q ¸

	-	-

5.1.2 clear counters

#ÙL8 y ·Au D <

clear counters [*interface-id*]

– DAÈ â	– D	£EÄ
	interface-id	y ·2O _ ` y · Ë Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð y ·,X4³Au Ã ¹EîE›(M õ ã Q ¸ show interfaces ¹,ß È ü(M õ ã ß S*ü clear counters Q ¸ È Ã ¹ Ú y ·,X4³Au #ÙLÊ Ä V p á Û n y · È í Ú Ý,X y ·Au D <#ÙLÊ Ä

G!5B _

```
Ruijie# clear counters gigabitethernet 1/1
```

,Ì G Q ¸	Q ¸	£EÄ
	show interfaces	

Q ¸ õ ã (M õ ã

S*ü Û Ð A¹ Q ¸ ¾ Í Switch Port,L2 Aggregrate port ,X ä ,0Ã ·,Routed port,L3 Aggregate port ,X ä ,0Ã · Ý Ä ;> A¹ Q ¸,Ì ' b Í y ·4¥ n ;> shutdown ` no shutdown Q ¸ Ä

G!5B _ Ruijie# **clear interface gigabitethernet** 1/1

,Ì G Q ¸

Q ¸	£EÄ
shutdown	GKÁ y ·

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.4 descriptioin

A'5B y ·,X ÿ á Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

description *string*

no description

– DAÈ â

– D	£EÄ
string	y ·,X ÿ á Ä

5 ,ÕG!5B 5 ,Õ"u Ý ÿ á Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð S*ü show interfaces Q ¸ ¹,ß y · µ C È Ù À ÿ á Ä

G!5B –

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

,Ì G Q ¸

Q ¸	£EÄ
show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.5 duplex

ü y ·G!5B õ ã ß È S*üA¹ Q ¸E¯> y ·,X ¹A'5B Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á 5 ,Õ Ä

duplex {auto | full | half}

no duplex

– DAÈ â

– D	£EÄ
auto	></ < ¹ ` ¹7¾EÖ h Ä
full	></ < ¹ Ä
half	></ ¹ Ä

5 ,ÕG!5B 5 ,Õ < ¹ ` ¹7¾EÖ h Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð y ·,X ¹ 2 û â y ·,X2O _ Ý G Ä Ã ¹ S*ü show interfaces Q ¸ ¹,ß y · ¹,XA' 5B Ä

G!5B _ `Ruijie(config-if)# duplex full`

,Ì G Q ¸

Q ¸	£EÄ
show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.6 flowcontrol

A¹ Q ¸ ' Ô ê GKÁ# G£ { Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A’5B 6 á 5 ,Õ Ä

flowcontrol {auto | off | on}

no flowcontrol

– D	£EÄ

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ Ã ¹ B Ô n?˜ í È Ú J ª y · t 9 Ô þ aggregate port Ä aggregate port ,X Ý ä , y · Ú>•?š Ô þ H ' È ä , y ·,X 2 û Ú+ aggregate port ,X 2 û ‡ n Ä S*ü show interfaces ê show interfaces aggregateport Q ¸ ¹,ß y ·A'5B Ä

G!5B _

```
Ruijie(config)# interface aggregateport 3
Ruijie(config-if)#
```

,Ì G Q ¸

Q ¸	£EÄ
show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.8 interface fastEthernet

A¹ Q ¸ õ ã Đ7þ Q ¸ ÈEÝ ½ ¿Eó ¹ þ5% y · È JE¯ 9 y ·G!5B õ ã Ä

interface fastEthernet *mod-num*/*port-num*

– DAÈ â

– D	£EÄ
mod-num/port-num	õ + Ë/ õ + Þ,X0Ã · Ë È8× È+ A' Û ` =) õ + ‡ n Ä

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ A¹ Q ¸"u Ý no EÝNM ÈA¹2O _ y · á6Ñ ôL8 Ä S*üshow interfaces ê show interfaces fastEthernet Q ¸ ¹,ß y ·A'5B Ä

G!5B _

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

,Ì G Q ¸	Q ¸	£EÄ
	show interfaces	¹,ß y ·A’5B `4³Au µ C Ä

G ÄAÈ â	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

5.1.9 interface giagbitEthernet

A¹ Q ¸ õ ã Ð7þ Q ¸ ÈEÝ ½ ¹ þ5% y · È JE¯ 9 y ·G!5B õ ã Ä

interface gigabitEthernet *mod-num/port-num*

	– D	£EÄ
– DAÈ â	*mod-num/port-num*	

h h <17EA>face gigabitEth3j 0.c 8632 0.50.252 Tf 0 Tcshow inte.77 es 253 m 5 6 pq KTS ÷ 9 & R1 f „ ÓÓ ÆÆ (¸ ¸ ÞÞ ÆÆ ÕÕ 4 ÓÞ

A¹ Q ¸ õ ã Ð7þ Q ¸ Èï Î êA“KÂ Ô þ | Õ x 6<. ³ y ·Äswitch virtual interface È SVIÅÈ JE¯ 9 y ·G!5B õ ã Ä S*üA¹ Q ¸,X no EÝNM ôL8ÆSVI Ä

interface vlan *vlan-id*

no interface vlan *vlan-id*

– DAÈ â

– D	£EÄ
vlan-id	VLAN ID È8× È+ A’ Û ‡ n Ä

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð S*ü show interfaces ê show interfaces vlan Q ¸ ¹,ß y ·A’5B Ä

G!5B _

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

,Ì G Q ¸

Q ¸	£EÄ
show interfaces	¹,ß y ·A’5B `4³Au µ C Ä

G ÄAÈ â

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.11 line-detect

;> line-detect Q ¸ È Ã ¹*ü b# A©E² y4“4Ú,X(Š Õ Ä

line-detect

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð line-detect Q ¸ ?U*ü b ” ¹4“4Ú,X(Š Õ È J ü4“4Ú Î)„ Lp Ä V •CÃ Å Ê È*ü b n ! Lp ¥*ó,X !5B Ä

G!5B _

```
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
Interface : GigabitEthernet 0/1
```

5 ,ÕG!5B 5 ,Õ + · Ä

Q ¸ õ ã y ·G!5B õ ã Ä(=)Ú y · È á Ù À Ap ` SVI Å

S*ü Û Ð V p à Ô0Ã · Ã ¹EÝ ½ · `+ · ø/¡ ŸBü2O _ È | ¾6Ñ S*ü J Ô Ä Ô º.B n ŸBü 2O _ â È üG!5B0Ã ·,X 2 û È _ V(Š Õ Ã ¹ Ã# G£ { `Eó z1 ÈFÑ Û0Ã · ' ! EÝ ½2O _,X 2 û Ä ¬0Ã ·2O _ â È „2O _ Í h,X0Ã ·,X 2 û JT¬Ax 2 û È | Ã ¹ BLÔ?UG¡ „G!5B Ä

G!5B _

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# medium-type copper
```

,Ì G Q ¸

Q ¸	£EÄ
show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â 24SFP/12GT 4" 5,X 12 þ SFP y · ` 12 þ 10/100/1000M BASE-T y · AŒ | Õ Û 6 Ä á Õ á*ü y ·7¾ | ø • ' ! ¹ 0 ü SFP y ·E¬ 10/100/1000M BASE-T y · Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.13 mtu

A'5B y · Õ,X mtu

Mtu *num*

– DAÈ â

– D	£EÄ
num	64 É9216(ê5Ù 65536 B { • á à5à á à)

5 ,ÕG!5B 5 ,Õ 1500 Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð A'5B y · Õ,X mtu Ä Ô û ôEg ûKS Å Ä,Â ! A' Û ¾ Õ Í(=)Ú y ·,XA'5B Ä

G!5B _

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

Ruijie(config-if)# **mtu** 9216

,Ì G Q ¸	Q ¸	£EÄ
	show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

5.1.14 shutdown

ü y ·G!5B õ ã È S*üA¹ Q ¸ GKÁ y · Ä S*üA¹ Q ¸,X no EÝNM ' Ô y · Ä shutdown

no shutdown

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ

Í b y · Ä ¹ þ5% y · ÃAp y · ÃSVI y · Å ÈA¹ Q ¸ GKÁ y · È y ·,X J ªG!5B ¡' , ü È áCK 0*ü Ä S*ü show interfaces Q ¸ ¹,ß y ·(Š Õ Ä

AÈ â	8¹ S*ü6î Ne4 ¿Eó . no shutdown y · ¡ 0 ÈÃ6Ñ î ¥*ó y ·(Š Õ 5ÏE@ ¤/ µ C Ä

clear interface	y ·.@ Ê á ! Ä
show interfaces	¹,ß y ·A'5B `4³Au µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ		
	(Ë	**AÈ â**
	-	-

5.1.15 snmp trap link-status

üA' Û Ã ¹ Î b y ·G!5B ú ¥EÕA¹ y ·,X LinkTrap È ' s6Ñ ' Ô Ê È V p y · ¥*ó Link (Š Õ ¬ ê ÈSNMP Ú ¥ Î LinkTrap, ¡ í á ¥ Ä S*üA¹ Q ¸,X no EÝNM‰SNMP Ú á ¥ Î LinkTrap Ä

snmp trap link-status

no snmp trap link-status

– DAÈ â	**– D**	**£EÄ**

5 ,ÕG!5B 5 ,Õ ™ ‰ ß ÈA¹ s6Ñ ' Ô È V p y · ¥*ó Link (Š Õ ¬ ê ÈSNMP Ú ¥ Î LinkTrap Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð Í b y · Ä ¹ þ5% y · Ã Ap y · Ã SVI y · Å ÈA¹ Q ¸G!5B ú ¥EÕA¹ y ·,X LinkTrap È ' s6Ñ ' Ô Ê È V p y · ¥*ó Link (Š Õ ¬ ê ÈSNMP Ú ¥ Î LinkTrap, ¡ í á ¥ Ä

G!5B _

_ 1 Ö ßM6G!5B ÚG!5B y · á ¥EÕ Link trap Ö

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

_ 2 Ö ßM6G!5B ÚG!5B y · ¥EÕ Link trap Ö

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

,Ì G Q ¸

Q ¸	**£EÄ**
Ruijie(config-if)# snmp trap link-status	' Ô ¥EÕA¹ y · link trap ,X s6Ñ Ä

A¹

G!5B y · Q ¸

– DAÈ â

– D	£EÄ
vlan-id	0Ã ·?U t 9,X VLAN ,X ID Ä

5 ,ÕG!5B switch port 5 ,Õ õ ã access È5 ,Õ,X VLAN VLAN 1

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Eg 9 Ô þ VLAN ID Ä V pEg 9,X Ô þ „X VLAN ID È íA' Û î ï Î Ô þ VLAN È J Ú A¹0Ã ·A'5B A¹ VLAN ,X ä , Ä V pEg 9,X Æ4£ , ü,X VLAN ID È í r t VLAN ,X ä ,0Ã · Ä V pA¹0Ã · Ô þ trunkport È íA¹ ¡ 0 Ú"u Ý Ï) 0*ü Ä

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```

,Ì G Q ¸

Q ¸	£EÄ
switchport mode	Û n Ô þ ` y ·Äswitch port ÅX õ ã Ä
switchport trunk	Ô þ trunkport Û n Ô þ native VLAN `G!5BE- þ Trunk ·,XAŒ Ã VLAN ë>< Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.19 switchport mode

S*üA¹ Q ¸ Û n Ô þ ` y · Äswitch port ÅX õ ã È Ã ¹ Û nA¹ y · access port ê5Ù trunk port, ê5ÙA' 802.1Q L{F' Ä S*üA¹ Q ¸,X no EÝNM ÚA¹ y ·,X õ ã 6 á 5 ,Õ Ä

switchport mode {access | trunk }

no switchport mode

– DAÈ â

– D	£EÄ
access	A'5B Ô þ switch port access port Ä
trunk	A'5B Ô þ switch port trunk port Ä

5 ,ÕG!5B	switch port 5 ,Õ õ ã access
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	V p Ô þ switch port ,X õ ã access È íA¹ y · ¾6Ñ Ô þ VLAN ,X ä , Ä Ã ¹ S*ü switchport access vlan Q ¸ Û nA¹ y · ¾ Ô þ VLAN ,X ä , Ä V p Ô þ switch port ,X õ ã trunk ÈíA¹ y · Ã ¹ î þ VLAN ,X ä , ÄA¹ y · Ã ¹ 2 b ¾ o VLAN + A¹ y ·,XAŒ Ã VLAN ë>< ‡ n Ètrunk port AŒ ÃVLAN ë>< ,X Ý VLAN ,X ä , Ä Ã ¹ S*ü switchport trunk Q ¸ 9 n y ·,XAŒ Ã VLAN ë>< Ä
G!5B _	`Ruijie(config-if)# **switchport mode trunk**`

,Ì G Q ¸

Q ¸	£EÄ
switchport access	Ú Ô þ 0 Ã · A ' 5statics accessport ÈJ Ú W Û# Ô þ VLAN ,X ä ,0Ã · Ä
switchport trunk	Ô þ trunkport Û n Ô þ native VLAN `G!5BE- þ Trunk ·,XAŒ Ã VLAN ë>< Ä

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

5.1.20 switchport trunk

Ô þ trunkport Û n Ô þ native VLAN `G!5BE- þ Trunk ·,XAŒ ÃVLAN ë>< Ä S*üA¹ Q ¸,X no EÝNM ÚA¹ y ·,Xtrunk 2 û 6 á 5 ,Õ Ä

switchport trunk {allowed vlan {all | [add | remove | except] *vlan-list* }| native vlan *vlan-id*}

no switchport trunk {allowed vlan | native vlan }

– DAÈ â

– D	£EÄ

allowed vlan *vlan-list*	G!5BE- þ Trunk ·,XAŒ ÃVLAN ë><Ä – D vlan-list Ã¹ Ô þ VLAN È 3 Ã¹ Ô2Ï ë VLAN È¹ ã,X VLAN ID Ô È¹ û,X VLAN ID 4§ È KÈ*ü Ä - Å 0ú ËE² y ÄV Ö 10-20 Ä‰ KÈ Ã¹*üÄ, Å0ú ËLh Ô È V Ö1-10,20-25,30,33 all ,X ÿ AŒ Ã VLAN ë><Ù ÿ Ý Õ,X VLAN × add ></ Ú Û n VLAN ë>< t 9AŒ Ã VLAN ë>< × remove ></ Ú Û n VLAN ë>< ¢AŒ ÃVLAN ë>< ôL8 × except ></ ÚL8 ë Î,X VLAN ë>< ê,X Ý VLAN t 9AŒ Ã VLAN ë>< ×
native vlan *vlan-id*	G!5BNative VLAN Ä

5 ,ÕG!5B 5 ,Õ,XAŒ ÃVLAN ë><A'5B all È5 ,Õ,X Native VLAN í VLAN 1

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð

Native VLAN Ö

0 Trunk ÈE- þ ·?U 2 b Ô þ native VLAN Ä Aç native VLAN È Û üE- þ y · Þ ¥,X UNTAG y [ÈFÑ>•Ax 2 bE- þ VLAN ,X Ä ' ÈE- þ y ·,X5 ,Õ VLAN ID Ä G IEEE 802.1Q ,X PVID Å native VLAN ,X VLAN ID Ä à Ê È ü Trunk Þ ¥EÕ 2 b native VLAN ,X û È í ™' G›*ü UNTAG ,X • ã Ä

AŒ ÃVLAN **ë><** Ö

Ô þ Trunk ·5 ,Õ Ã¹ ôEg A' Û Õ,X Ý VLAN Ä1 É4094 Å,X# G£ Ä È 3 Ã¹ EîE›A'5B Trunk ·,XAŒ ÃVLAN ë>< 9L$ ¤ o VLAN ,X# G£ á6ÑEîE›E- þ Trunk · Ä

S*ü show interfaces switchport Q ¸¹,ßA'5B Ä

ßM6 Ô þ ^ VLAN 2 ¢0Ã· 1/15 /ï Î,X _ $ Ö

```
Ruijie(config)# interface fastethernet 1/15
Ruijie(config-if)# switchport trunk allowed vlan remove 2wi53-1i75-1T5#
```

G!5B _

Q ¸	£EÄ
show interfaces	/ y · µ C Ä
	Ú Ô þ 0 Ã · A ’ 5 statistics
switchport access	accessport

¸ì G Q ¸

```
Interface Switchport ModeAccess Native Protected VLAN lists
--------- ---------- --------- ------ ------ ---------
GigabitEthernet 0/1 enabled Access 11  Disabled  ALL
```

,Ì G Q ¸

Q ¸	£EÄ
duplex	E¯> y ·,X ¹A'5B Ä
flowcontrol	' Ô ê GKÁ# G£ { Ä
interface gigabitEthernet	EÝ ½ ¹ þ5% y · Ä Ù À ¹ þ5% y · Å È JE¯ 9 y ·G!5B õ ã Ä
interface aggregateport	ï Î êA"KÂ Ô þ6. ÜJÒCÃ y · È JE¯ 9 y ·G!5B õ ã Ä
interface vlan	ï Î êA"KÂ Ô þ | Õ x 6<. ³ y · Äswitch virtual interface ÈSVI Å È J E¯ 9 y ·G!5B õ ã Ä
shutdown	ü y ·G!5B õ ã È S*üA¹ Q ¸ GKÁ y · Ä
speed	A'5B y ·,XEó)[Ä
switchport priority	A'5B 802.1q ,X y ·5 ,Õ ì 4{ Ä
switchport protected	Ú y ·A' ± x y · Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

6 Aggregate Port

6.1

6.1.1 aggregateport load-balance

G!5B Ô þAP ,X# G£ G>51k"© Ä S*üA¹ Q ¸,X no EÝNM Ú# G£ G>5A'5B 6 á 5 ,Õ Ä

aggregateport load-balance {dst-mac | src-mac | src-dst-mac | dst-ip | src-ip | src-dst-ip }

no aggregateport load-balance

– DAÈ â	– D	£EÄ
	dst-mac	BEg 9 y [,X,Â,X MAC E¯> # G£ ÚG! Äü AP ØJÒCÃ È,Â,X MAC ,Ì à,X y [>•EÕ ,Ì à,X 0Ã · È,Â,X MAC á à,X y [ÚG! á à,X0Ã · Ä
	src-mac	BEg 9 y [,X$d MAC E¯> # G£ ÚG! Ä ü AP ØJÒCÃ È 97¾ á à MAC ,X y [ÚG! á à,X 0Ã · È97¾,Ì à,X MAC ,X y [S*ü,Ì à,X0Ã · Ä
	src-dst-ip	B$d IP â,Â,X IP E¯> # G£ ÚG! Ä á à,X$d IP——,Â,X IP Í,X# G£EîE› á à,X0Ã ·E@ ¥ Èà Ô$d IP——,Â,X IP ÍEîE›,Ì à,XJÒCÃE@ ¥ Ä ü Ý 5 Ê ß È Î A,G›*ü!8# G£ G>5,X • ã Ä
	dst-ip	BEg 9 y [,X,Â,X IP E¯> # G£ ÚG! Äü AP Ø JÒCÃ È,Â,X IP ,Ì à,X y [>•EÕ ,Ì à,X0Ã · È ,Â,X IP á à,X y [ÚG! á à,X0Ã · Ä
	src-ip	BEg 9 y [,X$d IP E¯> # G£ ÚG! Äü AP ØJÒ CÃ È 97¾ á à IP ,X y [ÚG! á à,X0Ã · È 97¾,Ì à,X IP ,X y [S*ü,Ì à,X0Ã · Ä
	src-dst-mac	B$d MAC â,Â,X MAC E¯> # G£ ÚG! Ä á à,X$d MAC——,Â,X MAC Í,X# G£EîE› á à,X0Ã ·E@ ¥ È à Ô$d MAC——,Â,X MAC ÍEîE›,Ì à,XJÒCÃE@ ¥ Ä
5 ,ÕG!5B	BEg 9 y [,X,Â,X `$d MAC E¯> # G£ ÚG! Ä	
Q ¸ õ ã	< G!5B õ ã Ä	

S*ü Û Ð	S*ü show aggregateport load-balance Q ¸ ¹,ßA'5B,X# G£ G>51k"© Ä
G!5B _	Ruijie(config)# **aggregateport load-balance dst-mac**

,Ì G Q ¸

Q ¸	£EÄ
show aggregateport load-balance	/ aggregateport A'5B µ C Ä

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

6.1.2 port-group

Ú Ô þ(=)Ú0Ã ·A'5B Aggregate Port ,X ä ,0Ã · Ä S*üA¹ Q ¸,X no EÝNM ôL8A¹0Ã ·,X Aggregate Port ä , 2 û Ä

port-group

G ÄAÈ â -

7 VLAN

7.1

7.1.1 name

A’5B VLAN ,X á + Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A’5B 6 á ä5 ,Õ Ä

name *vlan-name*

no name

– D

switchport access vlan *vlan-id*

no switchport access vlan

– DAÈ â

– D	£EÄ
vlan-id	0Ã ·?U t 9,X VLAN ,X ID Ä

5 ,ÕG!5B switch po o364/TT52 T_0 1 Tf8.36 64.8604 1FF514E3<30C4 6474>6<0739>6<2C58>]T3T /TT51 Tf

– D	£EÄ
access	A'5B Ô þ switch port access port Ä
trunk	A'5B Ô þ switch port trunk port Ä
hybrid	A'5B Ô þ switch port hybrid port Ä
uplink	A'5B Ô þ switch port uplink port Ä
dot1q-tunnel	A'5B Ô þ switch port 802.1Q tunnel port Ä

– DAÈ â

5 ,ÕG!5B switch port 5 ,Õ õ ã access

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ V p Ô þ switch port ,X õ ã access È íA¹ y · ¾6Ñ Ô þ VLAN ,X ä , Ä Ã ¹ S*ü switchport access vlan Q ¸ Û nA¹ y · ¾ Ô þ VLAN ,X ä , Ä

V p Ô þ switch port ,X õ ã trunk ÈíA¹ y · Ã ¹ î þ VLAN ,X ä , ÄA¹ y · Ã ¹ 2 b ¾ o VLAN + A¹ y ·,XAŒ Ã VLAN ë>< ‡ n Ètrunk port AŒ ÃVLAN ë>< ,X Ý VLAN ,X ä , Ä Ã ¹ S*ü switchport trunk Q ¸ 9 n y ·,XAŒ Ã VLAN ë><

G!5B _ `Ruijie(config-if)# **switchport mode trunk**`

Q ¸	£EÄ
switchport access	Ú Ô þ0Ã ·A'5B access port È J Ú W Û# Ô þ VLAN ,X ä ,0Ã · Ä
switchport trunk	Ô þ trunk port Û n Ô þ native VLAN `G!5BE- þ Trunk ·,XAŒ Ã VLAN ë>< Ä

,Ì G Q ¸

G ÄAÈ â ´

(Ë	AÈ â
-	-

Q ¸ Z Æ

7.1.4 switchport trunk

Ô þ trunk port Û n Ô þ native VLAN `G!5BE- þ Trunk ·,XAŒ ÃVLAN ë>< Ä S*üA¹ Q ¸,X no EÝNM ÚA¹ y ·,Xtrunk 2 û 6 á 5 ,Õ Ä

switchport trunk {allowed vlan { all | [add | remove | except] *vlan-list* }| native vlan *vlan-id*}

no switchport trunk {allowed vlan | native vlan }

– D	£EÄ
	G!5BE- þ Trunk ·,XAŒ ÃVLAN ë>< Ä – D vlan-list Ã ¹ Ô þ VLAN È 3 Ã ¹ Ô2Ï ë VLAN È ¹ ã,X VLAN ID Ô È ¹ û,X VLAN ID 4§ È KÈ*ü Ä - Å

allowed vlan *vlan-list*

	Q ¸	£EÄ

	-	-

7.2

7.2.1 show vlan

/ VLAN ,X ä ,0Ã ·1 µ C Ä

show vlan [id *vlan-id*]

– DAÈ â

– D	£EÄ
vlan-id	VLAN ID Ë Ä

5 ,ÕG!5B 5 ,Õ / <F¼ µ C

Q¸õ ã (M õ ã

S*ü Û Ð ?UE¨² (M õ ã ÈEg 9 end Q¸È êK 9 Ctrl+C 4˜ ÜK Ä
?UE¨² < G!5B õ ã ÈEg 9 exit Q¸

G!5B _

```
Ruijie# show vlan id 1
VLAN Name                            Status    Ports
---------- ------------ ------------ ---------- ----------
   1 VLAN0001                        STATIC    Fa0/1, Fa0/2
```

,Ì G Q¸

Q¸	£EÄ
name	A'5B VLAN ,X á + Ä
switchport access	Ú y · t 9 Ô þ Vlan Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

G!5BSuper-vlan Q ¸

S*üA¹ Q ¸A'5B subvlan ,X ip 8× È Ä

subvlan-address-range *start-ip end-ip*

no subvlan-address-range

– D	£EÄ
start-ip	A¹ SubVLAN ,X IP CK Ÿ
end-ip	A¹ SubVLAN ,X IP 4§ 3

– DAÈ â

5 ,ÕG!5B ´ -

Q ¸ õ ã VLAN G!5B õ ã

S*ü Û Đ ?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä

?UE¨ ² < G!5B õ ã ÈEg 9 exit Q ¸

G!5B _

5 ,ÕG!5B	´
Q ¸ õ ã	VLAN G!5B õ ã
S*ü Û Đ	?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä ?UE¨ ² < G!5B õ ã ÈEg 9 exit Q ¸
G!5B –	Ruijie(config)# **vlan** 3 Ruijie(config-vlan)# **supervlan**

,Ì G Q ¸

Q ¸	£EÄ
show supervlan	/ supervlan µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

8.1.4 proxy-arp

S*üA¹ Q ¸ ' Ô VLAN ,X ARP ·)Ú s6Ñ Ä

proxy-arp

no proxy-arp

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	´
Q ¸ õ ã	VLAN G!5B õ ã
S*ü Û Đ	?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä ?UE¨ ² < G!5B õ ã ÈEg 9 exit Q ¸

G!5B –

```
Ruijie(config)# vlan 3
Ruijie(config-vlan)# proxy-arp
```

,Ì G Q ¸

Q ¸	£EÄ
´	

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

9 Protocol VLAN

9.1

9.1.1 protocol-vlan ipv4 addr mask addr vlan id

G!5BIP Ã $5% }-Õ ¹ ž VLAN Ú2O

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	y · õ ã

S*ü Û Ð	´

G!5B _	Ruijie(config-if)# **protocol vlan ipv4**

,Ì G Q ¸	Q ¸	£EÄ
	no protocol vlan ipv4	-

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

9.1.3 protocol-vlan profile num frame-type type ether-type type

G!5B y [2O _ ` ¹ þ5%2O _,X profile

– DAÈ â	– D	£EÄ
	num	profile 2ö é
	type	y [2O _ ` ¹ þ5%2O _

ð´ Rp bT Q& T) Þ

,Ì G Q ¸	Q ¸	£EÄ
	show protocol-vlan profile	-
	show protocol-vlan profile *num*	-
	no protocol-vlan profile	-
	no protocol-vlan profile *num*	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

9.1.4 protocol-vlan profile num vlan id

h*ü ¤ profile A¹ y ·

– DAÈ â	– D	£EÄ
	num	profile 2ö é
	id	VLAN ID È1- { • Õ,X Ô û VLAN

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie(config-if)# protocol-vlan profile 1 vlan 101
```

	-	-

9.2

9.2.1 show protocol-vlan

/ Protocol VLAN ,XG!5B

show vlan protocol-vlan

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Ð	´
G!5B _	Ruijie# **show protocol-vlan**

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

10 Private VLAN

10.1

10.1.1 private-vlan association

G6(secondary VLAN â primary VLAN G!5B Q ¸

private-vlan association {*svlist* | add *svlist* | remove *svlist*}

no private-vlan association

– DAÈ â

– D	£EÄ
svlist	secondary VLAN list
no	ª#\ primary VLAN â Ý,X secondary VLAN G6(

5 ,ÕG!5B ´ G6(

Q ¸ õ ã Primary VLAN G!5B õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# vlan 22
Ruijie(config-vlan)# private-vlan association add 24-26
```

,Ì G Q ¸

Q ¸	£EÄ
show vlan private-vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

10.1.2 private-vlan mapping

ô Ø secondary VLAN 7Ç Ý SVI y · Q ¸

private-vlan mapping {*svlist* | add *svlist* | remove *svlist*}

no private-vlan mapping

– DAÈ â

– D	£EÄ
svlist	secondary VLAN list
no	ôL8 ô Ø

5 ,ÕG!5B ´

Q ¸ õ ã Primary VLAN Í h,X y · õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# interface vlan 22
Ruijie(config-if)# private-vlan mapping add 24-26
```

,Ì G Q ¸

Q ¸	£EÄ
show vlan private-vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

10.1.3 private-vlan type

G!5BVLAN /• Ý VLAN

private-vlan {*community* | *isolated* | *primary*}

no private-vlan {*community* | *isolated* | *primary*}

– DAÈ â

– D	£EÄ
community	G!5B community VLAN
isolated	G!5B isolated VLAN
primary	G!5B primary VLAN
no	ôL8,Ì h,X/• Ý VLAN G!5B

5 ,ÕG!5B ´/• Ý VLAN

Q ¸ õ ã VLAN G!5B õ ã

S*ü Û Ð ´

G!5B _ Ruijie(config)# **vlan** 22
Ruijie(config-vlan)# **private-vlan primary**

,Ì G Q ¸

Q ¸	£EÄ
show vlan private-vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

10.1.4 switchport mode private-vlan

Ä â y · private VLAN õ ã

switchport mode private-vlan{ host |promiscuous }

no switchport mode

– DAÈ â

– D	£EÄ
host	/• Ý VLAN ,X õ ã
promiscuous	/• Ý VLAN ,X#Ë õ ã
no	ôL80Ã ·/• Ý VLAN G!5B

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _ Ruijie(config)# **interface gigabitEthernet**0/2
Ruijie(config-if)# **switchport mode private-vlan host**

¸Ì G Q ¸	Q ¸	£EÄ
	show vlan private-vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

10.1.5 switchport private-vlan host-association

G6(private VLAN õ ã y · G6(,X primary VLAN ž ü,X secondary VLAN

switchport private-vlan host-association *p_vid s_vid*

no switchport private-vlan host-association

– DAÈ â	– D	£EÄ
	p_vid	Æ4£ ï Î,X primary VID
	s_vid	Æ4£ ï Î,X secondary VID
	no	¢/• Ý VLAN ôL8 0Ã ·

5 ¸ÕG!5B ´

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan host
Ruijie(config-if)# switchport private-vlan host-association 22 23
```

¸Ì G Q ¸	Q ¸	£EÄ
	show vlan private-vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â

G!5BPrivate VLAN Q ¸

show vlan private-vlan [community | primary | isolated]

– DAÈ â

– D	£EÄ
primary	/ primary VLAN µ C
community	/ community VLAN µ C
isolated	/ isolated VLAN µ C

5 ,ÕG!5B ´ private VLAN

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _ `Ruijie# show vlan private-vlan`

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

10.3 Hybrid

10.3.1 switchport hybrid allowed vlan

switchport hybrid allowed vlan [[add][tagged | untagged] | remove] v*list*

no switchport hybrid allowed vlan

G!5Bhybrid 0Ã ·,XEg Î?˜ í

– DAÈ â

– D	£EÄ
no	6 á hybrid T¬AxEg Î?˜ í

5 ,ÕG!5B þG!5B

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _ Ruijie(config-if)# **switchport hybrid allowed vlan add untagged** 3-5

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

10.3.2 switchport hybrid native vlan

switchport hybrid native vlan *vid*

no switchport hybrid native vlan

G!5Bhybrid 0Ã ·,XT¬Ax vlan

– DAÈ â

– D	£EÄ
no	6 á hybrid T¬AxVLAN

5 ,ÕG!5B þG!5B

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _ Ruijie(config-if)# **switchport hybrid native vlan** 3

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

10.3.3 switchport mode hybrid

switchport mode hybrid

no switchport mode

G!5B0Ã · hybrid ·

– DAÈ â	– D	£EÄ
	no	ôL8 hybrid õ ã

5 ,ÕG!5B þG!5B

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _ `Ruijie(config-if)# switchport mode hybrid`

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11 QinQ

11.1

11.1.1 dot1q outer-vid vid register inner-vid v_list

ü tunnel 0Ã · Þ ÈA’5B Î b #A,,X êF¼ vid #Ï t1*+9><

dot1q outer-vid *vid* register inner-vid *v_list*

no dot1q outer-vid *vid* register inner-vid *v_list*

– DAÈ â

– D	£EÄ
v_list	YF¼vlan id ë><
vid	êF¼vlan id
no	ª#\1*+9><A’5B

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _

ßM6 _ $A’5BEg 9 y [tag ,X vid 4-22 Ê È r t tag ,X vid 3

```
ruijie#configure
ruijie(config)#interface gigabitEthernet 0/1
ruijie(config-if)#switchport mode dot1q-tunnel
ruijie(config-if)#dot1q outer-vid 3 register inner-vid 4-22
ruijie(config-if)#end
```

,Ì G Q ¸

Q ¸	£EÄ
show registration-table [interface *intf-id*]	-

G ÄAÈ â EC Ê(Xf,", "("CÔ%# o ˜E! ,Â G Q ¸

G!5BQinQ

dot1q relay-vid *vid* translate inner-vid *v-list*

no dot1q relay-vid *vid* translate inner-vid *v-list*

– D	£EÄ
v_list	Eg 9 y [êF¼ ,X

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

S*ü Û Đ ´

G!5B _

ßM6 _ $G!5B ê tag ,X ì 4{+ YF¼ tag ô Ø

```
ruijie# configure
ruijie(config)# interface gigabitEthernet 0/2
ruijie(config-if)# dot1q-Tunnel cos 3 remark-cos 5
ruijie(config-if)# end
```

,Ì G Q ¸

Q ¸	£EÄ
show interface intf-name remark	-

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.1.5 frame-tag tpid tpid

A’5B V tpid

frame-tag tpid *<tpid>*

no frame-tag tpid

– DAÈ â

– D	£EÄ
no	ª#\ tpid A’5B

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã (5760 { • ¾ Õ ü < G!5B õ ã ßG!5B)

S*ü Û Đ ´

G!5B _

ßM6 _ $A’5B V tpid 0x9100

```
ruijie(config)# interface g 0/3
```

```
ruijie(config-if)# frame-tag tpid 0x9100
ruijie(config-if)# end
ruijie# show frame-tag tpid
Ports   tpid
------  ---------
Gi0/3    0x9100
```

,Ì G Q¸

Q¸	£EÄ
show frame-tag tpid	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q¸ Z Æ

(Ë	AÈ â
-	-

11.1.6 inner-priority-trust enable

h*ü/ ª#\ y · y [ê tag ì 4{+ Y tag á

inner-priority-trust enable

no inner-priority-trust enable

– DAÈ â

– D	£EÄ
no	ª#\ y · y [ê tag ì 4{+ Y tag á

5 ,ÕG!5B ´

Q¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _

ßM6 _ $G!5B ê tag ,X ì 4{+ YF¼ tag á

```
ruijie#configure
ruijie(config)# interface gigabitEthernet 0/2
ruijie(config-if)# inner-priority-trust enable
ruijie(config-if)#end
```

,Ì G Q¸

Q¸	£EÄ

	show inner-priority-trust	-

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.1.7 mac-address-mapping x source-vlan src-vlan-list destination-vlan dst-vlan-id

Ú$d vlan : 4 ,X | Õ mac á ,Â,X vlan

mac-address-mapping x destination-vlan dst-vlan-id source-vlan src-vlan-list

no mac-address-mapping x destination-vlan dst-vlan-id source-vlan src-vlan-list

– DAÈ â

– D	£EÄ
no	ª#\ y · Þ ¢ Û n$d vlan Û n,Â,X vlan ,X á

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

ßM6 _ $G!5B ê tag ,X ì 4{+ YF¼ tag ô Ø

G!5B _

```
ruijie#configure
ruijie(config)#
```

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.1.8 switchport mode dot1q-tunnel

G!5B y · dot1q-tunnel ·

switchport mode dot1q-tunnel

no switchport mode

– DAÈ â	– D	£EÄ
	no	ôL8,Ì h,X dot1q-tunnel ·G!5B

5 ,ÕG!5B	M2dot1q-tunnel ·

Q ¸ õ ã	y · õ ã

S*ü Û Ð	´

G!5B _	ßM6 _ $A’5B0Ã · dot1q-tunnel ·
	`ruijie(config)# interface gigabitEthernet 0/1`
	`ruijie(config-if)# switchport mode dot1q-tunnel`
	`ruijie(config)# end`

,Ì G Q ¸	Q ¸	£EÄ
	show vlan	-

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.1.9 switchport mode uplink

A’5B0Ã · õ ã uplink

switchport mode uplink

no switchport mode

– DAÈ â

– D	£EÄ
no	ª#\ uplink 0Ã · õ ã,XA'5B

5 ,ÕG!5B ´ uplink ·

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _ ßM6 _ $A'5B0Ã · uplink ·

```
ruijie(config)#interface gigabitEthernet 0/1
ruijie(config-if)#switchport mode uplink
ruijie(config)#end
```

,Ì G Q ¸

Q ¸	£EÄ
show vlan	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.1.10 switchport dot1q-tunnel allowed vlan

A'5B dot1q-tunnel ,XAŒ Ãvlan

switchport dot1q-tunnel allowed vlan [add] {tagged|untagged } *v_list*

switchport dot1q-tunnel allowed vlan remove *v_list*

no switchport dot1q-tunnel allowed vlan

– DAÈ â

– D	£EÄ
tagged	ú tag
untagged	á ú tag
v_list	vlan id ë><
no	ª#\A'5B

5 ,ÕG!5B AŒ Ãvlan 1 Èuntagged

Q ¸ õ ã	y · õ ã
S*ü Û Ð	´

G!5B _	ßM6 _ $A'5B dot1q-tunnel ·,X vlan 3-6 AŒ Ã vlan ÈEg Î ú tag
	`ruijie(config)#`**`interface gigabitEthernet`** `0/1`
	`ruijie(config-if)#`**`switchport dot1q-tunnel allowed vlan tagged`** `3-6`
	`ruijie(config)#`**`end`**

,Ì G Q ¸

Q ¸	£EÄ
show interface dot1q-tunnel	-

G ÄAÈ â	EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.1.11 switchport dot1q-tunnel native vlan

A'5B dot1q-tunnel ,XT¬Axvlan id

switchport dot1q-tunnel native vlan *vid*

no switchport dot1q-tunnel native vlan

ruijie(config)#**end**

,Ì G Q¸

Q¸	£EÄ
show interface dot1q-tunnel	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q¸ Z Æ

(Ë	AÈ â
-	-

11.1.12 traffic-redirect access-group acl outer-vlan

Í access,trunk,hybrid, uplink 0Ã ·Eg 9 y [ÈA'5B Î b# ,X êF¼ vid Â 1*+9

traffic-redirect access-group *acl* outer-vlan *vid* in

no traffic-redirect access-group *acl* outer-vlan

– DAÈ â

– D	£EÄ
acl	*ü b G!# ,X acl
vd	Â â,X êF¼ vid
no	ª#\ Î b# ,X êF¼ vid Â 1*+9

5 ,ÕG!5B 1*+9><0N

Q¸ õ ã y · õ ã

S*ü Û Đ ´

G!5B _ ßM6 _ $A'5B Ú y ·$d 1.1.1.1 Eg 9 y [,X êF¼ vid Â 3

```
ruijie#configure
ruijie(config)#ip access-list standard 2
ruijie(config-acl-std)#permit host 1.1.1.1
ruijie(config-acl-std)#exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode trunk
ruijie(config-if)# traffic-redirect access-group 2 outer-vlan 3 in
ruijie(config-if)# end
```

,Ì G Q ¸	Q ¸	£EÄ
	show traffic-redirect	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.1.13 traffic-redirect access-group acl inner-vlan

Í access,trunk,hybrid/4mtlink0Ã ·Eg Î y [ÈA'5B Î b# ,X YF¼ vid Â 1*+9

traffic-redirect access-group *acl* inner-vlan *vid* out

no traffic-redirect access-group *acl* inner-vlan

– DAÈ â	– D	£EÄ
	acl	*ü b G!# ,X acl
	vid	Â â,X YF¼ vid
	no	ª#\ Î b# ,X YF¼ vid Â 1*+9

5 ,ÕG!5B 1*+9><0N

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _

ßM6 _ $A'5B Ú y ·$d 1.1.1.2 Eg Î y [,X êF¼ vid Â 6

```
ruijie#configure
ruijie(config)#ip access-list standard to_ 6
ruijie(config-acl-std)#permit host 1.1.1.2
ruijie(config-acl-std)#exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode trunk
ruijie(config-if)#traffic-redirect access-group to_ 6 inner-vlan 6
out
ruijie(config-if)# end
```

,Ì G Q ¸	Q ¸	£EÄ

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.1.15 l2protocol-tunnel

G!5Bdot1q-tunnel 0Ã · y ` #A, y [

l2protocol-tunnel {stp|gvrp }

no l2protocol-tunnel {stp|gvrp }

– DAÈ â	– D	£EÄ
	stp	y stp y [
	gvrp	y gvrp y [
	no	ª#\ y y [A’5B

5 ,ÕG!5B	´

Q ¸ õ ã	< õ ã

S*ü Û Ð	´

G!5B _	ßM6,X _ $ ' Ô ` #A, gvrp ` stp ,X y s6Ñ

```
ruijie#configure
ruijie(config)# l2protocol-tunnel stp
ruijie(config)# l2protocol-tunnel gvrp
ruijie(config)#end
```

,Ì G Q ¸	Q ¸	£EÄ
	show l2protocol-tunnel {gvrp|stp }	-

G ÄAÈ â	EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.1.16 l2protocol-tunnel proto-type enable

G!5B0Ã · S6Ñ ` #A, y [Eã ô s6Ñ

l2protocol-tunnel { stp|gvrp } enable

no l2protocol-tunnel { stp|gvrp } enable

– DAÈ â

– D œ	" ŒEÄ 4 `
stp	Eã ô stp y [
gvrp	Eã ô gvrp y [
no	ª#\Eã ô y [

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã

Q¸õã	(M õã
S*üÛÐ	´
G!5B _	ruijie# **show dot1q-tunnel** Ports Dot1q-tunnel ----- --------- Gi0/1 Enable

,Ì G Q¸		
	Q¸	£EÄ
	-	-

G ÄAÈâ	EC Ê(RGOS10.3 ¹Þ

Q¸ZÆ		
	(Ë	AÈâ
	-	-

11.2.2 show frame-tag tpid

/ y· tpid ,XG!5B

show frame-tag tpid [interface *intf-id*]

– DAÈâ		
	– D	£EÄ
	intf-id	(M n,X y·

5 ,ÕG!5B

	-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.2.3 show inner-priority-trust

/ ì 4{ á G!5B

show inner-priority-trust

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B á á

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show inner-priority-trust
Ports  inner-priority-trust
----   ----------
Gi0/1   enable
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.2.4 show interface dot1q-tunnel

/ dot1q-tunnel ·G!5B

show interface [*intf-id*] dot1q-tunnel

– DAÈ â

– D	£EÄ
intf-id	(M n,X y ·

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show interface dot1q-tunnel
Interface: Gi0/3
Native vlan: 10
Allowed vlan list: 4-6 È10 È30-60
Tagged vlan list: 4 È6 È30-60
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.2.5 show interface intf-name remark

/ ì 4{ ô Ø,XG!5B

show interface intf-name remark

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B á ô Ø

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# show interface intf-name remark
Ports         Type         From value  To value
------------ ----------- ----------- --------
Gi0/1         Cos-To-Cos  3           5
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹Þ

Q¸Z Æ

(Ë	AÈ â
-	-

11.2.6 show interface mac-address-mapping x

/ MAC á G!5B

show mac-address-mapping *x*

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B á á

Q¸õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show mac-address-mapping 1
Ports         Destination-VID  Source-VID-list
------------ ---------------- --------------
Gi0/1         5                1-3
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.2.7 show registration-table

/ Î b #A,,X dot1q-tunnel 0Ã · vid #Ï t1*+9><

show registration-table [interface *intf-id*]

– DAÈ â	– D	£EÄ
	intf-id	Û n,X y ·

5 ,ÕG!5B 1*+9><0N

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show registration-table
Ports         Outer-VID  Inner-VID-list
------------ ---------- ------------------
Gi0/7         5          7-10,15,20-30
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

11.2.8 show traffic-redirect

/ Î b# ,X vid ¬ È ê#Ï t1*+9><

show traffic-redirect [interface *intf-id*]

– DAÈ â	– D	£EÄ

	intf-id	Û n,X y ·

5 ,ÕG!5B 1*+9><0N

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show traffic-redirect
Ports          Type           VID   Match-filter
-------------- ------------ ---- ------------
Gi0/3          Mod-outer    23   11
Gi0/3          Mod-outer    3    4
Gi0/3          Mod-outer    6    5
Gi0/3          Mod-inner    8    inner-to-8
Gi0/6          Mod-inner    9    100
Gi0/7          Nested-vid   13   nest-13
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

11.2.9 show translation-table

/ Î b #A,,X access,trunk,hybrid 0Ã · vid Â 1*+9><

show translation-table [interface *intf-id*]

– DAÈ â

– D	£EÄ
intf-id	Û n,X y ·

5 ,ÕG!5B 1*+9><0N

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show translation-table
Ports        Relay-VID  Type    VID-list
------------ ---------- ------- ------------------
Gi0/8        10         Local   8-9,15,20-30
Gi0/10       5          Inner   50-60
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q¸ Z Æ

(Ë	AÈ â
-	-

11.2.10 show l2protocol-tunnel

/ ` Eã ôG!5B

show l2protocol-tunnel {gvrp|stp }

– DAÈ â

– D	£EÄ
gvrp	/ Eã ô gvrp y [G!5B
stp	/ Eã ô stp y [G!5B

5 ¸ÕG!5B GKÁ

Q¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
ruijie# show l2protocol-tunnel stp
Destination mac      : 01d0f8000005
L2protocol-tunnel : Stp Enable
ruijie# show l2protocol-tunnel gvrp
Destination mac      : 01d0f8000006
```

L2protocol-tunnel : gvrp Disable

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.3 ¹ Þ

Q¸ Z Æ

(Ë	AÈ â
-	-

12 Share VLAN

12.1

12.1.1 share

S*üA¹ Q ¸A’5B share vlan Ä

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã vlan G!5B õ ã

S*ü Û Ð

?U ª#\ share vlan *ü no share Q ¸ Ä

?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä

?UE¨ ² < G!5B õ ã ÈEg 9 exit QG¸ Ä8€< ! 'ƒcV– G!5B

```
Ruijie(config)#vlan 2
Ruijie(config-vlan)#share !561>6$V"N2
```

	-	-

G ÄAÈ â ´(G ã#@ Sb ” â–r(•Á dáAb(‚b(2 A–. A˜YR„ Ž R •aÁ dï R sb qD bï°Â ð l! " 6!H€2•ÁÐ Ë

Q ¸ Z Æ		AÈ â
	-	-

S*üA¹ Q ¸ ¹,ß (Š Õ È V p ><,X Status NM original È í></ A¹ s Ÿ ×
V p ><,X Status NM duplicated Ĕ></ A¹ á Î 9,X ×V p ><,X Status
NM 0N È í></ "u ÝG!5B share vlan Ä

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã Ï ãG!5B õ ã

S*ü Û Đ ?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä
?UE¨ ² < G!5B õ ã ÈEg 9 exit Q ¸

13 MAC

13.1

13.1.1 address-bind

A’5B Ú Ô þ ip ` mac ,X4¥ n Ä

address-bind *ip-address mac-address*

no address-bind *ip-address*

– DAÈ â	– D	£EÄ
	ip-address	?U4¥ n,XIP Ä
	mac-address	?U4¥ n,Xmac Ä

5 ,ÕG!5B	´
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	V p 4 Ú Ô þ IP ` Ô þ Û n,X MAC 4¥ n È í 'A’ Û $d IP E- þ IP ,X û Ê È' û,X$d MAC á E- þ IP fA @0¥ ¸ õ ã

]>™/LEQ _ ê ·1*+9

address-bind install

no address-bind install

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

G!5B

G!5BMAC Q ¸

Q ¸ õ ã < G!5B õ ã

G!5B –

ôL8 Ý | Õ

```
Ruijie# clear mac-address-table dynamic
```

,Ì G Q ¸

Q ¸	£EÄ
show mac-address-table dynamic	/ | Õ >< µ C Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

13.1.7 clear mac-address-table filtering

#ÙL8E›$¸ Ä

clear mac-address-table filtering [address *mac-addr*][vlan *vlan-id*]

– DAÈ â

– D	£EÄ
filtering	#ÙL8 ÝE›$¸ Ä
address *mac-addr*	#ÙL8 Û n,XE›$¸ Ä
vlan *vlan-id*	#ÙL8 Û nVLAN ,X ÝE›$¸

5 ,ÕG!5B

´

Q ¸ õ ã

(M õ ã

Q ¸ Z Æ	(Ë	AÈ â
	-	-

13.1.8 clear mac-address-table static

#ÙL8M- Õ ><A'5B Ä

clear mac-address-table static [address *mac-addr*] [interface *interface-id*] [vlan *vlan-id*]

– DAÈ â	– D	£EÄ
	static	#ÙL8 ÝM- Õ Ä
	address *mac-addr*	#ÙL8 Û n,XM- Õ Ä
	interface *interface-id*	#ÙL8 Û n y ·,X ÝM- Õ Ä
	vlan *vlan-id*	#ÙL8 Û nVLAN ,X ÝM- Õ Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð Ã ¹ S*ü show mac-address-table static Q ¸ ¹,ß H þM- Õ >< Y • Ä

G!5B – ßM6,X _ $ ôL8 MAC 00d0.f800.073c ,XM- Õ Ö

```
Ruijie# clear mac-address-table static address 00d0.f800.073c
```

,Ì G Q ¸	Q ¸	£EÄ
	mac-address-table static	A'5BM- Õ Ä
	show mac-address-table static	/ M- Õ Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

13.1.9 mac-address-table aging-time

A'5B | Õ 5Õ ê ÊKÈ Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

mac-address-table aging-time *seconds*

no mac-address-table aging-time

	– D	£EÄ
– DAÈ â	*seconds*	| Õ 5Õ ê ÊKÈ È ¹/¦) ! Ä k8× È+ A' Û ‡ n Ä

5 ,ÕG!5B 5 ,Õ 300 /¦ Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð S*ü show mac-address-table aging-time Q ¸ ¹,ßA'5B Ä
S*ü show mac-address-table dynami c Q ¸ ¹,ß | Õ >< Ä

G!5B _ `Ruijie(config)# mac-address-table aging-time 150`

Q ¸

S*ü Û Ð

E›$¸ á6Ñ 4˜ • Ä S*ü show mac-address-table filtering Q ¸ ¹,ßE›$¸ A'5B Ä

G!5B _

```
Ruijie(config)# mac-address-table filtering 00d0f8000000 vlan 1
```

Q ¸	£EÄ
clear mac-address-table filtering	#ÙL8E›$¸ >< Ä

Q ¸	£EÄ
snmp-server enable traps	A'5BA' Û trap ,X Ø)Ú • ã Ä
show mac-address-t able notification	/ MAC Eî-¹ s6ÑA'5B `Eî-¹ >< µ C Ä
snmp trap mac-notification	' Ô y ·,X MAC Eî-¹ s6Ñ Ä

,Ì G Q ¸

G ÄAÈ â ´

(Ë	AÈ â
	-

,Ì G Q ¸	Q ¸	£EÄ
	show mac-address-table static	/ M- Õ Ä
	clear mac-address-table static	#ÙL8M- Õ Ä

G ÄAÈ â -

Q ¸ Z Æ	(Ë	AÈ â
	-	-

13.1.13 snmp trap mac-notification

' Ô y ·,X MAC Eî-¹ s6Ñ Ä S*üA¹ Q ¸,X no EÝNM GKÁA¹ s6Ñ Ä

snmp trap mac-notification {added | removed}

no snmp trap mac-notification {added | removed }

– DAÈ â	– D	£EÄ
	added	' r t ÊEî-¹ Ä
	removed	' >• ôL8 ÊEî-¹ Ä

5 ,ÕG!5B 5 ,Õ GKÁA¹ s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð S*ü show mac-address-table notification *interface* Q ¸ ¹,ßA'5B Ä

G!5B _

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification added
```

M Eî-¹ s6Ñ ÄÄ C	Q ¸	£EÄ
	mac-address-table notification	' Ô MAC Eî-¹ s6Ñ Ä

	-	

Q ¸ Z Æ	(Ë	AÈ â
	-	

13.1.14 mac-address-learning

G!5B0Ã · : 46Ñ o ' Ô/ GKÁ
mac-address-learning

– DAÈ â	– D	£EÄ
	´	
5 ,ÕG!5B	: 46Ñ o Ô	
Q ¸ õ ã	y · õ ã	
S*ü Û Ð	á6Ñ ü Ô] < s6Ñ,X0Ã · Þ GKÁ MAC : 46Ñ o ÈGKÁ : 46Ñ o,X0Ã · á6ÑG! 5B] < s6Ñ ×	
G!5B _	_ 1 Ö GKÁ y · : 46Ñ o Ö Ruijie(config-if)# no mac-address-learning	

G ÄAÈ â	´

13.2

S*ü Û Ð ´

G!5B _

```
Ruijie# show address-bind
IP Address      Binding MAC Addr
-----------     -----------------
3.3.3.3         00d0.f811.1112
3.3.3.4         00d0.f811.1117
```

,Ì G Q ¸

Q ¸	£EÄ
address-bind	A'5B4¥ n Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

13.2.2 show address-bind uplink

¹,ß _ ê · µ C Ä

show address-bind uplink

– DAÈ â

– D	£EÄ

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# show address-bind uplink
Ports        State
------------ ------
Fa0/1        Disabled
Fa0/2        Disabled
```

	.....

,Ì G Q ¸	Q ¸	£EÄ
	address-bind uplink	A'5B _ ê ·

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

13.2.3 show mac-address-table address

/ Ý2O _,X MAC µ C Ä Ù À | Õ ÈM- Õ `E›$¸ Å Ä

show mac-address-table [address *mac-addr*] [interface *interface-id*] [vlan *vlan-id*]

– DAÈ â	– D	£EÄ
	address *mac-addr*	Û n,X MAC Ä
	interface *interface-id*	y · Ë
	vlan *vlan-id*	VLAN Ë

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã

S*ü Û Ð	´

G!5B _

```
Ruijie# show mac-address-table address 00d0.f800.1001
Vlan       MAC Address         Type     Interface
-------    ------------      --------   --------
1          00d0.f800.1001      STATIC    Gi1/1
```

,Ì G Q ¸	Q ¸	£EÄ
	show mac-address-table static	/ M- Õ Ä
	show mac-address-table filtering	/ E›$¸ Ä
	show mac-address-table dynamic	/ | Õ Ä

-	-

13.2.5 show mac-address-table count

/ Í >< þ D,X4³Au Ä

show mac-address-table count

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie# show mac-address-table count
Dynamic Address Count  : 51
Static  Address Count  : 0
Filter  Address Count  : 0
Total Mac Addresses    : 51
Total Mac Address Space Available: 8139
```

,Ì G Q ¸

Q ¸	£EÄ
show mac-address-table static	/ M- Õ Ä
show mac-address-table filtering	/ E›$¸ Ä
show mac-address-table dynamic	/ | Õ Ä
show mac-address-table address	/ Û n ,X Ý2O _,X µ C
show mac-address-table interface	/ Û n y ·,X Ý2O _,X µ C
show mac-address-table vlan	/ Û n VLAN ,X Ý2O _,X µ C Ä

G ÄAÈ â ´

(Ë	AÈ â

13.2.6

13.2.7 show mac-address-table filtering

/ E›$¸ >< µ C

show mac-address-table static [addr *mac-addr*] [vlan *vlan-id*]

– DAÈ â

– D	£EÄ
mac-addr	Û n><NM Í h,X,Â,X MAC Ä
vlan-id	Û n><NM Í h,X VLAN Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# show mac-address-table filtering
Vlan       MAC Address         Type     Interface
------  -------------------- -------- -----------
1     0000.2222.2222     FILTER Not available
```

,Ì G Q ¸

Q ¸	£EÄ
clear mac-address-table filtering	#ÙL8E›$¸ >< Ä
mac-address-table filtering	A’5BE›$¸ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

vlan-id	Û n><NM Í h,X VLAN Ä

5 ,ÕG!5B ´

Q ¸õã (M õã

S*ü Û Đ ´

G!5B _

```
Ruijie# show mac-address-table interface gigabitethernet 1/1
Vlan       MAC Address         Type    Interface
------  ---------------      -----   -----------
1    00d0.f800.1001  STATIC   gigabitethernet 1/1
1    00d0.f800.1002  STATIC   gigabitethernet 1/1
1    00d0.f800.1003  STATIC   gigabitethernet 1/1
1    00d0.f800.1004  STATIC   gigabitethernet 1/1
```

Q ¸	£EÄ

interface *interface-id*	y · Ë Ä / y · Þ,X MAC Eî-¹ s6ÑA'5B Ä
history	/ MAC Eî-¹ Z ÆA„)>< µ C Ä

5 ,ÕG!5B 5 ,Õ / Ý MAC Eî-¹ s6ÑA'5B µ C Ä

Q¸õã (M õã

S*ü Û Ð ´

G!5B _

```
Ruijie# show mac-address-table notification interface
Interface        MAC Added Trap  MAC Removed Trap
---------         --------------      --------------
GigabitEthernet1/14   Disabled        Disabled
Ruijie# show mac-address-table notification
MAC Notification Feature :  Disabled
Interval between Notification Traps : 1 secs
Maximum Number of entries configured in History Table :1
Current History Table Length : 0
Ruijie# show mac-address-table notification history
History Index : 0
MAC Changed Message :
Operation:ADD Vlan : 1 MAC Addr: 00f8.d012.3456 GigabitEthernet 3/1
```

,Ì G Q¸

Q¸	£EÄ
mac-address-table notification	' Ô MAC Eî-¹ s6Ñ Ä
snmp trap mac-notification	' Ô y ·,X MAC Eî-¹ s6Ñ Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

13.2.10 show mac-address-table static

/ M- Õ Ä

show mac-address-table static [addr *mac-addr*] [interface *interface-id*] [vlan *vlan-id*]

– DAÈ â

– D	£EÄ
mac-addr	Û n><NM Í h,X,Â,X MAC Ä
vlan-id	Û n><NM Í h,X VLAN Ä
interface-id	Ù ÚE@ ¥ ,X y ·(Ã ¹ (=)Ú0Ã · ê AggregatePort)

G!5BMAC

S*ü Û Ð ´

G!5B _ _ 1 Ö / 0Ã · : 46Ñ o Ö

Ruijie# show mac-address-learning

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

14 DHCP Snooping

14.1 DHCP snooping

14.1.1 ip dhcp snooping

?U ' Ô DHCP Snooping < s6Ñ ÈLÔ?U ü < G!5B õ ã ßG!5BA¹ Q ¸ Ä ;> A¹ Q ¸,X no 6 ã È Ú < GKÁ DHCP Snooping s6Ñ Ä

[no] ip dhcp snooping

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	A¹ s6Ñ5 ,Õ GKÁ
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	' Ô DHCP Snooping < s6Ñ â È Ã ¹ S*ü show ip dhcp snooping Q ¸ ¹,ß DHCP snooping s6Ñ ú ' Ô Ä "¼ ã DHCP Snooping â Private VLAN s6Ñ á Õ E*ü Ä

G!5B _

ßM6 ' Ô DHCP snooping < s6Ñ Ô G,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping
Ruijie(config)# end
Ruijie# show ip dhcp snooping
Switch DHCP snooping status ÖENABLE
Verification of hwaddr field status ÖDISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                Trusted    Rate limit (pps)
------------------------ -------    ------------
```

,Ì G Q ¸	Q ¸	£EÄ

	show ip dhcp snooping	¹,ß DHCP snooping ,XG!5B µ C Ä

,Ì G Q ¸	Q ¸	£EÄ
	show ip dhcp snooping	¹,ß DHCP snooping ,XG!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

14.1.3 ip dhcp snooping database write-delay

?UG!5B x 6 n Ê Ú DHCP Snooping D B g Ý | Õ*ü µ C m 9 FLASH s6Ñ ÈLÔ?U ü < G!5B õ ã ß ;> !8 Q ¸ Ä ;> A¹ Q ¸,X no 6 ã È Ú GKÁ n Ê m 9 FLASH s6Ñ Ä

ip dhcp snooping database write-delay *time*

[no] ip dhcp snooping database write-delay

– DAÈ â	– D	£EÄ
	time	ø õ Ú DHCP snooping D B g m 9 FLASH ,X ÊKÈKÈ Lh Ä

5 ,ÕG!5B A¹ s6Ñ5 ,Õ ™ ‰ ß GKÁ È á ñFLASH Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð EîE›G!5BA¹ Q ¸ È Ã ¹ Ú DHCP Snooping D B g m 9 FLASH [Ê Ä Ã ¹L !6A' ÛG¡ „ | â È*ü µ C ö È Ð7È*ü ™NOG¡ „9‹ ª IP È ! Ã ¹!7 EîAƒ Ä

G!5B _

ßM6 G!5B x 6 n Ê m flash ÊKÈKÈLh 3600 ,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-delay 3600
Ruijie(config)# end
Ruijie# show ip dhcp snooping
Switch DHCP snooping status ÖENABLE
Verification of hwaddr field status ÖDISABLE
DHCP snooping database write-delay time: 3600seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                Trusted    Rate limit (pps)
```

,Ì G Q ¸	Q ¸	£EÄ
	show ip dhcp snooping	¹,ß DHCP snooping ,XG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

14.1.4 ip dhcp snooping database write-to-flash

?UG!5B x 6 r Ê Ú DHCP Snooping D B g,X | Õ*ü µ C m 9 FLASH [Ê ÈLÔ?U ü < G!5B õ ã ß ;> !8 Q ¸ Ä

ip dhcp snooping database write-to-flash

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð EîE› ;> !8 Q ¸ ÈÃ ¹ r Ê Ú DHCP Snooping D B g | Õ*ü µ C m 9 FLASH [Ê Ä

G!5B –

ßM6 Ú DHCP 4¥ n D B g,X | Õ*ü µ C r Ê m 9 flash ,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-to-flash
Ruijie(config)# end
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â

-	-

14.1.5 ip dhcp snooping information option

?U ' Ô ü DHCP AË" y [t 9 option82 EÝNM s6Ñ ÈLÔ?U ü < G!5B õ ã ßG!5BA¹ Q ¸ Ä ;> A¹ Q ¸,X no 6 ã È Ú GKÁ!8 s6Ñ Ä

[no] ip dhcp snooping information option

– D	£EÄ
– DAÈ â	
	-
5 ,ÕG!5B	A¹ s6Ñ5 ,Õ GKÁ Ä

	-	-

14.1.6 Ip dhcp snooping vlan

?U ' Ô Û n VLAN ,X DHCP Snooping s6Ñ ÈLÔ?U ü < G!5B õ ã ßG!5BA¹ Q ¸ Ä ;> A¹ Q ¸,X no 6 ã È Ú GKÁ Í h VLAN ,X DHCP Snooping s6Ñ Ä

[no] ip dhcp snooping vlan {*vlan-rng* | {*vlan-min* [*vlan-max*]}}

– DAÈ â	– D	£EÄ
	vlan-rng	dhcp snooping s6Ñ*ó ,X vlan 8× È Ä
	vlan-min	dhcp snooping s6Ñ*ó ,X vlan ßL$ Ä
	vlan-max	dhcp snooping s6Ñ*ó ,X vlan ÞL$ Ä

5 ,ÕG!5B	5 ,Õ ™ ‰ ß È ' Ô < DHCP Snooping s6Ñ â È Ú*ó b Ý VLAN Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	EîE›G!5BA¹ Q ¸ È Ú ü Û n,X VLAN Y ' Ô DHCP Snooping

[no] ip dhcp snooping verify mac-address

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B

?UG!5BA¹0Ã · y DHCP y [,XEó)[ÈLÔ?U ü y ·G!5B õ ã ß ;> !8 Q ¸ Ä ;> A¹ Q ¸,X no 6 ã È ª#\A¹0Ã ·,XEó)[L$ Ä

[no] ip dhcp snooping limit rate *rate-value*

– DAÈ â

– D	£EÄ
rate-value	A’ n y [y Eó)[ÈPPS[Packet Per Second]

5 ,ÕG!5B "u ÝEó)[L$

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð

A¹ Q ¸ Ld;£ Q ¸ Ä

A¹ s6Ñ Í DHCP Snooping { VLAN Y,X Ý y ·*ó È Ù µ Ï · Ä

F¼ Ú { • Þ È r)„ Z CPP[CPU Protect Protocol] s6Ñ ÄCPP îEîE›.@ Ê Í DHCP y [Eó)[E¯> L$ È Î b CPP ,X y [L$Eó ì 4{P¬ b DHCP Snooping ,XEó)[L$ s6Ñ Ä G b CPP F¼ Ú ÈAË ¹,ß K '0´8V Ä

Ã ¹EîE› show ip dhcp snooping Q ¸ È 9 ¹,ß Í h y · ÞG!5B,XEó)[L$ Ä

G!5B _

ßM6 A’5B0Ã · 1 ,XEó)[L$ 100pps Ö

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp snooping limit rate 100
Ruijie(config-if)# end
Ruijie# show ip dhcp snooping
Switch DHCP snooping status ÖENABLE
Verification of hwaddr field status ÖDISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                Trusted    Rate limit (pps)
-----------------------  -------    ------------
FastEthernet0/1           NO         100
```

,Ì G Q ¸

Q ¸	£EÄ
show ip dhcp snooping	¹,ß DHCP snooping ,XG!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

14.2.2 ip dhcp snooping suppression

?UG!5B0Ã · suppression (Š Õ ÈÔ?U ü y ·G!5B õ ã ß ;> !8 Q ¸ Ä> A¹ Q ¸,X no 6 ã È A¹0Ã · Ú>•G!5B no suppression (Š Õ Ä

[no] ip dhcp snooping suppression

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	A¹ s6Ñ5 ,Õ GKÁ Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	EîE›G!5BA¹ Q ¸ È Ã ¦4±A¹0Ã · ß Ý DHCP AË" y [È G/U!6A¹0Ã · ß,X Ý*ü Eî E› DHCP • ã+ AË Ä

G!5B _	ßM6 G!5B0Ã · **fastethernet** 0/2 suppression (Š Õ,X _ $ Ö
	`Ruijie# configure terminal`
	`Ruijie(config)# interface fastethernet 0/2`
	`Ruijie(config-if)# ip dhcp snooping suppression`
	`Ruijie(config-if)# end`

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

14.2.3 ip dhcp snooping trust

?UG!5B0Ã ·,XDHCP snooping µ Ï(Š Õ TRUST · ÈLÔ?U ü y ·G!5B õ ã ß ;> !8 Q ¸ Ä ;> A¹ Q ¸,X no 6 ã ÈA¹0Ã · Ú ä UNTRUST · Ä

[no] ip dhcp snooping trust

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ ™ ‰ ß È Ý0Ã · UNTRUST · Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	EîE›G!5BA¹ Q ¸ È ÚE² y Ü"© DHCP

14.3 DHCP snooping

14.3.1 show ip dhcp snooping

?U ¹,ß DHCP Snooping ' !,XG!5B ™ ‰ ÈLÔ?U ü(M õ ã ß ;> !8 Q ¸ Ä

show ip dhcp snooping

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Ð	;> !8 Q ¸ È Ã ¹ ¹,ß ' ! DHCP Snooping ,XG!5B ™ ‰ Ä

G!5B _

ßM6 ¹,ß ' ! DHCP Snooping G!5B ™ ‰,X _ $ Ö

```
Ruijie# show ip dhcp snooping
Switch DHCP snooping status ÖENABLE
Verification of hwaddr field status ÖDISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                Trusted    Rate limit (pps)
-----------------------  -------    ------------
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp snooping	DHCP snooping < G!5B Ô G Ä
ip dhcp snooping verify mac-address	DHCP snooping y [$d mac ”¹ Ô G Ä
ip dhcp snooping write-delay	G!5B n Ê mflash ,X ÊKÈKÈLh Ä
Ip dhcp snooping information option	ü DHCP AË" y [t 9 option82 EÝ NM Ä
ip dhcp snooping bootp-bind	' Ô DHCP Snooping Õ Bootp 4¥ n s6Ñ Ä
ip dhcp snooping trust	A’5B0Ã · DHCP snooping trust · Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

14.3.2 show ip dhcp snooping binding

?U ¹,ß DHCP Snooping D B g ,X*ü µ C È ü(M õ ã ß ;> !8 Q ¸ Ä

show ip dhcp snooping binding

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ;> !8 Q ¸ È Ã ¹ ¹,ß ' ! DHCP Snooping D B g Ý,X*ü µ C Ä

G!5B _

ßM6 / _ $ Ö

```
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1

MacAddress    IpAddress   Lease(sec)  Type    VLAN  Interface
-----------   --------    --------    -----   ----  ---------
0000.0000.0001 1.1.1.1  78128  dhcp-snooping  1  FastEthernet 0/1
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp snooping binding	G!5BDHCP snooping M- Õ*ü
clear ip dhcp snooping binding	#ÙL8DHCP snooping | Õ*ü µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

14.4 DHCP snooping

14.4.1 clear ip dhcp snooping binding

?U ôL8DHCP Snooping D B g ,X Ý | Õ*ü ÈLÔ?U ü(M õ ã ß ;> !8 Q ¸ Ä

clear ip dhcp snooping binding

– DAÈ â		
	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã

S*ü Û Ð	;> A¹ Q ¸ È Ã ¹ ôL8 DHCP snooping D B g ,X Ý	Õ*ü Ä

G!5B –	ßM6 ôL8DHCP snooping D B g Ý	Õ*ü ,X _ $ Ö

```
Ruijie# clear ip dhcp snooping binding
Ruijie# show ip dhcp snooping binding
Total number of bindings: 0
MacAddress IpAddress Lease(sec) Type VLAN Interface
-------  ---  ----------  ---------  ----  ---------
```

,Ì G Q ¸		
	Q ¸	£EÄ
	show ip dhcp snooping binding	/ DHCP snooping 4¥ n D B g µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ		
	(Ë	AÈ â
	-	-

14.4.2 debug ip dhcp snooping

?U ü x 6 Þ ' Ô DHCP Snooping s6Ñ,XA×A© Ô G ÈLÔ?U ü(M õ ã ß ;> !8 Q ¸ Ä

debug ip dhcp snooping {event | packet }

15 IGMP Snooping

15.1

15.1.1 deny

?U/U!6E@ ¥profile Û n8× È,X4˜ •# ÈAË ;> profile õ ã ß,XG!5B Q ¸ deny Ä

deny

– DAÈ â

– D	£EÄ
deny	/U!6E@ ¥profile Û n8× È,X4˜ •

5 ,ÕG!5B

profile 5 ,Õ ;> deny ¡ 0 Ä

Q ¸ õ ã

profile G!5B õ ã Ä

S*ü Û Ð

AË ü profile õ ã ß S*ü range Q ¸G!5B Q4˜ •8× È Äº ê È Z S profile G!5BCK 0*ü È LÔ?U ÚAþprofile h*ü y · Þ Ä

G!5B _

ßM6 ï Î Ô þ/U!6E@ ¥ 224.2.2.2 4˜ •# profile ,X _ $ Ö

```
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2
Ruijie(config-profile)# deny
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp profile	ï Î Ô þ profile
range	G!5B4˜ • 8× È

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.2 permit

?UL$ nprofile 4˜ •# ,X8× È ÈAË ;> profile õ ã ß,XG!5B Q¸ permit ÈE- A¹ profile G6(,X y · Ú ¾E@ ¥ Û n,X4˜ •# Ä

permit

– DAÈ â

– D	£EÄ
permit	AŒE@ ¥profile Û n8× È,X4˜ • Ä

5 ,ÕG!5B

profile 5 ,Õ ;> deny ¡ 0 Ä

Q¸ õ ã

profile G!5B õ ã Ä

S*ü Û Ð

AË ü profile õ ã ß S*ü range Q¸G!5B Q4˜ •8× È Äº ê È Z S profile G!5BCK 0*ü È LÔ?U ÚAÞprofile G6(,Ì G,X Q¸ Þ Ä

G!5B –

ßM6 ï Î Ô þ ¾ AŒE@ ¥ 224.2.2.2 4˜ •# profile ,X _ $ Ö

```
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2
Ruijie(config-profile)# permit
```

,Ì G Q¸

Q¸	£EÄ
ip igmp profile	ï Î Ô þ profile
range	G!5B4˜ • 8× È

G ÄAÈ â

´

Q¸ Z Æ

(Ë	AÈ â
-	-

15.1.3 range

?U Û n profile 4˜ •# ,X8× È ÈAË ;> profile õ ã ß,XG!5B Q¸ range È Ã ¹ Û n) þ4˜ • È 3 Ã ¹ Û n ¤ þ8× È Y,X4˜ • Ä S*üA¹ Q¸,X no EÝNM ôL8 Û n,X4˜ • Ä

range *low-ip-address* [*high-ip-address*]

no range *low-ip-address* [*high-ip-address*]

– DAÈ â

– D	£EÄ
low-ip-address	Û n8× È,XCK Ÿ

high-ip-address	Û n8× È,X4§ 3

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã profile G!5B õ ã Ä

S*ü Û Ð G!5B Q 8× È â È B rL LÔ?U Û n Ô þ> È5 ,ÕA¹ profile ,X> deny Ä º ê È Z S profile G!5BCK 0*ü ÈLÔ?U ÚÀ¹profile h*ü y · Þ Ä

G!5B _ ßM6 ï Î Ô þ8× È 224.2.2.2~224.2.2.244 4˜ •# profile ,X _ $ Ö

```
Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2 224.2.2.244
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp profile	ï Î Ô þ profile
deny	Û n profile ,X> deny
permit	Û n profile ,X> permit

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.4 ip igmp profile

IGMP ,X profile *ü b n Ô2Ï ë,X4˜E›$¸ < Ä?UE¯ 9 profile õ ã È?UOj ü < õ ã ßG!5B Ô þ profile ÄA¹ Q ¸ õ ã Ð7þ Q ¸ ÈEÝ ½ profile-number È JE¯ 9 igmp profile G!5B õ ã Ä

ip igmp profile *profile-number*

no ip igmp profile *profile-number*

– DAÈ â

– D	£EÄ
profile-number	profile ,X4ê Ë È8× È 1-65535

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã < G!5B õ ã Ä

IGMP Profiles

S*ü Û Đ

"¼ ã	pim snooping ™NO qC* lgmp snooping ,X IVGL ê5ÙIVGL-SVGL õ ã ¹ 0 È ü S*ü no ip igmp snooping GKÁigmp snooping s6Ñ Ê È V p pim snooping !7 ü ¹ 0 í î ¤/ *ü GKÁ pim snoopingÈJè õ GKÁ á ä s Ä

G!5B _

ßM6,X/ _$è/ üA' Û Þ ' Ô igmp snooping JA'5B ivgl õ ã Ö

```
Ruijie(config)# ip igmp snooping ivgl
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp snooping svgl	' Ô igmp snooping JG!5B svgl õ ã Ä
ip igmp snooping ivgl-svgl	' Ô igmp snooping JG!5B#Ë Ü õ ã Ä

G ÄAÈ â

´

Q ¸Z Æ

(Ë	AÈ â
-	-

15.1.6 ip igmp snooping ivgl-svgl

?U ' Ô igmp snooping J Û nE¤> ivgl-svgl õ ã ÈAË ;> < G!5B Q ¸ ip igmp snooping ivgl-svgl ÄA¹ Q ¸,X no 6 ã GKÁ igmp snooping Ä

ip igmp snooping ivgl-svgl

no ip igmp snooping

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B

disable õ ã Ä

Q ¸õ ã

< G!5B õ ã Ä

S*ü Û Ð

A'5B ZA¹ õ ã È í IVGL ÃSVGL ø/¡ õ ã J , Ä IVGL ` SVGL ø/¡ õ ã Ã ¹ à Ê , ü È | Ã ¹*ü IGMP Profile æ Ú Ô M4˜ • 8× È4- SVGL È üE- M4˜ • 8× È Y È4˜ • E@ ¥><NM,X ä ,0Ã · Ã ¹ C¼ VLAN E@ ¥,X È5à J W,X4˜ • 8× È Y Í h,X4˜ •E@ ¥ ><NM,X ä ,0Ã · ™NO 2 b à Ô þ VLAN ,X Ä

"¼ ã	'E¤> õ ã IVGL-SVGL õ ã Ê ÈÚ á6Ñ a ' Ô Ý 4˜ • s6Ñ Äà È V p ' Ô Z Ý 4˜ • s6Ñ È Ú á6Ñ ' Ô IVGL-SVGL #Ë õ ã Ä pim snooping ™NO qC* ligmp snooping ,X IVGL ê5Ù IVGL-SVGL õ ã ¹ 0 È ü S*ü no ip igmp snooping GKÁigmp snooping s6Ñ Ê È V p pim snooping !7 ü ¹ 0 í î ¤/ *ü GKÁ pim snooping ÈJ è õ GKÁ á ä s Ä aIVGL-SVGL

b Shared VLAN Ä

SVGL õ ã ß È ™NO*üIGMP Profile æ Ú Ô M4˜ • 8× È4- SVGL È üE- M4˜ • 8× È Y È4˜ •E@ ¥><NM,X ä ,0Ã · Ã ¹ C¼ VLAN E@ ¥ ×T¬Ax ™ ‰ ß Ý,X4˜8× ÈFÑ á ü SVGL ,X h*ü8× È È Ý,X4˜ •# Ú>• ö × Ä

	'E¤> õ ã SVGL õ ã Ê È Ú á6Ñ a ' Ô Ý 4˜ • s6Ñ È G á6Ñ ó ' Ô ip multicast-routing Ä à È V p ' Ô Z Ý 4˜ • s6Ñ È Ú á6Ñ ' Ô SVGL õ ã Ä
"¼ ã	pim snooping ™NO qC* igmp snooping ,X IVGL ê5Ù IVGL-SVGL õ ã ¹ 0 È ü S*ü ip igmp snooping svgl E¯> õ ã Û 6 Ê È V p pim snooping !7 ü ¹ 0 í î ¤/ *ü GKÁ pim snooping È J è õ Û 6 á ä s Ä

ßM6,X/ _$è/ üA' Û Þ ' Ô igmp snooping JA'5B svgl õ ã ÈW G6(,X profile 1 Ö

G!5B _

```
Ruijie(config)# ip igmp snooping svgl
Ruijie(config)# ip igmp snooping svgl profile 1
```

Q ¸	£EÄ
ip igmp snooping svgl vlan	

Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	ü < õ ã ß ÈV pLÔ?U ü(M n,X vlan Þ | ê5Ù GKÁ IGMP Snooping s6Ñ ÈG›*ü!8 Q ¸ Ä "¼ ã: (M n vlan Þ,X pim snooping ™NO qC* bigmp snooping ¹ 0 È ü S*ü no ip igmp snooping vlan GKÁvlan Þ,X igmp snooping s6Ñ Ê È V p pim snooping üA¹ VLAN ÆG!5B í î ¤/ *ü GKÁ pim snooping È J è õ GKÁ á ä s Ä
G!5B _	ßM6,X/ _$è/ üA' Û vlan 2 Þ ' Ô igmp snooping Ö `Ruijie(config)# ip igmp snooping vlan 2`

,Ì G Q ¸

Q ¸	£EÄ
ip igmp snooping ivgl	' Ô igmp snooping JG!5B ivgl õ ã Ä
ip igmp snooping ivgl-svgl	' Ô igmp snooping JG!5B#Ë Ü õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.9 ip igmp snooping svgl vlan

?U Û n(M n vlan SVGL õ ã,X E • vlan ÈAË ;> < G!5B Q ¸ ip igmp snooping svgl vlan ÄA¹ Q ¸,X no 6 ã 6 á Shared VLAN vlan 1 Ä

ip igmp snooping svgl vlan vid

no ip igmp snooping svgl vlan

– DAÈ â

– D	£EÄ
vid	vlan id

5 ,ÕG!5B	5 ,Õ ™ ‰ ßShared VLAN vlan 1 Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸ ¾ Ý ü SVGL ê5Ù IVGL-SVGL õ ã ß ! Ý Ä

G!5B _

ßM6,X/ _$è/ üA' Û Û n vlan 2 igmp snooping svgl õ ã,X E • vlan Ö

```
Ruijie(config)# ip igmp snooping svgl vlan 2
```

,Ì G Q¸

Q¸	£EÄ
ip igmp snooping svgl	' Ô igmp snooping JG!5B svgl õ ã Ä
ip igmp snooping ivgl-svgl	' Ô igmp snooping JG!5B#Ë Ü õ ã Ä

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
-	-

15.1.10 ip igmp snooping svgl profile

?U Û n ü(M n profile 4˜8× ÈE¤> SVGL õ ã ÈAË ;> < G!5B Q¸ ip igmp snooping svgl profile ÄA¹ Q¸,X no 6 ã ª#\G!5B Ä

ip igmp snooping svgl profile *profile-number*

no ip igmp snooping svgl profile

– DAÈ â

– D	£EÄ
profile-number	profile ,X4ê Ë È ª 8× È<1-65536>

5 ,ÕG!5B

5 ,Õ ™ ‰ ßsvgl "u Ý G6(,X profile Ä

Q¸õ ã

< G!5B õ ã Ä

S*ü Û Ð

A¹ Q¸ ¾ Ý ü SVGL ê5Ù IVGL-SVGL õ ã ß ! Ý Ä

G!5B _

ßM6,X/ _$è/ üA' Û igmp snooping svgl õ ã G6(profile 2 Ö

```
Ruijie(config)# ip igmp snooping svgl profile 2
```

,Ì G Q¸

Q¸	£EÄ
ip igmp snooping svgl	' Ô igmp snooping JG!5B svgl õ ã Ä
ip igmp snooping ivgl-svgl	' Ô igmp snooping JG!5B#Ë Ü õ ã Ä

G ÄAÈ â

´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

15.1.11 ip igmp snooping dyn-mr-aging-time

?UG!5B x 6 | Õ : 4 ,XCÃ+ ·,X5Õ ê ÊKÈ Ä

ip igmp snooping dyn-mr-aging-time *time*

no ip igmp snooping dyn-mr-aging-time

– DAÈ â	– D	£EÄ
	time	| Õ : 4,XCÃ+ ·,X5Õ ê ÊKÈ, Èª 8× È <1-3600> Ä

5 ,ÕG!5B 300s

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð | ÕCÃ+ E² y · V p ü J5Õ ê ÊKÈCY Ê !"u Ý IGMP BF!4˜ ¹A¶ y [ê5Ù PIM Hello y [È x 6 Ú ^A¹0Ã · ¢CÃ+ <0Ã · ë>< ôL8 Äü | ÕCÃ+ · : 4 ' Ô,X ™ ‰ ß È Ã ¹EîE›!8 Q ¸G!5B | ÕCÃ+ ·,X5Õ ê ÊKÈ È üG!5B!85Õ ê ÊKÈ ÊLÔ?U"¼ ã ÈG!5B ÊKÈE›-Á Ã6Ñ î Ð7ÈCÃ+ Ne4 ,X#Ï t ` ôL8 Ä

G!5B _ ßM6,X/ _$è/ üA' ÛG!5B | Õ : 4CÃ+ ·5Õ ê ÊKÈ 100s Ö

```
Ruijie(config)# ip igmp snooping dyn-mr-aging-time 100
```

,Ì G Q ¸	Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

15.1.12 ip igmp snooping fast-leave enable

?U ' Ô

ip igmp snooping fast-leave enable

no ip igmp snooping fast-leave enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B disable õ ã Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð 0Ã · ¿Eó/• Ô Û ' x 6 ¢ ¤0Ã · ¥EÕ,X/• Ô ¤ IP 4˜ •4˜,X IGMP /• Ô4˜ y [Ê È,È y ^A¹0Ã · ¢ Í hE@ ¥><NM,X Î0Ã · ë>< ôL8 Ä!8 â È ' x 6 ÍA¹ IP 4˜ •4˜,X IGMP (M n4˜ ¹A¶ y [Ê È x 6 Ú á a åA¹0Ã ·E@ ¥ Ä ü x 6 Þ È V p 0Ã · ß ¾E² y Ý Ô þ y 5Ù È í Ã ¹EîE› S6Ñ0Ã · ¿Eó/• Ô s6Ñ ¹8V4z ú ' `C $d Ä

G!5B – ßM6,X/ _$è/ üA' Û Þ ' Ô igmp snooping fast-leave Ö

```
Ruijie(config)# ip igmp snooping fast-leave enable
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.13 ip igmp snooping query-max-response-time

?UG!5B x 6 y query y [â1 Y ä , t 94˜#\ C,X ÊKÈ È 'CYE›!8 ÊKÈ"u Ý 4˜ ä ,,X t 9 µ C È íAx 4˜ ä , Æ4£/• Ô È ôL8 Í h,X ä , Ä

ip igmp snooping query-max-response-time *time*

no ip igmp snooping query-max-response-time

– DAÈ â

– D	£EÄ
time	| Õ : 4,XCÃ+ ·,X5Õ ê ÊKÈ Ä

5 ,ÕG!5B 10s

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

ü IGMP ,X Ô8 ¹A¶ y [â È4˜ •A' Û î È „ Ý,X ä ,0Ã ·,X5Õ ê n Ê < È n Ê < ÊKÈ ÔKS ¡ h ÊKÈ È' n Ê <,X £ 0 Ê ÈíAx A¹0Ã · á a Ý ä , y 4˜ •# È ` 4˜ •A' Û î ^A¹0Ã · ¢ IGMP Snooping ,XE@ ¥>< ôL8 Ä

ü IGMP ,X(M n4˜ ¹A¶ y [â È4˜ •A' Û î ÍA¹(M n4˜,X Ý ä ,0Ã · |5Õ ê n Ê < È n Ê < ÊKÈ ÔKS ¡ h ÊKÈ È ' n Ê <,X £ 0 Ê È íAx A¹0Ã · á a Ý ä , y 4˜ •# È4˜ •A' Û î ^A¹0Ã · ¢ IGMP Snooping ,XE@ ¥>< ôL8 Ä

Í b IGMPv3 ,X(M n4˜$d ¹A¶ y [È á . n Ê <,X È „ Ø)Ú Ä

G!5B – ßM6,X/ _$è/ üA' ÛG!5B | Õ : 4CÃ+ ·5Õ ê ÊKÈ 100s Ö

```
Ruijie(config)# ip igmp snooping query-max-response-time 100
```

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.14 ip igmp snooping source-check default-server

$d IP " ¹,X 0*ü L$ 4˜ •# ¾6Ñ+ ¤ Ô þ IP $d ,X4˜ •$d á u < ¤ o Ä?UG!5B igmp snooping ,X$d ip " ¹ s6Ñ ÈAË ;> < G!5BG!5B Q ¸ ip igmp snooping source-check default-server ÄA¹ Q ¸,X no 6 ã GKÁ$dip " ¹ s6Ñ Ä

ip igmp snooping source -check default-server *address*

no ip igmp sooping souce-check

– DAÈ â

– D	£EÄ
address	T¬Ax,X î •$d ÄT¬Ax î • á u < Å Ä

5 ,ÕG!5B A¹ s6ÑT¬Ax GKÁ Ä

Q ¸ õ ã < G!5B õ ã Ä

	î • Server Ä ¾?UA'5BE- þ5 ,Õ î • Server È$d IP ”¹ s6Ñ ' Ô Z Ä
"¼ ã	' |$d IP ”¹ s6Ñ â È Ú Í Ý 4˜ •E@ ¥ s6Ñ {*ó E ¡ Ä à È V p ' Ô Z Ý 4˜ • s6Ñ È á6Ñ ' Ô$d IP ”¹ s6Ñ Ä

G!5B _

ßM6,X/ _ ' Ô î •$d ip ”¹ JG!5BT¬Ax,X$d ip 192.168.4.243 Ä

```
Ruijie(config)# ip igmp snooping source-check default-server
192.168.4.243
```

server 192.168.4.243

,Ì G Q ¸

Q ¸	£EÄ
ip igmp snooping source-check default-server	' Ô$d IP " ¹ ™NO à ÊG!5BT¬Ax,X$d IP Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.16 ip igmp snooping source-check port

$d0Ã · " ¹,X 0*ü L$ 4˜ •# ¾6Ñ+ CÃ+ E² y ·E¯ 9 Ä?UG!5B igmp snooping ,X$d0Ã · " ¹ s6Ñ ÈAË ;> < G!5BG!5B Q ¸ ip igmp snooping source-check port ÄA¹ Q ¸,X no 6 ã GKÁ$d0Ã · " ¹ s6Ñ Ä

ip igmp snooping source-check port

no ip igmp snooping source-check port

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B A¹ s6Ñ5 ,Õ GKÁ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

IGMP SNOOPING $d0Ã · " ¹ Û ù L$ n4˜ •# ,XE¯ 90Ã · Ä '$d0Ã · " ¹ GKÁ Ê È ¢ Ï)0Ã ·E¯ 9,X?šNe# Ü"©,X È ` 4˜ •A' Û î Ý'; IGMP Sooping ,XE@ ¥>< ^ W ÀE@ ¥ Æ"¼ `,X ä ,0Ã · Þ Ä' IGMP SNOOPING $d0Ã · " ¹ ' Ô Ê È¾ Ý ¢CÃ+ E² y ·E¯ 9,X4˜ •# ! Ü"©,X È ` 4˜ •A' Û ^ W ÀE@ ¥ å Æ"¼ `,X0Ã · ×5à ¢M2CÃ+ E² y ·E¯ 9,X4˜ •# >•?š M2"©,X È Ú>• ö × Ä

$d0Ã · " ¹ < Ô G È Ô º ' Ô È Ý,X4˜ •# FÑ ™NO 97¾CÃ+ E² y · È ú í Ú>• ö × Ä

$d0Ã · " ¹ ' Ô â È V p,Ì G VLAN YFÑ á , üCÃ+ E² y · ÈFw $d0Ã · " ¹ Ú á*ó Ä

G!5B _ ßM6,X/ _ ' Ô igmp snooping ,X$d0Ã · " ¹ s6Ñ Ä

```
Ruijie(config)# ip igmp snooping source-check port
```

,Ì G Q ¸	Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

15.1.17 ip igmp snooping suppression enable

?U ' Ô igmp snooping Report y [,X e s6Ñ ÈAË ;> < G!5B Q ¸ ip igmp snooping suppression enable ÄA¹ Q ¸,X no 6 ã GKÁ igmp snooping suppression Ä

ip igmp snooping suppression enable

no ip igmp snooping suppression enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B disable õ ã Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ' S6Ñ Z IGMP ä , G2Ï y y [e s6Ñ â È ü Ô þ ¹A¶KÈLh Y4˜ •A’ Û ¾ î ^ ,X vlan Y y ,X ¤ þ4˜ •4˜ Y,X1 Ô þ IGMP Report y [E@ ¥4-CÃ+ E² y · Èâ 4»,X IGMP Report y [Ú á4»4Á åCÃ+ E² y ·E@ ¥ ÈE- Ã ¹ £ å5%4° ,X y [DG£ Ä G!5B ZA¹ Q ¸ â Èsuppression s6Ñ | È x 6 î Í IGMPv1/v2 report y [E¯> e È á î Í IGMPv3 report y [E¯> e Ä

G!5B _ ßM6,X/ _$è/ üA’ Û Þ ' Ô igmp snooping suppression Ö

```
Ruijie(config)# ip igmp snooping suppression
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â

	-	-

15.1.18 ip igmp snooping mrouter learn pim-dvmrp

?UG!5BA} x 6 | Õ,X z IGMP Query/Dvmrp/PIM Hellp y [È ¹7¾ |Aš ÿCÃ+ E² y · È AË ;> < G!5B Q ¸ ip igmp snooping mrouter learn ÄA¹ Q ¸,X no 6 ã ª#\ | Õ : 4 Ä

ip igmp snooping mrouter learn pim-dvmrp

no ip igmp snooping mrouter learn pim-dvmrp

– DAÈ â	– D	£EÄ

5 ,ÕG!5B A¹ s6Ñ5 ,Õ ' Ô Ä

Q ¸ õ ã < G!5B €H0'ƒ• •˜c r z B ˜ eS^¯Á•± ñ QB2Q < r x6R” 1"Q I•¨’ ÛÂ J4˜ †•¥ ’ Û,€ÒÈÂQ,X0Ã ÍT5

15.1.19 ip igmp snooping vlan mrouter interface

CÃ+ E² y · 4˜ •A' Û â J4˜ •F• A' Û,È y,ÌE²,X0Ã ·, ?UG!5B4˜ •CÃ+ · ÈÆË ;> < G! 5B Q ¸ ip igmp snooping vlan mrouter interface ÄA¹ Q ¸,X no 6 ã ôL8 Ô þCÃ+ · Ä

ip igmp snooping vlan *vid* mrouter interface *interface-id*

no ip igmp snooping vlan *vid* mrouter interface *interface-id*

– DAÈ â

– D	£EÄ
vid	G!5BCÃ+ E² y ·,X vlan id Ä
interface-id	y · id

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Ã ¹EîE› Ú x 6 Þ,X0Ã ·G!5B M- ÕCÃ+ <0Ã · È¢5à S x 6 Þ Ý ,X IP 4˜ • D B Ã ¹EîE›A¹0Ã ·>•E@ ¥ Î • Ä ü$d0Ã · " ¹ ' Ô,X ™ 6 ß È ¾ Ý ¢CÃ+ E² y ·E¯ 9 ,X4˜ •# !>•E@ ¥ È J W,X Ú>• ö × Ä

üCÃ+ E² y · | Õ : 4 s6Ñ GKÁ,X ™ ‰ ß È Ã ¹G›*üM- ÕG!5B,Ì h,X y · Ä

G!5B _ ßM6,X/ _$è/ üA' ÛG!5B Ô þ î •CÃ+ · Ö

```
Ruijie(config)# ip igmp snooping vlan 1 mrouter interface
fastEthernet 0/1
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp snooping source-check port	

G!5BIGMP Snooping Q ¸

– DAÈ â

– D	£EÄ
vid	CÃ+ ·,X vlan id
ip-addr	4˜ •
interface-id	y · id

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Ã ¹ y ·G!5B î þM- Õ4˜ • Ä

G!5B _ ßM6,X/ _$è/ ü Ô þ0Ã · ÞG!5B Ô þM- Õ4˜ • Ö

```
Ruijie(config)# ip igmp snooping vlan 1 static 224.0.0.2 interface
fastEthernet 0/1
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp snooping vlan mrouter interface	G!5B4˜ •CÃ+ E² y ·

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

15.1.22 ip igmp snooping filter

?UG!5B ¤ þ0Ã · ¾6Ñ y Ô M(M n,X4˜ • D B# È ü y · õ ã ß ;> A¹ Q ¸ G6((M n,X profile ÄA¹ Q ¸,X no 6 ã ôL8 G6(,X profile Ä

ip igmp snooping filter *profile-number*

no ip igmp snooping filter *profile-number*

– DAÈ â

– D	£EÄ
profile-number	profile ,X4ê Ë È ª 8× È<1-65536>

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Đ

^ IGMP Profile h*ü ü Ô þ0Ã · ß È V pA¹0Ã · IGMP Report y [È íA' Û î ¹ RE- þ0Ã · ?U t 9,X4˜ • ú ü IGMP Profile AŒ8× È Y Ä8¹ È í AŒ t 9 È â !E¯> â4Á Ø)Ú Ä ™NO ï Î Û n,X profile È' â !6Ñ ;> filter G6(Ä

G!5B _

ßM6,X/ _$è/ ü,R 0Ã · 0/1 Þ G6(profile 1 Ö

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip igmp snooping filter 1
```

,Ì G Q¸

Q¸	£EÄ
ip igmp profile	ï Î Ô þ profile

G ÄAÈ â ´

Q ¸	£EÄ

G!5BIGMP Snooping

16 PIM-Snooping

16.1 PIM-Snooping

16.1.1 ip pim snooping

?U ü x 6 < *ü PIM-Snooping ÈAË S*üip pim snooping Q ¸ ÄS*ü Q ¸,X no 6 ã < /U*ü PIM-Snooping Ä

ip pim snooping

no ip pim snooping

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	PIM-Snooping "u Ý ' Ô Ä

Q ¸ õ ã	< G!5B õ ã

S*ü Û Ð	AÈ â	PIM-Snooping s6Ñ,X!7 E¤> ™NO qC* b IGMP-Snooping ,X IVGL ê IVGL-SVGL õ ã ÈV p ü < G!5B õ ã ß þ Ô IGMP-Snooping È Fw G!5BPIM-Snooping Ê î à Ê | IGMP-Snooping ,X IVGL õ ã × V p < G!5B õ ã ß Æ | Z IGMP-Snooping ,X SVGL õ ã í PIM-Snooping á6ÑG!5B ä s È ™NO GKÁGMP-Snooping ,X SVGL õ ã Ä V p < GKÁ Z PIM-Snooping ÈFw Ý VLAN Þ,X PIM-Snooping s6ÑFÑ Ú Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim snooping
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	A¹ Q ¸ ¾ ü x 6 ÞCK 0*ü Ä

G!5BPIM-Snooping Q ¸

16.1.3 show ip pim snooping

?U / PIM-Snooping < G!5B,X µ C ÈAË S*ü show ip pim snooping Q ¸ Ä

show ip pim snooping [detail]

– DAÈ â

– D	£EÄ
detail	/ Aº4š µ C

5 ,ÕG!5B ´

Q ¸ õ ã

*ü õ ã Ä

(M õ ã Ä

S*ü Û Ð ´

G!5B –

¹ ß Q ¸ ¹,ß PIM-Snooping < G!5B µ C Ö

```
Ruijie#show ip pim snooping
Global runtime mode      : Enabled
Global admin mode        : Enabled
Number of user enabled VLANs: 2
User enabled VLANs: 199 198
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ¾ ü x 6 ÞCK 0*ü Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

16.1.4 show ip pim snooping neighbor

?U / PIM-Snooping F• µ C ÈAË S*ü show ip pim snooping neighbor Q ¸ Ä

show ip pim snooping neighbor

– DAÈ â

– D	£EÄ

-	-

5 ,ÕG!5B ´

Q¸õã *ü õã
(M *ü õã

S*ü Û Ð ´

G!5B _ ¹ß Q¸¹,ß PIM-Snooping F• µC Ö

```
Ruijie#show ip pim snooping neighbor
IP Address      Port   Uptime/Expires    Flags
VLAN 199: 2 neighbors
214.199.199.2    2/32  00:18:25/00:01:04
214.199.199.10   2/20  00:18:09/00:01:03  DR
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈâ A¹ Q¸¾ü x 6 ÞCK 0*ü Ä

Q¸ZÆ

(Ë	AÈâ
-	-

16.1.5 show ip pim snooping vlan

? U / PIM-Snooping VLAN ,Ì G µ C È A Ë S *show ip pim snooping vlan *interface-number* Q¸Ä

show ip pim snooping vlan *interface-number* [neighbor]

– DAÈâ

– D	£EÄ
interface-number	VLAN ID
neighbor	/ VLAN ß,XF• µC

5 ,ÕG!5B ´

Q¸õã

*ü õã

(M *ü õã

S*üÛÐ

´

G!5B –

¹ßQ¸¹,ß PIM-Snooping VLAN199 µCÖ

```
Ruijie#show ip pim snooping vlan 199
4 neighbors (0 DR priority incapable)
DR is 214.199.199.4
```

¸ÌGQ¸

Q¸	£EÄ
-	-

GÄAÈâ

A¹Q¸¾ü x 6 ÞCK 0*üÄ

Q¸ZÆ

(Ë	AÈâ
-	-

17

17.1

17.1.1 ipv6 dhcp

?U S*ü dhcpv no 6 ã < GKÁ dhcpv6 snooping s6

ipv6 dhcp sn

no ipv6 dhcp

– DAÈ â	£EÄ
	-
5 ,ÕG!5B	5 ,Õ
Q ¸ õ ã	<
S*ü Û Ð	S*ü S*ü show ipv6 dhcp sno
G!5B _	_ 1 Rui

,Ì G Q ¸	£EÄ
	s ping s6Ñ,X < G!5B µ C
G ÄAÈ â	´
Q ¸ Z Æ	AÈ â
	r Q ¸

G!5B Ú | Õ*ó ä,X4¥ n><NM ÊE³#Ï t .@ ÊE›$¸>< ,X s6Ñ Ä S*üA¹ Q ¸,X no 6 ã È GKÁ A¹ s6Ñ Ä

ipv6 dhcp snooping binding-delay *seconds*

no ipv6 dhcp snooping binding-delay

– DAÈ â	– D	£EÄ
	time	ÊE³4¥ n .@ ÊE›$¸,X ÊKÈ È) ! Ö/¦

Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	n Ê Ú dhcpv6 snooping 4¥ n D B g,X*ü µ C m 9 flash [Ê ÈÃ ¹L !6A' ÛG¡ „ | â È*ü µ C ö È Ð7È*ü ™NOG¡ „9‹ ª IP È ! Ã ¹!7 EîAƒ Ä
G!5B –	_ 1 ÖG!5B n Ê m 9 flash ,X ÊKÈKÈLh 100 /¦ Ruijie(config)# **ipv6 dhcp snooping database write-delay**

G!5B Ñ+9 ,Â,X0Ã · ¹ R Bù ,X Ô G Ä S*üA¹ Q ¸,X no 6 ã È 6 á Í DHCPv6 ¡ h y [,X0Ã · ” ¹ Ä

ipv6 dhcp snooping ignore dest-not-found

no ipv6 dhcp snooping ignore dest-not-found

– DAÈ â	– D	£EÄ
	´	

5 ,ÕG!5B 5 ,Õ GKÁ

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

DHCPv6 ,X ¡ h y [E@ ¥ ÈLÔ?U qC* MAC ><,X ð2ö È V p DHCPv6 ,X ¡ h y [ü x 6 Þ ¹ R á MAC Í h,X0Ã · È Z] <5×<% È Ú áE@ ¥,Ì G y [Ä ü U þ ÿ,X5%4° È Ã6Ñ ´5%4° ¹ 2 Ã5%4° § % 95 ÃA’ Û Ú ´E› î1 s ´ È MAC : 4 ¥*ó ÊE³ È Ý Ã6Ñ ¥*ó ÞEÄ _ ™ ÈE- Ê üA’ Û Þ î ' D Î2Ï4³ ¹ «

DHCPV6_SNOOPING-5-DEST_NOT_FOUND : Could not find destination port. Destination MAC [mac-address] ÈE- Ê È Z6ÑA} H5%,X DHCPv6 6Ñ!7 ¹ 0 È Ã ¹ ' Ô V ß Ô G ÈE- Ê ¹ R á MAC Í h0Ã ·,X y [Ú ¹ S • 6 ã ¥EÕ ,Ì G VLAN ,X Ý0Ã · Ä

G!5B _

_ 1 ÖG!5B Ñ+9,Â,X0Ã · ¹ R Bù,X Ô G Ä

```
Ruijie(config)# ipv6 dhcp snooping ignore dest-not-found
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 dhcp snooping	/ dhcpv6 snooping s6Ñ,X < G!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

17.1.7 ipv6 dhcp snooping link-detection

G!5B0Ã · LINK DOWN Ê È#ÙL8A¹0Ã · Þ | Õ4¥ n><NM,X Ô G Ä S*üA¹ Q ¸,X no 6 ã È G KÁA¹ s6Ñ Ä

ipv6 dhcp snooping link-detection

no ipv6 dhcp snooping link-detection

– DAÈ â

– D	£EÄ
´	

5 ,ÕG!5B

5 ,Õ GKÁ

Q ¸ õ ã

< G!5B õ ã

S*ü Û Đ

T¬Ax ™ ‰ ß È0Ã ŁINK DOWN Ê È á#ÙL80Ã · ß | Õ4¥ n><NM Ä *üA¹ s6Ñ â È0Ã · LINK DOWN Ê È î7¾ |#ÙL8A¹0Ã · ß | Õ*ó ä,X4¥ n><NM Ä

G!5B –

_ 1 ÖG!5B0Ã ·LINK DOWN Ê È7¾ |#ÙL8A¹0Ã · ß,X | Õ4¥ n><NM Ä

```
Ruijie(config)# ipv6 dhcp snooping link-detection
```

,Ì G Q ¸

Q ¸	
show ipv6 dhcp snooping	/ dhcpv6 snooping s6Ñ,X < G!5B µ C

G!5B _

_ 1 ÖG!5B0Ã ·fastethernet 0/1 trust ·

```
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 dhcp snooping trust
```

¸Ì G Q ¸

Q ¸	£EÄ
show ipv6 dhcp snooping	/ dhcpv6 snooping s6Ñ,X < G!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

	-	-

G ÄAÈ â ´

(Ë

G!5BDHCPV6 Snooping Q ¸

¹,ß dhcpv6 snooping s6Ñ ' !,XG!5B ™ ‰ Ä

show ipv6 dhcp snooping

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Đ EîE›!8 Q ¸ È ¹,ß dhcpv6 scpn(g)]TJ /C2_0 1 Tf 0 Tc 0 Tw7.7906 0 Td [<0873-6<36D1152708212C5

– DAÈ â	– D	£EÄ

	vlan *vlan_id*	/ A¹ VLAN Í h,X !4Ô><NM
	interface *interface_name*	/ A¹ y · Í h,X !4Ô><NM

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›!8 Q ¸ È Ã ¹ ¹,ß dhcpv6 snooping !4Ô>< ,X Ý*ü µ C Ä

G!5B _

```
_ 1 Ösh ow ipv6 dhcp snooping prefix
Total number of prefix: 1
Mac Address     IPv6 Prefix  Lease(s)  VLAN  Interface
-------------   ----------   -------   ----  -----------
00d0.f801.0101  2001:2002::/64  42368     2    fa 0/1
```

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

17.2.4 show ipv6 dhcp snooping statistics

/ dhcpv6 snooping Ø)Ú dhcpv6 y [,X4³Au µ C Ä

show ipv6 dhcp snooping statistics

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›!8 Q ¸ È Ã ¹ ¹,ß dhcpv6 snooping Ø)Ú dhcpv6 y [,X4³Au µ C Ä

_ 1 Ö ¹,ß dhcpv6 snooping Ø)Ú dhcpv6

G!5B _

17.3.1 clear ipv6 dhcp snooping binding

ôL8 dhcpv6 snooping 4¥ n D B g ,X Ý*ü µ C Ä

clear ipv6 dhcp snooping binding [*ipv6-address*] [*mac-address*] [vlan *vlan_id*] [interface

	ipv6-prefix	#ÙL8A¾ipv6 !4Ô Í h,X !4Ô><NM
	mac-address	#ÙL8A¾mac Í h,X !4Ô><NM
	vlan *vlan_id*	#ÙL8A¾VLAN Í h,X !4Ô><NM
	interface *interface_name*	#ÙL8A¹ y · Í h,X !4Ô><NM

5 ,ÕG!5B

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ È Ã ¹#ÙL8 dhcpv6 snooping !4Ô>< Æ4£*ó ä,X*ü µ C Ä

G!5B _ _ 1 Ö#ÙL8dhcpv6 snooping !4Ô><,X*ü µ C

```
Ruijie# clear ipv6 dhcp snooping prefix
```

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

17.3.3 clear ipv6 dhcp snooping statistics

#ÙL8dhcpv6 snooping Ø)Ú dhcpv6 y [,X4³Au µ C Ä

clear ipv6 dhcp snooping statistics

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›!8 Q ¸ È Ã ¹#ÙL8 dhcpv6 snooping Ø)Ú dhcpv6 y [,X4³Au µ C Ä

G!5B _

_ 1 Ö#ÙL8dhcpv6 snooping Ø)Ú dhcpv6 y [,X4³Au µ C

```
Ruijie# clear ipv6 dhcp snooping statistics
```

¸Ì G Q¸

Q¸	£EÄ

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
10.4	„ r Q¸

17.4

17.4.1 debug ipv6 dhcp snooping

Ô dhcpv6 snooping ,XA×A© Ô G Ä S*üA¹ Q¸,Xno 6 ã È GKÁ,Ì h,XA×A© Ô G Ä

debug ipv6 dhcp snooping {event | packet}

no debug ipv6 dhcp snooping {event | packet}

– DAÈ â

– D	£EÄ
event	_ Ê2OA×A© µ C È r ÊC³CþDHCPv6 SNP ,X´ þ _ Ê Ø)Ú È V VLAN ÃAP ,X ¬ ê Ø)Ú ×4¥ n><NM*ó ä ` ôL8 Ã&Á Û Ñ `&Á ¦¨ Û 6,X Ø)Ú µ C1
packet	dhcpv6 y [2OA×A© µ C È r ÊC³Cþ DHCPv6 y [,X Ø þCÃ X> È ” s´ ö ×1 µ C Ä

5 ,ÕG!5B

5 ,Õ GKÁ

Q¸õ ã

(M õ ã

S*ü Û Ð

EîE›A¹ Q¸ È ¹,ß dhcpv6 snooping s6Ñ,XA×A© µ C Ä

G!5B _

_ 1 Ö Ô dhcpv6 snooping ,X _ Ê2OA×A© µ C

```
Ruijie# debug ipv6 dhcp snooping event
```

¸Ì G Q ¸	Q ¸	£EÄ

18 ND Snooping

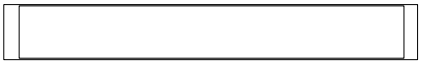
18.1

18.1.1 ipv6 nd snooping

< ' Ô IPv6 ND snooping s6Ñ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM < GKÁPv6 ND Snooping s6Ñ Ä

ipv6 nd snooping

no ipv6 nd snooping



18.1.2 ipv6 nd snooping vlan

'Ô

VLAN ,X IPv6 ND snooping s6Ñ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GK**Á**LAN ,X IPv6 ND Snooping s6Ñ Ä

ipv6 nd snooping vlan { *vlan-rng* | {*vlan-min* [*vlan-max*]}}

no ipv6 nd snooping vlan {*vlan-rng* | {*vlan-min* [*vlan-max*]}}

– DAÈ â

– D	£EÄ
vlan-rng	vlan 8× È
vlan-min	vlan ÞL$
vlan-max	vlan ßL$

5 ,ÕG!5B

Ý vlan FÑ S6Ñipv6 nd snooping

Q ¸ õ ã

< õ ã

S*ü Û Ð

´

G!5B _

_ 1 Ö GKÁVLAN 100 ,X IPv6 ND Snooping

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# no ipv6 nd snooping vlan 100
```

_ 2 Ö GKÁVLAN 4 È5-7 È15 ,X IPv6 ND Snooping

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# no ipv6 nd snooping vlan 4,5-7,15
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping	/ ipv6 nd snooping G!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.3

< ' Ô ND L ! Pk(M û Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM < GKÁND L ! Pk(M û Ä

ipv6 nd snooping check address-resolution [key-node-only]

no ipv6 nd snooping check address-resolution

– D	£EÄ
key-node-only	™ Í GK 8V&•E¯> ND L ?· d Ï ”¹

5 ,ÕG!5B GKÁ

Q ¸õ ã < õ ã

S*ü Û Ð ND L CÃ+ µ C Ï ”¹ Ÿ4œ Ô È á Ã ¹ GKÁ Ä

G!5B _

_ 1 Ö Ô ND L ?· d Ï Ï

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#ipv6 nd snooping check address-resolution
```

_ 2 Ö Ô ™ ND L GK 8V&• ?· d Ï Ï

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#ipv6 nd snooping check address-resolution
key-node-only
```

¸Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping	/ ipv6 nd snooping G!5B µ C

G ÄAÈ â ´

(Ë	AÈ â
10.4(2)	„ r Q ¸

Q ¸Z Æ

18.1.5 ipv6 nd snooping detect gateway

< Ô 7¾ |5% G µ C : 4 Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁ7¾ |5% G µ C : 4 Ä

ipv6 nd snooping detect gateway ra

no ipv6 nd snooping detect gateway ra

– DAÈ â

– D	£EÄ

5 ,ÕG!5B GKÁ

Q ¸ õ ã < õ ã

S*ü Û Ð E¬LÔ üVLAN Þ Ô !6Ñ*ó Ä

G!5B –

_ Ö < |7¾ |5% G µ C9‹ ª s6Ñ

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping auto-gateway ra
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping	/ nd snooping 7¾ |5% G9‹ ª,Ì G G!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.6 ipv6 nd snooping d etect gateway vlan

Ô VLAN 7¾ |5% G µ C : 4 ÄÃ ¹*üA¹ Q ¸,X no EÝNM GKÁLAN 7¾ |5% G µ C : 4 Ä

ipv6 nd snooping detect gateway vlan {*vlan-rng*|{*vlan-min* [*vlan-max*]}}

no ipv6 nd snooping detect gateway vlan {*vlan-rng*|{*vlan-min* [*vlan-max*]}}

– DAÈ â

– D	£EÄ
vlan-rng	vlan 8× È
vlan-min	vlan ÞL$
vlan-max	vlan ßL$

5 ,ÕG!5B GKÁ

Q ¸ õ ã < õ ã

S*ü Û Ð < LÔ Ô

G!5B _

_ Ö | VALN 7¾ |5% G µ C9‹ ª s6Ñ

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping detect gateway vlan 8
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping	/ nd snooping 7¾ |5% G9‹ ª,Ì G G!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.7 ipv6 nd snooping key-node

¹#Ï t*ü b ND L ?· d Ï,X GK 8V&• µ C Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM ô L8 ¹#Ï t,X GK 8V&• µ C Ä

ipv6 nd snooping key-node [link-local *vid*]*ipv6_address/prefix_len*

no ipv6 nd snooping key-node [link-local *vid*] *ipv6_address/prefix_len*

– DAÈ â

– D	£EÄ
vid	link-local LÔ Û n VID
ipv6_address/prefix_len	GK 8V&•IPv6 ž J !4Ô

5 ,ÕG!5B ´

Q ¸ õ ã < õ ã

S*ü Û Ð ´

G!5B _

_ Ö ¹#Ï t GK 8V&• µ C

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#ipv6 nd snooping key-node  2003::1/128
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping key-node	/ nd snooping GK 8V&• µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.8 ipv6 nd snooping mo nitor stateless-user

' Ô ´(Š Õ *ü ,¥ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁ ´(Š Õ *ü ,¥ Ä
ipv6 nd snooping monitor stateless-user
no ipv6 nd snooping monitor stateless-user

– DAÈ â

– D	£EÄ
´	

5 ,ÕG!5B GKÁ

Q ¸ õ ã < õ ã

S*ü Û Ð ,¥ ,X ´(Š Õ *ü µ C Ã*ü b ND L ! Pk `*ü 4¥ n

G!5B _

_ Ö < GKÁ ´(Š Õ*ü ,¥

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

G!5B

	show ipv6 nd snooping	/ ipv6 nd snooping G!5B µ C

G ÄAÈ â

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸

18.1.11 ipv6 nd snooping stateless -user station-move

{ ´(Š ÕG!5B*ü 8V&•/Ï | Ä

ipv6 nd snooping stateless-user station-move

no ipv6 nd snooping stateless-user station-move

– DAÈ â	– D	£EÄ
	´	

5 ,ÕG!5B	GKÁ
Q ¸ õ ã	< õ ã
S*ü Û Ð	´

G!5B –

_ Ö | ´(Š ÕG!5B*ü 8V&•/Ï | Ä

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# ipv6 nd snooping stateless-user station-move
```

,Ì G Q ¸	Q ¸	£EÄ
	´	

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸

18.1.12 ipv6 nd snooping stateless-user limit

{ ´(Š ÕG!5B*ü y 9 DG£ Ä
ipv6 nd snooping stateless-user limit *num*
no ipv6 nd snooping stateless-user limit

– DAÈ â

– D	£EÄ
num	G!5B y · AŒ y 9,X*ü D

5 ,ÕG!5B 16

Q ¸ õ ã y · õ ã

S*ü Û Ð ´

G!5B _

_ ÖG!5B y · FastEthernet 0/1 y 9*ü D 8 Ä

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 nd snooping stateless-user limit 8
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 nd snooping	/ ipv6 nd snooping G!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.13 ipv6 nd snooping stateless-user per-vlan prefix-limit

G!5B!£ þ VLAN Õ,X IPv6 !4Ô D Ä
ipv6 nd snooping stateless-user per-vlan prefix-limit *num*
no ipv6 nd snooping stateless-user per-vlan prefix-limit

G!5B

G!5B –

_ Ö#ÙL8 GK 8V&• µ C

```
Ruijie# clear ipv6 nd snooping key-node
```

¸Ì G Q ¸

Q ¸	£EÄ
´	

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.15 clear ipv6 nd snooping stateless-user

– DAÈ â

#ÙL8,¥ ,X ´(Š Õ *ü Ä

clear ipv6 nd snooping stateless-user [vlan *vid*]

– D	£EÄ
vid	#Ù0N K ' VLAN ,X ´(Š Õ *ü

5 ¸ÕG!5B

´

Q ¸ õ ã

(M õ ã

S*ü Û Ð

´

G!5B –

_ Ö#ÙL8 ´(Š Õ *ü

```
Ruijie# clear ipv6 nd snooping stateless-user
```

¸Ì G Q ¸

Q ¸	£EÄ
´	

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.1.16 clear ipv6 nd snooping prefix

#ÙL8 <F¼ ê ¤VLAN ,¥ ,X !4Ô
clear ipv6 nd snooping prefix [vid *vlan*]

– DAÈ â	– D	£EÄ
	vlan	#Ù0N K ' VLAN ,X !4Ô

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã

S*ü Û Ð	´

G!5B –	_ Ö#ÙL8 Ý,¥ ,X IPv6 !4Ô Ruijie# **clear ipv6 nd snooping prefix**

,Ì G Q ¸	Q ¸	£EÄ
	´	

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸

18.2

18.2.1 show ipv6 nd snooping

/ IPv6 nd snooping M- ÕG!5B µ C
show ipv6 nd snooping [interface]

– DAÈ â

– D	£EÄ
interface	™ / y ·,Ì GG!5B

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B – _ Ö / IPv6 nd snooping M- ÕG!5B µ C

```
Ruijie# show ipv6 nd snooping
```

,Ì G Q ¸

Q ¸	£EÄ
´	

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

18.2.2 show ipv6 nd snooping key-node

/ M- ÕG!5B ` | Õ : 4 ,X GK 8V&• µ C

show ipv6 nd snooping key-node

– DAÈ â

– D	£EÄ
´	

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B – _ Ö / M- ÕG!5B ` | Õ : 4 ,X GK 8V&• µ C

```
Ruijie# show ipv6 nd snooping key-node
```

,Ì G Q ¸	Q ¸	£EÄ
	´	

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸

18.2.3 show ipv6 nd snooping stateless-user

/ ,¥ ,X ipv6 ´(Š Õ *ü

show ipv6 nd snooping stateless-user

– DAÈ â	– D	£EÄ
	´	

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B – _ Ö / ,¥ ,X ipv6 ´(Š Õ *ü

```
Ruijie# show ipv6 nd snooping stateless-user
```

,Ì G Q ¸	Q ¸	£EÄ
	´	

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸

19 MSTP

19.1

19.1.1 bpdu src-mac-check

' Ô ¤ þ y ·,X bpdu $d mac ”¹ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁ y ·,Xbpdu $d mac ”¹ s6Ñ Ä

bpdu src-mac-check *H.H.H*

no bpdu src-mac-check

– DAÈ â	– D	£EÄ
	H.H.H	></ ¾ y $d mac A¹ ,X bpdu û Ä
	no	EÝNM></ 0Ã · y Ï),X bpdu û Ä

5 ,ÕG!5B	5 ,Õ GKÁ,X Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	´

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# bpdu src-mac-check 00d0.f800.1e2f
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

19.1.2 clear spanning-tree detected-protocols

y · ¥ RSTP BPDU È Í BPDU û ;> ”¹ Ä

clear spanning-tree detected-protocols [interface *interface-id*]

– DAÈ â

– D	£EÄ
interface-id	Í h,X y ·

5 ,ÕG!5B ´T¬Ax Ä

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# clear spanning-tree detected-protocols
```

,Ì G Q ¸

Q ¸	£EÄ
show spanning-tree interface	/ ' ! y · STP ,XG!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.3 spanning-tree

' Ô MSTP È ú – D Ã ü ' Ô MSTP ,X à Ê ÈA’5B MSTP < ,X Î A’5B Ä S*üA¹ Q ¸ ,X no EÝNM GKÁspanning-tree s6Ñ È V p no Q ¸ ú – DEÝNM ¾ Ú Í h – D 6 á 5 ,Õ È J á GKÁ spanning tree Ä

spanning-tree

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

forward-time **Ã**hello-time **Ã**max-age Ý þ ,X8× È ,Ì G,X È Â Z J Ô þ î E ¡
J ª ø þ,X 8× È ÄE- Ý þ KÈ Ý Ô þ 4z G2Ï Ö
2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay "1.0snd)
á0ú ÜE- þ 5 Ê,X 3 îA'5B á ä s Ä

G!5B _

_ 1 Ö ' Ô spanning-tree s6Ñ Ö
`Ruijie(config)# spanning-tree`
_ 2 ÖA'5B BridgeForwardDelay Ö
`Ruijie(config)# spanning-tree forward 1`

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree autoedge disabled
```

¸Ì G Q ¸

Q ¸	£EÄ
show spanning-tree interface	/ 0Ã · STP G!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.5 spanning-tree bpdufilter

' Ô ¤ þ y ·,X BPDU filter Ô G Ä*ü Ã ¹*üA¹ Q ¸,X enabled ê disabled EÝNM ' Ô ê G KÁ y ·,X BPDU filter Ô G Ä

spanning-tree bpdufilter [enabled | disabled]

– DAÈ â

– D	£EÄ
enabled	' Ô y ·,X BPDU filter Ô G Ä
disabled	GKÁ y ·,X BPDU filter Ô G Ä

5 ¸ÕG!5B 5 ¸Õ GKÁ,X Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree bpdufilter enable
```

¸Ì G Q ¸

Q ¸	£EÄ
show spanning-tree interface	/ STP 0Ã ·G!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

- -

	-	-

5 ,ÕG!5B	5 ,Õ GKÁ
Q ¸ õ ã	y · õ ã
S*ü Û Đ	´

G!5B _

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

19.1.9 spanning-tree guard none

y · Þ GKÁ guard (M û Ä S*üA¹ Q ¸,X no EÝNM ª#\ y · Þ,X guard s6Ñ Ä

spanning-tree guard none

no spanning-tree guard none

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B GKÁguard s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ Ruijie(config-if)# **spanning-tree guard none**

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

19.1.10 spanning-tree guard root

y · ' Ô root guard (M û Ä S*üA¹ Q ¸,X no EÝNM GKÁot guard (M û Ä *ü root guard s 6Ñ È6ÑL !6 ´JíAÃG!5B êM2"© y [,X Ï Ð7È ' ! 9 !,X ¬ ê Ä

spanning-tree guard root

no spanning-tree guard root

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ GKÁroot guard s6Ñ Ä
Q ¸ õ ã	y ·G!5B õ ã Ä ´
S*ü Û Ð	´
G!5B _	Ruijie(config-if)# **spanning-tree guard root**

£EÄ

- -

ã Ä

```
config)# interface gigabitethernet 1/1
config-if)# spanning-tree link-type point-to-point
```

	-

ree loopguard default

d (M û Ä S*üA¹ Q ¸,X no EÝNM GKóop guard (M û Ä *ü loop guard s
Û Ñ · ´ á bpdu 5à {*ó,X Ã6Ñ,X)ƒCÃ Ä

guard default

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.13 spanning-tree max-hops

ü < G!5B õ ã ß S*ü!8 Q ¸ Ã ¹A'5B BPDU û,X Ô ûCÇ D ÄMax-hops Count Å È W Û n Z BPDU ü Ô þ Region Y4£E› î å ÄA' Û â>• ö × È J Í Ý,X Instance Ý Ä S*ü no EÝNM Ã ¹ ÚA¹ Q ¸ 6 á7Ç5 ,Õ Ä

spanning-tree max-hops *hop-count*

no spanning-tree max-hops

– DAÈ â

– D	£EÄ
hop-count	BPDU ü>• ö × ! Ã ¹4£E›A' Û,X õ D È8× È 1 É40

5 ,ÕG!5B *hop-count* ,X5 ,Õ 20

Q ¸ õ ã < G!5B õ ã

ü

S*ü Û Ð

19.1.14 spanning-tree mode

ü < õ ã ß S*ü!8 Q ¸ STP (Ä S*ü no EÝNM Ã ¹ Ú*ó ä å(6 á7Ç5 ,Õ Ä

spanning-tree mode [stp | rstp | mst *p*]

no spanning-tree mode

– D	£EÄ
stp	Spanning tree protocol(IEEE 802.1d)

S Tl P T f 0 . 0 0 0 8 1 8 T

V p?U Ú VLAN 3 ¢ Instance 1 ôL8 ÈFw E¯ 9 MST G!5B õ ã â È ;> V ß,XE›/ß

```
Ruijie(config-mst)# no instance 1 vlan 3
```

V p?U Ú H þ Instance 1 ôL8 È •"© V ß Ö

```
Ruijie(config-mst)# no instance 1
```

| Ã ¹EîE› MST G!5B Q ¸ ,X show P`A• ÞEÄE›/ß Ä

Q ¸	£EÄ
show spanning-tree mst	¹ H dæh s#owÕÂCäid#S … 3 v

S*ü Û Ð	cost C^ û>< âCÃ X8…C C^P¬
G!5B –	4- Ô þ ` Instance 3 ,Ì G6(,X y ·G!5BCÃ X8…C 400 •"© V ß Ö `Ruijie(config)# **interface gigabitethernet** 1/1` `Ruijie(config-if)# **spanning-tree mst** 3 **cost** 400` 3 Ã ¹K 9 show spanning-tree mst interface interface-id (M Q ¸P`A• ÞEÄG!5B

Q ¸	£EÄ

S*ü Û Ð

ü Region Y 6 ä)ƒCÃ Ê È ì EÝ ½P¬ ì 4{,X0Ã · Ø b ¥EÕ(Š Õ Ä ì 4{,Ì à Ê È ¹EÝ *ü y · ËEW ã,X0Ã · Ä

G!5B _

ß _ Ú ^ ü Instance 20 ,X Gigabitethernet 1/1 y ·,X ì 4{ A' 10 Ö

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 20 port-priority 0
```

Ã ¹K 9 show spanning-tree mst instance interface *interface-id* (M Q ¸P`A• ÞEÄ G!5B Ä

,Ì G Q ¸

Q ¸	£EÄ
show spanning-tree mst	¹,ß y ·,X MSTP µ C Ä
spanning-tree mst cost	A'5BCÃ X8…C
spanning-tree mst priority	4- á à Instance A'5BA' Û ì 4{

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.18 spanning-tree mst priority

ü < G!5B õ ã ß S*ü!8 Q ¸ Ã ¹4- Instance A'5BA' Û ì 4{ Ä S*ü no EÝNM Ã ¹ ÚA¹ Q ¸ 6 á7Ç5 ,Õ Ä

spanning-tree [mst *instance-id*] priority *priority*

no spanning-tree [mst *instance-id*] priority

– DAÈ â

– D	£EÄ
instance-id	Instance Ë È8× È 0 É64
priority	A' Û ì 4{ È ÃEÝ*ü 0, 4096,8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152,53248, 57344 ` 61440 Ä E 16 þ H D È 4096 ,X á D Ä

5 ,ÕG!5B

instance-id ,X5 ,Õ 0

Q ¸ õ ã

priority ,X5 ,Õ 32768

S*ü Û Ð < G!5B õ ã .

G!5B _ ß _4- Instance 20 A'5B,XA' Û ì 4{ A' 8192 Ö

```
Ruijie(config-if)# spanning-tree mst 20 priority 8192
```

Ã ¹K 9 show spanning-tree mst instance interface interface-id (M Q ¸P`A• ÞEÄ G!5B Ä

,Ì G Q ¸

Q ¸	£EÄ
show spanning-tree mst	¹,ß y ·,X MSTP µ C Ä
spanning-tree mst cost	A'5BCÃ X8…C Ä
spanning-tree mst port-priority	4- á à Instance A'5B0Ã · ì 4{ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.19 spanning-tree pathcost method

G!5B0Ã ·CÃ X8…C ,X5 ,ÕAu1k •"© Ä S*üA¹ Q ¸,Xno EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

spanning-tree pathcost method [long | short]

no spanning-tree pathcost method

– DAÈ â

– D	£EÄ
long	G›*ü 802.1t Û šA' n path-cost ,X Ä
short	G›*ü 802.1d Û šA' n path-cost ,X Ä

5 ,ÕG!5B 5 ,ÕG›*ü 802.1T Û šA' n Path-cost ,X Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ `Ruijie(config-if)# spanning-tree pathcost method long`

,Ì G Q ¸

Q ¸	£EÄ

	show spanning-tree interface	/ STP y ·G!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.20 spanning-tree portfast

' Ô ¤ þ y ·,X Portfast Ô G Äü Ã ¹*üA¹ Q ¸,X disabled EÝNM GKÁ y ·,XPortfast Ô G Ä

spanning-tree portfast [disabled]

– DAÈ â

– D	£EÄ
disabled	GKÁ y ·,X Portfast Ô G Ä

5 ,ÕG!5B 5 ,Õ GKÁ,X Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð -

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree portfast
```

,Ì G Q ¸

Q ¸	£EÄ
show spanning-tree interface	/ 0Ã · STP G!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.1.21 spanning-tree portfast bpdufilter default

< ,X ' Ô BPDU filter Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM < ,X GKÁBPDU filter Ä

spanning-tree portfast bpdufilter default

no spanning-tree portfast bpdufilter default

G!5B _ Ruijie(config)# **spanning-tree portfast bpduguard default**

Q¸	

19.1.24 spanning-tree reset

Ú H þ spanning-tree A'5B 6 á 5 ,Õ ÄA¹ Q ¸"u Ý no EÝNM Ä

spanning-tree reset

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ `Ruijie(config)# spanning-tree reset`

Q ¸	£EÄ
show spanning-tree	/ STP < G!5B µ C Ä

Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	´
G!5B _	Ruijie(config-if)# **spanning-tree tc-guard**

Q ¸	**£EÄ**

Q ¸ Z Æ	(Ë	AÈ â
	-	-

19.1.27 spanning-tree tc-protection tc-guard

< ' Ô tc- guard Ô G Ä S*üA¹ Q ¸,X no EÝNM < GKÁtc- guard Ô G Ä *ü tc-guard s 6Ñ È6ÑL !6tc y [,X = 7 Ä

spanning-tree tc-protection tc-guard

no spanning-tree tc-protection tc-guard

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ GKÁtc- guard Ô G Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _

– DAÈ â

– D	£EÄ
tx-hold-count	TxHoldCount A'5B Ä 8× È ¢ 1 10 Ä

5 ,ÕG!5B 5 ,Õ 3 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ `Ruijie(config)# **spanning-tree tx-hold-count** 5`

,Ì G Q ¸

Q ¸	£EÄ
show spanning-tree	/ MSTP < G!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

19.2

19.2.1 show spanning-tree

/ `*ó ä å,Ì G,X < G!5B µ C Ä

show spanning-tree [summary | forward-time | hello-time | max-age | inconsistentports| tx-hold-count | pathcost method | max_hops]

– DAÈ â

– D	£EÄ
summary	/ MSTP ,X Ø instance ,X µ C ž J0Ã ·E@ ¥(Š Õ µ C Ä
Inconsistentports	/ ´ ± x ê)ƒCÃ ± x5à block ,X0Ã · Ä
forward-time	/ BridgeForwardDelay Ä
hello-time	/ BridgeHelloTime Ä
max-age	/ BridgeMaxAge Ä
max-hops	/ instance ,X Ô ûCÇ D Ä

link-type	/ 0Ã ·,X linktype

5 ,ÕG!5B ´

Q¸õã (M õã Ä

S*ü Û Ð ´

G!5B _ `Ruijie# show spanning-tree interface gigabitethernet 1/5`

,Ì G Q¸

Q¸	£EÄ
spanning-tree bpdufilter	' Ô ¤ þ y ·,X BPDU filter Ô G Ä
spanning-tree portfast	' Ô ¤ þ y ·,X portfast Ô G Ä
spanning-tree bpduguard	' Ô ¤ þ y ·,X BPDU guard Ô G Ä
spanning-tree link-type	G!5B y ·,XE² y2O _ á “&• Í&•E² y” Ä

G ÄAÈ â ´

(Ë	**AÈ â** C .86 0. 0 01n1 Tf ( )T0 T095A 0.6c 2

S*ü Û Ð ´

G!5B _ Ruijie# **show spanning-tree mst configuration**

Q¸	£EÄ
spanning-tree mst configuration	E¯ 9 MST region G!5B
spanning-tree mst cost	/ instance ,XCÃ X8…C
spanning-tree mst max-hops	/ instance ,X Ô ûCÇ D
spanning-tree mst priority	/ instance ,XA' Û ì

20 SPAN

20.1

20.1.1 monitor session

ï Î Ô þ SPAN îA± J Û n,Â,X0Ã · Ä,¥ { · Å `$d0Ã · Ä>•,¥ { · Å . S*üA¹ Q ¸,X no EÝ NM ôL8 îA± ê5Ù)(À ôL8$d0Ã · ê,Â,X0Ã · Ä

monitor session *session_number* {source interface *interface-id* [both | rx | tx] | destination interface *interface-id* { encapsulation | switch } | mac {source *mac-addr*| destination *mac-addr* } [both | rx | tx]} [acl *name*]

no monitor session *session_number* [source interface *interface-id* [both | rx | tx] | destination interface *interface-id* { encapsulation | switch }] | mac {source *mac-addr*| destination *mac-addr* } [both | rx | tx] [acl *name*]

no monitor session all

– DAÈ â

– D	£EÄ
session_number	SPAN îA± Ë Ä
source interface *interface-id*	Û n$d0Ã · ÄÍ b *interface-id* ÈÆË Û n,Ì h,X y · Ë È ¾6Ñ (=)Ú0Ã · È á Ã ¹ SVI Ä
destination interface *interface-id*	Û n,Â,X0Ã · Ä Í b *interface-id* ÈÆË Û n,Ì h,X y · Ë È ¾6Ñ (=)Ú0Ã · È á Ã ¹ SVI Ä
mac source *mac-addr*	>•K0 £ y [,X$d MAC
mac destination *mac-addr*	>•K0 £ y [,X,Â,X MAC
both acl *name*	à Ê,¥ {Eg 9 `Eg Î y [Ä ,¥ {,X# ,X acl *name/id*
rx	¾,¥ {Eg 9 y [Ä
tx	¾,¥ {Eg Î y [Ä
all	ôL8 Ý îA±
encapsulation	ÕK0 £ · Õ>™ s6Ñ, Ô º ' Ô Ú 9/•K0 £ y [tag È5 ,Õ á ' Ô
switch	ÕK0 £,Â,X · x 6 s6Ñ È5 ,Õ á ' Ô

5 ,ÕG!5B ´

Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	switch port Ãrouted port ` AP FÑ Ã ¹G!5B $d0Ã · `,Â,X0Ã · Ä SPAN îA± J á E ¡ x 6 ,X!7 ¡ 0 Ä Ã ¹ Ú SPAN îA±G!5B ü Ô þ disabled port Þ È' 5à ÈSPAN J áP@ Þ ¥*ó 0*ü,È S6Ñ,Â,X `$d0Ã · Ä Ô þ0Ã · á6Ñ à Ê $d0Ã · `,Â,X0Ã · Ä ü ôL8 Ê È V p á Û â$d0Ã · ê5Ù,Â,X0Ã · È í ôL8 H þ îA± Ä S*ü show monitor Q ¸ Ã ¹ / SPAN îA±,X ¡ 0(Š Õ Ä
"¼ ã	session 1 *ü 9 Õ < C¼4“ 50Ã ·K0 £ È?UG!5BC¼4“ 5 SPAN ¾6Ñ S*üsession 1 Ä

G!5B _	ßM6E- þ _ $AÈ â V) ï Î Ô þ SPAN îA± Ö îA± 1 Ä V p s Æ4£A’5BA’5BE›A¹ îA± È AËOj Ú ' ! îA± 1 ,XG!5B#ÙL8] È' âA’5B0Ã · gigabitEthernet 1/1 ,X y [á 0Ã · gigabitEthernet 1/8 Ä
	`Ruijie(config)# **no monitor session** 1`
	`Ruijie(config)# **monitor session** 1 **source interface gigabitEthernet** 1/1 **both**`
	`Ruijie(config)# **monitor session** 1 **destination interface gigabitEthernet** 1/8`

,Ì G Q ¸		
	Q ¸	**£EÄ**
	show monitor	/ ' ! SPAN G!5B,X(Š Õ Ä

G ÄAÈ â	-

Q ¸ Z Æ		
	(Ë	**AÈ â**
	-	-

20.2

20.2.1 show monitor

/ ' ! SPAN G!5B,X(Š Õ Ä

show monitor [session *session_number*]

– DAÈ â		
	– D	**£EÄ**

session *session_number*	SPAN îA± Ë

5 ,ÕG!5B 5 ,Õ / Ý SPAN îA±

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _ ßM6E- þ _ $AÈ â Z V)EîE› show monitor (M Q ¸ / SPAN îA± 1 ,X ' !(Š Õ

```
Ruijie# show monitor session 1
sess-num: 1
src-intf:
GigabitEthernet 3/1 frame-type Both
dest-intf:
GigabitEthernet 3/8
```

,Ì G Q ¸

Q ¸	£EÄ
monitor session	ï Î Ô þ SPAN îA± J Û n,Â,X0Ã · Ä,¥ { · Å `$d0Ã · Ä>•,¥ { · Å Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

21 RSPAN

21.1

21.1.1 monitor session

ï Î Ô þ RSPAN îA± J Û n,Â,X0Ã · Ä,¥ { · Å Ã$d0Ã · Ä>•,¥ { · Å ê ¡ Ø · Ä S*üA¹ Q ¸,X no EÝNM ôL8 îA± ê5Ù)(À ôL8$d0Ã · Ã,Â,X0Ã · ê ¡ Ø · Ä

G!5BK0 £A' Û 2 û Ö

monitor session *session_num* {remote-destination | remote-source }

G!5B,Â,XK0 £ Ö

monitor session *session-num* destination remote vlan *vlan-id* [reflector-port] interface *interface-name* [switch]

A'5BE°/ß$dK0 £ Ö

monitor session *session-num* source interface *interface-name* [rx | tx | both]

A'5BK0 £ ¡ Ø · Ö

monitor session *session-num* destination remote vlan *vlan-id* reflector-port interface *interface-name* [switch]

– DAÈ â

– D	£EÄ
session-num	îA± Ë
vlan-id	remote span vlan id
Interface-name	0Ã · á +

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ ?UE¨ ² (M õ ã ÈEg 9 end Q ¸ È êK 9 Ctrl+C 4˜ ÜK Ä
?UE¨ ² < G!5B õ ã ÈEg 9 exit Q ¸ Ä

G!5B _ _ 1 Ö$d x 6 G!

```
Ruijie(config)# monitor session 2 remote-source
Ruijie(config)# monitor session 2 source interface gigabitEthernet
```

1/2 // á Õ¡Ø·A'Û

```
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/3 switch // Õ¡Ø·A'Û
Ruijie(config)# monitor session 2 destination remote vlan 7
reflector-port interface gigabitEthernet 1/1 switch
```

_ 2 Ö,Â,X x 6 G!5B

```
Ruijie(config)# monitor session 2 remote-destination
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/1 switch
```

,Ì G Q¸

Q¸	£EÄ
show monitor	/ K0 £ îA± µ C Ä

G ÄAÈ â á Õ¡Ø·,X{•´LÔEg 9 reflector-port GK + Ä

Q¸Z Æ

(Ë	AÈ â
-	-

21.1.2 remote-span

S*üA¹ Q¸A'5B RSPAN VLAN

[no] remote-span

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õ ã VLAN G!5B õ ã

S*ü Û Ð ?UE¨² (M õ ã ÈEg 9 end Q¸È êK 9 Ctrl+C 4˜ ÜK Ä

?UE¨² < G!5B õ ã ÈEg 9 exit Q¸

G!5B _

```
Ruijie(config)# vlan 5
Ruijie(config)# remote-span
```

,Ì G Q¸

Q¸	£EÄ

	show vlan	/ Vlan µ C Ä

G ÄAÈ â S5750 2Ï ë { • áLÔ?UG!5B ¡ Ø · Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

22 IP

22.1

22.1.1 ip address

A¹ Q ¸*ü 9G!5B y ·,X IP È Ã ¹*ü no 6 ã ôL8 Û n y ·,X IP Ä Q ¸ ã V ß Ö

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

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

– DAÈ â

– D	£EÄ
ip-address	32 þ!¨(M ! IP È 8 ! Ô4˜ È ¹ E¯ • ã></ È 4˜ KÈ*ü&•Lh Ô Ä
network-mask	32 þ!¨(M !5%4° }-Õ È“1” ></ }-Õ ! È“0”></ ! Ä!£ 8 ! Ô4˜ È ¹ E¯ • ã></ È4˜ KÈ*ü&•Lh Ô Ä
secondary	></ G!5B,X õ IP Ä

5 ,ÕG!5B y ·"u ÝG!5B IP Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

Ô þA’ Û ¾ ÝG!5B Z IP È ! Ã ¹ y ` ¥EÕ IP D B y È y ·G!5B Z IP ÈAÈ â A¹ y · AŒE¤> IP #A, Ä

5%4° }-Õ 3 Ô þ 32 !!¨(M,X D È ÛAš- A¹ IP ,X ¾ ´ þ!¨(M 5%4°F¼ Ú Ä5%4° }-Õ È 1 ,X!¨(M Í h,X IP !¨(M ! 5%4°F¼ Ú È 0 ,X!¨(M Í h ,X IP !¨(M ! F¼ Ú Ä V A 2O5%4° Í h,X5%4° }-Õ 255.0.0.0 Ä4 Ã ¹ ý*ü5%4° }-Õ Í Ô þ5%4°E¯> $5% æ Ú È $5% æ Ú Ú Ô þ Ú F¼ Ú,X Ô o!¨(M ! 3 0 5%4°F¼ Ú È4ý ã •G£ È r t5%4°,X DG£ ÈE- Ê,X5%4° }-Õ /Ä $ 5% }-Õ Ä

RGOS EC Ê Ã ¹ Õ Ô þ y ·G!5B î þ IP È J Ô þ IP È J - <F¼ õ IP Ä õ IP ,XG!5B)ÚAŽ Þ"u Ý D,ÂL$ È Ã ¹Lc ãG!5B È ¾ ÝG! ¾ Z IP â !6ÑG!5B õ IP Ä õ IP Ã ¹ â IP 2 b à Ô þ5%4° ê5Ù á à Ä ü5%4° ÎA’ È î4£ S*ü õ IP ÈEî ü ¹ ß ™ ‰ ß hA¹5×<%A©*ü õ IP Ö Ô þ5%4°"u ÝC‡ ó î,X Ä)„ ü Ô8 ³5%LÔ?U Ô þ C 2O5%4° È Ã ÚG254 Ä Ä ' ³5% CYE› 254 Ä Ê È Ô þ C 2O5%4° Ú á ó ÚG! È Ý ™?U ÚG! º

Ô þ C 2O5%4° ÄE- A’ Û LÔ?UE² y ø þ5%4° È ¹ LÔ?UG!5B î þ IP Ä
AŒ î »,X5%4° Î b1 ` ,X 9 y5%4° Ë'u ÝE¯> $5%,X æ Ú Äõ IP ,X S*ü Ã ¹

„ y [Ä h*ü ´4ê Ë y · ÈLÔ?U"¼ ã ¹ ßL$ Ö

¹ þ5% y · á6ÑG!5B ä ´4ê Ë y · Ä

' > · Õ>™ SLIP ÃHDLC ÃPPP ÃLAPB ÃFrame-relay Ê È Ã ¹G!5B ä ´4ê Ë y · Ä Õ>™ û 4» Ê È ¾ Ý&• &• $ y · ! AŒG!5B ´4ê Ë y · ÄX.25 Õ>™ á AŒG!5B ´4ê Ë y ·,X Ä

á6Ñ*ü ping Q ¸ 9 ”# ´4ê Ë y · ú ¹ 0!7 È ´ ´4ê Ë y ·"u Ý IP Ä EîE› SNMP Ã ¹E°/ß,¥# ´4ê Ë y ·(Š Õ Ä

á6ÑEîE› ´4ê Ë y ·E¯> 5%4° | Ä

G!5B _

¹ ßG!5B È Ú y ·G!5B ´4ê Ë y · È G6(y · FastEthernet 0/1 Ä G6(,X y · ™NO ?UG!5BÞP Ä

```
ip unnumbered fastEthernet 0/1
```

,Ì G Q ¸

Q ¸	£EÄ
show interface	/ y ·,XAº4š µ C Ä

G ÄAÈ â

A¹ Q ¸ ü ` A’ Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.2

22.2.1 arp

S*üA¹ Q ¸ È Ã ¹ ü ARP 4ç †>< r t" û,X IP ` MAC ô Ø ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8M- Õ MAC ô Ø Ä

arp [vrf *name*] *ip-address MAC-address type*

no arp

arp

5 ,ÕG!5B ARP 4ç †>< "u Ý Ï)M- Õ ô ØA„) Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð RGOS S*ü ARP 4ç †>< È B 32 þ!¨(M ! IP ¹ R 48 þ!¨(M !,X MAC Ä + b û î D Õ | Õ ARP ?· d È ¹Eî áLÔ?UG!5BM- Õ ARP ô Ø Ä ý*ü clear arp-cache Q ¸ Ã ¹ ôL8 | Õ : 4 ,X ARP ô Ø Ä

G!5B _ ¹ ßG!5B È ¹ þ5% Þ,X A'5B Z ARP M- Õ ô ØA„) Ä

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

,Ì G Q ¸

Q ¸	£EÄ
clear arp-cache	#ÙL8ARP 4ç †><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.2.2 arp anti-ip-attack

Í b Q ,ÈE²CÃ+ ,X y [Èü þ : 4 ,Â,X IP Í h,X ARP Ê Èx 6 á6Ñ óE¯> .@ ÊE@ ¥ È LÔ?U ^ y [EÕ CPU E¯> ?· d Ä G ARP : 4 Å Ä V p!82O y [ûG£EÕ CPU î Í CPU Eô ä † Ï È E ¡ x 6 J W î u,XE¤> Ä ZL !6!82O IP y [Í CPU Eô ä,X † Ï È ü ?· d Ê îA'5B Ô þ ö ×><NM .@ Ê È â4Á ÝA¹,Â,X IP ,X y [FÑ á îEÕ CPU × ü ?· d ` ä Ê È È „ ÞEÄ><NM E@ ¥(Š Õ È S k x 6 6Ñ ó ÍA¹,Â,X IP ,X y [E¯> .@ ÊE@ ¥ Ä

Eî ™ ‰ ß È ü ARP AË" óKÈ È x 6 CPU 3 þ,Â,X IP Q A¹ ARP ><NM,X y [Ê È Ax , ü Ï CPU ,X Ã6Ñ È´!8 |A'5B ö ×><NM È9L !6 þ-¹ á) • y [Í CPU ,X † Ï Ä Q à Ô þ ARP ><NM,XP y [þ D î å Ê È ! ø n Ï CPU È*ü Ã ¹J\ Í K '5%4°)ƒ WA× HE- þ – D È 3 Ã ¹ GKÁA¹ s6Ñ Ä S*ü Q ¸ arp anti-ip-attack *num* Ã ¹A× HA¹ – D ê5Ù GKÁA¹ s6Ñ ÄA¹ Q ¸,X no 6 ã 6 á 5 ,Õ È G – D 3 þ Ä

arp anti-ip-attack *num*

no arp anti-ip-attack

– DAÈ â

– D	£EÄ
Num	A'5B?º ¥ ARP A' ö ×><NM,XIP y [þ D È ª 8× È <0-100> Ä 0 ></ GKÁ ARP L IP y [Ï s6Ñ Ä

5 ‚ÕG!5B	T¬Ax ™ ‰ ß È ü ß þ þ-¹ á) • y [EÕ CPU âA'5B ö ×><NM Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	ARP L IP y [Ï s6Ñ È ü « þ-¹ á) • IP y [Ï ÊLÔ?U 4*ü x 6 .@ Ê,XCÃ+ C $d 9L Ï Ä V p.@ ÊCÃ+ C $d!¨EW Ú Èarp anti-ip-attack *num* Ã ¹A'5B k ã Ô o Ä ü.@ ÊCÃ+ C $d!¨EW2û ô,X ™ ‰ ß È?U ì $µC‡!7 CÃ+ ‚X S*ü È Ã ¹ Ú arp anti-ip-attack *num* A'5B k!¨EW û È ê5Ù GKÁA¹ s6Ñ Ä

G!5B _	_ 1 Ö ¹ ßG!5B ÈA'5B?º ¥ ARP A' ö ×><NM,XIP y [D,Â 5 Ä
	`Ruijie(config)# **arp anti-ip-attack 5**`
	_ 2 Ö ¹ ßG!5B È GKÁARP L IP y [Ï s6Ñ
	`Ruijie(config)# **arp anti-ip-attack 0**`

‚Ì G Q ¸	
Q ¸	£EÄ
-	-

G ÄAÈ â	
Ý x 6	

Q ¸ Z Æ	
(Ë	AÈ â
10.4(2 Å	10.4(2)(Ô Ÿ Õ

22.2.3 arp gratuitous-send interval

S*üA¹ Q ¸ È Ã ¹ ü Û n5%4° y · n Ê ¥EÕ !C arp AË" ÄA¹ Q ¸‚X no 6 ã GKÁ y · Þ‚X !8 s6Ñ Ä

arp gratuitous-send interval *seconds*

no arp gratuitous-send

– DAÈ â		
– D	£EÄ	
seconds	¥EÕ !C ARP AË" ‚X ÊKÈKÈLh È) !/¦ È ª 8× È <1-3600> Ä	

5 ‚ÕG!5B	
y ·"u Ý *ü n Ê ¥EÕ !C ARP AË" ‚X s6Ñ Ä	

Q ¸ õ ã	
y ·G!5B õ ã Ä	

S*ü Û Ð

'A’ Û,X5%4° y · . ß6(A’ Û,X5% G Ê È V p ß6(A’ Û Ý f 5% G,X> È í Ã ¹ ü!8 y ·G!5B n Ê ¥EÕ !C ARP AË" È @ 7¾ Å ! ,ó!7,X5% G Ä

G!5B _

_ 1 Ö ¹ ßG!5B ÈA’5B å SVI 1 !£/¦Js ¥EÕ Ô õ !C ARP AË" Ä

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

_ 2 Ö ¹ ßG!5B È 0!6 n Ê å SVI 1 ¥EÕ !C ARP AË"

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp gratuitous-send
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.2.4 arp retry interval

S*üA¹ Q ¸ È Ã ¹A’5B ¥EÕ arp AË" y [,XNe)[È G?· d à Ô þ IP ÈE²4Á ¥EÕ 2 õ ARP AË" ,X ÊKÈKÈLh Ä S*ü!8 Q ¸,X no 6 ã Ã ¹ 6 áT¬Ax,X!£/¦G¡ ô 1 õ ARP AË" Ä

arp retry interval *seconds*

no arp retry interval

– DAÈ â

– D	£EÄ
seconds	<1-3600>,ARP AË" ,XG¡ ô ÊKÈ Ã ¹A’5B 1 /¦ ü ü 3600 /¦ ÈT¬Ax 1 /¦

5 ,ÕG!5B

ARP AË" G¡ ô ÊKÈKÈLh 1 /¦ Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

' ¥)„ A’ Û ÝNe4 ,X å ê ¥EÕ ARP AË" È éCK5%4°4 -1 J WKÂNl Ê È Ã ¹ Ú ARP AË" ,XG¡ ô ÊKÈA’5BKS Ô&• È Ô8 á?UCYE› | ÕARP ><NM,X5Õ ê ÊKÈ Ä

G!5B _

¹ ßG!5B È Ú ARP AË" ,XG¡ ô ÊKÈA’5B 30s

arp retry interval 30

,Ì G Q ¸

Q ¸	£EÄ
Arp retry times *number*	A’5B ARP AË" ,XG¡ ô õ D

G ÄAÈ â ´

5 ,ÕG!5B á à { •5 ,Õ á à Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ?U S!8 Q ¸*ó ÈOj *ü Ã µ Ï ARP s6Ñ Ä Ã µ Ï ARP ><NM ` J W><NM E • Y , È V p Ã µ Ï><NM 4*üE› î È Ã6Ñ Ð7È | Õ ARP ><NM0NKÈ á ó Ä Ô8 ÝLÔA'5B È á?UA'5B k þ û Ä

G!5B _ ¹ ßG!5B ÈA'5B Ô î Ã ¹A'5B 1000 þ Ã µ Ï ARP Ä

```
arp trusted 1000
```

¸Ì G Q ¸

Q ¸	£EÄ
service trustedarp	*ü Ã µ Ï ARP s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.2.9 arp unresolve

S*üA¹ Q ¸ È Ã ¹G!5B ARP ><NM þ?· d><NM,X Ô û þ D ÄA¹ Q ¸,X no 6 ã Ã ¹ 6 áT¬Ax 8192 Ä

arp unresolve *number* Ã E| ðÀeT …|Að Sd#8 4)gE•!U'fN E•'"fvAD '†. A˜YR„ Ž R Ct•U àï R sd8 B%e

¹ ßG!5B ÈA’5B ,X þ?· d><NM,X Ô û þ D 500 Ä

G!5B _

-	-

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.2.11 service trustedarp

?U *ü Ã µ Ï ARP s6Ñ È Ã ¹ ;> service trustedarp Q ¸ ÄA¹ Q ¸,X no 6 ã GKÁ Ã µ Ï ARP s6Ñ Ä

service trustedarp

no service trustedarp

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ GKÁ Ã µ Ï ARP Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A' Û,X Ã µ Ï ARP s6Ñ Ô/¡L !6 ARP ! Pk,X s6Ñ È 0 GSN • ,X ÔF¼ Ú ÈLÔ?U ` GSN • ÔCK S*ü Ä

G!5B _ ¹ ßG!5B È ü < G!5B õ ã ß È *ü service trustedarp s6Ñ Ä

```
config
service trustedarp
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.3

22.3.1 ip broadcast-addresss

?U n Ô þ y ·,X S • È*ü y ·G!5B Q ¸ ip broadcast-addresss ÄA¹ Q ¸,X no 6 ã Ã ¹ ª#\ S • G!5B Ä

ip broadcast-addresss *ip-address*

no ip broadcast-addresss *ip-address*

– DAÈ â

– D	£EÄ
ip-address	IP 5%4°,X S • Ä

5 ,ÕG!5B 5 ,Õ IP S • 255.255.255.255 Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ,Â ! IP S • y [,X,Â Û Ô8 < 1 È></ 255.255.255.255 ÄRGOS EC Ê Ã ¹EîE› n {*ó J W IP ,X S • y [È5à è Ã ¹ à Ê y < 1 ¹ ž7¾ Å n ,X S • Ù Ä

G!5B _ ¹ ßG!5B _ $ ÈA¹ y · {*ó,X IP S • y [,X,Â Û 0.0.0.0 Ä

```
ip broadcast-address 0.0.0.0
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ü ` A’ Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.3.2 ip directed-broadcast

*ü IP n å S • (=)Ú S •,XE@ 6 È*ü y ·G!5B Q ¸ ip directed-broadcast ÄA¹ Q ¸,X no 6 ã ª#\ n å S • (=)Ú S •,XE@ 6 Ä

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

G!5BIP

22.4.1 clear arp-cache

?U ¢ ARP 4ç †>< ôL8 | Õ ARP ô ØA„) È*ü < Q ¸ clear arp-cache Ä

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

– DAÈ â

– D	£EÄ
trusted	ôL8 Ã µ Ï ARP ,X><NM
vrf *vrf_name*	ôL8 Û n VRF r _,X	Õ ARP ><NM
ip	IP – D È G#ÙL8 Û n IP ,X ARP ><NM È V p Û n trusted GK + í#ÙL8 Ã µ Ï ARP ><NM È ú í	Õ ARP ><NM
mask	mask $5% }-Õ – D È G#ÙL8 $5% Y,X ARP ><NM È !M6,X IP ™NO $5% Ë; V p Û n trusted GK + í ôL8 $5%,X Ã µ Ï ARP ><NM È ú í ôL8 $5% Y ,X	Õ ARP ><NM Ä
interface *interface-name*	#ÙL8 Û n y ·,X	Õ ARP ><NM

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð

Ã ¹*üA¹ Q ¸ „ ARP 4ç ,>< Ä	
"¼ ã	ü Õ NFPP(Network Foundation Protection Policy , Î. 5%4° ± x) A' Û Þ ÈT¬Ax!£/¦!£ þ mac (ê5Ù IP) ¾ Ô þ ARP y [È V p ø õ clear arp ÊKÈKÈLh ü1s Y È Ã6Ñ î Ð7È1 ` þ h1(y [>•E›$¸5à -Á ÊKÈARP ?· d á Z,X ™ ‰ Ä

G!5B _

_ 1 Ö ¹ ß _ $ È ôL8 Ý ARP | Õ ô ØA„)4ç †>< Ä

```
clear arp-cache
```

_ 2 Ö ¹ ß _ $ È ôL8 | Õ ARP ><NM1.1.1.1

```
clear arp-cache 1.1.1.1
```

_ 3 Ö ¹ ß _ $ È ôL8 y · SVI1 ß,X | Õ ARP ><NM

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

,Ì G Q ¸

Q ¸	£EÄ
arp	ü ARP >< r tM- Õ ô ØA„) Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.4.2 clear ip route

?U H þ ôL8 IP CÃ+ >< ê5ÙP CÃ+ >< ,X ¤ þCÃ+ A„) È Ã ¹ ü(M *ü õ ã ;> clear ip route Q ¸ Ä

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

– DAÈ â

– D	£EÄ
*	ôL8 <F¼CÃ+
network	?U ôL8,X5%4° ê $5%
netmask	Ä ÃEÝ Å5%4° }-Õ

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð ' ¥)„CÃ+ >< Ý ´ CÃ+ È Ã ¹0Ÿ G „CÃ+ >< k Ô „,XCÃ+ Ä ™NO"¼ ã V p ô L8 H þCÃ+ >< È ÚEô ä H þ5%4°,X-Á VEî µ Lp Ä

G!5B _ ¹ ß _ $ È ¾ ôL8 192.168.12.0 ,XCÃ+ Ä

```
clear ip route 192.168.12.0
```

,Ì G Q ¸

Q ¸	£EÄ
show ip route	/ IP CÃ+ ><

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ Ä

(Ë	AÈ â

/ ?· d #A, ÄARP Å4ç †>< Ä

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

– DAÈ â

– D	£EÄ
vrf *vrf_name*	VRF r _ È / Û n VRF ,X ARP ><NM Ä
trusted	/ Ã µ Ï ARP ><NM È' ! ¾ Ý < VRF Õ Ã µ Ï ARP Ä
ip	IP È / Û n IP ,X ARP ><NM × V p Û n trusted GK + È í ¾ / Ã µ Ï ARP ><NM È ú í / M2 Ã µ Ï ARP ><NM Ä
mask	/ IP $5% Y,X ARP ><NM V p Û n trusted GK + È í ¾ / Ã µ Ï ARP ><NM È ú í / M2 Ã µ Ï ARP ><NM Ä
static	/ ÝM- Õ arp ><NM Ä
mac-address	/ Û n mac ,X ARP ><NM Ä
complete	/ Ý Æ4£?· d,X | Õ arp ><NM Ä
incomplete	/ Ý þ?· d,X | Õ arp ><NM Ä
oob	/ ú ê1u)Ú y ·(interface of mgmt) ,X ARP ><NM Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð ´

G!5B –

_ 1 Ö ¹ ß show arp Eg Î4§ p Ö

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

ARP 4ç †>< Ø +!‰,X ÿ £EÄ V ß Ö

+!‰	AÈ â
Protocol	5%4° ,X #A, ÈA¹ +!‰ Internet Ä
Address	â.@ Ê Í h,X IP Ä
Age (min)	ARP 4ç †A„) , ü,X ÊKÈ È¹ ÚJsAu ÄV p ,X ê5ÙM- ÕG!5B,X ÈA¹ +!‰ *ü-Á4“”-”></ Ä
Hardware	â IP Í h,X.@ Ê Ä
Type	.@ Ê 2O _ È ¹ þ5% ARPA Ä

/ ARP 4ç ,>< E Ý î å þ arp ><NM Ä

show arp counter

– DAÈ â	– D	£EÄ
	-	

Port	â ARP G6(,X ` 0Ã · Ä

,Ì G Q ¸	
Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ü Ý x 6 Þ Õ ÈCÃ+ < á Õ Ä

Q ¸ Z Æ	
(Ë	AÈ â
10.4 (	10.4 (Ô Ÿ Õ

22.4.6 show arp timeout

/ ¤ Ô y ·,X | Õ ARP ><NM5Õ ê ÊKÈ

show arp timeout

– D

Q ¸ Z Æ	(Ë	AÈ â
	-	-

22.4.7 show ip arp

?U / ?· d #A, ÄARP Å4ç †>< È ü(M *ü õ ã ;> A¹ Q ¸ Ä

show ip arp

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð

G!5B _

¹ ß show ip arp Eg Î4§ p Ö

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

ARP 4ç †>< Ø +!‰,X ÿ £EÄ V ß Ö

+!‰	AÈ â
Protocol	5%4° ,X #A, ÈA¹ +!‰ Internet Ä
Address	â.@ Ê Í h,X IP Ä
Age (min)	ARP 4ç †A„) , ü,X ÊKÈ È¹ ÚJsAu ÄV p ,X ê5ÙM- ÕG!5B,X ÈA¹ +!‰ *ü-Á4“‘-”></ Ä
Hardware	â IP Í h,X.@ Ê Ä

Type	.@ Ê 2O _ È ¹ þ5% ARPA Ä
Interface	â IP G6(,X y · Ä

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

22.4.8 show ip interface

A¹ Q ¸ Ã ¹ / y ·,X IP (Š Õ µ C Ä Q ¸ ã V ß Ö

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

– DAÈ â

– D	£EÄ
Interface-type	Û n y ·2O _
Interface-number	Û n y ·4ê Ë

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð

Ô þ y · Ø b Ã*ü,X(Š Õ È RGOS Ú î üCÃ+ >< ï Î Ô 5,ÈE²CÃ+ Ä Ã*ü,X y · Û RGOS EC ÊEîE›A¹ y · Ã ¹ ¥ D B Ù Ä V p y · ¢ Ã*ü(Š Õ ¬ á Ã*ü(Š Õ È RGOS EC Ê Ú î ¢CÃ+ >< ôL8,Ì h,X,ÈE²CÃ+ Ä

V p y · Ø b Ã*ü(Š Õ È ¶ AŒ åEî µ(Š Õ È4"CÃ #A,(Š Õ î / UP × V p ™(=)Ú4"CÃ Ø b Ã*ü(Š Õ È y ·(Š Õ î / UP Ä

á à,X y ·2O _ È / ,X4§ p Ã6Ñ á Ô È ´ Ý o Y • ¤ o ó ·(M Ý,XEÝNM Ä

G!5B _

¹ ß show ip interface ,XEg Î4§ p Ä

```
Ruijie# show ip interface FastEthernet 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.
```

/ 4§ p Ø +!‰,X £EÄ V ß Ö

+!‰	AÈ â
IP interface state is:	5%4° y · Ø b Ã*ü(Š Õ È J ó ·.@ Ê(Š Õ `4“CÃ # A,(Š Õ “UP” Ä
IP interface type is:	/ y ·2O _ È V S • È&• Í&•1 Ä
IP interface MTU is:	/ y ·A’5B,X MTU Ä
IP address is:	/ y · IP `}-Õ µ C Ä
IP address negotiate is:	/ y · IP ú+ # 9‹ k Ä
Forward direct-boardcast is:	/ úE@ ¥ n å S • Ä
ICMP mask reply is:	/ ú ¥EÕ ICMP }-Õ h1(y [Ä
Send ICMP redirect is:	/ ú ¥EÕ ICMP G¡ n å y [Ä
Send ICMP unreachabled is:	/ ú ¥EÕ ICMP á ÃE’ y [Ä
DHCP relay is:	/ ú *ü DHCP 4» Ä
Fast switch is:	/ ú *ü IP ¿Eó x 6 s6Ñ Ä
Route horizontal-split is:	/ ú *ü" G Ú F È î E ¡C±/• åG£ #A,,XCÃ + È „> Ä
Help address is:	/ helper IP Ä
Proxy ARP is:	/ ú *ü ·)Ú ARP Ä
Outgoing access list is	/ y · úG!5B Z Î0-A“KÂ ë>< Ä
Inbound access list is	/ y · úG!5B Z 90-A“KÂ ë>< Ä

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

22.4.9 show ip redirects

A¹ Q ¸*ü 9 / T¬Ax5% G Ä Q ¸ ã V ß Ö

show ip redirects

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð A¹ Q ¸ ™ ü ` A’ Û Þ Õ Ä

G!5B _

ßM6 show ip redirects ,XEg Î4§ p Ä

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

,Ì G Q ¸	Q ¸	£EÄ
	ip default-gateway	G!5BT¬Ax5% G È ™ ü ` A’ Û Õ Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

G!5BIP

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

RGOS Õ IP $dCÃ+ Ä 'A' Û y IP D B Ù Ê È î Í IP y ,X ù $dCÃ+ Ã ' R$d CÃ+ ÃA„)CÃ+ 1 EÝNME¯> " ¹ ÈE- oEÝNM üRFC 791 ÝAº4š £EÄ Ä V p "# A¹ D B Ù *ü Z J Ô þEÝNM È î ;> ¡ h,X | 0 × V p "# ´ ,XEÝNM È î4- D B $d ¥EÕ Ô þICMP – DKÂNl#\ C È' â ö ×A¹ D B Ù Ä

RGOS EC Ê5 ,Õ ™ ‰ ß ÕIP $dCÃ+ (M û Ä

G!5B _

¹ ßG!5B _ $ È GKÁ Z IP $dCÃ+ (M û Ä

```
no ip source-route
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ Ä

(Ë	

A¹ Q ¸ E ¡ Ý ICMP ,Â Û á ÃE'#\ C Ä

G!5B _

¹ ßG!5B _ $ È GKÁ Z FastEthernet 0/1 y · ¥EÕ ICMP ,Â Û á ÃE'#\ C Ä

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

A¹ Q ¸ ü ` A' Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

24 DHCP

24.1 DHCP

24.1.1 bootfile

?U n DHCP v 0Ã5 ,Õ | ô £ [Ê á È*ü DHCP "4G!5B Q ¸ bootfile ÄA¹ Q ¸,X no 6 ã Ã ¹ ª#\ n Ä

bootfile *file-name*

no bootfile

– DAÈ â

– D	£EÄ
file-name	n *ü b |,X [Ê á Ä

5 ,ÕG!5B 5 ,Õ"u Ý n | [Ê á Ä

Q ¸ õ ã DHCP "4G!5B õ ã.

S*ü Û Ð Ý o DHCP v 0Ã ü |E›/ß LÔ?U ßEQ ¡ 02Ï4³ ÃG!5B [Ê1 È DHCP á u < ™NO ¤ o | ÊLÔ?U,X ô £ [Ê á È DHCP v 0Ã ! Ã ¹EîE›,Ì h,X á u < Ä V TFTP Å ßEQ [Ê Ä J W á u <EîE› next-server Q ¸E¯> n Ä

G!5B _ ¹ ßG!5B _ $ È n Z router.conf 0 | [Ê á Ä

```
bootfile router.conf
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä
next-server	G!5BDHCP v 0Ã |E›/ß,X ß Ô þ á u <

24.1.2 client-identifier

?U n DHCP v 0Ã,X Ô ÛAš Ä ¹&•Lh Ô,X AE¯ D></ Å È*ü DHCP "4G!5B Q ¸ client-identifier ÄA¹ Q ¸,X.B no 6 ã Ã ¹ ôL8 v 0Ã ÛAš Ä

client-identifier *unique-identifier*

no client-identifier

– DAÈ â	– D	£EÄ
	unique-identifier	DHCP v 0Ã,X ÛAš È¹&•Lh Ô,X AE¯ ></ Ä V Ö 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 Ä
5 ,ÕG!5B	"u Ý5 ,Õ Ä	
Q ¸ õ ã	DHCP "4G!5B õ ã Ä	
S*ü Û Ð	Ý o DHCP v 0ÃAË" DHCP á u < ÚG! IP Ê È*ü v 0Ã ÛAš5àM2.@ Ê *ü 9 ·>< v 0Ã Ä v 0Ã ÛAš+ f Ÿ2O _ ÃMAC ` y · á/Ä4˜ ä È V MAC 00d0.f822.33b4 Ã y · á/Ä GigabitEthernet 0/1 Í h,X v 0Ã ÛAš 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31 È J 01 ·>< ¹ þ5% f Ÿ2O _ È 67.6967.6162.6974.4574.6865.726e.6574.302f.31 GigabitEthernet0/1 ,X AE¯ -Õ Ä G b f Ÿ ·-Õ,X n È Ã ¹ –?• RFC1700 [7,X Address Resolution Protocol Parameters 0´8V Ä ¾ Ý üE¯> DHCP ¹4¥ n n Ê È ! Ã ¹ S*üA¹ Q ¸ Ä	
G!5B _	¹ ßG!5B _ $ È n Z MAC 00d0.f822.33b4 ,X ¹ þ5% DHCP v 0Ã,X v 0Ã Û Aš Ä `client-identifier 0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31`	
,Ì G Q ¸	Q ¸	£EÄ
	hardware-address	n DHCP v 0Ã,X.@ Ê Ä
	host	n IP `5%4° }-Õ Ä*ü bG!5B DHCP ¹4¥ n Ä
	ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

24.1.3 client-name

?U n DHCP v 0Ã,X á + È*ü DHCP "4G!5B Q ¸ client-name ÄA¹ Q ¸,X no 6 ã ô L8 DHCP v 0Ã,X á + Ä

client-name *client-name*

no client-name

– DAÈ â	– D	£EÄ
	client-name	n DHCP v 0Ã,X á + ÄÃ ¹*ü Ï) Û š,X ASCII +0úLš Ä á + á h Ù À â4Ô ³ á È!¨ V n river DHCP v 0Ã á + È á6Ñ n river.i-net.com.cn Ä

5 ,ÕG!5B	5 ,Õ"u Ý n v 0Ã á + Ä

Q ¸ õ ã	DHCP "4G!5B õ ã Ä

S*ü Û Ð	¾ Ý üE¯> DHCP ¹4¥ n n Ê È ! Ã ¹ ý*üA¹ Q ¸ n DHCP v 0Ã,X á + ÄA¹ á + á hA¹ Ù À â4Ô ³ á Ä

G!5B _	¹ ßG!5B _ $ È n Z Ô þ +0ú river 0 v 0Ã,X á + Ä `client-name river`

,Ì G Q ¸	Q ¸	£EÄ
	host	n IP `5%4° }-Õ Ä*ü bG!5B DHCP ¹4¥ n Ä
	ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

24.1.4 default-router

?U n DHCP v 0Ã,X5 ,Õ5% G È*ü DHCP "4G!5B Q ¸ default-router ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL85 ,Õ5% G,X n Ä

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

no default-router

– DAÈ â

– D	£EÄ
ip-address	n A' Û,X IP Ä?U" 7Ç åG!5B Ô þ Ä
ip-address2…ip-address8	Ä ÃEÝ Å Ô î Ã ¹G!5B 8 þ5% G Ä

5 ,ÕG!5B

5 ,Õ"u Ý n 5 ,Õ5% G Ä

Q ¸ õ ã

DHCP "4G!5B õ ã Ä

S*ü Û Ð

Ô8 ™ ‰ ß ÐDHCP v 0ÃLÔ?U ¢ DHCP á u <9‹ k5 ,Õ5% G µ C Ä DHCP á u <7Ç å LÔ?U v 0Ã Û n Ô þ5% G IP ÈA¹ ™NO â ÚG!4- v ,X ü à Ô þ5%!‰ Ä

G!5B _

¹ ßG!5B _ $ È n Z 192.168.12.1 0 5 ,Õ5% G Ä

```
default-router 192.168.12.1
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.5 dns-server

?U n DHCP v 0Ã,X DNS á u < È*ü DHCP "4G!5B Q ¸ dns-server ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8 DNS á u <,X n Ä

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

no dns-server

– D	

– DAÈ â

– D	£EÄ
domain-name	n DHCP v 0Ã,X â4Ô ³ á +0ú Ä

5 ,ÕG!5B 5 ,Õ"u Ý â4Ô ³ á Ä

Q ¸ õ ã DHCP "4G!5B õ ã Ä

S*ü Û Ð DHCP v 0Ã9‹ k Z Û n â4Ô ³ á â È 'A“KÂ K Ý à â4Ô ³ á,X Ê È,È yEîE› á Ã ¹ Z Ä

G!5B _ ¹ ßG!5B _ $ È4- DHCP v 0Ã n Z â4Ô ³ á i-net.com.cn Ä

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

,Ì G Q ¸

Q ¸	£EÄ
dns-server	n DHCP v 0Ã,X DNS á u <
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.7 hardware-address

?U n DHCP v 0Ã,X.@ Ê È*ü DHCP "4G!5B Q ¸ hardware-address ÄA¹ Q ¸ ,X no 6 ã Ã ¹ ôL8.@ Ê ,X n Ä

hardware-address *hardware-address type*

no hardware-address

– DAÈ â

– D	£EÄ
hardware-address	n DHCP v 0Ã,X MAC Ä

	type	ÛAšDHCP v 0Ã,X.@ Ê G Ä #A, ÈÃ ¹*ü +0ú ê D + n Ä +0ú EÝNM Ö ethernet ieee802 D +EÝNM Ö 1 Ä10M ethernet Å 6 ÄIEEE 802 Å

5 ,ÕG!5B

5 ,Õ"u Ý.@ Ê Ä
V p n .@ Ê Ê"uC³EÝNM È5 ,Õ ethernet Ä

Q ¸ õ ã

DHCP "4G!5B õ ã Ä

S*ü Û Ð

¾ Ý üE¯> DHCP ¹4¥ n n Ê È ! Ã ¹ S*üA¹ Q ¸ Ä

G!5B _

¹ ßG!5B _ $ È n Z2O _ ethernet ,X MAC 00d0.f838.bf3d Ä

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

,Ì G Q ¸

Q ¸	£EÄ
client-identifier	n DHCP v 0Ã,X Ô ÛAš Ä ¹&• Lh Ô,X AE¯ D></ Å Ä
host	n IP `5%4° }-Õ Ä*ü bG!5B DHCP ¹4¥ n Ä
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.8 host

?U n DHCP v 0Ã ,X IP `5%4° }-Õ È*ü DHCP "4G!5B Q ¸ host ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8 DHCP v 0Ã IP `5%4° }-Õ,X n Ä

host *ip-address* [*netmask*]

no host

– DAÈ â	– D	£EÄ
	ip-address	n DHCP v 0Ã ,X IP Ä
	netmask	n DHCP v 0Ã ,X5%4° }-Õ Ä

5 ,ÕG!5B "u Ý n ,X IP `5%4° }-Õ Ä

Q ¸ õ ã DHCP "4G!5B õ ã Ä

S*ü Û Ð V p5%4° }-Õ"u Ý â.B n È DHCP á u < Ú ý*üA¹ IP ,X7¾' 5%4° }-Õ Ä A 2O 5%4° }-Õ 255.0.0.0 ×B 2O 5%4° }-Õ 255.255.0 ×C 2O 5%4° }-Õ 255.255.255.0 Ä

¾ Ý üE¯> DHCP ¹4¥ n n Ê È ! Ã ¹ S*üA¹ Q ¸ Ä

G!5B _ ¹ ßG!5B _ $ È Ú v 0Ã IP A' 192.168.12.91 È }-Õ FS ! 255.255.255.240 Ä

```
host 192.168.12.91 255.255.255.240
```

,Ì G Q ¸	Q ¸	£EÄ
	client-identifier	n DHCP v 0Ã,X Ô ÛAš Ä ¹&• Lh Ô,X AE¯ D></ Å Ä
	hardware-address	n DHCP v 0Ã,X.@ Ê Ä
	ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

24.1.9 ip address dhcp

?U b+ ¹ þ5% ê5Ù PPP ÃHDLC ÃFR Õ>™,X y ·6Ñ óEîE› DHCP 9‹+ IP µ C È*ü y · G!5B Q ¸ ip address dhcp ÄA¹ Q ¸,X no 6 ã Ã ¹ ª#\A¹G!5B Ä

ip address dhcp

no ip address dhcp

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ y · á6ÑEîE› DHCP 9‹ k IP Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð RGOS EC Ê,XDHCP v 0Ã È üAË" IP Ê ÈE¬?U" DHCP á u < ¤ o h þG!5B – D µ C Ö1 ÅDHCP EÝNM È v 0Ã $5% }-Õ × 2 ÅDHCP EÝNM È à Ô $5% Þ,X5% G µ C × 3 ÅDHCP EÝNM ÈDNS á u < µ C × 4 ÅDHCP EÝNM5 È â4Ô ³ á ×DHCP EÝNM 44 ÈWINS á u < µ C Ä

RGOS EC Ê,X v 0Ã AŒ ü PPP ÃFR ÃHDLC E²CÃ ÞEîE›dhcp 9‹ k ÈE- þLÔ?U á u <,X Õ È,Â ! å À,X á u < ÕA¹ s6Ñ

G!5B _ ¹ ßG!5B _ $ È S k FastEthernet 0 0Ã ·7¾ |9‹ k IP Ä

```
interface fastEthernet 0
ip address dhcp
```

,Ì G Q ¸

Q ¸	£EÄ
dns-server	n DHCP v 0Ã,X DNS á u <
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.10 ip dhcp excluded-address

?U n ¤ o IP È S k DHCP á u < á î Ú J ÚG!4- DHCP v 0Ã È*ü < G!5B Q ¸ ip dhcp excluded-address ÄA¹ Q ¸,X no 6 ã Ã ¹ ª#\E-/¡ n Ä

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

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

– DAÈ â

– D	£EÄ
low-ip-address	f y IP È ê5Ù f y IP 8× È,XCK Ÿ IP Ä
high-ip-address	f y 8× È,X4§ 3 IP Ä

5 ,ÕG!5B 5 ,Õ DHCP á u < ÚG! H þ "4,X IP Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð V p"u ÝG!5B f y IP È DHCP á u < îA© Ò ÚG! DHCP "4 ,X Ý IP Ä A¹ Q ¸ Ã ¹ (M n ±+- Ô o IP ÈFS !E- o >• ÚG!4- DHCP v 0Ã Ä2'.B n f y IP È 3 Ã ¹ £ å DHCP á u < ÚG! Ê,X †0U "# ÊKÈ Ä

G!5B _ ¹ ßG!5B _ $ ÈDHCP á u < Ú á îA© Ò ÚG! 192.168.12.100~150 8× È Y,X IP Ä

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

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä
network Ä DHCP Å	n DHCP "4,X5%4° Ë `5%4° } -Õ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.11 ip dhcp ping packet

?UG!5BDHCP á u < "# †0U Ê Èping A¹ ,X õ D È*ü < G!5B Q ¸ ip dhcp ping packet ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip dhcp ping packet [*number*]

no ip dhcp ping packet

– DAÈ â

– D	£EÄ
number	Ä ÃEÝ Å8× È ¢ 0 10 È0 ></ GKÁping ¡ 0 Ä5 ,Õ ping ø þ Ù Ä

5 ,ÕG!5B 5 ,Õ ping Ù Ø D 2 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Đ

DHCP á u < ¢ DHCP "4 A© Ò ÚG! IP Ê È î*ü ping ¡ 0 9 ”# A¹ ú Æ>• J W 4*ü È V p 4*ü A„) ß 9 È V p"u 4*ü ÚG!4- DHCP v 0Ã Ä Ping ¡ 05 ,Õ ¥EÕ ø þ D B Ù È Ô î Ã ¹ ¥EÕ 10 þ Ù Ä

G!5B _

¹ ßG!5B _ $ È Ú ping ¡ 0 ¥EÕ D B Ù DA’ 3 þ Ä

```
ip dhcp ping packets 3
```

Q ¸	£EÄ

,Ì G Q ¸

Q ¸	£EÄ
host	n IP `5%4° }-Õ Ä*ü bG!5B DHCP ¹4¥ n Ä
ip dhcp excluded-address	n DHCP á u < á6Ñ ÚG!4- v 0Ã ,X IP Ä

£EÄDHCP

¹ ßG!5B _ $ È Ú DHCP /³ óA' 1 ÚJs Ä

```
lease 0 0 1
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.15 netbios-name-server

?UG!5B ,ECDHCP v 0Ã NETBIOS ,X WINS á + á u < È*ü DHCP "4G!5B Q ¸ netbios-name-server ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8 WINS á u < Ä

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

no netbios-name-server

– D	£EÄ
ip-address	n WINS á u <,X

ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

24.1.16 netbios-node-type

?U n ,E C DHCP v 0Ã NetBIOS ,X 8 V & • 2 O _ È *DHCP "4G!5B Q ¸ netbios-node-type ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8 NetBIOS 8V&•2O _G!5B Ä

netbios-node-type *type*

no netbios-node-type

– D	**£EÄ**
	n NetBIOS 8V&•2O _ È Ý ø/¡ • ã Ä D + n È8× È ¢ 0~FF È AE¯ D È ¾6Ñ ª ¹ ß Ö

– DAÈ â

type

d Ä

5 ,Õ ™ ‰ ß È ,EC ¡ 02Ï4³,X8V&•2O _ S • _ ê5Ù á Ü _ Ä V p"u ÝG!5B WINS á u < È S • _8V&• × V pG!5B Z WINS á u < È á Ü _8V&• Ä ÎA, Ú NetBIOS ,X 8V&•2O _A' Hybrid Ä

G!5B _

¹ ßG!5B _ $ È Ú ,EC DHCP v 0Ã,X NetBIOS 8V&•A' á Ü _8V&• Ä

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

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä
netbios-name-server	G!5B ,EC DHCP v 0Ã NETBIOS ,X WINS á + á u <

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.17 network DHCP

?U n DHCP "4,X5%4° Ë `5%4° }-Õ È*ü DHCP "4G!5B Q ¸ network ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL8 n Ä

network *net-number net-mask*

no network

– DAÈ â

– D	£EÄ
net-number	DHCP "4,X IP 5%4° Ë Ä
net-mask	DHCP "4,X IP 5%4° }-Õ Ä V p"u Ý n } -Õ È5 ,Õ 7¾' 5%4° }-Õ Ä

5 ,ÕG!5B

5 ,Õ"u Ý n 5%4° Ë `5%4° }-Õ Ä

Q ¸ õ ã

DHCP "4G!5B õ ã Ä

S*ü Û Ð

n „ Î "4,X $5% ž J }-Õ È DHCP á u < ¤ o Z Ô þ Ã ÚG!4- v 0Ã,X 0N KÈ ÄL8M2 Ý f yG!5B È ú í Ý "4 ,X FÑ Ý Ã6Ñ ÚG!4- v 0Ã Ä DHCP ü ÚG! "4 ,X È ÝNN cE¯> ,X È V pA¹ Æ4£ ü DHCP Fz n>< ê5Ù "#

A¹ Æ4£ üA¹5%!‰ , ü È ”¹ ß Ô þ È,È ÚG! Ô þ Ý ,X Ä
,X ÚG! ™ ‰ Ã*ü show ip dhcp binding Q ¸ ¹,ß È ”# †0U ™ ‰ Ã*ü show ip dhcp conflict Q ¸ ¹,ß Ä

G!5B _

¹ ßG!5B _ $ Ëñ Z DHCP "4,X5%4° Ë 192.168.12.0 Ë-Õ 255.255.255.240 Ä

```
network 192.168.12.0 255.255.255.240
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp excluded-address	n DHCP á u < á6Ñ ÚG!4- v 0Ã ,X IP Ä
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

(Ë	

G!5B _

¹ßG!5B _ $ È DHCP v 0Ã Û n Z | á u < 192.168.12.4 Ä

```
next-server 192.168.12.4
```

,Ì G Q¸

Q¸	£EÄ
bootfile	n DHCP v 0Ã5 ,Õ	ô £ [Ê á Ä
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä
ip help-address	y · n Helper Ä
option	G!5BRGOS EC ÊDHCP á u <,XEÝ NM Ä

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
-	-

n D B +!‰ 3/Ä Ô þEÝNM Ä G b ' ! DHCP option ,X n ÈAË –?• RFC 2131 [7 Ä

_ 1 Ö ¹ ßG!5B _ $ È ÍEÝNM ··Õ 19 E¯> Z n ÈA¹EÝNM ‡ n Z DHCP v 0Ã ú *ü IP ÙE@ ¥ Ä0 ></ GKÁ IP ÙE@ ¥ Ä1 ></ *ü IP ÙE@ ¥ Ä ¹ ßG!5B È S k DHCP v 0Ã *ü IP ÙE@ ¥ Ä

```
option 19 hex 1
```

G!5B _

_ 2 Ö ¹ ßG!5B _ $ È ÍEÝNM ··Õ 33 E¯> Z n ÈA¹EÝNM4- DHCP v 0Ã ¤ o ZM- ÕCÃ + µ C È DHCP v 0Ã Ú]>™ ø 5M- ÕCÃ+ Ö

1 Å,Â Û5%4°172.16.12.0 È5% G192.168.12.12 ×

2 Å,Â Û5%4°172.16.16.0 È5% G192.168.12.16 Ä

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

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp pool	n DHCP "4 á + È JE¯ 9 DHCP "4G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.1.20 service dhcp

?U üA’ Û Þ *ü DHCP á u < ` 4» ·)Ú(M û È*ü < G!5B Q ¸ service dhcp ÄA¹ Q ¸,X

ü ¤ o { • Þ Ã6Ñ Î)„ DHCP s6Ñ ` J ª s6Ñ †0U,X)„B5 È K ',XKÂNlAË ¹,ß,Ì G { •

	show ip dhcp binding	/ DHCP á u <,X 4¥ n Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.2.2 clear ip dhcp conflict

?U#ÙL8DHCP †0UA„) È ü(M *ü õ ã*ü clear ip dhcp conflict Q ¸ Ä

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

– DAÈ â

– D	£EÄ
*	ôL8 Ý,X DCHP †0UA„) Ä
ip-address	ôL8 Û n IP †0UA„) Ä

5 ,ÕG!5B ´5 ,Õ> Ä

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð DHCP á u < ”# †0U*ü ping îA± È DHCP v 0Ã ”# †0U*ü ?· d #A, ÄARP Å Äclear ip dhcp conflict Ã ¹ ôL8 Z Æ †0UA„) Ä

G!5B – ¹ ß _ $ È#ÙL8 Z Ý †0UA„) Ä

```
clear ip dhcp conflict *
```

¸Ì G Q ¸

Q ¸	£EÄ
ip dhcp ping packets	n DHCP á u < ü ÚG! Ê È ” # †0U,X ping ¡ 0 ¥EÕ,X D B Ù þ D Ä
show ip dhcp conflict	/ DHCP á u < ü ÚG! Ê È ” # ,X †0U Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.2.3 clear ip dhcp server statistics

?U á ! DHCP á u <,XAu D < Èü(M *ü õ ã *ü clear ip dhcp server statistics Q ¸ Ä

clear ip dhcp server statistics

Q ¸ õ ã	(M *ü õ ã Ä
S*ü Û Đ	A¹ Q ¸*ü b / dhcp client ü b á u < x fE›/ß ,X ?U y [Y • È ¹ ž ØG (Š Õ Ä
G!5B _	¹ ß _ $ È ' ÔA’ Û Þ,X dhcp v 0Ã,XA×A© Ô G Ä `debug ip dhcp client`

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

24.2.5 debug ip dhcp server

?UE¯> DHCP Server ,XA×A© È ü(M *ü õ ã*ü debug ip dhcp server Q ¸ Ä

debug ip dhcp server

no debug ip dhcp server

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	5 ,Õ GKÁ
Q ¸ õ ã	(M *ü õ ã
S*ü Û Đ	A¹ Q ¸*ü b / dhcp server ü b v 0Ã x fE›/ß ,X ?U y [Y • È ¹ ž ØG (Š Õ Ä
G!5B _	¹ ß _ $ È ' ÔA’ Û Þ,X dhcp á u <,XA×A© Ô G Ä `debug ip dhcp server`

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

	-	-

24.2.7 show ip dhcp binding

?U / DHCP 4¥ n ™ ‰ È*ü EXEC Q¸ show ip dhcp binding Ä

show ip dhcp binding [*ip-address*]

– DAÈ â

– D	£EÄ
ip-address	Ä ÃEÝ Å ¾ / Û n IP ,X4¥ n ™ ‰ Ä

5 ,ÕG!5B ´5 ,Õ> Ä

Q¸õ ã (M *ü õ ã Ä

S*ü Û Đ V p"u Ý n IP ÈÚ / Ý ,X4¥ n ™ ‰ ÄV p n Z IP ÈÚ ¾ / A¹ IP ,X4¥ n ™ ‰ Ä

¹ ß show ip dhcp binding ,X / 4§ p Ä

```
Ruijie# show ip dhcp binding
IP address    Client-Id/          Lease expiration  Type
              Hardware address
192.168.1.2   00d0.f866.4777     IDLE              Manual
```

/ 4§ p,X Ø +!‰ ÿ KäEÄ V ß Ä

G!5B _

+!‰	AÈ â
IP address	ÚG!4- DHCP v 0Ã,X

24.2.9 show ip dhcp server statistics

?U / DHCP á u <,X Ø/¡4³Au D B È*ü EXEC Q ¸ show ip dhcp server statistics Ä show ip dhcp server statistics

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´5 ,Õ> Ä

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð A¹ Q ¸ Ã ¹ / DHCP á u < ' !,X ØNM4³Au D B Ä

G!5B _

¹ ß show ip dhcp server statistics Q ¸,XEg Î4§ p Ä

```
Ruijie# show ip dhcp server statistics
Address pools           4
Automatic bindings      4
Manual bindings         0
Expired bindings        0
Malformed messages 2
Message                 Received
BOOTREQUEST             216
DHCPDISCOVER            33
DHCPREQUEST             25
DHCPDECLINE             0
DHCPRELEASE             1
DHCPINFORM              150
Message                 Sent
BOOTREPLY               16
DHCPOFFER               9
DHCPACK                 7
DHCPNAK                 0
```

/ 4§ p Ø +!‰,X ÿ KäEÄ V ß Ä

+!‰	AÈ â
Address pools	"4 þ D
Automatic bindings	7¾ | 4¥ n,X D,Â Ä

Manual bindings	¹ 4¥ n,X D,Â Ä
Expired bindings	E› ó 4¥ n,X D,Â Ä
Malformed messages	DHCP y « á!7 y [,X D,Â Ä
Message Received or Sent	DHCP á u < y ` ¥EÕ!£/¡ y [,X D,Â Ä

,Ì G Q ¸

Q ¸	£EÄ
clear ip dhcp server statistics	ôL8 DHCP á u Ø/¡4³Au D B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

25 DHCP Relay

25.1

25.1.1 ip dhcp relay check server-id

?U ' Ô DHCP Relay ,X check server-id s6Ñ È Ã ¹ S*üA¹ Q ¸ 9 ` ä Ä S*üA¹ Q ¸,X no 6
ã GKÁDHCP Relay ,X check server-id s6Ñ Ä

[no] ip dhcp relay check server-id

	– D	£EÄ
– DAÈ â	-	-

LÔ?U ' Ô DHCP Relay ,X option dot1x s6Ñ Ê È Ã ¹ S*ü!8 Q ¸ 9 ` ä Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹ s6Ñ Ä

[no] ip dhcp relay information option dot1x

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð LÔ?U"¼ ã,X A¹ Q ¸ G!5B,X ACL â0Ã · Þ Æ4£G!5B,XACL ,X ACE á Ã , ü †0U Ä

¹ ßG!5B _ $ ÈG!5B h*ü dhcp option dot1x acl Ä

```
Ruijie# configure terminal
Ruijie(config)# ip access-list extended DenyAccessEachOtherOfUnauthrize
Ruijie(config-ext-nacl)# permit ip any host 192.168.3.1
// AŒ ¥ T5% G,X y [
Ruijie(config-ext-nacl)# permit ip any host 192.168.4.1
Ruijie(config-ext-nacl)# permit ip any host 192.168.5.1
Ruijie(config-ext-nacl)# permit ip host 192.168.3.1 any
// AŒ$dlP 5% G,X y [EîAƒ
Ruijie(config-ext-nacl)# permit ip host 192.168.4.1 any
Ruijie(config-ext-nacl)# permit ip host 192.168.5.1 any
Ruijie(config-ext-nacl)# deny ip 192.168.3.0 0.0.0.255 192.168.3.0 0.0.0.255
//
```

G!5B _

	ip dhcp relay information option dot1x	G!5B ' Ô DHCP option dot1x s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

25.1.4 ip dhcp relay information option82

?U ' Ô DHCP Relay ,X option82 s6Ñ Ê È Ã ¹ S*üA¹ Q ¸ 9 ` ä Ä S*üA¹ Q ¸,X no 6 ã G KÁA¹ s6Ñ Ä

[no] ip dhcp relay information option82

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B GKÁ

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ s6Ñ â option dot1x s6Ñ f y È á Ã à ÊG!5B Ä

G!5B _ ¹ ßG!5B _ $ È ü DHCP 4»A' Û Þ È *ü opion82 s6Ñ Ö

```
Ruijie# configure terminal
Ruijie(config)# Ip dhcp relay information option82
```

,Ì G Q ¸

Q ¸	£EÄ
Service dhcp	' Ô DHCP 4» ·)Ú
ip dhcp relay information option dot1x	G!5B ' Ô DHCP option dot1x s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

25.1.5 ip dhcp relay information option vpn

LÔ?U ' ÔDHCP Relay A' Û,X DHCP Relay Aware VRF s6Ñ Ê È Ã ¹ S*üA¹ Q ¸ 9 ` ä Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹ s6Ñ Ä

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B GKÁ

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ s6Ñ ` option82 ž option dot1x á †0U Ä

G!5B _ ¹ ßG!5B _ $ È ü DHCP 4»A' Û Þ *ü DHCP Relay Aware VRF s6Ñ Ö

```
Ruijie# configure terminal
Ruijie(config)#Ip dhcp relay information option vpn
```

,Ì G Q ¸

Q ¸	£EÄ
ip dhcp relay information option82	G!5B ' Ô DHCP option82 s6Ñ
ip dhcp relay information option dot1x	G!5B ' Ô DHCP option dot1x s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

25.1.6 ip dhcp relay suppression

?U ü Û n0Ã · Þ ' Ô DHCP Relay e s6Ñ È Ã ¹ S*üA¹ Q ¸ 9 ` ä Ä S*üA¹ Q ¸,X no 6 ã GKÁ0Ã ·,X DHCP relay e s6Ñ Ä

[no] ip dhcp relay suppression

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B GKÁ

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

¹ ßG!5B _ $ ÈG!5B ø þ á u < Ö
1 ÊG!5B < á u < 192.168.1.1 ×
2 ÊG!5B Î b vrf r _ dep1 ,X á u < 192.168.2.1 ×

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip helper-address 2
```

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

26 DNS

26.1

26.1.1 ip domain-lookup

| DNS E¯> ³ á?· d Ä S*üA¹ Q ¸,X no EÝNM í GKÆDNS ³ á?· d s6Ñ Ä

ip domain-lookup

no ip domain-lookup

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ ™ ‰ ' Ô DNS ³ á?· d s6Ñ Ä
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	A¹ Q ¸ ' Ô DNS ³ á?· d s6Ñ,X Ô G È ;> A¹ Q ¸ È í | DNS E¯> ³ á?· d Ä
G!5B _	ßM6,X _ $ ' Ô DNS ³ á?· d s6Ñ,X Ô G Ö Ruijie(config)# **ip domain-lookup**

,Ì G Q ¸	Q ¸	£EÄ
	show hosts	/ DNS ,Ì GG!5B µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

26.1.2 ip name-server

A¹ Q ¸ G!5B ³ á á u <,X IP/IPv6 Ä ¾ ÝG!5B Z ³ á á u < !6ÑE¯> \| Õ ³ á?· d Ä
S*üA¹ Q ¸,X no EÝNM ôL8G!5B,X ³ á á u < Ä

	ip-address	A' Û,X IP

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð | V p?U ôL8 ë>< È Ã ¹*ü no ip host host-name ip-address Q ¸ 9 ôL8 Ä

G!5B _ `Ruijie(config)# ` **`ip host switch`** 192.168.5.243

,Ì G Q ¸

Q ¸	£EÄ
show hosts	/ DNS ,Ì GG!5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

26.1.4 ipv6 host

A¹ Q ¸ ¹G!5B á ` IPV6 ,X ô Ø Ä S*üA¹ Q ¸,X no EÝNM ôL8 ë>< Ä

Ipv6 host *host-name ipv6-address*

no ipv6 host *host-name ipv6-address*

– DAÈ â

– D	£EÄ
host-name	A' Û,X á
Ipv6-address	A' Û,X IPV6

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð | V p?U ôL8 ë>< È Ã ¹*ü no ipv6 host host-name ipv6-address Q ¸ 9 ôL8 Ä

G!5B _ `Ruijie(config)# ` **`ipv6 host ruijie`** 2001:0DB8:700:20:1::12

Q ¸	£EÄ
	/ DNS ,Ì GG!5B µ C Ä

	AÈ â
	-

Ã ¹ ü(M *ü õ ã ;> A¹ Q ¸ Ä

	£EÄ
	Ã ¹ ôL8 ¤ þ Û n,X | Õ á4ç † Ä “*” ·><#ÙL8 < F¼ | Õ á4ç † Ä

ØA„) È Ý ø þ 9$d Ö1 ÅEîE› ip host ê ipv6 host M- ÕG!5B × : 4 Ä ;> A¹ Q ¸ È î ôL8 ' !EîE› DNS \| Õ : 4 ,X áA„) Ä

á -IP 4ç †>< Ý \| Õ : 4 ,X ô ØA„) Ä

Q ¸	£EÄ
	/ á4ç †>< Ä

(Ë	

26.2.2 show hosts

/ DNS ,XG!5B µ C Ä

show hosts [*hostname*]

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð / DNS ,X,Ì GG!5B µ C Ä

G!5B –

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

,Ì G Q ¸

Q ¸	£EÄ
ip host	¹G!5B á ` IP ô Ø
Ipv6 host	¹G!5B á ` IPV6 ô Ø
ip name-server	G!5BDNS á u <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

27 SNTP

27.1

27.1.1 sntp enable

A¹ Q ¸A'5B ' Ô SNTP s6Ñ È S*ü Q ¸ ,X no EÝNM ÚA¹A'5B 6 á 5 ,Õ —Disable Ä

[no] sntp enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ SNTP (Š Õ Disable
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	S*ü show sntp Q ¸ ¹,ß SNTP ,Ì G – D
G!5B _	`Ruijie(config)# **sntp enable**`

,Ì G Q ¸	Q ¸	£EÄ
	show sntp	/ SNTP ,XG!5B(Š Õ
	clock update-calendar	EC Ê ÊJs à!9.@ Ê ÊJs
	clock set	A'5BEC Ê ÊJs

G ÄAÈ â	EC Ê(RGOS10.0 ¹ Þ

Q ¸ Z Æ	(Ë	AÈ â
	-	-

27.1.2 sntp interval

A¹ Q ¸A'5B SNTP Client LÔ?U n Ê ` NTP/SNTP Server à!9 ÊJs,X ÊKÈKÈLh Ä

sntp interval *seconds*

no sntp interval

	– D	£EÄ	
– DAÈ â	*seconds*	n Ê à!9,XKÈLh È) ! /¦ 8× È	60 /¦

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð S*ü show sntp Q ¸ ¹,ß SNTP ,Ì G – D

G!5B _ Ruijie(config)# **sntp server** 192.168.4.12

,Ì G Q ¸

Q ¸	£EÄ
show sntp	/ SNTP ,XG!5B(Š Õ
sntp enable	' Ô SNTP

G ÄAÈ â EC Ê(RGOS10.0 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

27.2

27.2.1 show sntp

A¹ Q ¸ / SNTP ,X,Ì G – D Ä

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð S*ü show sntp Q ¸ ¹,ß SNTP ,Ì G – D

Ruijie# #Åà

G!5B _

Q¸	

28 NTP

28.1 NTP

28.1.1 no ntp

GKÁntp à!9 á u È 0!6 â ÊKÈ á u <,X à!9 È#ÙL8 ntp ,X ÝG!5B µ C Ä

no ntp

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ ™ ‰ ßNTP á u GKÁ,X Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	ü5 ,Õ ™ ‰ ß ÈNTP s6Ñ GKÁ,X È ¾?UG!5B Z NTP á u < ê NTP] <Aš ÿ È NTP s6Ñ î>• ' Ô Ä
G!5B _	¹ ßG!5B _ $ È GKÁ Z NTP á u Ä no ntp

,Ì G Q ¸	Q ¸	£EÄ
	ntp server	Û n Ô þ NTP á u <

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

28.1.2 ntp access-group

G!5BNTP á u,XA“KÂ { L$ ÈA¹ Q ¸,X no 6 ã ª#\A’5B,XA“KÂ { L$ Ä

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*

– DAÈ â

– D	£EÄ
peer	¶ AŒ Í NTP á uE¯> ÊKÈAË" ` { ¹A¶ È 3 AŒ A' Û âE°/ß2Ï4³ à!9 ÊKÈ Ä ` <A"KÂ L$ Å Ä
serve	AŒ Í NTP á uE¯> ÊKÈAË" ` { ¹A¶ È á AŒ A' Û âE°/ß2Ï4³ à!9 ÊKÈ Ä
serve-only	™ AŒ Í NTP á uE¯> ÊKÈAË" Ä
query-only	™ AŒ Í NTP á uE¯> { ¹A¶ Ä
access-list-number	IP A"KÂ { ë>< Û Ë ×8× È 1 99 ` 1300 1999
access-list-name	IP A"KÂ { ë>< á Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß þG!5B Ï) NTP A"KÂ { ?˜ í Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

A'5B Í A' Û NTP á u,XA"KÂ { L$ ÄE-G ¤ o Z Ô/¡ Ô ãL$ z,X] < ~ ' È È] <,X •"© S*ü NTP D• ÑP`A• Ä

' Ô þA"KÂAË" E' Ê ÈNTP á u Ý'; ¢ Ô ãA"KÂL$ Ô ûA"KÂL$,XNN c q õ G! ?˜ í È ¹1 Ô þ G! ,X?˜ í š Ä G!NN c peer Ãserve Ãserve-only Ãquery-only Ä

"¼ ã	,Â !2Ï4³ V þ Õ { ¹A¶ s6Ñ Ä<Q' Ý'; ÞEÄNN cE¯> ?˜ í G! È #] ž â { ¹A¶,Ì G,XAË" FÑ ´"© Õ Ä

V p þG!5B Ï)A"KÂ { ?˜ í È í ÝA"KÂFÑ AŒ,X Ä Ô ºG!5B ZA"KÂ { ?˜ í È í ™ Ý?˜ í AŒ,XA"KÂ !6ÑE¯> Ä

G!5B –

¹ ß/ 8× V) AŒ1 1 ËA"KÂ ë>< ,X Í0ÃA' Û Í A' ÛE¯> ÊKÈAË" Ã ¹A¶ { ` ÊKÈ à!9 × JL$ 1 2 ËA"KÂ ë>< ,X Í0ÃA' Û ™6Ñ Í A' ÛE¯> ÊKÈAË" Ä

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

¸Ì G Q ¸

Q ¸	£EÄ
ip access-list	ï Î IP A"KÂ { ë>< Ä

G ÄAÈ â

´

(Ë	AÈ â

NTP á uG!5B Ô þ < NTP AxA• šJy Ä

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

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

– D	£EÄ

-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß y ·FÑ Ã ¹ y « NTP y [Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ü5 ,Õ ™ ‰ ß È Ï ã y · Þ y «,X NTP y [FÑ Ã ¹ ¤ o4- v 0ÃE¯> ÊJsA× H ÈEîE›A' 5BE- þ s6Ñ È Ã ¹ #; Í h y · Þ ,X NTP y [Ä

"¼ ã	6Ñ óE¯> - åG!5B,X y ·6ƒ n 6Ñ óG!5B IP ¥ y [,X y · È ü J ª y · Þ"u ÝA¹ Q ¸ Ä

G!5B _ ¹ ßG!5B _ $ È GKÁ y · y NTP y [Ä

```
no ntp
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

28.1.6 ntp master

A'5B ÊJs 0 NTP ÊJs Ä ÊJs –5×$d ÃM4 Å È J WA' Û ¤ o à!9 ÊKÈ ÄA¹ Q ¸ ,X no 6 ã ª#\ NTP ÊJsA'5B Ä

ntp master *[stratum]*

no ntp master

– DAÈ â

– D	£EÄ
stratum	Û n ÊJs Ø,X D È8× È 1 15 ×8¹ á Û n A¹ – D íT¬Ax 8 Ä

5 ,ÕG!5B 5 ,Õ áG!5B NTP ÊJs s6Ñ Ä

Q ¸ õ ã < G!5B õ ã Ä

üEî ™ ‰ ß È 2Ï4³FÑ î,È y êKÈ y â êF¼,X ÊJs$dE¯> à!9 Ä 8¹+ b5%4°E² y Lp1 s ´5à Ð7È 2Ï4³ ´"© â êF¼ ÊJs$d à!9 Ê È Ã ¹EîE›A¹ Q ¸A'5B ÊJs –5×$d ÃM4 È J ªA' Û ¤ o à!9 ÊKÈ Ä

Ô ºE¯> Z!8A'5B È2Ï4³ " á î â!¨ J ÊJs D D ÈP¬,X,X ÊJs$dE¯> à!9 Ä

S*ü Û Ð

S*ü!8 Q ¸ Ê ™NO(M ÿ ã — Ä Ú ÊJsA'5B ÊJs Ä ø J Û n

"¼ ã

Q¸õã < G!5B õã Ä

S*üÛÐ

,Â ! å À,X2Ï4³ ™ Õ v 0Ã"u Ý á u <0Ã È Õ,X à!9 á u < ÞL$ 20 þ Ä
?UE¯> â á u <,X t šEî µ ÈOj kA'5B < t š šJy ¹ ž < µ Ï šJy È' â Û n Í
h,X šJy á u < µ Ï šJy È ! Ã ¹ ¥CK b á u <,X t šEî µ È?U ` ä â á u <,X t š
Eî µ?U" á u < Ý,Ì à,X < t š šJy â < µ Ï šJy
ü,Ì à ™ ‰ Ä2'.B z Å ß È ì EÝ ½ prefer ÊJsE¯> à!9
G!5BNTP ¥EÕ y [,X$d y ·,X Ê í hA¹"¼ ã Ô ß ÈG!5B,X y · ™NO G!5B Z IP ,X J Ã
¹ ` Í h NTP á u <Eî µ,X y · Ä

G!5B _

¹ ßG!5B _ $ ÈG!5B5%4° Þ,XA' Û NTP server Ä
IPv4 G!5B ÖRuijie(config)# **ntp server** 192.168.210.222
IPv6 G!5B ÖRuijie(config)# **ntp server** 10::2

,Ì G Q¸

Q¸	£EÄ
no ntp	GKÁNTP á u s6Ñ Ä

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

28.1.8 ntp synchronize

E¯> NTP r Ê à!9

ntp synchronize

no ntp synchronize

–DAÈâ

–D	£EÄ
-	-

5 ,ÕG!5B ´T¬Ax Ä

Q¸õã < G!5B õã Ä

S*üÛÐ NTP â!£ þ á u <E¯> ,X ñ õ à!9 E²4Á,X 8 þ y [È â !£Lh Ô ÚJs,X à!9E›/ß È

ü7¾ | à!9,XKÈLh óKÈ È V pLÔ?U ` ä G Ê à!9 È í Ã ¹ S*üA¹ Q ¸ Ä

G!5B _

¹ ßG!5B _ $ ÈE¯> NTP r Ê à!9 Ä

```
Ntp synchronize
```

,Ì G Q ¸

Q ¸	£EÄ
ntp server	Û n Ô þ NTP á u < JE¯> à!9

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

28.1.9 ntp trusted-key

Ú Ô þ ID Í h,X šJyG!5B < µ Ï šJy

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

– DAÈ â

– D	£EÄ
key-id	< µ Ï šJy ID Ä

5 ,ÕG!5B

T¬Ax ™ ‰ ß"u Ý µ Ï šJy Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

ü NTP EîA*f* • ™NOG›*ü,Ì à,X µ Ï šJy ÈEîE› ID 9 ¹ R šJy È5à šJy D• á ôEg ,X È ¹ ¤P¬] < û ×

G!5B _

¹ ßG!5B Ô þAxA• šJy È J ^!8 šJyA'5B Í h á u < µ Ï šJy Ä

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

,Ì G Q ¸

Q ¸	£EÄ

ntp authenticate

Q¸Z Æ	(Ë	AÈ â
	-	-

28.2

28.2.1 debug ntp

/ NTP A×A© µ C Ä

debug ntp

no debug ntp

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ GKÁ Ä

Q¸õ ã (M *ü õ ã Ä

S*ü Û Ð ?UE¯> NTP s6ÑA×A© È Ã ¹EîE›A¹ Q¸Eg Î ™?U,XA×A© µ C ÈE¯> LpAž • ` ` fL8 Ä

G!5B _ ¹ß_$È'Ô NTP A×A© Ô G Ä

```
debug ntp
```

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	-	-

28.2.2 show ntp status

/ NTP µ C Ä

show ntp status

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´5 ,Õ> Ä

Q¸õ ã (M *ü õ ã

S*ü Û Ð V p2Ï4³,X NTP á u ' Ô È# / ' !,X NTP µ C È ü1 Ô õ#Ï t à!9 á u < !A¹ Q¸á î ' D Ï) µ C Ä

G!5B _ ¹ß _ $ È / ' !2Ï4³,X NTP µ C Ä

```
show ntp status
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

G!5B

-	-

29.1.2 ftp-server enable

*ü FTP á u < È S*üA¹ Q ¸,X no 6 ã GKÁ FTP á u < Ä

ftp-server enable

no ftp-server enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	T¬Ax GKÁ(Š Õ Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Đ	' FTP á u < *ü Ê ÈEîE› FTP v 0Ã Ã ¹ â E² y È JE¯> [Ê Þ ô ê ßEQ1 ¡ 0 Ä
	"¼ ã ™NO à ÊG!5B!8 Q ¸ ` ftp-server topdir Q ¸ !6Ñ S FTP v 0ÃA“KÂ FTP á u < Þ,X [Ê Ä

_ 1 Ö ¹ ß/ 8× V) | FTP á u < JL$ v 0Ã ™6ÑA“KÂ

G!5B _

29.1.4 ftp-server topdir

L$ FTP v 0Ã6Ñ óE¯> [ÊAÏ m ¡ 0,X,Â)8× È Ä S*üA¹ Q ¸,X no 6 ã O i/U!6 v 0Ã A“KÂFTP á u < Þ Ï) [Ê Ä

ftp-server topdir *directory*

no ftp-server topdir

– DAÈ â	– D	£EÄ
	directory	FTP v 0Ã6Ñ óE¯> ¡ 0,XNJ ,Â)

5 ,ÕG!5B T¬Ax ´NJ ,Â)A’5B Ä á AŒAÏ m Ï),Â) Å Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð FTP á u <NJ ,Â)L$ n Z v 0Ã,O) â Ã ¹A“KÂ,X [Ê,Â)8× È Ä ™NO!7.B Û nNJ ,Â) !6ÑA} FTP v 0ÃA“KÂ FTP á u < Þ,X [Ê Ä
8¹"u ÝG!5BA¹ Q ¸ ÈFTP v 0Ã Ú ´"©A“KÂ á u < Þ Ï) [Ê ê,Â) Ä

G!5B _ _ 1 Ö ¹ ß/ 8× V) | FTP á u < JL$ v 0Ã ™6ÑA“KÂ syslog $,Â) Ö

```
Ruijie(config)# ftp-server topdir /syslog
Ruijie(config)# ftp-server enable
```

_ 2 Ö ¹ ß/ 8× V) ª#\ ,Â),XG!5B Ö

```
Ruijie(config)# no ftp-server topdir
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

29.1.5 ftp-server timeout

G!5BFTP îA±,X0NKÆ ÊL$ ÄSession idle timeouÅ È S*üA¹ Q ¸,X no 6 ã 6 á0NKÆ ÊL$ T¬Ax Ä30 ÚJs Å Ä

ftp-server timeout *time*

no ftp-server timeout

– DAÈ â

– D	£EÄ
time	0NKÆ ÊL$ Ä) ! Ö ÚJs ×8× È Ö1-3600Å

5 ,ÕG!5B

T¬Ax ÊL$ 30 ÚJs Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

G!5BFTP îA±,X0NKÆ ÊL$ ÄV p ' ! îA± ü Û n,X ÊL$ "u ÝE¯> Ï) ¡ 0Ä îA±0NKÆ ÅÈ FTP á u < G ÃAx E² y Æ4£ È5à • Ô âA¹*ü ,XE² y Ä

"¼ ã	îA±,X0NKÆ ÊKÈ Û ü Ô þFTP îA± ¢ Þ õ FTP ¡ 0 ` ä â ß õ FTP ¡ 0 Ô Ÿ KÈ,X ÊKÈ Ä á u < ü Ô þ FTP Q ¸ á u ` ä â Ä V Ô þ [Ê <F¼ ôEg `!© â Å ¢ 0 Ô ŸAu1k îA±0NKÆ ÊKÈ × ü ß þ Q ¸ 9,X Ê í 0!6Au1k îA±0NKÆ ÊKÈ Ä ´!8 îA±0NKÆ ÊL$,XG!5B J á î Í ¤ o5ë Ê,X [Ê ôEg ¡ 0 ú 9 Ï) E ¡ Ä

G!5B _

_ 1 Ö ¹ ß/ 8× V)G!5B0NKÆ ÊL$ 5 ÚJs Ö

```
Ruijie(config)# ftp-server timeout 5
```

_ 2 Ö ¹ ß/ 8× V) 6 á0NKÆ ÊL$ T¬Ax Ä30 ÚJs Å Ö

```
Ruijie(config)# no ftp-server timeout
```

Q ¸	£EÄ

5 ,ÕG!5B	T¬Ax ´*ü á Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	G!5B v 0Ã,OL FTP á u < ÊLÔ?U ¤ o,X*ü á Ä v 0Ã,O) ÊLÔ?U à Ê ¤ o!7.B,X*ü á ` š-Õ !6Ñ,O ) Ä *ü á Ô ûKS z 64 þ +0ú È KÈ á AŒ Ý0N Ä*ü á Ã ¹+ 8Å [ +!¡ Ã ?¦ D + ` ?¦0ú Ë4˜ ä ÄFTP á u < Ô î ¾6ÑG!5B Ô þ*ü á Ä "¼ ã: FTP á u < á Õ á*ü ,O) È V p#ÙL8 Z*ü áG!5B v 0Ã Ú ´ "©EîE› á u <,XD• ÑP`A• Ä

G!5B _	_ 1 Ö ¹ ß/ 8× V)G!5B*ü á user Ö
	`Ruijie(config)# ftp-server username user`
	_ 2 Ö ¹ ß/ 8× V) ª#*ü áG!5B Ö
	`Ruijie(config)# no ftp-server username`

,Ì G Q ¸	
Q ¸	£EÄ
-	-

G ÄAÈ â	´

Q ¸ Z Æ	
(Ë	AÈ â
-	-

29.2

29.2.1 show ftp-server

/ FTP á u <,X,Ì G(Š Õ µ C Ä

show ftp-server

– DAÈ â	
– D	£EÄ
-	-

5 ,ÕG!5B	´

Q ¸õã (M *ü õã Ä

S*üÛÐ

/ FTP á u <,X,Ì G(Š Õ µ C È Ù À Ö
á u < ú |
ú Î0Ÿ { E² y Ä J / ,Ì G IP ÃPort Å
ú Î0Ÿ D BE² y Ä J / |E¬ >• | õã È ¹ ž,Ì G IP ÃPort Å
' ! [Ê ôEg2O _
á u <,O)*ü á Ã š-Õ Ä ™ Ý ´G!5B Å
á u <NJ ,Â)
îA±0NKÆ ÊL$A'5B

G!5B _

¹ß/ 8× V) ¹,ß FTP á u <,X,Ì G(Š Õ µ C Ö

```
Ruijie# show ftp-server
ftp-server information
=======================================
enable : Y
topdir : /
timeout: 20min
username config : Y
password config : Y
type: BINARY
control connect : Y
ftp-server: ip=192.167.201.245  port=21
ftp-client: ip=192.167.201.82  port=4978
port data connect : Y
ftp-server: ip=192.167.201.245  port=22
ftp-client: ip=192.167.201.82  port=4982
passive data connect : N
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

30 UDP-Helper õ +

30.1

30.1.1 ip forward-protocol

A¹ Q ¸ G!5BLÔ?U 4»E@ ¥,X Û n UDP 0Ã · Ä S*üA¹ Q ¸,X no EÝNM í ª#\ Û n UDP 0Ã · S • Ù,X 4»E@ ¥ s6Ñ Ä

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]

– DAÈ â

– D	£EÄ
port	G!5BLÔ?U 4»E@ ¥,X0Ã · È V p á Û nA¹ – D íT¬Ax Í 69,53,37,137,138,49 0Ã ·,X S • y [E¯> 4»E@ ¥ Ä
tftp	Trivial File Transfer Protocol(69) Û nA¹ – D È Ú Í UDP 0Ã · Ë 69 ,X S • y [E¯> 4»E@ ¥ Ä
domain	Domain Name System(53) Û nA¹ – D È Ú Í UDP 0Ã · Ë 53 ,X S • y [E¯> 4»E@ ¥ Ä
time	Time service(37) Û nA¹ – D ÈÚ Í UDP 0Ã · Ë 37 ,X S • y [E¯> 4»E@ ¥ Ä
netbios-ns	NetBIOS Name Service(137) Û nA¹ – D ÈÚ Í UDP 0Ã · Ë 137 ,X S • y [E¯> 4»E@ ¥ Ä
netbios-dgm	NetBIOS Datagram Service(138) Û nA¹ – D È Ú Í UDP 0Ã · Ë 138 ,X S • y [E¯> 4»E@ ¥ Ä
tacacs	TAC Access Control System(49) Û nA¹ – D È Ú Í UDP 0Ã · Ë 49 ,X S • y [E¯> 4»E@ ¥ Ä

5 ,ÕG!5B "u ÝG!5BLÔ?UE@ ¥ÙXDP 0Ã · Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ' Ô UDP-Helper s6Ñ È íT¬Ax Í 69,53,37,137,138,49 0Ã ·,X UDP S • y [E¯> 4» E@ ¥ È áLÔ?U º> G!5B È ú í BLÔ?UE¯> G!5B Ä

G!5B _ Ruijie(config)# **ip forward-protocol udp** 134

¸Ì G Q ¸

Q ¸	£EÄ
udp-helper enable	S6ÑE@ ¥ÐDP S • y [
ip forward-protocol	G!5BLÔ?U 4»E@ ¥,X Û bDP 0Ã ·

G ÄAÈ â A¹ Q ¸,Â ! ™ ü RGOS10.1 Þ Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

30.1.2 ip helper-address

G!5BUDP S • y [4»E@ ¥,X,Â,X á u < Ä S*ü no EÝNM*ü 9 ôL8UDP S • y [4»E@ ¥ ,X,Â,X á u < Ä

ip helper-address *address*

no ip helper-address *address*

– DAÈ â

– D	£EÄ
address	G!5BUDP S • y [4»E@ ¥,X,Â,X á u < È &• Ú E¯ ã È!£ þ y · Ô î Õ 20 þ á u < Ä

5 ¸ÕG!5B "u ÝG!5BUDP S • y [4»E@ ¥,X,Â,X á u <

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Ã ¹ !£ þ y ·G!5B Ô î 20 þ,Â,X á u < ÄV p 4»E@ ¥,X,Â,X á u < ü ¤ y · ÞG! 5B,X,í ü | Z UDP-Helper s6Ñ â È¢A¹ y · y ,X Û n UDP 0Ã ·,X S • y [ÈÚ ¹) • 6 ã ¥EÕ A¹ y · ÞG!5B,X,Â,X á u < Þ Ä

S*ü no ip helper-address ª#\E@ ¥ S • y [Û n,X,Â,X á u < Ä

G!5B _ ßM6,X _ $ G!5B UDP S • y [4»E@ ¥,X,Â,X á u <:

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

¸Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â	A¹ Q ¸,Â ! ™ ü RGOS10.1 Þ Õ Ä

Q ¸ Z Æ	(Ë	AÈ â
	-	-

30.1.3 udp-helper enable

udp-helper enable Q ¸*ü 9 | UDP S • y [,X 4»E@ ¥ s6Ñ Äno udp-helper enable Q ¸*ü 9 GKÁ UDP S • y [,X 4»E@ ¥ s6Ñ Ä

5 ,Õ ™ ‰ ß ÈUDP S • y [,X 4»E@ ¥ Ø b GKÁ(Š Õ Ä

udp-helper enable

no udp-helper enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ UDP S • y [,X 4»E@ ¥ Ø b GKÁ(Š Õ
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	' Ô UDP-Helper ,X 4»E@ ¥ s6Ñ È íT¬Ax Í 69,53,37,137,138,49 ,X UDP S • y [E¯ > 4»E@ ¥ Ä
G!5B _	ßM6,X _ $ | UDP 4»E@ ¥ s6Ñ Ö `Ruijie(config)# udp-helper enable`

,Ì G Q ¸	Q ¸	£EÄ
	ip forward-protocol	G!5BLÔ?U 4»E@ ¥,ØDP 0Ã ·

31 SNMP

31.1

31.1.1 no snmp-server

?U #; A’ Û SNMP ·)Ú s6Ñ ÈAË ;> < G!5B Q ¸ no snmp-server Ä

no snmp-server chassis-id

– DAÈ â

– D	£EÄ
text	2Ï4³ c ë Ë,X [È Ã ¹ S D + ê +0ú Ä

5 ,ÕG!5B c ë Ë5 ,Õ 60FF60

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð SNMP 2Ï4³ c ë Ë Ô8 S*ü <,X c ë Ë È ¹ " ÍA' ÛE¯> Aš ÿ Ä2Ï4³ c ë Ë Ã ¹EîE›
show snmp Q ¸ ¹,ß Ä

G!5B – ßM6,X/ _ Û n SNMP ,X2Ï4³ c ë Ë 123456:
`Ruijie(config)# snmp-server chassis-id 123456`

,Ì G Q ¸

Q ¸	£EÄ
show snmp	¹,ß SNMP ,X4³Au µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.3 snmp-server community

?U Û n SNMP ¶ ',XA"KÂ +0ú ÈAË ;> < G!5B Q ¸ snmp-server community ÄA¹ Q ¸,X no 6 ã ª#\ Û n SNMP ¶ ',XA"KÂ +0ú Ä

snmp-server community *string* [view *view-name*] [[ro | rw] [host *ipaddr*]] [number ipv6 ipv6-aclname][aclnum | aclname]

no snmp-server community *string*

– DAÈ â

– D	£EÄ
string	¶ ' +0ú Ê ' b NMS ` SNMP ·)Ú KÈ,XEî µ š-Õ Ä
view-name	Û n?š Ò,X á/Ä È*ü b Î b?š Ò,X1u)Ú Ä
ro	Û n NMS Í MIB ,X ¬G£ ¾6ÑAÏ È á6Ñ Â Ä
rw	NMS Í MIB ,X ¬G£ ÃAÏ Ã m Ä

aclnumber	A“KÂ ë>< c ë Ë Ä1-99 Å È G6(Û n,XA“KÂ ë>< È Û n6ÑA“KÂMIB ,X ipv4 NMS 8× È Ä

G!5BSNMP Q ¸

S*ü Û Ð A¹ Q¸™NO â< G!5B Q¸ snmp-server host ÔCK S*ü È !6Ñ ¥EÕLKL #\ C Ä

G!5B _

ßM6,X/ _ *ü |¥EÕ SNMP _ ÊLKL #\ C Ö

```
Ruijie(config)# snmp-server enable traps snmp
Ruijie(config)# snmp-server host 192.168.12.219    public snmp
```

,Ì G Q¸

Q¸	£EÄ
snmp-server host	Û n SNMP

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

	ipv6_aclname	ipv6 A“KÂ ë>< á/Ä È G6(Û n,XA“KÂ ë>< È Û n6ÑA“ KÂMIB ,X ipv6 NMS 8× È Ä

5 , A– §‡%&•– 6w f•– ! f•– "u Ý Û&,¯Á€³l^× È Ä

port-num	A'5B snmp 0Ã ·
notification-type	| ¥EÕ,XLKL 2O _ È _ V snmp Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È"u ÝT¬AxSNMP Ä
V p"u Ý Û nLKL 2O _ È í Ù À ÝLKL 2O _ Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

A¹ Q ¸ â < G!5B Q ¸ snmp-server enable traps ÔCK S*ü È |4- NMS ¥EÕLKL #\ C Ä
Ã ¹G!5B î þ á à,X SNMP *ü b y LKL #\ C È Ô þ Ã ¹ S*ü á àLKL 2O _4˜ Ü È á à,X0Ã · È á à,X vrf E@ ¥>< È Í b,Ì à [,Ì à0Ã · Ã,Ì à vrf G!5B È Ô â,X Ô õG!5B î ` !M6,XG!5B Ü J È G V?U4-,Ì à ¥EÕ á àLKL ,X#\ C È Ã ¹ Ú ÿG!5B á àLKL È Ô4œE- oG!5B î Ü J ÔCK Ä

G!5B _

ßM6,X/ _ Û n Ô þ SNMP È y SNMP _ ÊLKL Ö

```
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
```

,Ì G Q ¸

Q ¸	£EÄ
snmp-server enable traps	*ü ¥EÕLKL #\ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.8 snmp-server location

?UA'5BSNMP ,X2Ï4³ !5B µ C ÈAË ;> < G!5B Q ¸ snmp-server location ÄA¹ Q ¸,X no 6 ã ª#\ Û n SNMP 2Ï4³ !5B µ C Ä

snmp-server location *text*

no snmp-server location

– DAÈ â

– D	£EÄ
text	£EÄ2Ï4³ µ C,X +0ú Ä

5 ,ÕG!5B

2Ï4³ µ C 0N

G!5BSNMP Q ¸

snmp-server queue-length	SNMP Kó ë û ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.10 snmp-server queue-length

?U Û nLKL #\ CKó ëKS z ÈAË ;> < G!5B Q ¸ snmp-server queue-length Ä

snmp-server queue-length *length*

– DAÈ â

– D	£EÄ
length	Kó ëKS z È û ã ¢ 1 1000 Ä

5 ,ÕG!5B 10

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð LKL #\ CKó ë*ü b , LKL #\ C È Ã ¹EîE›A¹ Q ¸A× H#\ CKó ë û ã 9 { #\ C ¥EÕEó z Ä
#\ C ¥EÕ Ô ûEó z 4 þ!£/¦ Ä

G!5B _ ßM6,X/ _ Û nLKL #\ CKó ë û ã 4 þ Ö

```
Ruijie(config)# snmp-server queue-length 4
```

¸Ì G Q ¸

Q ¸	£EÄ
snmp-server packetsize	Û n SNMP Ô û D B Ù û ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.11 snmp-server system-shutdown

?U *ü SNMP 2Ï4³G¡CKEî-¹ s6Ñ ÈAË ;> < G!5B Q¸ snmp-server system-shutdown Ä A¹ Q¸,X no 6 ã ª#\ GKÁ SNMP 2Ï4³Eî-¹ s6Ñ Ä

snmp-server system-shutdown

no snmp-server system-shutdown

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	GKÁSNMP 2Ï4³G¡CKEî-¹ s6Ñ
Q¸õ ã	< G!5B õ ã
S*üÛÐ	S*üA¹ Q¸ *ü SNMP 2Ï4³G¡CKEî-¹ s6Ñ È RGOS î üA' Û reload/reboot ¹ !4- NMS ¥EÕLKL #\ CEî-¹2Ï4³G¡CK Ä
G!5B _	ßM6,X/ _ *ü SNMP 2Ï4³G¡CK s6Ñ Ö `Ruijie(config)# snmp-server system-shutdown`

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸Z Æ	(Ë	AÈ â
	-	-

31.1.12 snmp-server trap-source

?U Û n SNMP ,X$d ÈAË ;> < G!5B Q¸

Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	5 ,Õ ™ ‰ ß ÈSNMP y [¢ ¾ þ y · Î • È S*ü ¾ þ y ·,X IP 0 $d È Z “ b1u)Ú `Aš ÿ È Ã ¹ S*üA¹ Q ¸ Î n S*ü Ô þ IP 0 SNMP ,X$d Ä
G!5B _	ßM6,X/ _ Û n ¹ þ5% · 0 IP 0 SNMP $d Ö `Ruijie(config)# snmp-server trap-source fastethernet 0`

,Ì G Q ¸

Q ¸	£EÄ
snmp-server enable traps	*ü | ¥EÕLKL #\ C
snmp-server enable host	Û n NMS ,X

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.13 snmp-server trap-timeout

?U n LKL #\ CG¡ ¥,XCY Ê ÊKÈ ÈAË ;> < G!5B Q ¸ snmp-server trap-timeout ÄA¹ Q ¸ ,X no 6 ã 6 áT¬Ax Ä

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

– DAÈ â

– D	£EÄ
seconds	CY Ê ÊKÈ È) ! /¦ È ª 8× È Ö1 – 1000 Ä

5 ,ÕG!5B	30 /¦
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	´
G!5B _	ßM6,X/ _ Û nCY Ê ÊKÈ 60 /¦ Ö `Ruijie(config)# snmp-server trap-timeout 60`

,Ì G Q ¸

Q ¸	£EÄ
snmp-server queue-length	Û nLKL #\ CKó ëKS z
snmp-server enable host	Û n NMS ,X

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.14 snmp-server user

?UA'5BSNMP *ü ÈAË ;> < G!5B Q ¸ snmp-server user ÄA¹ Q ¸,X no 6 ã ôL8*ü Ä

snmp-server user *username groupname* {v1 | v2 | v3 [encrypted] [auth {md5 | sha} *auth-password*] [priv des56 priv-password]}[access {[ipv6 ipv6_aclname] [aclnum | aclname]}]

no snmp-server user *username groupname* {v1 | v2c | v3 }

– DAÈ â

– D	£EÄ
username	*ü á Ä
groupname	A¹*ü Í h,X4˜ á
v1 | v2 | v3	Û â SNMP (Ä ¾ Ý v3 Õ âM6,X] < – D Ä
encrypted	Û n,X š-ÕEg 9,X • ã š [Eg 9 Ä ú í È ¹ â [Eg 9 ÄV pEÝ ½ Z ¹ š [Eg 9 ÈíLÔ?UEg 9E²4Á,X 16 E¯ D + +0ú></ ,X šJy Ä"¼ ã S*ü MD5 ,XAxA• š JyKS z 16 +8V È5à SHA AxA• #A, šJyKS z 20 +8V Ä ¹ ø þ +0ú></ Ô þ +8V Ä t š></ ,X šJy ™ Í é ¢ Ý Ä
auth	Û n ú S*üP`A• Ä
md5	Û n S*ü MD5 AxA• #A, Äsha Û n S*ü SHA AxA• # A, Ä
auth-password	A'5BAxA• #A, S*ü,X · ¸ +0ú Ä áCYE›32 þ +0ú ÅÄ 2Ï4³ ÚE- o · ¸E@ 6 ä,Ì h,XAxA• šJy Ä
priv	Û n ú S*ü ± š Ä des56 Û â S*ü 56 !,X DES t š #A, Ä
priv-password	t š*ü,X · ¸ +0ú Ä áCYE› 32 þ +0ú Å Ä2Ï4³ ÚE- þ · ¸E@ 6 ä,Ì h,X t š šJy Ä

aclnum	A“KÂ ë>< c ë Ë È G6(Û n,XA“KÂ ë>< È Û n6ÑA“KÂ MIB ,X ipv4 NMS 8× È Ä
aclname	A“KÂ ë>< á/Ä È G6(Û n,XA“KÂ ë>< È Û n6ÑA“KÂ MIB ,X ipv4 NMS 8× È Ä
Ipv6_aclname	ipv6 A“KÂ ë>< á/Ä È G6(Û n,XA“KÂ ë>< È Û n6ÑA“KÂMIB ,X ipv6 NMS 8× È Ä

5 ,ÕG!5B 5 ,Õ"u ÝA’5B*ü Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

G!5B _ ßM6,X/ _A’5B Ô þ snmpV3 *ü È S*ü md5 AxA• È ` S*ü DES t š Ö

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

,Ì G Q ¸

Q ¸	£EÄ
show snmp user	/ SNMP *ü G!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

31.1.15 snmp-server view

?UA’5BSNMP ?š Ò ÈAË ;> < G!5B Q ¸ snmp-server view ÄA¹ Q ¸,X no 6 ã ôL8?š Ò Ä

snmp-server view *view-name oid-tree* {include | exclude }

no snmp-server view *view-name* [*oid-tree*]

– DAÈ â

– D	£EÄ
view-name	?š Ò á Ä
oid-tree	?š Ò G6(,X MIB ÍB5 È Ô É MIB $ å Ä
include	Û âA¹ MIB ÍB5 $ å>• Ù ÿ ü?š Ò Y Ä
exclude	Û âA¹ MIB ÍB5 $ å>• fL8 ü?š Ò ê Ä

5 ,ÕG!5B	5 ,ÕA'5B Ô þ default ?š Ò È AŒA"KÂ Ý,X MIB ÍB5 Ä
Q¸õã	< G!5B õ ã
S*ü Û Ð	´
G!5B _	ßM6,X/ _A'5B Ô þ?š Ò È Ù À Ý,X MIB-2 $ å Äoid 1.3.6.1 Å Ö Ruijie(config)# **snmp-server view** mib2 1.3.6.1 **include**

,Ì G Q¸

Q¸	£EÄ
show snmp view	/ SNMP ?š ÒG!5B µ C

G ÄAÈ â	´

Q¸Z Æ

(Ë	AÈ â
-	-

31.1.16 snmp trap link-status

–?• ÉG!5B y · Q¸Ê Ä

31.2

31.2.1 show snmp

?U ¹,ß SNMP ,X(Š Õ µ C ÈAË ;> (M *ü õ ã Q¸ show snmp Ä

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

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	´
Q¸õã	(M *ü õ ã
S*ü Û Ð	show snmp Q¸ / SNMP ,X,Ì G4³Au µ C ×

show snmp mib / 2Ï4³ Õ,X snmp mib µ C ×

show snmp user / snmp *ü µ C ×

show snmp view / snmp ?š Ò µ C ×

show snmp group

32 RMON

32.1

32.1.1 rmon alarm

?U,¥ { ¤ þ MIB ¬G£ S*üA¹ Q ¸ Ä S*ü no 6 ã ª#\A„) Ä

rmon alarm *number variable interval* {absolute | delta } rising-threshold *value* [*event-number*] falling-threshold *value* [*event-number*] [owner *ownername*]

no rmon alarm *number*

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ü RGOS EC Ê È AŒ Í Æ4£G!5B,X ¹ þ5%4°,X Z Æ µ CE¯> Â È Ù À variable Ã absolute/delta Ãowner Ãinterval Ãrising-threadhold/falling-threadhold ž J Í h,X event 1 G!5B µ C È LÔ?U"¼ ã,X E- oG!5B µ C J á G Ê*ó È5à Ê Ê ß Ô õ,¥ { _ Ê?º ¥,X Ê í È ! î*ó ×

G!5B _ ¹ ß _ $ È,¥ { MIB ¬G£ r _ ifInNUcastPkts.6

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	y ·G!5B õ ã

S*ü Û Ð	´

G!5B _	¹ ß _ $ È S | Ã ¹,¥ { ¹ þ5%0Ã · 1 ,X4³Au µ C Ä Ruijie(config)# **interface fast-Ethernet** 0/1 Ruijie(config-if)# **rmon collection stats** 1 zhansan

,Ì G Q ¸	Q ¸	£EÄ
	rmon collection history *index* [owner *owner-name*]buckets *bucket-number* interval *seconds*	#Ï t Ô þ Z Æ { ><NM

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

32.1.4 rmon event

?U n Ô þ _ Ê S*üA¹ Q ¸ Ä S*ü no 6 ã ª#\A„) Ä

rmon event *number* [log] [trap *community*] [*description-string*]

no rmon alarm *number*

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	< G!5B õ ã

S*ü Û Ð ´

G!5B _ ¹ ß _ $ È n _ Ê,X | 0 ÖA„) _ Ê Ã ¥EÕ trap #\ C Ä

```
Ruijie(config)# rmon event 1 log trap rmon description
"ifInNUcastPkts is too much " owner zhangsan
```

,Ì G Q ¸

Q ¸	£EÄ
rmon alarm *number variable interval*{absolute | delta }rising-threshold *value* [*event-number*] falling-threshold *value* [*event-number*] [owner *ownername*]	#Ï t Ô þA: ><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

32.2

32.2.1 show rmon alarm

?U / 4³Au>< µ C Ä

show rmon alarm

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B – ¹ ß _ $ È / 4³Au>< µ C Ö

```
Ruijie# show rmon alarm
Event : 1
Description : firstevent
```

```
Event type : log-and-trap
Community : public
Last time sent : 0d:0h:0m:0s
Owner : zhangsan
Log : 1
Log time : 0d:0h:37m:47s
Log description : ipttl
Log : 2
Log time : 0d:0h:38m:56s
Log description : ipttl
```

,Ì G Q ¸

Q ¸	£EÄ
rmon alarm *number variable interval* {absolute | delta } rising-threshold *value* [*event-number*] falling-threshold *value* [*event-number*] [owner *ownername*]	#Ï t Ô þA: ><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

32.2.2 show rmon event

?U / 4³Au>< µ C Ä

show rmon event

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _ ¹ ß _ $ È / 4³Au>< µ C Ö

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
rmon event *number* [log] [trap *community*] [*description-string*]	#Ï t Ô þ _ Ê><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

32.2.3 show rmon history

?U / 4³Au>< µ C Ä

show rmon history

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

Q ¸ Z Æ		AÈ â
	-	-

32.2.4 show rmon statistics

?U / 4³Au>< µ C Ä

show rmon statictics

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

¹ ß _ $ È / 4³Au>< µ C Ö

```
Ruijie#  show rmon statistics
Statistics : 1
Data source : Gi1/1
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
```

,Ì G Q ¸

Q ¸	£EÄ
rmon collection stats *index* [owner *owner-string*]	#Ï t Ô Þ4³Au><NM

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

33.2

33.2.1 clear ipv6 dhcp client

?U ü y · ÞG¡ DHCPv6 v 0Ã ÈAË S*ü clear ipv6 dhcp client Q ¸ Ä

clear ipv6 dhcp client *interface-type interface-number*

– DAÈ â	– D	£EÄ
	interface-type interface-number	y ·2O _ `2ö é

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð clear ipv6 dhcp client Q ¸ ü y · ÞG¡ DHCPv6 v 0Ã á u È- î Ð7È v 0ÃG¡ „ å á u <0ÃAË" G!5B µ C Ä

G!5B _ ¹ ß G¡ DHCPv6 v 0Ã,X _ $ Ö

```
Ruijie# clear ipv6 dhcp client vlan 1
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

34 DHCPv6 Relay Agent

34.1

34.1.1 ipv6 dhcp relay destination

' Ô ¤ þ y ·,X DHCPv6 Relay Agent s6Ñ J Û n,Â,X ž E',Â,X ,X y · ÄA¹ Q ¸ ,X no 6 ã*ü 9 GKÁ y ·,X Relay Agent s6Ñ ê5Ù ôL8,Â,X Ä

ipv6 dhcp relay destination *ipv6-address [interface-type interface-number]*

no ipv6 dhcp relay destination *ipv6-address [interface-type interface-number]*

	show ipv6 dhcp relay destination { all | interface *interface-type interface-number* }	/ ' !G!5B,X Relay ,Â,X ë><

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

34.2

34.2.1 show ipv6 dhcp relay destination

¹,ß DHCPv6 Relay Agent ,Â,X0Ã µ C È S*ü Q ¸ Ö
show ipv6 dhcp relay destination

– DAÈ â

– D	£EÄ
all	/ ÝG!5B,X,Â,X0Ã ž y · µ C
interface *interface-type interface-number*	/ Û n y ·,XG!5B,X,Â,X0Ã ž y · µ C

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ Ã ¹ ¹,ß Relay Agent Ô Relay á u,X y · Í b y ,X v 0Ã DHCPv6 y [EîE› Û n y · Ä ÃEÝ ÅE@ ¥7Ç Û n,Â,X Ä

G!5B _

_ 1 Ö / ' ! Ý,X Relay 0Ã,Â,X G!5B µ C Ä

```
Ruijie# show ipv6 dhcp relay destination all
Interface: Vlan1   // Ô  Relay ,X0Ã ·
Destination address(es)                    Output Interface
3001::2
FF02::1:2                                      Vlan2
// Û n,Â,X                                  //  Û n Î y ·
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â	-

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ r Q ¸

34.2.2 show ipv6 dhcp relay statistics

	¹,ß ' !A' Û Ô DHCPv6 Relay s6Ñ â Ø2O y [¥ ™ ‰ È S*ü Q ¸ Ö show ipv6 dhcp relay statistics	
– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã

S*ü Û Ð	EîE›A¹ Q ¸ Ã ¹ ¹,ßA' Û ' ! DHCPv6 Relay ,Ì G Ø2O y [¥ ™ ‰ Ä

G!5B _

¹,ß DHCPv6 Relay Agent 4³Au µ C Q ¸ _ Ö

```
Ruijie# show ipv6 dhcp relay statistics
Packets dropped              :  2       // ö × þ Ø)Ú y [
   Error                    :  2       //JíAÃ y [ ö ×
   Excess of rate limit      :  0     //CYE›A' Û Ø)Ú6Ñ o ö ×
Packets received             :  28     // Ø2O!7  DHCPv6  #A, y [ y  4³Au
   SOLICIT                  :  0
   REQUEST                  :  0
   CONFIRM                  :  0
   RENEW                    :  0
   REBIND                   :  0
   RELEASE                  :  0
   DECLINE                  :  0
   INFORMATION-REQUEST       :  14
   RELAY-FORWARD             :  0
   RELAY-REPLY              :  14
Packets sent                 :  16     // Ø2O!7  DHCPv6  #A, y [ ¥EÕ4³Au
   ADVERTISE                :  0
```

```
RECONFIGURE             :  0
REPLY                   :  8
RELAY-FORWARD           :  8
RELAY-REPLY             :  0
```

¸Ì G Q ¸	Q ¸	£EÄ
	clear ipv6 dhcp relay statistics	#ÙL84³Au

G ÄAÈ â	-

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ r Q ¸

34.2.3 clear ipv6 dhcp relay statistics

#ÙL8 ' !A' Û Ô DHCPv6 Relay s6Ñ â Ø2O y [¥ ™ ‰4³Au È S*ü Q ¸ Ö

clear ipv6 dhcp relay statistics

–ð€ ¡E V 'ƒï ð€ ¡E ÊLIZ Æ	– D	£EÄ

	AÈ â

35 TCP

35.1 TCP

35.1.1 ip tcp path-mtu-discovery

?U *ü TCP ,XCÃ X Ô û ôEg) (PMTU¥)„ s6Ñ È ü < õ ã ß S*ü ip tcp path-mtu-discovery Ä?U GKÁ,XA± È ü Q ¸ !M6 t no ÄA¹ Q ¸,XAÁ"© V ß Ö

ip tcp path-mtu-discovery [age-timer {*minutes* | infinite }]

	show tcp pmtu	/ TCP E² y,X PMTU

G ÄAÈ â Ý G ÄFÑ Õ Ä

Q ¸ Z Æ	**(Ë**	**AÈ â**
	RGOS 10.4	RGOS 10.4 (Ô Ÿ Õ Ä

35.2 TCP

35.2.1 show tcp pmtu

/ 7 & 3 3 0 7 8 ,X µ C È S*ü V ß Q ¸ Ö

show tcp pmtu

Foreign Address	E°0Ã â0Ã · Ë Ä Ô â Ô þ“.” âM6,X D + 0Ã · Ë Ä¨ V“2002::2.23” â“192.168.195.212.23” ,X“23” 0Ã · Ë Ä
PMTU	PMTU ,X

,Ì G Q¸

Q¸	£EÄ
Ip tcp path-mtu-discovery	' Ô TCP ,X PMTU ¥)„ s6Ñ

G ÄAÈ â Ý G ÄFÑ Õ Ä

Q¸Z Æ

(Ë	AÈ â
10.4	„ r Q¸

36 RIP

36.1

36.1.1 address-family RIP

?UE¯ 9 £ $ õ ãG!5B RIP CÃ+ #A, ÈS*ü £ $ õ ã Q ¸ address-family È?U ôL8G! 5BCÃ+ #A,,X £ $ õ ã È S*üA¹ Q ¸,X no 6 ã Ä

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

– DAÈ â	– D	£EÄ
	vrf *vrf-name*	Û n $ õ ã Q ¸ G6(,X VRF ,X á + Ä

5 ,ÕG!5B 5 ,Õ áG!5B RIP #A,,X £ Ä

Q ¸ õ ã CÃ+ G!5B õ ã Ä

S*ü Û Đ

S*ü address-family Q ¸ SA' ÛE¯ 9 £G!5B $ õ ã Ä ¤/ Ö (config-router-af)# Å Ä '1 Ô õ Û n $ õ ã G6(,X VRF Ê È RIP î ï Î Í hA¹ VRF ,X RIP r _ Ä üA¹ $ õ ã ß È Ã ¹G!5B,Ì h,X VRF ,X RIP CÃ+ µ C Ä ?U ôL8 £G!5B $ õ ã JE¨ ²CÃ+ G!5B õ ã È S*ü exit-address-family ê5Ù exit Q ¸ Ä

¹ ß,XG!5B _ $ È ï Î Z Ô þ á vpn1 ,X VRF È J A¹ vrf ï Î,Ì h,X RIP r _ Ä

```
Ruijie(config)#
```

G!5B _

,Ì G Q ¸	Q ¸	£EÄ
	exit-address-family	EÔ Î £G!5B $ õ ã Ä
	ip vrf	ï Î Ô þ VRF Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

36.1.2 auto-summary (RIP)

?U *ü RIP CÃ+ 7¾ |" s6Ñ È*üCÃ+ #A,G!5B Q ¸ auto-summary ÄA¹ Q ¸,X no 6 ã G KÁCÃ+ 7¾ |" s6Ñ Ä

auto-summary

no auto-summary

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ *ü7¾ |" s6Ñ Ä

Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

RIP CÃ+ 7¾ |" È ' $5%CÃ+ 0SC^ Ý2O5%4°E•+ Ê È Ú7¾ |" ä Ý2O5%4°CÃ+ Ä RIPv1 ` RIPv2 5 ,Õ ™ ‰ ß ÚE¯> CÃ+ 7¾ |" Ä

RIP ,XCÃ+ 7¾ |" s6Ñ È¤P¬ Z5%4°,X 4ý û ` Ý û ÄV p Ý" CÃ+ , ü ÈüCÃ+ >< Ú,ß á Ù ÿ ü" CÃ+ Y,X $CÃ+ ÈE- Ã ¹ û û4ý ãCÃ+ ><,X?˜ õ Ä

Eî " CÃ+ î!¨Eî)(À,X!£ 5CÃ+ Ú È Ý)[È ?U Ý ¹ ß ´2ô Ö

1 Ô&• Ö ' ¹ R RIP D B g Ê È" CÃ+ î k ì Ø)Ú ×

1 `&• Ö ' ¹ R RIP D B g Ê È Ï) $CÃ+ Ú>• Ñ+9 È £ å Z Ø)Ú ÊKÈ ×

1 Ý&• Ö Ý Ê Ã6Ñ à ï : K ',X $5%CÃ+ È5à á ã ¾,ß " â,X5%4°CÃ+ È E¢Ö L CÃ+ {à‡À" Ã6Õ Ë £ ° Ý

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

,Ì G Q¸

Q¸	£EÄ
version	n RIP ,XEC Ê(Ä Ý v1 ` v2 ø þ(È5 ,Õ à Ê Õ v1&v2 Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

36.1.3 bfd all-interfaces (RIP)

G!5BE¤> RIP ,X Ý y · S*ü BFD E¯> JÒCÃ ”# ÈAË üRIP CÃ+ G!5B õ ã ß ;> bfd all-interfaces Ä S*üA¹ Q¸,X no 6 ã 6 á5 ,ÕG!5B Ä

bfd all-interfaces

no bfd all-interfaces

– DAÈ â

– D	£EÄ

5 ,ÕG!5B GKÁ

Q¸õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

ü RIP Þ | BFD ”# s6Ñ â È Ú î RIP CÃ+ µ C$d(RIP CÃ+ È „ y [,X$d) Î 0ŸBFD îA± È Ô º BFD F• È RIP CÃ+ µ C Ú,È yE¯ 9 (Š Õ È á a – âCÃ+ E@ ¥ Ä

ü RIP #A, Î0Ÿ BFD F• ”# Ê È?U" – â RIP E¤> ,X ø ÄA’ Û,X$d IP ü à Ô þ5%!‰ Y ÈE- !6Ñ üF• KÈ Î0Ÿ BFD îA± Ä

| 3 Ã ¹EîE› y ·G!5B õ ã Q¸ ip rip bfd [disable] | ê5Ù GKÁ Û n y ·,X BFD ”# s6Ñ È y ·G!5B,X ì 4{P¬ bE¯/ßG!5B õ ã ß,X bfd all-interfaces Q¸Ä

G!5B _ ´

,Ì G Q ¸	Q ¸	£EÄ
	router rip	| RIP CÃ+ E¯/ß JE¯ 9CÃ+ E¯/ßG! 5B õ ã Ä
	ip rip bfd [disable]	G!5BE¤> RIP ,X Û n y · | ê5Ù G KÁ S*üBFD E¯> JÒCÃ "# Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

36.1.4 default-metric (RIP)

?U n RIP 5 ,Õ,XG£ z ÈAË S*üCÃ+ G!5B Q ¸ default-metric ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

default-metric *metric-value*

no default-metric

– DAÈ â	– D	£EÄ
	metric-value	5 ,Õ,XG£ z È Ý 1 16 Ä V p *metric-value* û b1 b 16 ÈRGOS ÚAx A¹CÃ+ á ÃE' Ä

5 ,ÕG!5B 5 ,Õ 1 Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Đ A¹ Q ¸LÔ?U âCÃ+ #A,G!5B Q ¸ redistribute G! Ü S*ü Ä 'CÃ+ ¢ º ê Ô þCÃ+ #A,E¯ /ß ÈG¡ „ Ú × RIP CÃ+ E¯/ß Ê È+ b á àCÃ+ #A,,XG£ zAu1k ,X á P • û ÈCÃ+ G£ z ´"©E@ 6 Ä ´!8 üE@ 6 Ê ÈLÔ?U n G¡ Ú ×CÃ+ ü RIP CÃ+ ³ ,XG£ z Ä V p G¡ Ú × Ô þCÃ+ #A,E¯/ß Ê È"u Ý â.B n G£ z È RIP Ú S*ü default-metric n ,XG£ z × V p Ý â.B n G£ z ÈA¹ Ú?Z,ª default-metric n ,XG£ z Ä áG!5BA¹ Q ¸ í default-metric 5 ,Õ 1 Ä

G!5B _ ¹ ß,XG!5B _ $ ÈRIP CÃ+ #A, Í OSPF CÃ+ #A, : ,XCÃ+ E¯> ZG¡ „ Ú × ÈE- oG¡ Ú ×CÃ+ ,X ñ Ÿ RIP G£ z A'5B 3 Ä

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

,Ì G Q ¸

Q ¸	£EÄ
redistribute	ÚCÃ+ ¢ Ô þCÃ+ ³G¡ „ Ú × º ê Ô þCÃ+ ³ Ä

G ÄAÈ â

E¯/ß6Ñ óEîE› Q ¸*ó ä5 ,ÕCÃ+ ÈFw RIP Ú á a : 4F•
ÕCÃ+ Ä
fault-network *ó ä,X5 ,ÕCÃ+ È ¡' LÔ?U S*ü
ormation originate Q ¸ !6Ñ ó>• é 9 RIP Ä

ÕCÃ+ RIP CÃ+ >< Ä
r)# **default-information originate always**

	£EÄ
	ü ¤ y ·Eî 5 ,ÕCÃ+
	Ú J W #A,,XCÃ+ é 9 RIP

	AÈ â
	-

S*üCÃ+ E¯/ßG!5B Q çistance ÄA¹ Q ¸,X no 6 ã 6 á5

dcard]

wildcard]

	£EÄ
distance	A'5B RIP CÃ+ 1u)ÚC±/• È AŒA'5B 1-255> KÈ,X H D
Hm,ÕA'5B Ô *ip-address*	CÃ+ 9$dIP !4Ô

h*ü RIP A’5B,X1u)ÚC±/• Ä

u)ÚC±/• 160, J Û n ¢ 192.168.12.1 : 4 ,XCÃ+

:ance 160
:ance 123 192.168.12.1 0.0.0.0

	£EÄ
	-

AÈ â

„ y [E¯> Ø)Ú Ä V p"u Û n y · È Í Ý,X y · y ,XCÃ+ È „ y [E¯> Ø)Ú Ä

connected	(ÃEÝ)A¹ Ú × ë>< ÈCÃ+ È „Eî { ¾ h*ü ü ¢,È E² é 9,XCÃ+ Ä
isis [*area-tag*]	(ÃEÝ)A¹ Ú × ë>< ÈCÃ+ È „Eî { ¾ h*ü ü ¢ isis é 9,XCÃ+ È *area-tag* Û n K ' ¤ þ isis r _ Ä
ospf *process-id*	(ÃEÝ)A¹ Ú × ë>< ÈCÃ+ È „Eî { ¾ h*ü ü ¢ ospf é 9,XCÃ+ È *process-id* Û n K ' ¤ þ ospf r _ Ä
rip	(ÃEÝ)A¹ Ú × ë>< ÈCÃ+ È „Eî { ¾ h*ü ü rip CÃ + Ä
static	(ÃEÝ)A¹ Ú × ë>< ÈCÃ+ È „Eî { ¾ h*ü ü ¢M- Õ é 9,XCÃ+ Ä

5 ,ÕG!5I€ Ë/—" ¾Ë/' xU2ÑÎî Q Õ ë0,•<0$é 9,XCÃ+ Ä

36.1.9 exit-address-family

5 ,ÕG!5B 5 ,Õ þ G6(šJy Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð V p šJy ü y ·G!5B Û n Z È "u Ý ý*ü key chain < G!5B Q ¸E¯> A¹ šJy ,X n È Ú áE¯> RIP D B ÙAxA• Ä
RIPv1 á Õ RIP D B ÙAxA• È ¾ Ý RIPv2 Õ Ä

G!5B _ ¹ ß,XG!5B _ $ ÈSerial 0 y · *ü Z RIP AxA• È G6(,X šJy ripchain Ä

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

,Ì G Q ¸

Q ¸	£EÄ
ip rip authentication mode	n RIP AxA•,X õ ã Ä
ip rip authentication text-password	*ü RIP AxA• È JA'5B RIP â [AxA• +0ú Ä ¾ Ý RIPv2 Õ RIP D B Ù AxA• Ä
ip rip receive version	RIP ü Ô þ y · Þ Ú y ¾ þ(,X RIP D B Ù Ä
ip rip send version	RIP ü Ô þ y · Þ Ú ¥EÕ ¾ þ(,X RIP D B Ù Ä
key chain	ï Î šJy È JE¯ 9 šJy G!5B õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.1.11 ip rip authentication mode

?U n RIP AxA•,X õ ã ÈÆË S*ü y ·G!5B Q ¸ ip rip authentication mode ÄÆ¹ Q ¸,X no 6 ã 6 á5 ,Õ RIP AxA• õ ã Ä

ip rip authentication mode {text | md5}

no ip rip authentication mode

– DAÈ â

– D	£EÄ

text	RIP AxA• õ ã â [AxA• Ä
md5	RIP AxA• õ ã MD5 AxA• Ä

5 ,ÕG!5B 5 ,Õ â [AxA• õ ã Ä

Q¸õ ã y ·G!5B õ ã Ä

S*ü Û Ð 'G!5B RIP AxA• Ê È ÝLÔ?U,È y x 6 RIP CÃ+ µ C,XA' Û È G!5B,X RIP AxA• õ ã ™ NO Ô7È È ú íRIP D B Ù x 6 Ú Bù Ä

V pG›*ü â [AxA• È þG!5B â [AxA• +0ú È ê5Ù þG!5B G6(šJy È ê5Ù G6(Z š Jy šJy rL þG!5B È!8 Ê J á î ÝAxA•> ¥*ó Ä à È V pG›*ü MD5 AxA• È þG!5B G6(šJy È ê5Ù G6(Z šJy šJy rL þG!5B È 3 á î ÝAxA•> ¥*ó Ä RIPv1 á Õ RIP D B ÙAxA• È ¾ ÝRIPv2 Õ Ä

G!5B _ ¹ ß,XG!5B _ $ ÈSerial 0 y ·,X RIP AxA• õ ãA' MD5 Ä

```
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication mode md5
```

,Ì G Q¸

Q¸	£EÄ
ip rip authentication key-chain	*ü RIP AxA• È J Û n RIP AxA• S *ü,X šJy Ä ¾ Ý RIPv2 Õ RIP D B ÙAxA• Ä
ip rip authentication text-password	*ü RIP AxA• È JA'5B RIP â [AxA• +0ú Ä ¾ Ý RIPv2 Õ RIP D B Ù AxA• Ä
key chain	ï Î šJy È JE¯ 9 šJy G!5B õ ã Ä

G ÄAÈ â ´

no ip rip authentication text-password

– DAÈ â

– D	£EÄ
password-string	â [AxA•,X +0ú ÈKS z 1 16 +8V Ä

5 ,ÕG!5B

5 ,Õ þA'5B â [AxA• +0ú Ä

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

V p?U *ü RIP â [AxA• s6Ñ È Ã ¹,È y S*ü Q ¸G!5B â [AxA• +0ú È 3 Ã ¹EîE›
G6(šJy 9‹ ª â [AxA• +0ú È â5Ù ì 4{P¬ b !5Ù Ä
RIPv1 á Õ RIP D B ÙAxA• È ¾ ÝRIPv2 Õ Ä

G!5B _

¹ ß,XG!5B _ $ ÈSerial 0 y ·,X *ü RIP â [AxA• È JA'5B â [AxA• +0ú ruijie Ä

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

,Ì G Q ¸

Q ¸	£EÄ
ip rip authentication mode	n RIP AxA•,X õ ã Ä
ip rip authentication key-chain	*ü RIP AxA• È J Û n RIP AxA• S *ü,X šJy Ä ¾ Ý RIPv2 Õ RIP D B ÙAxA• Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4(1)	„ r Q ¸ é 9

36.1.13 ip rip bfd

G!5BE¤> RIP ,X Û n y · | ê5Ù GKÁ S*ü BFD E¯> JÒCÃ "# ÈÆË S*ü y ·G!5B Q ¸

5 ,ÕG!5B	5 ,Õ"u ÝG!5B È ¹ RIP E¯/ßG!5B õ ã ß,X BFD G!5B š Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	y ·G!5B,X ì 4{P¬ bE¯/ßG!5B õ ã ß,X bfd all-interfaces Q ¸ Ä | Ã ¹ B rL)ƒ W ÈEîE› ip rip bfd Q ¸EÝ ½ Û n,X y · S*ü BFD E¯> JÒCÃ ”# È 3 Ã ¹ S*ü RIP E¯/ßG!5B õ ã ß,X Q ¸ bfd all-interfaces G!5B – â RIP E¤> ,X Ý y ·Eî E› BFD E¯> JÒCÃ ”# È S*ü

Q ¸ õ ã y ·G!5B õ ã Ä

G!5B _

¹ ß,XG!5B _ $ È S k Fastethernet 0/0 y ·/U!6 y RIP ,X D B Ù Ä

```
Ruijie(config)# interface fastethernet 0/0
Ruijie(config-if)# no ip rip receive enable
```

,Ì G Q ¸

Q ¸	£EÄ
ip rip send enable	AŒ ê/U!6 y · ¥EÕ RIP D B Ù
passive-interface	G!5BRIP >• | y ·

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.1.16 ip rip receive version

?U n RIP ü Ô þ y · Þ Ú y ¾ þ(,X RIP D B Ù È*ü y ·G!5B Q ¸ ip rip receive version ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip rip receive version [1] [2]

no ip rip receive version

– DAÈ â

– D	£EÄ
1	Ä ÃEÝ Å ¾ y RIPv1 ,X D B Ù Ä
2	Ä ÃEÝ Å ¾ y RIPv2 ,X D B Ù Ä

5 ,ÕG!5B

5 ,Õ> ª ‡ b version Q ¸,XG!5B Ä

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸,XG!5B4§ p È Ã ¹?Z,ª*ü vesion Q ¸,X5 ,ÕG!ñT @A¹ S €› TPª± y

Q ¸	£EÄ

36.1.19 ip rip send version

?U n RIP ü Ô þ y · Þ Ú ¥EÕ ¾ þ(,X RIP D B Ù ÈÆË S*ü y ·G!5B Q ¸ ip rip receive version ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip rip send version [1] [2]

no ip rip send version

no ip rip split-horizon

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È" G Ú F ü Ý y · Þ ' Ô Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

î ÄA' ÛE² y ü IP S •2O _5%4° Þ È œE¤> C±/• åG£CÃ+ #A, Ê È Ý ™?UG›*ü" G Ú F,X ¹FS !CÃ+)ƒCÃ,X 6 ä Ä" G Ú F Ã ¹L !6A' Û Ú ¤ oCÃ+ µ C ¢ : 4 E- o CÃ+ µ C,X y ·Eî Î • ÈE-/¡> ì ê Z î þA' Û KÈ,XCÃ+ µ C x 6 Ä

' 5à Í bM2 S • îCÃA"KÂ5%4° Ä V û 4» ÃX.25 5%4° Å È" G Ú F Ã6ÑEô äF¼ ÚA' Û : 4 á <F¼,XCÃ+ µ C Ä üE-/¡ ™ ‰ ß È Ã6ÑLÔ?U GKÁ" G Ú F Ä V p Ô þ y ·G!5B Z õ IP È 3LÔ?U"¼ ã" G Ú F,XKÂNl Ä

RIP CÃ+ #A, 2 bC±/• åG£CÃ+ #A, Èü rL h*ü ?U"¼ ã" G Ú FKÂNl ÄV p á6Ñ.B n Ô þ y · ú *ü Z" G Ú F È Ã ¹*ü show ip rip Q ¸E¯> ø • Ä º êEîE› neighbor Q ¸ n ,XF• È Ú á î « RIP " G Ú F,X E ¡ Ä

G!5B _

¹ ß,XG!5B _ $ ÈFastethernet 0/0 y · GKÁ Z RIP " G Ú F s6Ñ Ä

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

,Ì G Q ¸

Q ¸	£EÄ
neighbor ÄRIP Å	n RIP ,XF• IP Ä
Validate-update-source	*ü RIP CÃ+ È „ y [$d P`A• Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.1.21 ip rip summary-address

?U ü ¤ þ y · ßG!5 RIP ,X y ·4{" 6. È ü y ·G!5B õ ã ß S*ü Q ip rip summary-address Ä S*üA¹ Q ¸,X no 6 ã GKÁ Û n ê $5%,X" 6. Ä

ip rip summary-address

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ> ª ‡ b version Q ¸,XG!5B Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸,XG!5B4§ p È Ã ¹?Z,ª*ü vesion Q ¸,X5 ,ÕG!5B ÄA¹ Q ¸ ¾ E ¡ y · ¥EÕ RIP y [,X> È Ã ¹ AŒA¹ y · à Ê ¥EÕ RIPv1 ` RIPv2 ,X D B Ù Ä!8 Q ¸G!5B Ê á ú – D í y > ª ‡ b version ,XG!5B Ä

G!5B _ ¹ ß,XG!5B _ $ È S k Fastethernet 0/0 y · ¹ S • ¥EÕ RIPv2 y [Ä

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

,Ì G Q ¸	Q ¸	£EÄ
	Version	n Ý y · ¥,X RIP D B Ù,X5 ,Õ(Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

36.1.23 network (RIP)

?U n RIP CÃ+ E¯/ß?UEî ,X5%4° ë>< ÈAË S*üCÃ+ E¯/ßG!5B Qŋetwork ÄA¹ Q ¸,X no 6 ã ôL8 Æ n ,X5%4° Ä

network *network-number* [*wildcard*]

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

– DAÈ â	– D	£EÄ
	network-number	,ÈE²5%4°,X5%4° Ë ÄA¹5%4° Ë 7¾' 2O5%4° ËIÆ 2 bA¹7¾' 5%4°,X Ý y ·FÑ Ã ¥EÕ ` y RIP D B Ù Ä
	wildcard	n IP !¨EW!¨(M ! È 0 ></ 2'.B G! È 1

5 ,ÕG!5B ´

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

*ü Ã ¹ à ÊG!5B *network-number* ` *wildcard* – D ÈS: üA¹ 8× È Y,X y · – â RIP E¤> Ä

V p þG!5B *wildcard* – D ÈRGOS ÚT¬Ax Ý'; Ý2O 8× È 9 Ø)Ú È S: üA¹ Ý2O 8× È Y,X y · – â RIP E¤> Ä

¾ Ý y · : ü RIP n ,X5%4° ë><ÈA¹ y · ! Ã ¹ Í ê ¥EÕ RIP CÃ+ È „ y [È J y RIP CÃ+ È „ y [Ä

G!5B _

¹ ß,XG!5B _ $ È n Z â RIP G6(,X ø þ5%4° Ë È AŒ: ü 192.168.12.0/24 ` 172.16.0.0/24 8× È Y,X y · – â RIP E¤> Ö

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(1)	r t *wildcard* – D

36.1.24 neighbor (RIP)

?U n RIP F• ,X IP È Ã ¹*üCÃ+ E¯/ßG!5B Q ¸ neighbor ÄA¹ Q ¸,X no 6 ã ôL8F• n Ä

neighbor *ip-address*

no neighbor

– DAÈ â

– D	£EÄ
ip-address	F• ,X IP Ä hA¹ A' Û,ÈE²5%4° Ä

5 ,ÕG!5B 5 ,Õ"u Ý n F• Ä

Q¸õã CÃ+ E¯/ßG!5B õã

S*üÛÐ RIPv1 5 ,Õ S*ü IP S• Ä 255.255.255.255 ÅEî CÃ+ µC È RIPv2 5 ,Õ S*ü4˜ • Ä224.0.0.9 ÅEî CÃ+ µC Ä V p á à ï S •5% êM2 S • îCÃA“KÂ5% Þ,X <F¼A’ Û È Ã y CÃ+ µC ÈÃ ¹*üCÃ+ E¯/ßG!5B Q¸ passive-interface Ú,Ì h y ·A’5B >• | y · È' â ¾ n ¤ oF• Ã ¹ y CÃ+ µC ÄA¹ Q¸ á î E ¡ RIP µC y [,X y ÄA’5B Z passive 2 û,X y · ÈG¡ â 3 { Ú á î ¥EÕAË" y [Ä

G!5B _ Q¸ S*ü _ Ä ¹ ß,XG!5B _ $ È n Z RIP ¾ åF• 192.168.1.2 Eî CÃ+ µC Ä

```
Ruijie(config)# router rip
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# neighbor 192.168.1.2
```

,Ì G Q¸

Q¸	£EÄ
passive-interface	Ú y ·A’5B passive õã

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

36.1.25 offset-list(RIP)

?U r t y ê ¥EÕ,X RIP CÃ+ ,Xmetric È Ã ¹ S*üCÃ+ E¯/ßG!5B Q¸ offset-list ÈA¹ Q¸ ,X no 6 ã ôL8 Û n,X offset ë><

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

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

–DAÈâ

–D	£EÄ
access-list-number | *name*	Û nA“KÂ ë><
in	h*ü acl Í y ,XCÃ+ ,X metric E¯> Â
out	h*ü acl Í ¥EÕ,XCÃ+ ,X metric E¯> Â
offset	Â ,X metric ,X ¬ | È ª 8× È Ö0-16
interface-type	h*ü acl Û n y ·
interface-number	Û n y ·4ê Ë

5 ,ÕG!5B	5 ,Õ"u Ý Û n offset Ä
Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	8¹ ¤ 5 RIP CÃ+ à Ê$µC‡ Û n y ·,X offset-list ¹ ž þ Û n y ·,X < offset-list È íA¹ RIP CÃ+ Ú î r t Û n y ·,X offset-list ,X metric Ä

¹ ß,XG!5B _ $ È ü acl 7 Û n,X8× È Y,X RIP CÃ+ ! î Í metric r t 7 Ä

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

G!5B _

û b 25 È îEîE› î þCÃ+ È „ y [¥EÕ È!7 ™ ‰ ß Ã6Ñ ¿,X ¥EÕ Ä
È 'P¬EóA' Û å "EóA' Û ¥EÕ ûG£ È „ y [Ê È "EóA' Û Ã6Ñ 9 á ù Ø)Ú <F¼,X È „ y [ÈEô äCÃ+ µ C ö Ä!8 Ê ÈLÔ?U S*ü output-delay Q ¸ r tP¬EóA' Û,X y [KÈ ,X ¥EÕ Ê Ê È S "EóA' Û6Ñ ó y Ø)Ú <F¼ È „ y [Ä

G!5B _

¹ ß,XG!5B _ $ È Ú RIP ,X È „ y [¥EÕ Ê ÊA'5B 30 !¿/¦

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.1.27 passive-interface

?U ª#\ ü Ô þ y · Þ ¥EÕ È „ y [,X s6Ñ ÈAË S*ü y ·G!5B Q ¸ passive-interface Q ¸ Ä A¹ Q ¸,X no 6 ãG¡ „ *ü ¥EÕ È „ y [,X s6Ñ Ä

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

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

– DAÈ â

– D	£EÄ
default	A¹ – DA'5B Ý y · passive õ ã
interface-type interface-num	y ·2O _ â c Ë

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È y · M2 passive õ ã Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

passive-interface default Q ¸ Ú Ý y ·A'5B passive õ ã ÈE- Ê Ã ¹ S*ü no passive-interface *interface-type interface-num* Q ¸A'5B ¤ o y · M2 passive õ ã Ä Ú y ·A'5B passive õ ã â È y · Ú á a ¥EÕ RIP CÃ+ È „ È ¡' 6Ñ ó y RIP CÃ + È „ y [Ä!8 Ê üE- o y · Þ Ã ¹EîE› neighbor Q ¸ å Û n,XF• ¥EÕCÃ+ È „ Ä V p?U ` < { y · ú ¥EÕ ` y CÃ+ È „ y [ÈAË S*ü Q ¸ ip rip send enable ` ip

rip receive enable

metric *metric-value*	A’5BG¡ Ú ¥,XCÃ+ ,Xmetric ÈEîE› metric-value Û n metric û ã È ª 8× È Ö1-16
route-map *route-map-name*	A’5BG¡ Ú ×E›$¸?˜ í

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È

8¹G!5BG¡ Ú ×OSPF È íG¡ Ú ×A¹ r _,X Ý $2O _,XCÃ+ ×

8¹G!5BG¡ Ú ×ISIS È íG¡ Ú ×A¹ r _,X level-2 $2O _,XCÃ+ ×

J ª ™ ‰ ß ÈG¡ Ú ×A¹2O _,X ÝCÃ+ ×

G¡ Ú × â,XCÃ+ ,X metric 5 ,Õ 1 ×

5 ,Õ á G6(route-map Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

S*üA¹ Q ¸ Ú êF¼CÃ+ µ CG¡ Ú × RIP Ä

CÃ+ G¡ Ú × Ê È Ú Ô þCÃ+ #A,,XG£ zE@ 6 ä º Ô/¡CÃ+ #A,,XG£ z "u Ý ™?U,X È ´ á àCÃ+ #A, G›*ü,XG£ zAu1k •"© ` < á à,X Ä RIP G£ zAu1k Î bCÇ D È OSPF Î b ú ‘ È ´!8 W ÀAu1k Î 9,XG£ z "u Ý Ã!¨ û,X Ä CÃ+ G¡ Ú × Ê È œ ™NO?U A’5B Ô þB5 U û,XG£ z È ú íCÃ+ G¡ Ú × Ú Bù Ä

G!5BG¡ Ú ×isis CÃ+ Ê È á ú level – D Ê ÈT¬Ax ¾ AŒG¡ Ú ¥level-2 ,XCÃ+ È8¹ ñ Ÿ

G!5BG¡ Ú × Ê È ú level – D È í AŒG¡ Ú ¥G!5B,X level – D,XCÃ+ ÄG!5B ± , Ê È Z • “ È ' à ÊG!5B level 1, level 2 Ê È Ü J level-1-2 – D ± , Ä

G!5BG¡ Ú ×ospf CÃ+ Ê Èá ú match – D Ê ÈT¬Ax AŒG¡ Ú ¥ Ý $2O _,X ospf CÃ+ × 5à â,X1 Ô õG!5B match – D 0 ñ Ÿ,X match – D È G¡ Ú ¥ Ê ¾ AŒ G!,X $2O _ ,XCÃ+ E¯> G¡ Ú ¥ × S*ü no Q ¸ 6 á match – D T¬Ax Ä

"¼ ã	G¡ Ú × Q ¸ á6Ñ Ú J ª #A,,X5 ,ÕCÃ+ é 9 RIP È V p?U é 95 ,ÕCÃ+ RIP ÈAË S*üdefault-information originate Q ¸ Ä

G!5B _

¹ ß Q ¸ ÚG¡ Ú ×M- ÕCÃ+ RIP Y

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

Q ¸	£EÄ
default-m3(o.00020.94 0.219A3(38A>6<040E>]22042846 7et)-1(ri)94 0_0 1 Tf2uijie(confi4t-in)5(f)- /T	

update

	-	-

36.1.31 validate-update-source

Í y ,X RIP CÃ+ È „ y [,X$d ÈE¯> Ý ûP`A• ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ validate-update-source ÄA¹ Q ¸,X no 6 ã GKÁ È „ y [$d P`A• Ä

validate-update-source

no validate-update-source

– DAÈ â	– D	£EÄ

36.1.32 version (RIP)

?U n H þA' Û,X RIP (Ë ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ version ÄA¹ Q ¸,X no 6 ã 6 á 5 ,ÕG!5B Ä

version {1 | 2}

no version

– DAÈ â

– D	£EÄ
1	n RIP (Ë 1 Ä
2	n RIP (Ë 2 Ä

5 ,ÕG!5B

5 ,Õ Ã ¹ y RIPv1 ` RIPv2 ,XCÃ+ È „ y [È ¾ ¥EÕ RIPv1 ,XCÃ+ È „ y [Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

*ü b n H þA' Û RIP E¤> ,X(Ë Ä Ã ¹*ü ip rip receive version Ãip rip send version Q ¸ È Í!£ þ y · Ø)Ú ¾ þ(,X RIP y [E¯> G¡ „ n Ä

G!5B _

¹ ß,XG!5B _ $ È Ú RIP ,X(ËA'5B 2 Ä

```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
```

,Ì G Q ¸

Q ¸	£EÄ
ip rip receive version	n RIP ü Ô þ y · Þ Ú y ¾ þ(,X RIP D B Ù Ä
ip rip send version	n RIP ü Ô þ y · Þ Ú ¥EÕ ¾ þ(,X RIP D B Ù Ä
show ip rip	/ ' !E¤> ,X rip CÃ+ #A,E¯/ß,X µ C Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.2

36.2.1 show ip rip

?U / RIP CÃ+ #A, #E¯/ß,X Î µ C ÈAË S*ü show ip rip Ä

show ip rip

Invalid after 180 seconds, flushed after 120 seconds

```
192.168.1.0/24    auto-summary
192.168.1.0/30    directly connected, Loopback 3
192.168.1.8/30    directly connected, FastEthernet 0/0
192.168.121.0/24    auto-summary
192.168.121.0/24    redistributed
[1] via 192.168.2.22, FastEthernet 0/1
_ 2 Ö ¹ ß,XG!5B _ $ È /    RIP CÃ+ D B g  G b  192.168.121.0/24 ,X"    NM,Â
µ C Ä
Ruijie# show ip rip database 192.168.121.0 255.255.255.0
192.168.121.0/24    redistributed
[1] via 192.168.2.22, FastEthernet 0/1
_ 3 Ö ¹ ß,XG!5B _ $ È /    RIP CÃ+ D B g  Ø/¡2O _CÃ+ ,X4³Au µ C ,?U
Ruijie# show ip rip database count
              All     Valid   Invalid
database       5       5       0
auto-summary    5       5       0

connected      1       1       0
rip            4       4       0
```

,Ì G Q¸

Q¸	£EÄ
show ip rip	/ ' !E¤> ,XCÃ+ #A,E¯/ß,X µ C Ä

G ÄAÈ â

´

(Ë

vrf *vrf-name*	Ä ÃEÝ Å / Û n VRF ,X RIP êF¼CÃ+
process-name	*ü b Û n ISIS ,X r _ á/Ä
<1-65535>	*ü b Û n OSPF ,X r _ Ë

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ã < G!5B õ ã ÃCÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð ´

G!5B _

¹ ß,XG!5B _ $ È / RIP G¡ Ú ×,X,ÈE²CÃ+ µ C Ä

```
Ruijie# show ip rip external connected
Protocol connected route:
[connected] 1.0.0.0/8 metric=0
nhop=0.0.0.0, if=2
[connected] 3.0.0.0/8 metric=0
nhop=0.0.0.0, if=16391
[connected] 4.4.0.0/16 metric=0
nhop=0.0.0.0, if=16388
[connected] 5.0.0.0/8 metric=0
nhop=0.0.0.0, if=16386
[connected] 192.168.195.0/24 metric=0
nhop=0.0.0.0, if=1
```

,Ì G Q ¸

Q ¸	£EÄ
show ip rip	/ ' !E¤> ,XCÃ+ #A,E¯/ß,X µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

36.2.4 show ip rip interface

?U / RIP y · µ C ÈAË S*ü

– DAÈ â	– D	£EÄ
	vrf *vrf-name*	Ä ÃEÝ Å / Û n VRF ,X RIP y ·

```
Send RIP packet: Enabled
Send RIP supernet routes: Enabled
Passive interface: Disabled
Split horizon: Enabled
BFD: Enabled
V2 Broadcast: Disabled
Multicast registe: Registed
Interface Summary Rip:
  Not Configured
IP interface address:
  2.2.2.111/24, next update due in 14 seconds
```

,Ì G Q¸	Q¸	£EÄ
	show ip rip	/ ' !E¤> ,XCÃ+ #A,E¯/ß,X µ C

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	-	-

36.2.5 show ip rip peer

RIP : 4 ,X RIP ,XCÃ+ µ C$d(RIP CÃ+ È „ y [,X$d) A„) Z ,?U µ C È ¹ • “*ü ,¥ { ÈE- oCÃ+ µ C$d>•/Ä RIP F• µ C ÈV p?U / RIP F• µ C È AË S*üshow ip rip peer Ä

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

G!5B _

¹ß,XG!5B _ $ È / RIP ,XF• µ C Ä

```
Ruijie# show ip rip peer
Peer 192.168.3.2:
  Local address: 192.168.3.1
  Input interface: GigabitEthernet 0/2
  Peer version: RIPv1
  Received bad packets: 3
  Received bad routes: 0
  BFD session state up
```

,Ì G Q¸

Q¸	£EÄ
show ip rip	/ ' !E¤> ,XCÃ+ #A,E¯/ß,X µ C

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
-	-

37 OSPF

37.1

37.1.1 area

G!5B Û n,X ³ È S*üA¹ Q ¸,X no 6 ã ôL8 Û n,X OSPF ³ Ä

area area-id

no area area-id

[redacted]

Q ¸ Z Æ	(Ë	AÈ â
	10.4(1)	„ r Q ¸ é 9

37.1.2 area authentication

?U *ü OSPF ³AxA• ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ area authentication ÄA¹ Q ¸,X no 6 ã GKÁOSPF ³AxA• Ä

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

no area *area-id* authentication

– DAÈ â	– D	£EÄ
	area-id	Û n?U *ü OSPF AxA•,X ³ Ë Ä ³ Ë Ã ¹ Ô þ E¯ H D È 3 Ã ¹ Ô þ IP Ä
	message-digest	Ä ÃEÝ ÅG›*üMD5 Ämessage digest 5 ÅAxA• õ ã Ä

5 ,ÕG!5B 5 ,Õ"u ÝG›*üAxA• Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

RGOS EC Ê Ã ¹ Õ Ý/¡AxA•2O _ ÖÍ Å2O _ Ì Èá?U" AxA• È"u Ý*üA¹ Q ¸ *ü OSPF AxA• ÈOSPF D B Ù ,XAxA•2O _ Ì × Î Å2O _ Í È â [AxA• õ ã ÈG!5BA¹ Q ¸ Ê È "u Ý S*ü message-digest EÝNM × Ï Å2O _ Î È MD5 AxA• õ ã ÈG!5BA¹ Q ¸ Ê È S*ü message-digest EÝNM Ä

Ô þ OSPF ³ Ý,XCÃ+ A' Û È ™NOG›*ü à Ô/¡AxA•2O _ Ä V p *ü ZAxA• ÈE¬ ™ NO ü ,X •›pG!5BAxA• · ¸ Ä ip ospf authentication-key Ã ¹G! 5B â [AxA• · ¸ × ip ospf message-digest-key Ã ¹G!5B MD5 AxA• · ¸ Ä

Q ¸

G!5B _

¹ ß,XG!5B _ $ ÈOSPF CÃ+ E¯/ß,X ³ 0 ÄP| F ³ ÅG›*ü MD5 AxA• ÈAxA• · ¸ backbone Ä

```
Ruijie(config)# interface FastEthernet 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
# G!5BOSPF CÃ+ #A,
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0 0.0.0.255ua6u1.00.0008 Tc -29.3#rea73 0 Td
    Ruij#rea73 0 Td
```

ip ospf authentication-key	n OSPF â [AxA• · ¸ Ä
ip ospf message-digest-key	n OSPF MD5 AxA• · ¸ Ä
area virtual-link	n <. ³JÒCÃ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.3 area default-cost

?U n Eî 4- STUB ³ ê5Ù NSSA 5 ,Õ" 6.CÃ+ ,X8…C ÄOSPF ,XG£ z Å ÈAË S*üCÃ + E¯/ßG!5B Q ¸ area default-cost ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

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

no area *area-id* default-cost

– DAÈ â

– D	£EÄ
area-id	STUB ³ ê NSSA ,X ³ Ë Ä
cost	"¼ 9 STUB ³ ê5Ù NSSA ,X5 ,Õ" 6.CÃ+ ,X8…C È ª 8× È Ö1-16777214 Ä

5 ,ÕG!5B 5 ,Õ Í

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸ ¾6Ñ ü ABR Ä ³E•+ CÃ+ A' Û Å ÞE¯> G!5B È5à èA¹ ABR ™NOE² y Ô þSTUB ³ Ä/Ä !_ ³ Å ê5Ù Ô þ NSSA Ä Aç ABR CÃ+ A' Û È ÛA¹CÃ+ A' ÛL8 ZE² yP| F ³ ê ÈE¬E² y º ê7Ç å Ô þ ³ Ä

ABR A' Û AŒ ü stub ê5Ù NSSA ³ Eî Ô þ></ 5 ,ÕCÃ+ ,X LSA È*ü Ã ¹EîE› area default-cost Q ¸ Â Eî ,X LSA ,X8…C Ä

G!5B –

¹ ßG!5B Q ¸ È Ú5 ,Õ" 6.CÃ+ ,X8…C A'5B 50 Ä

```
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
```

¸Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

37.1.5 area nssa

?U Ú Ô þOSPF ³A’5B NSSA ÈAË S*üCÃ+ E¯/ßG!5B Q ¸area nssa ÄA¹ Q ¸,X no 6 ã ôL8 redistribution9-

LSA 5 ,ÕCÃ+ Ä

– D no-redistribution ü ASBR Þ S k OSPF EîE› redistribute Q ¸ é 9,X J W êF¼CÃ + á ¥ × NSSA ÄA¹EÝNMEî *ü b NSSA ,XCÃ+ A' Û ¶ ASBR œ ABR ,X Ê í È W Ã ¹L !6 êF¼CÃ+ µ CE¯ 9 NSSA Ä

ZE¯ Ô!9 £ å ¥EÕ NSSA ³ ,XJÒCÃ(Š Õ S • ÄLSA Å,X DG£ È Ã ¹ ü ABR Þ G!5Bno-summary 2 û ÈU!6 ABR å NSSA ³ Y ¥EÕ summary LSAsÄType-3 LSA ÅÄ º ê area default-cost *ü üE² y üA¹ NSSA ³,XE•+ CÃ+ A' Û ABR Þ ÄA¹ Q ¸G!5B ³E•+ CÃ+ A' Û ¥EÕ NSSA ³,X5 ,ÕCÃ+ ,X8…C Ä5 ,Õ ™ ‰ ß È ¥EÕ NSSA 5 ,ÕCÃ+ ,X8…C 1 Ä

G!5B _

¹ ß,XG!5B _ $ È Ú ³ 1 A'5B !_ ³ È Ý 2 bA¹ ³,XCÃ+ A' ÛFÑ ™NOG!5B Ä

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
area default-cost	n Eî 4- NSSA 5 ,Õ" 6.CÃ+ ,X8… C ÄOSPF ,XG£ z Å Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.6 area range

?UG!5BOSPF ³ KÈ,XCÃ+ " 6. ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ area range ÄA¹ Q ¸,X no 6 ã ôL8 ÆG!5B,XCÃ+ " 6. Èno !4Ô â cost – D4˜ Ü Ã ¹ 6 á" 6.CÃ+ T¬Ax,X zG£ È á î ôL8CÃ+ " 6. Ä

area *area-id* range *ip-address net-mask* [advertise | not-advertise] [cost *cost*]

no area *area-id* range *ip-address net-mask* [cost]

– DAÈ â

– D	£EÄ
area-id	Û n?U"¼ 9" 6.CÃ+ ,X OSPF ³ Ë Ä ³ Ë Ã ¹ Ô þ E¯ H D È 3 Ã ¹ Ô þ IP Ä
ip-address net-mask	n " 6.CÃ+ ,X5%!‰ Ä
advertise | not-advertise	n ú?U @ ×A¹" 6.CÃ+

cost *cost* A’5B" 6.CÃ+ ,X zG£ È ª 8× È Ö

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

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

– DAÈ â

– D	**£EÄ**
area-id	STUB ³,X ³ Ë Ä
no-summary	Ä ÃEÝ ÅL !6 ABR T!_ ³ ¥EÕ5%4° ,?UJÒCÃEî È !8 Ê!_ ³ Ã/Ä <!_ ³ Ä ¾ Ý ABR !LÔ?UG!5BA¹ – D Ä

5 ,ÕG!5B 5 ,Õ"u Ý n !_ ³ Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

OSPF !_ ³ Y Ý,XCÃ+ A' ÛFÑ ™NO ;> area stub Q ¸ ÄAB_5D10.5 142.32F3 0 Tc 2.91BE09E5 [<2

S*ü Û Ð

37.1.8 area virtual-link

?U n OSPF <. ³JÒCÃ ÈAË S*üCÃ+ E¯/ßG!5B Q ąarea virtual-link ÄA¹ Q ¸,X no 6 ã ô L8<. ³JÒCÃ,X n Ä

area *area-id* virtual-link *router-id* [authentication [message-digest | null]] [dead-interval *seconds*] [hello-interval *seconds*] [retransmit-interval *seconds*] [transmit-delay *seconds*] [[authentication-key *key*] | [message-digest-key *key-id* md5 *key*]]

no area *area-id* virtual-link *router-id*

– D	£EÄ
area-id	OSPF E›#õ ³ Ë Ä ³ Ë Ã ¹ Ô þ E¯ H D È 3 Ã ¹ Ô þ IP Ä d D4.

5 ,ÕG!5B

dead-interval Ö40 /¦ ×
hello-interval Ö10 /¦ ×
retransmit-interval Ö5 /¦ ×
transmit-delay Ö1 /¦ ×
5 ,Õ áAxA• ×
J - – D"u Ý5 ,Õ Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

ü OSPF CÃ+ ³ È Ý,X ³FÑ ™NO âP| F ³E² y È V pP| F ³ • y È LÔ?UG!5B<. ³JÒ y ÚP| F ³ y4ÁCK 9 È ú í5%4°EîA*ƒ* Ú Î)„KÂNl Ä<. ³JÒ yLÔ?U ü ø þ ³E•+ CÃ + A' Û ÄABR Å KÈ ï Î È ø þ ABR E à 2,X ³ ä E›#õ ³ Ä!_ ³ ÄStub Area Å ` NSSA á6Ñ 0 E›#õ ³,X Ä<. ³JÒ y 3 Ã ¹*ü b y4Á J WM2P| F ³ Ä *router-id* OSPF F• CÃ+ A' Û ÛAš0ú È V p á.B n router-id ,X ÈAË*ü show ip ospf neighbor Q ¸E¯> .BAx Ä Ã ¹EîE›G!5B Loopback .CÃ+ ÛAš0ú Ä area virtual-link Q ¸ ¾ n <. ³JÒCÃ,XAxA• šJy È!—Â Ð@Ñ@bä<0+)d F• 0!ž QB2bu`< ! 'ƒf † #

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.9 auto-cost

A¹ Q ¸A'5B7¾ | · Ë s6Ñ Ô G ` ' Ô â,X –5× ú ' È B –5× ú '7¾ |A'5B y ·,X · Ë È S *üA¹ Q ¸,X no EÝNM Ã ¹ GKÁ7¾ | · Ë s6Ñ È Ã ¹ Ú5 ,Õ –5× ú ' 6 á äT¬Ax Ä

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

no auto-cost [reference-bandwidth]

– DAÈ â

– D	£EÄ
ref-bw	–5× ú ' Ä ¹ Mbps) ! È 8× È: 1-4294967

5 ,ÕG!5B 5 ,Õ 100Mbps Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð A¹ Q ¸A'5B7¾ |*ó ä y · · Ë,X –5× , V p á ú ÃEÝ – D></ Ú7¾ | · Ë s6Ñ ' Ô, – 5× S*ü,X 5 ,Õ . V p ú Þ ÃEÝ – D í Ú7¾ | · Ë ' Ô(V p s 9 GKÁ) à ÊA'5BA¹ – 5× . "¼ ã default auto-cost ` no auto-cost á à È!5Ù></ 6 á5 ,Õ G ' Ô7¾ | · Ë s6Ñ È â5Ù GKÁ7¾ | · Ë s6Ñ Ä

V p*ü Q ¸ ip ospf cost A'5B Z y ·,X cost È í Ú?Z,ª7¾ | · Ë1k Î,X cost Ä

G!5B – ¹ ß,XG!5B _ $ È Ú –5× ú 'A'5B 10M Ä

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# auto-cost reference-bandwidth 10
```

,Ì G Q ¸

Q ¸	£EÄ
show ip ospf	¹,ß ospf < G!5B,X,Ì G µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

	-	-

37.1.10 bfd all-interfaces (OSPF)

G!5BE¤> OSPF ,X Ý y · S*ü BFD E¯> JÒCÃ "# ÈAË üOSPF CÃ+ G!5B õ ã ß ;> bfd all-interfaces

#ÙL8 JG¡ OSPF r _ Ä

clear ip ospf [*process-id*] process

– DAÈ â

– D	£EÄ
process-id	OSPF E¯/ß Ë Û nA¹EÝNM Ê È#ÙL8 JG¡ Û nOSPF r _ Ä þ Û nA¹EÝNM Ê È#ÙL8 JG¡ Ý!7 üE¤> ,X OSPF r _ Ä

5 ,ÕG!5B 5 ,Õ G›*ü RFC2328 ?˜ í Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð á ! H þ OSPF E¯/ß È ÝF• G¡ „ Î0Ÿ È Í H þ #A, E ¡EW û × ¹ ;> !8 Q ¸ Ê È î ¤/ ú.BAx?U ;> ×

G!5B _ ¹ ßG!5B Q ¸ Ú#ÙL8 JG¡ OSPF r _ 1

```
Ruijie# clear ip ospf 1 process
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.12 compatible rfc1583

' , ü î 5CÃ X E' à Ô þ AS êF¼,Â,X Ê È ™NO.B n Ô ìCÃ X ÈA¹ Q ¸.B n G›*ü RFC1583 S*ü,X ì ?˜ íE¬ G›*ü RFC2328 S*ü,X ì ?˜ í Ä

commpatible rfc1583

no commpatible rfc1583

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	5 ,Õ G›*ü RFC1583 ?˜ í Ä
Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	´
G!5B _	¹ ß,XG!5B _ $ È Ú S*ü rfc 2328 ,X?˜ í 9.B n Ô GCÃ+ Ä Ruijie(config)# **router ospf** 1 Ruijie(config-router)# **no commpatible** rfc1583

,Ì G Q ¸

Q ¸	£EÄ
show ip ospf	¹,ß ospf < G!5B,X,Ì G µ C

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.13 default-information originate OSPF

?U {*ó Ô 55 ,Õ,XCÃ+ "¼ 9 OSPF CÃ+ ³ ÈAË S*üCÃ+ E¯/ßG!5B Q ¸default-information originate ÄA¹ Q ¸,X no 6 ã GKÁ5 ,ÕCÃ+ Ä

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

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

– DAÈ â

– D	£EÄ
always	Ä ÃEÝ ÅA¹ GK + S k OSPF ´ 5 Ê {*ó5 ,ÕCÃ+ È á1u ú , ü5 ,ÕCÃ+ Ä
metric *metric*	Ä ÃEÝ Å5 ,ÕCÃ+ ñ Ÿ,XG£ z È ª 8× È Ö 0-16777214 Ä
metric-type *type*	Ä ÃEÝ Å5 ,ÕCÃ+ ,X2O _ ÄOSPF êF¼CÃ+ Ý ø/¡2O _ Ö2O _ 1 È á àCÃ+ A' Û Þ,ß ,XG£ z á Ô × 2O _2 È ÝCÃ+ A' Û,ß ,XG£ z FÑ Ô Ä2O _ 1 ,X êF¼CÃ+ !¨2O _2 Ã µ Ä
route-map	

5 ,ÕG!5B

5 ,Õ á {*ó5 ,ÕCÃ+ ×
metric 5 ,Õ 1 ×
metric-type 5 ,Õ 2O _ 2 Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Đ

' ;> redistribute ê5Ùdefault-information Q ¸ Ê ÈOSPF CÃ+ A' Û î7¾ | ¬ ASBR Ä7¾"• ³E•+ CÃ+ A' Û Å Ä ASBR á î7¾ | {*ó5 ,ÕCÃ+ È JEî 4- OSPF CÃ+ ³ ,X ÝCÃ+ A' Û ÄASBR {*ó5 ,ÕCÃ+ È ™NO*üdefault-information originate CÃ+ E¯/ßG!5B Q ¸E¯> G!5B Ä

V pEÝ ½always – D È OSPF CÃ+ E¯/ß á1u ú , ü5 ,ÕCÃ+ ÈFÑ î åF• Eî Ô 5 ê F¼5 ,ÕCÃ+ Ä CÃ+ A' Û á î / A¹5 ,ÕCÃ+ È?U.BAx ú {*ó5 ,ÕCÃ+ È Ã ¹ *ü show ip ospf database ?– ³ OSPF JÒCÃ(Š Õ D B g ÈJÒCÃ ÛAš0.0.0.0 ,X êF¼JÒ CÃ £EÄ Z5 ,ÕCÃ+ ÄOSPF¸XF• EîE› ;> show ip route Q ¸ È Ã ¹,ß 5 ,ÕCÃ+ ,X Ä

êF¼5 ,ÕCÃ+ ,XCÃ+ G£ z È ¾6Ñ+default-information originate Q ¸E¯> n È á 6ÑEîE› Q ¸ default-metric A'5B Ä

OSPF Ý ø/¡ êF¼CÃ+ È2O _ 1 êF¼CÃ+ ,XCÃ+ G£ z î ¬ È5à2O _ 2 êF¼CÃ+ ,XCÃ+ G£ z Î n á ¬ Ä Ô þ,Â Û5%4° , ü ø 5 J> CÃ X È à ,XCÃ+ G£ z È2O _ 1 î!¨2O _ 2 ì 4{P¬ È ¹ show ip route ¾ / 2O _ 1 Fw 5CÃ+ Ä

STUB ³ ,XCÃ+ A' Û á Ã ¹ {*ó êF¼5 ,ÕCÃ+ ,X Ä

G!5B _

¹ ß,XG!5B _ $ ÈOSPF Ú {*ó Ô 5 êF¼5 ,ÕCÃ+ È"¼ 9 OSPF CÃ+ ³ È2O _A'5B 1 ÈG£ z A'5B 50 Ä

```
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
```

¸Ì G Q ¸

Q ¸	£EÄ
show ip ospf database	/ OSPF JÒCÃ(Š Õ D B g Ä
show ip route	/ IP CÃ+ >< Ä
redistribute	G¡ Ú × J WCÃ+ E¯/ß,XCÃ+ Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â

	-	-

37.1.14 default-metric

?UA’5BOSPF G¡ Ú ×CÃ+ ,X5 ,ÕG£ z ÈAË S*üCÃ+ E¯/ßG!5B Q ¸default-metric ÄA¹ Q ¸ ,X no 6 ã 6 á5 ,ÕG!5B Ä

default-metric *metric*

no default-metric

37.1.16 distance ospf

A’5B á à2O _ OSPF CÃ+ Í h,X1u)ÚC±/•

distance {*distance* | ospf { intra-area *distance* | inter-area *distance* | external *distance* }}

no distance [ospf]

– DAÈ â

– D	£EÄ
distance	A’5BCÃ+ 1u)ÚC±/• È ª 8× È Ö1-255
intra-area *distance*	A’5B YCÃ+ 1u)ÚC±/• È ª 8× È Ö 1-255
inter-area *distance*	A’5B KÈCÃ+ 1u)ÚC±/• È ª 8× È Ö 1-255
external *distance*	A’5B êF¼CÃ+ 1u)ÚC±/• È ª 8× È Ö1-255

5 ,ÕG!5B

5 ,Õ 110 ×

YCÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×

KÈCÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×

êF¼CÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×

Q ¸ õ ã

OSPF CÃ+ Ü)X ðQN \@Tf97.512 0 Td rounte ospf

OSPF 61R•¤; øð

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

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

– DAÈ â

– D	£EÄ
access-list-number | *name*	S*ü acl E›$¸?˜ í
gateway *prefix-list-name*	S*ü gateway E›$¸?˜ í
prefix *prefix-list-name*	S*ü prefix-list E›$¸?˜ í
interface-type interface-number	G!5B ¾J\ Í ¤ þ y ·E¯> LSA CÃ+ E›$¸

5 ,ÕG!5B

5 ,Õ ´G!5B È G <EîE› Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

Í ,X LSA E¯> E›$¸ È$µC‡E›$¸ 5 Ê,X ! – â SPF Au1k È JAu1k,Ì h,XCÃ+ ÄW J á î E ¡JÒCÃ(Š Õ D B g È ÍF• ,XCÃ+ >< 3 á î {*ó Ï) E ¡ È ¾ î E ¡ OSPF Au1k,XCÃ+ ><NM Ä Ô8 ÆBR ê5Ù ASBR Þ S*üA¹ Q ¸ { Fw oE¯ 9A¹ ³,XCÃ+ Ä

G!5B –

```
Ruijie(config)# access-list 3 permit 172.16.0.0    0.0.127.255
Ruijie(config)# router ospf 25
Ruijie(config-router)# redistribute rip metric 100
Ruijie(config-router)# distribute-list 3 in ethernet 1/0
```

,Ì G Q ¸

Q ¸	£EÄ
distribute-list out	G!5BE›$¸G¡ Ú ×CÃ+ Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.18 distribute-list out

no distribute-list {[*access-list-number* | *name*] | prefix *prefix-list-name*} out [bgp | connected | isis [*area-tag*] | ospf *process-id* | rip | static]

– DAÈ â

– D	£EÄ
access-list-number | name	S*ü acl E›$¸?˜ í
prefix prefix-list-name	S*ü prefix-list E›$¸?˜ í
bgp | connected | isis [area-tag] | ospf process-id | rip | static	D G&D ÜÀ

enable mib-binding Q ¸*ü 9 Ú MIB 4¥ n Û n,X OSPFv2 E¯/ß Þ Ä S*üA¹ Q ¸,X no 6 ã 6 á5 ,Õ4¥ n Ä

enable mib-binding

no enable mib-binding

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È MIB 4¥ n üE¯/ß Ë Ô ã,X OSPFv2 5 Õ ™ ‰ ß È F` B LùÇ–` B C” C•P c”@F6 ò RG" I

[LsdbApproachOverflow | LsdbOverflow | MaxAgeLsa | OriginateLsa] |
LetfTxRmit(Transmit)-4

	state-change	G!5B Ý â state-change Ý G,X traps Ô G ÈÀ¹ – DE¬ Ã ¹G!5B V ß(M n,X state-change traps Ô G Ö IfStateChange y ·(Š Õ ¬ ê NbrRestartHelper StatusChange F• GR E›/ß(Š Õ ¬ ê ×
		NbrStateChange F• (Š Õ ¬ ê
		RestartStatusChange A' ÛGR Restarter (Š Õ ¬ ê ×
		VirtIfStateChange <. ³ y ·(Š Õ ¬ ê
		VirtNbrRestartHelper StatusChange <. ³F• GR E›/ß(Š Õ ¬ ê
		VirtNbrStateChange <. ³F• (Š Õ ¬ ê

5 ,ÕG!5B 5 ,Õ GKÁ <F¼traps Ô G Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð Q ¸ Í h s6Ñ « snmp-server Q ¸,XL$ È™NO ' ÔG!5B Ô G snmp-server enable traps ospf È aG!5B enable traps ¹ â È Í h,X ospf trap !6Ñ ó!7.B ¥EÕ Ä

Q ¸ á «E¯/ß4¥ n MIB ,XL$ È AŒ á àE¯/ß à Ê ' Ô TRAP Ô G Ä

G!5B _ ¹ ß,XG!5B _ $ È ' Ô OSPFv2 E¯/ß 100 ,X <F¼TRAP Ô G Ö

```
Ruijie(config)# router ospf 100
Ruijie(config-router)# enable traps
```

,Ì G Q ¸

Q ¸	£EÄ
show ip ospf	¹,ß OSPF < G!5B,X,Ì G µ C
enable mib-binding	G!5BOSPFv2 E¯/ß4¥ n MIB
snmp-server enable traps ospf	*ü OSPF ,X TRAP Eî-¹

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(1)	„ r Q ¸ é 9

37.1.21 graceful-restart

?UG!5BA' Û,XOSPF ìL™G¡ (graceful restart ÈGR) s6Ñ È S*üG!5B Q ¸ graceful-restart Ä *ü graceful-restart grace-period ãG!5B ìL™G¡ ,X grace period – D È à Ê S6Ñ #A„X ìL™G¡ s6Ñ Ä S*üA¹ Q ¸,X no EÝNM 6 á T¬AxG!5B Ä

graceful-restart [grace-period *grace-period*]

no graceful-restart [grace-period]

– D	£EÄ
grace-period	Ä ÃEÝ Å ãG!5B grace-period
grace-period	*ü A'5B,X GR G¡ < ó ÈG¡ < ó ¢ OSPF ¸Að' @ äÅ€

– DAÈ â

?UG!5BA’ Û,XOSPF ìL™G¡ ,XEY }(GR helper) s6Ñ È S*ü Q ¸ graceful-restart helper Ä A¹ Q ¸,X no

,Ì G Q ¸	Q ¸	£EÄ
	graceful-restart	S6ÑA’ Û,X OSPF #A, ìL™G¡ s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2)	„ r Q ¸ é 9

37.1.23 ip ospf authentication

A¹ Q ¸G!5B y ·,XAxA• • ã È S*ü no EÝNM Ã ¹ ÚAxA• • ã 6 á 5 ,Õ Ä

ip ospf authentication [message-digest | null]

no ip ospf authentication

– DAÈ â	– D	£EÄ
	message-digest	A¹EÝNM></ üA¹ y · ÞE¯> MD5 t šAxA• Ä
	null	A¹EÝNM></ áE¯> AxA• Ä

5 ,ÕG!5B 5 ,Õ y · Þ"u ÝA’5BAxA• • ã, !8 Ê y · ÞG›*ü,X ü,X ³,XAxA•2O _ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð V p Q ¸ âM6 áC³ Ï)EÝNM></ E¯> â [AxA•. "¼ ã üG!5BAxA• • ã Ê S*ü no EÝNM ÚAx A• • ã 6 á5 ,Õ Ê È rL úAxA• + A¹ y · ü KÈ ÞA’5B,XAxA• • ã ‡ n,X È V p ÚAxA• • ãA’5B null È í A’5B áAxA•, ' y · Þ,XAxA• • ã ` y · ü,X ³ ,XAxA• • ãFÑA’5B Ê, ì G›*ü y · Þ,XAxA• • ã Ä

¹ ß,XG!5B _ $ ÈA’5B FastEthernet 0/0 0Ã ·,X OSPF AxA•,X

G!5B _

	ip ospf message-digest-key	G!5BOSPF ,X MD5 AxA• šJy Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.24 ip ospf authentication-key

?UG!5BOSPF ,X â [AxA• šJy ÈAË S*ü y ·G!5B Q ¸ ip ospf authentication-key ÄA¹ Q ¸ ,X no 6 ã ôL8 â [AxA• šJy Ä

ip ospf authentication-key *key*

no ip ospf authentication-key

– DAÈ â

– D	£EÄ
Key	šJy È Ô î Ã ¹+ 8 þ +0ú4˜ ä Ä

5 ,ÕG!5B 5 ,Õ"u ÝG!5BAxA• šJy Ä

Q ¸ õ ã y ·G!5B õ ã Ä

ip ospf authentication-key Q ¸G!5B,X šJy ÈÚ>• ¦ 9 Ý OSPF y Ä´!8 šJy á Ô 7È È ø Ä,È yE² y,XA' Û á6Ñ Î0Ÿ OSPF F• G2Ï È " 3 á6ÑE¯> CÃ+ µ C,X x 6 Ä

S*ü Û Ð

Q ¸ Z Æ	(Ë	AÈ â
	-	-

37.1.26 ip ospf cost

?UA'5BOSPF y · ¥EÕ Ô þ D B Ù,X8…CÄOSPF G£ z ÅÈÆË S*ü y ·G!5B Q ¸ ip ospf cost Ä A¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf cost *cost*

no ip ospf cost

– DAÈ â	– D	£EÄ
	cost	OSPF y ·,X8…C Ä

5 ,ÕG!5B 5 ,Õ,X y ·8…C –5× ú '/Bandwidth Ä –5× ú 'T¬Ax 100Mbps Å Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

5 ,Õ ™ ‰ ß ÈOSPF y ·8…C 100Mbps/Bandwidth ÈJ Bandwidth y ·,X ú ' È EîE› y ·G!5B Q ¸ bandwidth E¯> A'5B Ä

´/¡ L _4"CÃ,X OSPF 5 ,Õ y ·8…C Ö

1 Ô&• Ö64K > 4"CÃ Ècost 1562 ×

1 `&• ÖE1 4"CÃ Ècost 48 ×

1 Ý&• Ö 10M ¹ þ5% È cost 10 ×

1 ¯&• Ö 100M ¹ þ5% È cost 1 Ä

EîE› ip ospf cost Q ¸G!5B,X OSPF 8…C È î?Z,ª5 ,ÕG!5B Ä

G!5B _

¹ ß,XG!5B _ $ È Ú serial 1/0 y ·,X OSPF 8…C A'5B 100 Ä

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf cost 100
```

,Ì G Q ¸	Q ¸	£EÄ
	bandwidth	A'5B Û n y ·,X ú ' ÄA¹A'5B á î E ¡ D B ôEgEó z Ä
	show ip ospf	¹,ß Ospf < G!5B,X,Ì G µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

37.1.27 ip ospf database-filter all out

A¹ Q ¸A'5B y · á å ê = 7 LSA y [È G á üA¹ y · Þ ¥EÕ LSA ,X È „ y [, S*üA¹ Q ¸,X no EÝNM Ã ¹ 6 á äT¬Ax Ä

ip ospf database-filter all out

no ip ospf database-filter

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,ÕA¹ s6Ñ>• GKÁ, Ã ¹ üA¹ y · Þ ¥EÕ Ï) LSA È „ y [Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ?UL !6 ü ¤ þ y · Þ ¥EÕ LSA ,X È „ y [Ê È Ã ¹ üA¹ y · Þ ' ÔA¹ s6Ñ È ' ÔA¹ s6Ñ â È A' Û Ú á åF• Eî LSA È „ y [È ¡' àF• Î0ŸF• y G2Ï J y F• ¥ 9 ,X LSA µ C Ä

G!5B _ ¹ ß,XG!5B _ $ È ÚL !6 LSA È „ y [ü serial 1/0 y · Þ ¥EÕ Ä

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1 255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf database-filter all out
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

?UA'5BOSPF ø • Û n y ·F• !O u,X ÊKÈ ÈAË S*ü y ·G!5B Q ¸ ip ospf dead-interval Ä A¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf dead-interval *seconds*

no ip ospf dead-interval

– DAÈ â

– D	£EÄ
seconds	n F• !O u ø • ÊKÈKÈLh È¹/¦) ! Èª 8× È Ö 1-65535 Ä

5 ,ÕG!5B 5 ,Õ ip ospf hello-interval A'5B,X ÊKÈKÈLh,X4 á Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

OSPF ,X!O u ÊKÈ Ù ÿ ü Hello y [Y Ä V p OSPF ü!O u ÊKÈ Y È"u Ý F• ¥EÕ ,X Hello y [È w F• ´ J ¢F• >< ôL8A¹F• A„) Ä!O u ÊKÈ5 ,Õ hello y [ÊKÈKÈLh,X4 á È V p Â Z hello ÊKÈKÈLh È î7¾ | Â !O u ÊKÈ Ä

*üA¹ Q ¸ Ã ¹ ¹ Â OSPF ø •F• !O u ÊKÈ È ™NO ÚAü " Ä Ý ø&• ™NO"¼ ã Ö

1 Ô&• Ö!O u ÊKÈKÈLh È á6Ñ ã bhello y [ÊKÈKÈLh ×

1 `&• Ö à Ô5%!‰ Þ,X ÝCÃ+ A' Û,X!O u ÊKÈKÈLh ™NO Ô7È Ä

G!5B _

¹ ß,XG!5B _ $ È Ú serial 1/0 y ·,X OSPF ø •F• !O u ÊKÈKÈLhA' 30 Ä

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
ip ospf hello-interval	OSPF ¥EÕHello y [ÊKÈKÈLh Ä

G ÄAÈ â ´

(Ë	

G!5BOSPF Q ¸ 0æ `$sX .û Q ¸ Œ Â (aE B4ssb >`€a sX .û Q B

5 ,ÕG!5B 5 ,Õ"u ÝG!5B MD5 šJy Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

ip ospf message-digest-key Q ¸G!5B,X šJy È Ú>• ¦ 9 Ý OSPF y Ä´!8 šJy á Ô7È È ø Ä,È yE² y,XA' Û á6Ñ Î0Ÿ OSPF F• G2Ï,X È " 3 á6ÑE¯> CÃ+ µ C,X x 6 Ä

á à y ·,X šJy Ã ¹G!5B á Ô È ÝE² y ü à Ô(=)Ú5%!‰ Þ,XCÃ+ A' Û È ™NOG!5B Ô ,X šJy ÄF• CÃ+ A' Û,Ì à,X šJy ÛAš Í h,X šJy ™NO Ô Ä

Ô þ OSPF ³ ú *üAxA• ÈS*üCÃ+ E¯/ßG!5B Q ¸ area authentication E¯> G!5B Ä ü y · Þ 3 Ã ¹)(À *üAxA•, S*ü y · õ ã ß,XG!5B Q ¸ ip ospf authentication E¯> G!5B,' ³AxA• ` y ·AxA•FÑG!5B Ê ì ª y ·,XAxA•2O _ Ä

RGOS EC Ê Õ G$¥ E¯> MD5 AxA• šJy Â È Â hA¹FI ~ Ô þ t â ôL8,X s í Ä ' r t Ô þCÃ+ A' Û,X OSPF MD5 AxA• šJy Ê ÈA¹CÃ+ A' Û îAx J WCÃ+ A' ÛE¬"u Ý*ü „,X šJy È ´!8 î Ú ÿ*ü á à,X šJy ¥EÕ î Ñ OSPF y [È,È .BAxF• Æ4£G!5B Z „,X šJy Ä1 ÝCÃ+ A' ÛG!5B Z „,X šJy â È Ã ¹ ôL8 »,X šJy Z Ä

G!5B _

¹ ß,XG!5B _ $ ÈFastEthernet 0/0 0Ã · r t Z Ô þ „,X OSPF AxA• šJy È šJy Ë Ñ È šJy hello5 Ä

```
Ruijie(config)# interface Serial 1/0
Ruijie(config-if)# ip address 172.16.24.2 255.255.255.0
Ruijie(config-if)# ip ospf authentication message-digest
Ruijie(config-if)# ip ospf message-digest-key 10 md5 hello10
Ruijie(config-if)# ip ospf message-digest-key 5 md5 hello5
```

1 Ý,XF• FÑ r t Z „,X šJy â È <F¼CÃ+ A' ÛFÑLÔ?U ôL8 »,X šJy Ä

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

,Ì G Q ¸

Q ¸	£EÄ
area authentication	*ü OSPF ³AxA• J n AxA• õ ã Ä
ip ospf authentication	*ü y · Þ,XAxA• J n AxA•"u õ ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.32 ip ospf mtu-ignore

?U Ñ+9A¹ y · ü D B g £EÄ y [â Í mtu ,X õP` Ã ¹ S*üA¹ Q ¸ ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf mtu-ignore

no ip ospf mtu-ignore

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ Í mtu E¯> õP` Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð OSPF ü D B g £EÄ y [Ê î õP`F• ,X y ·,X MTU `7¾ Å y ·,X MTU ú,Ì à, V p ,X D B g £EÄ y [Û/ ,X y ·,X MTU û b y y ·,X MTU,Fw F• y G2Ï Ú á6Ñ>• Î0Ÿ, !8 Ê Ã ¹EîE› GKÁ MTU ,X õP` 9?· ‡ Ä

G!5B _ ¹ ß,XG!5B _ $ È Ú serial 1/0 ,X MTU õP` s6Ñ GKÁ Ä

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.33 ip ospf network

?UG!5BOSPF 5%4°2O _ ÈAË S*ü y ·G!5B Q ¸ ip ospf network ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf network {*broadcast* *non-broadcast*

point-to-multipoint [*non-broadcast*] *point-to-point*}

no ip ospf network {*broadcast* *non-broadcast*

point-to-multipoint [*non-broadcast*] *point-to-point* }

– DAÈ â

– D	£EÄ
broadcast	Ú y ·,X OSPF 5%4°2O _A' S •2O _ Ä
non-broadcast	Ú y ·,X OSPF 5%4°2O _A' M2 S • îCÃA"KÂ2O _ È G NBMA 5%4° Ä
point-to-multipoint [*non-broadcast*]	Ú y ·,X OSPF 5%4°2O _A' &• î&•2O _ Ä 5 ,Õ &• î&• S •2O _, EÝNMon-broadcast ></ &• î&•M2 S •2O _
point-to-point	Ú y ·,X OSPF 5%4°2O _A' &• Í&•2O _ Ä

5 ,ÕG!5B

&• &•5%4°2O _ ÖPPP ÃSLIP Ã û 4»&• &• $ y · ÃX.25 &• &• $ y · Õ>™ × NBMA 5%4°2O _ Ö û 4» Ä&• &• $ y ·L8 ê Å ÃX.25 Õ>™ Ä&• &• $ y ·L8 ê Å × S •5%4°2O _ Ö ¹ þ5% Õ>™ ×
5 ,Õ5%4°2O _"u Ý &• î&•5%4°2O _ Ä

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

B á à,X f Ÿ,X ôEg ûBü ÈOSPF Ú5%4° Ú Ý/¡2O _ Ö
S •5%4° Ä ¹ þ5% È ¸( )ƒ ÈFDDI Å ×
M2 S •5%4° Ä û 4» ÈX.25 Å ×
&• &•5%4° ÄHDLC ÈPPP ÈSLIP Å Ä
J M2 S •5%4° È B OSPF ,X ¡ 0 õ ã á à œ Ú ø/¡ $2O _ Ö
M2 S • îCÃA"KÂ5%4°(NBMA)2O _ ÄNBMA ?U" Ý f6(,XCÃ+ A' Û ™NO6Ñ ó,È yEî Aƒ È ¾ Ý <5%(Š,XE² y !6ÑE' A¹?U" È V pG›*ü SVC Ä!¨ V X.25 ÅE² y"uKÂNl È G›*ü PVC Ä V û 4» Å4˜5% Ú Ý Ô nL' z Ä OSPF ü NBMA 5%4° Þ ¡ 0 â S • 5%4° Þ2O ÈLÔ?UEÝ Û nCÃ+ A' Û ÄDesignated RouteÅ È J+ Û nCÃ+ A' ÛEî NBMA 5%4°,XJÒCÃ(Š Õ Ä
&• î&•5%4°2O _ Ä V p5%4° § %4§ X á <5%(Š,XM2 S •5%4° ÈOSPF LÔ?U ÚA¹ y ·5%4°2O _A'5B ä&• î&•5%4°2O _ Ä ü&• î&•5%4°2O _ È OSPF Ú Ý,XCÃ + A' Û KÈ,XE² y,ß 0&• &•,XJÒCÃ È ¹"u Ý Û nCÃ+ A' Û,XEÝ Ä&• î&•5%4° 2O _ œ Ú S • `M2 S •2O _, M2 S •2O _ ™NO ¹G!5BM- ÕF• Ä
á1u y ·,X5 ,Õ5%4°2O _ " ÈFÑ Ã ¹A'5B S •5%4°2O _ Ä!¨ V Ã ¹ ÚM2 S • îCÃ A"KÂ5%4° Ä û 4» ÈX.25 ÅA'5B ä S •5%4° ÈE- ü OSPF CÃ+ E¯/ßG!5B Ê È,Õ • Z?U G!5BF• ,X!9Px ÄEîE› X.25 map ` Frame-relay map Q ¸ È Ã ¹A} X.25 ` û 4»5%4° K Ý S •,X6Ñ o ÈE- OSPF Ã ¹ ^ X.25 ` û 4»E- ,X5%4°,ß 0 S •5%4° Ä
&• î&•5%4°,X y · Ã ¹ Ý Ô þ ê î þF• È ' OSPF G!5B ä&• î&•5%4°2O _ Ê È î *ó ä î þ CÃ+ Ä&• î&•5%4°2O _ â S •5%4°2O _,Ì!¨ Ý ¹ ß Q Ø Ö

• çG!5B È áLÔ?UG!5BF• È 3"u Ý Û nCÃ+ A' Û,X0²EÝ ×

· Ë ã È á?U" <5%(Š § % Ä

Í b ¼ Ë5%4° Ã û 4» ¹ ž X.25 5%4° È V pLÔ?U ¹G!5BIP ô Ø>< È ™NO Û n broadcast GK + !6Ñ Õ S • Ä

_ 1 Ö ¹ ß,XG!5B _ $ È Ú û 4» y ·,X5%4°A' S •2O _ ÈEÖ Ü <5%(Š û 4»E² y Ä

```
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
```

_ 2 Ö ¹ ß,XG!5B _ $ È Ú û 4» y ·,X5%4°A' &• î&•2O _ ÈEÖ ÜM2 <5%(Š û 4»E² y Ä

```
Ruijie(config)# interface Serial1/0
Ruijie(config-if)# ip address 172.16.24.4 255.255.255.0
```

G!5B _

```
Ruijie(config-if)# encapsulation frame-relay
Ruijie(config-if)# ip ospf network point-to-multipoint
```

_ 3 Ö ¹ ß,XG!5B _ $ È Ú û 4» y ·,X5%4°A' S •2O _ È J Û n DR/RDR ÈEÖ Ü < 5%(Š Ë 5%(Š û 4»E² y Ä ¹ ßG!5BLÔ?U ü Ý Ú 8V&•CÃ+ A' Û ê á Û nCÃ+ A' Û ÞE¯> G!5B ÄL$ ä DR/BDR Å Ä **interface Serial**1/0

```
Ruijie(cofig-if)#
```

37.1.34 ip ospf priority

?UG!5B y ·,X OSPF ì ÈAË S*ü y ·G!5B Q ¸ ip ospf priority ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf priority *priority*

no ip ospf priority

– DAÈ â

– D	£EÄ
priority	A'5B y ·,X OSPF ì È ª 8× È Ö0-255 Ä

5 ,ÕG!5B ì 5 ,Õ Í Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð OSPF y ·,X ì Ù ÿ ü hello y [Ä' OSPF S •2O _5%4° ¥*ó DR/BDRÄ Û n CÃ+ A' Û Ë Û Ñ Û nCÃ+ A' Û Å0²EÝ Ê ÈP¬ ì ,XCÃ+ A' Û È Ú ä DR ê BDR Ä V p ì Ô ÈCÃ+ A' Û ÛAš0úP¬,XCÃ+ A' Û Ú ä DR ê BDR Ä ì Ì,X CÃ+ A' Û È á – â DR/BDR 0²EÝ ÄA¹ Q ¸ ¾ Í OSPF broadcast ` non-broadcast 5%4° 2O _ Ý Ä

"¼ ã	V p5%4° Æ4£ , ü DR ` BDR Fw Â y ·,X ì 4{ á î0Ÿ G*ó È¾ Ý ü ß Ô õ,X DR ` BDR EÝ E›/ß ! î*ü A¹ y ·,X ì 4{ Ä

G!5B _ ¹ ß,XG!5B _ $ È Ú fastethernet 0/0 y ·,X ì A' 0 Ä

```
Ruijie(config)# interface fastethernet 0/0
Ruijie(config-if)# ip ospf priority 0
```

,Ì G Q ¸

Q ¸	£EÄ
ip ospf network	G!5B y ·,X OSPF 5%4°2O _ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.35 ip ospf retransmit-interval

?U n y · LSU ÄJÒCÃ(Š Õ È „ Å y [G¡ ô ÊKÈKÈLh ÈAË S*ü y ·G!5B Q¸ ospf retransmit-interval ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf retransmit-interval *seconds*

no ip ospf retransmit-interval

– D	£EÄ
seconds	LSU G¡ ô ÊKÈKÈLh È¾/¦) ! È² 8× È Ö 1-65535 Ä A¹ ÊKÈ ™NO û b ø þF• KÈ,X D B Ù TE¨ ôEg Ê Ê Ä

5 ,ÕG!5B 5 ,Õ 5 /¦ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð 'CÃ+ A' Û ¥EÕ ` Ô þ LSU y [È A¹ LSU y [E¬ ±+- ü ¥EÕ4ç †Kó ë È V p ü ip ospf retransmit-interval Q ¸ n ,X ÊKÈ Y È"u Ý k F• ,X.BAx È ÚG¡ „ ¥EÕ LSU Ä A¹ ÊKÈA'5BLÔ?UAü " È ¹ !Eô ä á ™?U,XG¡ ô È ü > 4"CÃ ê<. ³JÒCÃ Þ ÈG¡ ô ÊKÈ Ã ¹A'5B k!¨EW û Ô&• Ä<. ³JÒCÃ,X LSU y [G¡ ô ÊKÈKÈLh*ü area virtual-link Q ¸C³Lc retransmit-interval GK +E¯> n Ä

G!5B _ ü ¹ ß,XG!5B _ $ È Ú serial 1/0 y ·,X LSU y [G¡ ô ÊKÈA' 10 /¦ Ä

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf retransmit-interval 10
```

,Ì G Q ¸

Q ¸	£EÄ
area virtual-link	n OSPF <. ³JÒCÃ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.36 ip ospf transmit delay

?U n OSPF y · ôEg LSU y [,X Ê Ê ÈAË S*ü y ·G!5B Q ¸ ip ospf transmit delay ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

ip ospf transmit delay *seconds*

no ip ospf transmit delay

– DAÈ â

– D	£EÄ
seconds	n OSPF y · ôEg LSU y [,X Ê Ê È¹/¦) ! È ª 8× È Ö1-65535 Ä

5 ,ÕG!5B 5 ,Õ 1 /¦ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ü ôEg LSU y [! ÈA¹ y [Ý LSAs ÄJÒCÃ(Š Õ £EÄ Å,XAge +!‰ Ú r t È r t G£ BA¹ y ·G!5B Q ¸ ip ospf transmit delay ,X n ÄA'5BA¹ – D ™NO5×<% A¹ y ·,X ¥EÕ `4"CÃ ô • Ê Ê ÈÍ b "Eó4"CÃ Èy ·,X ôEg Ê Ê hA¹A'5B k û o Ä<. ³JÒCÃ,X LSU y [ôEg Ê Ê È*ü area virtual-link Q ¸C³Lc transmit-delay GK +E¯> n Ä RGOS EC Ê Í Age E' 3600 ,X LSA ÈÚE¯> G¡ ô êAË" G¡ ô ÈV p"u Ý k ž Ê „ È CY Ê,XLSA Ú ¢JÒCÃ(Š Õ D B g #ÙL8 Ä

G!5B _ ¹ ß,XG!5B _ $ È Ú serial1/ 0 ,X ôEg Ê ÊA' 5 Ä

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf transmit delay 10
```

,Ì G Q ¸

Q ¸	£EÄ
area virtual-link	n OSPF <. ³JÒCÃ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.37 log-adj-changes

A¹ Q ¸A'5B úA„)F• y(Š Õ ¬ ê,X ¹ « ÈA¹ Q ¸,X no ` default EÝNM Ã ¹ GKÁA¹ s6Ñ Ä

log-adj-changes [detail]

no log-adj-changes [detail]

– DAÈ â

– D	£EÄ
detail	A„) <F¼(Š Õ ¬ ê µ C

5 ,ÕG!5B	5 ,ÕA¹ s6Ñ ' Ô È á ú detail – D È ¾A„)F• y(Š ÕE’ Full ê5Ù/• Ô Full (Š Õ,X ¹ « µ C Ä
Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	´

G!5B _

Ruijie(config-router)# **max-concurrent-dd** 4

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Hello y [È OSPF E¬ î TA¹F• ¥EÕ Hello y [È ¥EÕ Hello y [,X ÊKÈKÈLh/Ä EBA¶
KÈLh Ä ' OSPF 1 Ô õ Ô ŸE¤> Ê È ¾ å ì á 0 ,XF• ¥EÕ Hello y [ÈE-
ì A’ 0 ,XF• á î – â)d 1]ã?×½•)d @thñ!• 0·Ý–@ Ó Aa!•“-àHýkß)d @thñ!•H4.796PF

5 ,ÕG!5B

	hard | soft	hard ÖLSA CYE›A¹ D,Â Ê È GKÁAÐSPF r _ soft ÖLSA CYE›A¹ D,Â Ê È ¥ ÎA:

60.2 w Q4¸1B91B442CC2>6<1BCA02C8>6<41a86T 141 Td [<435r 4TT0 1 1 Tf ( )Tj 0.0012 0.472_0C2_61 Tf ( )T0

5 ,ÕG!5B

G!5BOSPF

– DAÈ â

– D	£EÄ
type *number*	?UG!5B >• | y ·,X y · Ä
default	A¹EÝNM></ Ú Ý y ·A'5B >• | y · Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È"u Ý y ·>•A'5B >• | y · È AŒ Ý y · ¥ OSPF y [Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

ZL !65%4° ,X J ªCÃ+ A' Û | Õ,X : 4 CÃ+ A' Û,XCÃ+ µ C È Ã ¹ Ú CÃ+ A' Û,X Û n5%4° y ·A' >• | y · Ä

G!5B _

¹ ß,XG!5B _ $ È Ú y · serial 1/0 A'5B >• | y · Ä

```
Ruijie(config)# router ospf 30
Ruijie(config-router)# passive-interface serial1/0
```

,Ì G Q ¸

Q ¸	£EÄ
show ip ospf interface	¹,ß y ·,X,Ì GG!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.45 redistribute

A¹ Q ¸*ü bG¡ Ú ¥ êF¼CÃ+ µ C Ä

redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | rip | static } [{level-1 | level-1-2 | level-2 } | match {internal | external [1|2] | nssa-external [1|2]} | metric *metric-value* | metric-type {*1|2*} | route-map *route-map-name* | subnets | tag *tag-value*]

no redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | rip | static } [{level-1 | level-1-2 | level-2} | match { internal | external [1|2] | nssa-external [1|2]} | metric | metric-t ype {*1|2*} | route-map *route-map-name* | subnets | tag *tag-value*]

– DAÈ â

– D	£EÄ
bgp	¢ bgp G¡ Ú ×
connected	¢,ÈE²CÃ+ G¡ Ú ×

isis [*area-tag*]

Ÿ – DE¯> G! × Í bG¡ Ú ¥ OSPF ê ISIS CÃ+ È ¾ ÝG¡ Ú ¥,XCÃ+ $µC‡G!5B,Ìmatch ê level ,X?˜ í È ! aE¯> route-map ,X ø • Ä

G!5B _

_ 1 Ö ¹ ß Q ¸ ÚG¡ Ú × ospf *2* ` isis *isis-001* ,XCÃ+ OSPF ³ Y Ö

```
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
```

_ 2 ÖShow run / ,X4§ p V ß Ö

```
router ospf 1
redistribute ospf 2 match external 1 internal subnets
redistribute isis isis-001 level-1-2
```

,Ì G Q ¸

Q ¸	£EÄ
summary-address	G!5BOSPF CÃ+ ³ êF¼CÃ+ ,X" 6.CÃ + Ä
default-metric	A'5B OSPF G¡ Ú ×CÃ+ ,X5 ,ÕG£ z

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.46 router ospf

?U ï Î OSPF CÃ+ E¯/ß JE¯ 9OSPF CÃ+ G!5B õ ã ÈAË S*ü < G!5B Q ¸ router ospfÄÄQ ¸,X no 6 ã ôL8 Æ n ,X OSPF CÃ+ E¯/ß Ä

router ospf

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

no router ospf *process-id*

– DAÈ â

– D	£EÄ
process-id	OSPF E¯/ß Ë Ä þG!5BE¯/ß Ë Ê È></ G!5BE¯/ß1 Ä
vrf-name	ü Õ VRF ,X { • È*ü b Û nG!5B,X OSPF E¯/ß 2,X VRF

Û ÛAš ™NO Ô Ä"¼ ã+ b ¬ â È #A, YF¼ î . ûG£ Ø)Ú È ¹ á ôLc ã ¬CÃ+ A’ Û ÛAš È Â CÃ+ A’ Û ÛAš Ê î ¤/ ú.B n?U Â Ä ÎA, ü*ó ä LSA ! A’5B Q Û n,X router-id Ä

¹ ß,XG!5B _ $ È Â CÃ+ A’ Û,X router-id 0.0.0.36 Ä

G!5B _

summary-address " 6.,X OSPF CÃ+ ³,X êF¼CÃ+ Ä

Í b NSSA È summary-address Q ¸,Â ! ¾ ü NSSA ,X ABR Þ ;> Ý È5à è ¾ Í G¡ Ú ×CÃ+ E¯> " 6. Ä

G!5B _

¹ ßG!5B Q ¸ È Ú {*ó Ô 5 êF¼" 6.CÃ+ 100.100.0.0/16 Ä

```
redRuijie(config)# router ospf 20
Ruijie(config-router)# summary-address 100.100.0.  0 255.255.0.0
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# network 200.2.2.0 0.0.0.255  area 1
Ruijie(config-router)# network 172.16.24.0 0.0.0.255  area 0
Ruijie(config-router)# area 1 nssa
```

,Ì G Q ¸

Q ¸	£EÄ
area range	ü OSPF ³E•+ CÃ+ A' Û Þ .CÃ+ " 6. Ä
redistribute	G¡ Ú × J WCÃ+ E¯/ß,XCÃ+ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.49 timers lsa-group-pacing

A¹ Q ¸A'5B LSA >• Ú4˜¹ â Í H4˜E¯> „ ¹ ž5Õ ê,X,X ÊKÈJÒCÃ(Š Õ È „ ÊKÈ È¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

timers lsa-group-pacing *seconds*

no timers lsa-group-pacing

– DAÈ â

– D	£EÄ
seconds	LSA ,X È „ È õP` `Au1k È5Õ ê1 ,X ÊKÈKÈLh È ª 8× È: 10-1800 Ä

5 ,ÕG!5B 240 /¦ Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

!£ þ LSA FÑ Ý7¾ Å,X È „ `5Õ ê,X ÊKÈ(LSA age) ÈV p Í!£ þ LSA FÑ(À0ŸE¯>LSA ,X È „ `5Õ êAu1k È Ú#\5ë ûG£,X CPU C $d Ä Z Ý ý*ü CPU C $d È ÚA' Û Y LSA E¯ > 4³ Ô,X È „ `5Õ ê ¡ 0 Ä

È „5Õ ê ¡ 0,X5 ,ÕA'5B 4 ÚJs È Ã ¹EîE› Q ¸ Â A¹5 ,Õ ÄA¹ – D J áLÔ?U4£ A× H Ä ü LSA DG£ Ô n,X ™ ‰ ß È!9A× ÊKÈKÈLhC^ û È n Ê < ó$µ â Ø)Ú,X LSA DG£ C^ î Ä Z ± Õ CPU ,X0 n È å À ÎA,!£ õ ó$µ Ø)Ú,X LSA DG£ á p þ î È ¹ V p LSA DG£EW û È å À ÎA, |L! "!9A×KÈLh Ä!¨ V È D B g Ý 10000 5 LSA È Ã ¹L! " !9A× ÊKÈKÈLh È V p ¾ Ý40 100 5 È í Ã ¹A× H 10~20 ÚJs Ä

G!5B _

¹ ß,XG!5B _ $ È Ú!9A× ÊKÈA'5B 120 /¦ Ä

```
Ruijie(config)#router ospf 20
Ruijie(config-router)#timers lsa-group-pacing 120
```

,Ì G Q ¸

Q ¸	£EÄ
show ip ospf	¹,ß ospf ,X,Ì GG!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.1.50 timers spf

?UG!5BOSPF ü y § %,X ¬ ê µ C ÈE¯> SPF Au1k,X Ê Ê ÊKÈ È ¹ ž ø õ SPF Au1k,X ÊKÈKÈLh È Ã S*üCÃ+ E¯/ßG!5B Qtjmers spf ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

timers spf *spf-delay spf-holdtime*

no timers spf

– DAÈ â

– D	£EÄ
spf-delay	n SPF Au1k,X1 Y ÊKÈ È ¹/¦) ! È8× È 0-214748364 (/¦) ÄOSPF CÃ+ E¯/ß y § % ¬ ê È ™NO1 Û n,X ÊKÈ â È !E¯> SPF E¤1k Ä
spf-holdtime	n ø õ SPF E¤1k KÈ,X ÊKÈKÈLh È ¹/¦) ! È 8× È 0-214748364 (/¦) Ä1 Y ÊKÈ Z È ø õE¤1kKÈ Lh ÊKÈ"u ÈE¬ á6ÑE¯> SPF E¤1k Ä

5 ,ÕG!5B

5 ,Õ Ú ¹ ß ø/¡ ™ ‰ Ö

1 Ã ü RGOS 10.4 (! È á Õ timers throttle spf Q ¸ Ä2Ï4³5 ,Õ timers spf 5 10

2 ÃRGOS 10.4 (Ô Ÿ È Õ timers throttle spf Q ¸ Ä!8 Ê5 ,Õ ™ ‰ ß timers spf Q ¸ á*ó ÈSPF Au1k Ê Ê ¹ timers throttle spf Q ¸,X5 ,ÕG!5B š È –?• timers throttle spf Q ¸AÈ â Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

spf-delay ` *spf-holdtime* ÊKÈA’5B kC^ ã ÈOSPF EÖ h § % ¬ ê,X ÊKÈ 3C^-Á È 3 AÈ5%4° / ÊKÈC^-Á È î 4*üCÃ+ A’ Û È î,X CPU ÊKÈ Ä

spf-delay	n SPF Au1k,X1 Y ÊKÈ È ¹!¿/¦) ! È ª 8× È Ö1-600000 ÄOSPF CÃ+ E¯/ß y § % ¬ ê È?º ¥,X SPF Au1k7Ç å?U ü‰spf-delay ÊKÈKÈLh â ;> Ä
spf-holdtime	n ø õ SPF E¤1k KÈ,X Ô ã ÊKÈKÈLh È ¹!¿/¦) ! È ª 8× È Ö1-600000 Ä
spf-max-waittime	n ø õ SPF E¤1k KÈ,X Ô û ÊKÈKÈLh È ¹!¿/¦) ! È ª 8× È Ö1-600000 Ä

5 ,ÕG!5B

spf-delay Ö1000 !¿/¦ ×
spf-holdtime Ö5000 !¿/¦ ×
spf-max-waittime Ö10000 !¿/¦ Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

spf-delay ></ ¢ § % ¥*ó ¬ ê SPF Ô ŸAu1k È7Ç åLÔ?U ÊE³,X ÊKÈLÄÔ õ?º ¥ SPF Au1k 1 ` õ?º ¥ SPF Au1k,X Ô ã ÊKÈKÈLh *spf-holdtime* È !8 â ÈE²4Á?º ¥ SPF Au 1k,X ÊKÈKÈLh7Ç å Þ Ô õ ÊKÈKÈLh,X ø á È ' ÊKÈKÈLhE' *spf-max-waittime* â È Ú á a r t ÄV p ø õ SPF Au1k,X ÊKÈKÈLh Æ4£CYE› Z?U" ,X Ô ã ÈFwSPF Au1k Ê KÈKÈLh ÚG¡ „ ¢*spf-holdtime* Ô ŸAu1k Ä

spf-delay ` *spf-holdtime* Ã ¹A'5B ã o ¹ t ¿ § %,X / × *spf-max-waittime* Ã ¹A'5B û o ¹ £ å SPF Au1k È Ã ¹ B rL 5%4° § %0 n ûG› ª&I# A'5B Ä

â timers spf Q ¸,Ì!¨ ÈA¹ Q ¸6Ñ óE¯> È&I# ,XA'5B È¶ Ã ¹ t ¿ SPF Au1k /Eó z È œ Ã ¹ ü § %E²4Á ¬ ê Ê È Q,X £ å SPF Au1k,X2Ï4³C $d#\5ë È ¹ |9$ S*ü timers throttle spf Q ¸E¯> G!5B Ä

"¼ ã	1 Êspf-holdtime ,X á6Ñ ã b spf-delay È ú í spf-holdtime ,X Ú>• 7¾ |A'5B â spf-delay ,Ì1 × 2 Êspf-max-waittime ,X á6Ñ ã b spf-holdtime È ú í spf-max-waittime ,X Ú>•7¾ |A'5B â spf-holdtime ,Ì1 Ä 3 Êtimers throttle spf G!5B âtimers spf G!5B î f,Ì?Z,ª Ä 4 Ê ' timers spf â timers throttle spf FÑ þG!5B Ê È5 ,Õ –?• timers throttle spf G!5B,X5 ,Õ

G!5B _

¹ ß,XG!5B _ $ È Ú OSPF ,X SPF Au1k Ê Ê Ã Ô ã ÊKÈKÈLh Ã Ô û ÊKÈKÈLh Ú ÿA' 5 !¿/¦ Ã1000 !¿/¦ Ã90000 !¿/¦ Ä8¹ § %E²4Á ¬ ê È í SPF Au1k ÊKÈ Ú ÿ Ö 5ms È1s È3s È7s È15s È31s È63s È89s È179s È179+90

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 5 1000 90000
```

,Ì G Q ¸

Q ¸	£EÄ

show ip ospf	¹,ß ospf ,X,Ì GG!5B µ C
timers spf	G!5BSPF Au1k ÊE³ ÊKÈ Äü10.4 ! ,X RGOS (È Õ,X SPF Au1k ÊE³ Q ¸ Ä,Â ! |9$ S*ü timers throttle spf ª · timers spf G!5B

G ÄAÈ â ´

[redacted]

```
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
Graceful-restart disabled
Graceful-restart helper support 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
 V p OSPF â BFD 6( |, LÔ?U ü s Ý / ,X Y • Þ r t”BFD enabled”,        _ V ß Ö
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
```

```
Supports Graceful Restart
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
Graceful-restart disabled
Graceful-restart helper support enabled
Number of areas attached to this router: 1
BFD enabled
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
```

+!‰	AÈ â
Router ID	CÃ+ A’ Û ÛAš0ú Ä
Process uptime	OSPF E¯/ß*ó ,X ÊKÈ Ärouter-id 0.0.0.0 Ê E¯/ß á*ó ,X Å Ä
Bound to VRF	OSPF E¯/ß 2,X VRF Ä

Conforms to RFC2328	â RFC2328 Ô7È Ä
RFC1583Compatibility flag	üAu1k êF¼CÃ+ ÊG›*ü,X RFC1583 ?˜ íE¬ RFC2328 ,X?˜ í × üEÝ ½ Ô G,X ASBR `CÃ+ !¨ EW ÊA¹?˜ í Ú>•*ü Ä
Support Tos	¾ Õ TOS0 Ä
Supports opaque LSA	Õ opaque-LSA Ä
Graceful-restart	RFC3623 Graceful Restart £EÄ,X GR Restart 6Ñ o Ä
Graceful-restart helper	RFC3623 Graceful Restart £EÄ,X GR Help 6Ñ o Ä
Router Type	OSPF CÃ+ A' Û2O _ Ýnormal ÃABR ÃASBR Ä
SPF Delay	§ % ¬ êA×*ü SPF E¤1k ?U ÊE³,X ÊKÈ Ä
SPF-holdtime	ø õ SPF Au1k KÈ7Ç å?U4È Õ,X ÊKÈ Ä
LsaGroupPacing	LSA ,X È „ È õP` `Au1k È5Õ ê1 ,X ÊKÈKÈLh Ä
Incomming current DD exchange neighbors	!7 ü x f,XF• DG£ Èincomming ÛOj õE¯ 9 exstart (Š Õ,XF• Ä
Outgoing current DD exchange neighbors	!7 ü x f,XF• DG£ È outgoing Û ¢ ÈP¬(Š ÕEÔ ² exstart G¡ „ x f,XF• Ä
Number of external LSA	D B g , |,X êF¼ LSA ,X DG£ Ä
External LSA Checksum Sum	D B g , |,X êF¼ LSA ,X ”P` `,X ` Ä
Number of opaque LSA	D B g , |,X opaque-LSA ,X DG£ Ä
Opaque LSA Checksum Sum	D B g , |,X opaque-LSA ,X ”P` `,X ` Ä
Number of non-default external LSA	M25 ,ÕCÃ+ ,Xexternal-LSA ,X DG£ Ä
External LSA database limit	external-LSA DG£L$ Ä
Exit database overflow state interval	ø •/• Ô overflow (Š Õ,X ÊKÈ Ä
Database overflow state	' ! OSPF E¯/ß ú Ø b overflow (Š Õ Ä
Number of LSA originated	*ó ä,X LSA DG£ Ä
Number of LSA received	y ,X LSA DG£ Ä
Log Neighbor Adjency Changes	F• (Š Õ ¬ êA„) Ô G ú ' Ô Ä
Number of areas attached to this router	A¹CÃ+ A' Û Þ,X ³ D Ä
Area type	³2O _, Ý Default, Stub,NSSA Ä

Number of interfaces in this area	2 bA¹ ³,X y · D,Â Ä
Number of fully adjacent neighbors in this area	2 bA¹ ³,X Full ,XF• DG£ Ä
Number of fully adjacent virtual neighbors through this area	2 bA¹ ³,X Full ,X<.JÒ y,XF• DG£ ×¾ Ý üM2 P| F,XT¬Ax2O _,X ³ Ý Ä
Area authentication	³,XAxA• • ã Ä
SPF algorithm last executed	Þ õ SPF Au1k ,Â ! 4£E›,X ÊKÈ Ä
SPF algorithm executed times	SPF Au1k,X õ D Ä
Number of LSA	2 bA¹ ³,X LSA ,X ,X DG£ Ä
Checksum Sum	A¹ ³,X LSA ,X õP` `,X ` Ä
NSSA Translator State	ú Ú NSSA LSA E@ 6 External LSA × ™ Í NSSA È J è ABR ,X OSPF E¯/ß Ý Ä
BFD enabled	></ *ü OSPF â BFD 6(|

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.2.2 show ip ospf border-routers

?U / ABR/ASBR @ ABR/ASBR

h*üA¹ Q ¸ ÈÃ ¹ / CÃ+ A’ Û ABR ê ASBR OSPF ABR]T1.74.0.1 [(37-6)q 291.481(9 0

S*ü Û Đ

A¹ Q ¸,X á à ã / á àJÒCÃ(Š Õ £EÄ ÄLSAs Å µ C Ä

show ip ospf [*process-id area-id*] database [adv-router *ip-address* | {asbr-summary | external | network | nssa-external | opaque-area | opaque-as | opaque-link | router | summary } [*link-state-id*] [{adv-router *ip-address* | self-originate}] | database-summary | max-age | self-originate]

– DAÈ â

– D	£EÄ
area-id	Ä ÃEÝ Å / ,X ³ Ë Ä
adv-router	Ä ÃEÝ Å / + Û n @ CÃ+ A' Û*ó ä,XJÒCÃ(Š Õ £ EÄ µ C Ä
link-state-id	Ä ÃEÝ Å¾ / Û n OSPF JÒCÃ(Š Õ ÛAš,XJÒCÃ(Š Õ £EÄ µ C Ä
self-originate	Ä ÃEÝ Å / + CÃ+ A' Û7¾ Å*ó ä,XJÒCÃ(Š Õ £EÄ µ C Ä
max-age	Ä ÃEÝ Å / Æ 5Õ ê ÊKÈ,X LSA
router	Ä ÃEÝ Å / OSPF CÃ+ A' ÛJÒCÃ(Š Õ £EÄ µ C Ä
network	Ä ÃEÝ Å / OSPF 5%4°JÒCÃ(Š Õ £EÄ µ C Ä
summary	Ä ÃEÝ Å / OSPF ,?UJÒCÃ(Š Õ £EÄ µ C Ä
asbr-summary	Ä ÃEÝ Å / G b ASBR ,X ,?UJÒCÃ(Š Õ £EÄ µ C Ä
external	Ä ÃEÝ Å / OSPF êF¼JÒCÃ(Š Õ £EÄ µ C Ä
nssa-external	Ä ÃEÝ Å / OSPF 1 ×2O êF¼JÒCÃ(Š Õ £EÄ µ C Ä
opaque-area	Ä ÃEÝ Å / 1 2O LSA
opaque-as	Ä ÃEÝ Å / 1 Ô2O LSA
opaque-link	Ä ÃEÝ Å / 1 12O LSA
database-summary	Ä ÃEÝ Å / OSPF JÒCÃ(Š Õ D B g Ø/¡LSA 4³Au µ C Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð ' OSPF JÒCÃ(Š Õ D B g \ û ÊSÀÚA8 06TJ /Ú.C'A1,8 9 5 8 [1 0 6 2 B %8 7 C ä k r á 8 . 0 6 T J 0 0 C A 1 5

```
Router Link States (Area 0.0.0.0)
Link ID        ADV Router     Age  Seq#      CkSum  Link count
1.1.1.1        1.1.1.1        2    0x80000011 0x6f39 2
3.3.3.3        3.3.3.3        120  0x80000002 0x26ac 1
Network Link States (Area 0.0.0.0)
Link ID        ADV Router     Age  Seq#      CkSum
192.88.88.27    1.1.1.1        120  0x80000001 0x5366
Summary Link States (Area 0.0.0.0)
Link ID        ADV Router     Age  Seq#      CkSum  Route
10.0.0.0       1.1.1.1        2    0x80000003 0x350d 10.0.0.0/24
100.0.0.0      1.1.1.1        2    0x8000000c 0x1ecb 100.0.0.0/16
Router Link States (Area 0.0.0.1 [NSSA])
Link ID        ADV Router     Age  Seq#      CkSum  Link count
1.1.1.1        1.1.1.1        2    0x80000001 0x91a2 1
Summary Link States (Area 0.0.0.1 [NSSA])
Link ID        ADV Router     Age  Seq#      CkSum  Route
100.0.0.0      1.1.1.1      2    0x80000001 0x52a4 100.0.0.0/16
192.88.88.0    1.1.1.1      2    0x80000001 0xbb2d 192.88.88.0/24
NSSA-external Link States (Area 0.0.0.1 [NSSA])
Link ID    ADV Router    Age  Seq#      CkSum  Route        Tag
20.0.0.0     1.1.1.1     1    0x80000001 0x033c E2 20.0.0.0/24     0
100.0.0.0   1.1.1.1      1    0x80000001 0x9469 E2 100.0.0.0/28    0
AS External Link States
Link ID   ADV Router     Age  Seq#      CkSum  Route          Tag
20.0.0.0   1.1.1.1     380  0x8000000a 0x7627 E2 20.0.0.0/24    0
100.0.0.0    1.1.1.1    620  0x8000000a 0x0854 E2 100.0.0.0/28  0
```

show ip ospf database Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ OSPF JÒCÃ(Š Õ D B g,XCÃ+ A’ Û ÛAš0ú â OSPF Í h,XE¯/ß Ë
Router Link States	></ ¹ ß Y • CÃ+ A’ ÛJÒCÃ(Š Õ £EÄ µ C Ä
Net Link States	></ ¹ ß Y • 5%4°JÒCÃ(Š Õ £EÄ µ C Ä
Summary Net Link States	></ ¹ ß Y • ,?U5%4°JÒCÃ(Š Õ £EÄ µ C Ä
NSSA-external Link States	></ ¹ ß Y • 1 ×2O,X7¾"• ³ êF¼JÒCÃ(Š Õ £ EÄ µ C
AS External Link States	></ ¹ ß Y • 1 h2O,X7¾"• ³ êF¼JÒCÃ(Š Õ £ EÄ µ C Ä

Link ID	JÒCÃ ÛAš Ä
ADV Router	Eî A¹JÒCÃ(Š Õ £EÄ,XCÃ+ A' Û ÛAš Ä
Age	/ A¹JÒCÃ(Š Õ £EÄ,X , ü ÊKÈ Ä
Seq#	/ A¹JÒCÃ(Š Õ £EÄ,X c Ë È*ü b "# 5Õ,X êG¡ á ,X LSA Ä
Cksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä
Link-Count	/ CÃ+ A' ÛJÒCÃ(Š Õ £EÄ µ C ,XJÒCÃ,X DG£
Route	/ !8 LSA Ù ÿ,XCÃ+ µ C
Tag	/ A¹JÒCÃ(Š Õ £EÄ,X ÛA„ Ä

_ 2 Ö ¹ ß show ip ospf database asbr-summar y Q ¸,X / 4§ p Ö

```
Ruijie# show ip ospf database asbr-summary
OSPF Router with ID (1.1.1.35) (Process ID 1)
ASBR-Summary Link States (Area 0.0.0.1)
LS age: 47
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: ASBR-summary-LSA
Link State ID: 3.3.3.3 (AS Boundary Router address)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0xbe8c
Length: 28
Network Mask: /0
TOS: 0  Metric: 1
```

show ip ospf database asbr-summary Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ ¹ ß µ C Í h,XCÃ+ A' Û ÛAš0ú â OSPF Í h,XE¯/ß Ë
AS Summary Link States	></ ¹ ß / ,X AS ,?UJÒCÃ £EÄ µ C Ä
LS age	/ A¹JÒCÃ(Š Õ £EÄ,X , ü ÊKÈ Ä
Options	EÝNM Ä
LS Type	/ A¹JÒCÃ(Š Õ £EÄ,X2O _ Ä
Link State ID	/ A¹JÒCÃ(Š Õ £EÄ,XJÒCÃ ÛAš Ä
Advertising Router	/ A¹JÒCÃ(Š Õ £EÄ,XEî CÃ+ A' Û Ä
LS Seq Number	/ A¹JÒCÃ(Š Õ £EÄ,X c Ë Ä
Checksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä

Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä
Network Mask	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ‚X5%4° }-Õ Ä
TOS	TOS È‚Â ! ¾6Ñ 0 Ä
Metric	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ‚XG£ z Ä

_ 3 Ö ¹ ß show ip ospf database external Q ¸‚X / 4§ p Ö

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.35) (Process ID 1)
AS External Link States
LS age: 752
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external Q ¸ / 4§ p Ø +!‰‚X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ ¹ ß µ C Í h‚XCÃ+ A’ Û ÛAš0ú â OSPF Í h‚XE¯/ß Ë Ä Ä
Type-5 AS External Link States	></ ¹ ß µ C 7¾"• ³ êF¼JÒCÃ(Š Õ £EÄ µ C Ä
LS age	/ A¹JÒCÃ(Š Õ £EÄ‚X ‚ ü ÊKÈ Ä
Options	EÝNM Ä
LS Type	/ A¹JÒCÃ(Š Õ £EÄ‚X2O _ Ä
Link State ID	/ A¹JÒCÃ(Š Õ £EÄ‚XJÒCÃ ÛAš Ä
Advertising Router	/ A¹JÒCÃ(Š Õ £EÄ‚XEî CÃ+ A’ Û Ä
LS Seq Number	/ A¹JÒCÃ(Š Õ £EÄ‚X c Ë Ä
Checksum	/ A¹JÒCÃ(Š Õ £EÄ‚X õP` ` Ä
Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä

Network Mask	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,X5%4° }-Õ Ä
Metric Type	></ êF¼JÒCÃ2O _ Ä
TOS	TOS È,Â ! ¾6Ñ 0 Ä
Metric	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,XG£ z Ä
Forward Address	A¹,Â Û5%4°,X D B# G£ È Ú>•E@ ¥ A¹ IP Ä V pA¹ 0.0.0.0 Èí D B# G£ î>•E@ ¥ {*ó A¹JÒCÃ(Š Õ,XCÃ+ A' Û Ä
External Route Tag	êF¼CÃ+ ÛA„ È!£ þ êF¼CÃ+ FÑ Ý2 þ!¨(MCÃ+ ÛA„ ÄOSPF D• á S*üA¹CÃ+ ÛA„ È ü J WCÃ+ E¯/ßCÃ+ G¡ Ú ×OSPF CÃ+ Ê î h*ü Ä

_ 4 Ö ¹ ß show ip ospf database network Q ¸,X / 4§ p Ö

```
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: 0xTj/92 0 Td[i82 (address o02 0 0 1th: 32754 TD(Network Link Stat
 Area 0.011 Tf 0 Tw 14.97 1.97 1.551 Td [0.557 0 0E413E3CD2>6DF04TJ />>]TT1 352DA>634B08A
```

Checksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä
Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä
Network Mask	/ A¹JÒCÃ(Š Õ £EÄ Í h5%4°,X5%4° }-Õ Ä
Attached Router	/ A¹5%4° Þ E² y,XCÃ+ A' Û Ä

_ 5 Ö ¹ ß show ip ospf database route r Q ¸,X / 4§ p Ö

```
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 Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ ¹ ß µ C Í h,XCÃ+ A' Û ÛAš0ú â OSPF Í h,XE¯/ß Ë Ä
Router Link States	></ ¹ ß CÃ+ A' ÛJÒCÃ(Š Õ £EÄ µ C Ä
LS age	/ A¹JÒCÃ(Š Õ £EÄ,X , ü ÊKÈ Ä
Options	EÝNM
Flag	router ,X Û «
LS Type	/ A¹JÒCÃ(Š Õ £EÄ,X2O _ Ä
Link State ID	/ A¹JÒCÃ(Š Õ £EÄ,XJÒCÃ ÛAš Ä
Advertising Router	/ A¹JÒCÃ(Š Õ £EÄ,XEî CÃ+ A' Û Ä
LS Seq Number	/ A¹JÒCÃ(Š Õ £EÄ,X c Ë Ä
Checksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä

Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä
Number of Links	/ A¹CÃ+ A' Û G6(,XJÒCÃ D Ä
Link connected to	/ JÒCÃC³AÕE² y È ¹ ž5%4°2O _ Ä
(Link ID)	JÒCÃ ÛAš Ä
(Link Data)	JÒCÃ D B Ä
Number of TOS metrics	TOS È ¾ Õ TOS0 Ä
TOS 0 Metrics	TOS ÌG£ z Ä

_ 6 Ö ¹ ß show ip ospf database summar y Q ¸,X / 4§ p Ö

```
Ruijie# show ip ospf database summary
OSPF Router with ID (1.1.1.1) (Process ID 1)
Summary Link States (Area 0.0.0.0)
LS age: 499
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: summary-LSA
Link State ID: 10.0.0.0 (summary Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 80000004
Checksum: 0x330e
Length: 28
Network Mask: /24
TOS: 0  Metric: 11
```

show ip ospf database summary Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ ¹ ß µ C Í h,XCÃ+ A' Û ÛAš0ú â OSPF Í h,XE¯/ß Ë Ä
Summary Net Link States	></ ¹ ß ,?U5%4°JÒCÃ(Š Õ £EÄ µ C Ä
LS age	/ A¹JÒCÃ(Š Õ £EÄ,X , ü ÊKÈ Ä
Options	EÝNM Ä
LS Type	/ A¹JÒCÃ(Š Õ £EÄ,X2O _ Ä
Link State ID	/ A¹JÒCÃ(Š Õ £EÄ,XJÒCÃ ÛAš Ä
Advertising Router	/ A¹JÒCÃ(Š Õ £EÄ,XEî CÃ+ A' Û Ä
LS Seq Number	/ A¹JÒCÃ(Š Õ £EÄ,X c Ë Ä
Checksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä
Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä
Network Mask	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,X5%4° }-Õ Ä

TOS	TOS È,Â ! ¾6Ñ 0 Ä
Metric	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,XG£ z Ä

_ 7 Ö ¹ ß show ip ospf database nssa-external

TOS	TOS È,Â ! ¾6Ñ 0 Ä
Metric	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,XG£ z Ä
NSSA:Forward Address	A¹,Â Û5%4°,X D B# G£ È Ú>•E@ ¥ A¹ IP Ä V pA¹ 0.0.0.0 Èí D B# G£ î>•E@ ¥ {*ó A¹JÒCÃ(Š Õ,XCÃ+ A' Û Ä
External Route Tag	êF¼CÃ+ ÛA„ È!£ þ êF¼CÃ+ FÑ Ý2 þ!¨(MCÃ+ ÛA„ ÄOSPF D• á S*üA¹CÃ+ ÛA„ È ü J WCÃ+ E¯/ßCÃ+ G¡ Ú ×OSPF CÃ+ Ê î h*ü Ä

_ 8 Ö ¹ ß show ip ospf database external Q ¸,X / 4§ p Ö

```
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 Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Router with ID	/ ¹ ß µ C Í h,XCÃ+ A' Û ÛAš0ú â OSPF Í h,XE¯/ß Ë Ä
Type-7 AS External Link States	></ ¹ ß µ C 1 ×2O7¾"• ³ êF¼JÒCÃ(Š Õ £EÄ µ C Ä
LS age	/ A¹JÒCÃ(Š Õ £EÄ,X , ü ÊKÈ Ä
Options	EÝNM Ä
LS Type	/ A¹JÒCÃ(Š Õ £EÄ,X2O _ Ä
Link State ID	/ A¹JÒCÃ(Š Õ £EÄ,XJÒCÃ ÛAš Ä
Advertisin.3 g Router	/ A¹JÒCÃ(Š Õ £EÄ,XEî CÃ+ A' Û Ä

LS Seq Number	/ A¹JÒCÃ(Š Õ £EÄ,X c Ë Ä
Checksum	/ A¹JÒCÃ(Š Õ £EÄ,X õP` ` Ä
Length	/ A¹JÒCÃ(Š Õ £EÄ,XKS z È ¹ +8V) ! Ä
Network Mask	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,X5%4° }-Õ Ä
Metric Type	></ êF¼JÒCÃ2O _ Ä
TOS	TOS È,Â ! ¾6Ñ 0 Ä
Metric	/ A¹JÒCÃ(Š Õ £EÄ Í hCÃ+ ,XG£ z Ä
Forward Address	A¹,Â Û5%4°,X D B# G£ È Ú>•E@ ¥ A¹ IP Ä V pA¹ 0.0.0.0 Èí D B# G£ î>•E@ ¥ {*ó A¹JÒCÃ(Š Õ,XCÃ+ A' Û Ä
External Route Tag	êF¼CÃ+ ÛA„ È!£ þ êF¼CÃ+ FÑ Ý2 þ!¨(MCÃ+ ÛA„ ÄOSPF D• á S*üA¹CÃ+ ÛA„ È ü J WCÃ+ E¯/ßCÃ+ G¡ Ú ×OSPF CÃ+ Ê î h*ü Ä

_ 9 Ö ¹ ß show ip ospf database database-summary Q ¸,X / 4§ p Ö

```
Ruijie# show ip ospf database database-summary
OSPF process 1:
Router Link States      : 4
Network Link States     : 2
Summary Link States     : 4
ASBR-Summary Link States : 0
AS External Link States  : 4
NSSA-external Link States: 2
```

show ip ospf database database-summary Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
OSPF Process	/ ¹ ß µ C Í h,XCÃ+ E¯/ß Ë
Router Link	üA¹ ³ È OSPF CÃ+ A' ÛLSA ,X D,Â Ä
Network Link	üA¹ ³ È OSPF 5%4°LSA ,X D,Â Ä
Summary Link	üA¹ ³ È OSPF 5%4° ,?ULSA ,X D,Â Ä
ASBR-Summary Link	üA¹ ³ È OSPFASBR ,?U LSA ,X D,Â Ä
AS External Link	üA¹ ³ È OSPF êF¼LSA ,X D,Â
NSSA-external Link	A¹CÃ+ A' Û ,OSPF NSSA LSA ,X D,Â

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.2.4 show ip ospf interface

?U / â OSPF G6(,X y · µ C ÈAË S*ü(M *ü õ ã Q ¸ show ip ospf interface Ä

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

V pA¹ y ·,XF• *ü â BFD G6(ÈFw / Ê r t V ß µ C:

```
Ruijie# show ip ospf interface fa 1/0
FastEthernet 1/0 is up, line protocol is up
Internet Address 192.88.88.27/24, Ifindex 4, Area 0.0.0.0, MTU 1500
Matching network config: 192.88.88.0/24
Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State DR, Priority 1, BFD enabled
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* Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ä

+!‰	AÈ â
FastEthernet 0/0 State	A¹5%4° y ·,X(Š Õ È UP AÈ â!7 ¹ 0 È Down AÈ â Ý Lp Ä
Internet Address	y · IP Ä
Area	y · 2 OSPF ³ Ä
MTU	Í h,X MTU
Matching network config	Í h OSPF E¯/ß,X network area G!5B
Process ID	Í h,XE¯/ß Ë
Router ID	OSPF CÃ+ A' Û ÛAš Ä
Network Type	OSPF 5%4°2O _ Ä
Cost	OSPF y ·8…C Ä
Transmit Delay is	OSPF y · ôEg Ê Ê Ä
State	DR/BDR (Š Õ ÛAš Ä
Priority	A¹ y ·,X ì Œ{
Designated Router(ID)	A¹ y ·,X

Backup designated router(ID)	A¹ y ·,X BDR ,XCÃ+ A' Û ÛAš
BDR's Interface address	A¹ y ·,X BDR ,X y ·
Time intervals configured	y · Í h,X Hello ÈDead ÈWait ÈRetransmit ÊKÈ
Hello due in	Þ õ HELLO ¥EÕ,X ÊKÈ
Neighbor count	F• D
Adjacent neighbor count	Full ,XF• DG£
Crypt Sequence Number	y · Í h,X md5 AxA•,X c Ë
Hello received send	â ¥ Î,X HELLO y [4³Au Ä
DD received send	â ¥ Î,X DD y [4³Au Ä
LS-Req received send	â ¥ Î,X LS AË" y [4³Au Ä
LS-Upd received send	â ¥ Î,X LS È „ y [4³Au Ä
LS-Ack received send	â ¥ Î,X LS ¡ h y [4³Au Ä
Discard	>• ö ×,X OSPF y [4³Au Ä
BFD enabled	></ *ü OSPF â BFD 6(|

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

	AÈ â
-	-

37.2.5 show ip ospf neighbor

?U / OSPF ,XF• >< ÈAË S*ü(M *ü õ ã Q ¸ show ip ospf neighbor Ä

show ip ospf [*process-id*] neighbor [[detail] | [[*interface-type interface-number*] [*neighbor-id*]]] neighbor

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð A¹ Q ¸ Ã ¹ / F• ,X µ C È4£ *üA¹ Q ¸ 9.BAx OSPF ú Æ4£!7 E¤> Ä

¹ ß show ip ospf neighbor Q ¸,X / 4§ p Ö

```
Ruijie# show ip ospf neighbor
OSPF process 1, 1 Neighbors, 1 is Full:
Neighbor ID     Pri     State     BFD State       Dead Time
Address       Interface
3.3.3.3         1       Full/BDR   Up             00:00:32
192.88.88.72  FastEthernet 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 FastEthernet 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
Graceful-restart helper disabled
```

G!5B _

V pA¹F• â BFD G6(ÈFw / ,X Y • r t Z V ß,X µ C″ BFD session state up″

```
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  FastEthernet 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 FastEthernet 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
Graceful-restart helper disabled
BFD session state up
```

show ip ospf neighbor Q ¸ / 4§ p Ø +!‰,X £EÄ V ß Ö

+!‰

F• CÃ+ A’ ÛEÝ ,X DR ,X y · (G Hello y [

DR

process-id	OSPF E¯/ß Ë È ´!8 – D Ê / Ý OSPF CÃ+
count	/ Ø/¡ OSPF CÃ+ ,X4³Au µ C

?U / OSPF ÝG¡ Ú ×CÃ+ ,X" 6.CÃ+ ÈAË S*ü(M *ü õ ã Q ¸ show ip ospf summary-address Ä

show ip ospf [*process-id*] summary-address

– DAÈ â

– D	£EÄ
process-id	OSPF E¯/ß Ë È ´!8 – D Ê / Ý OSPF CÃ+ E¯ /ß

5 ,ÕG!5B

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð ,Â !A¹ Q ¸ ¾6Ñ ü NSSA ,X ABR Þ ;> ! Ý È5à è ¾ / ü ." 6. ¡ 0,XCÃ+ Ä

G!5B _

¹ ß show ip ospf summary-address Q ¸,X / 4§ p Ö

```
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
```

+!‰	AÈ â
Summary Address	" 6.,X
Summary Mask	" 6.,X8× È Ä
Advertise	ú @ A¹" 6.,XCÃ+
Status	A¹" 6.8× È ú*ó
Aggregated subnets	Ý î å êF¼CÃ+ >•" 6. üA¹8× ÈG M6

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

37.2.8 show ip ospf virtual-link

?U / OSPF <. ³JÒCÃ,X µ C ÈAË S*ü(M *ü õ ã Q ¸ show ip ospf virtual-link Ä

show ip ospf [*process-id*] virtual-links *ip-address*

– D	**£EÄ** £EÄ

Adjacency State	!«F•(Š Õ ÄFULL 0 n(Š Õ Ä

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38 BGP

38.1

38.1.1 address-family ipv4

S*üA¹ Q ¸E¯ 9 address-faimly IPv4 G!5BBGP ‚XG!5B õ ã Ä S*ü exit-address-family Q ¸EÔ Î BGP ‚X G!5B õ ã Ä

address-family ipv4 [unicast| multicast |]

no address-family ipv4 [unicast| multicast |]

– D	**£EÄ** a —

38.1.2 address-family ipv4 vrf

S*üA¹ Q ¸E¯ 9 address-faimly IPv4 VRF G!5BBGP ,XG!5B õ ã È' Ô ¤ þ vrf CÃ+ µ C x f s6Ñ Ä S*üA¹ Q ¸,Xno • ã È GKÁ â ¤ þvrf ,XCÃ+ µ C x f s6Ñ Ä S*ü exit-address-family Q ¸EÔ Î BGP ,X G!5B õ ã Ä

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*

– DAÈ â

– D	£EÄ
vrf-name	vrf ,X á +

5 ,ÕG!5B "u Ý n vrf £

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð ý*üA¹ Q ¸ Ô ŸG!5B Ä ê5ÙEÔ Î ÅPE ` CE KÈ,XCÃ+ µ C x 6 Ä LÔ?UEÔ ² BGP G!5B õ ã È Ã ¹ S*ü Q ¸ exit-address-family Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# address-family ipv4 vrf vpn1
```

,Ì G Q ¸

Q ¸	£EÄ
exit-address-family	EÔ Î õ ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.3 address-family ipv6

S*üA¹ Q ¸E¯ 9 BGP ,X address-faimly IPv6 G!5B õ ã È ' Ô BGP ,X IPv6 CÃ+ µ C x f s6Ñ ÄS*üA¹ Q ¸,X no • ã È GKÁBGP ,X IPv6 CÃ+ µ C x f s6Ñ ÄS*ü exit-address-family Q ¸EÔ Î BGP ,X £G!5B õ ã Ä

address-family ipv6 [unicast| multicast |]

no address-family ipv6 [unicast| multicast |]

– DAÈ â

– D	£EÄ
unicast	ÃEÝNM È¯ 9 IPv6) • £G!5B õ ã
multicast	ÃEÝNM È¯ 9PV6 î • £G!5B õ ã

5 ,ÕG!5B

) • !4Ô

Q ¸ õ ã

BGP G!5B õ ã

S*ü Û Ð

?UG!5BBGP ,X IPv6 F• È Ã ¹ S*üA¹ Q ¸E¯ 9 BGP ,X IPv6 £G!5B õ ã â È E¯> IPv6 F• ,XG!5B È3 Ã ¹ ü BGP G!5B õ ãG!5BIPv6 F• â Èü IPv6 £G!5B õ ã Ú F• %"# Ä

E¯ 9 multicast õ ã Ã ¹G!5B*ü b î • § ,X BGP µ C È î • § µ C*ü b IPV6 î •CÃ + #A,,X RPF "# Ä

LÔ?UEÔ ² BGP G!5B õ ã È Ã ¹ S*ü Q ¸ exit-address-family Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# address-family ipv6
```

,Ì G Q ¸

Q ¸	£EÄ
exit-address-family	EÔ Î õ ã

G ÄAÈ â

´

(Ë ,ÌT0 x1 @B„ Ž [redacted] Q VAG0

G!5BBGP Q ¸

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.7 bgp always-compare-med

S*üA¹ Q ¸A'5B BGP !¨EW Multi Exit Discriminator ÄMED Å Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁA¹ s6Ñ Ä

bgp always-compare-med

no bgp always-compare-med

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È!¨EW 97¾,Ì à AS ,X Í1 ',XCÃ X,X MED Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð 5 ,Õ ™ ‰ ß È ¾ Ý 97¾ à ÔAS ,X Í1 ',XCÃ X !!¨EW MED È V p | à ï 97¾ á à AS ,XCÃ XFÑ AŒ!¨EWMED È*üA¹ Q ¸ 9 r)„ Ä V p E' à Ô,Â,X , ü î 5 Ý CÃ X È MED 2 û ã,XCÃ X ì 4{P¬ Ä

L8M26Ñ ó.BAx á à,X7¾"•2Ï4³G›*ü Z à ,X IGP `CÃ+ EÝ ½ • ã È ú í á ÎA, S*ü!8 Q ¸ Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# bgp always-compare-med
```

Q ¸	£EÄ
show ip bgp	/ BGP CÃ+ ><NM Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.8 bgp bestpath as-path ignore

EÝ Ô ìCÃ X Ê È S*üA¹ Q ¸ Ú á5×<% AS CÃ X,XKS z Ä S*üA¹ Q ¸,X no EÝNM ÚA¹ Ú GKÁ A¹ s6Ñ Ä

bgp bestpath as-path ignore

no bgp bestpath as-path ignore

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È üEÝ ½ Ô ìCÃ X Ê5×<% ÆS CÃ XKS z Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð Ý'; Û š (RFC1771) r)„ ÈBGP E¯> Ô ìCÃ XEÝ Ê J á5×<% AS CÃ XKS z Ä Ô8 ™ ‰ ß ÈAS CÃ XKS zC^-Á ÈCÃ X ì 4{ hA¹C^P¬ È ¹ å À üE¯> Ô ìCÃ XEÝ Ê5×<% Z AS CÃ X,XKS z Ä | Ã ¹ ü B rL ™ ‰.B n üEÝ Ô ìCÃ X Ê ú5×<% AS CÃ XKS z Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# bgp bestpath as-path ignore
```

,Ì G Q ¸

Q ¸	£EÄ
show ip bgp	/ BGP CÃ+ ><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.9 bgp bestpath compare-confed-aspath

EÝ Ô ìCÃ X Ê ÈA¹ Q ¸ AŒ à ,X êF¼CÃ+ !¨EW6(,³,XASPATH CÃ XKS z È6(,³ Y ASPATH KS zC^ ã ÈCÃ X ì 4{C^P¬ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁA¹ s6Ñ Ä

bgp bestpath compare-confed-aspath

no bgp bestpath compare-confed-aspath

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B

5 ,Õ ™ ‰ ß ÈüEÝ ½ Ô ìCÃ X Ê Èá!¨EW 97¾ à Ô þ6(,³ YF¼ebgp peer CÃ+ ,XASPATH È 5à B J ª 5 Ê 9E¯> CÃ+ ìEÝ,X Ä

Q ¸ õ ã

BGP G!5B õ ã Ä

S*ü Û Ð

5 ,Õ ™ ‰ ß È ü ìEÝ 9 ü6(,³ YF¼ EBGP ,X peer E› 9,X,Ì àCÃ+ µ C Ê È Í b6(,³,X ASPATH áE¯> !¨EW ÈEîE›A¹ Q ¸ 9G!5BE¯> 6(,³,X ASPATH E¯> !¨EW Ä ü S*üA¹ Q ¸ Ê ÈAË"¼ ã V p Ô 5CÃ+ "u Ý ÿ Ý6(,³,X ASPATH È á6Ñ ó ÍE- 5CÃ+ E¯> 6(,³,X ASPATH ,X!¨EW,X Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# bgp bestpath compare-confed-aspath
```

,Ì G Q ¸

Q ¸	£EÄ
show ip bgp	/ BGP CÃ+ ><NM
bgp router-id	A'5B BGP ,X Router ID

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.10 bgp bestpath compare-routerid

EÝ Ô ìCÃ X Ê ÈA¹ Q ¸ AŒ à ,X êF¼CÃ+ !¨EWCÃ X,X router ID Èrouter ID C^ ã ÈCÃ X ì 4{C^P¬ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁA¹ s6Ñ Ä

bgp bestpath compare-routerid

no bgp bestpath compare-routerid

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È üEÝ ½ Ô ìCÃ X Ê È V p y ø 5 ¢ á à EBGP peers y 9,X ÝCÃ

Q ¸ õ ã	BGP G!5B õ ã Ä
S*ü Û Ð	ü6(,³,X ä , AS KÈ ôEæCÃ X,XMED 2 û,X È ü!¨EWCÃ XE›/ß	Ã ¹A'5B !¨EW A¹ Ä
G!5B _	Ruijie(config)# **router bgp** 65000 Ruijie(config-router)# **bgp bestpath med confed**

o VPNV4 CÃ+ E›$¸FÑ y Ä

' BGP G!5B Z Ô þ PE CÃ+ ¡ Ø v 0Ã Ê ÈBGP Í VPNV4 CÃ+ ,X Ø)Ú> FÑ Ý'; áEîE› route-targe E›$¸ 9 Ø)Ú È!8 Ê úG!5BA¹ Q ¸ BGP ,X> FÑ Ô7È,X È G á4£ E› route-targe E›$¸ Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# no bgp default route-targe filter
```

,Ì G Q ¸

Q ¸	£EÄ
neighbor route-reflector-client	G!5BCÃ+ ¡ Ø <,X v J Ú7¾D•G!5B CÃ+ ¡ Ø <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.14 bgp client-to-client reflection

A¹ Q ¸ ' ÔA' Û,X v 0Ã KÈCÃ+ ¡ Ø s6Ñ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁ v 0Ã KÈCÃ+ ¡ Ø s6Ñ Ä

bgp client-to-client reflection

no bgp client-to-client reflection

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B A' Û,XA¹NM s6Ñ ' Ô È "u ÝCÃ+ ¡ Ø,X v 0Ã Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð Eî ™ ‰ ß È5x Y,XCÃ+ ¡ Ø <,X v 0Ã KÈ J áLÔ?U Î0ŸE² y G2Ï ÈCÃ+ ¡ Ø < Ú ¡ Ø v 0Ã KÈ,XCÃ+ Ä È V p Ý v 0Ã KÈFÑ Æ4£ Î0Ÿ Z <E² y G2Ï È Ã ¹ ª#\ CÃ+ ¡ Ø < ¡ Ø v 0ÃCÃ+ ,X s6Ñ Ä

?U ª#\ ¡ Ø v 0ÃCÃ+ ,X s6Ñ È S*ü Q ¸ no bgp client-to-client reflection Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# no bgp client-to-client reflection
```

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.16 bgp confederation identifier

A¹ Q ¸G!5B AS 6(,³,X ÛAš0ú Ä S*üA¹ Q ¸,X no EÝNM Ú J 6 á5 ,ÕA'5B Ä

bgp confederation identifier *as-number*

no bgp confederation identifier

– DAÈ â

– D	£EÄ
as-number	AS 6(,³,X ÛAš0ú Ä8× È Ö 1..65535

5 ,ÕG!5B "u Ý6(,³ ÛAš0ú Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð

6(,³ º Ô/¡ £ å7¾"•2Ï4³ Y IBGP Í1 'E² y DG£,X •"© Ä
Ú Ô þ7¾"•2Ï4³ æ Ú î þ $7¾"•2Ï4³ È JEîE›A'5B Ô þ4³ Ô,X6(,³ ID(G6(,³ AS Ë)
ÚE- o $7¾"•2Ï4³4˜ ä Ô þ6(,³ Ä Í6(,³ êF¼ 9AÈ È H þ6(,³ ¡' Ax Ô þ AS È è ¾
Ý6(,³,X AS Ë Í ê Ã?• Äü6(,³ YF¼ È$7¾"•2Ï4³ YF¼,X BGP speakers KÈ ¡' Î0Ÿ
` < IBGP Í1 'E² y È $7¾"•2Ï4³KÈ,X BGP speaker KÈ Î0Ÿ EBGP E² y Ä<Q' ü $
7¾"•2Ï4³,X BGP speakers KÈ Î0Ÿ,X EBGP E² y È

A¹ Q ¸G!5B AS 6(,³,X ä , AS Ä S*üA¹ Q ¸,X no EÝNM Ú J ôL8 G!5B,X ä , AS Ä

bgp confederation peers as-number [*as-number*,…]

no bgp confederation peers as-number [*as-number*,…]

– DAÈ â

– D	£EÄ
as-number	6(,³ Y,X ä , AS Ä8× È Ö1..65535

5 ,ÕG!5B "u Ý6(,³ ä , Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð

no bgp default ipv4-unicast

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B T¬Ax ipv4-unicast £ Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð !8 Q ¸*ü 9A'5B BGP T¬Ax S*ü,Xaddress family ipv4) • Ä

G!5B _ `Ruijie(config-router)# bgp default ipv4-unicast`

,Ì G Q ¸

Q ¸	£EÄ
address-family ipv4	E¯ 9 IPv4 ,X õ ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.19 bgp default local-preference

S*üA¹ Q ¸A'5B5 ,Õ,X local-preference 2 û Ä S*üA¹ Q ¸ no EÝNM 9 Ú J 6 á5 ,Õ Ä

bgp default local-preference *value*

no bgp default local-preference

– DAÈ â

– D	£EÄ
value	ì 4{ 2 û Ä8× È Ö 0..4294967295

5 ,ÕG!5B 5 ,ÕA'5B,X ì 4{ 100 Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð

BGP S*ü Local preference 0 ¢ IBGP peers : 4 ,XCÃ XE¯> ì 4{!¨EW,X q B Ô ÈLocal preference C^ û ì 4{C^P¬ Ä

BGP speaker Ú y ,X êF¼CÃ+ ¥EÕ4- IBGP peers Ê#Ï t ì 4{ 2 û Ä

G!5BBGP Q ¸

show ip bgp	/ BGP CÃ+ ><NM Ä
bgp bestpath always-compare-med	EÝ Ô ìCÃ X Ê È AŒ!¨EW 97¾ á à AS ,X Í1 ',XCÃ X,X MED Ä
bgp bestpath med confed	EÝ Ô ìCÃ X Ê È AŒ!¨EW 97¾AS 6(,³ YF¼ Í1 ',XCÃ X,X MED Ä
bgp bestpath med missing-as-worst	EÝ Ô ìCÃ X Ê È AŒ Ú þA'5B MED 2 û,XCÃ X,X ì 4{A'5B Ô " Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.21 bgp enforce-first-as

A¹ Q ¸A'5B Ú ,X1 Ô þ AS_PATH CÃ X!‰ á F• G!5B,X AS Ë,X UPDATE #\ C ¦4± Ä S*ü no Q ¸ 9 Ú J GKÁ Ä

bgp enforce-first-as

no bgp enforce-first-as

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B A¹ s6Ñ ' Ô

Q ¸ õ ã BGP G!5B õ ã

S*ü Û Ð 5 ,Õ ™ ‰ ß È ü È „ UPDATE #\ C Ê È Ú7¾ Å,X AS Ë 9CÃ X!‰ Ä

G!5B _

```
Ruijie(config-router)# bgp enforce-first-as
```

,Ì G Q ¸

Q ¸	£EÄ
show ip bgp	/ BGP CÃ+ ><NM

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.1.22 bgp fast-external-fallover

A¹ Q ¸A'5B ',ÈE²,X EBGP peer Î0ŸE² y S*ü,X5%4° y · Ê È S*üA¹ Q ¸E™Eó GKÁ BGP îA±E² y Ä S*üA¹ Q ¸,X no EÝNM GKÁA¹ s6Ñ Ä

bgp fast-external-fallover

no bgp fast-external-fallover

– DAÈ â	– D	

ìL ™Gi ,XGi ÊKÈ

G!5B

– DAÈ â

– D	£EÄ
restart-time	GR Restarter à ï GR Helper ü â GR Restarter G¡ „ Î0ŸE² y !,X ÔKS1 Y ÊKÈ G!5B8× È 1 3600 /¦

5 ,ÕG!5B

T¬Ax 120 /¦

Q ¸ õ ã

BGP G!5B õ ã

S*ü Û Ð

G¡ ÊKÈ + GR Restarter Eî 4- GR Helper È></ GR Restarter à ï GR Helper ü â GR Restarter G¡ „ Î0ŸE² y !,X ÔKS1 Y ÊKÈ Ä GR Helper 8¹4£E›A¹ ÊKÈ â ¡ þ â GR Restarter Î0Ÿ BGP E² yE' Established (Š Õ È íAx A¹ BGP îA± Bù È Ú ;> !7 ,X BGP 6 áE›/ß Ä

A¹ Ú ü BGP ,X Open #\ C GR 6Ñ o +!‰ Eî ÈE-G J á?U" îA± ø0Ã,X GR G¡ Ê KÈG!5B Ô7È È |9$ Ô QG!5B Ô7È Ä

G!5B –

```
Ruijie(config)# router bgp 500
Ruijie(config-router)# bgp graceful-restart
Ruijie(config-router)# bgp graceful-restart restart-time 150
Ruijie(config-router)# no bgp graceful-restart restart-time
```

,Ì G Q ¸

Q ¸	£EÄ
bgp graceful-restart	Ô BGP ,X ìL™G¡ 6Ñ o

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

38.1.25 bgp graceful-restart stalepath-time

?UG!5BBGP ìL™G¡ ÊEY }A' Û ± ÕCÃ+ Ý û,X ÊKÈ È S*ü Q ¸ bgp graceful-restart stalepath-time ÄA¹ Q ¸,X no EÝNM 6 ástalepath-time T¬Ax Ä

bgp graceful-restart stalepath-time *time*

no bgp graceful-restart stalepath-time

– DAÈ â

– D	£EÄ

G!5B _

```
Ruijie(config-router)# bgp nexthop trigger delay 30
```

¸Ì G Q¸

Q¸	£EÄ
bgp nexthop trigger enable	' Ô nexthop ?º ¥ È „,X s6Ñ

	-	-

38.1.29 bgp redistribute-internal

A¹ Q ¸*ü 9 { BGP ¢ IBGP : 9,XCÃ+ ú AŒG¡ Ú ¥4- IGP #A, È V RIP ÃOSPF ÃSIS 1 Ä

bgp redistribute-internal

no bgp redistribute-internal

[redacted]		£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ßIBGP CÃ+ á AŒG¡ Ú ¥4- IGP #A, Ä

Q ¸ õ ã BGP G!5B õ ã ÈBGP ,X IPv4/IPv6 £G!5B õ ã È BGP ,X IPv4 VRF £G!5B õ ã Ä

S*ü Û Ð Q ¸*ü 9 { IBGP CÃ+ ú AŒG¡ Ú ¥4- IGP #A, Ä

G!5B _ `Ruijie(config-router)#`

ip-address	IP Ä

5 ,ÕG!5B 5 ,Õ ™ ‰ OjEÝA¹A' Û,X)ƒ ² y · È V p)ƒ ² y · á , üEÝ*üA¹A' Û,X route-id Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Đ Q ¸G!5BA' ÛE¤> BGP #A, Ê S*ü,XA' Û ID ü üIP

G!5B _ `Ruijie(config-router)#` **`bgp router-id`** 10.0.0.1

	Q ¸	£EÄ
,Ì G Q ¸	show ip bgp dampening dampened-paths	/ >• e!6,XCÃ+ µ C

38.1.33 bgp update-delay

?UA'5BBGP Speaker 1 Ô õ åF• ¥EÕ È „#\ C !,X Ô û ÊE³ ÊKÈ È S*bgp update-delay Q ¸ Ä S*üA¹ Q ¸,X no EÝNM •L8bgp update-delay ,XG!5B È J Ú ñ Ÿ ÊE³ 6 á T¬Ax Ä

ü BGP ìL™G¡ E›/ß È*ü b È „ ÊE³ ÊKÈ Ä

bgp update-delay *delay-time*

no bgp update-delay

– D	£EÄ
delay-time	ü BGP Speaker ¥EÕ J È „CÃ+ µ C !,X Ô û ÊE³ ÊKÈ È) ! /¦ ÈG!5B8× È 0 3600È5 ,Õ 120 /¦ Ä ü BGP ìL™G¡ E›/ß È 1 Y y ÝF• ,X EOR #\ C,X ÔKS ÊKÈ ÄG!5B8× È 1 3600 /¦ Ä

5 ,ÕG!5B 5 ,Õ 120 /¦

Q ¸ õ ã BGP G!5B õ ã

S*ü Û Ð

' BGP | Ê È WOj 1 Y Ô!‰ ÊKÈ â ª,XF• Î0ŸE² y È5à â åE- oF• ¥EÕ È „ y [Ä ü âF• Î0ŸE² y â È á î åF• P@ Þ ¥EÕ È „ y [È5à 1 Y Ô!‰ ÊKÈ È Y ` < y ÝF• ,X È „CÃ+ #\ C È5à â ;> CÃ+ ìEÝAu1k È a å W,XF• Eî CÃ+ È „ #\ C ÄE- .,X Q Ø ¤P¬ / ÊKÈ ÈL! "Au1k#\5ë Ä8¹EC Ê0Ÿ G å W,XF• Eî CÃ+ È „ µ C È í ª Ã6Ñ ´ ¢ J ªF• È ì,XCÃ+ È5à a õ ¥EÕCÃ+ È „#\ C Ä

bgp update-delay Q ¸*ü bA×8VEC Ê,X ñ Ÿ1 Y ÊKÈ ÈE- þ ÊKÈ ¢ â1 Ô þF• Î0Ÿ E² y ;> CÃ+ ìEÝAu1k J ¥EÕCÃ+ Eî ,X Ô û ÊKÈ Ä ü S6Ñ BGP ìL™G¡ 6Ñ o Ê È A¹ Q ¸ 3*ü b BGP ìL™G¡ s6Ñ 1 Y y ÝF• ,X EOR y [,X ÔKS ÊKÈ Ä 'F• E› î È ê5ÙF• ,XCÃ+ µ CG£E› û Ê È Ã ¹EÖ ' r ûA¹ Ä

G!5B –

ßM6,X _ $ / V) Â update-delay ,X ÊKÈ 200 /¦ Ö

```
Ruijie(config)# router bgp 500
Ruijie(config-router)# bgp graceful-restart
Ruijie(config-router)# bgp update-delay 200
```

,Ì G Q ¸

Q ¸	£EÄ
bgp graceful-restart	Ô BGP ,X ìL™G¡ 6Ñ o

(Ë	

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.1.35 clear bgp ipv4 unicast

E¯> BGP ,X IPv4) • £,X á ! ÄA¹ Q ¸ â clear ip bgp s6Ñ Ã – D ` < Ô7È Ä

– DAÈ â	– D	£EÄ
	AË –5×clear ip bgp Q ¸	AË –5×clear ip bgp Q ¸

5 ,ÕG!5B AË –5×clear ip bgp Q ¸

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð AË –5×clear ip bgp Q ¸

G!5B _ ´

,Ì G Q ¸	Q ¸	£EÄ
	clear ip bgp	E¯> BGP ,X IPv4) • £,X á !

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.1.36 clear bgp ipv4 unicast dampening

S*üA¹ Q ¸#ÙL8 95 µ C ` S>• e ,XCÃ+ ?·L8 e Ä

clear bgp ipv4 unicast dampening [*address* [*mask*]]

– DAÈ â	– D	£EÄ
	address	IP Ä
	mask	}-Õ Ä

5 ,ÕG!5B "u Ý5 ,ÕA’5B

Q ¸ õ ã (M õ ã

S*ü Û Ð Q ¸*ü 9#ÙL8 BGP ,XCÃ+ 95 µ C È S>• e ,XCÃ+ ?·L8 e ÄÆîE›!8 Q ¸ Ã ¹G¡ „ | BGP ,XCÃ+ 95 Ä

G!5B _ `Ruijie# clear bgp ipv4 unicast dampening 192.168.0.0 255.255.0.0`

,Ì G Q ¸

Q ¸	£EÄ
show ip bgp dampening dampened-paths	/ >• e!6,XCÃ+ µ C
bgp dampening	' ÔCÃ+ >D £ s6Ñ JA'5B>D £ – D

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.37 clear bgp ipv4 unicast external

S*üA¹ Q ¸ S Ý,X EBGP E² y á !

clear bgp ipv4 unicast external [[soft] [in | out]]

– DAÈ â

– D	£EÄ
in	á t – D soft È á ! Í1 ' Î0Ÿ |E² y,X îA± Ä
out	á t – D soft Èá ! BGP speaker Î0Ÿ |E² y,X îA± Ä
soft	EC á ! È ` Û n Í1 ' ¥,XCÃ+ µ CFÑ ;> EC á ! Ä
soft in	EC á ! È Í y ,XCÃ+ µ C ;> EC á ! Ä
soft out	EC á ! È Í Ú ¥,XCÃ+ µ C ;> EC á ! Ä

5 ,ÕG!5B "u Ý5 ,ÕA'5B Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ 9 S ¹,X Û n,X êF¼ BGP E² y á ! Ä

G!5B _

```
Ruijie# clear bgp ipv4 unicast external in
```

¸Ì G Q¸

Q¸	£EÄ
clear ip bgp	á ! BGP îA±
show ip bgp neighbors	/ BGP F• ,X µ C

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
-	-

:ast flap-statistics

ı µ C Ä

ɜtisticsaddresics

(Ë	AÈ â

E¯> BGP ,X IPv6) • £,X á ! Ä

A¹ Q ¸ â clear bgp ipv4 unicast s6Ñ,Ì È ¾ ¡ 0,X £ á à Ä

– DAÈ â

– D	£EÄ
AË –5×clear bgp ipv4 unicast Q ¸ Ä	AË –5×clear bgp ipv4 unicast Q ¸ Ä

5 ,ÕG!5B AË –5×clear bgp ipv4 unicast Q ¸ Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð AË –5×clear bgp ipv4 unicast Q ¸

G!5B _ ´

,Ì G Q ¸

Q ¸	£EÄ
clear bgp ipv4 unicast	E¯> BGP ,X IPv4) • £,X á !

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.41 clear bgp vpnv4 unicast

E¯> BGP ,X VPNV4) • £,X á ! Ä

A¹ Q ¸ â clear bgp ipv4 unicast s6Ñ,Ì È ¾ ¡ 0,X £ á à Ä

– DAÈ â

– D	£EÄ
AË –5×clear bgp ipv4 unicast Q ¸	AË –5×clear bgp ipv4 unicast Q ¸

5 ,ÕG!5B AË –5×clear bgp ipv4 unicast Q ¸

Q ¸ õ ã (M õ ã

S*ü Û Ð AË –5×clear bgp ipv4 unicast Q ¸

G!5B _ ´

¸Ì G Q ¸

Q ¸	£EÄ
clear bgp ipv4 unicast	E¯> BGP ,X IPv4) • £,X á !

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.42 clear ip bgp

S*üA¹ Q ¸E¯> BGP ,X IPv4) • £,X á ! Ä

clear ip bgp {* | *as number* } [soft [in | out]]

– DAÈ â

– D	£EÄ
*	á ! ' !,X Ý BGP îA± È ¹ ž BGP ipv4 unicast £ OVERFLOW (Š Õ Ä
address	á ! â Û n peer ,X BGP îA± Ä
as number	á ! ` Û n,X AS Ý ä ,,X îA±
in	Í y ,XCÃ+ µ C ;> EC á ! Ä
out	Í Ú ¥,XCÃ+ µ C ;> EC á ! Ä
soft	EC á ! È ` Û n Í1 ' ¥,XCÃ+ µ CFÑ ;> EC á ! Ä
soft in	EC á ! È Í y ,XCÃ+ µ C ;> EC á ! Ä
soft out	EC á ! È Í Ú ¥,XCÃ+ µ C ;> EC á ! Ä

5 ,ÕG!5B "u Ý5 ,ÕA'5B

Q ¸ õ ã (M õ ã

S*ü Û Ð ´AŽ " Ê í È ¾?UCÃ+ 1*+9 ê5Ù BGP ,XG!5B ¥*ó ¬ È ™NO ¤ o Ý ,X •"© S k „,X CÃ+ 1*+9 êG!5B6Ñ ó r ' Ä ô4³,X •"© GKÁ aG¡ „ Î0Ÿ BGP E² y ¹E' ,Â,X Ä { • ÕEîE›G!5B BGP ,XEC á ! È ü á GKÁ BGP îA±E² y,X ™ ‰ ß È Ý ,X r ' „

,XCÃ+ 1*+9 Ä

Í b á ÕCÃ+ „ s6Ñ,X peer È | Ã ¹ S*ü Q ¸ neighbor soft-reconfiguration inbound Û n,X!£ þ BGP Í1 ' ü BGP speaker Þ ± , Ô Ñ s Ÿ,XCÃ+ µ C ÄE-î#\5ëF¼ ÚC $d Ä

| Ã ¹EîE› show ip bgp neighbors Q ¸ 9 ø • BGP ,X| [illegible]

G!5B _ Ruijie# **clear ip bgp dampening** 192.168.0.0 255.255.0.0

Q¸	£EÄ
show ip bgp dampening dampened-paths	/ >• e!6,XCÃ+ µ C

– DAÈ â

– D	£EÄ
peer-group-name	Í1 '4˜,X á +
in	á t – D soft È á ! Í1 ' Î0Ÿ |E² y,X îA± Ä
out	á t – D soft È á ! BGP speaker Î0Ÿ |E² y ,X îA± Ä
soft	EC á ! È ` Û n Í1 ' ¥,XCÃ+ µ CFÑ ;> EC á ! Ä
soft in	EC á ! È Í y ,XCÃ+ µ C ;> EC á ! Ä
soft out	EC á ! È Í Ú ¥,XCÃ+ µ C ;> EC á ! Ä

5 ,ÕG!5B "u Ý5 ,ÕA'5B

Q ¸ õ ã (M õ ã

S*ü Û Ð A¹ Q ¸*ü á ! ` Í1 '4˜ Ý ä ,,X BGP îA± Ä

G!5B _

```
Ruijie# clear ip bgp peer-group my-group in
```

,Ì G Q ¸

Q ¸	£EÄ
clear ip bgp	á ! BGP îA±
show ip bgp	/ BGP CÃ+ ><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.47 clear ip bgp table-map

S*üA¹ Q ¸ È „ IPv4) • £ h*ü table-map ,XCÃ+ µ C Ä

clear ip bgp [vrf *vrf-name*] table-map

– DAÈ â

– D	£EÄ
vrf-name	vrf ,X á +

5 ,ÕG!5B "u Ý5 ,ÕA'5B

Q ¸ õ ã	(M õ ã
S*ü Û Ð	A¹ Q ¸*ü b È „ h*ü table-map ,XCÃ+ µ C Ä
G!5B _	Ruijie# **clear ip bgp table-map**

S*ü Û Ð A¹ Q¸*ü á ! ü vrf Ý ä ,,X BGP îA± Ä

G!5B _ `Ruijie# clear ip bgp vrf my-vrf in`

,Ì G Q¸

Q¸	£EÄ
clear ip bgp	á ! BGP îA±
show ip bgp	/ BGP CÃ+ ><NM

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

38.1.49 default-informnation originate

S*üA¹ Q¸ 9 SG¡ Ú ¥CÃ+ ,X Ê í È6Ñ óE¯> T¬AxCÃ+ ,XG¡ Ú"© Ä S*üA¹ Q¸,X no • ã È 9/U!6G¡ Ú ¥T¬AxCÃ+ Ä

[no] default-informnation originate

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B A¹ Q¸,X no • ã È áE¯> T¬AxCÃ+ ,XG¡ Ú ¥ Ä

Q¸õ ã BGP G!5B õ ã Ä

S*ü Û Ð A¹ Q¸*ü 9 { G¡ Ú ¥,XT¬AxCÃ+ Ä ¾ Ý üG¡ Ú ¥,XCÃ+ , üT¬AxCÃ+ ,X Ê í È !6Ñ ó,ß A¹ Q¸,X rL p Ä

A¹ Q¸` network Q¸\,Ì Äá à,X • Ö default-informnation originate Q¸ { G¡ Ú ¥,XT¬AxCÃ+ È5à network ,XT¬AxCÃ+ Q¸ ¾?UIGP , üT¬AxCÃ+ Ã ¹ ,X Ä

G!5B _ `Ruijie(config-router)# default-informnation originate`

,Ì G Q¸

Q¸	£EÄ
network	G!5BLÔ?U @ ,XCÃ+ µ C

	redistribute	G¡ Ú ¥ J W #A,,XCÃ+

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

38.1.50 default-metric

S*üA¹ Q ¸G!5B BGP G¡ Ú ¥CÃ+ Ê í,XT¬Ax metric Ä S*üA¹ Q ¸,X no • ã È 9 ôL8 G!5B,X È 6 áT¬Ax,X ¡ 0 Ä default-metric number no default-metric

– DAÈ â	**– D**	**£EÄ**

5 ,ÕG!5B A¹ Q ¸,X no • ã Èdefault-metric "u ÝE¯> A'5B Ä

Q ¸ õ ã BGP G!5B õ ã È Ø þ £G!5B õ ã Ä

A¹ Q ¸*ü 9G!5BG¡ Ú ¥,X BGP õ +,XCÃ+ ,X metric

S*ü Û Ð

-	-

38.1.51 distance bgp

S*üA¹ Q ¸ á à2O _,X BGP CÃ+ A’ n á à,X1u)ÚC±/• Ä S*ü no Q ¸ 9 6 á5 ,Õ Ä

distance bgp *external-distance internal -distance local-distance*

no distance bgp [*external-distance internal -distance local-distance*]

– DAÈ â

– D	£EÄ
external-distance	¢ EBGP peers : 4 CÃ+ ,X1u)ÚC±/• Ä8× È Ö 1..255
internal-distance	¢ IBGP peers : 4 CÃ+ ,X1u)ÚC±/• Ä8× È Ö 1..255
local-distance	¢ peers : 4 È >•Ax , ü Ã ¹ ¢ IGP : 4 È ì,XCÃ+ ,X1u)ÚC±/• ÈEî E- oCÃ+ EîE› network backdoor Q ¸></ Ä8× È Ö1..255

5 ,ÕG!5B

Ø – D,X5 ,Õ V ß Ö

external-distance É20

internal-distance É200

local-distance É200

Q ¸ õ ã

BGP G!5B õ ã Ä

S*ü Û Ð

å À J á |9$ | ¬ BGP CÃ+ ,X1u)ÚC±/• Ä V p.B r , üLÔ?U ÈAËFI ~ Ô ß ´&• Ö

1 Ô&• Œexternal-distance h '!¨ J ª IGP CÃ+ #A,(OSPF ÆRIP 1) ,X1u)ÚC±/• È " ×

1 `&• Öinternal-distance ` local-distance h '!¨ J ª IGP CÃ+ #A,,X1u)ÚC±/• ÈP¬ Ä

G!5B _

```
Ruijie(config-router)# distance bgp 20 20 200
```

,Ì G Q ¸

Q ¸	£EÄ
neighbor soft-reconfiguration inbound '(	BGP Í1
show ip bgp	/ BGP CÃ+ ><NM Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.52 exit-address-family

S*üA¹ Q ¸EÔ Î BGP ,X address-family G!5B õ ã Ä

exit-address-family

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã BGP ,X address-family G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸ Ã ¹ ¢ bgp ,X Ø/¡ address-family G!5B õ ã EÔ T!ÿQN0 C 7 =Â ð Á‘`ÒÅ€¡ T f„U•@$,G5€r

5 ,ÕG!5B	"u Ý n ë><
Q ¸ õ ã	G!5B õ ã Ä
S*ü Û Ð	G b!7 í><E' ãAº?•G!5B Û + ÉG!5B IP) CÃ+ Ê Ä
G!5B _	Ruijie(config-router)# **ip as-path access-list hsd deny** ^123$

,Ì G Q ¸

Q ¸	£EÄ
neighbor filter-list	Û n Í1 ' Þ h*ü as-path A"KÂ { ë><
neighbor distribute-list	Û n Í1 ' Þ h*ü Ú ¥ ë><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.54 maximum-prefix

A¹ Q ¸L$ £ ßCÃ+ µ C g,X !4Ô,X Ô û 5,Â D Ä S*üA¹ Q ¸,X no EÝNMEÝNM 6 áA¹ £ ßCÃ+ µ C g,X !4Ô Ô û 5,Â D,XT¬Ax Ä

maximum-prefix *maximum*

no maximum-prefix

– DAÈ â

– D	£EÄ
Maximum	£ ßCÃ+ µ C g,X !4Ô,X Ô û 5,Â D Ä 8× È<1 - 4294967295>
No	!8EÝNM></ 6 á Ô û 5,Â T¬Ax Ä

5 ,ÕG!5B

á à £ ßCÃ+ µ C g,X !4Ô,X Ô û 5,Â D,XT¬Ax á à Ö ipv4/ipv6 multicast £ ß ÈT¬Ax 10000.

J W £ ß ÈÙ À ipv4/ipv6 unicast È/pnv4 unicast, ipv4 vrf 1 T¬Ax *memory-limit.*

memory-limit (system-memory/256M)*100000 Ä system-memory 2Ï4³ Y , û ã Ä!¨ V2Ï4³ Y , 256M È í memory-limit ,X 100000 5 Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã ÈBGP ,X VPNv4 £G!5B õ ã

S*ü Û Ð

BGP ¤ £ ß,XCÃ+ µ C !4Ô Ý Ã6Ñ EîE› redistribute é 9,X È3 Ý Ã6Ñ ¢F• : 4 é 9,X È áAŽ ¾/¡ ™ ‰ È Ô ºA¹ £ ß,X BGP CÃ+ µ C !4ÔE' Ô û 5,Â D Ê È!8 £CÃ+ µ C !4Ô Ú á a r#|, A¹ £,X table E¯ 9 overflow (Š Õ È £ ß,X Ý F• 3FÑE¯ 9 overflow (Š Õ Ä

EîE› show bgp < £> summary Ã ¹,ß table žF• (Š Õ Ä

#ÙL8!8(Š ÕLÔ?UG¡ „G!5Bgp È ê S*ü clear bgp < £ > * á ! £ Ä

AÈ â £ Æ4£E¯ 9 overflow (Š Õ È á6ÑEîE›A× H maximum-prefix 9 Â!7 Ä

G!5B _

_ 1 Ö ¹ ß _ Z ipv4 multicast L$ BGP CÃ+ µ C g !4Ô Ô û 5,Â Ä

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# address-family ipv4 unicast
Ruijie(config-router-af)# maximum-prefix 65535
```

,Ì G Q ¸

Q ¸	£EÄ
clear bgp <*addressfamily*|all> *	BGP £ á !
show bgp < *addressfamily*|all > summary	/ BGP £ V?U µ C

G ÄAÈ â

-

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

38.1.55 neighbor activate

A¹ Q ¸ ü ' !,X õ ã ß%"# F• ê Í1 '4˜ Ä S*üA¹ Q ¸,X no EÝNM Ã ¹ Ú W 6 á ä5 ,Õ Ä

neighbor {*peer-address* | *peer-group-name*} activate

no neighbor {*peer-address* | *peer-group-name*} activate

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B 7 0 2 j

Q ¸ õ ã BGP G!5B õ ã

S*ü Û Ð V p | Û n Z BGP Í1 '4˜,X Ý ä ,FÑ Ú4» SA¹ Q ¸,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 60
Ruijie(config-router)# neighbor 10.0.0.1 remote-as 100
Ruijie(config-router)# neighbor 10.0.0.1 advertisement-interval 10
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.57 neighbor allowas-in

G!5BPE Ê È S*üA¹ Q ¸A} PE AŒ y Ù ÿ K Ý ` PE G¡ á AS Ë,X#\ C Ä S*üA¹ Q ¸,X no EÝNM Ã ¹ Ú W 6 á ä5 ,Õ Ä

neighbor {*peer-address* | *peer-group-name*} allowas-in number

no neighbor {[*peer-address* | *peer-group-name*} allowas-in

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
number	AŒ Î)„ AS ËG¡ á,X õ D È5 ,Õ 3 È ª 8× È ü[1,10] Ä

5 ,ÕG!5B 5 ,ÕA'5B"u Ý ' Ô allowas-in s6Ñ Ä

Q ¸ õ ã BGP G!5B õ ã ÈBGP IPv4 £G!5B õ ã ÈBGP ,X IPv4VRF £G!5B õ ã Ä

S*ü Û Ð L _,X h*ü ü spoke_hub õ _ È ü PE ÞG!5BA¹ Q ¸ È S k PE Ã ¹ y J a ¥EÕ Ò 4£Eî E›,X !4Ô Äü PE ÞG!5B ø þ vrf ÈA'5B J Ô þ vrf y Ý PE ,XCÃ+ µ C È JEî 4- CE È º ê Ô þ vrf y CE Eî ,XCÃ+ µ C È J å Ý PE Eî Ä

ü IBGP Í1 ' ê5Ù EBGP Í1 'FÑ Ã ¹E¯> A’5B Ä

Ruijie(config)# **router bgp** 60 config)# 13.773Tj /TT2neighbo 13.5.948Tj /TT2 (address

G!5B _

G!5B _

```
Ruijie(config)# router bgp 60
Ruijie(config-router)# neighbor 10.0.0.1 remote-as 100
Ruijie(config-router)# address-family ipv4 vrf vpn1
Ruijie(config-router-af)# neighbor 10.0.0.1 as-override
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.59 neighbor default-originate

A¹ Q ¸ AŒ BGP speaker å Í1 '(4˜) @ 5 ,ÕCÃ+ ÈS*üA¹ Q ¸,X no EÝNM Ã ¹ ª#\ ¥EÕ Ä

neighbor {*peer-address* | *peer-group-name*} default-originate [route-map *map-tag*]

no neighbor {*peer-address* | *peer-group-name*} default-originate [route-map *map-tag*]

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
map-tag	route map ,X á + Ä route map á áCYE› 32 +0ú Ä

5 ,ÕG!5B á ¥EÕ5 ,ÕCÃ+ Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸?U" EîE›G¡ Ú ¥ , ü5 ,ÕCÃ+ È !6Ñ ó åF• ¥EÕ5 ,ÕCÃ+ Ä
V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä ,FÑ Ú4» SA¹ Q ¸,XA'5B Ä V p |
Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 60
```

```
Ruijie(config-router)# neighbor 10.1.1.1 remote-as 80
Ruijie(config-router)# neighbor 10.1.1.1 default-originate
```

,Ì G Q¸

Q¸	£EÄ
router bgp	'Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 'Ä

router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' (4˜) Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.61 neighbor distribute-list

ü à Û n BGP Í1 ' ¥CÃ+ µ C Ê È B ACL r ‘CÃ+ 1*+9 Ä S*üA¹ Q ¸,X no EÝNM ª #\A’5B,X ACL Ä

neighbor {*peer-address* | *peer-group-name*} distribute-list *access-list-number* {in | out}

no neighbor {*peer-address* | *peer-group-name*} distribute-list *access-list-number* {in | out}

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
access-list-number	ACL ,X Ë
in	ACL h*ü b y ,XCÃ+ µ C Ä
out	ACL h*ü b Ú ¥ Î •,XCÃ+ µ C Ä

5 ,ÕG!5B "u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã È BGP ,X VPNv4 £G!5B õ ã

S*ü Û Ð ´AŽ ÍEg 9?˜ í(in) E¬ Eg Î?˜ í (out) È Ï) Ê í ÈA¹ Q ¸ ` neighbor prefix-list `5Ù á6Ñ E , È G ¾ Ý Ô 5 Q ¸ Ý Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä ,FÑ Ã ¹4» SA¹ Q ¸,XA’5B Ä V p | Í1 ',X ¤ þ ä ,A’5B neighbor distribute-list È J Ú?Z,ª Î b Í1 '4˜,XA’5B Ä E- þG!5B Î b £,X È Ã ¹ ü á à £ ÞG!5B á à,XE›$¸1*+9 ÈE¯> CÃ+ ,X { Ä

G!5B –

```
Ruijie(config)# router bgp 60
Ruijie(config-router)# neighbor 10.1.1.1 remote-as 80
```

**** Ruijie(config-router)# **neighbor** 10.1.1.1
distribute-list bgp-filter in

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A, Ä
neighbor remote-as	G!5BBGP ,X Í1 ' Ä
ip access-list	ï Î Û š IP ACL ê =) IP ACL Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.62 neighbor ebgp-multihop

A¹ Q ¸ AŒ àM2,ÈE²,X EBGP Í1 ' KÈ Î0Ÿ BGP E² y Ä S*üA¹ Q ¸,X no EÝNM ª#\A¹G!5B Ä

neighbor {*peer-address* | *peer-group-name*} ebgp-multihop [*ttl*]

no neighbor {*peer-address* | *peer-group-name*} ebgp-multihop

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
ttl	AŒ,X Ô ûCÇ D Ä8× È Ö1..255

5 ,ÕG!5B

¾ AŒ â,ÈE²,X EBGP Í1 ' Î0Ÿ BGP E² y Ä
A'5B ebgp-multihop Ê È V p á ú – D ÈFw ttl S*ü 255 Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

ZL !6 Î)„CÃ+)ƒCÃ ` 95)„B5 ÈÍLÔ?U îCÇ !6Ñ Î0Ÿ BGP E² y,X EBGP peers KÈ ™NO?U" , ü E' Í •,XM25 ,Õ,XCÃ+ Ä
V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1   remote-as 65100
Ruijie(config-router)# neighbor 10.0.0.1   ebgp-multihop
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.63 neighbor filter-list

A¹ Q ¸A'5B ü à Û n BGP Í1 ' ¥CÃ+ µ C Ê È S*ü Ô þCÃ+ E›$¸ Ä S*üA¹ Q ¸,X no EÝ NM ª#\A'5B,XE›$¸ Ä

neighbor {*peer-address* | *peer-group-name*} filter-list *access-list-number* {in | out}

no neighbor {*peer-address* | *peer-group-name*} filter-list *access-list-number* {in | out}

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä

```
Ruijie(config)# ip as-path access-list 1
```

G!5B _

5 ,ÕG!5B

"u Ý Í1 'G!5B Local AS Ä8¹ Í1 'G!5B Local AS È íT¬Ax ™ ‰ ß"u ÝG!5B Ï) Ã EÝNM È Í1 ' ¾6Ñ S*ü Local AS â A' Û Î0Ÿ BGP E² y È à Ê Ú î ü y ,XCÃ+ µ C ,X AS-PATH #Ï t Local AS È ü å Í1 ' ¥EÕCÃ+ µ C ! î Ú Local AS ¦ 9 ,Ì h ,X AS-PATH Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã È BGP ,X VPNv4 £G!5B õ ã Ä

S*ü Û Ð

Local AS ¾6Ñ üEBGP Í1 ' ÞG!5B È à Ê8¹ Í1 ',X 2 û ¥*ó ¬ ê V+ EBGP E@ IBGP ê6(,³ EBGP Ê È A¹ Í1 'G!5B,X Local AS ¹ ž,Ì h,XEÝNM Ú>• ôL8 ÄG!5B,X Local AS á6Ñ â BGP AS ,Ì à È á6Ñ âA¹ Peer ,X Remote AS ,Ì à È8¹G!5B Z6(,³ È í E¬ á6Ñ â6(,³ ID ,Ì à Ä V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» S A¹ Q ¸,XA'5B È | á6Ñ)(À Í1 ' ,X ¤ þ(M n ä ,A' n Local AS Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 remote-as 65100
Ruijie(config-router)# neighbor 10.0.0.1 local-as 23
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â

A¹ s6Ñ ü 10.4(1) ž â4Á(Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
10.4	Oj õ é 9

38.1.65 neighbor maximum-prefix

A¹ Q ¸L$ ¢ Û n BGP Í1 ' y 9,X !4Ô,X D,Â ÄS*üA¹ Q ¸,X no EÝNMEÝNM ª#\A'5B,X L$ Ä

neighbor {*peer-address* | *peer-group-name*} maximum-prefix *maximum* [*threshold*] [warning-only]

no neighbor {*peer-address* | *peer-group-name*} maximum-prefix

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä

peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
maximum	AŒ y ,XCÃ+ µ C,X 5,Â,X ÞL$ Ä
threshold	Û n Ô Ÿ {*óA: ` Ô û D,Â,X,R Ú!¨,X
warning-only	CÃ+ µ CE' ÞL$ Ê á4œ!6 BGP E² y È5à *ó ä Ô þ ¹ « µ C Ä

5 ,ÕG!5B

"u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

5 ,Õ ™ ‰ ß È V p y CÃ+ µ CCYE›A'5B,X ÞL$ È Ú GKÁ BGP E² y Ä V p | á à ï G KÁE² y ÈFw Ã ¹EîE›A'5B warning-only E¯> { Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 maximum-prefix 1000
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â

´

b –xC xc N÷89c"˜ 3…c¢ Vi ô €s8V:!A•f'/9 hfh Qïf„44 W†1 $ ¸"Cb 8DAtB Vi"…#g28U

peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B

"u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

Q ¸ ?U S*ü üM2 <5%(Š,X5%4° (V Frame Relay ÃX.25) È üE-2O5%4° È,Ì à $5% ,X BGP speakers KÈ á Ô n6Ñ ó ` <,È yA“KÂ Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä ,FÑ Ú4» SA¹ Q ¸,XA’5B Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 next-hop-self
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.67 neighbor next-hop-unchanged

A¹ Q ¸ Û â å Í1 '(4˜) ¥EÕCÃ+ Ê á Â ß ÔCÇ µ C ÄS*üA¹ Q ¸,X no EÝNM Ã ¹ ª#\A¹G!5B Ä

neighbor {*peer-address* | *peer-group-name*} next-hop-unchanged

no neighbor {*peer-address* | *peer-group-name*} next-hop-unchanged

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X
peer-group-name	Û n Í1 '4˜,X á + Í1 '4˜ á áCYE› 32 +0ú

next-hop-unchanged	å BGP Í1 ' Ä4˜ Å ¥EÕCÃ+ Ê È á ¬ ß ÔCÇ

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È åEBGP Í1 ' ¥EÕCÃ+ î ¬ ß ÔCÇ Ä

Q ¸ õ ã BGP G!5B õ ã ÈBGP IPV4 £G!5B õ ã ÈBGP VPN £ õ ã

S*ü Û Ð Neighbor next-hop-unchanged Q ¸*ü b { ü îCÇ,X EBGP Í1 ' îA±KÈ ô •,XCÃ+ µ C,X ß ÔCÇ á ¬ ÄA¹ Q ¸ á6Ñ üCÃ+ ¡ Ø < ÞG!5B È à Ê Í b Ô þCÃ+ ¥ Ø <,X v 0Ã ÈB¹ S6ÑA¹ s6Ñ í á6Ñ ü S*ü neighbor next-ho-self Q ¸ Â CÃ+ ,X ß ÔCÇ µ C ÄA¹ s6Ñ,Â ! ?U h*ü üC¼ ³ VPN ÄüC¼ ³ VPN h*üG›*ü OptionCÄMultihop MP-EBGP Å ,X r)„ • È Z £ åC¼ ³ VPN ,X PE KÈ <,ÌE² È Ã ¹ ü!£ þ7¾"• ³ YA'5B Ô ÄCÃ+ ¡ Ø < ÈA} á à7¾"• ³,XCÃ+ ¡ Ø <KÈ Î0Ÿ Multihop MP-EBGP E² y È x f VPN CÃ+ Ä + bT¬Ax ™ ‰ ß åEBGP Í1 ' ¥EÕ Ê î Â ß ÔCÇ 7¾D• ÈE- î Ð7È J ª7¾"• ³,X PE 0-&• Ô â y « VPN CÃ+ Ê ÈAx VPN CÃ+ ,X Ô4œ ß ÔCÇ CÃ+ ¡ Ø < ÈE- ÚEô ä ÝC¼ ³,X VPN # G£FÑ4£E› ¡ Ø < Ä Eî E- J á Ô ì ê,XE@ ¥CÃ X È à Ê Í RR ,XE@ ¥ û6Ñ 3 ¤ Î ÈP¬,X?U" Ä ZFS ! ÞEÄ ™ ‰ È üCÃ+ ¡ Ø < Î0ŸC¼ ³,X Multihop MP-EBGP E² y Ê È Ã ¹ ü VPNv4 £ õ ã ß È S*ü Q ¸ neighbor next-hop-unchanged G!5B ¥4- BGP Í1 ',X VPNv4 CÃ+ ,X ß ÔCÇ á ¬ Ä

G!5B _

```
Ruijie(config)# router bgp 60
Ruijie(config-router)# address-family vpnv4
Ruijie(config-router-af)# neighbor 10.1.1.1 next-hop-unchanged
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' (4˜)

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4(2)	„ r Q ¸

38.1.68 neighbor password

ü à Û n BGP Í1 ' Î0Ÿ BGP E² y Ê È S*üA¹ Q ¸ | TCP MD5 AxA• È JA'5B š-Õ Ä S *üA¹ Q ¸,X no EÝNM ª#\MD5 AxA• Ä

neighbor {*peer-address* | *peer-group-name*} password [| 0 | 7] *string*

no neighbor {*peer-address* | *peer-group-name*} password

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
0	š-Õ / á t š Ä
7	š-Õ t š / Ä
string	S*ü TCP MD5 AxA•,X š-Õ Ä 8× È Ö Ô î 80 þ +0ú Ä

5 ,ÕG!5B

"u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

Q ¸ ÚA×*ü TCP ,X MD5 AxA• È Î0Ÿ BGP E² y,X BGP Í1 ' ™NOA'5B,Ì à,X š-Õ È ú í È ´"© Î0ŸF• ÄA'5B Q ¸ â È BGP speaker Ú à BGP Í1 'G¡ „ Î0Ÿ BGP E² y Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

á1u ü ¾ þ õ ã ßE¯> G!5B È Ô þF• ,X password ¾6Ñ ó Ý Ô þ È á î !£ þ £ Ô þ,X Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 password Red-Giant
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.69 neighbor peer-group (assigning members)

A¹ Q ¸ Ú Û n BGP Í1 'A'5B BGP Í1 '4˜,X ä , ÄS*üA¹ Q ¸,X no EÝNM Ú Û n,ØBGP Í1 ' ¢ Í1 '4˜ ôL8 Ä

neighbor *peer-address* peer-group *peer-group-name*

no neighbor *peer-address* peer-group *peer-group-name*

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B ü Í1 '4˜ á , ü Í1 ' Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð Í1 '4˜,X ä ,6Ñ ó4» S Í1 ',X ÝG!5B Ä

AŒ Í1 '4˜,X!£ þ ä ,)(ÀG!5B ¢5à ª · Í1 '4˜,X4³ ÔG!5B È E- o)(ÀG!5B,X µ C á Ù ÿFw o E ¡Eg Î È „XG!5B µ C Ä AÈ È Í1 '4˜,X!£ þ ä , Ú Ô,È4» S Í1 '4˜,X V ßG!5B Ö remote-as Ãupdate-source Ã local-as Ãreconnect-interval Ãtimes Ã advertisemet-interval Ã default-originate Ãnext-hop-self Ãremove-private-as Ã send-community Ãdistribute-list out Ãilter-list out Ãprefix-list out Ãoute-map out Ã unsuppress-map Ãroute-reflector-client Ä

"¼ ã	á6Ñ ó Ú á à £,XF• 9,Ì à,X peer-group È 3 á6Ñ ó Ú IBGP ` EBGP 9 ,Ì à,X peer-group Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor Red-Giant peer-group
Ruijie(config-router)# neighbor 10.0.0.1   peer-group Red-Giant
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A, Ä
neighbor remote-as	G!5BBGP ,X Í1 ' Ä
neighbor peer-group (creating)	ï Î BGP ,X Í1 '4˜ Ä
show ip bgp peer-group	/ BGP Í1 '4˜,X µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.70 neighbor peer-group (creating)

A¹ Q ¸ ï Î BGP ,X Í1 '4˜ Ä S*üA¹ Q ¸,X no EÝNM ôL8 Û n,X Í1 '4˜ ` J Ý ä , Ä

neighbor *peer-group-name* peer-group

no neighbor *peer-group-name* peer-group

– DAÈ â

– D	£EÄ
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B "u Ý ï Î BGP Í1 '4˜ Ä

Q ¸ & ¸ ï HÛ n [illegible]A42136<3442103D2C581354.0

38.1.71 neighbor prefix-list

ü à Û n BGP Í1 ' ¥CÃ+ µ C Ê È S*üA¹ Q ¸ B !4Ô ë>< r 'CÃ+ 1*+9 Ä S*üA¹ Q ¸,X no EÝNM ª#\A'5B,Xprefix-list Ä

neighbor {*peer-address* | *peer-group-name*} prefix-list *prefix-list-name* {in | out}

no neighbor {*peer-address* | *peer-group-name*} prefix-list {in | out}

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
prefix-list-name	prefix-list ,X á + Ä !4Ô ë>< á áCYE› 32 +0ú Ä
in	prefix list h*ü b y ,XCÃ+ µ C Ä
out	prefix list h*ü b Ú ¥ Î •,XCÃ+ µ C Ä

5 ,ÕG!5B

"u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã

BGP G!5B õ ã ÈBGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã ÈBGP ,X VPNv4 £G!5B õ ã Ä

S*ü Û Ð

´AŽ ÍEg 9?˜ í(in) E¬ Eg Î?˜ í (out) È Ï) Ê í ÈA¹ Q ¸ ` neighbor distribute-list `5Ù á6Ñ E , È G ¾ Ý Ô 5 Q ¸ Ý Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5B neighbor prefix-list in È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

E- þG!5B Î b £,X È Ã ¹ ü á à £ ÞG!5B á à,XE›$¸1*+9 ÈE¯> CÃ+ ,X { Ä

G!5B _

```
Ruijie(config)# ip prefix-list bgp-filter deny 10.0.0.1/16
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 prefix-list bgp-filter in
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä
ip prefix-list	ï Î ip !4Ô ë><

G ÄAÈ â

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.1.72 neighbor remote-as

A¹ Q ¸G!5B BGP Í1 '(4˜) Ä S*üA¹ Q ¸,X no EÝNM ôL8G!5B,X Í1 '(4˜) Ä

neighbor {*peer-address* | *peer-group-name*} remote-as *as-number*

no neighbor {*peer-address* | *peer-group-name*} remote-as *as-number*

– DAÈ â	– D	£EÄ
	peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
	peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
	as-number	BGP Í1 ' (4˜) 7¾"•2Ï4³ Ë Ä8× È Ö1..65535

5 ,ÕG!5B "u ÝG!5B BGP Í1 ' Ä

Q ¸ õ ã BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä ,FÑ Ú4» SA¹ Q ¸,XA'5B Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 remote-as 80
```

,Ì G Q ¸	Q ¸	£EÄ
	router bgp	' Ô BGP #A,

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.1.73 neighbor remove-private-as

A¹ Q ¸ ôL8 ¥ T Û n,X EBGP Í1 ',XCÃ+ ,X AS CÃ X 2 û A„),X/• Ý AS Ë Ä S*üA¹ Q ¸,X no EÝNM ª#\A¹A'5B Ä

neighbor {*peer-address* | *peer-group-name*} remove-private-as

no neighbor {*peer-address* | *peer-group-name*} remove-private-as

– DAÈ â

– D	**£EÄ**
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + ÄÍ1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B

A¹ s6Ñ GKÁ

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

Q ¸ ¾ Í EBGP Í1 ' Ý Ä V p AS CÃ X Ù ÿ,X/• Ý AS Ë Ú?U ¥EÕ,X ˜EBGP Í1 ',X AS Ë È Ú á ôL8A¹ AS Ë Ä/• Ý AS Ë,X8× È ²@ÐÐ@Ñ@ @ ™Ë*¦ƒPÖTwŒ "@Ð

peer-address	Í Û n,XF• ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
map-tag	G!?˜ í,X á + Ä
in	Í bE¯ 9,XCÃ+ S*ü?˜ í Ä
out	Í b Î •,XCÃ+ S*ü?˜ í

5 ,ÕG!5B "u Ý5 ,ÕA'5B Ä

Q ¸ õ ã BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã È BGP ,X VPNv4 £G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸ Ã ¹ Í á à,XF• S*ü á à,X Î 9?˜ í ÍEg 9 `Eg Î,XCÃ+ E¯> E›$¸ Ä Ã ¹E' ” êCÃ+ ` { CÃ+ ,X p Ä
E- þG!5B Î b £,X È Ã ¹ ü á à £ ÞG!5B á à,XE›$¸1*+9 ÈE¯> CÃ+ ,X { Ä

G!5B _ `Ruijie(config-router)# **neighbor ip-address route-map map-tag in**`

	peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä

5 ,ÕG!5B "u Ý ' ÔA¹ s6Ñ

Q ¸ õ ã BGP G!5B õ ã

S*ü Û Ð 5 ,Õ ™ ‰ ß È¾"•2Ï4³ YF¼,X Ý IBGP speakers ™NO Î0Ÿ ` <F• y G2Ï ÈBGP speaker J á Ú ¢ ¤ Ô IBGP peer : 4 ,XCÃ+ E@ ¥4- J ª IBGP peers È ¹L !6 Î)„CÃ+ )ƒCÃ Ä Ã ¹EîE› Q ¸A'5BCÃ+ ¡ Ø < ÈE- á a?U" Ý,X IBGP speakers KÈ Î0Ÿ ` <F• y G2Ï È Ú AŒCÃ+ ¡ Ø < Ú : 4 ,X IBGP CÃ+ E@ ¥4- J ª IBGP peers Ä

174f 2.007 0 Td ( ) re f 027 726.687.364 68.64 re

G!5B _

```
Ruijie(config)# router bgp
```

peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B	"u Ý ' ÔA¹ s6Ñ Ä
Q ¸ õ ã	BGP G!5B õ ã ÈBGP ,X IPv4 £G!5B õ ã ÈBGP ,X VPNv4 £G!5B õ ã Ä
S*ü Û Ð	S*üA¹ Q ¸ Ã ¹ AŒ BGP ¥ ×CÃ+ Ê ú MPLS label µ C È ™NO ü Í1 ' ø0ÃFÑA'5B !8 Q ¸ ÄG!5BA¹ Q ¸ ™NO üF• G¡ â !*ó Ä ü BGP õ ã ßG!5BA¹ Q ¸ ÈT¬Ax ¾J\ Í ipv4 unicast £*ó Ä Í b AS E•+ CÃ+ < È ¾ ÝG!5B Z!8 Q ¸ !6Ñ r)„ AS E•+ Þ ,X MPLS Û1RE@ ¥ Ä

G!5B _	`Ruijie(config)# router bgp 100`
	`Ruijie(config-router)# neighbor 192.168.0.1 remote-as 101`
	`Ruijie(config-router)# neighbor 192.168.0.1 send-label`

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.78 neighbor shutdown

A¹ Q ¸ GKÁ à Û n,X BGP Í1 ' Î0Ÿ,X BGP E² y Ä S*üA¹ Q ¸,X no EÝNMG¡ „ | BGP Í1 '(4˜) Ä

neighbor {*peer-address* | *peer-group-name*} shutdown

no neighbor {*peer-address* | *peer-group-name*} shutdown

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X ÈE- þ Ã6Ñ IPv4 È 3 Ã6Ñ IPv6 Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä

5 ,ÕG!5B	"u Ý ' ÔA¹ s6Ñ Ä

Q ¸ õ ã

BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð

S*ü Q ¸ Ú GKÁ à Û n,X Í1 ' (4˜) Î0Ÿ,X Ý E² y È J ôL8 Ý G6(,XCÃ+ µ C Ä Q ¸ ¡' ±+- Û n Í1 '(4˜),XG!5B µ C Ä

V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 60
Ruijie(config-router)# neighbor 10.0.0.1    shutdown
```

Q ¸	£EÄ

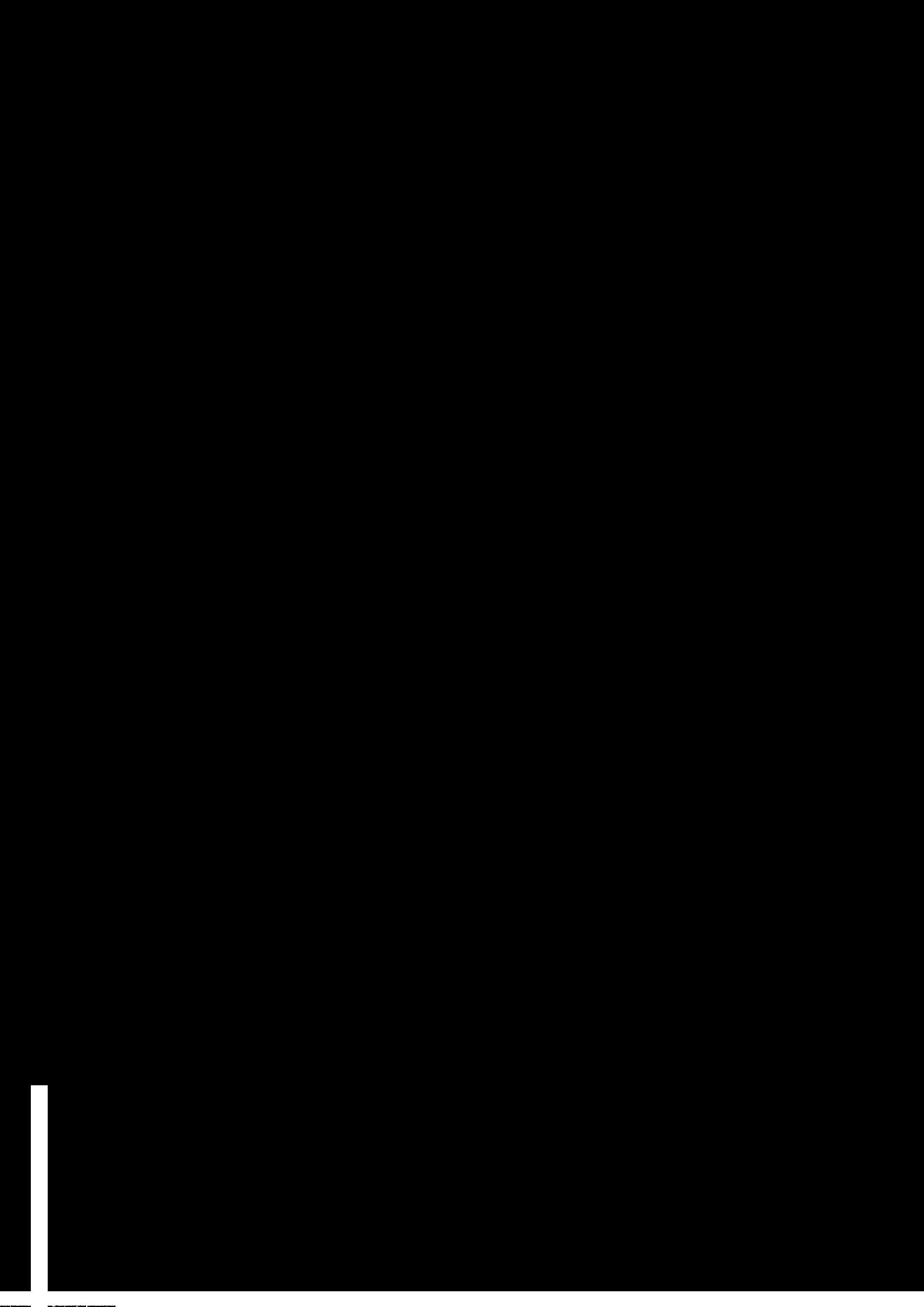
router bIP [<05532B9>2714D40 1 Tf -0.0013 Tc -.239 02Td (IPv6)Tj/C2_0 1 Tf 0 Tc 2.-c 2 Tr 10.Td <

;> Q ¸ Ú#\5ë È î,X Y , È V p •FÑ6Ñ ÕCÃ+ „ û6Ñ ÈFw áLÔ?U ;> Q ¸ È | Ã ¹EîE› show ip bgp neighbors ø • Í1 ' ú6Ñ ó ÕCÃ+ „ û6Ñ Ä V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# neighbor 10.0.0.1 soft-reconfiguration inbound
```

Q ¸	£EÄ
router bgp	' Ô BGP #A,



5 ,ÕG!5B	*keepalive*: 60 /¦ *holdtime*: 180 /¦
Q ¸ õ ã	BGP G!5B õ ã

Ü)Ú,X keepalive á6Ñ û b holdtime ,X Ý Ú Ô Ä
V p) þ peer ê peer-group

S*ü Û Ð

Q ¸ õ ã	BGP G!5B õ ã Ä
S*ü Û Ð	Q ¸ AŒ @ Û n,X>• e ,XCÃ+ Ä V p | Û n Z BGP Í1 '4˜ ÈFw Í1 '4˜,X Ý ä , Ú4» SA¹ Q ¸,XA'5B È V p | Í1 ',X ¤ þ ä ,A'5BA¹ Q ¸ È J Ú?Z,ª Î b Í1 '4˜,XA'5B Ä
G!5B _	Ruijie(config)# **router bgp** 65000 Ruijie(config-router)# **neighbor** 10.0.0.1 **unsuppress-map unspress-route**

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä
aggregate-address	G!5B6. Ü
route-map	G!5Broute-map

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.83 neighbor update-source

ü à Û n IBGP Í1 ' Î0Ÿ BGP E² y Ê ÈS*üA¹ Q ¸A'5B Î0Ÿ BGP E² y Ê S*ü,X5%4° y · Ä S*üA¹ Q ¸,X no EÝNM Ú7¾ | G! Ô ì,X y · Ä

neighbor {*peer-address* | *peer-group-name*} update-source *interface-type interface-index*

no neighbor {*peer-address* | *peer-group-name*} update-source *interface-type interface-index*

ce-type(&B (&B †)0•A˜b“ (&@„ …•(A˜à…!Îã' Q dï R †)0•D$ Vï°Â ð l! Q 6t ™(&E1ã,dS †)5# ˜b“R0 (&

5 ,ÕG!5B	S*ü Ô ì,X y · 0 Eg Î y · Ä
Q ¸ õ ã	BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä
S*ü Û Đ	EîE› Q ¸ | Ã ¹ S*ü loopback y · à BGP Í1 ' Î0Ÿ BGP E² y Ä V p | Û n Z BGP

S*ü Û Ð S*üA¹ Q¸¹ â ÈBGP #A, Ú •(# ,X s6Ñ Ä

G!5B _ `Ruijie(config-router)# neighbor 10.1.1.1 version 3`

¸Ì G Q¸

Q¸	£EÄ
router bgp	' Ô BGP #A,
neighbor remote-as	G!5BBGP ,X Í1 ' Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

38.1.85 neighbor weight

A¹ Q¸AÈ â(M n,X BGP F• S*ü,X G¡ ÄS*üA¹ Q¸,X no EÝNM 9 ª#\F• ,X G¡ ,XA' 5B Ä

neighbor {*peer-address*|*peer-group-name*} weight *number*

no neighbor {*peer-address*|*peer-group-name*} weight

– DAÈ â

– D	£EÄ
peer-address	Û n Í1 ',X Ä
peer-group-name	Û n Í1 '4˜,X á + Ä Í1 '4˜ á áCYE› 32 +0ú Ä
number	F• ,X G¡ Ä ª 8× È Ö 0 - 65535

5 ,ÕG!5B T¬Ax"u ÝG!5BF• ,X G¡ È8 Ê ¢F• : ,XCÃ+ G¡ ñ Ÿ 0 È *ó ä,XCÃ+ G¡ ñ Ÿ 32768 Ä

Q¸õ ã BGP G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q¸¹ â È ¢E- þF• E› 9,XCÃ+ FÑ ÚE- þ 0 CÃ+ ,X G¡,X ñ Ÿ Ä G¡ C^ û È ì 4{C^P¬ Ä

üF• •å S*ü Z route-map Ý set weight ,X Ê í È Ú?Z,ª Q¸A'5B,X G¡ Ä

G!5B _ `Ruijie(config-router)# neighbor 10.1.1.1 weight 73`

¸Ì G Q¸	Q¸	£EÄ
	router bgp	'Ô BGP #A,
	neighbor remote-as	G!5BBGP ,X Í1 'Ä

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	-	-

38.1.86 network(BGP)

A¹ Q¸G!5B BGP speaker LÔ?U @ ,X5%4° µ C Ä S*üA¹ Q¸,X no EÝNM ôL8A'5B,X5%4° µ C Ä

network *network-number* mask *mask* [route-map *map-tag*] [backdoor]

no network *network-number* mask *mask* [route-map] [backdoor]

– DAÈ â	– D	£EÄ
	network-number	5%4° Ë Ä
	mask	$5% }-Õ Ä
	map-tag	route-map ,X á + Ä route map á áCYE› 32 +0ú Ä
	backdoor	A¹CÃ+ âK¼CÃ+ Ä

5 ¸ÕG!5B þ Û n5%4° µ C Ä

Q¸õ ã BGP G!5B õ ã Ä

S*ü Û Ð Q¸ AŒ Ú IGP ,XCÃ+ "¼ 9BGP ,XCÃ+ >< È@ ,X5%4° µ C Ã ¹ ,ÈE²CÃ+ ÈM- ÕCÃ+ `|ÕCÃ+ Ä

ý*ü route-map Ã ¹ Â 5%4° µ C Ä

G!5B _

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# network 10.0.0.1 mask 255.255.0.0
```

¸Ì G Q¸	Q¸	£EÄ
	router bgp	'Ô BGP #A,
	redistribute	A'5BCÃ+ G¡ Ú ¥

	network synchronization	Network G!5B5%!‰,X à!9 Ô G

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.87 network synchronization

A¹ Q ¸G!5B BGP speaker ü ` CÃ+ à!9 â @ network G!5B,X5%4° µ C ÄS*üA¹ Q ¸ ,X no EÝNMG!5B,È y Ã ¹ @ network G!5B,X5%4° µ C Ä

network synchronization

no network synchronization

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5%4° µ C à!9 ' Ô Ä

Q ¸ õ ã BGP G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ 9 Â network üEî E›/ß ,X><)„ È ÎA, á?U GKÁA¹ Ô G È GKÁ â Ã6ÑEô äCÃ+ T¥"ò Ä

G!5B –

```
Ruijie(config)# router bgp 65000
Ruijie(config-router)# network synchronization
```

,Ì G Q ¸

Q ¸	£EÄ
router bgp	' Ô BGP #A,
redistribute	A'5BCÃ+ G¡ Ú ¥
network (BGP	

38.1.88 overflow memory-lack

A¹ Q ¸ AŒ ü Y , áC‡ Ê BGP E¯ 9 OVERFLOW (Š Õ Ä S*üA¹ Q ¸,X no EÝNM GKÁA¹ s6Ñ Ä

overflow memory-lack

no overflow memory-lack

	– D	£EÄ
– DAÈ â	no	!8EÝNM GKÁ ü Y , áC‡ ÊBGP E¯ 9 OVERFLOW (Š Õ,X s6Ñ Ä

5 ,ÕG!5B Y , áC‡ ™ ‰ ß BGP AŒE¯ 9OVERFLOW (Š Õ Ä

Q ¸ õ ã BGP G!5B õ ã

S*ü Û Ð

BGP E¯ 9 OVERFLOW (Š Õ ?U ö × „ : ,XCÃ+ ÈA¹> 6Ñ ó Ý ±A• Y , á a r KS Ä

Ô A¹ s6Ñ È ü BGP £E¯ 9 OVERFLOW (Š Õ ö × „ : ,XCÃ+ È Ã6Ñ î éCK H 5% Î)„CÃ+)ƒCÃ,X)„B5 Ä Z £ å Î)„E-/¡)„B5,X {*ó ÈBGP î*ó ä Ô 5 Û å NULL y ·,XT¬AxCÃ+ È ¢5àL! "E-/¡)„B5 {*ó,X V)[ÈA¹CÃ+ ü OVERFLOW (Š Õ ß Ú Ô,È , ü Ä

*ü Ã ¹ S*ü clear bgp {addressfamily|all} * Q ¸G¡ „ á ! BGP E¤> È#ÙL8BGP £ OVERFLOW (Š Õ Ä

S*ü no EÝNM á AŒBGP ü Y , áC‡ ÊE¯ 9 OVERFLOW (Š Õ ÈE- Ã6Ñ îEô ä Y ,C $d 4»4Á#\5ë È ü Y ,E¯ Ô!9#\5ë Ô n/ß z ÈBGP Ú • Ô ÝF• È J ôL8 Ý : ,XCÃ + Ä

	(Ë	AÈ â
Q ¸ Z Æ	10.3(4b3)	„ r Q ¸

Ruijie(config-router)# **no redistribute static**

¸Ì G Q¸

Q¸	£EÄ
show ip protocols	¹,ßCÃ+ #A,,X < G!5B µ C

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

38.1.90 redistribute OSPF

CÃ+ G¡ Ú ¥,X Q¸È Ã ¹ Ú OSPF CÃ+ #A,,XCÃ+ µ C ` BGP KÈ r)„G¡ „ Ú ¥ ÈA¹ Q¸ ,X no EÝNM Ã ¹ ôL8A¹ s6Ñ ž J – DG!5B Ä

redistribute ospf *process-id* [route-map *map-tag*] [metric *metric-value*] [match internal external [1|2] nssa-external [1|2]]

no redistribute ospf *process-id* [route-map *map-tag*] [metric *metric-value*] [match {internal |external [1|2]|nssa-external [1|2]}]

– DAÈ â

– D	£EÄ
process-id	>•G¡ Ú ¥,X OSPF #A,,XE¯/ß Ë
route-map *map-tag*	G6(,X route-map ,X á + Äß ,Õ"u Ý G6(route-map
metric *metric-value*	G!5B,XG¡ Ú ¥CÃ+ ,XT¬Axmetric ÄT¬Ax áA'5BA¹ Ä
match	*ü 9A'5B G!,X OSPF CÃ+ ,X $2O _
internal	OSPF ,X internal $2O _CÃ+ È G¡ Ú ¥ ospf CÃ+ Ê match NM,XT¬AxG!5B Ä
external [1|2]	OSPF ,X external 2O _CÃ+ È Ã ¹ K ',XAÈ â 2O _ 1 ê2O _ 2 È V p áAÈ â È Ù À2O _ 1 `2O _ 2
nssa-external [1|2]	OSPF ,X nssa-external 2O _CÃ+ È Ã ¹ K ',XAÈ â 2O _ 1 ê2O _ 2 È V p áAÈ â È Ù À2O _ 1 `2O _ 2

5 ,ÕG!5B "u Ý ' ÔG¡ Ú ¥ OSPF CÃ+ Ä

Q¸õ ã BGP G!5B õ ã È BGP ,X IPv4 £G!5B õ ã È BGP ,X IPv6 £G!5B õ ã È BGP ,X IPv4 VRF G!5B õ ã Ä

S*ü Û Ð	' { • Õ Z î þCÃ+ #A, Ê È Ø þ #A, KÈ,X f,Ì Ü 0 Ô þM2 G¡?U,X Y • ÄA' Û ü à Ô ÊKÈ?U6ÑE¤> î þCÃ+ #A, È W ™NO6Ñ Ú Ô þ #A,,X µ CG¡ „ ÚG! º Ô þ # A, Ä	
	AÈ â	'G!5B no Q ¸,X Ê í È V pG!5B Ý – D È5à è Ý,Ì h,X – DG!5B È no],Ì h – D,XG!5B Ä ü"u Ý – D,X Ê í È ! Ú redistribute ,XE- þG!5B no] ÄCÃ+ $2O _ <F¼ ôL8,X Ê í È T¬Ax,XCÃ+ 2O _ Z Ä
	"¼ ã	Í b OSPF CÃ+ ,XE›$¸?˜ í ÖÖj BG!5B,X match EÝNME¯>OSPF CÃ+ 2O _,XE›$¸ È â aE¯> route-map ?˜ í,XE›$¸ Ä Í bCÃ+ ,X metric È BG¡ Ú ¥ Þ 9,X metric E¯> route-map Ø)Ú È V p ü route-map Ý Ø)Ú È S*ü route-map Ø)Ú â,X × V p route-map "u Ý Ø)Ú È5à metric EÝNME¯> ZG!5B È S*ü metric G!5B,X × V p ø5ÙFÑ"u Ý È,È y S*üG¡ Ú ¥ Þ 9,X Ä

G!5B _	Ruijie(config-router)# **redistribute ospf** 2 **route-map static-rmap** Ruijie(config-router)# **no redistribute ospf** 4 **match external route-map ospf-rmap** Ruijie(config-router)# **no redistribute ospf** 78

$B`yÄA•›â ð@ ñgr@m # €d Á»@ f,Q ¸C1•$ ï „C1•1 $ï° P #$5$ 0 Sd35 4áAd6 ÆÆÁ6")g9iB–s– ,–C`^)d22AG6C#$ s ,Ì G Q ¸		

route-map *map-tag*	G6(,X route-map ,X á + Ä ,Õ"u Ý G6(route-map
metric *metric-value*	G!5B,XG¡ Ú ¥CÃ+ ,XT¬Ax metric ÄT¬Ax áA'5BA¹ Ä
level-1	¾G¡ Ú ¥ isis ,X level-1 ,XCÃ+ µ C Ä
level-1-2	¶G¡ Ú ¥ isis ,X level-1 CÃ+ µ C œG¡ Ú ¥isis ,X level-2 CÃ+ µ C Ä
level-2	¾G¡ Ú ¥ isis ,X level-2 CÃ+ µ C ÄE- þG!5BG¡ Ú ¥ isis Ê,XT¬AxG!5B Ä

5 ,ÕG!5B

"u Ý ' ÔG¡ Ú ¥ ISIS #A, Ä

Q ¸ õ ã

BGP G!5B õ ã ÈBGP ,X IPv4 £G!5B õ ã ÈBGP ,X IPv6 £G!5B õ ã Ä

S*ü Û Ð

' { • Õ Z î þCÃ+ #A, Ê È Ø þ #A, KÈ,X f,Ì Ü 0 Ô þM2 G¡?U,X Y • ÄA' Û ü à Ô ÊKÈ?U6ÑE¤> î þCÃ+ #A, È W ™NO6Ñ Ú Ô þ #A,,X µ CG¡ „ ÚG! º Ô þ # A, ÄE- Í Ý IP CÃ+ #A,FÑ EÖ*ü,X Ä

AÈ â	'G!5B no Q ¸,X Ê í È V pG!5B Ý – D È5à è Ý,Ì h,X – DG!5B È no],Ì h – D,XG!5B Ä ü"u Ý – D,X Ê í È ! Ú redistribute ,XE- þG!5B no] ÄCÃ+ $2O _ <F¼ ôL8,X Ê í È T¬Ax,XCÃ+ 2O _ Z Ä
"¼ ã	Í b ISIS CÃ+ ,XE›$¸?˜ í ÖOj BG!5B,X level EÝNME¯>SIS CÃ + 2O _,XE›$¸ È â aE¯> route-map ?˜ í,XE›$¸ ÄÍ bCÃ+ ,X metric È B s 9,X E¯> route-map Ø)Ú È V p ü route-map Ý Ø)Ú È S*ü route-map Ø)Ú â,X ×V p route-map "u Ý Ø)Ú È5à metric EÝNME¯> ZG!5B È S*ümetric G!5B,X × V p ø5ÙFÑ"u Ý È,È y S*ü G¡ Ú ¥ Þ 9,X Ä

G!5B _

```
Ruijie(config-router)# redistribute isis route-map static-rmap
Ruijie(config-router)# no redistribute isis test route-map isis-rmap
Ruijie(config-router)# no redistribute isis
```

¸Ì G Q ¸

Q ¸	£EÄ
show ip protocols	¹,ßCÃ+ #A,,X < G!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.92 router bgp

' Ô BGP #A, ÈG!5B 7¾"•2Ï4³ Ë È JE¯ 9 BGP #A,G!5B õ ã Ä S*üA¹ Q ¸,X no EÝNM G KÁBGP #A, Ä

router bgp *as-number*

no router bgp *as-number*

– DAÈ â

– D	£EÄ
as-number	7¾"•2Ï4³ Ë Ä8× È Ö1..65535

5 ,ÕG!5B BGP #A,5 ,Õ GKÁ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ 9 | BGP #A, Ä

G!5B _ `Ruijie(config)# router bgp 65000`

¸Ì G Q ¸

Q ¸	£EÄ
Ip routing	' Ô IP CÃ+ Ô G Ä
bgp router-id	A'5BE¤> BGP #A, S*ü,X ÛAš Ä
network	A'5B BGP speaker LÔ?U @ ,X5%4° µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.1.93 synchronization

A¹ Q ¸ |

– D	£EÄ

S*ü Û Ð

BGP S*ü table-map 9 { ß ¥,X —CÃ+ ><,X µ C Ä W*ü 9 Â ß ¥ —CÃ+ ><,X CÃ+ µ C,X 2 û Ätable-map

Ruijie(config-router)# **timers bgp** 80 240

Q¸	£EÄ
neighbor timers	Î bF• A'5B *keepalive* ` *holdtime* Ä

´

(Ë	AÈ â
-	-

Q ¸ õ ã	(M õ ã
S*ü Û Ð	AË –5×show bgp ipv4 unicast Q ¸ – D,XAº4šAÈ â Ä
G!5B _	´

,Ì G Q ¸

Q ¸	£EÄ
show bgp ipv4 unicast	/ BGP CÃ+ µ C IPv4) •CÃ+ µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.2.2 show bgp ipv4 unicast

S*üA¹ Q ¸ / BGP CÃ+ µ C ,X IPv4) •CÃ+ µ C Ä

show bgp ipv4 unicast [{network | *network-mask*}]

show bgp ipv4 unicast community *community-number* [exact-match]

show bgp ipv4 unicast community-list *community-name* [exact-match]

show bgp ipv4 unicast dampening dampened-paths

show bgp ipv4 unicast dampening flap-statistics

show bgp ipv4 unicast filter-list *path-list-number*

show bgp ipv4 unicast inconsistent-as

show bgp ipv4 unicast prefix *ip-prefix-list-name*

show bgp ipv4 unicast quote-regexp *regexp*

show bgp ipv4 unicast regexp *regexp*

show bgp ipv4 unicast route-map *map-tag*

show bgp ipv4 unicast neighbors *neighbor-address* [received-routes | routes | advertised-routes]

show bgp ipv4 unicast cidr-only

show bgp ipv4 unicast label

– DAÈ â

– D	£EÄ

network	/ üCÃ+ >< ,X(M n,XCÃ+ µ C Ä
network-mask	/ Ù ÿ ü Û n5%4° ,XCÃ+ µ C Ä
community *community-number*	/ Ù ÿ Û n community ,XCÃ+ µ C Ä *community-number* ¶ ' Ë Ä ã AA:NN(7¾"• 2Ï4³ Ë/2 +8V D +) È 3 Ã ¹ ¹ ßNX n Ö internet Èno-export Èlocal-as È no-advertise
community-list *community-name*	/ G! Û n ¶ ' ë><,X BGP CÃ+ µ C Ä *community-name* ¶ ' ë>< á Ä
exact -match	` < G! ¶ ' ê ¶ ' ë><,XCÃ+ µ C Ä
dampening dampened-paths	/ >• e ,XCÃ+ µ C Ä
dampening flap-statistics	/ CÃ+ 954³Au µ C Ä
filter-list *path-list-number*	/ 0ú ÜE›$¸ ë><,XCÃ+ µ C Ä *path-list-numbe* E› $¸ ë>< Û/ Ë-Õ Ä
inconsistent-as	/ Ý-¯,Ò,X$d AS ,XCÃ+ ,X µ C Ä
prefix *ip-prefix-list-name*	/ 0ú Ü Û n prefix-list E›$¸,XCÃ+ µ C Ä
quote-regexp *regexp*	/ AS CÃ X 2 û G! ü Û n é Ë Y,X!7 í><E' ã ,X BGP CÃ+ µ C Ä
regexp *regexp*	/ AS CÃ X 2 û G! Û n!7 í><E' ã,X BGP CÃ+ µ C Ä
route-map *map-tag*	/ 0ú Ü Û n route-map E›$¸ 5 Ê,XCÃ+ µ C Ä
neighbors *neighbor-address* received-routes	/ ¢ Û n peer ,X ÝCÃ+ µ C Ä Ù À y «,X CÃ+ ` ¦4±,XCÃ+ Å Ä
neighbors *neighbor-address* routes	/ Ý 97¾ peer J>• y «,XCÃ+ µ C Ä
neighbors *neighbor-address* advertised-routes	/ å Û n peer ¥EÕ,X ÝCÃ+ µ C Ä
cidr-only	/ ´2O ÿ,XCÃ+ µ C Ä
label	/ BGP : 4 ` ¥EÕ,X ú MPLS Û1R,XCÃ+ Ä

5 ,ÕG!5B "u Ý5 ,ÕA'5B Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ 9 ¹,ß BGP ,X IPv4) •CÃ+ µ C ÈEîE› S*ü Û n,X – D Ã ¹E›$¸ / 0ú Ü Û n 5 Ê,XCÃ+ µ C Ä

```
Ruijie# show bgp ipv4 unicast
BGP table version is 2, local router ID is 192.168.183.1
Status codes: s suppressed, d damped, h history, * valid, > best,
i - internal,
            S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network         Next Hop           Metric     LocPrf  Path
*>i44.0.0.0        192.168.195.183         0        100     i
*>i64.12.0.0/16     192.168.195.183         0        100     i
*>i172.16.0.0/24    192.168.195.183         0        100     i
*>i202.201.0.0      192.168.195.183         0        100     i
*>i202.201.1.0      192.168.195.183         0        100     i
*>i202.201.2.0      192.168.195.183         0        100     i
*>i202.201.3.0      192.168.195.183         0        100     i
*>i202.201.18.0     192.168.195.183         0        100     i
Total number of prefixes 8
Ruijie# show bgp ipv4 unicast community 11:2222
111:12345
BGP table version is 2, local router ID is 192.168.183.1
G!5B _  Status codes: s suppressed, d damped, h history, * valid, > best,
i - internal,
            S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network         Next Hop           Metric     LocPrf  Path
*>i202.201.0.0      192.168.195.183         0        100     i
*>i202.201.1.0      192.168.195.183         0        100     i
*>i202.201.2.0      192.168.195.183         0        100     i
*>i202.201.3.0      192.168.195.183         0        100     i
Total number of prefixes 4
Ruijie(config)# ip as-path access-list 5 permit .*
Ruijie# show bgp ipv4 unicast filter-list 5
BGP table version is 2, local router ID is 192.168.183.1
Status codes: s suppressed, d damped, h history, * valid, > best,
i - internal,
            S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network         Next Hop           Metric     LocPrf  Path
*>192.168.88.0      0.0.0.0              32768 ?
Total number of prefixes 1
```

```
Ruijie# show ip bgp cidr-only
BGP table version is 2, local router ID is 192.168.183.1
Status codes: s suppressed, d damped, h history, * valid, > best,
i - internal,
            S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric     LocPrf  Path
*>i64.12.0.0/16     192.168.195.183          0         100     i
*>i172.16.0.0/24    192.168.195.183          0         100     i
Total number of prefixes 2
Ruijie# show bgp ipv4 unicast label
Network          Next Hop        In Label/Out Label
1.1.1.1/32       192.167.1.1      17/18
1.1.1.2/32       192.167.1.1      nolabel/19
```

+!‰	AÈ â
Network	CÃ+ !4Ô Ä
Nexthop	CÃ+ ,X ß ÔCÇ Ä
In Label	CÃ+ < J ÚG!,X Û1R Ä V p , ü Å Ä
Out Label	¢A¹CÃ+ ,X ß ÔCÇCÃ+ < : 4 ,X Û1R Ä V p , ü Å Ä

Q¸	£EÄ
show ip bgp	/ BGP CÃ+ µ C IPv4) •CÃ+ µ C Ä

G ÄAÈ â ´

[redacted]

38.2.3 show bgp ipv4 unicast

5 ,ÕG!5B	"u Ý5 ,ÕA'5B Ä
Q¸õã	(M õã Ä
S*üÛÐ	A¹ Q¸+ 9¹,ß BGP G!5B,XIPv4) •CÃ+ 95,X – D µ C Ä

G!5B –

```
Ruijie(config-router)# bgp dampening 25 10000 10000 200
Ruijie# show bgp ipv4 unicast dampening parameters
dampening 25 10000 10000 200
Dampening Control Block(s):
Reachability Half-Life time    : 25 min
Reuse penalty                : 10000
Suppress penalty             : 10000
Max suppress time            : 200 min
Max penalty (ceil)           : 29800000
Min penalty (floor)          : 5000
```

,Ì G Q¸

Q¸	£EÄ
-	-

S*ü Û Đ S*üA¹ Q ¸ 9 ¹,ß à BGPIPv4) •F• ,ÌE² y,X µ C Ä

G!5B _

```
Ruijie# show bgp ipv4 unicast neighbors
BGP neighbor is 192.168.195.183, remote AS 23, local AS 23, internal
link
  BGP version 4, remote router ID 44.0.0.1
  BGP state = Established, up for 00:06:37
  Last read 00:06:37, hold time is 180, keepalive interval is 60
seconds
  Neighbor capabilities:
    Route refresh: advertised and received (old and new)
    Address family IPv4 Unicast: advertised and received
    Graceful restart: advertised and received
      Remote Restart timer is 120 seconds
  Received 14 messages, 0 notifications, 0 in queue
    open message:1 update message:4 keepalive message:9
    refresh message:0 dynamic cap:0 notifications:0
  Sent 12 messages, 0 notifications, 0 in queue
    open message:1 update message:3 keepalive message:8
    refresh message:0 dynamic cap:0 notifications:0
  Route refresh request: received 0, sent 0
  Minimum time between advertisement runs is 0 seconds
 For address family: IPv4 Unicast
  BGP table version 2, neighbor version 1
  Index 2, Offset 0, Mask 0x4
  Inbound soft reconfiguration allowed
  8 accepted prefixes
  0 announced prefixes
 Connections established 2; dropped 1
Local host: 192.168.195.239, Local port: 1074
Foreign host: 192.168.195.183, Foreign port: 179
Nexthop: 192.168.195.239
Nexthop global: ::
Nexthop local: ::
BGP connection: non shared network
Last Reset: 00:06:43, due to BGP Notification sent
Notification Error Message: (Cease/Unspecified Error Subcode)
```

	Using BFD to detect fast fallover

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸ Z Æ	(Ë	AÈ â
	-	-

38.2.5 show bgp ipv4 unicast paths

A¹ Q¸*ü 9 / CÃ+ D B g IPv4) •,XCÃ X µ C Ä

show bgp ipv4 unicast paths

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q¸ õ ã	(M õ ã

S*ü Û Ð	S*üA¹ Q¸ ¹,ßCÃ+ D B g ,XCÃ X µ C Ä

G!5B –	Ruijie# **show bgp ipv4 unicast paths** Address Refcnt Path [0x1d7806a0:0] (67) [0x1d7389a0:13] (20) 10

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸ Z Æ	(Ë	AÈ â
	-	-

38.2.6 show bgp ipv4 unicast summary

S*üA¹ Q ¸ / BGPIPv4) •F• ,X,Ì G µ C Ä

show bgp ipv4 unicast summary

S*üA¹ Q ¸ / BGP CÃ+ µ C ,X IPv6) •CÃ+ µ C Ä

show bgp ipv6 unicast [*IPv6-Prefix*]

show bgp ipv6 unicast community *community-number* [exact-match]

show bgp ipv6 unicast community-list *community-name* [exact-match]

show bgp ipv6 unicast dampening dampened-paths

show bgp ipv6 unicast dampening flap-statistics

show bgp ipv6 unicast filter-list *path-list-number*

show bgp ipv6 unicast inconsistent-as

show bgp ipv6 unicast prefix *ipv6-prefix-list-name*

show bgp ipv6 unicast quote-regexp *regexp*

show bgp ipv6 unicast regexp *regexp*

show bgp ipv6 unicast route-map *map-tag*

show bgp ipv6 unicast neighbors *neighbor-address*

[received-routes | routes | advertised-routes]

– DAÈ â

– D	£EÄ
network	/ üCÃ+ >< ,X(M n,XCÃ+ µ C Ä
network-mask	/ Ù ÿ ü Û n5%4° ,XCÃ+ µ C Ä
community *community-number*	/ Ù ÿ Û n community ,XCÃ+ µ C Ä *community-number* ¶ ' Ë Ä ã AA:NN(7¾"• 2Ï4³ Ë/2 +8V D +) È 3 Ã ¹ ¹ ßNX n Ö internet Èno-export Èlocal-as È no-advertise
community-list *community-name*	/ G! Û n ¶ ' ë><,XCÃ+ µ C Ä community-name ¶ ' ë>< á Ä
exact -match	` < G! ¶ ' ê ¶ ' ë><,XCÃ+ µ C Ä
dampening dampened-paths	/ >• e ,XCÃ+ µ C Ä
dampening flap-statistics	/ CÃ+ 954³Au µ C Ä
filter-list *path-list-number*	/ 0ú ÜE›$¸ ë><,XCÃ+ µ C Ä path-list-numbe E›$¸ ë>< Û/ Ë-Õ Ä
inconsistent-as	/ Ý-¯,Ò,X$d AS ,XCÃ+ ,X µ C Ä
quote-regexp *regexp*	/ AS CÃ X 2 û G! ü Û n é Ë Y,X!7 í><E' ã ,X BGP CÃ+ µ C Ä
regexp *regexp*	/ AS CÃ X 2 û G! Û n!7 í><E' ã,X BGP CÃ+ µ C Ä

route-map *map-tag* / 0ú Ü Û n route-map

5 ,ÕG!5B "u Ý5 ,ÕA'5B Ä

Q¸õã (M õã Ä

S*üÛÐ A¹ Q¸+ 9¹,ß BGP G!5B,XIPv6) •CÃ+ 95,X – D µ C Ä
Q¸s6Ñ â S*ü •"© â show bgp ipv4 unicast dampening parameters ,Ì ÈAË –5× show bgp ipv4 unicast dampening parameters Q¸Ä

G!5B _ ´

+!‰	AÈ â
-	-

,Ì G Q¸

Q¸	£EÄ
show bgp ipv4 unicast dampening parameters	S*üA¹ Q¸/ BGP G!5B,XIPv4) •CÃ+ 95,X – D µ C Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

38.2.9 show bgp ipv6 unicast neighbors

S*üA¹ Q¸/ ` BGPIPv6) •F• ,X,Ì G µ C Ä

show bgp ipv6 unicast neighbors *neighbor-address*

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õã (M õã

S*üÛÐ S*üA¹ Q¸9¹,ß à BGPIPv6) •F• ,ÌE² y,X µ C Ä
Q¸s6Ñ â S*ü •"© â show bgp ipv4 unicast neighbors *neighbor-address* ,Ì ÈAË –5× show bgp ipv4 unicast neighbors *neighbor-address* Q¸Ä

´

G!5B _

+!‰	AÈ â
-	-

,Ì G Q ¸

Q ¸	£EÄ
show bgp ipv4 unicast neighbors *neighbor-address*	S*üA¹ Q ¸ / ` BGPIPv4) •F• ,X,Ì G µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

38.2.10 show bgp ipv6 unicast paths

A¹ Q ¸*ü 9 / CÃ+ D B g IPv6) •,XCÃ X µ C Ä

show bgp ipv6 unicast paths

– DAÈ â

	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û', *ü R) q• <b ðÌ` qœ Q Œ w =a, ˜ a(M õ ₴ òIðÁ9€ 9†#Dy `(Á(!' tÃ X Ýænüa GŸ —Õ€ ×€j go

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

38.2.11 show bgp ipv6 unicast summary

S*üA¹ Q ¸ / BGPIPv6) •F• ,X,Ì G µ C Ä

A¹ Q ¸*ü 9 / Ý vrf ê5Ù rd ,X vpn CÃ+ µ C ê5ÙF• µ C Ä

show bgp vpnv4 unicast all [*network* | neighbor [|

```
BGP VRF this Route Distinguisher: 78:90
BGP table version is 1
2 BGP AS-PATH entries
1 BGP community entries
Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
State/PfxRcd
177.36.51.2     4    10       0       0        0    0    0    never
Active
```

+!‰	AÈ â
-	-

,Ì G Q¸

Q¸	£EÄ
show bgp ipv4 unicast	/ BGP CÃ+ µ C IPv4) •CÃ+ µ C Ä

G ÄAÈ â ´

Q¸ Z Æ

(Ë	AÈ â
-	-

38.2.14 show ip as-p ath-access-list

S*üA¹ Q¸ / ¶ ' ë><,X µ C Ä

show ip as-path-access-list {*num*}

– DAÈ â

– D	£EÄ
num	?U / µ C,X as-path-access-list Ë Ä

5 ,ÕG!5B "u Ý5 ,ÕA'5B

Q¸ õ ã (M õ ã

S*ü Û Đ S*üA¹ Q¸ 9 ¹,ß as-path-access-list ,X µ C Ä

G!5B _

```
Ruijie# show ip as-path-access-list
AS path access list 30
permit ^30$
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸ Z Æ

	-	-

39 VRF

39.1 VRF

39.1.1 clear ip route vrf

ôL8 Û n VRF ,XCÃ+ µ C

clear ip route vrf *vrf-name* {* | *network* [*mask*]}

– DAÈ â	– D	£EÄ
	vrf-name	VRF á +
	*	VRF ,X <F¼CÃ+ µ C
	network	Ä ÃEÝ Å Û n5%4°
	mask	Ä ÃEÝ Å Û n5%4° }-Õ

5 ,ÕG!5B ´

Q¸õã (M *ü õã

S*ü Û Ð Q¸S*üAÈ â Ä

G!5B _

```
Ruijie# clear ip route vrf redvrf *
```

,Ì G Q¸	Q¸	£EÄ
	show ip route vrf	-

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	RGOS10.1	RGOS10.1 ¹Þ

39.1.2 ip vrf

ï Î VRF × ôL8 Ô þ VRF ÈAË S*ü J no 6 ã

ip vrf *vrf-name*

no ip vrf *vrf-name*

– DAÈ â

– D	£EÄ
vrf-name	ï Î VRF Ê Û n,X á +

5 ,ÕG!5B ´

Q¸õ ã < G!5B õ ã

S*ü Û Ð S*üA¹ Q¸ï Î Ô þ VRF

G!5B _ Ruijie(config)# **ip vrf redvrf**

Q¸	£EÄ	

G!5B _

Q¸Z Æ	(Ë	AÈ â
	RGOS10.1	RGOS10.1 ¹Þ

39.2.2 show ip vrf

/ VRF µC

show ip vrf [brief | detail | interfaces

40 URPF

40.1

40.1.1 ip verify unicast source reachable-via ( )

y ·G!5B õ ã ß È | URPF (M û Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁRPF (M û ê5Ù ª#\ URPF (M û,X ÃEÝEÝNM Ä

ip verify unicast source reachable-via {rx | any} [allow-default | *acl_name*]

no ip verify unicast

– DAÈ â	– D	£EÄ
	rx	S*ü ù õ ãE¯> URPF ”¹ Äù õ ã?U" EîE› y ,X IP y [,X$d üE@ ¥>< ¹R ,XE@ ¥><NM ,X Î y ·?U âA¹ y [,X 9 y · G! Ä
	any	S*ü ‘ R õ ãE¯> URPF ”¹ Ä‘ R õ ã ¾?U" EîE› y ,X IP y [,X$d 6Ñ ó üE@ ¥>< ¹R E@ ¥ ><NM G Ã Ä
	allow-default	Ä ÃEÝ Å ÆŒ S*ü5 ¸ÕCÃ+ E¯>URPF ”¹ Ä
	acl_name	Ä ÃEÝ ÅACL Ë È Õ Ö 1 to 99 (IP standard access list) 100 to 199 (IP extended access list) 1300 to 1999 (IP standard access list, expanded range) 2000 to 2699 (IP extended access list, expanded range)

5 ¸ÕG!5B	5 ¸Õ URPF (M û GKÁ Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	URPF (M ûEîE› ”¹ y ,X IP y [,X$d È ø • üE@ ¥>< ú , ü E’$d ,X CÃ+ È 9 ø • y [,X Ü"© û È V p G! á E@ ¥><NM È íAx y [M2"© Ä ü y ·G!5B õ ã ß | URPF (M û È6Ñ Í üA¹ y · Þ y ,X y [| URPF ”¹ Ä 5 ¸Õ ™ ‰ ß È á S*ü5 ¸ÕCÃ+ E¯> URPF ”¹ È V p*ü LÔ?U È Ã ¹ S*ü allow-default GK + |A¹ s6Ñ Ä

5 ,Õ ™ ‰ ß È URPF ” ¹ Bù,X y [Ú>• ö × Ä V pG!5B Z ACL (*acl-name*) È‘ hLy]ÔT 5/‡ 1b pP>[29 È

ip verify urpf drop-rate compute interval *seconds*

5 ,ÕG!5B	5 ,Õ GKÁ Ä
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	EîE› | URPF ö Ù µ C,¥ { È6Ñ óEîE› Syslog ê5Ù Trap ,X • ã | -1*ü URPF

*ü Ã ¹ B5%4° rL ™ ‰A× H ö Ù)[" 4“ Ä

G!5B _

_ 1 ÖG!5B y · GigabitEthernet 0/21 Þ URPF ö Ù)[,X" 4“ !£/¦ 10 þ y [Ä

```
Ruijie(config)# interface gigabitEthernet0/21
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip verify urpf drop-rate notify
Ruijie(config-if)# ip verify urpf notification threshold 10
```

,Ì G Q ¸

Q ¸	£EÄ
ip verify urpf drop-rate compute interval	G!5BURPF ö Ù)[,XAu1k ÊKÈKÈLh Ä
ip verify urpf drop-rate notify	| URPF ö Ù µ C,¥ { Ä
ip verify urpf drop-rate notify hold-down	G!5BURPF ö Ù)[,X A: ÊKÈKÈLh Ä

G ÄAÈ â

ÕCÃ+ < <4“ { • Ä

Õ x 6 S5700 V2.x { •

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

40.1.6 snmp-server enable traps

G!5BURPF ö Ù)[CYE›" 4“ EîE› Trap • ã ¥EÕ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM ª#\ ¥EÕ Trap Ä

snmp-server enable traps urpf

no snmp-server enable traps urpf

– DAÈ â

– D	£EÄ
urpf	*ü URPF ,X Trap Eî-¹ Ä

5 ,ÕG!5B 5 ,Õ GKÁ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ' URPF ö Ù)[CYE› ö Ù)[" 4“ ,X Ê í È5 ,Õ ™ ‰ ß È Ú î7¾ |EîE› Syslog • ã -¹ *ü ÈG!5B Q ¸ â È AŒEîE› Trap • ã -¹*ü Ä

G!5B – _ 1 ÖURPF ö Ù)[CYE›" 4“ ÈLÔ?U ÕEîE› Trap -¹*ü Ä

```
Ruijie(config)#
```

S*ü Û Ð A¹ Q¸â < G!5B Q¸ snmp-server enable traps ÔCK S*ü È- Û n,X NMS ¥EÕURPF LKL #\ C Ä

G!5B – _ 1 Ö Û n SNMP 192.168.12.219 È y URPF Trap #\ C Ö

```
Ruijie(config)# snmp-server host 192.168.12.219 public urpf
```

,Ì G Q¸

Q¸	£EÄ
snmp-server enable traps	*ü ¥EÕ Trap #\ C Ä
ip verify urpf drop-rate compute interval	G!5BURPF ö Ù)[,XAu1k ÊKÈKÈLh Ä
ip verify urpf drop-rate notify	| URPF ö Ù µ C,¥ { Ä
ip verify urpf drop-rate notify hold-down	G!5BURPF ö Ù)[,X A: ÊKÈKÈLh Ä
ip verify urpf notification threshold	G!5BURPF ö Ù)[,X" 4“ Ä

G ÄAÈ â Õ x 6 S5750 V2.x

Q¸Z Æ

(Ë	AÈ â
10.4	„ r GK + urpf

40.2

40.2.1 show ip urpf

/ URPF G!5B ž4³Au µ C Ä

show ip urpf [interface *interface-name*]

– DAÈ â

– D	£EÄ
interface *interface-name*	/ Û n y ·,XG!5B ž4³Au µ C Ä

5 ,ÕG!5B ´ Ä

Q¸õ ã (M õ ã Ä

S*ü Û Ð V p"u ÝG!5B Û n y · È Ú / < ` Ý y ·,XG!5B ž4³Au µ C Ä

G!5B _

_ 1 Ö / Û n y · GigabitEthernet 0/21 Þ,X URPF G!5B ž4³Au µ C Ä

```
Ruijie# show ip urpf interface gigabitEthernet0/21
IP verify source reachable-via RX
IP verify URPF drop-rate notify disabled
IP verify URPF notification threshold is 1000pps
Number of drop packets in this interface is 124
Number of drop-rate notification counts in this interface is 0
```

,Ì G Q¸

Q¸	£EÄ
ip verify unicast source reachable-via	| URPF (M û Ä
ip verify urpf drop-rate compute interval	G!5BURPF ö Ù)[,XAu1k ÊKÈKÈLh Ä
ip verify urpf drop-rate notify hold-down	G!5BURPF ö Ù)[,X A: ÊKÈKÈLh Ä
ip verify urpf notification threshold	G!5BURPF ö Ù)[,X" 4“ Ä
clear ip urpf	#ÙL8URPF 4³Au µ C Ä

G!5B –

_ 1 Ö#ÙL8 Û n y · GigabitEthernet 0/21 Þ,X URPF ö Ù4³Au µ C Ä

```
Ruijie# show ip urpf interface gigabitEthernet0/21
IP verify source reachable-via RX
IP verify URPF drop-rate notify disabled
IP verify URPF notification threshold is 1000pps
Number of drop packets in this interface is 124
Number of drop-rate notification counts in this interface is 0
Ruijie# clear ip urpf interface gigabitEthernet0/21
Ruijie# show ip urpf interface gigabitEthernet0/21
IP verify source reachable-via RX
IP verify URPF drop-rate notify disabled
IP verify URPF notification threshold is 1000pps
Number of drop packets in this interface is 0
Number of drop-rate notification counts in this interface is 0
```

,Ì G Q¸

Q¸	£EÄ
show ip urpf	/ URPF G!5B ž4³Au µ C Ä

G ÄAÈ â

Õ x 6 S5750 V2.x {•

Q¸Z Æ

(Ë	AÈ â
10.4	„ r Q¸

41

41.1

41.1.1 distribute-list in

?U { CÃ+ È „ Ø)Ú È ¹ r)„CÃ+ E›$¸ ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ distribute-list in ÄA¹ Q ¸,X no 6 ã ôL8A¹ n Ä

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*]

– DAÈ â

– D	£EÄ
access-list-number	A“KÂ ë>< Ë Û šA“KÂ ë>< Ë8× È Ö1-99 È1300-1999 =)A“KÂ ë>< Ë8× È Ö100-199 È2000-2699
access-list-name	A“KÂ ë>< á +
prefix *prefix-list-name*	S*ü !4Ô ë>< 9E›$¸CÃ+
gateway *prefix-list-name*	S*ü !4Ô ë>< 9E›$¸CÃ+ ,X$d
interface-type interface-number	(ÃEÝ)A¹ Ú × ë>< È ¾ h*ü ü Û n y ·

5 ,ÕG!5B

5 ,Õ"u Ý n Ú × ë>< Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Đ

Z ¦4± y ¤ o Û nCÃ+ È Ã ¹EîE›G!5BCÃ+ Ú × { ë>< È Í Ý y ,XCÃ+ È „ y [E¯> Ø)Ú ÄA¹ Q ¸ Í OSPF CÃ+ #A, ´ È ´ OSPF y ,X á K ',XCÃ+ È 5à JÒCÃ(Š Õ £EÄ y [Ä

V p"u Û n y · È Í Ý,X y · y ,XCÃ+ È „ y [E¯> Ø)Ú Ä

G!5B –

¹ ß,XG!5B _ $ È RIP Í ¢ Fastethernet 0/0 0Ã · y ,XCÃ+ ÈE¯> Z { Ø)Ú È ¾ AŒ y 172.16 Ô ,XCÃ+ Ä

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
```

```
Ruijie(config-router)# distribute-list 10 in fastethernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit 172.16.0.0 0.0.255.255
```

Q ¸	£EÄ
access-list	n A“KÂ ë><?˜ í
prefix-list	n !4Ô ë><

G ÄAÈ â ń hA !56f8VTa %6R–p† QdáAfwxaAÐ1R—w†a B. A˜YR„ Ž R epT C ï R sfWeev& Nû Â C

S*ü Û Ð

V pA¹ Q ¸ áC³ Ï) ÃEÝ – D ÈCÃ+ È „Eî { Í Ý y ·CK 0*ü × V pC³ y ·EÝNM È CÃ+ È „Eî { ¾ Í Û n y ·CK 0*ü × V pC³ J WCÃ+ E¯/ß – D È í Í Û nCÃ+ E¯ /ß,XCÃ+ E¯> G¡ Ú ×CÃ+ E›$¸ È J 0*ü Æ4£ á CÃ+ È „Eî { Z Ä G!5BOSPF CÃ+ E¯/ß,XCÃ+ È „Eî { Ê È á6Ñ Û n y · È5à è ¾EÖ*ü b OSPF CÃ+ ³,X êF¼CÃ+ Ä

G!5B _

¹ ß,XG!5B _ $ ÈRIP CÃ+ E¯/ß ¾ Í êEî 192.168.12.0/24 8× È YCÃ+ Ä

```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.4.4.0
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# distribute-list 10 out
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit 192.168.12.0 0.0.0.255
```

,Ì G Q ¸

Q ¸	£EÄ
access-list	n A“KÂ ë><?˜ í
prefix-list	n !4Ô ë><
redistribute	G!5BCÃ+ G¡ Ú ×

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	- p r

community-list-name	¶ ' ë>< á + ¶ ' ë>< á áCYE› 80 +0ú
community-list-number	¶ ' ë>< Ë Û š ¶ ' ë>< Ö4ê Ë8× È 1-99 =) ¶ ' ë>< Ö4ê Ë8× È 100-199
permit	AŒA“KÂ
deny	¦4±A“KÂ
community-number	¶ ' 2 û Ä ã AA:NN(7¾"•2Ï4³ Ë Ö 2 +8V D +) È ê5Ù Ô þ D È8× È 0-4294967295 È ê5Ù ¹ ßNX n Ö internet È></ Internet ¶ ' È Ý,XCÃ XFÑ 2 bA¹ ¶ ' Ä local-as È></ CÃ X á ¥ × AS êF¼ È'G!5B6(,³ Ê È CÃ X á ¥ ×4- J W,X7¾"•2Ï4³ ê $7¾"•2Ï 4³ Ä no-advertise È></ CÃ X á ¥ × Ï) Ô þ BGP peers Ä no-export È></ CÃ X á ¥ ×4- EBGP peers Ä 8× È Ö1..255 +0ú Ä "¼ ã Ö,Â !!£ þ ¶ ' ë>< Ô î6Ñ ó ÕA’5B 32 þ ¶ ' Ä

5 ,ÕG!5B "u Ý n ¶ ' ë><

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ 9 n *ü b BGP ,X ¶ ' ë>< Ä

G!5B _

```
Ruijie(config)# ip community-list standard test deny 100:20200:20
Ruijie(config)# ip community-list standard test2 permit internet
```

,Ì G Q ¸

Q ¸	£EÄ
match community	G! ¶ ' ë><
set comm-list delete	B ¶ ' ë>< ôL8 BGP CÃ X 2 û ,X ¶ ' 2 û
show ip community-list	/ ¶ ' ë>< µ C
show ip bgp community-list	/ G! Û n ¶ ' ë><,X BGP CÃ+ µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.4 ip default-network

?UG!5B5 ,Õ5%4° ÈAË S*ü < G!5B Q ¸ip default-network ÄA¹ Q ¸,X no 6 ã Ã ¹ ôL85 ,Õ 5%4° Ä

ip default-network *network*

no ip default-network *network*

– DAÈ â

– D	£EÄ
network	5 ,Õ5%4°,X5%4° Ë Ä

5 ,ÕG!5B 5 ,Õ 0.0.0.0/0 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð G!5B5 ,Õ5%4°,X,Â,X Z {*ó5 ,ÕCÃ+ ÈEîE› default-network {*ó5 ,ÕCÃ+ LÔ?U$µ C‡ ¹ ß 5 Ê ÖA¹5 ,Õ5%4° á ,ÈE² y ·5%4° È üCÃ+ >< Ã E' Ä

5 ,Õ5%4° ¹"*" Ë Ô È></ W 5 ,ÕCÃ+ ,X íEÝ5Ù Ä V p5 ,Õ5%4° Ý connected CÃ+ `"u Ý ß ÔCÇ,XCÃ+ È í5 ,ÕCÃ+ ?U" M- ÕCÃ+ Ä

G!5B _

_ 1 Ö ¹ ß,XG!5B _ $ È Ú 192.168.100.0 5%4°A' 5 ,Õ5%4° È+ bG!5B Z A¹5%4°,XM-ÕCÃ+ È ¹A' Û Ú7¾ | {*ó Ô 55 ,ÕCÃ+ Ä

```
Ruijie(config)# ip route 192.168.100.0 255.255.255.0 serial 0/1
Ruijie(config)# ip default-network 192.168.100.0
```

_ 2 Ö ¹ ß,XG!5B _ $ È Ú 200.200.200.0 5%4°A' 5 ,Õ5%4° È ¾?U ' 200.200.200.0 Î)„ üCÃ+ >< ÈA¹CÃ+ ä 5 ,ÕCÃ+ Ä

```
Ruijie(config)# ip default-network 200.200.200.0
```

,Ì G Q ¸

Q ¸	£EÄ
show ip route	/ IP CÃ+ >< Ä

G ÄAÈ â Q ¸ ü ` A' Û Þ á Õ Ä

(Ë	

ge Èí G!8× È minimum-prefix-length 32 ÄV p ™Eg 9 le È í G!8× È ip-prefix ,X }-ÕKS z maximum-prefix- length Ä V p `5ÙFÑ ÝEg 9 È í G!8× È ¢ minimum-prefix-length maximum-prefix- length Ä G Èip-prefix }-Õ Ã minimum-prefix-length ` maximum-prefix-length ,X G2Ï Ö ip-prefix }-ÕKS z < minimum-prefix-length < maximum-prefix-length <= 32 Ä

¹ ß S*ü Ú ¥ ë><E¯> E›$¸,X _ $ È!¨ V?U Í OSPF #A, G¡ Ú ¥ RIP ÊEg Î,XCÃ+ Ú ¥ µ C Ý';,Â,X IP E¯> E›$¸ ÈE›$¸?˜ í ü G6(,X IP !4Ô ë>< n (_ V ¾ AŒ,Â,X IP ü 201.1.1.0/24 8× È Y,XCÃ+ µ C>• Ú ¥ Î •)

G!5B _

G!5B _

¹ ß _ $ IP !4Ô ë><#Ï t [+ £EÄ Deny routes from Net-A Ö

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre description Deny routes from Net-A
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.7 ip prefix-list sequence-number

?U !4Ô ë>< *ü f c s6Ñ ÈAË S*ü ip prefix-list description Q ¸ ÄA¹ Q ¸,X no 6 ã ª #\ !4Ô ë><,X f c s6Ñ Ä

ip prefix-list sequence-number

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B "u Ý#Ï t !4Ô ë>< [+ £EÄ

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

G!5B _

¹ ß _ $!4Ô ë>< *ü f c s6Ñ Ö

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

41.1.8 ip ref ecmp load-balance

A’5B.@ Ê,X1 ËCÃ XEÝ ½1k"©

ip ref ecmp load-balance {[crc32_lower | crc32_upper] [dip] [port] [udf *number*]}
no ip ref ecmp load-balance {[crc32_low er | crc32 upper] [dip] [port] [udf *number*]}

– DAÈ â

– D	£EÄ
crc32_lowe r	EÝ ½crc32 ,XP¬!¨(M !*ü b ‡ n Î · ß ÔCÇ
crc32_upper	EÝ ½crc32 ,X "!¨(M !*ü b ‡ n Î · ß ÔCÇ
dip	EÝ ½,Â,X *ü ¹ . hash key
port	EÝ ½tcp/udp 0Ã · Ë . hash key
udf number	*ü 7¾ n ,X +!‰ 0 hash key
src-dst-mac	B y [,X MAC SA ` MAC DA 9E¯> hash ÄA¹ G K + ¾ ü S5760 Þ Õ Ä
ip	B y [,X SIP ` DIP 9E¯> hash ÄA¹ GK + ¾ ü S5760 Þ Õ Ä

5 ,ÕG!5B Í b S5750 È5 ,ÕEÝ ½CRC32_Upper

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´AŽ ipv4 E¬ ipv6 ,X ecmp/wcmp ,XCÃ XEÝ ½1k"©FÑ S*üA¹ Q ¸E¯> G!5B Ä S5750 Õ ipv6 ecmp Ä

G!5B _ _ 1 Ö ü S5750 ÞG!5B Ú hash 1k"©A’5B CRC32_Lower ÈEÝ ª y [,X GK + SIP + DIP+TCP/UDP 0Ã ·+UDF:

```
Ruijie(config)# ip ref ecmp load-balance crc32_lower dip port udf 50
```

,Ì G Q ¸	Q ¸	£EÄ
	Maximum-paths	G!5B1 ËCÃ X,X 5,Â D

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4	S5760 „ rA¹ Q ¸

41.1.9 ip route

?UG!5BM- ÕCÃ+ ÈAË S*ü < G!5B Q ¡p route ÄA¹ Q ¸,X no 6 ã ôL8 ÆG!5B,XM- ÕCÃ+ Ä

7Õv ðÁ6 Ò D •ž ñ(hFP$dP 8ï a #E Hïf Y C1ïyga 3 ûÂ Se – M ð'À p ü W ï ÒÕ7Õv Ì!Ý³RSK Q Õ5

ip route [vrf *vrf_name*] *network net-mask* {*ip-address* | *interface* [*ip-address*]} [*distance*] [tag

D B# G£7¾' Ã ¹ Û 6 M- ÕCÃ+ ,X4“CÃ Þ Ä

Ã ¹ Û nM- ÕCÃ+ 2 b,X vrf È V p"u Ý Û n í#Ï t T¬Ax vrf Ä

M- ÕCÃ+ ,XT¬Ax G¡ 1 È Ã ¹ S*ü show ip route weight Q ¸ ¹,ßM2T¬Ax G¡,XM- ÕCÃ+ Ä G¡ – D weight *ü b r)„ WCMP s6Ñ È ' , üBóEQ >5CÃ+ Ã E’ ¤ Ê È x 6 î B Ø 5CÃ+ ,X G¡ ÚG! D B# G£ È weight EW û,XCÃ+ î Ú ™EW î,X D B y [ÈEW ã5Ù î Ú ™EW å,X D B y [ÄCÃ+ <,X WCMP L$ Ô8 32 È5à x 6 í+ b Ø! 8ƒ(6Ñ Õ,X G¡ á à È ¹ J WCMP L$ DG£ â _ Ë Ý G × 'BóEQ >5CÃ+ ,X G¡ ` û bA¹L$ Ê ÈCY ÎL$,XCÃ+ á î*ó Ä

M- ÕCÃ+ ,X S6Ñ Û « { M- ÕCÃ+ ú Ý È V p ´ í á î*ü bE@ ¥ Ä" CÃ+ G!5B E¯E@ ¥>< ÈL8M2EîE›5%1u 9 ôL8] È ú í Ú Ô,È , ü Ä

?UEîE› ¹ þ5% y ·G!5BM- ÕCÃ+ Ê È G£FS ! ß ÔCÇ,È y y · Ä V ip route 0.0.0.0 0.0.0.0 Fastethernet 0/0 Å ÄE- îA}A’ Û?• k Ý þ-¹,Â Û5%4° ÈFÑ ,ÈE² ü Fastethernet 0/0 y · È´!8 Í!£ þ,Â Û FÑ ¥EÕ Ô þ ARP AË" È î 4*üAŒ î CPU ` Y ,C $d Ä ¹ Ô8 á ÎA, ÚM- ÕCÃ+ ,È y Û å ¹ þ5% y · Ä

G!5B _

¹ ß,XG!5B _ $ È r t Z Ô 5 172.16.100.0/24 ,Â Û5%4°,XM- ÕCÃ+ È ß ÔCÇ 192.168.12.1 È1u)ÚC±/• 115 Ä

```
ip route 172.16.100.0 255.255.255.0 192.168.12.1 115
```

V pM- ÕCÃ+ "u Ý Û n y · È '!7 ¥EÕ y · Lp Ê È Ã6Ñ î S k D B# G£ ¢ J W y · ¥EÕ ÆUFS !A¹ ™ ‰ ¥*ó ÈLÔ?U Û n y · Ä ß,XG!5B _ $ È,Â Û5%4° 172.16.100.0/24 ,X D B# G£ ¾6Ñ ¢fastethernet 0/0 y ·E@ ¥ Ä

```
Ruijie(config)# ip route 172.16.100.0 255.255.255.0 fastethernet 0/0 192.168.12.1
```

,Ì G Q ¸

Q ¸	£EÄ
show ip route	/ IP CÃ+ >< Ä

G ÄAÈ â

Q ¸ ü ` A’ Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.10 ip routing

?U *ü RGOS EC Ê,XIP CÃ+ s6Ñ È ü < õ ã ß ;> A¹ Q ¸ ÄA¹ Q ¸,X no 6 ã Ã ¹ GKÁ IP CÃ+ s6Ñ Ä

ip routing

no ip routing

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B *ü IP CÃ+ Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ 'A' Û ¾ 0 9 yA' Û È ê5Ù ¾ 0 VOIP 5% GA' Û Ê È Ã ¹ áLÔ?URGOS EC Ê,XIP CÃ + E@ ¥ s6Ñ ÄE- Ê Ã ¹ GKÁRGOS ,X IP CÃ+ s6Ñ Ä

G!5B – ¹ ßG!5B È GKÁ Z RGOS EC Ê,XIP CÃ+ s6Ñ Ä

```
Ruijie(config)# no ip routing
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.11 ip static route-limit

?UG!5BM- ÕCÃ+ ,X 5 D ÞL$ ÈAË S*ü < G!5B Q ¸ip static route-limit ÄA¹ Q ¸,X no 6 ã Ã ¹A'5B ²T¬AxCÃ+ 5 D Ä

ip static route-limit *number*

no ip static route-limit

– DAÈ â

– D	£EÄ
number	CÃ+ ÞL$ È8× È1-10000

5 ,ÕG!5B 5 ,Õ 1024 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Đ G!5BM- ÕCÃ+ D ÞL$,X,Â,X Z { M- ÕCÃ+ ,X 5 D ÈEîE› ip static route-limit G!5B M- ÕCÃ+ D ÞL$ â î {*ó V ß p ÈG!5B,XM- ÕCÃ+ D á îCYE›A'5B,X ÞL$ ÄEîE› show

running-config Ã ¹ ¹,ß,Â !G!5B,XM2T¬AxM- ÕCÃ+ D ÞL$ Ä

G!5B _

maximum-prefix- length	Ä ÃEÝ Å Û n,X Ô û8× È (G8× È,X !6KS z) "¼ ã Öle GK + ·><,X ã b1 bE¤1k

5 ,ÕG!5B "u Ý ï Î Ï) !4Ô ë>< Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

ipv6 prefix-list Q ¸*ü bG!5B IPv6 !4ÔE›$¸ Ä !4Ô ë><*ü permit ê5Ù deny GK + 9 ‡ n ü G!,X ™ ‰ ß,X ¦4± ` y «,X | 0 Ä
!4Ô ë><>•*ü 9 n Í b Ô þ !4Ô,X2'.B G! ê5Ù8× È G! Äge ê5Ù le GK +*ü 9 n Ô þ*ü b G!,X !4Ô,X8× È È ¤ o Z!¨)4ƒEg 9 ipv6-prefix È t&I# ,X G!G!5B Ä V p Q ¸ "u Ý ge ê5Ù le GK + È í ipv6-prefix ¤ o Z2'.B,X !4Ô8× È G! Ä V p ™Eg 9 ge È í G!8× È minimum-prefix-length 32 Ä V p ™Eg 9 le È í G!8× È ipv6-prefix ,X }-ÕKS z maximum-prefix- length Ä V p `5ÙFÑ ÝEg 9 È í G!8× È ¢ minimum-prefix-length maximum-prefix- length Ä G Èipv6-prefix }-Õ Ã minimum-prefix-length ` maximum-prefix-length ,X G2Ï Öipv6-prefix }-ÕKS z < minimum-prefix-length < maximum-prefix-length <= 128 Ä

¹ ß S*ü Ú ¥ ë><E¯> E›$¸,X _ $ È!¨ V?U Í RIP #A, G¡ Ú ¥ OSPF

G!5B _

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

G!5B _

¹ ß _ $ IPv6 !4Ô ë>< *ü f c s6Ñ Ö

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list sequence-number
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.15 ipv6 route

?UG!5Bipv6 M- ÕCÃ+ ÈAË S*ü < G!5B Q ¸ ipv6 route ÄA¹ Q ¸,X no 6 ã ôL8 ÆG!5B,XM- ÕCÃ+ Ä

ipv6 route *network* | *prefix-length* { *ipv6-address* | *interface* [*ipv6-address*] } [*distance*] [weight *number*]

– D	£EÄ
network	,Â Û5%4°,X5%4°
prefix-length	,Â Û5%4°,X }-ÕKS z
Ipv6-address	M- ÕCÃ+ ,X ß ÔCÇ
interface	Ä ÃEÝ ÅM- ÕCÃ+ ,X ß ÔCÇ Î ·

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

M- ÕCÃ+ ,X5 ,Õ1u)ÚC±/• 1 ÈÆîE›A'5B1u)ÚC±/• È Ã ¹ AŒ | ÕCÃ+ : ,XCÃ+ ?Z,ªM- ÕCÃ+ È ¾ Ý ' | ÕCÃ+ : á Ê È ! S*üM- ÕCÃ+ ÄEîE›A'5BM- ÕCÃ+ ,X1u)ÚC±/• Ã ¹ r)„4"CÃ,X Û Ñ È!8 Ê,XM- ÕCÃ+ È Ô8 œ/Ä #B |CÃ+ Ä!¨ V OSPF CÃ+ #A,,X1u)ÚC±/• 110 È Ã ¹ ÚM- ÕCÃ+ ,X1u)ÚC±/•A'5B 125 ÈE- 'C¥ OSPF ,X4"CÃ Lp Ê È D B# G£7¾' Ã ¹ Û 6 M- ÕCÃ+ ,X4"CÃ Þ

G!5B _

¹ ß,XG!5B _ $ È r t Z Ô 5 2001::/64 ,Â Û5%4°,XM- ÕCÃ+ È ß ÔCÇ 2002::2 È1u)ÚC±/• 115 Ä

```
ipv6 route 2001::/64 2002::2 115
```

V pM- ÕCÃ+ "u Ý Û n y · È '!7 ¥EÕ y · Lp Ê È Ã6Ñ î S k D B# G£ ¢ J W y · ¥EÕ Ä?UFS !A¹ ™ ‰ ¥*ó È LÔ?U Û n y · Ä ¹ ß,XG!5B _ $ È ,Â Û5%4° 1::/64 ,X D B# G£ ¾6Ñ ¢fastethernet 0/0 y ·E@ ¥ Ä

```
ipv6 route 2001::/64 fastethernet 0/0 2002::2
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 route	/ IPv6 CÃ+ >< Ä

G ÄAÈ â

Q ¸ ü ` A' Û Þ á Õ

S*ü Û Ð

G!5BM- ÕCÃ+ D ÞL$,X,Â,X Z { M- ÕCÃ+ ,X 5 D ÈîE› ipv6 static route-limit G! 5BM- ÕCÃ+ D ÞL$ â î {*ó V ß p ÈG!5B,XM- ÕCÃ+ D á îCYE›A'5B,X ÞL$ ÄEîE› show running config Ã ¹ ¹,ß,Â !G!5B,XM2T¬AxM- ÕCÃ+ D ÞL$ Ä

G!5B _

¹ ß,XG!5B _ $ ÈA'5B ipv6 M- ÕCÃ+ D ÞL$ 900 5 È' â 6 áT¬Ax

```
Ruijie# ipv6 static route-limit 900
Ruijie# no ipv6 static route-limit
```

Q ¸	£EÄ

,Ì G Q ¸

Q ¸	£EÄ
ipv6 route	G!5Bipv6 M- ÕCÃ+
show ipv6 route	/ IPv6 CÃ+ >< Ä

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ

Q ¸ Z Æ

(Ë	AÈ â
10.1	1 Ô õ é 9A¹ Q ¸

41.1.18 match as-path

?UG¡ Ú ×A"KÂ ë>< AŒ,XAS_PATH 2 ûCÃ+ ÈAË S*üCÃ+ ÒG!5B Q ¸match as-path Ä A¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

match as-path *as-path-acl-list-num* ÷*as-path-acl-list-num…..* ù

no match as-path ÷*as-path-acl-list-num……* ù

– DAÈ â

– D	£EÄ
as-path-acl-list-num	A"KÂ ë>< Ë Ä ë>< Ë,X8× È1…500

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

match as-path Q ¸ âM6 Ã ¹C³ î þA"KÂ ë>< Ë Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B _

```
Ruijie(config)# route-map ROUTEMAP2IBGP
Ruijie(config-route-map)# match as-path 20 30
```

,Ì G Q ¸

Q ¸	£EÄ
match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z

```
Ruijie(config-route-map)# set  local-preference 20
```

,Ì G Q ¸

Q ¸	£EÄ
ip community-list	G!5B ¶ ' ë><
match as-path	G!CÃ+ ,X AS_PATH 2 û
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û Ä
set comm-list delete	A'5B ôL8 G!,X ¶ ' 2 û
set community	A'5B Û n,X ¶ ' 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.20 match interface 197909B702C8re f 66.84

üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

CÃ+ Ò,XG!5B Ú&I# È Ã ¹ h*ü üCÃ+ G¡ Ú × `1*+9CÃ+ ,XG!5B Þ Ä á1u V) h*üCÃ + Ò È JG!5B s)Ú Ô ,X È ¾ EÖ*ü,X Q ¸Lš á à5à Æ Ä G S à h*ü üCÃ+ G¡ Ú × Þ È á à,XCÃ+ #A, h*üCÃ+ Ò È J6Ñ ó S*ü,X Q ¸ 3 á ,Ì à Ä

¹ ß,XG!5B _ $ È OSPF CÃ+ #A,G¡ Ú × RIP CÃ+ ÈU" ¾G¡ Ú × ß ÔCÇ fastethernet 0/0 ,X RIP CÃ+ Ä

G!5B _

```
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 fastethernet 0/0
```

,Ì G Q ¸

Q ¸	£EÄ
match ip address	G!A“KÂ ë>< ,X
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric	A’5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.21 match ip address

?UG¡ Ú ×A“KÂ ë>< ê !4Ô ë>< AŒ,X,Â Û5%4°CÃ+ ÈAË S*üCÃ+ ÒG!5B match ip address ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

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...*]}

– DAÈ â

– D	£EÄ
access-list-number	A“KÂ ë>< Ë Û šA“KÂ ë>< Ë8× È Ö1-99 È1300-1999 =)A“KÂ ë>< Ë8× È Ö100-199 È2000-2699
access-list-name	A“KÂ ë>< á +
prefix-list *prefix-list-name*	?U G!,X !4Ô ë>< á +

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

match ip address Q ¸ âM6 Ã ¹C³ î þA“KÂ ë>< Ë ê5ÙA“KÂ ë>< á + Ä
CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä
üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä
Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä
V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B –

CÃ+ Ò,XG!5B Ú&I# È Ã ¹ h*ü üCÃ+ G¡ Ú × `1*+9CÃ+ ,XG!5B Þ Ä á1u V) h*üCÃ + Ò È JG!5B s)Ú Ô ,X È ¾ EÖ*ü,X Q ¸Lš á à5à Æ Ä G S à h*ü üCÃ+ G¡ Ú × Þ È á à,XCÃ+ #A, h*üCÃ+ Ò È J6Ñ ó S*ü,X Q ¸ 3 á ,Ì à Ä
¹ ß,XG!5B _ $ È OSPF CÃ+ #A,G¡ Ú × RIP CÃ+ È?U" ¾G¡ Ú ×0ú ÜA“KÂ ë><10 ,X RIP CÃ+ È ü OSPF CÃ+ ³ ÈA¹CÃ+ ,X2O _ êF¼CÃ+ type-1 È ñ ŸG£ z 40 Ä

```
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
```

¸Ì G Q ¸

Q ¸	£EÄ
access-list	n A“KÂ ë><?˜ í
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric	A’5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

41.1.22 match ip next-hop

?UG¡ Ú × ß ÔCÇlP 0ú ÜA“KÂ ë>< ê !4Ô ë><?˜ í,X,Â Û5%4°CÃ+ È*üCÃ+ ÒG!5B Q ¸ match ip next-hop ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

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...*]}

– DAÈ â

– D	£EÄ
access-list-number	A“KÂ ë>< Ë Û šA“KÂ ë>< Ë8× È Ö1-99 È1300-1999 =)A“KÂ ë>< Ë8× È Ö100-199 È2000-2699

access-list-name	A“KÂ ë>< á +
prefix-list *prefix-list-name*	?U G!,X !4Ô ë>< á +

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

match ip next-hop Q ¸ âM6 Ã ¹C³ î þA“KÂ ë>< Ë ê5ÙA“KÂ ë>< á + Ä

CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä !¨ V Ã ¹ Ú OSPF CÃ + ³E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ+ ³,XCÃ+ G¡ „ Ú × âEî RIP

S*ü Û Ð

set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.23 match ip route-source

?UG¡ Ú ×CÃ+ $dlP 0ú ÜA“KÂ ë><ê !4Ô ë><?˜ í,X,Â Û5%4°CÃ+ È*üCÃ+ ÒG!5B Q ¸ match ip route-source ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

match ip route-source {*access-list-number* [*access-list-number...* |*access-list-name...*] |*access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

no match ip route-source {*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | prefix-list *prefix-list-name* [*prefix-list-name...*]}

– DAÈ â

– D	£EÄ
access-list-number	A“KÂ ë>< Ë
access-list-name	A“KÂ ë>< á +
prefix-list *prefix-list-name*	?U G!,X !4Ô ë>< á +

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

match ip route-source Q ¸ âM6 Ã ¹C³ î þA“KÂ ë><Ë Ä
CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä
üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä
Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B _ ¹ ß,XG!5B _ $ È OSPF CÃ+ #A,G¡ Ú × RIP CÃ+ Ä¾?URIP CÃ+ ,XCÃ+ $dP 0ú Ü

G!5B1*+9CÃ+ ,X G!?˜ í

Ruijie(config)#route-map user-for-pbr permit 10

Ruijie(config-route-map)#match ipv6 address aaa

,Ì G Q ¸

Q ¸	£EÄ
ipv6 access-list	n IPv6 A“KÂ ë><?˜ í
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ipv6 next-hop	G! IPv6 A“KÂ ë>< ,X ß ÔCÇ
match ipv6 route-source	G! IPv6 A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric	A’5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„
set ipv6 default next-hop	A’5B5 ,ÕE@ ¥ y [,X ß ÔCÇ Ä
set ipv6 next-hop	A’5BE@ ¥ y [,X ß ÔCÇ Ä
show ipv6 policy	/ ' !A’ Û h*ü,X1*+9CÃ+ ™ ‰ Ä

G ÄAÈ â ´

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä

üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B –

CÃ+ Ò,XG!5B Ú&I# È Ã ¹ h*ü üCÃ+ G¡ Ú × `1*+9CÃ+ ,XG!5B Þ Ä á1u V) h*üCÃ + Ò È JG!5B s)Ú Ô ,X È ¾ EÖ*ü,X Q ¸Lš á à5à Æ Ä G S à h*ü üCÃ+ G¡ Ú × Þ È á à,XCÃ+ #A, h*üCÃ+ Ò È J6Ñ ó S*ü,X Q ¸ 3 á ,Ì à Ä

¹ ß,XG!5B _ $ È OSPF CÃ+ #A,G¡ Ú × RIP CÃ+ È?U" ¾G¡ Ú ×0ú ÜA“KÂ ë><10 ,X RIP CÃ+ È ü OSPF CÃ+ ³ ÈA¹CÃ+ ,X2O _ êF¼CÃ+ type-1 È ñ ŸG£ z 40 Ä

```
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
```

Q ¸	£EÄ

RIP

set tag	A'5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.26 match ipv6 route-source

?UG¡ Ú × ß ÔCÇPv6 0ú ÜA"KÂ ë>< ê !4Ô ë><?˜ í,X,Â Û5%4°CÃ+ ÈÆË S*üCÃ+ ÒG!5B Q ¸ match ipv6 address ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

match ipv6 route-source { *access-list-name* | prefix-list *prefix-list-name* }

no match ipv6 route-source

– DAÈ â

– D	£EÄ
access-list-name	A"KÂ ë>< á +
prefix-list *prefix-list-name*	></ ?U G!,X IPv6 !4Ô ë>< á +

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä

üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B – CÃ+ Ò,XG!5B Ú&I# È Ã ¹ h*ü üCÃ+ G¡ Ú × `1*+9CÃ+ ,XG!5B Þ Ä á1u V) h*üCÃ + Ò È JG!5B s)Ú Ô ,X È ¾ EÖ*ü,X Q ¸Lš á à5à Æ Ä G S à h*ü üCÃ+ G¡ Ú × Þ È á à,XCÃ+ #A, h*üCÃ+ Ò È J6Ñ ó S*ü,X Q ¸ 3 á ,Ì à Ä

¹ ß,XG!5B _ $ È OSPF CÃ+ #A,G¡ Ú × RIP CÃ+ È?U" ¾G¡ Ú ×0ú ÜA"KÂ ë><10 ,X RIP CÃ+ È ü OSPF CÃ+ ³ ÈA¹CÃ+ ,X2O _ êF¼CÃ+ type-1 È ñ ŸG£ z 40 Ä

```
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 5200::/64    any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip    permit 10
Ruijie(config-route-map)# match ipv6 route-source v6acl
Ruijie(config-route-map)# set metric 50
```

Q ¸	£EÄ
ipv6 access-list	n IPv6 A“KÂ ë><?˜ í
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ipv6 address	G! IPv6 A“KÂ ë>< ,X ß ÔCÇ
match ipv6 route-source	G! IPv6 A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„

Q ¸ õ ã

CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

1*+9CÃ+ Ô/¡!¨ Î b,Â Û5%4°E¯> CÃ+ È t&I# ,X D B ÙCÃ+ E@ ¥ Ä h*ü Z1*+9 CÃ+ È A' Û ÚEîE›CÃ+ Ò ‡ n V) ÍLÔ?UCÃ+ ,X D B ÙE¯> Ø)Ú ÈCÃ+ Ò ‡ n Z Ô þ D B Ù,X ß ÔCÇE@ ¥A' Û Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü 1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> " ¹ È á0ú ÜCÃ+ Ò Ï)1*+9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú Ä

V pLÔ?U Ú x f ã# G£ ` û MG£# G£ È Ú ÿCD á à,XCÃ X È Ã ¹ S*ü Î b D B Ù û ã ,X1*+9CÃ+ Ä

G!5B _

¹ ß,XG!5B _ $ È ü serial 1/0 *ü1*+9CÃ+ È Ú D B Ù ã b 500 +8V,X# G£ È ¢ fastethernet 1/0 y · ¥EÕ Î • Ä

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

,Ì G Q ¸

Q ¸	£EÄ
route-map	n CÃ+ Ò
match ip address	G!A“KÂ ë>< ,X
set default interface	A'5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+
set interface	A'5B D B Ù,XEg Î y ·
set ip default next-hop	A'5B D B Ù,X ß ÔCÇP È V pCÃ + >< "u Ý â.B,XCÃ+
set ip next-hop	A'5B D B Ù,X ß ÔCÇP
set ip precedence	A'5B D B Ù IP ì

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â

	-	-

41.1.28 match metric

?U G!CÃ+ ,XG£ z ÈAË S*üCÃ+ ÒG!5B Q ¸match metric ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG! 5B Ä

match metric *metric*

no match metric

	– D	£EÄ
– DAÈ â	*metric*	CÃ+ G£ z ª 8× È Ö0-4294967295

5 ,ÕG!5B	5 ,Õ"u ÝG!5B Ä
Q ¸ õ ã	CÃ+ ÒG!5B õ ã Ä
S*ü Û Ð	CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä r425042 490A1E>6<01F4-1.563 Td 976 um>6<47213DB30401>0102944

match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric	A’5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.29 match origin

?UG¡ Ú ×A“KÂ ë>< AŒ,X 9$d,XCÃ+ ÈAË S*üCÃ+ ÒG!5B Q¸match origin ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

match origin {egp | igp | incomplete }

no match origin {egp | igp | incomplete| }

– DAÈ â

– D	£EÄ
egp	9$d E°0Ã,X EGP
igp	9$d ,X IGP
Incomplete	9$d á ` H2O _

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð ¾6Ñ ó G! Ô/¡ 9$d,XCÃ+ È á6Ñ ó à Ê G! î/¡ 9$d2O _ Ä
A¹ Q ¸*ü 9A’5B G!,XCÃ+ 9$d,X 5 Ê Ä

G!5B _

```
Ruijie(config)# route-map MY_MAP10 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
```

Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH 2 û
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z
set origin	A'5BG¡ Ú ×CÃ+ ,X2O _

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.30 match route-type

?U G!CÃ+ ,XCÃ+ 2O _ ÈAË S*üCÃ+ ÒG!5B Qmatch route-type ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

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

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

– DAÈ â

– D	£EÄ
local	*ó ä,XCÃ+
Internal	OSPF ,X YF¼CÃ+
external	êF¼CÃ+(BGP ê OSPF ,X êF¼CÃ+)
type-1 | type-2	OSPF ,X2O _1 ê2O _ 2 êF¼CÃ+
level-1 | level-2	ISIS 1 ê 2 CÃ+

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ + ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä

üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B _

¹ ß,XG!5B _ $ ÈRIP CÃ+ #A,G¡ Ú × OSPF CÃ+ ÄRIP ¾G¡ Ú × OSPF CÃ+ ³,X YF¼ CÃ+ Ä

```
Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip  permit 10
Ruijie(config-route-map)# match route-type internal
```

,Ì G Q ¸

Q ¸	£EÄ
access-list	n A“KÂ ë><?˜ í
match ip address	G!A“KÂ ë>< ,X
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match tag	G!CÃ+ ,X ÛA„
set metric	A’5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.31 match tag

?U G!CÃ+ ,X ÛA„ ÈAË S*üCÃ+ ÒG!5B Q ¸match tag ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

match tag *tag* [*…tag*]

no match tag *tag* [*…tag*]

– DAÈ â

– D	£EÄ
tag	CÃ+ ,X ÛA„

5 ,ÕG!5B

5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã

CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

match tag Q ¸ âM6 Ã ¹C³ î þ tag Ä

CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß Ä!¨ V Ã ¹ Ú OSPF CÃ+ ³,X CÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä

üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì f Ú ×E¯> Ý 5 Ê,X { Ä

Ô þCÃ+ Ò?˜ íG!5B È Ã ¹ ;> 1 þ ê î þ,X match Q ¸ ` 1 þ ê î þ,X set Q ¸ Ä V p"u Ý match Q ¸ È í G! Ý × V p"u Ý set Q ¸ È í á . Ï) ¡ 0 Ä

G!5B –

¹ ß,XG!5B _ $ ÈRIP CÃ+ #A,G¡ Ú × OSPF CÃ+ ÄRIP ¾G¡ Ú × OSPF CÃ+ ³ ÛA„ 50 ` 80 ,XCÃ+ Ä

```
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
```

Q ¸	£EÄ
access-list	

set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ		
(Ë	**AÈ â**
-	-

41.1.32 maximum-paths

?UG!5B1 ËCÃ+ ,X 5 D ÈAË S*ü < G!5B Q ¸ maximum-paths ÄA¹ Q ¸,X no 6 ã Ã ¹A’ 5B ²T¬Ax1 ËCÃ+ 5 D Ä

maximum-paths *number*

no maximum-paths

– DAÈ â

– D	**£EÄ**

num.48 20.7 refB56 464.38rTc 0 Tw 21.952 0.006 T1C2_67/TT0 1 Tf[<51B4401C4>Tj/TTC581 1 Tf(T

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	Q ¸ ü ` A’ Û Þ á Õ Ä

Q ¸ Z Æ		AÈ â
	-	-

41.1.33 route-map

?U n CÃ+ Ò È JE¯ 9CÃ+ ÒG!5B õ ã ÈAË S*ü < G!5B Q ¸ route-map ÄA¹ Q ¸,X no 6 ã ôL8 Û nCÃ+ Ò,X n Ä

route-map *route-map-name* [permit | deny] [*sequence-number*]

no route-map *route-map-name* [permit | denye Tjt116441B90A5104B82C532 67 Tf -9( )Tj 34AC2_0 1 Tf

Q ¸ õ ã < G!5B õ ã Ä

,Â ! RGIOS EC Ê,XCÃ+ Ò ?U*ü ü ø þ • Ö Í ÅCÃ+ G¡ Ú × { × Î Å1*+9CÃ+ Ä Í ÅCÃ+ G¡ Ú × {

CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ

S*ü Û Ð

41.1.34 set aggregator as

?U Í G! match ?˜ í,XCÃ+ Û nCÃ+ ,X6. Ü5Ù,X AS 2 û ÈAË S*üCÃ+ ÒG!5B Q ¸ set aggregator as ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä Q ¸ ™*ü b1*+9CÃ+ G!5B Ä

set aggregator as *as-num ip_addr*

no set aggregator as [*as-num ip_addr*]

– DAÈ â

– D	£EÄ
as-number	6. Ü5Ù,X AS ³ Ë
ip_addr	6. Ü5Ù,X

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð A¹ Q ¸ ü BGP E¯> S*ü È*ü 9A'5BCÃ+ ,X6. Ü 2 û Ä
A¹ Q ¸,X – D ¾ Ý Ô4˜ Äas,ip-addr Å È á Õ à ÊA'5B î4˜ – D

G!5B _

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH
match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set community	A'5BG¡ Ú ×CÃ+ ,XCOMMUNITY 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A'5BG¡ Ú ×CÃ+ ,X2O _

G ÄAÈ â ´

(Ë	

41.1.35 set as-path prepend

?U Í G! match ?˜ í,XCÃ+ r t Û n,X AS_PATH 2 û ÈAË S*üCÃ+ ÒG!5B Q ¸ set as-path prepend

41.1.36 set comm-list delete

?U Í G! match ?˜ í,XCÃ+ ôL8 COMMUNITY_LIST ,X Ý,X community 2 û ÈAË S *üCÃ+ ÒG!5B Q ¸set comm-list delete ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä Q ¸ ™*ü b 1*+9CÃ+ G!5B Ä

set comm-list *community-list-number* | *community-list-name* delete

no comm-list

,Ì G Q ¸

Q ¸	£EÄ
ip community-list	G!5B ¶ ' ë><
match as-path	G!CÃ+ ,X AS_PATH 2 û
match community	G!CÃ+ ,X ¶ ' 2 û
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set comm-list delete	A'5B ôL8 G!,X ¶ ' 2 û
set local-preference	A'5BG¡ Ú ×CÃ+ ,X ì 4{

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

41.1.37 set community

?U Í G! match ?˜ í,XCÃ+ Û n COMMUNITY 2 û ÈAË S*üCÃ+ ÒG!5B Q ¸set community ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B

set community {*community-number*[*community-number …*] additive | none}

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

– DAÈ â

– D	£EÄ
community-number	¶ ' 2 û Ä ã AA:NN(7¾"•2Ï4³ Ë:2 +8V D +) È ê5Ù Ô þ D È8× È 0-4294967295 È ê5Ù ¹ ßNX n Ö internet È></ Internet ¶ ' È Ý,XCÃ XFÑ 2 bA¹ ¶ ' Ä local-as È></ CÃ X á ¥ × AS êF¼ È'G!5B6(,³ Ê È CÃ X á ¥ ×4- J W,X7¾"•2Ï4³ ê $7¾"•2Ï 4³ Ä no-advertise È></ CÃ X á ¥ × Ï) Ô þ BGP peers Ä no-export È></ CÃ X á ¥ ×4- EBGP peers Ä
additive	ü s Ý community 2 û,X Î. Þ r t
none	A'5B ¶ ' 2 û 0N

5 ,ÕG!5B	5 ,Õ"u ÝG!5B Ä
Q ¸ õ ã	CÃ+ ÒG!5B õ ã Ä
S*ü Û Ð	S*üA¹ Q 9G!5B G! ,XCÃ+ ,X ¶ ' 2 û Ä

G!5B _

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH
match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set origin	A'5BG¡ Ú ×CÃ+ ,X 9$d
set metric-type	A'5BG¡ Ú ×CÃ+ ,X2O _

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.38 set dampening

?U Í G! match ?˜ í,XCÃ+ ,XCÃ+ 95 – D ÈAË S*üCÃ+ ÒG!5B Q ¸ set dampening ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

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

no set dampening

– DAÈ â

– D	£EÄ
half-life	CÃ+ ÃE' ê á ÃE' Ê,X >D ó Ä 8× È 1..45(ÚJs) È5 ,Õ 15 ÚJs
reuse	'CÃ+ ,X ½5. " bA¹ Ê ÈCÃ+ e ?·L8 Ä8× È 1..20000 È5 ,Õ 750 Ä
suppress	'CÃ+ ,X ½5. CYE›A¹ Ê ÈCÃ+ >• e Ä 8× È 1..20000 È5 ,Õ 2000 Ä
max-suppress-time	CÃ+ 6Ñ>• e ,X ÔKS ÊKÈ Ä 8× È 1..255(ÚJs) È5 ,Õ 4* half-life

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð S*üA¹ Q 9G!5B G! ,XCÃ+ ,XCÃ+ 95 – D Ä

G!5B _

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH
match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z
set local-preference	A'5BG¡ Ú ×CÃ+ ,X ì z

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.39 set extcommunity

?U Í G! match ?˜ í,XCÃ+ Û n =) ¶ ' 2 û ÈAË S*üCÃ+ ÒG!5B Set¸ extcommunity ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä Q ¸ ™*ü b1*+9CÃ+ G!5B Ä

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

no set extcommunity {rt | soo}

– DAÈ â

– D	£EÄ
rt	A'5BCÃ+ ,XRT 2 û
soo	A'5BCÃ+ ,XSOO 2 û
extend-community-value	=) ¶ ',X

5 ,ÕG!5B

5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã

CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

S*üA¹ Q 9G!5B G! ,XCÃ+ ,X =) ¶ ' 2 û Ä

G!5B –

```
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
```

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH
match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z

41.1.40 set ip default next-hop

?U Í G! match ?˜ í,X D B Ù Û nT¬Ax ß ÔCÇ IP ÈAË S*üCÃ+ ÒG!5B Q ¸ set ip next-hop ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

no set ip default next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

– DAÈ â

– D	£EÄ
ip-address	ß ÔCÇIP
weight	ß ÔCÇ,X G¡

5 ,ÕG!5B

5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã

CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

5 set Q ¸ Ý ø/¡E¤> õ ã Ö WCMP BóEQ >5E¤> õ ã È2WCMP BóEQ >5E¤> õ ã Ä ü ! Ô/¡E¤> õ ã ß È2Ï4³ Ú B*ü Eg 9,X weight D Í# G£E¯> WCMP BóEQ >5 Ä set ip default next-hop Q ¸ âM6 Ã ¹C³ î þ IP È Ô î áCYE› 32 þ Ä V p ü ip address â r t weight D È í Ô î Ã ¹G!5B áCYE› 4 þ,X nexthop Ä

"¼ ã	ü Ï) Ô þ next-hop âC³Lc weight D ÈÚ S k set Q ¸,XE¤> õ ã7¾	Û 6 WCMP BóEQ >5E¤> õ ã Ä ü WCMP BóEQ >5E¤> õ ã ß È Í b ¾ o"u ÝG!5B Í h weight ,X nexthop ÈJ weight 5 ,Õ 1 Ä

set ip next-ho p ` set ip default next-hop Q ¸,X ÿ ü b Ö G!5B Zset ip next-hop Q ¸,X2Ï4³ üE@ ¥ y [ì S*ü1*+9CÃ+ ×G!5B Z set ip default next-hop ,X2Ï4³ î ü E@ ¥ y [Ê ì S*üCÃ+ E@ ¥>< Ä

S*ü 5 Q ¸ (M n*ü ¤ oA'5B Ô 5 n T¬AxCÃ+ ,X s6Ñ Ä V pEC Ê Þ ´"© YE@ ¥ ,X y [R E@ ¥CÃ+ È í ÚA¹ y [E@ ¥ Q ¸G!5B,X ß ÔCÇ (nexthop) Þ Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü 1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> " ¹ È á0ú ÜCÃ+ Ò Ï)1*+9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú Ä

Ô þCÃ+ Ò1*+9 Ã ¹ Ý î þ set ¡ 0 Ä

G!5B _

¹ ß,X _ $ Í ø þ á à,X8V&• ¥ Î,X y [Ú ÿE@ ¥ á à,XCÃ X Þ • Ä

ü à!9 y · 1 Þ y ,X ¢ 1.1.1.1 ¥ Î,X y [È V pEC Ê R á E@ ¥CÃ+ Ê È >•E@ ¥ A' Û 6.6.6.6 • ×5à y ,X ¢ 2.2.2.2 ¥ Î,X y [È V pEC Ê R á E@ ¥CÃ+ Ê È >• E@ ¥ A' Û 7.7.7.7 • Ä J ª,X y [V pEC Ê R á E@ ¥CÃ+ Ê ö × Ø)Ú Ä

```
Ruijie(config)#access-list
```

– DAÈ â	– D	£EÄ
	dscp_value	A'5B IP y [IP DSCP

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð ´

G!5B _ ´

,Ì G Q ¸	Q ¸	£EÄ
	route-map	n CÃ+ Ò
	match ip address	G!A"KÂ ë>< ,X
	set default interface	A'5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+
	set default interface	A'5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+
	set interface	A'5B D B Ù,XEg Î y ·
	set ip default next-hop	A'5B D B Ù,X ß ÔCÇP È V pCÃ + >< "u Ý â.B,XCÃ+
	set ip precedence	A'5B D B Ù IP ì

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

41.1.42 set ip next-hop

?U Í G! match ?˜ í,X D B Ù Û n ß ÔCÇ IP ÈÆË S*üCÃ+ ÒG!5B Q ¸ set ip next-hop Ä A¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä Q ¸ ™*ü b1*+9CÃ+ G!5B Ä

set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

no set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

– DAÈ â	– D	£EÄ

ip-address	ß ÔCÇIP
weight	ß ÔCÇ,X G¡

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

5 set Q ¸ Ý ø/¡E¤> õ ã ÖWCMP BóEQ >5E¤> õ ã ÈM2WCMP BóEQ >5E¤> õ ã Ä ü ! Ô/¡E¤> õ ã ß È2Ï4³ Ú B*ü Eg 9,X weight re f 66.30.0053 T<1B.02613E35> [<231530

S*ü Û Ð

Ruijie(config)#**route-map** load-balance **permit** 30
Ruijie(config-route-map)#**set interface Null** 0

,Ì G Q ¸

Q ¸	£EÄ
route-map	n CÃ+ Ò
match ip address	G!A“KÂ ë>< ,X
set default interface	A’5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+
set default interface	A’5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+
set interface	A’5B D B Ù,XEg Î y ·
set ip default next-hop	A’5B D B Ù,X ß ÔCÇIP È V pCÃ + >< "u Ý â.B,XCÃ+
set ip precedence	A’5B D B Ù IP ì

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.43 set ip next-hop verify-availability

?U Û n.BAx ß ÔCÇIP ,X ÃE’ û ÈAË S*üCÃ+ ÒG!5B Çset ip next-hop verify-availability ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä Q ¸ ™*ü b1*+9CÃ+ G!5B Ä

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*

– DAÈ â

– D	£EÄ
ip-address	ß ÔCÇIP
track-obj-num	C³Cþ ÍB54ê Ë

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð ´

G!5B _

¹ ß,XG!5B _ $ È ü serial 1/0 Þ *ü1*+9CÃ+ Ä 'A¹ y · y $d ü 10.0.0.0/8 8× È Y,X D B Ù,X# G£ È Ú ¥EÕ 192.168.100.1 ×$d5%4° 172.16.0.0/16 8× È Y,X D B Ù,X# G£ È Ú ¥EÕ 172.16.100.1 × J -,X D B# G£ Ú <F¼ ö × Ä

```
Ruijie(config)#interface serial 1/0
Ruijie(config-if)#ip policy route-map load-balance
Ruijie(config)#access-list 10 permit 10.0.0.0 0.255.255.255
Ruijie(config)#access-list 20 permit 172.16.0.0 0.0.255.255
Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#set ip next-hop 192.168.100.1
Ruijie(config)#route-map load-balance permit 20
Ruijie(config--route-map)#match ip address 20
Ruijie(config-route-map)#set ip next-hop 172.16.100.1
Ruijie(config)#route-map load-balance permit 30
Ruijie(config-route-map)#set interface Null 0
```

Q ¸	£EÄ
route-map	n CÃ+ Ò
match ip address	G!A“KÂ ë>< ,X
set default interface	A’5B D B Ù,XEg Î y · È V pCÃ+ >< "u Ý â.B,XCÃ+

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* |

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

41.1.45 set ip tos

?U Í G! match ?˜ í,X y [A'5B y [IP ,X TOS, AË S*üCÃ+ ÒG!5B Q ¸set ip tos ÄA¹ Q ¸,X no 6 ã È J Û nG!5B,X tos ôL8 Æ ÝG!5B Ä

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* }

– D

match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	
match tag	G!CÃ+ ,X ` ! þf„r6, $ŽñAg h r˜ ŽöhFƒ t$ ï6 ‡$ t$ ï°

weight	BóEQ >5 õ ã ß,X G¡ È1 8.

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

5 set Q ¸ Ý ø/¡E¤> õ ã Ö WCMP BóEQ >5E¤> õ ã È M2 WCMP BóEQ >5E¤> õ ã Ä
ü ˜ ðÁ ÄM1Ñtz , ƒ ,ð W.Cígh(X0Eg.3g9€ set Td [<42-26.64 B7F,C0 B8 98./ To D >6<4Ax210e0E† 9G D'5A„g

S*ü Û Ð

RGOS 10.4	RGOS 10.4 Ô Ÿ ÕA¹ Q ¸ Ä

41.1.48 set ipv6 next-hop verify-availability

ü Route-map õ ã ßEîE› set ipv6 next-hop verify-availability Q ¸G!5B S6Ñ Î b BFD ” # F• IPv6 ¹.B nG!5B,XCÃ+ 1*+9 ß ÔCÇ ú*ó ÄEîE› no Q ¸ GKÁA¹ s6Ñ Ä

set ipv6 next-hop verify-availability [*global-ipv6-address* [*weight*] bfd *interface-type interface-number gateway*]

no set ipv6 next-hop verify-availability [*global-ipv6-address* [*weight*] bfd *interface-type interface-number gateway*]

– DAÈ â

– D	£EÄ
J O R E D O L S Y D G G ¡ H V V	ÃEÝ ß ÔCÇ , 3 Y
bfd	ÃEÝ EîE› %) ' • ãE¯> F• ”#
Z H L J K W	ÃEÝ ß ÔCÇ G¡
interface-type interface-number gateway	ÃEÝ G!5B y ·2O _ ` y ·4ê Ë (ÃEÝ)G!5B5% G È G BFD

```
Ruijie(config-route-map)#set ipv6 next-hop verify-availability
2002::2 bfd FastEthernet 0/1 2002::2
Ruijie(config-route-map)#end
```

,Ì G Q ¸

Q ¸	£EÄ
bfd	G!5BBFD îA± – D Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

41.1.49 set ipv6 precedence

?U Í G! match ?˜ í,X y [A'5B IPv6 ,X ì 4{ ÈAË S*üCÃ+ ÒG!5B Q ¸ set ipv6 precedence ÄA¹ Q ¸,X no 6 ã È J Û nG!5B,X ì 4{ ôL8 Æ ÝG!5B Ä

set ipv6 precedence {<*0-7*> | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }

no set ipv6 precedence {<*0-7*> | *critical* | *flash* | *flash-override* | *immediate* | *internet* | *network* | *priority* | *routine* }

– DAÈ â

– D	£EÄ
Critical Ã flash Ã flash-override Ã immediate Ã internet Ã network Ãpriority Ã routine	A'5B,X IPv6 ,X ì 4{ Ä
0~7	0~7

5 ,ÕG!5B ´ Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð â2O _ Í h G2ï Ö

	ÿ

0	routine
1	priority
2	network
3	internet
4	immediate
5	flash-override
6	flash
7	critical

_ 1 ÖA’5B Â IPV6 y [ì 4{ 3 Ä
G!5B G6(,XACL6

G!5B _

10.4	„ r Q ¸

41.1.50 set level

?U Í G! match ?˜ í,XCÃ+ Û â?U Đ 9,X,Â Û ³2O _ ÈAË S*üCÃ+ ÒG!5B Q ¸ set level Ä A¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

set level {level 1 | level 2 | level 1-2 | stub-area | backbone }

no set level

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Đ ´

G!5B _

¹ ß,XG!5B _ $ ÈOSPF CÃ+ #A,G¡ Ú × RIP CÃ+ backbone ³ Ä

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ip address	G!A“KÂ ë>< ,X
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.51 set local-preference

?U Í G! match ?˜ í,XCÃ+ A'5B LOCAL_PREFERENCE ÈAË S*üCÃ+ ÒG!5B Q ¸ set local-preference ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

set local-preference *number*

no set local-preference

– DAÈ â

– D	£EÄ
number	ì z,X zG£ Ä8× È Ö0-4294967295

5 ,ÕG!5B 5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð ¾6Ñ óA'5B Ô þlocal-preference È á6Ñ óA'5B î þ local-preference 2 û Ä A¹ Q ¸+ 9A'5B G! ,XCÃ+ ,X ì 4{ Ä

G!5B _

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH 2 û
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z

```
Ruijie(config-router)# network 192.168.12.0 0.0.0.255      area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip    permit 10
Ruijie(config-route-map)# set metric 40
```

,Ì G Q ¸

Q ¸	£EÄ
match interface	G!CÃ+ ,X ß ÔCÇ y ·
match ip address	G!A“KÂ ë>< ,X
match ip next-hop	G!A“KÂ ë>< ,X ß ÔCÇ
match ip route-source	G!A“KÂ ë>< ,XCÃ+ $d
match metric	G!CÃ+ ,XG£ z
match route-type	G!CÃ+ ,X2O _
match tag	G!CÃ+ ,X ÛA„
set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _
set tag	A’5BG¡ Ú ×CÃ+ ,X ÛA„

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.53 set metric-type

?U Í G! match ?˜ í,XCÃ+ ,XA’5B zG£ 2O _ ÈAË S*üCÃ+ ÒG!5B Q ¸ set metric-type Ä A¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

set metric-type *type*

no set metric-type

– DAÈ â

– D	£EÄ
type	A’5BG¡ Ú ×CÃ+ ,X2O _

5 ,ÕG!5B OSPF G¡ Ú ×CÃ+ 5 ,Õ type-2 Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð CÃ+ µ C Ã ¹ ¢ Ô þCÃ+ E¯/ßG¡ Ú × º ê Ô þCÃ+ E¯/ß,X s6Ñ Ä!¨ V Ã ¹ Ú OSPF CÃ

+ ³,XCÃ+ G¡ „ Ú × âEî RIP CÃ+ ³ È 3 Ã ¹ Ú RIP CÃ+ ³,XCÃ+ G¡ „ Ú × âEî
OSPF CÃ+ ³ ÄCÃ+ ,X,Ì fG¡ Ú × Ã ¹ ü Ý,X IP CÃ+ #A, KÈE¯> Ä
üCÃ+ G¡ Ú × È4£ EîE›CÃ+ Ò Ä route maps Å,X h*ü È Í ø þCÃ+ ³ KÈ,XCÃ+ ,Ì
f Ú ×E¯> Ý 5 Ê,X { Ä

no set next-hop *ip-address*

– D	£EÄ

41.1.55 set origin

?U Í G! match ?˜ í,XCÃ+ µ C Û nCÃ+ 9$d 2 û ÈAË S*üCÃ+ ÒG!5B Q ¸ set origin ÄA¹ Q ¸,X no 6 ã ôL8 Æ ÝG!5B Ä

set origin {egp | igp | incomplete }

no set origin

– DAÈ â

– D	£EÄ
egp	9$d E°0Ã,X EGP
igp	9$d ,X IGP
incomplete	á-¹F' ¾G 9,X

5 ,ÕG!5B

5 ,Õ"u ÝG!5B Ä

Q ¸ õ ã

CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

¾6Ñ óA'5B Ô þCÃ+ 9$d 2 û Ä
A¹ Q ¸+ 9A'5B G! ,XCÃ+ ,X 9$d 2 û Ä

G!5B _

```
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
```

,Ì G Q ¸

Q ¸	£EÄ
match as-path	G!CÃ+ ,X AS_PATH 2 û
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set as-path prepend	A'5BG¡ Ú ×CÃ+ ,XAS_PATH 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z
set local-preference	A'5BG¡ Ú ×CÃ+ ,X ì z

G ÄAÈ â

´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

41.1.57 set tag

?U Í G! match ?˜ í,XCÃ+ A'5B ÛA„ ÈAË S*üCÃ+ ÒG!5B Q ¸set tag ÄÁ¹Q ¸X no 6 ã ô

set metric-type	A’5BG¡ Ú ×CÃ+ ,X2O _

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

41.1.58 set weight

?U Í G! match ?˜ í,X BGP CÃ+ A’5B G¡ ÈAË S*üCÃ+ ÒG!5B Q ¸ set weight ÄA¹ Q ¸ ,X no 6 ã ôL8 Æ ÝG!5B Ä

set weight *number*

no set weight

– DAÈ â

– D	£EÄ
number	A’5BCÃ+ ,X G¡ Ä 8× È Ö0-65535

5 ,ÕG!5B 5 ,Õ"u ÝA’5B Ä

Q ¸ õ ã CÃ+ ÒG!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸ ¾EÖ*ü b Â BGP CÃ+ ,X G¡ Ä
5 ,Õ ™ ‰ ß È ¢F• y ,XCÃ+ È B neighbor weight ,XG!5B k G¡ ,X ×5à
*ó {CÃ+ ,X G¡ Î n,X 32768 Ä
Ã ¹EîE›A¹ Q ¸A’5B,X Â BGP 5 ,Õ Ú ¥,X G¡ Ä

¹ ß,XG!5B _ $ È _0 1 Tf 0 Tc 15.467 0m [501C4>Tj /TT0 1 Tf ( )Tj /C2_0 1 TT30.0009 Tc T124 0 -0 T

G!5B _

match community	G!CÃ+ ,X ¶ '
match metric	G!CÃ+ ,XG£ z
match origin	G!CÃ+ ,X$d ¥
set community	A'5BG¡ Ú ×CÃ+ ,XCOMMUNITY 2 û
set metric	A'5BG¡ Ú ×CÃ+ ,XG£ z
set metric-type	A'5BG¡ Ú ×CÃ+ ,X2O _

G ÄAÈ â ´

(Ë

Q ¸ Z Æ	(Ë	AÈ â
	-	-

41.2.3 show ip route

?U ¹,ß IP CÃ+ >< µ C È S*ü show ip route Q ¸ Ä

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

	– D	£EÄ
	vrf *vrf_name*	Ä ÃEÝ Å ¾ / A¹ VRF ,XCÃ+ µ C
	network	Ä ÃEÝ Å ¾ / A¹,Â Û5%4°,XCÃ+ µ C
	mask	Ä ÃEÝ Å ¾ / A¹ }-Õ,X,Â Û5%4°,XCÃ+
	count	Ä ÃEÝ Å ¾ / ¹!CÃ+ 5 D
	protocol	Ä ÃEÝ ÅCÃ+ #A, ê5Ù GK A¡ Öconnected, static × ' / (M n #A,CÃ+ Ê È S*ü ßEÄ GK A¡ Ö bgp, isis , ospf , rip
	process-id	Ä ÃEÝ ÅCÃ+ #A,E¯/ß Ë

– DAÈ iP – DEE x6P0 ; ñ ! †R€ 1 < ˜ 1/y¢Â ðÃFp m Ä ÃEÝ Å ¾ K 4°,XC`œ°

```
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN 1
```

Routing Descriptor Blocks	/ CÃ+ µ C,X ß ÔCÇ IP ÃCÃ+ 9$d Ã È „ ÊKÈ Ã4£+ ¾ þ y · Ã$dCÃ+ #A, Ã2O _ Ã BGP ¶ ' 2 û 1

_ 3 Ö ¹ ß show ip route count Q ¸,X / 4§ p Ö

```
Ruijie# show ip route count
--------- route info ----------
the num of active route: 5
```

_ 4 Ö ¹ ß show ip route weight Q ¸,X / 4§ p Ö

```
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
```

Q ¸	£EÄ

¸Ì G Q ¸

```
permit 13::/20
permit 14::/20
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

ost

Ö

G ÄAÈ â A¹ Q ¸ ü ` A' Û Þ á Õ

Q ¸ Z Æ

(Ë	AÈ â
10.1	1 Ô õ é 9A¹ Q ¸

41.2.6 show route-map

?U / CÃ+ Ò,XG!5B µ C ÈAË S*ü(M *ü õ ã Q ¸ show route-map Ä

show route-map ÷*route-map-name* ù

– DAÈ â

– D	£EÄ
route-map-name	Ä ÃEÝ Å ¾ / Û nCÃ+ Ò,XG!5B µ C

5 ,ÕG!5B 5 ,Õ / ÝCÃ+ ÒG!5B µ C Ä

Q ¸ õ ã (M *ü õ ã Ã < G!5B õ ã Ã y ·G!5B õ ã ÃCÃ+ #A,G!5B õ ã ÃCÃ+ ÒG!5B õ ã1 Ä

S*ü Û Ð V p"u Ý Û nCÃ+ Ò á + È î / ÝCÃ+ Ò,XG!5B µ C È ú í ¾ / Û nCÃ+ Ò,X G!5B µ C Ä

```
Ruijie# show route-map
route-map AAA, permit, sequence 10
Match clauses:
ip address 2
Set clauses:
metric 10 ã @Uà5B ˜ ¾ @
```

G!5B _

G ÄAÈ â

Q ¸ Z Æ

(Ë	AÈ â
-	-

42

42.1

42.1.1 ip local policy route-map

?U Í ¥EÕ,X y [h*ü1*+9CÃ+ ÈAË S*ü Q ¸ ip local policy route-map ÄA¹ Q ¸,X no 6 ã GKÁ1*+9CÃ+ ,X h*ü Ä

ip local policy route-map *route-map*

no ip local policy route-map

– DAÈ â	– D	£EÄ
	route-map	CÃ+ Ò á/Ä Ä

5 ,ÕG!5B 5 ,Õ GKÁ1*+9CÃ+ Ä

Q ¸ õ ã G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸ ¾ Í ¥EÕ Î •,X0ú Ü1*+9,X IP y [E¯> 1*+9CÃ+ È¥EÕ4- ,X IP y [á « A¹ Q ¸ { Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü 1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> ” ¹ È á0ú ÜCÃ+ Ò Ï)1*+9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú Ä

1*+9CÃ+ G!5B set interface á ÕBóEQ >5, ,Â !G!5B Z set interface î þ y · È¾ Õ k - Û Ñ Ä

G!5B –

¹ ß,XG!5B _ $ È S Ý ¹ 192.168.217.10 $d ¥EÕ,X y [¢ serial 2/0 · Î • Ä

_ 1 Ö n G! IP y [,X ACL

```
Ruijie(config)#access-list 1 permit 192.168.217.10
```

_ 2 Ö n CÃ+ Ò

```
Ruijie(config)#route-map lab1 permit 10
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set interface serial 2/0
```

```
Ruijie(config-route-map)#exit
_Ï Ö h*ü    y ·,X1*+9CÃ+
Ruijie(config)#ip local policy route-map lab1
```

Q¸õã < G!5B õã Ä

S*üÛÐ üG!5B $CÃ+ Ò set ip next-hop Ê È Ã ¹G!5B î þ ß ÔCÇ È A'5B Z k - Û Ñ Ê È 1*+9CÃ+ ¾ Ý1 Ô þ Ã ¹?· d,X ß ÔCÇCK 0*ü ×A'5B ZBóEQ >5 Ê È1*+9CÃ+ Ý î þ?· d,X ß ÔCÇCK 0*ü ÈWCMP Ô î Ã ¹A'5B 8 þ ß ÔCÇ ÈŒCMP Ô î Ã ¹A'5B 32 þ ß ÔCÇ Ä Aç,X?· d,X ß ÔCÇ Û,X ß ÔCÇ Æ4£ : 4 ARP µ C èA¹ ARP Í h,X MAC ü MAC >< 3 Æ4£ , ü Ä

G!5B _

¹ ß,XG!5B _ $ ÈCÃ+ Ò A'5B Z î þ nexthop, ü < G!5B õã ßA'5B Z k - Û Ñ â È í h*ü ü FastEthernet 0/0 Þ,X1*+9CÃ+ ,X!£ þ $CÃ+ Ò ¾ Ý1 Ô þ nexthop CK 0*ü Ä

_ 1 ÖG!5B G! IP y [,X ACL

```
Ruijie(config)#access-list 1 permit 10.0.0.1
Ruijie(config)#access-list 2 permit 20.0.0.1
```

_ 2 Ö n CÃ+ Ò

```
Ruijie(config)#route-map lab1  permit 10
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip next-hop 196.168.4.6
Ruijie(config-route-map)#set ip next-hop 196.168.4.7
Ruijie(config-route-map)#set ip next-hop 196.168.4.8
Ruijie(config-route-map)#exit
Ruijie(config)#route-map lab1  permit 20
Ruijie(config-route-map)#match ip address 2
Ruijie(config-route-map)#set ip next-hop 196.168.5.6
Ruijie(config-route-map)#set ip next-hop 196.168.5.7
Ruijie(config-route-map)#set ip next-hop 196.168.5.8
Ruijie(config-route-map)#exit
```

_ Ï Ö ü y · Þ h*ü1*+9CÃ+

```
Ruijie(config)#interface FastEthernet                                    ip policy
```

¸Ì G Q¸

Q¸	£EÄ
É	É

G ÄAÈâ -

Q¸Z Æ

(Ë	AÈâ

-	-

42.1.3 ip policy route-map

?U ü Ô þ y · h*ü1*+9CÃ+ ÈAË S*üG!5B Q ¸ ip policy route-map È S*üA¹ Q ¸,X no 6 ã GKÁ y · Þ h*ü,X1*+9CÃ+ Ä

ip policy route-map *route-map*

no ip policy route-map

– DAÈ â

– D	£EÄ
route-map	CÃ+ Ò á/Ä Ä

5 ,ÕG!5B

5 ,Õ GKÁ1*+9CÃ+ Ä

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

1*+9CÃ+ ™NO ü Û n,X y · Þ h*ü È ¾ ÍA¹ y · y ,X D B ÙE¯> 1*+9CÃ+ È Í bA¹ y · ¥EÕ Î •,X D B Ù á îE¯> 1*+9CÃ+ Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü 1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> ” ¹ È á0ú ÜCÃ+ Ò Ï)1*+9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú Ä

"¼ ã	A’ Û Þ Ô þ y · Ô î ¾6ÑG!5B Ô þCÃ+ Ò È ü à Ô þ y · Þ î õG!5B CÃ+ Ò È âG!5B,XCÃ+ Ò Ú?Z,ª !G!5B,XCÃ+ Ò Ä

G!5B –

¹ ß,XG!5B _ $ È' ¿Eó ¹ þ5% y · FastEthernet 0/0 y D B y ÈV p D B y$d 10.0.0.1 È íA’5B ß ÔCÇ 196.168.4.6 È V p$d 20.0.0.1 íA’5B ß ÔCÇ 196.168.5.6 È ú íE¯> BEîE@ ¥ Ä

_ 1 ÖG!5B G! IP y [,X ACL

```
Ruijie(config)#access-list 1 permit 10.0.0.1
Ruijie(config)#access-list 2 permit 20.0.0.1
```

_ 2 Ö n CÃ+ Ò

```
Ruijie(config)#route-map lab1 permit 10
Ruijie (config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip next-hop 196.168.4.6
Ruijie(config-route-map)#exit
Ruijie(config)#route-map lab1 permit 20
```

```
Ruijie(config-route-map)#match ip address 2
Ruijie(config-route-map)#set ip next-hop 196.168.5.6
Ruijie(config-route-map)#exit
_ 3 Ö ü y · Þ h*üCÃ+ Ò
Ruijie(config)#interface FastEthernet 0/0
Ruijie(config-if)#ip policy route-map lab1
Ruijie(config-if)#exit
```

,Ì G Q ¸

Q ¸	£EÄ
access-list	n A“KÂ ë><?˜ í Ä
route-map	n CÃ+ Ò Ä
set vrf	n 1*+9CÃ+ IP y [,X VRF r _
set ip next-hop	n 1*+9CÃ+ ß ÔCÇ
set ip default next-hop	n 1*+9CÃ+ T¬Ax ß ÔCÇ
set interface	n 1*+9CÃ+ Î ·
set default interface	n 1*+9CÃ+ T¬Ax Î ·
set ip tos	A’5B y [IP ,X TOS
set ip dscp	A’5B IP y [,X DSCP
set ip precedence	A’5B y [IP ,X ì 4{
match ip address	A’5BE›$¸?˜ í
match length	G! y [KS z

G ÄAÈ â ipv6 local policy route-map

Q ¸ Z Æ

	AÈ â
-	-

42.1.4 ipv6 local policy route-map

ÍA’ Û7¾ Å ¥EÕ,X y [G› ª1*+9CÃ+ ÈAË S*üE- þ Q ¸ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁ ipv6 -name

route-map-name	h*ü b 1*+9CÃ+ CÃ+ Ò,X á/Ä È EîE› route-map Q ¸G!5B,X Ä
no	></ ¥EÕ y [á «1*+9CÃ+ { Ä

5 ,ÕG!5B

5 ,Õ GKÁ 1*+9CÃ+ s6Ñ Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸ ¾ Í ¥EÕ Î •,X0ú Ü1*+9,X IPv6 y [Ä V*ü b1u)Ú,X ping y [ÅE¯> 1*+9CÃ+ È ¥EÕ4- ,X IPv6 y [á «A¹ Q ¸ { Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> ”¹ È á0ú ÜCÃ+ Ò Ï)1* +9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý ';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú Ä

G!5B _

_ 1 ÖA’ Û h*ü ó ï1*+9CÃ+ E›/ß Ä¢$d 2003:1000::10/80 • T 2001:100::/64 ,X D B y [È î G! aaa ,X ACL6 >• ¥4-A’ Û 2003:1001::2 Ä

G!5B G6(,XACL6

```
Ruijie(config)#ipv6 access-list aaa
Ruijie(config-ipv6-acl)#permit ipv6 2003:1000::10/80
2001:100::/64
```

G!5Broute-map

```
Ruijie(config)#route-map pbr-aaapermit 10
Ruijie(config-route-map)#match ipv6 address aaa
Ruijie(config-route-map)#set ipv6 next-hop 2003:1001::2
```

A’ Û Þ h*ü1*+9CÃ+

```
Ruijie(config)#ipv6 local policy route-map pbr-aaa
```

,Ì G Q ¸

Q ¸	£EÄ
match ipv6 address	G!5BIPv6 PBR *ü b G! y [,X ACL6 Ä
match length	n G! y [,XKS z Ä
route-map	G!5B h*ü1*+9CÃ+ ,XCÃ+ Ò Ä
set default interface	A’5B5 ,Õ ß ÔCÇ Î · Ä
set interface	A’5B ß ÔCÇ Î · Ä
set ipv6 default next-hop	A’5B5 ,ÕE@ ¥ y [,X ß ÔCÇ Ä
set ipv6 next-hop	A’5BE@ ¥ y [,X ß ÔCÇ Ä

set ipv6 precedence	A'5B IPv6 y [F¼,X ì 4{ +!‰ Ä
show ipv6 policy	/ ' !A' Û h*ü,X1*+9CÃ+ ™ ‰ Ä
show route-map	/ ' !,XCÃ+ ÒG!5B ™ ‰ Ä

G ÄAÈ â ´ Ä

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

42.1.5 ipv6 policy

?U ÇA'5B1*+9CÃ+ ,Xset next-hop G›*ü k - Û Ñ êBóEQ >5 • ã È ü < G!5B õ ã ß S*ü
ipv6 policy E¯> G!5B. [<0A51>-6<04B8095A03E20C10 Tm (-6<354655 Tw -14163C3 Tc 0.2308 T82 Tc6

set default interface	A'5B5 ,Õ ß ÔCÇ Î · Ä
set interface	A'5B ß ÔCÇ Î · Ä
set ipv6 default next-hop	A'5B5 ,ÕE@ ¥ y [,X ß ÔCÇ Ä
set ipv6 next-hop	A'5BE@ ¥ y [,X ß ÔCÇ Ä
show ipv6 policy	/ ' !A' Û h*ü,X1*+9CÃ+ ™ ‰ Ä

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

42.1.6 ipv6 policy route-map

?U ü Ô þ y · *ü1*+9CÃ+ ÈAË S*ü y ·G!5B Q ¸ ipv6 policy route-map ÄA¹ Q ¸,X no 6 ã GKÁ1*+9CÃ+ ,X h*ü Ä

ipv6 policy route-map *route-map-name*

no ipv6 policy route-map

– DAÈ â

– D	£EÄ
route-map-name	h*ü b 1*+9CÃ+ CÃ+ Ò,X á/Ä È EîE› route-map Q ¸G!5B,X Ä

5 ,ÕG!5B y · ß þ h*ü Ï)1*+9CÃ+ s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

1*+9CÃ+ ™NO ü Û n,X y · Þ h*ü È ¾ ÍA¹ y · y ,X D B ÙE¯> 1*+9CÃ+ È Í bA¹ y · ¥EÕ Î •,X D B Ù á îE¯> 1*+9CÃ+ Ä

h*ü1*+9CÃ+ È ™NO?U Û n1*+9CÃ+ S*ü,XCÃ+ Ò È J è?U ï ÎCÃ+ Ò Ä Ô þCÃ+ Ò+ \ î 51*+94˜ ä È!£ þ1*+9FÑ n Z 1 þ ê î þ,X G!?˜ í ` Í h ¡ 0 Ä Ô þ y · h*ü1*+9CÃ+ â È Ú ÍA¹ y · y ,X Ý ÙE¯> ” ¹ È á0ú ÜCÃ+ Ò Ï)1* +9,X D B Ù Ú Ý';Eî ,XCÃ+ E@ ¥E¯> Ø)Ú È0ú ÜCÃ+ Ò ¤ þ1*+9,X D B Ù Ý ';A¹1*+9 n ,X ¡ 0E¯> Ø)Ú

"¼ ã	A' Û Þ Ô þ y · Ô î ¾6ÑG!5B Ô þCÃ+ Ò È ü à Ô þ y · Þ î õG!5B CÃ+ Ò È âG!5B,XCÃ+ Ò Ú?Z,ª !G!5B,XCÃ+ Ò Ä

G!5B _ _ 1 ÖG!5B y · h*ü ó ï1*+9CÃ+ E›/ß ÄÍ b y · GigabitEthernet 1/38 Þ y ,X y [È ¢$d 2003:1000::10/80 • T 2001:100::/64 ,X D B y [È6Ñ ó G! AAA ,X IPV6 ACL D

B y [>•E@ ¥4-A' Û 2003:1001::2 Ä

G!5B G6(,XIPV6 ACL

```
Ruijie(config)#ipv6 access-list aaa
Ruijie(config-ipv6-acl)#permit ipv6 2003:1000::10/80 2001:100::/64
```

G!5Broute-map

```
Ruijie(config)#route-map pbr-aaa permit 10
Ruijie(config-route-map)#match ipv6 address aaa
Ruijie(config-route-map)#set ipv6 next-hop 2003:1001::2
```

A' Û Þ h*ü1*+9CÃ+

```
Ruijie(config-if-GigabitEthernet 1/38)#ipv6 policy route-map pbr-aaa
```

,Ì G Q ¸

Q ¸	£EÄ
match ipv6 address	G!5BIPv6 PBR *ü b G! y [,X IPV6 ACL Ä
route-map	G!5B h*ü1*+9CÃ+ ,XCÃ+ Ò Ä
set ipv6 default next-hop	A'5B5 ,ÕE@ ¥ y [,X ß ÔCÇ Ä
set ipv6 next-hop	A'5BE@ ¥ y [,X ß ÔCÇ Ä
show ipv6 policy	/ ' !A' Û h*ü,X1*+9CÃ+ ™ ‰ Ä
show route-map	/ ' !,XCÃ+ ÒG!5B ™ ‰ Ä

G ÄAÈ â ´ Ä

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

42.2

42.2.1 show ip policy

/ ' ! ÝG!5B Z1*+9CÃ+ ,X y · žA¹ y · Þ h*ü,XCÃ+ Ò,X á/Ä Ä

show ip policy

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ZP`A• ' !2Ï4³G!5B,X1*+9CÃ+ È Ã ¹ S*üA¹ Q ¸E¯> ¹,ß Ä

G!5B _

/ ' !2Ï4³G!5B,X1*+9CÃ+ ,X ™ ‰ Ä

```
Ruijie#show ip policy
Banlance Mode Öredundance
Interface           Route map
local               test
FastEthernet 0/0    test
```

,Ì G Q ¸

Q ¸	£EÄ
ip policy route-map	y · Þ h*ü1*+9CÃ+ Ä
ip local policy route-map	y · h*ü1*+9CÃ+ Ä

```
Banlance Mode Öredundance
Interface                Route map
VLAN 1                   RM_for_Vlan_1
VLAN 2                   RM_for_Vlan_2
```

+!‰	AÈ â
Banlance Mode	' !A’ Û1*+9CÃ+ E¤> õ ã Ä
Interface	h*ü Z1*+9CÃ+ ,X y · á/Ä Ä
Route map	>• h*ü y · Þ,XCÃ+ Ò á/Ä Ä

Q¸	£EÄ

43 IPv4

43.1 IPv4

43.1.1 clear ip mroute

A¹ Q ¸*ü 9#ÙL8 IP 4˜ •CÃ+ E@ ¥ µ C Ä

clear ip mroute {* | *group-address* [*source -address*]}

– DAÈ â	– D	£EÄ
	*	#ÙL84˜ •CÃ+ >< Ý,XE@ ¥ µ C Ä
	group-address	4˜ •CÃ+ ,X4˜ Ä
	source -address	4˜ •CÃ+ ,X$d Ä

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã Ä
S*ü Û Ð	´
G!5B _	¹ ß _ $ ü4˜ •CÃ+ >< #ÙL84˜ 230.0.0.1 ,X4˜A„)><NM Ö Ruijie# **clear ip mroute** 230.0.0.1

,Ì G Q ¸	Q ¸	£EÄ
	show ip mroute	/ 4˜ •CÃ+ E@ ¥ µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

43.1.2 clear ip mroute statistics

A¹ Q ¸*ü 9#ÙL8 IP 4˜ •CÃ+ 4³Au µ C Ä

clear ip mroute statistics {* | *group-address* [*source -address*]}

– DAÈ â

– D	£EÄ
*	#ÙL84˜ •CÃ+ >< Ý,XE@ ¥><NM Ä
group-address	4˜ •CÃ+ ,X4˜ Ä
source -address	4˜ •CÃ+ ,X$d Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð #ÙL8IP 4˜ •CÃ+ 4³Au µ C Ä

G!5B – ¹ ß _ $ ü4˜ •CÃ+ >< #ÙL84˜ 230.0.0.1 ,X4˜ •CÃ+ 4³Au µ C Ö

```
Ruijie# clear ip mroute statistics 230.0.0.1
```

,Ì G Q ¸

Q ¸	£EÄ
show ip mroute	-
clear ip mroute	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.1.3 ip mroute

G!5BM- Õ4˜ •CÃ+ Ä S*üA¹ Q ¸,X no õ ã ôL8G!5B,XCÃ+ Ä

ip mroute *source-address mask* [*protocol as-number*] {*rpf-addrress* | *interface-type interface-number*} [*distance*]

no ip mroute *source-address mask* [*protocol as-number*] {*rpf-addrressn reA1 Tf-0.0009 Tc 0 Tw 443 T*

G!5B

5 ,ÕG!5B	A’5B(M n4˜8× È,X4˜ •E•+
Q ¸ õ ã	y · õ ã
S*ü Û Đ	A’5B(M n IP 4˜8× È,X IP 4˜ •E•+ Ä"¼ ã Q ¸ G6(,X ACL Ã ¹ Û š,X ACL È 3 Ã ¹ =) ACL È Í b =),X ACL ¾ G!,Â,X È5à á G!$d Ä
"¼ ã	A¹ Q ¸ Ã ¹ Í `A¹ IP 4˜8× È,Ì G,X IGMP ÃPIMSM #A, y [E¯> E› $¸ È4˜ • D B# á î ¢A¹4˜ •E•+ y ·# 9 `# Î Ä

G!5B _

A’5B svi1 Ý IP 4˜ •4˜,XE•+ Ä

```
Ruijie(config)# ip access-list mul-boun
Ruijie(config-std-nacl)# permit ip 233.3.3.0 0.0.0.255
Ruijie(config-std-nacl)# exit
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ip multicast boundary mul-boun
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.1.5 ip multicast route-limit

L$ 6Ñ ó t 9 4˜ •CÃ+ >< ,X 5,Â DG£ Ä

ip multicast route-limit *limit* [*threshold*]

no ip multicast route-limit *limit* [*threshold*]

– DAÈ â

– D	£EÄ
limit	6Ñ ó t 9 4˜ •CÃ+ ,X DG£ 1~2147483647 Ä5 ,Õ 1024 Ä
threshold	Ä ÃEÝ Å?º ¥ {*óA:/ #\ C,X4˜ •CÃ+ DG£ Ä5 ,Õ 2147483647.

5 ,ÕG!5B	*limit* 5 ,Õ 1024 *threshold* 5 ,Õ 2147483647
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸,X 0*ü L$ 6Ñ ó t 9 IPv6 4˜ •CÃ+ >< ,X 5,Â DG£ Ä "¼ ã á à _ ËA' Û,X.@ ÊC $d L$ ÈCYE›.@ Ê><NM,XCÃ+ NMLÔ?UEC ÊE@ ¥ È Ú Ð7È û6Ñ ßL! Ä
G!5B _	¹ ß,X/ _A'5BL$ 4˜ •CÃ+ DG£ 500 5 Ä `Ruijie(config)# ip multicast route-limit 500`

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.1.6 ip multicast-routing

A¹ Q ¸*ü 9 |4˜ •CÃ+ E@ ¥ Ä S*üA¹ Q ¸,X no GKÁ4˜ •CÃ+ E@ ¥ Ä

ip multicast-routing

no ip multicast-routing

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	GKÁ Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸*ü 9 | IPv4 4˜ •CÃ+ E@ ¥ Ä"u Ý | IPv4 4˜ •CÃ+ E@ ¥ Ê È4˜ • #A, 3 á6Ñ | Ä

"¼ ã	?U | IPv4 4˜ • s6Ñ È ™NOG!5BA¹ Q ¸ Ä!8 s6Ñ ` IGMP snooping s6Ñ f y,X È V p | Z IGMP snooping s6Ñ ÈFw A¹ Q ¸ Ú á6Ñ G!5B Ä
AÈ â	á ÎA, ü à Ô ÄA' Û Þ,X á à y ·G!5B á à,X v4 4˜ •CÃ+ #A,

G!5B _

¹ ß,X/ _ |4˜ •CÃ+ E@ ¥ Ä

```
Ruijie(config)# ip multicast-rounting
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.1.7 ip multicast static

A¹ Q ¸*ü 9G!5B4˜ •# ` # å { ÄA¹ Q ¸,X no 6 ã Ã ¹ ª#\G!5B Ä

ip multicast static *source-address group-address interface-type interface-number*

no ip multicast static *source-address group-address interface-type interface-number*

– DAÈ â

– D	£EÄ
source -address	4˜ •$d Ä
group-address	4˜ •4˜ Ä
interface-type interface-number	AŒE@ ¥A¹4˜ •# ,X ` 0Ã ·

5 ,ÕG!5B

GKÁ

Q ¸ õ ã

< G!5B õ ã Ä

Í b ¤ ö B CI€Ð@ Ä

S*ü Û Ð

4˜ •CÃ+ #A„X> ¡' Ã6Ñ>• E ¡ Ä

G!5B –

¹ ß _ $G!5B4˜ •# (192.168.43.4 È225.1.1.5) ¾ AŒ ¢GigabitEthernet 2/6 ` FastEthernet 3/2 E@ ¥ Ä

```
ruijie(config)# ip multicast static 192.168.43.4 225.1.1.5 G2/6
ruijie(config)# ip multicast static 192.168.43.4 225.1.1.5 F3/2
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

	-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.1.9 ip multicast rpf longest-match

FI ~ 5 3) ?˜ í Ú ÿ ¢4˜ •M- ÕCÃ+ >< Ã 0 % * 3 CÃ+ >< Ã) •CÃ+ >< EÝ ª Î Ã*ü b 5 3) ” ¹,X 4˜ •M- ÕCÃ+ Ã 0 % * 3 CÃ+ `) •CÃ+ Ä

V p?U ¢E- Ý 5CÃ+ EÝ Î }-Õ ÔKS G!,XFw 5CÃ+ ÈAËG!5BA¹ Q ¸ ÄG!5B Z Ý'; ÔKS G! EÝ ½CÃ+ Q ¸ È ¢E- Ý 5CÃ+ EÝ Î }-Õ ÔKS G!,XFw 5CÃ+ × V p W À,X ì 4{,Ì à È í Ý';4˜ •M- ÕCÃ+ ÃMBGP CÃ+ Ã) •CÃ+ ,XNN cE¯> EÝ ½ Ä

S*üA¹ Q ¸,X no EÝNM 6 á Q ¸,X5 ,Õ Ä5 ,Õ ™ ‰ ß È ¢E- Ý 5CÃ+ EÝ Î ì 4{ ÔP¬,X Fw 5CÃ+ × V p W À,X ì 4{,Ì à È í Ý';4˜ •M- ÕCÃ+ Ã MBGP CÃ+ Ã) •CÃ+ ,XNN cE¯ > EÝ ½ Ä

ip multicast rpf longest-match

no ip multicast rpf longest-match

– DAÈ â

– D	£EÄ

5 ,ÕG!5B FI ~ 5 3) ?˜ í Ú ÿ ¢4˜ •M- ÕCÃ+ >< Ã 0 % *Ã+ >< Ã) •CÃ+ >< EÝ ª Î Ã*ü b 5 3) ” ¹,X4˜ •M- ÕCÃ+ Ã0 % * 3 CÃ+ `) •CÃ+ Ä¢• r ˆ™}CÌÔP¬,X

```
FastEthernet 1/3
_ 2 Ö ¹ ß,X/ _ / (M n,XCÃ+ ><NM µ C
Ruijie# show ip mroute 10.10.1.52 224.0.1.3
IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
(10.10.1.52, 224.0.1.3), uptime 00:03:24, stat expires 00:01:28
Owner PIM-SM, Flags: TF
Incoming interface: FastEthernet 2/1
Outgoing interface list:
FastEthernet 1/3
_ 3 Ö ¹ ß,X/ _ / CÃ+ ><Au D µ C
Ruijie# show ip mroute count
IP Multicast Statistics
Total 1 routes using 132 bytes memory
Route limit/Route threshold: 2147483647/2147483647
Total NOCACHE/WRONGVIF/WHOLEPKT recv from fwd: 1/0/0
Total NOCACHE/WRONGVIF/WHOLEPKT sent to clients: 1/0/0
Immediate/Timed stat updates sent to clients: 0/0
Reg ACK recv/Reg NACK recv/Reg pkt sent: 0/0/0
Next stats poll: 00:01:10
Forwarding Counts: Pkt count/Byte count, Other Counts: Wrong If pkts
Fwd msg counts: WRONGVIF/WHOLEPKT recv
Client msg counts: WRONGVIF/WHOLEPKT/Imm Stat/Timed Stat sent
Reg pkt counts: Reg ACK recv/Reg NACK recv/Reg pkt sent
(10.10.1.52, 224.0.1.3), Forwarding: 2/19456, Other: 0
Fwd msg: 0/0, Client msg: 0/0/0/0, Reg: 0/0/0
_ 4 Ö ¹ ß,X/ _ / CÃ+ ><NM,X ,?U µ C
Ruijie# show ip mroute summary
IP Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
(10.10.1.52, 224.0.1.3), 00:01:32/00:03:20, PIM-SM, Flags: T
```

+!‰	AÈ â

Flags	I-0Ÿ G4³Au T- n Ê4³Au F- Æ4£A'5B E@ ¥><
Timers:Uptime/Stat Expiry	A¹><NM ï Î ÊKÈ È5Õ ê ÊKÈ
Interface State	y ·(Š Õ
Owner	A¹><NM,X & 25Ù È Ã6Ñ ¤ þ4˜ •CÃ+ #A,
Incoming interface	NX ó,X y [Eg 9 y · È V p rL ,XEg 9 y · â á 0ú È y [Ú>• ö ×
Outgoing interface list	Eg Î y · ë>< È y [Ú üJÒ>< ,X y · Þ>•E@ ¥ Î •
Forwarding Counts ÖPkt count/Byte count,	E@ ¥Au D ÖA¹><NME@ ¥,X y [ÐØV D
Other Counts: Wrong If pkts	y ,XEg 9 y ·JíAÃ,X y [D

S*ü Û Ð

```
RPF recursion count: 0
Doing distance-preferred lookups across tables
Distance: 0
Metric: 0 RPF information for 192.168.1.54
RPF interface: VLAN 1
RPF neighbor: 0.0.0.0
RPF route: 192.168.1.0/24
RPF type: unicast (connected)
RPF recursion count: 0
Doing distance-preferred lookups across tables
Distance: 0
Metric: 0
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.2.4 show ip mvif

/ 4˜ • y ·,X Î µ C Ä

show ip mvif { *interface-type interface-number*

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

43.3.2 debug nsm mcast fib-msg

' Ô ¹,ß4˜ • — Í #A, õ +E¯> Eî µ,XA×A© Ô G Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹A×A© Ô G

debug nsm mcast fib-msg

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	þ ' ÔA×A© Ô G
Q ¸ õ ã	(M õ ã
S*ü Û Ð	' ÔA¹A×A© Ô G È Ã ¹ ¹,ß4˜ • — Í #A, õ +E¯> Eî µE¤> E›/ß Ä
G!5B –	¹,ß4˜ • — Í #A, õ +E¯> Eî µE¤> E›/ß Ruijie# **debug nsm mcast fib-msg**

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

43.3.3 debug nsm mcast register /B *üA¹`tp¢ÅŒ•¾ ´debug nsm mcast re/ß

-	-

5 ,ÕG!5B þ ' ÔA×A© Ô G

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ÔA¹A×A© Ô G È Ã ¹ ¹,ß4˜ • — G b"¼ ` y · `"¼ ` y [,X Ø)ÚE›/ß Ä

G!5B _ ¹,ß4˜ • — G b"¼ ` y · `"¼ ` y [,X Ø)ÚE›/ß

```
Ruijie# debug nsm mcast register
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

43.3.4 debug nsm mcast stats

' Ô ¹,ß4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß,XA×A© Ô G Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹A×A© Ô G

debug nsm mcast stats

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B þ ' ÔA×A© Ô G

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ÔA¹A×A© Ô G È Ã ¹ ¹,ß4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß Ä

G!5B _ ¹,ß4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß

```
Ruijie# debug nsm mcast stats
```

44 IGMP

44.1

44.1.1 ip igmp access-group

A¹ Q ¸*ü 9 ü y · Þ { î •4˜ Ä ü Q ¸ !#Ï no Ã ¹ ª#\!8 s6Ñ Ä

ip igmp access-group *access-list*

no ip igmp access-group

– D

```
Ruijie(config-ext-nacl)# permit ip host 1.1.1.1 host 233.3.3.3
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp access-group ext_acl
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.1.2 ip igmp join-group

A¹ Q ¸ Ú x 6 ,X,Ì G y · t 9 ¤ þ î •4˜ È ü Q ¸ ! t no E¯> ª#\ Ä

ip igmp join-group *group-address*

no ip igmp join-group *group-address*

– DAÈ â

– D	£EÄ
group-address	y · Þ?U t 9,X 4˜

5 ,ÕG!5B þ t 9 Ï) Ô þ 4˜ Ä

Q ¸ õ ã y · õ ã

S*ü Û Ð A¹ Q ¸ Ú x 6 ,Ì G y ·G!5B ä K Ý > ÈE- $ x 6 | Ã ¹ : 4 ,Ì h,X 4˜ µ C Ä

G!5B _

ü ßM6,X _ $ È x 6 ,X y · Eth0 t 94˜ 233.3.3.3 Ä

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp join-group 233.3.3.3
Ruijie(config-if)# exit
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.1.3 ip igmp immediate-leave group-list

ü IGMPversion2 ž IGMPversion3 (È S*üA¹ Q ¸ ¹ £ å/• Ô4˜,X ÊE³ ÊKÈ ÄA¹ Q ¸ S*ü ü ¾ Ý Ô þ y E² y Ô þ y ·,X ™ ‰ ß Ä S*üA¹ Q ¸,X no 6 ã ª#\!8 s6Ñ Ä

ip igmp immediate-leave group-list *access-list*

no ip igmp immediate-leave group-list

– DAÈ â

– D	£EÄ
access-list	A“KÂ { ë>< á/Ä

5 ,ÕG!5B GKÁ(Š Õ

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð

üA¹ Q ¸"u Ý>•G!5B,X ™ ‰ ß È 'A' Û y /• Ô y [â È ¥ Î(M n4˜ ¹A¶ y [Ä ' ¡ hCY Ê â ÈA' Û 0!6E@ ¥ A¹ y · y [ÄCY Ê,X ÊKÈ ª ‡ b Ô â ä , ¹A¶KÈLh ` IGMP 9 Â û ¬G£ È5 ,Õ ™ ‰ ß 2s Ä

V pG!5B ZA¹ Q ¸ È ' y /• Ô y [â ÈA' Û J á ¥EÕ(M n4˜ ¹A¶ y [Ä,Ì ¡ È W,È y ü IGMP 4ç † E- þ4˜/ÍL8 ZA¹ y · È JEî-¹ IGMP #A, Ä V!8 Ã ¹ ûG£4ý-Á ÊKÈ Ä

G!5B _

ßM6,X _ $)/ Z V) Ô o î •4˜ ¤ o0Ÿ G/• Ô s6Ñ È " ™NO.B ± Û,X î •4˜,X !£ þ y · ¾ Ý Ô þ4˜ ä , Ä

```
Ruijie# configure terminal
Ruijie(config)# access-list 1 permit 225.192.20.0 0.0.0.255
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ip igmp immediate-leave group-list 1
Ruijie(config-if)# exit
```

,Ì G Q ¸

Q ¸	£EÄ
ip igmp last-member-query-interval	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

44.1.4 ip igmp last-member-query-count

last-member-query-count Û ' î •A' Û leave y [â È îE²4Á ¥EÕ ¹A¶ y [,X õ D Ä A¹ Q ¸*ü 9G!5B last-member-query-count ,X Ä S*ü no Q ¸ 6 á5 ,Õ Ä

ip igmp last-member-query-count *number*

no ip igmp last-member-query-count

ip igmp last-member-query-interval *interval*

no ip igmp last-member-query-interval

– DAÈ â

– D	£EÄ
interval	KÈLh ,X8× È <1-255> È) ! 0.1s

5 ,ÕG!5B 1s

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ 'A' Û,X y · Ô þ IGMPv2 /•4˜#\ C È1 Y*ü ip igmp last-member-query-count á,X ¹A¶KÈLh t Þ Ô ,X h1(ÊKÈ È V p ü1 Y ÊKÈ Y"u ä , y ÈA' Û ü y · ô L8A¼4˜ ä , µ C Ä

𝔾!5B –

¹ ß _ $A'5B Z4˜(M n ¹A¶ µ CKÈLh 20 /¦ Ö

```
Ruijie# configure terminal
Ruijie(config)# interface eth 0
Ruijie(config-if)# ip igmp last-member-query-interval 200
```

5 ,ÕG!5B	5 ,Õ 65536
Q ¸ õ ã	< G!5B õ ã

S*üA¹ Q ¸ < G!5B Í IGMP

S*ü Û Ð

Ruijie(config-if)# **ip igmp mroute-proxy** fa 0/1

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.1.9 ip igmp proxy-service

A¹ Q ¸*ü 9 | Ý ß6(mroute-proxy y ·,X á u s6Ñ Äü y · ÞG!5BA¹ Q ¸ ÈA¹ y · ä ¸Ì h mroute-proxy ,X Þ6(· È W Ú G6(2,X ß6(· È J4È x ß6(·Eî Þ 9,X4˜ µ C Ä

ip igmp proxy-service

no ip igmp proxy-service

– DAÈ â

– D	£EÄ
-	-

5 ¸ÕG!5B Ý y ·FÑ á proxy-service (Š Õ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ' ! ÍE- þ Q ¸,X ÃG!5B Ô û þ D . ZL$ È Ô î ¾ AŒG!5B 32 þ Ä *ü IGMP Proxy s6Ñ,X y · þ D «L$ bA' Û 6Ñ Õ,X4˜ • y · þ D Ä ' y · y ¹A¶ y [â È proxy-service y · Ú B7¾D•4È x,X ä , µ C È 0 Î,Ì h,X h1(Ä proxy-service y · Ú B7¾D•4È x,X ä , µ C ¢G!5B Ý mroute-proxy ,X y · LšE› 9,X Ä ´!8 ÈG!5B Z proxy-service È,Ì ' b!8 y · ¾ ;> Z > È5à á ;> CÃ+ <> .

V p y · Í y · ;> switchport ¡ 0 È,Ì G6(,X ß6(· G!5B,X ip igmp mroute-proxy interface Q ¸ Ú>•7¾ | ôL8 Ä

G!5B – ^ y ·G!5B proxy-service õ +

Ruijie(config-if)# **ip igmp proxy-service**

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

A¹ Q ¸*ü 9G!5B Ô û ¡ hKÈLh È Ã ¹*ü no 6 ã 9G!5B Ô û ¡ hKÈLh 5 ,Õ Ä

ip igmp query-max-response-time *seconds*

no ip igmp query-max-response-time

– DAÈ â

– D	£EÄ
seconds	Ô û ¡ hKÈLh È) ! s È D 1 25

5 ,ÕG!5B

10s

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Đ

E- þ Q ¸ ¾ Ý 'E¤> ,X IGMPv2 Ê Ý ,X ÄE- þ Q ¸ { üA' Û ôL84˜ µ C ! h1(5Ù ¡ h ¹A¶ µ C,XKÈLh Ä

G!5B _

_ 1 Ö ü y · Ethernet 0 G!5B ÈG!5B Ô û ¡ hKÈLh 20s Ä

```
Ruijie(config-if)# ip igmp query-max-response-time 20
```

_ 2 Ö ü y · Ethernet 0 G!5B È 6 á Ô û ¡ hKÈLh 5 ,Õ Ä

```
Ruijie(config-if)# no ip igmp query-max-response-time
```

5 ,ÕG!5B	255s
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	A¹ Q ¸LÔ?UE¤> IGMPv2 ÄT¬Ax ™ ‰ ß È ñ/¥A'5BA' Û1 Y ÊKÈ*ü ø á,X ip igmp query-interval ,X ¹A¶KÈLh È ü Ruijie ßA'5B5 ,Õ 255s Ä üE-!‰ ÊKÈ Y È V p"u Ý ¹A¶ y [ÈA¹A' Û ä ¹A¶5Ù Ä

G!5B _	_ 1 Ö ü y · Ethernet 0 G!5B ÈG!5B J W ¹A¶5Ù ,# ,XAu Ê <KÈLh200s Ä
	`Ruijie(config-if)# **ip igmp query-timeout** 200`
	_ 2 Ö ü y · Ethernet 0 G!5B È 6 á J W ¹A¶5Ù ,# ,XAu Ê <KÈLh 5 ,Õ Ä
	`Ruijie(config-if)# **no ip igmp query-timeout**`

¹ ß _ $ ÚA’5B 9 Â û ¬G£,X 3 Ö

G!5B _

no ip igmp static-group *group-address*

– DAÈ â

– D	£EÄ
group-address	y · Þ?U#Ï t,XM- Õ4˜,X Ä

5 ,ÕG!5B þ#Ï t Ï) Ô þM- Õ4˜ Ä

Q ¸ õ ã y · õ ã Ä

S*ü Û Đ A¹ Q ¸ Ú x 6 ,Ì G y ·,È y#Ï t Ô þ4˜ ä , È 'LÔ?U Ú y ·,È y#Ï t Ô þ4˜ ä ,A„)
Ê S*ü!8G!5B Ä

ü ßM6,X _ $ È x 6 ,X y · Eth0 p <ð„P(†I €p 4\@

G!5B _

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð *ü bG!5B igmp ,X(Ë È"¼ ãG!5B ` â Èigmp îG¡ „ | Ä

G!5B –

¹ ß _ $A'5B Z(Ë 2 Ö

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp version 2
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.2

44.2.1 clear ip igmp group

A¹ Q ¸*ü 9#ÙL8 IGMP 4ç , EîE› ¡ h#\ C k 9,X | Õ4˜ ä , µ C Ä

clear ip igmp group [*group-address* | *interface-type interface-number*]

– DAÈ â

– D	£EÄ
´	ôL8 Ý,X4˜ µ C Ä
group-address	32 þ!¨(M ! IP 4˜ •4˜ G D 2O È 8 ! Ô4˜ È ¹ E¯ • ã></ È4˜ KÈ*ü&•Lh Ô Ä
interface-type	G6(y ·2O _ Ä
interface-number	G6(y ·4ê Ë Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð IGMP 4ç , Ù ÿ Ô þ ë>< ÈA¹ ë><,X Y • J,ÈE² $5% ,X Ý t 9 ¾ o4˜ •4˜ ×V p

A’ Û 3 t 9 ¤ þ4˜ ÈA¼4˜ 3 î5+ ë üE- þ ë>< Ä ¢ IGMP 4ç , ôL8 <F¼,X 5,Â È Ã
¹*ü á ú – D,X clear ip igmp group Q ¸ Ä

G!5B _

Q ¸ Z Æ	(Ë	AÈ â
	-	-

44.2.3 show ip igmp groups

S*üA¹ Q ¸ / âA' Û,È y,ÌE²,X4˜ ` ¢ IGMP : 4 ,X4˜ µ C Ä

show ip igmp groups [*group-address* | *interface-type interface-number*] [*detail*]

– D	£EÄ]

```
Uptime: 00:00:42
Group mode: Include
Last reporter: 192.168.50.111
TIB-A Count: 2
TIB-B Count: 0
Group source list: (R - Remote, M - SSM Mapping)
Source Address Uptime v3 Exp Fwd Flags
192.168.55.55 00:00:42 00:03:38 Yes R
192.168.55.66 00:00:42 00:03:38 Yes R
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.2.4 show ip igmp interface

S*üA¹ Q ¸ ¹,ß y ·,XG!5B µ C Ä

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

– DAÈ â

– D	£EÄ
interface-type	G6(y ·2O _
interface-number	G6(y ·4ê Ë
´	/ Ý y · µ C

5 ,ÕG!5B ´

Q ¸ õ ã *ü õ ã ê5Ù(M õ ã

S*ü Û Ð ´

G!5B _

ßM6 _ $ / ¹,ß Ý y ·,X(Š Õ µ C Ö

```
Ruijie# show ip igmp interface
Interface vlan 1(Index 4294967295)
```

```
IGMP Active, Non-Querier, Version 3 (default)
IGMP querying router is 0.0.0.0
IGMP query interval is 125 seconds
IGMP querier timeout is 255 seconds
IGMP max query response time is 10 seconds
Last member query response interval is 1000 milliseconds
Group Membership interval is 260 seconds
IGMP Snooping is globally enabled
IGMP Snooping is enabled on this interface
IGMP Snooping fast-leave is not enabled
IGMP Snooping querier is not enabled
IGMP Snooping report suppression is enabled
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

44.2.5 show ip igmp ssm-mapping

A¹ Q ¸*ü 9 / IGMP G!5B,Xssm-map µ C È Q ¸ ã V ß Ö

show ip igmp ssm-mapping (*A.B.C.D*)

– DAÈ â

– D	£EÄ
A.B.C.D	>• ô Ø,X$d

5 ,ÕG!5B / Ý IGMP ,X ssm-map ô Ø µ C Ä

Q ¸ õ ã < õ ã

S*ü Û Ð V p,Õ+9 Ý,X – D ÈFw Ú / ,Ì G,XG!5B ™ ‰ Ä

G!5B – _ 1 Ö / ssm-map ,XG!5B µ C

```
Ruijie# sh ip igmp ssm-mapping
```

SSM Mapping : Enabled
Database : Static mappings configured
_ 2 Ö / 4˜ 233.3.3.3 Ú ô Ø,X4˜ µ C
Ruijie#**show ip igmp ssm-mapping** 233.3.3.3
Group address: 233.3.3.3
Database : Static
Source list : 192.3.3.3
: 3.3.3.3

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

45 PIM-DM

45.1 PIM-DM

45.1.1 ip pim dense-mode

?U ü ' ! y · Þ *ü PIM-DM ÈAË S*üip pim dense-mode Q ¸ Ä S*ü Q ¸,X no 6 ã ü ' ! y · Þ/U*ü PIM-DM Ä

ip pim dense-mode

no ip pim dense-mode

– DAÈ â	– D	£EÄ
	É	É

5 ,ÕG!5B PIM-DM "u Ý ' Ô Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ

AÈ â	ü | PIM-DM ! ÈAË ü < G!5B õ ã ß |4˜ •CÃ+ E@ ¥ s6Ñ È ú í G S | Z PIM-DM È 3 á6ÑE@ ¥4˜ • D B y [Ä ü | PIM-DM ,X à Ê ÈIGMP ü Ø þ y · Þ Ú ÿ7¾ | | È áLÔ?U |G!5B Ä G!5BA¹ Q ¸,X Ê í È V p Î)„ Failed to enable PIM-DM on < y · á >, resource temporarily unavailable, please try again ÈAË a õ ñA© G!5BA¹ Q ¸ Ä G!5BA¹ Q ¸,X Ê í È V p Î)„ PIM-DM Configure failed! VIF limit exceeded in NSM!!! È></ ' !4˜ • y ·G!5B,X DG£ Æ4£E' A' Û ÃG!5B,X4˜ • y · ÞL$ ÄV p ¡' LÔ?U üA¹ y · ß Ô PIM-DM h*ü È AË ôL8 Ô o á ™?U,XPIM-DM ê PIM-SM ê DVMRP y · Ä á ÎA, ü à Ô ÄA' Û Þ,X á à y ·G!5B á à,X v4 4˜ •CÃ+ #A, Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip pim dense-mode
```

¸Ì G Q ¸	Q ¸	£EÄ
	É	É

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	É	É

45.1.2 ip pim neighbor-filter

?U ' Ô y · Þ,XF• E›$¸ ÈAË S*ü ip pim neighbor-filter Q ¸ Ä V pA'5B ZF• E›$¸ È ¾?U ¤F• >•E›$¸A"KÂ ë><¦4± È í PIM-DM Ú á î âA¹F• Î0ŸF• y ÄPeering Å G2Ï È ê5Ù !6 âA¹F• Æ4£ Î0Ÿ,XF• y G2Ï Ä

A¹ Q ¸,X no 6 ã Ã ¹/U*üF• E›$¸ s6Ñ Ä

ip pim neighbor-filter *access-list*

no ip pim neighbor-filter *access-list*

– DAÈ â	– D	£EÄ
	access-list	access-list Ö Õ D + acl 8× È 1-99 × 3 Õ Q á acl

5 ¸ÕG!5B y · þ *üF• E›$¸ s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ

AÈ â

ip pim neighbor-filter Q ¸AÈ â Ö

¾ Ý0ú ÜACL E›$¸ 5 Ê,XF• !6Ñ ó 0 ' ! y ·,X PIM F• È>• ACL E›$¸,XF• Ú ´"© 0 ' ! y ·,X PIM F• Ä Aç,XF• y Ä peering Å G2Ï È Û,X PIM F• KÈ,X #A, y [x f Ä V p !6 Z â ¤ þ PIM A' Û,XF• y G2Ï È í á î âA¹A' Û 6 ä F• G2Ï È 3 á î y 97¾A¹A' Û,X PIM #A, y [Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip pim neighbor-filter 14
```

¸Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	É	É

45.1.3 ip pim override-interval

?UG¡ „G!5Bhello #\ C,X override-interval ÈAË S*ü ip pim override-interval Q ¸ Ä

A¹ Q ¸,X no 6 ã Ã ¹ S hello #\ C,X override-interval 6 áT¬Ax Ä

ip pim override-interval *interval-milliseconds*

no ip pim override-interval

– DAÈ â	– D	£EÄ
	interval-milliseconds	ª 8× È <1-65535> È) ! !¿/¦

5 ¸ÕG!5B 2500 !¿/¦

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð G!5B y ·,X override-interval GG!5B y ·,X > q ú ‡ ÊKÈ Ä

G!5B – ßM6,X _ $ G!5B y ·,X override-interval 3000 !¿/¦ Ä

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip pim override-interval 3000
```

¸Ì G Q ¸	Q ¸	£EÄ
	É	É

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	É	É

45.1.4 ip pim query-interval

?UG¡ „G!5Bhello interval ÈAË S*ü ip pim query-interval Q ¸ Ä

A¹ Q ¸,X no 6 ã Ã ¹ S hello interval 6 áT¬Ax Ä

ip pim query-interval *interval-seconds*

no ip pim query-interval

– DAÈ â

– D	£EÄ
interval-seconds	ª 8× È <1-65535> È) ! /¦

5 ,ÕG!5B 30 /¦ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð V pA'5B Z hello interval Èhello holdtime î È „ hello interval ,X 3.5 á Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip pim query-interval 123
```

,Ì G Q ¸

Q ¸	£EÄ
É	É

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
É	É

45.1.5 ip pim propagation-delay

?UG¡ „G!5Bhello #\ C,X propagation-delay ÈAË S*ü ip pim propagation-delay Q ¸ Ä

A¹ Q ¸,X no 6 ã Ã ¹ S hello #\ C,X propagation-delay 6 áT¬Ax Ä

ip pim propagation-delay *interval-milliseconds*

no ip pim propagation-delay

– DAÈ â

– D	

	interval-milliseconds	ª 8× È <1-32767> È) ! !¿/¦

5 ,ÕG!5B 500 !¿/¦

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð G!5B y ·,X propagation-delay GG!5B y ·,X ô • ÊE³ ÊKÈ Ä

G!5B – ßM6,X _ $ G!5B y ·,X propagation-delay 600 !¿/¦ Ä

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip pim propagation-delay 600
```

,Ì G Q ¸

Q ¸	£EÄ
É	É

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
É	É

45.1.6 ip pim state-refresh disable

?U ü y · Þ/U!6 Ø)Ú `E@ ¥ PIM-DM (Š Õ „#\ C ÈAË S*ü ip pim state-refresh disable Q ¸ ÄG!5BA¹ Q ¸,X no 6 ã 6 á PIM-DM (Š Õ „ s6Ñ Ä

ip pim state-refresh disable

no ip pim state-refresh disable

– DAÈ â

– D	£EÄ
É	É

5 ,ÕG!5B 5 ,Õ Ø)Ú `E@ ¥(Š Õ „#\ C Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ü GKÁ(Š Õ „ s6Ñ Ê ÈÚ á î Ø)Ú `E@ ¥(Š Õ „ y [×ü ¥EÕ,X Hello y [Ú á Ù ÿ(Š Õ „EÝNM È ü Hello y [Ê á î Ø)Ú y [,X SR Cap +!‰ Ä

"¼ ã	ip pim state-refresh disable Q ¸AÈ â Ö GKÁ(Š Õ „ s6Ñ Ã6Ñ î Ð7È Æ4£ /,X PIM-DM 4˜ •E@ ¥ åG¡ „ / ÈEô ä á ™?U,X ú ‘#>C `4˜ •CÃ+ >< 95 È ¹ Ô8 ™ ‰ ß Ô Q FÑ á?U GKÁ(Š Õ „ s6Ñ Ä

G!5B P5B ð@ ñgp mÂ PIM-DM,X(ŠrÕ5B„U!6CÄÚ

```
Ruijie# configure terminal
Ruijie(config)# ip pim state-refresh disable
```

Q ¸	£EÄ

origination-interval 65

¸Ì G Q ¸	Q ¸	£EÄ
	É	É

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	É	É

45.2 PIM-DM

45.2.1 show ip pim dense-mode interface

?U / PIM-DM y ·,X µ C ÈAË S*ü show ip pim dense-mode interface Q ¸ Ä

show ip pim dense-mode interface [*interface-type interface-number*] [*detail*]

– D	£EÄ
interface-type interface-number	y ·2O _ ` y · Ë

VIF Index	VIF ÛAš ÄID Å
Ver/Mode	PIM (/ õ ã
Nbr Count	PIM-DM y ·,XF• D

,Ì G Q ¸

Q ¸	£EÄ
show ip pim dense-mode neighbor	/ PIM-DM y ·,XF• µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
É	É

45.2.2 show ip pim dense-mode mrouw(E2>]TJ /TT1 1 Tf 0 Tr 4.012 0 Td ( )Tj /TT0 1 T

```
Downstream IF List:
FastEthernet 0/45:
Downstream State: NoInfo
Assert State: Loser, AT:170
```

,Ì G Q ¸

Q ¸	£EÄ
É	É

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
É	É

45.2.3 show ip pim dense-mode neighbor

?U / PIM-DM F• µ C ÈAË S*ü show ip pim dense-mode neighbor Q ¸ Ä

show ip pim dense-mode neighbor [*interface-type interface-number*]

– DAÈ â

– D	£EÄ
interface-type interface-number	y ·2O _ ` y · Ë

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð ´

G!5B _

¹ ß show ip pim dense-mode neighbor Q ¸,X / 4§ p Ö

```
Ruijie# show ip pim dense-mode neighbor
Neighbor-Address Interface     Uptime/Expires    Ver
10.10.10.1    FastEthernet 0/45 00:19:29/00:01:21  v2
50.50.50.1    VLAN 4            00:22:09/00:01:39  v2
```

/ 4§ p,X Ø +!‰ £EÄ V ß Ö

+!‰	AÈ â
Neighbor-Address	F•
Interface	âF• ,ÌE²,X y ·

Uptime/Expires	><NM ,# ÊKÈ ¹ ž5Õ ê ÊKÈ
Ver	PIM (

,Ì G Q ¸

Q ¸	£EÄ
É	É

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
É	É

45.2.4 show ip pim dense-mode nexthop

?U / PIM-DM ß ÔCÇ µ C ÈAË S*ü**show ip pim dense-mode nexthop** Q ¸ Ä

show ip pim dense-mode nexthop

– DAÈ â

– D	£EÄ
É	É

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð ´

¹ ß Q ¸ ¹,ß PIM-DM ß ÔCÇ µ C Ö

```
Ruijie# show ip pim dense-mode nexthop
Destination  Nexthop   Nexthop   Nexthop   Metric Pref
                Num       Addr      Interface
1.1.1.111      1        50.50.50.1  VLAN 4     0     1
```

G!5B _ / 4§ p,X Ø +!‰ £EÄ V ß Ö

+!‰	AÈ â
Destination	4˜ •$d
Nexthop Num	ß ÔCÇ,X DG£
Nexthop Addr	ß ÔCÇ
Nexthop Interface	â ß ÔCÇ,ÌE²,X y ·

Metric	CÃ+ ,X zG£
Pref	CÃ+ ,X ì 4{

,Ì G Q ¸	
Q ¸	£EÄ
É	É

G ÄAÈ â ´

Assert:	0	0
State-Refresh:	[illegible]	

,Ì G Q ¸

Q ¸	£EÄ
show ip pim dense-mode track	/ PIM y [4³Au µ C

G ÄAÈ â ´

46 PIM-SM

46.1 PIM-SM

46.1.1 clear ip mroute

clear ip mroute {* | *group_address* [*source_address*] }

– D	£EÄ
*	ôL8 Ý,X pimsm

G!5B _ P

– D	£EÄ

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

46.1.7 ip pim accept-crp list

ip pim accept-crp list {*<100-199>*|*<2000-2699>*|*WORD*}

– DAÈ â	– D	£EÄ
	<100-199>|*<2000-2699>*	IP =) D + acl Ä
	WORD	IP =) Q á acl

5 ,ÕG!5B 5 ,Õ0²EÝ BSR y Ý êF¼,X íEÝ RP Eî Ä

Q ¸ õ ã < õ ã

S*ü Û Ð ü íEÝ BSR ÞG!5B!8 Q ¸ È 'A¹ íEÝ BSR ä 0²EÝ BSR Ê È6Ñ ó Í Ü"©,X C-RP 8× È ž J á u,X4˜ •4˜8× ÈE¯> L$ Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim accept-crp list 100
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

46.1.8 ip pim accept-crp-with-null-group

ip pim accept-crp-with-null-group

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ü BSR Þ á y prefix-count 0 ,X C-RP-ADV y [Ä

Q¸õ ã < õ ã

S*ü Û Ð ü íEÝ BSR ÞG!5B!8 Q¸È 'A¹ íEÝ BSR ä 0²EÝ BSR Ê È6Ñ ó y prefix-count 0 ,X C-RP-ADV y [È J èAx A¹ C-RP 6Ñ ó Õ Ý,X4˜ Ä

G!5B –

```
Ruijie# configure terminal
Ruijie(config)# ip pim accept-crp-with-null-group
```

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â ´

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim bsr-candidate g 0/3
Ruijie(config)# ip pim bsr-candidate g 0/3 30 192
```

	-	-

46.1.12 ip pim dr-priority

ip pim dr-priority *priority-value*

– DAÈ â	– D	£EÄ
	priority-value	ì 4{ È C^P¬ È ì 4{C^ û Ä8× È Ö <0-4294967294> È5 ,Õ Ö 1 Ä

5 ,ÕG!5B 5 ,Õ Ê È ,X DR ì 4{ 1

Q¸õã y · õ ã

S*ü Û Ð

'EÝ ½ Ô þ DR Ê È ßM6 ´/¡ ™ ‰ Ú>• h*ü Ö
à Ô ³5%4° ,XA' Û,X hello y [FÑ ÝA'5B ì 4{ – D ÈFw üEÝ ½ DR Ê È !¨ EW ì 4{ ÈAÕ,X ì 4{P¬ ÈAÕ ä DR ×8¹ Ý î þA' Û ¹ Ý,Ì à,X ì 4{ ÈFw È AÕ,XlP P¬ ÈAÕ DR Ä
' à Ô ³5%4° ,X ¤ þA' Û ü hello #\ C y ["u ÝA'5B ì 4{ – D Ê ÈFw E- þ ³5%4° DR ,XEÝ ÈAÕ IP P¬ ÈAÕ DR Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ip pim dr-priority 10000
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

46.1.13 ip pim ignore-rp-set-priority

ip pim ignore-rp-set-priority

– DAÈ â	– D	£EÄ

G!5B

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

46.1.15 ip pim mib

ip pim mib dense-mode

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ Ê È S*ü sparse-mode ,X mib

Q ¸ õ ã	< õ ã

S*ü Û Ð	'?U S*ü dense-mode ,X mib Ê È S*üE- 5 Q ¸

G!5B –	Ruijie# **configure terminal** Ruijie(config)# **ip pim mib dense-mode**

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

46.1.16 ip pim neighbor-filter

ip pim neighbor-filter *access_list*

– DAÈ â	– D	£EÄ
	access_list	access-list Ö Õ D + acl 8× È 1-99 × 3 Õ Q á acl

5 ,ÕG!5B	5 ,Õ Ê È y · þ *üF• E›$¸ s6Ñ
Q ¸ õ ã	y · õ ã
S*ü Û Ð	A'5BF• E›$¸ È W t PIM 5%4°,X] < û È ¤ oF• L$ Ä ¾?U ¤F• >•E›$¸A"KÂ ë>< ¦4± È í PIM-SM Ú á î âA¹F• Î0Ÿ Í1 Äpeering Å G2ï È ê5Ù !6 âA¹F• Æ4£ Î 0Ÿ,X Í1 G2ï Ä
G!5B _	Ruijie# **configure terminal** Ruijie(config)# **interface g** 0/3 Ruijie(config-if)# **ip pim neighbor-filter** 14 Ruijie(config-if)# **exit** Ruijie(config)#**access-list** 14 **deny** 192.168.1.5 0.0.0.255

,Ì G Q ¸

Q ¸	£EÄ
access-list	-

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.17 ip pim neighbor-tracking

ip pim neighbor-tracking

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	5 ,Õ Ê È y ·,X t 9 e 6Ñ o>•	Ä
Q ¸ õ ã	y · õ ã
S*ü Û Ð	/U!6 y ·,X t 9 e 6Ñ o Ä y ·,X t 9 e 6Ñ o>•	Ê È ' CÃ+ < Ç T Þ$ F• ¥

	,X join y [ÈE¯5à.B Û-¹F' ß$ F• Ý ´ þ y 5Ù È GF• C³Cþ Ä
G!5B _	ßM6,X _ $ /U!6 y ·,X t 9 e 6Ñ o Ruijie# **configure terminal** Ruijie(config)# **interface g** 0/3 Ruijie(config-if)# **ip pim neighbor-tracking**

,Ì G Q ¸

Q ¸	£EÄ
ip pim propagation-delay	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.18 ip pim override-interval

ip pim override-interval *interval-milliseconds*

– DAÈ â

– D	£EÄ
interval-milliseconds	ª 8× È <1-65535> È) ! !¿/¦

5 ,ÕG!5B 5 ,Õ Ê È Hello EÝNM,XOverride-Interval ,X 2500 !¿/¦

Q ¸ õ ã y · õ ã

S*ü Û Ð G!5B y ·,X Override-Interval Ä

"¼ ã Â ô • ÊE³ ê Â > q ú ‡ ÊE³ ÈFÑ î E ¡ J/P-override-interval Ä #A, Þ?U" J/P-override-interval ™NO ã b Join-Prune y [,X holdtime È ú í Ú Ý Ã6ÑEô ä-Á V,X •# ÄE- Ô&• È LÔ+ 5%4°1u)Ú5Ù4È x ±A• Ä

G!5B _ ßM6,X _ $ G!5B y ·,X Override-Interval 3000 !¿/¦

```
Ruijie# configure terminal
Ruijie(config)# interface g0/3
Ruijie(config-if)# ip pim override-interval 3000
```

,Ì G Q ¸	Q ¸	£EÄ
	ip pim propagation-delay-	-

G ÄAÈ â ´

(Ë	

	-	-

46.1.20 ip pim probe-interval

ip pim probe-interval *interval-seconds*

– DAÈ â

– D	£EÄ
interval-seconds	ª 8× È <1-65535> È) ! /¦

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` v# ÊKÈT¬Ax 5s

Q ¸ õ ã < õ ã

S*ü Û Ð

G!5B"¼ ` v# ÊKÈ È G ü"¼ ` e ÊKÈCY Ê ! È AŒ$d DR å RP ¥EÕ0N"¼ ` y [G NULL-Register ,X ÊKÈKÈLh Ä

AÈ â	"¼ ` v# ÊKÈKÈLh á6ÑCYE›"¼ ` e ÊKÈ,X Ô È ú í ÈG!5B á î ä s Ä è îEg Î Ô þ ¤Gf G WarningÄ5à è 3*"¼ ` e ÊKÈ+ "¼ ` v# Ê KÈ á6ÑCYE65535 È ú í È îEg Î Ô þ ¤Gf G Warning Ä

G!5B _

ßM6,X _ $ G!5B"¼ ` v# ÊKÈ 6s

```
Ruijie# configure terminal
Ruijie(config)# ip pim probe-interval 6
```

,Ì G Q ¸

Q ¸	£EÄ
ip pim register-suppression	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.21 ip pim query-interval

ip pim query-interval *interval-seconds*

– DAÈ â

– D	£EÄ
interval-seconds	ª 8× È <1-65535> È) ! /¦

5 ,ÕG!5B 5 ,Õ Ê È hello y [¥EÕ < ó T¬Ax 30s

Q ¸ õ ã y · õ ã

S*ü Û Ð !£ ' Hello #\ C ¥EÕKÈLh>• È „ Ê ÈHello #\ C ± Õ ÊKÈ 3 î Ý'; ¹ ß?˜ íLc È „ Ö Hello #\ C ± Õ ÊKÈ>• È „ Hello #\ C ¥EÕKÈLh,X3.5 á × V p Hello #\ C ¥EÕKÈLh * 3.5 > 65535 È J è Hello #\ C ¥EÕKÈLh>• È „ 18725 Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ip pim query-interval 123
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

(Ë	

G!5B –

```
Ruijie# configure terminal
Ruijie(config)# ip pim register-decapsulate-forward
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

46.1.23 ip pim register-checksum-wholepkt

ip pim register-checksum-wholepkt [group-list *access-list*]

– DAÈ â

– D	£EÄ
access-list	access-list Ö Õ D + <1 È99> Ã<1300 È1999> È Õ Q á acl Ä group-list access-list 5 ,Õ Ê ÈÍ Ý,X4˜ • ÈFÑ h*üE-/¡G!5B Ä

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` y [,X õP` `Au1k Au1k pim y [ F¼ `"¼ ` y [F¼ È5àM2 H þ pim y [Ä

Q¸õ ã < õ ã

S*ü Û Ð F¼ Ú { ,XA' Û Í"¼ ` y [ õP` `,XAu1k • ã Au1k H þ pim #A, y [ ÿ J Õ>™,X4˜ • D B y [ È5àM2 )(À,X"¼ ` y [,X pim F¼ Ä Z P •E- oA' Û È é 9 ZA¹ Q ¸ Ä

G!5B –

```
Ruijie# configure terminal
Ruijie(config)#ip pim register-checksum-wholepkt
Ruijie(config)#ip pim register-checksum-wholepkt group-list 99
Ruijie(config)# access-list 99 permit 225.1.1.1 0.0.0.255
```

¸Ì G Q¸

Q¸	£EÄ
access-list	-

G!5B

-	-

5 ,ÕG!5B 5 ,Õ Ê È ¥EÕ"¼ ` y [Ê È á " ¹ RP ú ÃE'

Q ¸ õ ã < õ ã

S*ü Û Đ ¥EÕ"¼ ` y [ ! È ø • RP ú ÃE' È Ã ¹ S*üA¹ Q ¸ Ä8¹ á ÃE' È í á ¥EÕ"¼ ` y [Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim register-rp-reachability
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.26 ip pim register-source

ip pim register-source {*local_address* | *interface-type interface-number*}

– DAÈ â

– D	£EÄ
local_address	Û n"¼ ` y [,X$d ip
interface-type interface-number	Û nE- þ y ·,X ip 0 "¼ ` y [,X$d ip

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` y [,X$d IP S*ü â4˜ •$dE² y,X DR y · Ä

Q ¸ õ ã < õ ã

S*ü Û Đ

Û n"¼ ` y [,X$d IP Ä
G!5B,X ™NO ÃE',X Ä ' RP ¥EÕ Î!7.B,X Register-Stop µ C Ê È W?U 0 Î,Ì h,X
¡ h Ä ¹ |9$ W y ·,X ²)ƒ È 3 Ã ¹ J W,X(=)Ú Ä

"¼ ã	!8G!5B á?U" PIM Æ4£ | Ä

G!5B _

```
Ruijie# configure terminal
```

```
Ruijie(config)# ip pim register-source 192.168.195.80
Ruijie(config)# ipv6 pim register-source g 0/3
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.27 ip pim register-suppression

ip pim register-suppression *seconds*

– DAÈ â

– D	£EÄ
seconds	"¼ ` e ÊKÈ È ª 8× È<1-65535> È) ! /¦ Ä

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` e ÊKÈ 60 /¦ Ä

Q ¸ õ ã < õ ã

S*ü Û Đ ü DR ÞG!5B!8 Ú Â n ü DR Þ,X"¼ ` y [e ÊKÈ × V p ip pim rp-register-kat Q ¸"u ÝG!5B È ü RP Þ n !8 Ú Â RPkeepalive ,X < ó Ä

G!5B –

```
Ruijie# configure terminal
Ruijie(config)# ip pim register-suppression 100
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

ip pim rp-address *rp-address* [*access_list*]

– DAÈ â

– D	£EÄ
rp-address	RP ,X ip
access_list	ÃEÝ Èaccess-listÖ Õ D + acl 8× È <1-99> Ã <1300-1999> × 3 Õ Q á acl Ä5 ,Õ Ê È AŒ Ý î •4˜ Ä

5 ,ÕG!5B

5 ,Õ Ê È"u ÝG!5BM- Õrp

Q ¸ õ ã

< õ ã

S*ü Û Ð

2Ï4³ r)„ ÕG!5B î •M- Õ RP È W 3 ÕM- Õ RP ` BSR à ÊE¯> Ä S*ü!8 Q ¸LÔ"¼ ã ßM6 ´&• Ö

V pEîE› BSR ` RP M- ÕG!5B à Ê Ý Ê È ì S*ü | ÕG!5B Ä

S*üA“KÂ ë><M- ÕG!5BRP Ã ¹G!5B î þ,X î •4˜ Ä S*ü ACL Å ê5Ù Ý,X î • 4˜ Ä á S*ü ACL Å È Ô þ RP M- Õ á6Ñ>• î õG!5B S*ü Ä

V p Ý î þM- Õ RP á u b à Ô þ4˜ È P¬M- Õ RP Ú>• ì EÝ ½G›*ü Ä

¾ Ý ü ACL n ,X AŒE›$¸ ! Ý ,X î •4˜ ÄACL 5 ,Õ Ê È Ú>•Ax AŒ Ý,X î •4˜ 224/4 Ä

G!5B ` ä â ÈM- Õ,X RP $d Ú ¦ 9 Î b4˜8× È,XM- Õ RP 4˜ å4§ X È!£ þ4˜ 8× È î •M- Õ4˜4È Õ Ô þM- Õ RP 4˜,XJÒ><4§ X ÈA¹JÒ>< ÝP Eæ £ f c Ä' Ô þ4˜8× ÈEÝ ½ Ô þRP È1 Ô þ 2ô È 3 IP ÔP¬,XFw þ ÚOj >•EÝ Þ Ä

ôL8 Ô þ RP M- Õ Ú å Ý , ü,X4˜ ôL8E- þ È J ¢)„ Ý å4§ X EÝ ½ Ô þ 0 RP Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim rp-address 210.34.0.55
Ruijie(config)# ip pim rp-address 210.34.0.55 4
Ruijie(config)# access-list 4 permit 225.1.1.1 0.0.0.255
```

,Ì G Q ¸

Q ¸	£EÄ
access-list	-

G ÄAÈ â

´

(Ë	

46.1.30 ip pim rp-register-kat

ip pim rp-register-kat *seconds*

AÈ â	ü | PIM-SM ! ÈAË ü < G!5B õ ã ß | î •CÃ+ E@ ¥ s6Ñ È ú í G S | Z PIM-SM È 3 á6ÑE@ ¥ î • D B y [Ä ü | PIM-SM ,X à Ê ÈIGMP ü Ø þ y · Þ Ú ÿ7¾ | | ÈáLÔ?U |G!5B Ä G!5BA¹ Q ¸,X Ê í È V p î Î)„ Failed to enable PIM-SM on < y · á>, resource temporarily unavailable, please try again ÈAË a õ ñ A©G!5BA¹ Q ¸ Ä G!5BA¹ Q ¸,X Ê í È V p î Î)„ PIM-SM Configure failed! VIF limit exceeded in NSM!!! È></ ' ! AŒ,X y ·G!5B Æ4£CYE›4˜ • y · ÞL$ ÈAË ôL8 Ô o á ™?U,XPIM-DM ê DVMRP y · Ä á ÎA, ü à Ô ÄA' Û Þ,X á à y ·G!5B á à,X v4 4˜ •CÃ+ #A,

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ip pim sparse-mode
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.1.32 ip pim spt-threshold

ip pim spt-threshold [group-list *access-list*]

– D	£EÄ
access-list	ÃEÝ Èaccess-listÖ Õ D + acl 8× È 1-99 Ã 1300-1999 × 3 Õ Q á acl Ä group-list access-list 5 ¸Õ Ê È AŒ Ý î •4˜E¯> SPT Û 6 Ä

– DAÈ â

5 ¸ÕG!5B 5 ¸Õ Ê È á \| SPT Û 6

Q ¸ õ ã < õ ã

S*ü Û Ð

LÔ?U ' Ôrp å T spt åE@ ¬,X s6Ñ ÈAËG!5BA¹ Q ¸ ×
¾ AŒ(M n4˜8× È S*üSPT Û 6 È íG! Þ group-list ×
á S*ü group-list Ê È AŒ Ý î •4˜ S*ü SPT Û 6 Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ip pim spt-threshold
Ruijie(config)# ip pim spt-threshold group-list 12
Ruijie(config)# access-list 12 permit 225.1.1.1 0.0.0.255
```

,Ì G Q ¸

Q ¸	£EÄ
access-list	-

G ÄAÈ â

´

(Ë	AÈ â

,Ì G Q ¸

Q ¸	£EÄ
access-list	-

G ÄAÈ â ´

G!5BPIM-SM Q ¸

Q¸õã (M õã/ < õã/ y·õã

S*üÛÐ ¹,ß BSR µC Ê S*ü

G!5B _

```
Ruijie# show ip pim sparse-mode bsr-router
ßM6show ip pim sparse-mode bsr-router ,X Ô þ _ $
Ruijie# show ip pim sparse-mode bsr-router
PIMv2 Bootstrap information
This system is the Bootstrap Router (BSR)
BSR address: 192.168.127.1
Uptime:  01d23h14m, BSR Priority: 64, Hash mask length: 10
Next bootstrap message in 00:00:42
Role: Candidate BSR  Priority: 64, Hash mask length: 10
State: Elected BSR
Candidate RP: 30.30.100.200(GigabitEthernet 0/3)
Advertisement interval 60 seconds
Next Cand_RP_advertisement in 00:00:32
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

46.2.3 show ip pim sparse-mode interface

show ip pim sparse-mode interface [*interface-type interface-number* [detail]]

–DAÈâ

–D	£EÄ
interface-type interface-number	ÃEÝÈÛny· 5 ,Õ Ê È!8 Q¸ J\Í Ýy·
detail	ÃEÝÈ / ÎÈA°4š,Xy·µC

5 ,ÕG!5B á Úy·µC / Î9

Q¸õã (M õã/ < õã/ y·õã

S*üÛÐ ¹,ß PIM SM y·µC È¹ß Ý/¡ Q¸ ãÄ

G!5B _

```
Ruijie#show ip pim sparse-mode interface g0/4 detail
Ruijie#show ip pim sparse-mode interface
Ruijie#show ip pim sparse-mode interface g0/3
```

ßM6 /,X show ip pim sparse-mode interface detail ,XÔþ_$

```
Ruijie #show ip pim sparse-mode interface detail
GigabitEthernet 0/3 (vif 3):
  Address 30.30.100.200, DR 30.30.100.200
  Hello period 30 seconds, Next Hello in 11 seconds
  Triggered Hello period 5 seconds
  Neighbors:
   2.2.2.2
```

,ÌGQ¸

Q¸	£EÄ
-	-

GÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

46.2.4 show ip pim sparse-mode local-members

show ip pim sparse-mode local-members [*interface-type interface-number*]

–DAÈâ

–D	£EÄ
interface-type interface-number	ÃEÝÈÛny· 5,ÕÊÈ!8Q¸J\ÍÝy·

5,ÕG!5B áÚy·µC /Î9

Q¸õã (M õã/ < õã/ y·õã

G!5B

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.2.7 show ip pim sparse-mode nexthop

show ip pim sparse-mode nexthop

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B á Ú ß ÔCÇ,X µ C / Î 9

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð ¹,ß ß ÔCÇ,X,Ì G µ C È W Ù À Z ß ÔCÇ,X y · Ë È Èmetric 1 Ä

G!5B _ Ruijie# **show ip pim sparse-mode nexthop**

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

46.2.8 show ip pim sparse-mode rp mapping

show ip pim sparse-mode rp mapping

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B á /

Q¸õã (M õã/ < õã/ y·õã

S*üÛÐ Ú / Þ Ý,X rp È¹žW À 6Ñ á u,X4˜

G!5B _

```
Ruijie #show ip pim sparse-mode rp mapping
ßM6 Ô þ _ $
Ruijie (config)#sh ip pim sparse-mode rp mapping
PIM Group-to-RP Mappings
Group(s): 224.0.0.0/4
RP: 30.30.200.1
Info source: 30.30.200.1, via bootstrap, priority 192
Uptime: 00:00:51, expires: 00:01:39
RP: 30.30.100.1
Info source: 30.30.200.1, via bootstrap, priority 192
Uptime: 00:19:14, expires: 00:01:38
Group(s): 224.0.0.0/4, Static
RP: 100.100.100.100
Uptime: 00:45:35
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈâ ´

Q¸Z Æ

(Ë	AÈâ
-	-

46.2.9 show ip pim sparse-mode rp-hash

Tc 0 Tw 10.2.2 0 Td (s)Tj /TT041 Tf -0.00138Tc 0.08 0.Td [(sgoup)-6(p-ad)-6(dre)-6(s)-5(s)TJ /TT0 1 Tf (

S*ü Û Đ ¹,ß ¤ þ4˜ Í h,X RP ,X µ C Ä

G!5B _

```
Ruijie# show ip pim sparse-mode rp-hash 225.1.1.1
ßM6 / ,X Ô þ _ $
Ruijie# show ip pim sparse-mode rp-hash 225.1.1.1
RP: 30.30.100.1
Info source: 30.30.100.1, via bootstrap
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

```
Hello:                    0          8
Join-Prune:               0          0
Register:                 0          0
Register-Stop:            0          0
Assert:                   0          0
BSM:                      0          0
C-RP-ADV:                 0          0
PIMDM-Graft:              0
PIMDM-Graft-Ack :         0
PIMDM-State-Refresh:      0
Unknown PIM Type:         0
Errors:
Malformed packets:                   0
Bad checksums:                       0
Send errors:                         0
Packets received with unknown PIM version:    0
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

47 IPv6

47.1

47.1.1 ping ipv6

A¹ Q ¸*ü 9Až • IPV6 5%4°,XE²Eî û Ä

ping ipv6 [*ipv6-address*]

– DAÈ â

– D	£EÄ
ipv6-addres	*s* >•Až •,X,Â,X

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ü Q ¸ áEg 9,Â,X Ê íE¯ 9*ü x f õ ã È Ã ¹ Û n K ',X Ø/¡ – D Ä

G!5B _

Ruijie# **ping ipv6 fec0**::1

ü ;> Ê ping E¨ ²,X Ø/¡0ú Ë,X ÿ V ß Ö

+!‰	AÈ â
!	></ !£ þ ¥ Î,XAË" ,Ì h,X h1(Z
.	></ ¥ Î iAË" ü?˜ n ÊKÈ Y"u Ý h1(
U	></ A’ Û"u ÝCÃ+ E’,Â,X
R	></ – D ÎJí
F	></ 2Ï4³"u ÝC $d
A	></ y [$d þ6ÑEÝ ½
D	></ 5%4° y · Ø b Down (Š Õ ê5Ù A¹5%4° y ·,X IPV6 s6Ñ>•/U*ü(V ”# †0U)
?	></ þ-¹JíAÃ

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G!5B

S*ü Û Ð

' Ô þ IPV6 y ·>• ï Î J èJÒCÃ(Š Õ UP ÊFw 2Ï4³ Ú A¹ y ·7¾ |*ó äJÒCÃ Ä

y ·,X IPv6 3 Ã ¹ S*üEî*ü !4Ô *ó ä Ä J IPv6 = Eî*ü !4Ô + $!4Ô + !¨(M ÄEî*ü !4Ô Ã ¹ S*ü ipv6 general-prefix Q ¸G!5B È 3 Ã6Ñ EîE› DHCPv6 v 0Ã,X PD Ä !4Ô ¥)„ Å s6Ñ : 4 Ä –?• DHCPv6 G!5B Å Ä $!4Ô + !¨(M S*ü Q ¸,X *sub-bits/prefix-length* – DG!5B Ä

S*ü no ipv6 address V p á Û n ôL8 K ',X ÈFw Ú ôL8 Ý ¹G!5B,X Ä

S*ü no ipv6 address *ipv6-prefix*/*prefix-length* eui-64 Ã ¹ ôL8 S*ü Q ¸ ipv6 address *ipv6-prefix*/*prefix-length* eui-64 G!5B,X Ä

"¼ ã S5750 2Ï ë x 6 + b8ƒ(,X.@ ÊE@ ¥>< Õ,XCÃ+ !4ÔKS z8× È [0,64] ê5Ù[128,128] È ¹ y · IPv6 ,X !4ÔKS z,X8× È [0,64] ê5Ù[128,128]

ipv6 address autoconfig [default]

no ipv6 address autoconfig

– DAÈ â	– D	£EÄ
	default	ÃEÝ – D Ä V pG!5B ÞA¹ GK + ÈFw ´(Š Õ7¾ | G!5B È î*ó ä Ô 55 ,ÕCÃ+ Ä"¼ ã H ÄA' Û ¾ AŒ Ô þ Ý y · S*ü default GK + Ä

5 ,ÕG!5B	´
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Đ	´(Š Õ7¾ | G!5B Û 'A' Û RA ÄCÃ+ @ Å y [Ê È Ã ¹ S*ü RA y [,X ! 4Ô µ C7¾ |*ó ä EUI-64 ã,X y · Ä V p ,X RA y [ÿ Ý J WG!5B ,X Û « ÈFw A¹ y · ÚEîE› DHCPv6 9‹ ªE- o J WG!5B Ä J WG!5B Eî Û DNS ãT'@

5 ,ÕG!5B	y ·,X IPv6 s6Ñ"u Ý ' Ô Ä
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	Ý 2 /¡ • ã Ã ¹ ' Ô y · Þ,X IPv6 s6Ñ È Ô ü y · ßG!5B ipv6 enable Q ¸ , ` ,È y ü y · ßG!5B Z IPv6 Ä
"¼ ã	V p ü y · ÞG!5B Z IPv6 Fw y ·,X IPv6 s6Ñ î7¾	' Ô È G S S*ü no ipv6 enable 3 á6Ñ GKÁIPV6 s6Ñ Ä
G!5B _	`Ruijie(config-if)# ipv6 enable`

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 interface	¹,ß y ·,X,Ì G µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.1.5 ipv6 general-prefix

G!5BIPv6 Eî*ü !4Ô È ü < G!5B õ ã ß S*ü ipv6 general-prefix Q ¸ ÄA¹ Q ¸AÁ"© ã V ß Ö

ipv6 general-prefix *prefix-name ipv6-prefix/prefix-length*

no ipv6 general-prefix *prefix-name ipv6-prefix/prefix-length*

– DAÈ â

– D	£EÄ
prefix-name	Eî*ü !4Ô,X á + Ä
ipv6-prefix	Eî*ü !4Ô,X5%4° !4Ô ÄE- þ ,X></ "©?UFI ~ RFC4291 £EÄ,X f Ë></ "© Ä
prefix-length	Eî*ü !4Ô,XKS z Ä

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

S*üEî*ü !4Ô Ã ¹ • “5%4°4ê Ë Ä ´ Eî*ü !4Ô n Î Ô þ !4Ô È \ î ÈKS,X(M n !4Ô Ã ¹ é*ü W Ä 'Eî*ü !4Ô ¬ ê Ê ÈE- o é*üEî*ü !4Ô,X(M n !4Ô îC³- ¬ ê Ä5%4°4ê Ë ¬ ê Ê È ¾?U Â Ô ßEî*ü !4Ô G Ã Ä

Ô þEî*ü !4Ô Ã ¹ Ù ÿ î þ !4Ô Ä

E- o ÈKS,X(M n !4ÔEî *ü ü y ·,X IPv6 G!5B Þ Ä

G!5B _

V ß,X _ $ ¹G!5B Z Ô þEî*ü !4Ô ¿ my-prefix Ä

```
Ruijie(config)# ipv6 general-prefix my-prefix 2001:1111:2222::/48
```

Q ¸	£EÄ

G ÄAÈ â ´

(Ë

S*üA¹ Q ¸A'5B y · ÞF• AË" (NS) ,XG¡ ôKÈLh È S*üA¹ Q ¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd ns-interval *milliseconds*

no ipv6 nd ns-interval

– DAÈ â

– D	£EÄ
milliseconds	F• AË" ,XG¡ ôKÈLh È ¹!¿/¦) ! È ,X8× È Ö 1000-4294967295

5 ,ÕG!5B

üCÃ+ < @ y [(RA) 5 ,Õ 0(></ þ Û n) È A' Û7¾ Å üF• ¥)„> F• AË " S*ü,XG¡ ôKÈLh 1000ms(1 /¦) Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

G!5B,X Ú üCÃ+ < @ y [(RA) >• ¥ × Î • È à ÊA¹ 3>•A' Û7¾D• S*ü Ä ÎA, á ?U ÚA¹ A'5B k þ ã Ä

G!5B _

```
Ruijie(conifg-if)# ipv6 nd ns-interval 2000
```

¸Ì G Q ¸

Q ¸	£EÄ
show ipv6 interface	¹,ß y ·,X µ C

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.1.10 ipv6 nd prefix

A¹ Q ¸*ü 9G!5BCÃ+ < @ y [(RA) Ù ÿ,X !4Ô È S*üA¹ Q ¸,X no 6 ã Ú ôL8 G!5B,X !4Ô ê5Ù 6 á !4ÔG!5B – D,X5 ,Õ Ä

ipv6 nd prefix *ipv6-prefix*/*prefix-length* | default [[*valid-lifetime preferred-lifetime*] | [at *valid-date preferred-date*] | infinite | no-advertise]] [off-link] [no-autoconfig]

no ipv6 nd prefix *ipv6-prefix/prefix-length* | default { [off-link] [no-autoconfig] | [no-advertise] }

– DAÈ â

– D	£EÄ
ipv6-prefix	IPV6 ,X5%4° Ë È™NOFI RFC4291 ,X ></ 6 ã Ä

prefix-length	IPV6 !4Ô,XKS z È"¼ ã !M6 ™NO t Þ'/' Ä
valid-lifetime	CÃ+ < @ ,X !4Ô âAx Ý ,X ÊKÈ Ä
preferred-lifetime	CÃ+ < @ ,X !4Ô âAx OjEÝ Ý ,X ÊKÈ Ä
at *valid-date preferred-date*	A'5B @ !4Ô Ý `OjEÝ Ý ,X þ!6 ÊKÈ È þ!6 ÊKÈ ¹ ¹ Ã Ü Ã H Ã ã Ê Ã ÚJs></ ,X Ä
infinite	></ " E°FÑ Ý Ä
default	A'5B?U S*ü,X5 ,Õ – DG!5B Ä
no-advertise	></ A¹ !4Ô á>•CÃ+ < @ Ä
off-link	ü ¥EÕ IPV6 y [Ê V p,Â,X ,X !4Ô G! ! 4ÔFw Ax A¹,Â,X,X ü à ÔJÒCÃ (on-link) Þ Ã,È y E',X ÄA'5B ZA¹EÝNM></ A¹ !4Ô á*ü 9 . on-link ,X ø • Ä
no-autoconfig	A¹EÝNM Û/ A¹CÃ+ < @ ,X !4Ô á6Ñ*ü b 7¾ |G!5B Ä

5 ,Õ @ ,X !4Ô üA¹ y · ÞEîE› IPV6 address Q ¸G!5B,X !4Ô ÄG!5B,X !4Ô üCÃ+ <

5 ,ÕG!5B

Ruijie(conifg-if)# **ipv6 nd prefix** 2001::/64 **infinite** 2592000
_ 2 ÖA'5B y · SVI 1 Þ,X !4Ô,X5 ,Õ – D(á Ã*ü b 7¾ |G!5B)
Ruijie(conifg)# **interface vlan** 1
Ruijie(conifg-if)# **ipv6 nd default no-autoconfig**
üA¹ ™ ‰ ß V p r t Ô þ !4Ô È á Û n Ï) – D ÈFw Ú S*ü5 ,Õ,XG!5B – D GA¹ !4Ô 3 á Ã*ü b 7¾ |G!5B,X Ä

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 interface	¹,ß y · G b ra-info ,X µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.1.11 ipv6 nd ra-lifetime

S*üA¹ Q ¸A'5B y · Þ ¥EÕ,XCÃ+ < @ (RA) y [,X CÃ+ <*ó , ó È S*üA¹ Q ¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd ra-lifetime *seconds*

no ipv6 nd ra-lifetime

– DAÈ â

– D	£EÄ
seconds	A¹A' Û 0 A¹ y · Þ,X5 ,ÕA' Û,X Ý ÊKÈ Ä

5 ,ÕG!5B 1800 /¦

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð "CÃ+ <*ó , ó" +!‰ , ü b!£ þCÃ+ < @ (RA) y [ÈA¹ Û â ZA¹ y · ü,XJÒCÃ Þ Ã ¹ ÚA¹A' Û 0 5 ,ÕA' Û,X ÊKÈ Ä V pA'5B,X 0 ></ á a>• ' 05 ,ÕA' Û Ä 'A'5BM2 0 Ê?U"¼ ãA¹ ™NO û b1 bA' Û ¥EÕCÃ+ < @ (RA) y [,XKÈLh (ra-interval) Ä

G!5B –

Ruijie(conifgf)# **interface vlan** 1
Ruijie(conifg-if)# **ipv6 nd ra-lifetime** 2000

,Ì G Q ¸	Q ¸	£EÄ
	show ipv6 interface	¹,ß y · G b ra-info ,X µ C Ä
	ipv6 nd ra-interval	A'5BCÃ+ < @ y [,X ¥EÕKÈLh Ä
	ipv6 nd ra-hoplimit	A'5BCÃ+ < @ y [,XCÇ D +!‰,X Ä
	ipv6 nd ra-mtu	A'5BCÃ+ < @ y [,X MTU +!‰,X Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

47.1.12 ipv6 nd ra-interval

S*üA¹ Q ¸A'5B y · Þ ¥EÕ,XCÃ+ < @ (RA) y [,XKÈLh È S*üA¹ Q ¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd ra-interval {*seconds* | *min-max min_value max_value*}

no ipv6 nd ra-interval

– DAÈ â	– D	£EÄ
	seconds	CÃ+ < @ (RA) @ y [,X ¥EÕKÈLh Ä ¹/¦) ! Ä
	min-max	A'5BEî y [¥EÕKÈLh,X Ô ã ` Ô û Ä
	min_value	A'5BEî y [¥EÕKÈLh,X Ô ã Ä
	max_value	A'5BEî y [¥EÕKÈLh,X Ô û Ä

5 ,ÕG!5B	200 /¦ È rL ¥EÕ y [,XKÈLh ü 200 /¦ Þ ß#B | 20 Á Ä

Q ¸ õ ã	y ·G!5B õ ã Ä

S*ü Û Ð	V pA¹A' Û '5 ,ÕCÃ+ A' Û Ê ÈFw A'5B,XKÈLh á6Ñ ó û bCÃ+ <*ó , ó,X ÊKÈ Ä º ê È ZL !6JÒCÃ Þ,X J WA' Û à Ê ¥EÕCÃ+ < @ y [5à 4*ü5%4° ú ' È ¹ rL ¥EÕ y [,XKÈLh Ú üA¹ Þ#B |,R Ú ` Ä V p Û n GK + min-max ÈFw rL ¥EÕ y [,XKÈLh Ú ü Ô ã ` Ô û KÈLc EÝ ½ Ô þ Ä

G!5B _

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ipv6 nd ra-interval 110
Ruijie(config-if)# ipv6 nd ra-interval min-max 110 120
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 interface	¹,ß y · G b ra-info ,X µ C Ä
ipv6 nd ra-lifetime	A'5BA' Û,X*ó , ó Ä
ipv6 nd ra-hoplimit	A'5BCÃ+ < @ y [,XCÇ D +!‰,X Ä
ipv6 nd ra-mtu	A'5BCÃ+ < @ y [,X MTU +!‰,X Ä

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

47.1.13 ipv6 nd ra-hoplimit

S*üA¹ Q ¸A'5B y · Þ ¥EÕ,XCÃ+ < @ (RA) y [,XCÇ D +!‰,X È S*üA¹ Q ¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd ra-hoplimit *value*

no ipv6 nd ra-hoplimit

– DAÈ â

– D	£EÄ
value	CÃ+ < @ (RA) y [,XCÇ D +!‰,X Ä

¸Ì G Q¸	Q¸	£EÄ
	show ipv6 interface	¹,ß y · G b ra-info ,X µ C Ä
	ipv6 nd ra-lifetime	A'5BA' Û,X*ó , ó Ä
	ipv6 nd ra-interval	A'5BCÃ+ < @ y [,X ¥EÕKÈLh Ä
	ipv6 nd ra-mtu	A'5BCÃ+ < @ y [,X MTU +!‰,X Ä

G ÄAÈ â	´

Q¸Z Æ	(Ë	AÈ â
	-	-

47.1.14 ipv6 nd ra-mtu

S*üA¹ Q¸A'5B y · Þ ¥EÕ,XCÃ+ < @ (RA) y [,X MTU +!‰,X ÈS*üA¹ Q¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd ra-mtu *value*

no ipv6 nd ra-mtu

– DAÈ â	– D	£EÄ
	value	CÃ+ < @ (RA) y [,X MTU +!‰,X Ä

5 ,ÕG!5B	5%4° y ·,X IPv6 MTU Ä

Q¸õ ã	y ·G!5B õ ã Ä

S*ü Û Ð	V p Û n 0 ÈCÃ+ < @ á î ú MTU EÝNM Ä

G!5B –	Ruijie(config)# **interface vlan** 1 Ruijie(config -if)# **ipv6 nd ra-mtu** 1400

¸Ì G Q¸	Q¸	£EÄ
	show ipv6 interface	¹,ß y · G b ra-info ,X µ C Ä
	ipv6 nd ra-lifetime	A'5BA' Û,X*ó , ó Ä
	ipv6 nd ra-interval	A'5BCÃ+ < @ y [,X ¥EÕKÈLh Ä

ipv6 nd ra-hoplimit	A’5BCÃ+ < @ y [,XCÇ D +!‰,X Ä

G ÄAÈ â ´

Q ¸ Z Æ	
(Ë	AÈ â
-	-

47.1.15 ipv6 nd reachable-time

S*üA¹ Q ¸A’5B y · ÞEîE› NDP | Õ : ,XF• ü ÃE’ û ”# â ÈA¹F• >•Ax Ã E’,X Õ4Á ÊKÈ È S*üA¹ Q ¸,X no 6 ã Ú 6 á5 ,Õ Ä

ipv6 nd reachable-time *milliseconds*

no ipv6 nd reachable-time

– DAÈ â	
– D	£EÄ
milliseconds	F• >•Ax Ã E’,X ÊKÈ È ¹!¿/¦) ! È8× È Ö 0-3600000

5 ,ÕG!5B üCÃ+ < @ y [(RA) 5 ,Õ 0(></ þ Û n) È A’ Û7¾ Å üF• ¥)„> F• >• Ax Ã E’,X Õ4Á ÊKÈ 30000ms(30 /¦)

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð A’ ÛEîE›A¹G!5B,X ÊKÈ 9 ”# á Ã*ü,XF• È A’5B,X ÊKÈC^-Á ã G- Ã ¹ È ¿,X ”# F• È Ú#>C È î,X5%4° ú ‘ Ã#\5ëA’ Û È î,XC $d Ä ´!8 á ÎA, ÚA¹ ÊKÈ G!5B,XE› ã Ä

G!5B,X Ú üCÃ+ < @ y [(RA) >• ¥ × Î • È à ÊA¹ 3>•A’ Û7¾D• S*ü Ä V pA’ 5B,X 0 ></ A’ Û þ Û nA¹ ÊKÈ È G S*ü5 ,Õ Ä

G!5B _ `Ruijie(conifg-if)# ` **`ipv6 nd reachable-time`** `1000000`

,Ì G Q ¸	
Q ¸	£EÄ
show ipv6 interface	¹,ß y ·,X µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

47.1.16 ipv6 nd suppress-ra

S*üA¹ Q ¸ e ü y · Þ ¥EÕCÃ+ < @ (RA) y [È S*üA¹ Q ¸,X no 6 ã Ú ¢ „ AŒA¹ y · ¥EÕCÃ+ < @ (RA) y [Ä

ipv6 nd suppress-ra

no ipv6 nd suppress-ra

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ü IPv6 ,X y · Þ Ú á î ¥EÕCÃ+ < @ y [Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð '?U ü Ô þ y · Þ e CÃ+ < @ y [¥EÕ Ê Ã ¹ S*ü ipv6 suppress-ra Q ¸ Ä

G!5B _

```
Ruijie(conifgf)# interface vlan 1
Ruijie(config-if)# ipv6 suppress-ra
```

,Ì G Q ¸	Q ¸	£EÄ
	show ipv6 interface	¹,ß y · G b ra-info ,X µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

47.1.17 ipv6 neighbor

S*üA¹ Q ¸G!5B Ô þM- ÕF• È S*üA¹ Q ¸,X no 6 ã Ã ¹ ôL8 W Ä

ipv6 neighbor *ipv6-address interface-id hardware-address*

no ipv6 neighbor *ipv6-address interface-id*

– D	£EÄ
ipv6-address	F• ,X IPV6 È ™NOFI ~

;> E- 5 Q ¸ È ¥EÕF• AË" Ê Ú S*üJÒCÃ 0 $d Ä ;> no ipv6 ns-linklocal-src È¥EÕF• AË" Ê á S*üJÒCÃ 0 $d Ê5à B,Â,X IPv6 Ý RFC3484 EÝ ½ S*üJÒCÃ ê5Ù <)×) • Ä

ipv6 ns-linklocal-src

no ipv6 ns-linklocal-src

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	¥EÕF• AË" Ê È ¹JÒCÃ 0 $d Ä

Q ¸ õ ã	< G!5B õ ã Ä

S*ü Û Ð	+9

G!5B _	Ruijie(config)# **no ipv6 ns-linklocal-src**

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

47.1.19 ipv6 redirects

'A' Û ü y · Þ IPV6 y [œ ÚA¹ y [¢ y ·E@ ¥ Î • Ê Ã ¹ S*üA¹ Q ¸ { ú?U üA¹ y · Þ ¥EÕ ICMPv6 G¡ n å y [È S*üA¹ Q ¸,X no 6 ã ' ÞEÄ,X)„B5 Î)„ Ê Ú á ¥EÕ ICMPv6 G¡ n å y [Ä

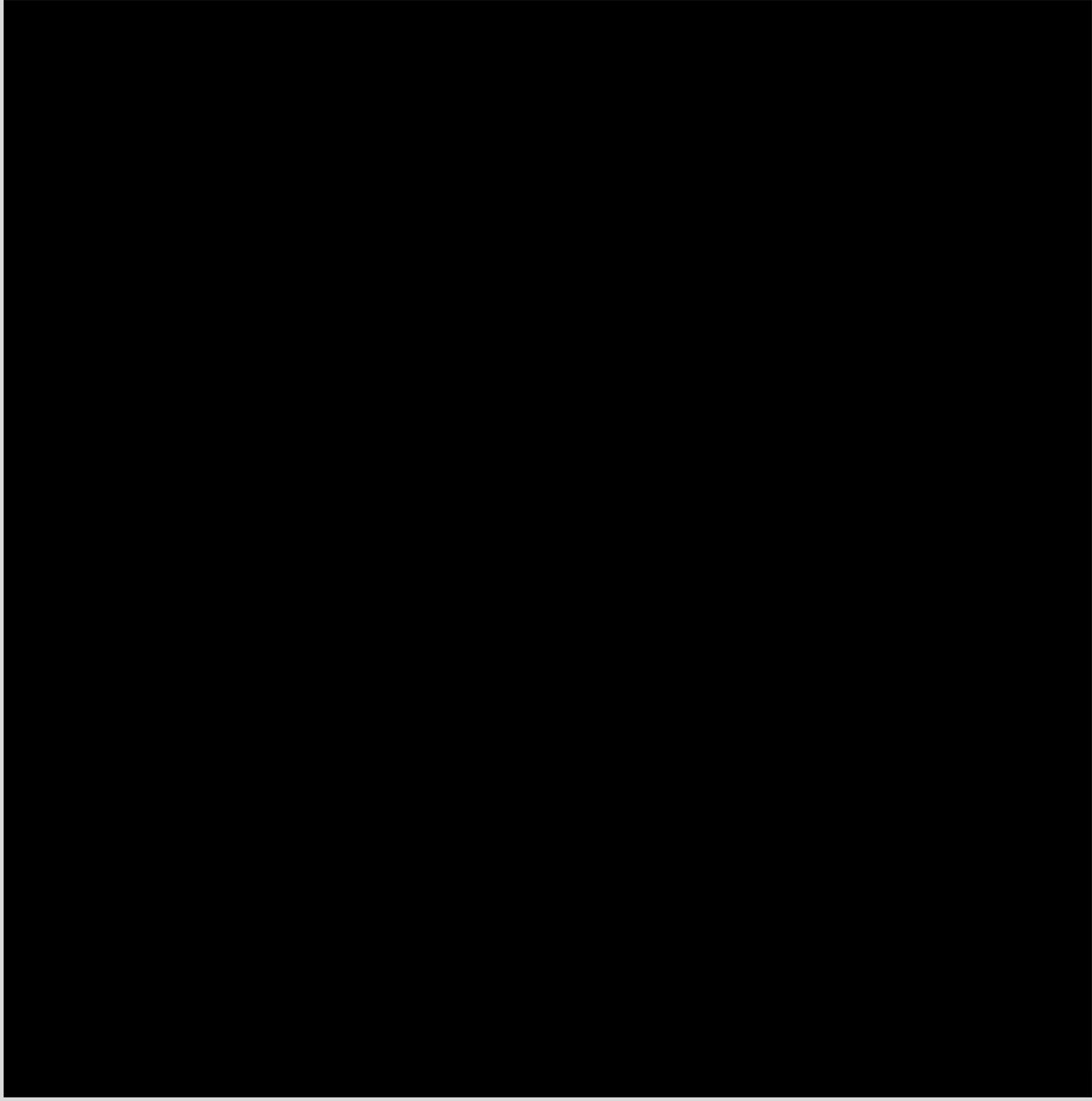
ipv6 redirects

no ipv6 redirects

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	ü IPV6 ,X y · Þ AŒ ¥EÕ ICMPv6 G¡ n å y [Ä

G!5B



-

Q ¸,X no 6 ã Ú/U!6E@ ¥ ú ÝCÃ

S*ü Û Ð	´ 2O _ 0 CÃ+ OjF¼ Ý] <Ld w Ö SA' Û \ • çFA « ¦4± á u Ï È ¹ ü5 ,Õ ™ ‰ ß /U!6E@ ¥ ú ÝCÃ+ OjF¼,XPv6 y [È ¡' Ø)Ú Ô4œ,Â,X ,X ú Ý2O _ 0 CÃ + OjF¼,XIPv6 y [Ä
G!5B _	Ruijie(conifg)# **no ipv6 source-route**

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.1.22 tunnel destination

S*üA¹ Q ¸ L{F' y · Û n J,Â,X , S*üA¹ Q ¸,X no Q ¸ Ú ôL8A¹,Â,X Ä

tunnel destination {*ipv4-address* | *ipv6-address*}

no tunnel destination

– DAÈ â

– D	£EÄ
ipv4-address	L{F',Â,X , GL{F' º ê Ô0Ã,X IPv4 Ä
ipv6-address	L{F',Â,X Ä V pG!5B Z tunnel mode ipv6 ÈFw L{F',Â,X ?U S*ü IPv6 Ä V pG!5B Z tunnel mode gre ipv6 ÈFw L{F',X,Â,X 3?U S*ü IPV6

5 ,ÕG!5B 5 ,ÕL{F' Õ>™,X,Â,X "u ÝG!5B Ä

```
Ruijie(config-if)# tunnel mode ipv6ip
Ruijie(config-if)# tunnel source vlan 1
Ruijie(config-if)# tunnel destination 192.168.5.1
```

,Ì G Q ¸

Q ¸	£EÄ
tunnel source	G!5BL{F',X$d
tunnel mode	G!5BL{F',X õ ã
tunnel ttl	G!5BL{F',X TTL

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.1.23 tunnel mode ipv6

S*üA¹ Q ¸G!5B Ô þM- Õ,X S*ü IPV6 Õ>™,XL{F' ÈE-/¡L{F'G M6 Ã ¹ SEQ IPv4 ê5Ù IPv6 y [ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕL{F'2O _ ÄA¹ Q ¸,XAÁ"© ã V ß Ö

tunnel mode ipv6

no tunnel mode

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ipv6ip õ ã Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Đ S*üA¹ Q ¸ Ã ¹G!5B 4over6 ê5Ù 6over6 ,XM- ÕL{F' Ä

G!5B –

ßM6 G!5B,X _ $ Ö

```
Ruijie(config)# interface tunnel 1
Ruijie(config-if)# tunnel mode ipv6
Ruijie(config-if)# tunnel source vlan 1
```

,Ì G Q ¸

Q ¸	£EÄ

G!5BIPv6 Q ¸

G ÄAÈ â ´

(Ë	AÈ â

Q ¸ Z Æ	(Ë	AÈ â
	-	-

47.1.26 tunnel source

S*üA¹ Q ¸ L{F' y · Û n J$d , S*üA¹ Q ¸,X no Q ¸ Ú ôL8A¹$d Ä

tunnel source {*ipv4-address* | *ipv6-address* | *interface-type interface-number*}

no tunnel source

	– D	£EÄ
– DAÈ â	*ipv4-address*	G!5BL{F'$d IPv4 ÈA¹ IPv4 Ú>• . üL{F' ôEÕ,X y [,X$d Ä
	ipv6-address	V pG!5B Z tunnel mode ipv6 ê5Ù tunnel mode gre ipv6 ÈFw L{F'$d ?U S*ü IPv6 Ä¸Â ! á Õ ÚJÒCÃ 0 $d Ä
	interface-type interface-number	G!5BL{F'$d ,X é*ü y · ÈV pL{F' õ ã ipv6ip È •›~À èn…AùLRE `xl G!5•P Ú>1ÀI=åÀ WÒl ,€

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

47.2

47.2.1 clear ipv6 neighbors

#ÙL8 | Õ : 4 ,XF• Ä

clrear ipv6 neighbors

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B (M õ ã

Q ¸ õ ã EîE›A¹ Q ¸ Ã ¹#ÙL8 ÝEîE›F• ¥)„ | Õ : 4 ,XF• È"¼ ãM- ÕG!5B,X á î>•#ÙL8 Ä

S*ü Û Ð ´

G!5B _ Ruijie# **clear ipv6 neighbors**

Q ¸	£EÄ

´

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Đ	S*ü show ipv6 general-prefix Q ¸ ¹,ßEî*ü !4Ô,X µ C Ä ¹G!5B,XEî*ü !4Ô È â DHCPv6

Q¸õã (M õã

S*üÛÐ EîE›A¹ Q¸Ã¹¹,ß IPV6 y·Þ,X G!5B Ã ND G!5B ¹ž,Ì G,X4³Au µ C Ä

G!5B _

```
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
```

ü ÞM6 / ÕÂØ gÏÀ=äÓaÁ Ý êëÒ3 P[W uMí-Þ"!ƒýà#1ìvà/ ÕÂ B P[Qe-M4>¢ÈðF Öè=Ñär âÌÀ G,X1

PRE	></ ´(Š Õ7¾ |G!5B,X Ä
GEN	></ + Eî*ü !4Ô*ó ä,X Ä

```
Ruijie# show ipv6 interface vlan 1 ra-info
vlan 1: DOWN
RA timer is stopped
waits: 0, initcount: 3
statistics: RA(out/in/inconsistent): 4/0/0, RS(input): 0
Link-layer address: 00:00:00:00:00:01
Physical MTU: 1500
ND router advertisements live for 1800 seconds
ND router advertisements are sent every 200 seconds<240--160>
Flags: !M!O, Adv MTU: 1500
ND advertised reachable time is 0 milliseconds
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)
```

G b ra-info ,X Ø þ +!‰ ÿ

+!‰	AÈ â

RA timer is stopped (46) 0 0 1timer2 152.76 727.8803 Tm (GEN) Õ ¡Rvrx€8A !a !¼ Ì<G¡ „ </ ¼ Ç

!O | O	!O ></ CÃ+ < @ y [,X Ä other-config-flag Û « !"u Ý5B Þ Ä O Ö ã ñ â ÞM6,Ì ¡ Ä

G b ra-info ,X !4Ô><(Prefix),X Ø þ +!‰,X Ÿ4¡ Ö

ipv6-addres	/ Û nF• ,X µ C
static	/ M- ÕF• Ý û(Š Õ

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Đ ´

G!5B _

_ 1 Ö / SVI 1 y · Þ,XF• µ C

```
Ruijie# show ipv6 neighbors vlan 1
IPv6 Address Linklayer Addr   Interface
fa::1         00d0.0000.0002   vlan 1
fe80::200:ff:fe00:2  00d0.0000.0002  vlan 1
```

_ 2 Ö / F• ,XA°4š µ C

```
Ruijie# show ipv6 neighbors verbose
IPv6 Address  Linklayer Addr Interface
2001::1      00d0.f800.0001 vlan 1
       State: Reach/H Age: - asked: 0
fe80::200:ff:fe00:1    00d0.f800.0001 vlan 1
       State: Reach/H Age: - asked: 0
```

+!‰	AÈ â

State	F• ,X(Š Õ Ö state/H(R) STATE ,X V ß Ö INCMP(Incomplete)—A¹F• ,X ?· d!7 üE¯ > ÈF• AË" (NS) y [Æ4£ ¥EÕ E¬"u Ý F• ,X h1(y [(NA) Ä REACH(Reachable) —></ ¢A' Û F• E²Eî ,X È üA¹(Š Õ åF• ¥EÕ y [Ê áLÔ?UNq ê,X | 0 ÄSTALE — ></ F• >•Ax Ã E',X ÊKÈ Æ4£ ó È Ø üA¹(Š Õ ÊA' Û áLÔ?UNq ê,X | 0,È Ý y [¥EÕ A¹F• Þ È!8 Ê G Ú | NUD (Neighbor Unreachability Detection) Ä DELAY—></ Ý y [å Ø b STALE (Š Õ,XF• ¥ EÕ È!8 Ê(Š Õ+ STALE E@ 6 DELAY (Š Õ È ü DELAY_FIRST_PROBE_TIME seconds(5 /¦) Y V p"u Ý F• ÃE' û,XEî-¹ µ C ÈFw (Š Õ Ú + DELAY E@ 6 PROBE È à Ê åA¹F• ¥EÕF• AË" y [(NS) È!7 ã | NUD Ä PROBE—></ NUD Æ4£ | È'# F• ,X ÃE' û È !£Lh RetransTimer milliseconds åF• ¥EÕF• AË" (NS) y [,È ZF• ,X h1(ê5Ù ¥EÕ,X F• AË" y [F ÆE' ÞL$ MAX_UNICAST_SOLICIT(3 þ) ?—></ þ-¹(Š Õ /R—></ Ax F• Ô þA' Û /H—></ Ax F• Ô þ
Age	></ F• >•Ax Ã E',X ÊKÈ È'-' ></ " E° ÃE' ,X È"¼ ã ÍM- ÕG!5B,XF• ><NM Ú qC* b rL ú ÃE' Ä'expired' ></ F• >•Ax ÃE',X ÊKÈ Æ4£ ó È1 Y?º ¥ NUD "# Ä
Asked	></ ü?· dF• ,XJÒCÃ Ê Æ4£ åF• ¥EÕ,X F• AË" (NS),X F Ä

_ 3 Ö / M- ÕF• (Š Õ

```
Ruijie# show ipv6 neighbors static
IPv6 Address     Linklayer Addr  Interface              State
2001:1::1        00d0.f822.33ab   GigabitEthernet 0/14   ACTIVE
2001:2::2        00d0.f822.33ac   VLAN 1                 INACTIVE
```

+!‰	AÈ â
IPv6 Address	M- ÕF• ,X IPV6
Linklayer Addr	G!5B,XJÒCÃ G Mac

Interface	A¹F• ü,X y · M- ÕF• ,X(Š Õ Ö
State	

G!5B

Q¸õã (M õã

S*üÛÐ S*ü show ipv6 router / F• CÃ+ < `CÃ+ @ µ C Ä V p"u Ý Û n y · È í / A' Û ,X ÝCÃ+ @ ,X µ C Ä

/ IPv6 CÃ+ <,X Ô þ _ $ È V ß Ö

```
Ruijie# G x6@5B_
```

G!5B _

48 OSPFv3

48.1

48.1.1 area default-cost

ü stub ³,X ABR ÞA'5BA¹ Q ¸ È*ü 9 n stub ³ Y5 ,ÕCÃ+ ,X · Ë Ä S*üA¹ Q ¸,X no EÝNM Ú 6 á5 ,Õ Ä

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

no area *area-id* default-cost

– DAÈ â	– D	£EÄ
	area-id	stub ³,X ³ Ë Ä J Ã ¹ Û n Ô þ H D ê5Ù Ô þ IPv4 !4Ô Ä
	cost	stub ³ Y5 ,ÕCÃ+ ,X · Ë Ä 8× È 1-16777214 Ä

5 ,ÕG!5B	5 ,Õ default-cost ,X 1 Ä
Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸ ¾ üE² y stub ³,X ABR Þ S*ü Ä

G!5B _

ßM6 _ $ È Ú stub ³ 50 5 ,ÕCÃ+ ,X · ËA'5B 100 Ö

```
ipv6 router ospf 1
area 50 stub
area 50 default-cost 100
```

,Ì G Q ¸	Q ¸	£EÄ
	area stub	A'5B Ô þ stub ³ Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â

	-	-

48.1.2 area range

S*üA¹ Q ¸A'5B KÈ" 6. 8× È È S*üA¹ Q ¸,X no EÝNM ôL8 ÆG!5B,X" 6.8× È ê5Ù 6 á " 6.8× È,X5 ,Õ – D Ä

area *area-id* range *ipv6-prefix*/*prefix-length* [advertise|not-advertise]

no area *area-id* range *ipv6-prefix*/*prefix-length*

– DAÈ â

– D	£EÄ
area-id	Ú?UE¯> CÃ+ " 6.,X ³ Ë Ä J Ã ¹ Û n Ô þ H D ê5Ù Ô þ IPv4 !4Ô Ä
ipv6-prefix/*prefix-length*	" 6.,X 8× È Ä
advertise	@ A¹" 6.8× È Ä
not-advertise	á @ A¹" 6.8× È Ä 5 ,Õ @ Ä

5 ,ÕG!5B þ n KÈ" 6. 8× È Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

A¹ Q ¸ ¾ ü ABR Þ Ý È*ü 9 Ú Ô þ ³ Y,X î 5CÃ+ " 6. ä Ô 5CÃ+ ÈEî J ª ³ ÄCÃ+ µ C,X Ü J> ¾ ¥*ó ü ³E•+ È ³ YF¼CÃ+ A' Û Þ,ß ,XFÑ K ',X CÃ+ µ C È J W ³,XA' Û ¾6Ñ,ß Ô 5" 6.CÃ+ Ä J è Ã ¹EîE›A'5B advertise ` not-advertise EÝNM 9 ‡ n ú @ ×E- þ" 6.8× È ÈCK #; `E›$¸,X 0*ü È5 ,Õ å ê @ × Ä Ã ¹EîE› cost EÝNM 9A'5B" 6.CÃ+ ,X zG£ Ä

Ã ¹ n î þ ³CÃ+ " 6. Q ¸ ÈE- H þ OSPF CÃ+ ³,XCÃ+ Ú k 1T ê È(M ÿ 5% 4°?˜ õ û Ê È î ¤P¬5%4°E@ ¥ û6Ñ Ä

'G!5B Z î 5" È J èNM,Â,È y Ý Ù ÿ G2Ï,X Ê í ÈCÃ+ B ÔKS G! s í.B n>• " ,X area range ,X Ä

G!5B _

ßM6 _ $ È Ú Í ³ 1 ,XCÃ+ E¯> " 6. Ö

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
	-

,Ì G Q ¸	Q ¸	£EÄ
	area default-cost	A'5B stub ³ Y5 ,ÕCÃ+ ,X · Ë Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

48.1.4 area virtual-link

S*üA¹ Q ¸ ï Î Ô þ<. ³E² y ê5ÙA'5B<. ³E² y,X – D È S*üA¹ Q ¸,X no EÝNM Ã ¹ ôL8 Ô þ<. ³E² y ê5Ù 6 á<. ³E² y,X5 ,Õ – D Ä

area *area-id* virtual-link *router-id* [hello-interval *seconds*] [dead-interval *seconds*] [retransmit-interval *seconds*] [transmit-delay *seconds*] [instance *instance-id*]

no area *area-id* virtual-link *router-id* [hello-interval] [dead-interval] [retransmit-interval] [transmit-delay] [instance]

– D	£EÄ
area-id	<. ³E² y ü ³,X ³ Ë Ä J Ã ¹ Û n Ô þ H D ê5Ù Ô þ IPv4 !4Ô Ä area

5 ,ÕG!5B

þ n <. ³E² y ×
hello-interval 5 ,Õ 10 /¦ ×
dead-interval 5 ,Õ hello-interval ,X ¯ á ×
retransmit-interval 5 ,Õ 5 /¦ ×
transmit-delay 5 ,Õ 1 /¦ Ä

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

ü OSPFv3 7¾"• ³ È Ý ³FÑ ™NO â F ³E² y È ¹ ±A•6Ñ ó!7.B : 4 H þ OSPFv3 7¾"• ³,XCÃ+ µ C Ä V p Ô þ ³ ´"©,È y â F ³E² y È Ã ¹ S*ü<. ³E² y SA¹ ³ à F ³,ÌE² Ä

"¼ ã	<. ³E² y ü,X ³ á AŒ stub ³ Ä <. ³E² yF• ø0Ã ÞG!5B,X – D È hello-interval Ãdead-interval ` instance FÑ ™NO Ô7È È ú í<. ³F• KÈ ´"©!7.B Î0ŸF• G 2Ï Ä

G!5B _

ßM6 _ $ ÈG!5B Ô þ<. ³E² y Ö

```
ipv6 router ospf 1
area 1 virtual-link 192.1.1.1
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä
show ipv6 ospf neighbor	/ OSPFv3 F• µ C Ä
show ipv6 ospf virtual-links	/ OSPFv3 <. ³E² y µ C Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

48.1.5 auto-cost

OSPFv3 #A,,X zG£ Î b y ·,X ú ‘ È S*üA¹ Q ¸ Ú | B ú ‘E¯> y ·,X zG£Au1k ê5Ù Â ú ‘ –5× È S*üA¹ Q ¸,X no EÝNM GKÁ B ú ‘E¯> y ·,X zG£Au1k ê5Ù 6 á5 ,Õ ú ‘ –5× Ä

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

no auto-cost [reference-bandwidth]

	– D	£EÄ
– DAÈ â	reference-bandwidth *ref-bw*	ú ‘,X –5× È ¹ Mbps) ! Ä 8× È 1-4294967 Ä

5 ,ÕG!5B B ú ‘ –5× E¯> y ·,X zG£Au1k È ú ‘ –5× 100Mbps Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

S*ü no auto-cost reference-bandwidth Ú 6 á5 ,Õ,X ú ‘ –5× Ä

| Ã ¹EîE› ü y ·G!5B õ ã ß ;> Q ¸ ipv6 ospf cost Û n y ·A’5B · Ë È J ì 4{ P¬ b B ú ‘ –5× Au1k Î 9,X zG£ Ä

G!5B _

ßM6 _ $ È Â ú ‘ –5× 10M Ö

```
ipv6 router ospf 1
auto-cost reference-bandwidth 10
```

	Q ¸	£EÄ
,Ì G Q ¸	ipv6 ospf cost	A’5B y ·,X · Ë Ä
	show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

48.1.6 bfd all-interfaces (OSPFv3)

G!5BE¤> OSPFv3 ,X Ý y · S*ü BFD E¯> JÒCÃ ”# ÈAË üOSPFv3 CÃ+ G!5B õ ã ß ;> bfd all-interfaces Ä S*üA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

bfd all-interfaces

no bfd all-interfaces

	– D	£EÄ
– DAÈ â	-	-

5 ,ÕG!5B GKÁ

Q¸õã CÃ+ E¯/ßG!5B õ ã Ä

OSPFv3 #A,EîE› Hello y [| Õ ¥)„F• È ' OSPFv3 | BFD "# s6Ñ â È Ú î E' FULL

S*ü Û Ð

G!5B _	ßM6 _ $ È*ü bG¡ „ | Ý OSPFv3 r _
	`enable`
	`clear ipv6 ospf process`

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

48.1.8 default-information originate

?U {*ó Ô 55 ,Õ,XCÃ+ "¼ 9 OSPFv3 CÃ+ ³ ÈÄË S*üCÃ+ E¯/ßG!5B Q ¸default-information originate ÄA¹ Q ¸,X no 6 ã GKÁ5 ,ÕCÃ+ Ä

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

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

– D	£EÄ
always	Ä ÃEÝ ÅA¹ GK + S k OSPFv3 ´ 5 Ê {*ó5 ,ÕCÃ + È á1u ú , ü5 ,ÕCÃ+ Ä
metric *metric*	Ä ÃEÝ Å5 ,ÕCÃ+ ñ Ÿ,X zG£ È8× È 0-16777214 Ä T¬Ax ™ ‰ ß È5 ,ÕCÃ+ zG£ 1 Ä
metric-type *type*	Ä,ÃEÝCÃ5/¡ÕCÃ+ G£,Õm_ÈA Ð(1)Tj /C2_0 1 Tf 0 Tc27.054 0 <0EE/

' ;> redistribute ê5Ù default-information Q ¸ Ê È OSPFv3 CÃ+ A' Û î7¾ | ¬ ASBR Ä7¾"• ³E•+ CÃ+ A' Û Å Ä

redistribute ´"© {*ó5 ,ÕCÃ+ È JEî 4- OSPFv3 CÃ+ ³ ,X ÝCÃ+ A' Û Ä ASBR {*ó5 ,ÕCÃ+ È ™NO*üdefault-information originate CÃ+ E¯/ßG!5B Q ¸E¯> G! 5B Ä

V pEÝ ½always – D È á1u —CÃ+ >< ú , ü5 ,ÕCÃ+ È OSPFv3 E¯/ßFÑ î åF• Eî Ô 5 êF¼5 ,ÕCÃ+ Ä CÃ+ A' Û á î / A¹5 ,ÕCÃ+ È?U.BAx ú {*ó5 ,ÕCÃ

S*ü Û Ð + È Ã ¹*ü

5 ,ÕG!5B	20
Q ¸ õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸ à redistribute Q ¸ ÔCK S*ü È*ü 9A'5BG¡ Ú ¥CÃ+ ,X5 ,Õ zG£ Ä A¹ Q ¸ Í ø2OCÃ+ ´ Ö default-information originate Q ¸*ó ä,X5 ,ÕCÃ+ × G¡ Ú ¥,X,ÈE²CÃ+ ÈG¡ Ú ¥,ÈE²CÃ+ Ú Ÿ4œ S*ü20 0 5 ,Õ zG£ Ä
G!5B _	ßM6 _ $ È*ü bG!5BG¡ Ú ¥CÃ+ ,X5 ,Õ metric 10 Ö `default-metric 10`

,Ì G Q ¸

Q ¸	£EÄ
redistribute	A'5BCÃ+ µ C,XG¡ Ú ¥ Ä
show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

48.1.10 distance

S*üA¹ Q ¸A'5B á à2O _ OSPFv3 CÃ+ Í h,X1u)ÚC±/• È S*üA¹ Q ¸,X no EÝNM 6 á5 ,Õ Ä

distance {*distance* | ospf { intra-area *distance* | inter-area *distance* | external *distance* }}

no distance [ospf]

– DAÈ â

– D	£EÄ
distance	A'5BCÃ+ 1u)ÚC±/• È ª 8× È Ö1-255
intra-area *distance*	A'5B YCÃ+ 1u)ÚC±/• È ª 8× È Ö 1-255
inter-area *distance*	A'5B KÈCÃ+ 1u)ÚC±/• È ª 8× È Ö 1-255
external *distance*	A'5B êF¼CÃ+ 1u)ÚC±/• È ª 8× È Ö1-255

5 ,ÕG!5B

5 ,Õ 110 ×
YCÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×
KÈCÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×
êF¼CÃ+ 1u)ÚC±/• Ö5 ,Õ 110 ×

Q ¸ õ ã

CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Đ

8¹?U Û n OSPFv3 á à2O _CÃ+ Í h á à1u)ÚC±/• Ê È*ü!8 Q ¸ Ä
CÃ+ 1u)ÚC±/• ¤ o4- á àCÃ+ #A,E¯> CÃ+ ì 4{!¨EW È1u)ÚC±/•C^ ã ÈCÃ+ ì 4{C^ P¬ Ä

"¼ ã	á à,X OSPFv3 E¯/ß*ó ä,XCÃ+ ?UE¯> ì 4{!¨EW È™NOEîE›1u)ÚC±/•E¯> !¨EW Ä 1u)ÚC±/•A'5B 255 È></ CÃ+ ><NM á Ã µ È Ú á – â y [E@ ¥ Ä

G!5B _

¹ ß,XG!5B _ $ È ÚG!5B OSPFv3 êF¼CÃ+ 1u)ÚC±/• 160

```
Ruijie(config)# ipv6 router ospf 20
Ruijie(config-router)# distance ospf external 160
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 router ospf	| (Tc 4.018 0 Td [<03E109E0324F>6<0D5F>6<34

	instance *instance-id*	Í y ·(M n OSPFv3 r 'E¯> G!5B 8× È 0-255 Ä

5 ,ÕG!5B "u Ý ' ÔA¹ s6Ñ Ä

Q¸õã y ·G!5B õ ã Ä

S*ü Û Ð

Ã ¹ ü y ·G!5B õ ã ß È S*ü Q¸ | y · – â OSPFv3 ÈaÐÞ ipv6 router ospf G!5BOSPFv3 E¯/ß ÈG!5B ` OSPFv3 E¯/ß â È y · Ú7¾ | – â,Ì h,XE¯/ß Ä

S*ü no ipv6 ospf area Q¸ Û n y · Ú á a – â OSPFv3 CÃ+ E¯/ß Ä

S*ü no ipv6 router ospf Q¸ Ý y ·FÑ á a – â OSPFv3 CÃ+ E¯/ß Ä

¾ Ý *instance-id* ð Ð ›

GKÁE¤>OSPF ,X Û n y · S*ü

disable

	instance *instance-id*	Í y ·(M n OSPFv3 r 'E¯> G!5B È8× È 0-255 Ä

5 ,ÕG!5B 5 ,Õ,X y ·8…C –5× ú ‘ /Bandwidth Ä –5× ú ‘T¬Ax 100Mbps Å Ä

Q¸õ ã y ·G!5B õ ã Ä

S*ü Û Ð

5 ,Õ ™ ‰ ß ÈOSPFv3 y ·8…C 100Mbps/Bandwidth È J Bandwidth y ·,X ú ‘ ÈEîE› y ·G!5B Q¸ bandwidth E¯> A’5B Ä

´/¡ L _4“CÃ,X OSPFv3 5 ,Õ y ·8…C Ö

64K > 4“CÃ Ècost 1562 ×

E1 4“CÃ Ècost 48 ×

10M ¹ þ5% È cost 10 ×

100M ¹ þ5% Ècost 1 Ä

EîE› ipv6 ospf cost Q¸G!5B,X OSPFv3 8…C È î?Z,ª5 ,ÕG!5B Ä

G!5B _

ßM6 _ $ È*ü bG!5B y ·,X · Ë 1 Ö

```
ipv6 ospf cost 1
```

,Ì G Q¸

Q¸	
show ipv6 ospf interface	/ OSPFv3 y · µ C Ä
ipv6 ospf area	A’5B y · – â OSPFv3 CÃ+ E¯/ß

G ÄAÈ â ´

(Ë ðÀæhDA€$ 2lAdAƒ™˜ $–hD! B N6 „! N1 x64‘`1@ Ä

	instance *instance-id*	Í y ·(M n OSPFv3 r 'E¯> G!5B È8× È 0-255 Ä
5 ,ÕG!5B	ipv6 ospf hello-interval ÊKÈ,X4 á Ä	
Q ¸ õ ã	y ·G!5B õ ã Ä	
S*ü Û Đ	F• KÈ ÊKÈ ™NO,Ì à È ú í Ú ´"© Î0Ÿ!7 ,XF• y G2Ï Ä F• ÊKÈ5 ,Õ ¥EÕ hello y [ÊKÈKÈLh,X 4 á È V p Â Z hello ÊKÈKÈLh È Ú7¾ | Â ÊKÈ Ä å À J á ÎA, |,È y Â A¹ – D È V p.B rLÔ?U ÈAË"¼ ã Ö ÊKÈ ™NO û bF• ¥EÕ hello y [,X ÊKÈKÈLh Ä F• KÈ ™NOA'5B,Ì à,X ÊKÈ Ä	
G!5B _	0 BP Á ñ ‹ 8YA 'ƒ` möâ å ¡Â ún¡ Å€	ü

5 ,ÕG!5B 5 ,Õ Í MTU E¯> õP` Ä

Q¸õã y ·G!5B õ ã Ä

S*ü Û Ð OSPFv3 ü D B g £EÄ y [Ê î õP`F• y ·,X MTU `7¾ Å y ·,X MTU ú,Ì à È V p ,X D B g £EÄ y [Û/ ,XF• y ·,X MTU û b7¾ Å y y ·,X MTU ÈFw F• y G2Ï Ú á6Ñ>• Î0Ÿ Ä!8 Ê Ã ¹EîE› GKÁ MTU ,X õP` 9?· ‡ Ä

G!5B _ ¹ ß,XG!5B _ $ È Ú ethernet 1/0 ,X MTU õP` s6Ñ GKÁ Ä

```
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ipv6 ospf mtu-ignore
```

Q¸	£EÄ

5 ,Õ"u Ý n F• ×

5 ,ÕG!5B F• EBA¶ ÊKÈKÈLh Ö5 ,Õ120 /¦ ×

M2 S •5%4°F• ,X ì Ö5 ,Õ 0 Ä

point-to-multipoint
non-broadcast

Q¸õã y·G!5B õãÄ

S*üÛÐ

'S•5%4°2O_ ÈLÔ?UEÝ DR/BDR(Û nCÃ+ </ Û Ñ Û nCÃ+ <) Ä üE¯> DR/BDR EÝ Ê Èì 4{ P¬,XA'Û Ú ì ä DR ê BDR È V p ì 4{ ,Ì à È Router-ID P¬ ,XA'Û È Ú ì ä DR ê BDR Ä

ì 4{ Ì,XA'Û È Ú á – â DR/BDR ,XEÝ Ä

V p5%4° Æ4£,ü DR ` BDR ÈFw Â y·,X ì 4{ á î0Ÿ G*ó È ¾ Ý ü ß Ô õ E¯> DR ê BDR EÝ Ê È ! î – âEÝ Ä

G!5B _ ßM6 _ $ È S k y · ü DR/BDR EÝ Ê È á a ä DR ê BDR Ö

```
ipv6 ospf priority 0
```

Ì G Q¸

Q¸	£EÄ
ipv6 ospf network	A'5B y·,X5%4°2O _ Ä
router-id	A'5BA'Û,X ÛAš Ä
show ipv6 ospf interface	/ OSPFv3 y·µC Ä
ipv6 ospf area	A'5B y·–â OSPFv3 CÃ+ E¯/ß

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

48.1.20 ipv6 ospf retransmit-interval

S*üA¹ Q¸A'5B y·Þ ¥EÕ LSA ,XG¡ ôKÈLh È S*ü Q¸ ,X no EÝNM 6 á5 ,Õ Ä

ipv6 ospf retransmit-interval *seconds* [instance *instance-id*]

no ipv6 ospf retransmit-interval [instance *instance-id*]

–DAÈâ

–D	£EÄ
seconds	¥EÕLSA ,XG¡ ôKÈLh Ä 8× È 1-65535(/¦) Ä
instance *instance-id*	Í y·(M n OSPFv3 r 'E¯> G!5B 8× È 0-255 Ä

5 ,ÕG!5B 5 /¦

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð Z ±A•CÃ+ µ C ôEÕ,X ÃM4 û È ñF• ¥EÕ LSA Ê ÈFÑLÔ?U k F• .BAx Ä | Ã ¹ B rL E¤>)ƒ W ÈEîE› Q ¸A'5B AŒ1 YF• .BAx,X ÊKÈKÈLh È V p ü Û n,X ÊKÈ Y ´"© k .BAx È ÚG¡ ô LSA µ C Ä

G!5B _ ßM6 _ $ È*ü bA'5BG¡ ô LSA ,X ÊKÈKÈLh 10s Ö

```
ipv6 ospf retransmit-interval 10
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 ospf interface	/ OSPFv3 y · µ C Ä
ipv6 ospf area	A'5B y · – â OSPFv3 CÃ+ E¯/ß

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

48.1.21 ipv6 ospf transmit-delay

S*üA¹ Q ¸A'5B ü y · Þ ôEÕ LSA Ê,X ÊE³ ÊKÈ È S*üA¹ Q ¸,X no EÝNM 6 á5 ,Õ Ä

ipv6 ospf transmit-delay *seconds* [instance *instance-id*]

no ipv6 ospf transmit-delay [instance *instance-id*]

– DAÈ â

– D	£EÄ
seconds	¥EÕLSA ,X ÊE³ ÊKÈ Ä 8× È 1-65535(/¦) Ä
instance *instance-id*	Í y ·(M n OSPFv3 r 'E¯> G!5B 8× È 0-255 Ä

5 ,ÕG!5B 1s

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸A'5B ü y · Þ ôEÕ LSA Ê,X ÊE³ ÊKÈ Ä

G!5B _ ßM6 _ $ È*ü bA'5B ü y · Þ ôEg LSA ,X ÊE³ ÊKÈ Ö

```
ipv6 ospf transmit-delay 2
```

¸ì G Q¸

Q¸	£EÄ
show ipv6 ospf interface	/ OSPFv3 y · µ C Ä

	number	y [Ô û DD D,Â 8× È 1-65535

5 ,ÕG!5B 5 ,Õ 5 Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð 'CÃ+ A' Û â î þF• à Ê x 6 D B È J û6Ñ « E ¡ Ê ÈG!5BA¹ Q ¸ È ÃL$!£ þ OSPFv3 r _ AŒ à Ê J ¥,X DD x f D B Ù Ô û D,Â Ä

G!5B _ V ß _ $ Ú max-concurrent-dd A'5B 4 È ¾ AŒ à Ê â 4 þF• x f DD D B Ö

```
router ipv6 ospf 1
max-concurrent-dd 4
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

48.1.25 passive-interface

S*üA¹ Q ¸A'5B#\ U y · È S*üA¹ Q ¸,X no EÝNM ª#\A'5B,X#\ U y · Ä

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

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

– DAÈ â

– D	£EÄ
default	Ú Ý y ·A'5B #\ U y · Ä
interface-type interface-number	Ú Û n y ·A'5B #\ U y · Ä

5 ,ÕG!5B þA'5B#\ U y · Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð

' Ô þ y ·>•A'5B #\ U y · È Ú á a y ` ¥EÕ hello y [Ä
A¹ Q ¸ ¾ Í – â OSPFv3 E¤> ,X y ·*ó È è Í<.JÒCÃ á*ó Ä

G!5B _

ßM6 _ $ È ¾ AŒVLAN1 y · – â OSPFv3 E¤> Ö

```
passive-interface default
no passive-interface vlan 1
```

,Ì G Q¸

Q¸	£EÄ
ipv6 ospf area	A'5B y · – â OSPFv3 CÃ+ E¯/ß Ä
show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä
show ipv6 ospf neighbor	/ OSPFv3 F• µ C Ä

G ÄAÈ â

´

Q¸Z Æ

(Ë	AÈ â
-	-

48.1.26 redistribute

S*üA¹ Q ¸ Ú |CÃ+ G¡ Ú ¥ È Ú J ªCÃ+ #A,,XCÃ+ µ C"¼ 9 OSPFv3 CÃ+ E¯/ß Ä S *üA¹ Q ¸,X no EÝNM ª#\A¹ s6Ñ ê5Ù Â G¡ Ú ¥,X – D Ä

redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | rip | static } [{level-1 | level-1-2 | level-2 } | match { internal | external [1|2]} | metric *metric-value* | metric-type {*1*|*2*} | route-map *route-map-name* | tag *tag-value*]

no redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | rip | static } [{level-1 | level-1-2 | level-2} | match {internal | external [1|2]} | metric | metric-type {*1*|*2*} | route-map *route-map-name* | tag *tag-value*]

– DAÈ â

– D	£EÄ
bgp	¢ bgp G¡ Ú ×
connected	¢,ÈE²CÃ+ G¡ Ú ×
isis [*area-tag*]	¢ isis G¡ Ú × ÈÆîE› *area-tag* Û n K ' ¤ þ isis r _
ospf *process-id*	¢ ospf G¡ Ú × ÈEîE› *process-id* Û n K ' ¤ þ ospf r _ È ª 8× È Ö1-65535
rip	¢ rip G¡ Ú ×
static	¢M- ÕCÃ+ G¡ Ú ×

level-1 | level-1-2 | level-2	¾J\ ÍG!5BG¡ Ú¥ IS-IS CÃ+ Ê S*ü È*ü b Û n(M n level ,XCÃ+ E¯> G¡ Ú¥ Ä
match metric	¾J\ ÍG!5BG¡ Ú¥ OSPFv3 CÃ+ Ê S*ü È¥ü bE›$¸(M nCÃ+ E¯> G¡ Ú¥ Ö internal Ö YCÃ+ â KÈCÃ+ × external [1|2] ÖE1 ÃE2 ê Ý,X êF¼CÃ+

```
route-map test permit 10
match metric 20
set metric 30
```

!8 Ê ¹ ÞG!5B,X s6Ñ È ÚG¡ Ú ¥,XCÃ+ metric 20 ,X È Ú J metric A'5B 30 × G¡ Ú ¥,X J WCÃ+ ,X metric A'5B 10 Ä

,Ì G Q¸

Q¸	£EÄ
default-information originate	A'5B5 ,ÕCÃ+ G¡ Ú ¥ Ä
default-metric	A'5BG¡ Ú ¥CÃ+ ,X5 ,Õ zG£ Ä
summary-prefix	A'5B êF¼CÃ+ " 6. 8× È Ä
show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä
show ipv6 ospf database	/ OSPFv3 JÒCÃ(Š Õ D B g µ C Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.1.27 router-id

S*üA¹ Q¸A'5BA' Û,X ÛAš(Router ID) È S*üA¹ Q¸,X no EÝNM ôL8A'5B,Router ID È 6 á 5 ,Õ,X Router ID Ä

router-id *router-id*

no router-id

– DAÈ â

– D	£EÄ
router-id	A' Û,X ÛAš Ä S*ü IPv4 ã></ Ä

5 ,ÕG!5B

OSPFv3 CÃ+ E¯/ßEÝ Ý ²)ƒ Äloopback Å y · IPv4 Ô û,X 0 CÃ+ A' Û ÛAš × V p"u ÝG!5B IPv4 ,X ²)ƒ Äloopback Åy · ÈFw OSPFv3 E¯/ß ÚEÝ ª J ª Ý y · IPv4 Ô û,X 0 CÃ+ A' Û ÛAš Ä

Q¸õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð !£ ÄE¤> OSPFv3 E¯/ß,XA' ÛFÑ ™NO S*ü Ô Router ID 9 ÛAš ÄÃ ¹G!5B Ï) Ô þ IPv4 0 A¹CÃ+ A' Û,XCÃ+ A' Û ÛAš È ™NO ±A•7¾"•2Ï4³ !£ ÄCÃ+ A' Û,XCÃ+ A'

Û ÛAš Ô È V p à Ô ÄA’ ÛE¤> î þ OSPFv3 E¯/ß È 3 ™NO ±A•!£ þE¯/ß,XCÃ+ A’ Û ÛAš Ô Ä

"¼ ãCÃ+ A’ Û ÛAš ¬ â È #A, YF¼ î . ûG£ Ø)Ú È ¹ á ôLc ã ¬CÃ+ A’ Û ÛAš È Â CÃ+ A’ Û ÛAš Ê î ¤/ ú.B n?U Â Ä ÎA, ü | OSPFv3 E¯/ß â È Û n Q Router ID È üG!5B OSPFv3 E¯/ß J ª – D Ä

G!5B _

ßM6 _ $ È*ü bA’5B A’ Û – â OSPFv3 E¤> ,X ÛAš 1.1.1.1 Ö

```
router-id 1.1.1.1
```

,Ì G Q¸

Q¸	£EÄ
ipv6 ospf priority	A’5B y ·,X ì 4{ Ä

þ êF¼JÒCÃ(Š Õ,X • ãEî 4- OSPFv3 CÃ+ A' Û Ä V p"¼ 9,XCÃ+ Ô þE²4Á,X 0N KÈ È7¾"• ³E•+ CÃ+ A' Û Ã ¹ ¾Eî Ô þ" 6.CÃ+ È ¢5à û û £ ãCÃ+ ><,X?˜ õ Ä

â area range Q¸ á à È area range " 6.,X OSPFv3 ³ KÈCÃ+ È5à summary-prefix " 6.,X OSPFv3 CÃ+ ³,X êF¼CÃ+ Ä

summary-prefix Q¸,Â ! ¾ ü7¾"• ³E•+ CÃ+ < (ASBR) Þ ;> Ý È5à è ¾ ÍG¡ Ú × CÃ+ E¯> " 6. Ä

G!5B _

ßM6 _ $ È¥ü bG!5B Ú 2001:DB8::/64 8× È Y,X êF¼CÃ+ ,X" 6. 2001:DB8::/64 CÃ+ E¯> Eî Ö

```
summary-prefix 2001:DB8::/64
```

,Ì G Q¸

Q¸	£EÄ
area range	S*üA¹ Q¸ Í OSPFv3 ³ KÈ,XCÃ + E¯> " 6. Ä
redistribute	G¡ Ú × J WCÃ+ E¯/ß,XCÃ+ Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.1.29 timers spf

?UG!5BOSPFv3 ü y § %,X ¬ ê µ C ÈE¯> SPF Au1k,X Ê Ê ÊKÈ È ¹ ž ø õ SPF Au1k ,X ÊKÈKÈLh È Ã S*üCÃ+ E¯/ßG!5B Qţimers spf ÄA¹ Q¸,X no 6 ã 6 á5 ,ÕG!5B Ä

timers spf *spf-delay spf-holdtime*

no timers spf

– DAÈ â

– D	£EÄ
spf-delay	n SPF Au1k,X1 Y ÊKÈ È ¹/¦) ! È8× È 0-214748364 (/¦) ÄOSPF CÃ+ E¯/ß y § % ¬ ê È ™NO1 Û n,X ÊKÈ â È !E¯> SPF E¤1k Ä
spf-holdtime	n ø õ SPF E¤1k KÈ,X ÊKÈKÈLh È ¹/¦) ! È 8× È 0-214748364 (/¦) Ä1 Y ÊKÈ Z È ø õE¤1kKÈ Lh ÊKÈ"u ÈE¬ á6ÑE¯> SPF E¤1k Ä

5 ,ÕG!5B

5 ,Õ Ú ¹ ß ø/¡ ™ ‰ Ö

1 Ã ü RGOS 10.4 (! È á Õ timers throttle spf Q ¸ Ä2Ï4³5 ,Õ timers spf 5 10

2 ÃRGOS 10.4 (Ô Ÿ È Õ timers throttle spf Q ¸ Ä!8 Ê5 ,Õ ™ ‰ ß timers spf Q ¸ á*ó È

– DAÈ â

– D	£EÄ
spf-delay	n SPF Au1k,X1 Y ÊKÈ È ¹!¿/¦) ! È8× È 1-600000 ÄOSPFv3 CÃ+ E¯/ß y § % ¬ ê È?º ¥ ,X 6 3) Au1k7Ç å?Us*pf-delay* ÊKÈKÈLh â ;> Ä
spf-holdtime	n ø õ SPF E¤1k KÈ,X Ô ã ÊKÈKÈLh È ¹!¿/¦) ! È8× È 1-600000 Ä
spf-max-waittime	n ø õ SPF E¤1k KÈ,X Ô û ÊKÈKÈLh È ¹!¿/¦) ! È8× È 1-600000 Ä

,Ì G Q¸

Q¸	£EÄ
clear ipv6 ospf	S*üA¹ Q¸G¡„ | OSPFv3 F¼ Ú s 6Ñ Ä
show ipv6 ospf	/ OSPFv3 CÃ+ E¯/ß µ C Ä
timers spf	G!5BSPF Au1k ÊE³ ÊKÈ

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.2

48.2.1 show ipv6 ospf

/ OSPFv3 E¯/ß µ C Ä

show ipv6 ospf [*process-id*]

– DAÈ â

– D	£EÄ
process- id	ospf E¯/ß Ë

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð ´

G!5B _

ßM6,X _ $*ü b / OSPFv3 E¯/ß µ C

```
Ruijie# show ipv6 ospf
Routing Process "OSPFv3 (1)" with ID 1.1.1.1
Process uptime is 24 minutes
SPF schedule delay 5 secs, Hold time between SPFs 10 secs
Minimum LSA interval 5 secs, Minimum LSA arrival 1 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 0. Checksum Sum 0x0000
```

```
Number of AS-Scoped Unknown LSA 0
Number of LSA originated 11
Number of LSA received 4
Log Neighbor Adjency Changes : Enabled
Number of areas in this router is 2
Area BACKBONE(0)
Number of interfaces in this area is 1(1)
SPF algorithm executed 4 times
Number of LSA 3.  Checksum Sum 0x1DDF1
Number of Unknown LSA 0
```

V p OSPFv3 â BFD 6(| ,LÔ?U ü s Ý / ,X Y • Þ r t ”BFD is enabled”, _ V ß Ö

```
Ruijie# show ipv6 ospf
Routing Process "OSPFv3 (1)" with ID 1.1.1.1
Process uptime is 24 minutes
SPF schedule delay 5 secs, Hold time between SPFs 10 secs
Minimum LSA interval 5 secs, Minimum LSA arrival 1 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 0. Checksum Sum 0x0000
Number of AS-Scoped Unknown LSA 0
Number of LSA originated 11
Number of LSA received 4
Log Neighbor Adjency Changes : Enabled
Number of areas in this router is 2
BFD is enabled
Area BACKBONE(0)
Number of interfaces in this area is 1(1)
SPF algorithm executed 4 times
Number of LSA 3.  Checksum Sum 0x1DDF1
Number of Unknown LSA 0
```

	timers spf	G!5BOSPFv3 ü y § %,X ¬ ê µ C ÈE¯> SPF Au1k,X Ê Ê ÊKÈ È ¹ ž ø õ SPF Au1k,X Ô ã ÊKÈKÈLh Ã Ô û ÊKÈKÈLh Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.2.2 show ipv6 ospf database

/ OSPFv3 E¯/ß D B g µ C Ä

show ipv6 ospf [*process- id*] database [*lsa-type* [adv-router *router-id*]]

– DAÈ â

– D	£EÄ
process- id	OSPFv3 E¯/ß Ë
lsa-type	LSA 2O _ È Ý ¹ ß ´2O Ö AS-external-LSAs ÃLink-LSAs Ã Inter-Area-Prefix-LSAs ÃInter-Area-Router-LSAs Ã Intra-Area-Prefix-LSAs ÃNetwork-LSAs Ã Router-LSAs "uG!!8 – D Ê È / Ý LSA µ C
adv-router *router-id*	/ Û n router {*ó,X LSA µ C Ä

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð ´

G!5B _

ßM6,X _ $*ü b / OSPFv3 E¯/ß D B g µ C

```
Ruijie# show ipv6 ospf database
OSPFv3 Router with ID (1.1.1.1) (Process 1)
Link-LSA (Interface FastEthernet 1/0)
Link State ID   ADV Router      Age  Seq#       CkSum  Prefix
0.0.0.2         1.1.1.1         197 0x80000001 0x7cd8     0
0.0.0.5         2.2.2.2         206 0x80000001 0x8c86     0
```

Q¸õã (M õãÄ

S*üÛÐ ´

V ß Q¸Ú / OSPFv3 y·µC

```
Ruijie# show ipv6 ospf interface
FastEthernet 1/0 is up, line protocol is up
Interface ID 2
IPv6 Prefixes
fe80::2d0:22ff:fe22:2223/64 (Link-Local Address)
OSPFv3 Process (1), Area 0.0.0.0, Instance ID 0
Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State BDR, Priority 1
Designated Router (ID) 2.2.2.2
Interface Address fe80::c800:eff:fe84:1c
Backup Designated Router (ID) 1.1.1.1
Interface Address fe80::2d0:22ff:fe22:2223
Timer interval configured,Hello 10,Dead 40,Wait 40,Retransmit 5
Hello due in 00:00:02
Neighbor Count is 1, Adjacent neighbor count is 1
Hello received 26 sent 26, DD received 5 sent 4
LS-Req received 1 sent 1, LS-Upd received 3 sent 6
LS-Ack received 6 sent 2, Discarded 0
```

G!5B _

V pA¹y·,XF• *üâ BFD 6(|, Fw ;> A¹Q¸Úrt / **BFD enabled** µC

```
Ruijie# show ipv6 ospf interface
FastEthernet 1/0 is up, line protocol is up
Interface ID 2
IPv6 Prefixes
fe80::2d0:22ff:fe22:2223/64 (Link-Local Address)
OSPFv3 Process (1), Area 0.0.0.0, Instance ID 0
Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State BDR, Priority 1 È BFD enabled
Designated Router (ID) 2.2.2.2
Interface Address fe80::c800:eff:fe84:1c
Backup Designated Router (ID) 1.1.1.1
Interface Address fe80::2d0:22ff:fe22:2223
Timer interval configured,Hello 10,Dead 40,Wait 40,Retransmit 5
```

```
Hello due in 00:00:02
Neighbor Count is 1, Adjacent neighbor count is 1
Hello received 26 sent 26, DD received 5 sent 4
LS-Req received 1 sent 1, LS-Upd received 3 sent 6
LS-Ack received 6 sent 2, Discarded 0
```

Q¸	£EÄ
ipv6 router ospf	|

```
Neighbor ID  Pri  State     Dead Time   Interface     Instance ID
2.2.2.2      1   Full/DR     00:00:33   FastEthernet 1/0     0
_ 2 Ö V ß Q ¸ Ã ¹,ß   OSPFv3 F•  Aº4š µ C
Ruijie# show ipv6 ospf neighbor detail
Neighbor 2.2.2.2, interface address fe80::c800:eff:fe84:1c
In the area 0.0.0.0 via interface FastEthernet 1/0
Neighbor priority is 1, State is Full, 6 state changes
DR is 2.2.2.2 BDR is 1.1.1.1
Options is 0x000013 (-|R|-|-|E|V6)
Dead timer due in 00:00:36
Database Summary List 0
Link State Request List 0
Link State Retransmission List 0
 V p  *üEîE›  BFD  ”#  âA¹F•  ,XE@ ¥CÃ X,Fw  ü  / ,X µ C  r t V ß      BFD
session state up
Ruijie# show ipv6 ospf neighbor detail
Neighbor 2.2.2.2, interface address fe80::c800:eff:fe84:1c
In the area 0.0.0.0 via interface FastEthernet 1/0
Neighbor priority is 1, State is Full, 6 state changes
DR is 2.2.2.2 BDR is 1.1.1.1
Options is 0x000013 (-|R|-|-|E|V6)
Dead timer due in 00:00:36
Database Summary List 0
Link State Request List 0
Link State Retransmission List 0
BFD session state up
```

,Ì G Q¸

Q¸	£EÄ
ipv6 router ospf	| OSPFv3 CÃ+ E¯/ß Ä
ipv6 ospf area	G!5B y · – â OSPFv3 E¯/ß Ä
area virtual-link	G!5BOSPFv3 <.JÒCÃ Ä
show ipv6 ospf interface	/ OSPFv3 y · µ C Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.2.5 show ipv6 ospf route

/ OSPFv3 CÃ+ Ä

show ipv6 ospf [*process- id*] route [count]

– DAÈ â	– D	£EÄ
	process- id	OSPFv3 E¯/ß Ë
	count	/ OSPFv3 CÃ+ DG£"

5 ,ÕG!5B ´

Q¸õã (M õã Ä

S*ü Û Ð ´

G!5B _

V ß Q¸*ü b ¹,ß OSPFv3 CÃ+ µ C

```
Ruijie# show ipv6 ospf route
OSPFv3 Process (1)
Codes: C - connected, D - Discard, O - OSPF, IA - OSPF inter area,
E1 - OSPF external type 1, E2 - OSPF external type 2
Destination                              Metric
Next-hop
E2 2001:DB8:1::/64                                1/20
via fe80::c800:eff:fe84:1c, FastEthernet 1/0
O  2001:DB8:2::/64                                  11
via fe80::c800:eff:fe84:1c, FastEthernet 1/0, Area 0.0.0.0
```

,Ì G Q¸

Q¸	£EÄ
ipv6 router ospf	| OSPFv3 CÃ+ E¯/ß Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

48.2.6 show ipv6 ospf summary-prefix

/ OSPFv3 êF¼CÃ+ " 6. µ C Ä

show ipv6 ospf [*process-id*] summary-prefix

– DAÈ â

– D	£EÄ
process- id	OSPFv3 E¯/ß Ë

5 ,ÕG!5B ´

Q ¸õã

Q¸õã	(M õã Ä
S*üÛÐ	´

V ß Q¸ Ã / OSPFv3 <. ³JÒCÃ,X µ C

```
Ruijie# show ipv6 ospf virtual-links
Virtual Link VLINK1 to router 2.2.2.2 is down
Transit area 0.0.0.1 via interface FastEthernet 1/0, instance ID 0
Local address *
```

G!5B _

49 Tunnel

49.1

49.1.1 keepalive (tunnel interface)

G!5BGRE L{F' ú *ü ±# s6Ñ È S*ü V ß Q ¸ Ö

keepalive [*seconds* [*retries*]]

no keepalive

– DAÈ â

– D	£EÄ
seconds	Ä ÃEÝ Å ±# y [¥EÕ,XKÈLh È) ! /¦ ÄA'5B8× È 0 32767 Ä5 ,Õ 10 /¦ Ä
retries	±# y [G¡A© õ D ÄV pG¡A© õ D Z ÈÆ¬"u Ý h1(È í ÚL{F' y ·,X #A,(Š Õ5B ä down Ä ª 8× È 1 255 Ä5 ,Õ 3 õ Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È"u Ý ' Ô ±# s6Ñ Ä

V p ¾Eg 9 keepalive È âM6"u ÝC³ – D È í S*ü ¹ ß ø þ5 ,Õ Ä

seconds Ö10 /¦

retries Ö3 õ

Q ¸ õ ã L{F' y · õ ã Ä

S*ü Û Ð L{F' y [¥ Î,X(=)Ú y · UP ,X È Ã6Ñ4"CÃ ÎKÂNl È Ð7ÈL{F' y [´"©EÕE' Í0Ã ÆE- Ê Ã ¹ *üL{F',X ±# s6Ñ È ÍL{F' y ·,X ÃE' ûE¯> v# Ä "¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

G!5B –

_ 1 Ö ü interface tunnel 1 L{F' y · ÈG!5B ±# s6Ñ È ¥EÕKÈLh 3 /¦ ÈG¡A© õ D 5 õ Ä

```
Ruijie(config)# interface tunnel 1
Ruijie(config)# keepalive 3 5
```

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,XG!5B Ä

Q ¸ Z Æ	(Ë	AÈ â
	10.4	RGOS 10.4 (Ô Ÿ Õ "¼ ã ÖA¹ Q ¸ ¾ ü 10.4 Ä1 Å(Î)„

49.1.3 tunnel checksum

ü y ·G!5B õ ã ß S*ü tunnel checksum Q ¸ ±A• turnnel

49.1.4 tunnel destination

ü y ·G!5B õ ã ß S*ü tunnel destination Q ¸ (M n,X tunnel

	value	W X Q Q H O ,X šJy È ª 8× È ü Ä
5 ,ÕG!5B	"u Ý Ï) šJyA'5B Ä	
Q ¸ õ ã	y ·G!5B õ ã Ä	
S*ü Û Ð	L{F',X Î0Ÿ V p"u Ý Ô o šJy ± x È Ã6Ñ « M2"©,X 9 ‰ ê5Ù y [ED Ï Ä ¾ é !¨EW;X ,X ± x Ätunnel key Q ¸ ¾ Ý ü GRE Õ>™ ! Ã ¹*ó Ä	

G!5B _	_ 1 Ö ü tunnel 0 y · A'5B šJy 1234 Ö
	`Ruijie(config)# interface tunnel 0`
	`Ruijie(config-if)# tunnel key 1234`	

,Ì G Q ¸	**Q ¸**	**£EÄ**
	show interface tunnel	/ tunnel y ·,Ì G,X µ C
G ÄAÈ â	CÃ+ < Þ Õ È x 6 á Õ Ä	
Q ¸ Z Æ	**(È‡P ‰r ç À À #Ç**	**Wî¥:P G U !> AÈ â**
	-	-

49.1.6 tunnel mode

ü tunnel y · A'5B Õ>™ õ ã*ü Q ¸ tunnel mode È S*ü Q ¸,X no 6 ã 6 á5 ,Õ • ã Ä

tunnel mode { gre {ip | ipv6 } | ipip | ipv6ip }

– D

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð BóEQ #A, y [4£E›L{F' Õ>™ â y [û ã Ã6Ñ îCYE›L{F' y ·,X MTU È Ð7È y [Ú(È G SBóEQP y [A'5B Z DF ÄDon't Fragment Å! Ä RGNOS ü y ·G!5B õ ã ß ¤ o Z tunnel path-mtu-discovery Q ¸ ÈW6Ñ ó7¾ | v# L{F' Í0Ã,X PMTUÈ9A×H tunnel y ·,X mtu û ã È ¢5àFS ! y [Ú(Ä "¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

G!5B _ _ 1 Ö ü tunnel 0 y · Þ%"# PMTUD s6Ñ

```
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel path-mtu-discovery
```

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,Ì G,X µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	"¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

49.1.8 tunnel path-mtu-discovery

ü y ·G!5B õ ã ß S*ü Q ¸ tunnel path-mtu-discovery %"# L{F',X PMTUD s6Ñ*ü È S*ü Q ¸,X no 6 ã GKÁA¹ Q ¸ Ä

tunnel path-mtu-discovery *aging-mins* *mtu-bytes*

no tunnel path-mtu-discovery

– DAÈ â

– D	£EÄ
age-timer	A'5BL{F' y · 0 7 8 ,X5Õ ê ÊKÈ È4£E›A¹ ÊKÈ ÈL{F' î ¥EÕ v# y [9 v ÏCÃ X 0 7 8
min-mtu	A'5BL{F' y · Ã>• 3 0 7 8 ' A× H,X 0 7 8 ßL$ È8× È +8V

5 ,ÕG!5B ü IP L{F' á%"# PMTUD s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð

BóEQ #A, y [4£E›L{F' Õ>™ â y [û ã Ã6Ñ îCYE›L{F' y ·,X MTU È Ð7È y [Ú(È G SBóEQP y [A’5B Z DF ÄDon't Fragment Å! Ä RGNOS ü y ·G!5B õ ã ß ¤ o Z tunnel path-mtu-discovery Q ¸ ÈW6Ñ ó7¾ | v# L{F' Í0Ã,X PMTUÈ9A×H tunnel y ·,X mtu û ã È ¢5àFS ! y [Ú(Ä û ãv# L{ahy d Ã`„6' ã0Ýü ”¢.4-1.563 Td <197909B72C17.402

Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	S*ü tunnel y · È ™NO Û n$d Ä

G!5B _

G!5B _

_ 1 Ö Ú interface tunnel 1 GRE L{F' ê Õ>™ #A,,X ToS +8VA'5B ä 20 È `E¯ 00010100 Ä

```
Ruijie(config)# interface tunnel 1
Ruijie(config)# tunnel tos 20
```

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,XG!5B Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4	RGOS 10.4 (Ô Ÿ Õ "¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

49.1.11 tunnel ttl

ü y ·G!5B õ ã ß S*ü tunnel ttl Q ¸G!5B tunnel y ·,X ttl È S*ü Q ¸,X no 6 ã 6 á5 ,Õ Ä

tunnel ttl *hop-count*

no tunnel ttl

– DAÈ â

– D	£EÄ
hop-count	*ü 9 Û n tunnel y ·,X ttl Ä

5 ,ÕG!5B

L{F' y ·,X5 ,Õ ttl 255 Ä

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

+ b Tunnel &• Í&•,X&•ÒÓCÃ ÆÈ% Ñ-BóÉQr#A@8,tunnel CÃ+ ,X Ê í,ßCK 9 ¾Íû`Kˆm*R %(unt 1 Tf 0 To

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,Ì G,X µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

49.1.12 tunnel vrf

G!5B ê ôEÕ #A, IPv4 S*ü ¾ þ VRF E¯> EÝCÃE@ ¥ Ä S*ü V ß Q ¸ Ö

tunnel vrf [*vrf-name*]

no tunnel vrf

– DAÈ â

– D	£EÄ
vrf-name	ê ôEÕ #A, IPv4 S*ü VRF ,X á + Ä

5 ,ÕG!5B ê IPv4 5 ,Õ S*ü < ,X VRF >< ÈE¯> EÝCÃE@ ¥ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð L{F' ê Õ>™,X$d IP â,Â,X IP È ™NO ü à Ô þVRF Ä V p Û n,X VRF È"u Ý,Â,X IP ,X ÃE'CÃ+ ÈFw E- þL{F' y · Ú down (Š Õ Ä
"¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

G!5B _ _ 1 Ö Ú interface tunnel 1 GRE L{F' ê IPv4 Û n VRF blue EÝCÃ Ä

```
Ruijie(config)# interface tunnel 1
Ruijie(config)# tunnel vrf blue
```

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,XG!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

10.4	RGOS 10.4 (Ô Ÿ Õ "¼ ã ÖA¹ Q ¸ ü 10.4 Ä2 Å ¹ ž â,X(! Õ Ä

49.2

49.2.1 show tunnel gre

/ GRE tunnel ,XG!5B V?U Ä S*ü V ß Q ¸ Ö

show tunnel gre

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´ Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ' H E¤> G!5B \ î Ê È ¾ ¹,ß EG!5B Z î å GRE L{F' È á*ü ¢ ûG£,X show running Y • • Ú d Ä S*ü Q ¸ G Ã Ä

G!5B _

_ 1 Ö / G!5B Z î å GRE L{F' È ¹ ž Ø7¾,X V?U µ C Ä

```
Ruijie# show tunnel gre
Tunnel1:
Mode:GRE/IP, Destination 192.168.2.2, Source vlan 100
```

,Ì G Q ¸

Q ¸	£EÄ
show interface tunnel	/ tunnel y ·,XG!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	RGOS 10.4 (Ô Ÿ Õ

50 RIPNG

50.1

50.1.1 default-metric (RIPng)

?U n G¡ Ú × J WCÃ+ #A,RÊIPng 5 ,Õ,X zG£ ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ default-metric ÄA¹ Q ¸,X no 6 ã 6 á5 ,ÕG!5B Ä

default-metric *metric*

no default-metric

– DAÈ â	– D	£EÄ
	metric	5 ,Õ,X zG£ È Ý 1 16 Ä V p metric û b1 b 16 ÈRGOS ÚAx A¹CÃ+ á ÃE' Ä

5 ,ÕG!5B 5 ,Õ 1 Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð A¹ Q ¸LÔ?U âCÃ+ #A,G!5B Q ¸ redistribute G! Ü S*ü Ä 'CÃ+ ¢ º ê Ô þCÃ+ #A,E¯/ß ÈG¡ „ Ú × RIP CÃ+ E¯/ß Ê È+ b á àCÃ+ #A,,X zG£Au1k ,X á P • û ÈCÃ+ zG£ ´"©E@ 6 Ä ´!8 üE@ 6 Ê ÈLÔ?U n G¡ Ú ×CÃ+ ü RIP CÃ+ ³ ,X zG£ Ä V p G¡ Ú × Ô þCÃ+ ˜•^Rýñ¼ È"u Ý â.B n zG£ ÈRIPng Ú S*ü default-metric n ,X zG£ × V p Ý â.B n zG£ ÈA¹ Ú?Z,ª default-metric n ,X zG£ Ä áG!5B A¹ Q ¸ í default-metric 5 ,Õ 1 Ä

G!5B _ ü ¹ ß,XG!5B _ $ ÈG¡ Ú × OSPF 100 E¯/ß,XCÃ+ RIP CÃ+ E¯/ß Ê È zG£ A'5B 3 Ä

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

,Ì G Q ¸

Q ¸	£EÄ
redistribute	ÚCÃ+ ¢ Ô þCÃ+ ³G¡ Ú × º ê Ô þCÃ+ ³ Ä

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	-	-

50.1.2 distance IPv6

?UA'5BRIPng CÃ+ ,X1u)ÚC±/• ÈAË S*üCÃ+ E¯/ßG!5B Q¿distance ÄA¹ Q¸,X no 6 ã 6 á 5 ,ÕA'5B Ä

distance *distance*

no distance

–DAÈ â	–D	£EÄ
	distance	A'5B RIPng CÃ+ 1u)ÚC±/• È AŒA'5B1-254> KÈ,X H D

5 ,ÕG!5B	5 ,Õ 120 Ä
Q¸õ ã	CÃ+ E¯/ßG!5B õ ã Ä
S*ü Û Ð	RIPng CÃ+ A'5B1u)ÚC±/• È*ü!8 Q¸Ä

G!5B _

¹ ß,XG!5B _ $ È ÚG!5B RIPng CÃ+ 1u)ÚC±/• 160

```
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# distance 160
```

,Ì G Q¸		£EÄ
	-	-

G ÄAÈ â	´

distribute-list prefix-list *prefix-list-name* {in | out} [*interface-type interface-name*]

no distribute-list prefix-list *prefix-list-name* {in | out} [*interface-type interface-name*]

– DAÈ â

– D	£EÄ
prefix-list *prefix-list-name*	prefix-list ,X á + È S*ü !4Ô ë>< 9E›$¸CÃ+ Ä
in | out	Û nA¹ Ú × ë>< Í y ê ¥EÕ È „CÃ+ S*üE›$¸
interface-type interface-name	Ä ÃEÝ ÅA¹ Ú × ë>< ¾ h*ü ü Û n y ·

5 ,ÕG!5B T¬Ax"u Ý n Ú × ë>< Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð Z ¦4± y ê5Ù ¥EÕ ¤ o Û nCÃ+ È Ã ¹EîE›G!5BCÃ+ Ú × { ë>< È Í Ý,XCÃ+ È „ y [E¯> E›$¸ Ä V p"u Û n y · È Í Ý,X y ·,XCÃ+ È „ y [E¯> E›$¸ Ä

G!5B – ¹ ß,XG!5B _ $ È ¾ ü y · eth0 Þ Í y ,X È „ y [S*üE›$¸ È ¾ Ý ü prefix-list *allowpre* !4Ô><8× È Y,X È „CÃ+ !>• y Ä

```
Ruijie(config)# ipv6 router rip
Ruijie(config-router)#distribute-list prefix-list allowpre in eth0
```

,Ì G Q ¸

Q ¸	£EÄ
redistribute	G!5BCÃ+ G¡ Ú ×

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

50.1.4 ipv6 rip default-information

?U {*ó Ô 5T¬Ax IPv6 ,XCÃ X RIPng ÈAË S*ü y ·G!5B Q ¸ default-information ÄA¹ Q ¸ ,X no 6 ã ôL8T¬AxCÃ X Ä

ipv6 rip default-information only originate [metric *metric-value*]

no ipv6 rip default-information

– DAÈ â

– D	£EÄ
only	Eî ipv6 T¬AxCÃ+ È áEî J WCÃ+

originate	Eî ipv6 T¬AxCÃ+ È 3Eî J WCÃ+
metric *metric-value*	T¬AxCÃ+ ,X zG£ È ª 8× È Ö1-15 Ä

5 ,ÕG!5B T¬Ax"u ÝT¬AxCÃ+ G!5B Ä*metric*¬Ax 1 Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ü y · ÞG!5B ZA¹ Q ¸ â È Ú ¢A¹ y · T êEî Ô 5 IPv6 5 ,ÕCÃ+ È A¹CÃ+ D• á#Ï t A' Û,XCÃ+ E@ ¥>< ` RIPng ,XCÃ+ D B g Ä
FS ! 6 äCÃ+)ƒCÃ È Ô º Ý y ·G!5B ZA¹ Q ¸ È RIPng Ú ¦4± y F• Eî ,X5 ,ÕCÃ + È „ Ä

G!5B – ¹ ß,XG!5B _ $ Èü y · ethernet0/0 Þ ï Î Ô 5T¬AxCÃ+ RIPng CÃ+ E¯/ß È A¹ y · ¾ Eî A¹T¬AxCÃ+ Ä

```
Ruijie(config)# interface ethernet 0/0
Ruijie(config-if)# ipv6 rip default-information only
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 rip	/ RIPng CÃ+ #A,E¯/ß,X – D â4³ Au D B
show ipv6 rip database	/ RIPng CÃ+

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

50.1.5 ipv6 rip enable

?U S y · t 9 RIPng E¤> ÈAË S*ü y ·G!5B Q ¸ ipv6 rip enable ÄA¹ Q ¸,X no 6 ã ª#\ ü (M n y · ÞE¤> RIPng Ä

ipv6 rip enable

no ipv6 rip enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B	´
Q ¸ õ ã	y ·G!5B õ ã Ä
S*ü Û Ð	A¹ Q ¸*ü bA’5B – â RIPng

```
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ipv6 rip metric-offset 5
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

50.1.7 ipv6 router rip

?U ï Î RIPng CÃ+ E¯/ß JE¯ 9CÃ+ E¯/ßG!5B õ ã ÈAË S*ü < G!5B Q ¸ ipv6 router rip ÄA¹ Q ¸,X no 6 ã ôL8 RIPng CÃ+ E¯/ß -

ipv6 router rip

no ipv6 router rip

+ ÐÆÈ â Td enable 052907EF14CE>]TJ /TT048 202 h 52 0 Td ( )Tj /C2_0 1 Tf6Erc 2_0 09B7C20 0 Tc677 721>6<3

– D	£EÄ
-	-

5 ,ÕG!5B "u Ý RIPng CÃ+ E¯/ß üE¤> Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸*ü b ï Î RIPng CÃ+ E¯/ß JE¯ 9CÃ+ E¯/ßG!5B õ ã Ä

G!5B _ ¹ ß,XG!5B _ $ ÈAÈ â Z V) ï Î RIPng CÃ+ E¯/ß È JE¯ 9CÃ+ E¯/ßG!5B õ ã Ä

```
Ruijie(config)# ipv6 router rip
```

Q ¸	

	-	-

50.1.8 passive-interface RIPng

?U ª#\ ü Ô þ y · Þ ¥EÕ È „ y [,X s6Ñ ÈAË S*ü y ·G!5B Q ¸ passive-interface Q ¸ Ä A¹ Q ¸,X no 6 ãG¡ „ *ü ¥EÕ È „ y [,X s6Ñ Ä

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

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

– DAÈ â

– D	£EÄ
default	A¹ – DA'5B Ý y · passive õ ã
interface-type interface-num	y ·2O _ â c Ë

5 ,ÕG!5B "u Ý y ·A'5B passive õ ã Ä

Q ¸ õ ã CÃ+ E¯/ßG!5B õ ã Ä

S*ü Û Ð passive-interface default Q ¸ Ú Ý y ·A'5B passive õ ã ÈE- Ê Ã ¹ S*ü no passive-interface *intface-type interface-num* Q ¸A'5B ¤ o y · M2 passive õ ã Ä

G!5B _ ¹ ß,XG!5B _ $A'5B Ý y · passive õ ã È' âA'5B ethernet0/0 M2 passive õ ã

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

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

50.1.9 redistribute

?U Ú J WCÃ+ ³,XCÃ XG¡ Ú × RIPng Y ÈAË S*üCÃ+ E¯/ßG!5B Q ¸redistribute Q ¸PÄAåehAÂ1ðš¢5Å AF

redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | static } [metric *metric-value* | route-map *route-map-name*]

no redistribute {bgp | connected | isis [*area-tag*] | ospf *process-id* | static } [metric *metric-value* | route-map *route-map-name*]

– D	£EÄ
bgp	¢ BGP G¡ Ú ×
connected	¢,ÈE²CÃ+ G¡ Ú ×
isis [*area-tag*]	¢ ISIS G¡ Ú × ÈEîE› *area-tag* G¡ Ú × Û n ISIS r _
ospf *process-id*	¢ OSPF G¡ Ú × ÈEîE› *process-id* G¡ Ú × Û n ospf r _ È*process-id*]

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

50.1.10 split-horizon (RIPng)

?U *ü RIPng " G Ú F s6Ñ ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ split-horizon ÄA¹ Q ¸,X no 6 ã G KÁ RIP " G Ú F s6Ñ Ä?U *ü ú!¦ ûEÚE@,X" G Ú F ÈAË S*üCÃ+ E¯/ßG!5B Q ¸ split-horizon poisoned-reverse **È**A¹ Q ¸,X no

G!5BRIPNG Q ¸

,Ì G Q¸	Q¸	£EÄ
	show ipv6 rip	/ RIPng CÃ+ #A,E¯/ß,X – D â4³ Au D B
	show ipv6 rip database	/ RIPng CÃ+

G ÄAÈ â	´

Q¸Z Æ	(Ë	AÈ â
	-	-

50.2

50.2.1 show ipv6 rip

?U / RIPng CÃ+ #A, #E¯/ß,X – D ` Ø þ4³Au D B ÈAË S*ü show ipv6 rip Q¸Ä

show ipv6 rip

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q¸õã	*ü õã ê(M õã Ä

S*ü Û Ð	´

G!5B –	Ruijie# **show ipv6 rip** Routing Protocol is "RIPng" Sending updates every 10 seconds with +/-50%, next due in 8 seconds Timeout after 30 seconds, garbage collect after 60 seconds Outgoing update filter list for all interface is: distribute-list prefix aa out Incoming update filter list for all interface is: not set Default redistribution metric is 1 Default distance is 120 Redistribution:

```
    Redistributing protocol connected route-map rm
    Redistributing protocol static
    Redistributing protocol ospf 1
  Default version control:  send version 1, receive version 1
  Interface              Send   Recv
    VLAN 1               1      1
    Loopback 1           1      1
  Routing Information Sources:
    None
```

,Ì G Q¸

Q¸	£EÄ
show ipv6 rip	/ RIPng CÃ+ #A,E¯/ß,X – D â4³ Au D B

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

50.2.2 show ipv6 rip database

?U / RIPng

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õ ã # õ ã ê(M õ ã Ä

S# Û Ð S#A¹ Q¸ / RIPng CÃ+ ><,X ØNM µ C Ä

G!5B –

```
Ruijie# show ipv6 rip database
Codes: R - RIPng,C - Connected,S - Static,O - OSPF,B - BGP
sub-codes:n - normal,s - static,d - default,r - redistribute,
          i - interface, a/s - aggregated/suppressed
```

```
S(r)   2001:db8:1::/64, metric 1, tag 0
          Loopback 0/::
S(r)   2001:db8:2::/64, metric 1, tag 0
          Loopback 0/::
C(r)   2001:db8:3::/64, metric 1, tag 0
          VLAN 1/::
S(r)   2001:db8:4::/64, metric 1, tag 0
          Null 0/::
C(i)   2001:db8:5::/64, metric 1, tag 0
          Loopback 1/::
S(r)   2001:db8:6::/64, metric 1, tag 0
          Null 0/::
```

,Ì G Q¸

Q¸	£EÄ
show ipv6 rip	/ RIPng CÃ+ #A,E¯/ß,X – D â4³ Au D B

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

51 IPv6

51.1 IPv6

51.1.1 clear ipv6 mroute

A¹ Q ¸*ü 9 ôL8(M n,X ê5Ù <F¼,X IPv6 4˜ •E@ ¥><NM Ä

clear ipv6 mroute { * | *v6group-address* [*v6source -address*]}

G!5BIPv6 4˜ • — Q ¸

5 ,ÕG!5B	A’5B(M nIPv6 4˜8× È,X IPv6 4˜ •E•+
Q ¸ õ ã	y · õ ã
S*ü Û Ð	A’5B(M nIPv6 4˜8× È,X IPv6 4˜ •E•+ Ä"¼ ã G6(,X ACL Ã ¹ Û š,X ACL È 3 Ã ¹ =) ACL È Í b =),X ACL ¾ G!,Â,X È5à á G!$d Ä
"¼ ã	A¹ Q ¸ Ã ¹ Í `A¹ IPv6 4˜8× È,Ì G,X MLD ÃPIM-SMv6 #A, y [E¯ > E›$¸ È4˜ • D B# á î ¢A¹4˜ •E•+ y ·# 9 `# Î Ä

G!5B _

5 ,ÕG!5B	*limit* 5 ,Õ 1024 *threshold* 5 ,Õ 2147483647
Q ¸ õ ã	< õ ã
S*ü Û Ð	A¹ Q ¸,X 0*ü L$ 6Ñ ó t 9 IPv6 4˜ •CÃ+ >< ,X 5,Â DG£ Ä "¼ ã á à _ ËA' Û,X.@ ÊC $d L$ ÈCYE›.@ Ê><NM,XCÃ+ NMLÔ?UEC ÊE@ ¥ È Ú Ð7È û6Ñ ßL! Ä
G!5B _	¹ ß,X/ _L$ 6Ñ ó t 9 IPv6 4˜ •CÃ+ >< ,X 5,Â DG£ 100 ÈA:/ 90 Ä `Ruijie(config)# ipv6 multicast route-limit 100 90`

,Ì G Q ¸	
Q ¸	£EÄ
-	-

G ÄAÈ â	´

Q ¸ Z Æ	
(Ë	AÈ â
-	-

51.1.6 ipv6 multicast-routing

A¹ Q ¸*ü 9 | IPv6 4˜ •CÃ+ E@ ¥ Ä S*üA¹ Q ¸,X no 6 ã GKÁ IPv6 4˜ •CÃ+ E@ ¥ Ä

ipv6 multicast-routing

no ipv6 multicast-routing

– DAÈ â	
– D	£EÄ
-	-

5 ,ÕG!5B	þ | IPv6 4˜ •CÃ+ E@ ¥
Q ¸ õ ã	< õ ã
S*ü Û Ð	A¹ Q ¸*ü 9 | IPv6 4˜ •CÃ+ E@ ¥ Ä"u Ý | IPv6 4˜ •CÃ+ E@ ¥ Ê È4˜ • #A, 3 á6Ñ | Ä

"¼ ã	?U | IPv6 4˜ • s6Ñ È ™NOG!5BA¹ Q ¸ Ä!8 s6Ñ ` IGMP snooping s6Ñ f y,X È V p | Z IGMP snooping s6Ñ ÈFw A¹ Q ¸ Ú á6Ñ G!5B Ä

G!5B –

¹ ß,X/ _ \| IPv6 4˜ •CÃ+ E@ ¥ Ä

```
Ruijie(config)# ipv6 multicast-rounting
```

G!5B –

¹ ß _ $G!5B4˜ •# (2222::3333 Èff66::100) ¾ AŒ ¢GigabitEthernet 2/6 ` FastEthernet 3/2 E@ ¥ Ä

```
Ruijie(config)# ipv6 multicast static 2222::3333 ff66::100 G2/6
Ruijie(config)# ipv6 multicast static 2222::3333 ff66::100 F3/2
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

A¹ Q ¸ ¾ ü x 6 ÞCK 0*ü Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

51.1.8 ipv6 multicast rpf longest-match

FI ~ 5 3) ?˜ í Ú ÿ ¢4˜ •M- ÕCÃ+ >< Ã 0 % * 3 CÃ+ >< Ã) •CÃ+ >< EÝ ª Î Ã*ü b 5 3) ” ¹,X 4˜ •M- ÕCÃ+ Ã 0 % * 3 CÃ+ `) •CÃ+ Ä

V p?U ¢E- Ý 5CÃ+ EÝ Î }-Õ ÔKS G!,XFw 5CÃ+ ÈAËG!5BA¹ Q ¸ ÄG!5B Z Ý'; ÔKS G! EÝ ½CÃ+ Q ¸ È ¢E- Ý 5CÃ+ EÝ Î }-Õ ÔKS G!,XFw 5CÃ+ × V p W À,X ì 4{,Ì à È í Ý';4˜ •M- ÕCÃ+ ÃMBGP CÃ+ Ã) •CÃ+ ,XNN cE¯> EÝ ½ Ä

S*üA¹ Q ¸,X no EÝNM 6 á Q ¸,X5 ,Õ Ä5 ,Õ ™ ‰ ß È ¢E- Ý 5CÃ+ EÝ Î ì 4{ ÔP¬,X Fw 5CÃ+ × V p W À,X ì 4{,Ì à È í Ý';4˜ •M- ÕCÃ+ Ã MBGP CÃ+ Ã) •CÃ+ ,XNN cE¯ > EÝ ½ Ä

ipv6 multicast rpf longest-match

no ipv6 multicast rpf longest-match

– DAÈ â

– D	£EÄ

5 ,ÕG!5B

FI ~ 5 3) ?˜ í Ú ÿ ¢4˜ •M- ÕCÃ+ >< Ã 0 % *Ã+ >< Ã) •CÃ+ >< EÝ ª Î Ã*ü b 5 3) ” ¹,X4˜ •M- ÕCÃ+ Ã0 % * 3 CÃ+ `) •CÃ+ Ä¢E- Ý 5CÃ+ EÝ Î ì 4{ ÔP¬,XFw 5CÃ+ × V p W À,X ì 4{,Ì à È í Ý';4˜ •M- ÕCÃ+ Ã MBGP CÃ+ Ã) •CÃ+ ,XNN cE¯> EÝ ½ Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

´

G!5B –

¹ ß,X/ _G!5B Ý'; ÔKS G!EÝ ½CÃ+

```
Ruijie(config)# ipv6 multicast rpf longest-match
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	10.4 Ä2 ÅOj õ é 9A¹ Q ¸

51.2 IPv6

51.2.1 show ipv6 mroute

A¹ Q ¸*ü 9 ¹,ß IPv6 4˜ •E@ ¥>< µ C Ä

show ipv6 mroute *[v6group-address] [v6source-address]* [summary] [count]

– DAÈ â

– D	£EÄ
v6group-address	4˜ •CÃ+ IPv6 4˜ Ä
v6source-address	4˜ •CÃ+ IPv6 $d Ä
summary	/ IPv6 4˜ •CÃ+ ><NM,X ,?U µ C Ä
count	/ IPv6 4˜ •CÃ+ ><NM,XAu D µ C Ä

5 ¸ÕG!5B

´

Q ¸ õ ã

(M õ ã

S*ü Û Ð

A¹ Q ¸*ü 9 ¹,ß IPv6 4˜ •E@ ¥>< µ C Ä

G!5B –

_ 1 Ö ¹ ß,X/ _ / <F¼4˜ •CÃ+ ><NM µ C

```
Ruijie# show ipv6 mroute
IPv6 Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
```

```
(2222::1234, ff56::1234), uptime 00:00:31, stat expires 00:02:59
Owner PIM-SMv6, Flags: TF
Incoming interface: FastEthernet 2/1
Outgoing interface list:
FastEthernet 1/3
_ 2 Ö ¹ ß,X/ _ / CÃ+ ><Au D µ C
Ruijie# show ipv6 mroute count
IPv6 Multicast Statistics
Total 1 routes using 168 bytes memory
Route limit/Route threshold: 1024/2147483647
Total NOCACHE/WRONGVIF/WHOLEPKT recv from fwd: 77/147/0
Total NOCACHE/WRONGVIF/WHOLEPKT sent to clients: 77/147/0
Immediate/Timed stat updates sent to clients: 0/29
Reg ACK recv/Reg NACK recv/Reg pkt sent: 0/0/0
Next stats poll: 00:00:09
Forwarding Counts: Pkt count/Byte count, Other Counts: Wrong If pkts
Fwd msg counts: WRONGVIF/WHOLEPKT recv
Client msg counts: WRONGVIF/WHOLEPKT/Imm Stat/Timed Stat sent
Reg pkt counts: Reg ACK recv/Reg NACK recv/Reg pkt sent
(2222::1234, ff56::1234), Forwarding: 1/0, Other: 0
  Fwd msg: 0/0, Client msg: 0/0/0/0,  Reg: 0/0/0
_ 3 Ö ¹ ß,X/ _ / CÃ+ ><NM,X ,?U µ C
Ruijie# show ipv6 mroute summary
IPv6 Multicast Routing Table
Flags: I - Immediate Stat, T - Timed Stat, F - Forwarder installed
Timers: Uptime/Stat Expiry
Interface State: Interface (TTL)
(2222::1234, ff56::1234), 00:00:28/00:03:25, PIM-SMv6, Flags: TF
```

¸Ì G Q ¸

Q ¸	£EÄ
clear ipv6 mroute	-
clear ipv6 mroute statistics	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

51.2.2 show ipv6 rpf

S*üA¹ Q ¸ / (M n IPv6 $d ,X RPF µ C Ä

show ipv6 rpf *v6source-address*

– DAÈ â	– D	£EÄ
	v6group-address	IPv6 4˜ •CÃ+ ,X IPv6 4˜ Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð S*üA¹ Q ¸ / (M n IPv6 $d ,X RPF µ C Ä

G!5B _

¹ ß,X/ _ / E' 2222::3333 ,X RPF µ C

```
Ruijie# show ipv6 rpf 2222::3333
  RPF interface: GigabitEthernet 0/1
  RPF neighbor: ::
  RPF route: 2222::/64
  RPF type: unicast (connected)
  RPF recursion count: 0
  Doing distance-preferred lookups across tables
  Distance: 0
  Metric: 0
```

£EÄ

– D

G!5B _	¹ß,X/ _ / Æ4£G!5B*ó ,X4˜•y·µC ¹ß / svi1 ,X4˜•y·,XÎ µC Ruijie#**show ipv6 mvif** Interface Mif Owner Uptime Idx Module Register 0 03d03h09m VLAN 1 1 PIMSMV6 03d03h09m

,Ì G Q¸		
	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸Z Æ		
	(Ë	AÈ â
	-	-

51.3 IPv6

51.3.1 debug nsm mcast6 all

' Ô IPv6 4˜• —,X ÝA×A© Ô G Ä S*üA¹ Q¸,X no 6 ã GKÁ IPv6 4˜• — Ý,XA×A© Ô G

debug nsm mcast6 all

– DAÈ â		
	– D	£EÄ
	-	-

5 ,ÕG!5B	þ ' ÔA×A© Ô G

Q¸õã	(M õã

S*ü Û Ð	' Ô ¹,ß IPv6 4˜• —,X ÝA×A© Ô G È Ã ¹ ¹,ß4˜• —,Ì G,XE¤> E›/ß Ä

G!5B _	¹,ß4˜• —,XE¤> E›/ß Ruijie# **debug nsm mcast6 all**

Q¸ õ ã@ ñgp mÂ ñ € m(M õ ã

S*ü Û Ð

G!5B _@ ñgpˆÜ ˜VÑÛ'Íõ ¿G60†1ôÉ4ÀC@7Df9cNQB2(˜1 I56'@62 dáb3VX(8""bà(AãIAbcf"NõIG6B f

' Ô ¹,ß IPv6 4˜ • — G b"¼ ` y · `"¼ ` y [,X Ø)ÚE›/ß,XA×A© Ô G Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹A×A© Ô G

debug nsm mcast6 register

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B þ ' ÔA×A© Ô G

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ÔA¹A×A© Ô G È Ã ¹ ¹,ß IPv6 4˜ • — G b"¼ ` y · `"¼ ` y [,X Ø)ÚE›/ß Ä

G!5B – ¹,ß IPv6 4˜ • — G b"¼ ` y · `"¼ ` y [,X Ø)ÚE›/ß

```
Ruijie# debug nsm mcast6 register
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

51.3.4 debug nsm mcast6 stats

' Ô ¹,ß IPv6 4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß,XA×A© Ô G Ä S*üA¹ Q ¸,X no 6 ã GKÁA¹A×A© Ô G

debug nsm mcast6 stats

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B þ ' ÔA×A© Ô G

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ÔA¹A×A© Ô G È Ã ¹ ¹,ß IPv6 4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß Ä

G!5B – ¹,ß IPv6 4˜ • — G b y · `><)„4³Au µ C,X Ø)ÚE›/ß

```
Ruijie# debug nsm mcast6 stats
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

51.3.5 debug nsm mcast6 vif

' Ô ¹,ß IPv6 4˜ • — G b y ·E¤> E›/ß,XA×A© Ô G ÄS*üA¹ Q ¸,X no 6 ã GKÁA¹A×A© Ô G

debug nsm mcast6 vif

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B þ ' ÔA×A© Ô G

Q ¸ õ ã (M õ ã

S*ü Û Ð ' ÔA¹A×A© Ô G È Ã ¹ ¹,ß IPv6 4˜ • — G b y ·,XE¤> E›/ß Ä

G!5B – ¹,ß IPv6 4˜ • — G b y ·,XE¤> E›/ß

```
Ruijie# debug nsm mcast6 vif
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52 PIM-SMv6

52.1 PIM-SMv6

52.1.1 clear ipv6 mroute

clear ipv6 mroute {* | ipv6_group_address | ipv6_group_address ipv6_source_address }

– DAÈ â	– D	£EÄ
	*	ôL8 Ý,X4˜ •CÃ+ ><NM Ä
	ipv6_group_address	ôL8(M n4˜,X4˜ •CÃ+ ><NM Ä
	ipv6_group_address *ipv6_source_address*	ôL8(M n,X4˜$d,X4˜ •CÃ+ ><NM Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð | ôL84˜ •CÃ+ ><NM

G!5B _

```
Ruijie# clear ipv6 mroute *
```

clear ipv6 mroute statistics {* | *ipv6_group_address* [*ipv6_source_address*] }

S*ü Û Ð | ôL8 Ý | Õ : 4 ,X RP µ C Ä

G!5B _ Ruijie# **clear ipv6 pim sparse-mode bsr rp-set** *

¸Ì G Q ¸

Q ¸	£EÄ
-	-

ipv6 multicast-routing

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ Ê È á | IPv6 4˜ •CÃ+

Q ¸ õ ã < õ ã

S*ü Û Ð '?U | IPv6 4˜ •CÃ+ Ê ÈG!5B!8 Q ¸ Ä '?U ü y · Þ | PIM-SMv6 Ê È 3?UG!5B!8 Q ¸ È ú í È<Q' G! Z ipv6 pim sparse-mode Q ¸ È PIM-SMv6 J"u Ý |CK 9 Ä

G!5B _ `Ruijie(config)# ipv6 multicast-routing`

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.6 ipv6 pim accept-bsr list

ipv6 pim accept-bsr list *WORD*

– DAÈ â	– D	£EÄ
	WORD	v6 acl

5 ,ÕG!5B 5 ,Õ PIM-SMv6 CÃ+ < y Ý êF¼,X BSM y [Ä

Q ¸ õ ã < õ ã

S*ü Û Ð ü PIM-SMv6 CÃ+ < ÞG!5B!8 Q ¸ È6Ñ ó Í Ü"© BSR 8× ÈE¯> L$ n Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim accept-bsr list bsr-list
```

¸Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸ Z Æ	(Ë	AÈ â
	-	-

52.1.7 ipv6 pim accept-crp list

ipv6 pim accept-crp list *WORD*

– DAÈ â	– D	£EÄ
	WORD	v6 acl

5 ,ÕG!5B	5 ,Õ0²EÝ BSR y Ý êF¼,X íEÝ RP Eî Ä

Q¸ õ ã	< õ ã

S*ü Û Ð	ü íEÝ BSR ÞG!5B!8 Q¸ È 'A¹ íEÝ BSR ä 0²EÝ BSR Ê È6Ñ ó Í Ü"©,X C-RP 8× È ž J á u,X4˜ •4˜8× ÈE¯> L$ Ä

G!5B _	Ruijie# **configure terminal** Ruijie(config)# **ipv6 pim accept-crp list** crp-list

¸Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸ Z Æ	(Ë	AÈ â
	-	-

52.1.8 ipv6 pim accept-crp-with-null-group

ipv6 pim accept-crp-with-null-group

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ü BSR Þ á y prefix-count 0 ,X C-RP-ADV y [Ä

Q ¸ õ ã < õ ã

S*ü Û Ð ü íEÝ BSR ÞG!5B!8 Q ¸ È 'A¹ íEÝ BSR ä 0²EÝ BSR Ê È6Ñ ó y prefix-count 0 ,X C-RP-ADV y [È J èAx A¹ C-RP 6Ñ ó Õ Ý,X4˜ Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim accept-crp-with-null-group
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-10.4 Ä2 ÅOj õ é 9A¹ Q ¸

52.1.9 ipv6 pim accept-register

ipv6 pim accept-register {list *ipv6_access-list* | route-map *map-name*}

– DAÈ â

– D	£EÄ
ipv6_access-list	ipv6_access-list Ö Õ Q á acl
map-name	n CÃ+ ô Ø?˜ í

5 ,ÕG!5B 5 ,Õ Ê È áG!5B!8 Q ¸ È ü RP Þ Í"¼ ` y [,X$d 4˜ Í á 0L$

Q ¸ õ ã < õ ã

S*ü Û Ð V p?U ü RP ÞL$ (M n$d 4˜ ,X"¼ ` y [ ÈÄËG!5B!8 Q ¸ Ä' þ \ ,X"¼ ` $d Ê ÈRP î0Ÿ G ²EÕ Register-Stop y [Ä

G!5B _

```
Ruijie# configure terminal
```

```
Ruijie(config)# ipv6 pim accept-register list register-access-list
Ruijie(config)# ipv6 access-list register-access-list
ßM6G!5B,X È á AŒ(M n$dfe80::2d0:f8ff:fe22:33ad ,X"¼ ` y [
Ruijie(config-ipv6-acl)# deny ipv6 fe80::2d0:f8ff:fe22:33ad/128
any
```

,Ì G Q¸

Q¸	£EÄ
ipv6 access-list	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

52.1.10 ipv6 pim bsr-border

ipv6 pim bsr-border

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ Ê È áG!5B!8 Q¸È G y · á BSR E•+

Q¸õ ã y · õ ã

S*ü Û Ð ZL$ BSM y [,X"¯"þ ÈÃ ¹ ü y · ÞG!5B BSR E•+ È Œ- 'E- þ y · BSM â î0Ÿ G ö × È BSM 3 á î ¢E- þ y ·E@ ¥ Ä

G!5B –

ü g 0/3 ÞG!5BBSR E•+

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ipv6 pim bsr-border
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.1.11 ipv6 pim bsr-candidate

ipv6 pim bsr-candidate *interface-type interface-number* [*hash-mask-length*] [*priority-value*]

– DAÈ â

– D	£EÄ
interface-type terface-number	Û n y ·
hash-mask-length	8× È <0-128> È RP EÝ G!5B HASH }-ÕKS z È5 ,Õ Ê 126
priority-value	8× È <0-255> È4 íEÝ BSR G!5B ì 4{ – D È5 ,Õ Ê 64

5 ,ÕG!5B 5 ,Õ Ê È áG!5B!8 Q ¸ È G á íEÝ BSR

Q ¸ õ ã < õ ã

S*ü Û Ð

ü Ô þ PIM-SMv6 ³ È ™ Â , ü Ô þ Ô,X7¾ CÃ+ < BSR ÄBSR BóB÷ Lš J ¥ × RP µ C Ä î þ íEÝ BSR EîE›7¾ y [EÝ {*ó Ô @Ax,X BSR Ä ü k-¹ BSR µ C ! ÈC-BSR Ax 7¾ Å BSR È W À n ó ü PIM-SMv6 ³ ¥EÕ7¾ y [ÈA¹ y [Ù ÿ BSR ,X ` ì 4{ Ä

S*ü!8 Q ¸ Ã ¹A}A' Û*ü ÚG!4-,X BSR ¥EÕ Ô þ7¾ µ C4- Ý,X PIM F• È!£ þ F• Ó Î s ,X BSR à ,X7¾ µ C ,X !¨EW ÈV p ¥)„ ,X ,X IPV6 â ,Ì1 ê5Ù!¨ WP¬ È W ± ,E- þ 0 BSR È JE@ ¥7¾ µ C × ú í ö × µ C Ä

' !A' Û?š7¾ Å BSR È¸È W ¢ º Ô þ íEÝ BSR y Ô þ7¾ µ C ÈJ -¹ ' ! A' Û W Ý Ô þ ÈP¬,X ì Ä ê5Ù Ô ,X ì È ÈP¬,X IPV6 Å Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim bsr-candidate g 0/3 30 100
Ruijie(config)# ipv6 pim bsr-candidate g 0/3
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.12 ipv6 pim dr-priority

ipv6 pim dr-priority *priority-value*

– DAÈ â	– D	£EÄ
	priority-value	Í0.4 re f 66.84C08 189 63.12 0.24 re f BT /C08 189f 10.5 0 0 10.5

ipv6 pim ignore-rp-set-priority

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.15 ipv6 pim neighbor-tracking

ipv6 pim neighbor-tracking

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ Ê È y ·,X t 9 e 6Ñ o>• | Ä

Q ¸ õ ã y · õ ã

S*ü Û Đ

/U!6 y ·,X t 9 e 6Ñ o Ä y ·,X t 9 e 6Ñ o>• | Ê È ' CÃ+ < Ç T Þ$ F• ¥
EÕjoin y [Ê È V p F• T Þ$ CÃ+ < ¥EÕ,X join y [ÈFw È CÃ+ <,X join y
[î>• e G á î ¥ Î × V p y ·,X t 9 e 6Ñ o>•/U!6 ÈFw !8 Ê CÃ+ < Ã ¹
¥EÕjoin y [Ä ' ß$ y 5Ù,X t 9 e 6Ñ oFÑ>•/U!6 Ê È Þ$ F• Ã ¹EîE› y
,X join y [ÈE¯5à.B Û-¹F' ß$ F• Ý ´ þ y 5Ù È GF• C³Cþ Ä

G!5B _

ßM6,X _ $ /U!6 y ·,X t 9 e 6Ñ o

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ipv6 pim neighbor-tracking
```

,Ì G Q ¸	Q ¸	£EÄ
	ipv6 pim propagation-delay	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.16 ipv6 pim neighbor-filter

ipv6 pim neighbor-filter *ipv6_access-list*

– DAÈ â

– D	£EÄ
ipv6_access-list	ipv6_access-list Ö Õ Q á acl

5 ,ÕG!5B

5 ,Õ Ê È y · þ *üF• E›$¸ s6Ñ

Q ¸ õ ã

y · õ ã

S*ü Û Ð

A'5BF• E›$¸ È W t PIM 5%4°,X] < û È ¤ oF• L$ Ä ¾?U ¤F• >•E›$¸A"KÂ ë><
¦4± È í PIM-SMV6 Ú á î âA¹F• Î0Ÿ Í1 Äpeering Å G2Ï È ê5Ù !6 âA¹F• Æ4£ Î0Ÿ,X Í1 G2Ï Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ipv6 pim neighbor-filter acl
Ruijie(config-if)# exit
Ruijie(config)# ipv6 access-list acl
ßM6G!5B,X È ¦4±F• fe80::2d0:f8ff:fe22:33ad
Ruijie(config-ipv6-acl)# deny ipv6 fe80::2d0:f8ff:fe22:33ad/128 any
```

Q ¸	£EÄ

interval-milliseconds	ª 8× È <1-65535> È) ! !¿/¦

5 ,ÕG!5B 5 ,Õ Ê È Hello EÝNM,XOverride-Interval ,X 2500 !¿/¦

Q ¸ õ ã y · õ ã

S*ü Û Ð

G!5B y ·,X Override-Interval Ä

"¼ ã	Â ô • ÊE³ ê Â > q ú ‡ ÊE³ ÈFÑ î E ¡ J/P-override-interval Ä #A, Þ?U" J/P-override-interval ™NO ã b Join-Prune y [,X holdtime È ú í Ú Ý Ã6ÑEô ä-Á V,X •# ÄE- Ô&• È LÔ+ 5%4°1u)Ú5Ù4È x ±A• Ä

G!5B _

ßM6,X _ $ G!5B y ·,X Override-Interval 3000 !¿/¦

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ipv6 pim override-interval 3000
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 pim propagation-delay	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.1.18 ipv6 pim probe-interval

ipv6 pim probe-interval *interval-seconds*

– DAÈ â

– D	£EÄ
interval-seconds	ª 8× È <1-65535> È) ! /¦

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` v# ÊKÈT¬Ax 5s

Q ¸ õ ã < õ ã

S*ü Û Ð G!5B"¼ ` v# ÊKÈ È G ü"¼ ` e ÊKÈCY Ê ! È AŒ$d DR å RP ¥EÕ0N"¼ ` y [G

G!5BPIM-SMv6 Q ¸

G!5B _

¸Ì G Q ¸

ipv6 pim register-suppression	-

G ÄAÈ â Ru

	-	-

52.1.21 ipv6 pim register-checksum-wholepkt

ipv6 pim register-checksum-wholepkt [group-list *ipv6_access-list*]

– DAÈ â	– D	£EÄ
	ipv6_access-list	*ipv6_access-list* Ö Õ Q á acl Ä group-list ipv6_access-list "u ÝG!5B Ê È Í Ý,X4˜ • FÑ h*üE-/¡G!5B Ä

5 ,ÕG!5B

5 ,Õ Ê È"¼ ` y [,X õP` `Au1k Au1k PIM y [ F¼ `"¼ ` y [F¼ È5àM2 H þ PIM y [Ä

Q ¸ õ ã

< õ ã

S*ü Û Đ

F¼ Ú { ,XA' Û Í"¼ ` y [ õP` `,XAu1k • ã Au1k H þ PIM #A, y [ ÿ J Õ>™,X4˜ • D B y [ È5àM2 )(À,X"¼ ` y [,X PIM F¼ Ä Z P •E- oA' Û È é 9 ZA¹ Q ¸ Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim register-checksum-wholepkt
Ruijie(config)# ipv6 pim register-checksum-wholepkt
group-list checksum-access-list
Ruijie(config)# ipv6 access-list checksum-access-list
ßM6G!5B,X Í4˜ ff66::6666/64 S*ü H þ"¼ ` y [,X õP` `Au1k • ã
Ruijie(config91252c -0.0028 Tw80662 0.24pv6 p10006 TcB1B8D>6<12[F4D519.Tc 9
```

ipv6 pim register-rate-limit *rate*

– DAÈ â

– D	£EÄ
rate	!£/¦ Ô î AŒ ¥EÕ î å þ register y [È ª 8× È <1-65535>

5 ,ÕG!5B á Í"¼ ` y [,X ¥EÕEó)[L$Eó

Q ¸ õ ã < õ ã

S*ü Û Ð A¹ Q ¸ Í!£ þ ÄS ÈG Å(Š Õ,X"¼ ` y [ ¥EÕEó zE¯> G!5B È J á Í H þ2Ï4³,X"¼ ` y [¥EÕEó zE¯> G!5B Ä |!8 Q ¸ ÚL! "$d DR ` RP ,XBó ™ ÈáCYE›L$ ,X"¼ ` y [!6Ñ>• ¥EÕ Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim register-rate-limit 3000
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.25 ipv6 pim register-suppression

ipv6 pim register-suppression *seconds*

– DAÈ â	– D	£EÄ
	seconds	"¼ ` e ÊKÈ È ª 8× È <1-65535> È) ! /¦ Ä

5 ,ÕG!5B 5 ,Õ Ê È"¼ ` e ÊKÈ 60 /¦ Ä

Q ¸ õ ã < õ ã

S*ü Û Ð ü DR ÞG!5B!8 Ú Â n ü DR Þ,X"¼ ` y [e ÊKÈ ×V p ipv6 pim rp-register-kat Q ¸"u ÝG!5B È ü RP Þ n !8 Ú Â RP keepalive ,X < ó Ä

G!5B –

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim register-suppression 100
```

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.26 ipv6 pim rp-address

ipv6 pim rp-address *ipv6_rp-address* [*ipv6_access_list*]

– DAÈ â	– D	£EÄ
	ipv6_rp-address	RP ,X IPv6
	ipv6_access_list	*ipv6_access-list* Ö Õ Q á acl

5 ,ÕG!5B 5 ,Õ Ê È"u ÝG!5BM- ÕRP

Q ¸ õ ã < õ ã

S*ü Û Ð

2Ï4³ r)„ ÕG!5B4˜ •M- Õ RP È W 3 ÕM- Õ RP ` BSR à ÊE¯> Ä S*ü!8 Q ¸LÔ"¼ ã ßM6 ´&• Ö

1 Ô&• Ö V pEîE› BSR ` RP M- ÕG!5B à Ê Ý Ê È ì S*ü | ÕG!5B Ä

1 `&• Ö S*ü { ë><M- ÕG!5B RP Ã ¹G!5B î þ,X4˜ •4˜ Ä S*ü ACL Å ê5Ù Ý,X4˜ •4˜ Ä á S*ü ACL Å È Ô þ RP M- Õ á6Ñ>• î õG!5B S*ü Ä

1 Ý&• Ö V p Ý î þM- Õ RP á u b à Ô þ4˜ ÈIPv6 P¬,XM- Õ RP Ú>• ì G› *ü Ä

1 ¯&• Ö ¾ Ý ü ACL n ,X AŒE›$¸ ! Ý ,X4˜ •4˜ Ä5 ,Õ Ê AŒ Ý ,X4˜ •4˜ Ä

1 h&• ŒG!5B ` ä â ÈM- Õ,X RP $d Ú ¦ 9 Î b4˜8× È,XM- Õ RP 4˜ å4§ X È !£ þ4˜8× È4˜ •M- Õ4˜4È Õ Ô þM- Õ RP 4˜,XJÒ><4§ X ÈA¹JÒ>< ÝPV6 Eæ £ f c Ä ' Ô þ4˜8× ÈEÝ ½ Ô þ RP È1 Ô þ 2ô È 3 IPV6 ÔP¬,XFw þ ÚOj >•EÝ Þ Ä

1 A&• Ö ôL8 Ô þM- Õ RP Ú å Ý , ü,X4˜ ôL8E- þ È J ¢)„ ÝM- Õ RP å4§ X EÝ ½ Ô þ 0 RP Ä

G!5B _

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim rp-address 3333::3333 acl
Ruijie(config)# ipv6 access-list acl
ßM6G!5B,X ÈE- þ rp Ã ¹ á u b4˜8× È ff66::6666/64
Ruijie(config-ipv6-acl)# permit ipv6 any ff66::6666/64
```

¸Ì G Q ¸

Q ¸	£EÄ
ipv6 access-list	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.1.27 ipv6 pim rp-candidate

ipv6 pim rp-candidate *interface-type interface-number* [priority *priority-value*][interval *interval-seconds*][group-list *ipv6_access-list*]

– DAÈ â

– D	£EÄ

interface-type interface-number Û n y ·

	ipv6_acl_name	J\ Í ipv6_acl_name ,Â,X +!‰ Û n,X Y RP ,X IPV6 4˜	9 RP s6Ñ Ä 5 ,Õ Ê È J\ Í Ý Y RP ,X IPV6 4˜ FÑ	9 RP ,X s6Ñ Ä

5 ,ÕG!5B < õ ã

Q ¸ õ ã 5 ,Õ Ê È J\ Í Ý Y RP ,X IPV6 4˜ FÑ | Z 9 RP ,X s6Ñ Ä

S*ü Û Ð *ü 9 ã | 9 RP ,X s6Ñ È ¹ ž Ã ¹ ¾ Í(M n,X Y RP ,X IPV6 4˜ | 9 RP s6Ñ ×

G!5B _ ¹ ß _ $ Í Ý,X Y RP ,X IPV6 4˜ È | 9 RP s6Ñ Ö

```
Ruijie(config)# ipv6 pim rp embedded
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 access-list	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.1.29 ipv6 pim rp-register-kat

ipv6 pim rp-register-kat *seconds*

– DAÈ â

– D	£EÄ
seconds	A’5B KAT n Ê <,X ÊKÈ Äª <1-65535>È)! /¦ Ä

5 ,ÕG!5B 5 ,Õ Ê È RP Þ,X KAT ,X ÊKÈ 210s **Ä**

Q ¸ õ ã < õ ã

S*ü Û Ð G!5BRP Þ,X KAT KÈLh

,Ì G Q ¸	Q ¸	£EÄ
	-	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.32 ipv6 pim ssm

ipv6 pim ssm { default | range *ipv6_access-list* }

– DAÈ â	– D	£EÄ
	default	4˜8× È ÖFF3x::/32
	ipv6_access-list	Õ Q á acl

5 ,ÕG!5B "u Ý | SSMV6

Q ¸ õ ã < õ ã

S*ü Û Ð Í(M n,X$d4˜ | PIM-SSMv6 ÈAË S*üA¹ Q ¸

G!5B _

ßM6 Q ¸ / V)A'5BA"KÂ ë>< acl ,X$d(M n4˜ • Ä

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim ssm range acl
```

ßM6G!5B,X ÈÍ$d fe80::2d0:f8ff:fe22:33ad Ã4˜ 8× È ff32::3333/64 ÈS*ü SSM

```
Ruijie(config-ipv6-acl)# permit ipv6 fe80::2d0:f8ff:fe22:33ad
/128 ff32::3333/64
```

,Ì G Q ¸	Q ¸	£EÄ
	ipv6 access-list	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.1.33 ipv6 pim static-rp-preferred

ipv6 pim static-rp-preferred

– DAÈ â	– D	£EÄ

-	-

5 ,ÕG!5B BSR EÝ ,X RP ì 4{P¬ bM- ÕG!5B,X RP Ä

Q ¸ õ ã < õ ã

S*ü Û Ð G!5BA¹ Q ¸ â ÈM- ÕG!5B,X RP ì 4{P¬ b BSR EÝ ,X RP Ä

G!5B _ ßM6 Q ¸ / V)G!5BM- Õ RP ì Ä

```
Ruijie# configure terminal
Ruijie(config)# ipv6 pim static-rp-preferred
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-10.4 Ä2 ÅOj õ é 9A¹ Q ¸

52.1.34 ipv6 pim triggered-hello-delay

ipv6 pim triggered-hello-delay *interval-seconds*

– DAÈ â

– D	£EÄ
interval-seconds	ª 8× È <1-5> È) ! /¦

5 ,ÕG!5B 5 ,Õ Ê È Triggered-Hello-Delay 5s Ä

Q ¸ õ ã y · õ ã

S*ü Û Ð G!5B!8 y ·,X Triggered-Hello-Delay ,X ÊKÈ Ä ' y · î | Ê ê y · ”# „F• Ê È!8 Ê î S*ü Triggered-Hello-Delay 9 {*ó Ô þLc ÊKÈ È üE- þLc ÊKÈ Y È y · î T ê ¥EÕ hello y [Ä

G!5B _ ßM6,X _ $ G!5B y ·,X Triggered-Hello-Delay 3s Ä

```
Ruijie# configure terminal
```

```
Ruijie(config)# interface g 0/3
Ruijie(config-if)# ipv6 pim triggered-hello-delay 3
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

	-	-

52.2.2 show ipv6 pim sparse-mode bsr-router

show ipv6 pim sparse-mode bsr-router

– DAÈ â		
	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð	¹,ß BSR µ C Ê S*ü.

G!5B _	Ruijie# **show ipv6 pim sparse-mode bsr-router** PIMv2 Bootstrap information This system is the Bootstrap Router (BSR) BSR address: 3333::8888 Uptime:00:03:31, BSR Priority: 64, Hash mask length: 126 Next bootstrap message in 00:00:47 Role: Candidate BSR Priority: 64, Hash mask length: 126 State: Elected BSR Candidate RP: 3333::8888(GigabitEthernet 0/5) Advertisement interval 60 seconds Next Cand_RP_advertisement in 00:00:37

,Ì G Q ¸		
	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ		
	(Ë	AÈ â
	-	-

52.2.3 show ipv6 pim sparse-mode interface

show ipv6 pim sparse-mode interface [*interface-type interface-number* [detail]]

– DAÈ â

– D	£EÄ
interface-type interface-number	ÃEÝ È Û n y · interface-type interface-number 5 ,Õ Ê È / Ý y ·,X µ C
detail	ÃEÝ È / Î ÈA°4š,X y · µ C

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð ¹,ß PIM-SMv6 y · µ C Ä

G!5B _

```
Ruijie# show ipv6 pim sparse-mode interface detail
GigabitEthernet 0/5 (vif 1):
Address fe80::2d0:f8ff:fe22:33ad, DR fe80::2d0:f8ff:fe22:34b3
Hello period 30 seconds, Next Hello in 6 seconds
Triggered Hello period 5 seconds
Secondary addresses:
  3333::8888
  4444::4444
 Neighbors:
  fe80::2d0:f8ff:fe22:34b3
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.2.4 show ipv6 pim sparse-mode local-members

show ipv6 pim sparse-mode local-members [*interface-type interface-number*]

– DAÈ â

– D	£EÄ

	interface-type interface-number	ÃEÝ È Û n y · È 5 ,Õ Ê È!8 Q ¸ J\ Í Ý y ·

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Đ ¹,ß PIM-SMv6 y · Þ,X MLD µ C Ä

G!5B –

```
Ruijie# show ipv6 pim sparse-mode local-members
PIM Local membership information
GigabitEthernet 0/5:
  (*, ff66::6666) : Include
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

52.2.5 show ipv6 pim sparse-mode mroute

show ipv6 pim sparse-mode mroute { *ipv6_group_address* | *ipv6_source_address* }

– DAÈ â

– D	£EÄ
ipv6_group_address	IPv6 4˜ Ä
ipv6_source_address	IPv6 $d Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Đ ¹,ßCÃ+ µ C Ê S*ü Ä!£ õ ¾6Ñ Û n Ô þ4˜ È ê Ô þ$d È ê Ô þ4˜ ` Ô þ$d È ê á Û n K ',X4˜ ê$d Ä á6Ñ à Ê Û n ø þ4˜ ê ø þ$d Ä

G!5B _ ´

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

52.2.6 show ipv6 pim sparse-mode neighbor

show ipv6 pim sparse-mode neighbor [detail]

– DAÈ â

– D	£EÄ
detail	ÃEÝ È / Î ÈA°4š,X y · µ C

5 ¸ÕG!5B ´

Q¸õ ã (M õ ã/ < õ ã/ y · õ ã

S*ü Û Ð ¹,ßF• µ C Ä

G!5B _

```
Ruijie# show ipv6 pim sparse-mode neighbor detail
Nbr fe80::2d0:f8ff:fe22:34b3 (GigabitEthernet 0/5)
 Expires in 86 seconds
  Secondary addresses:
   6666::6666
```

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â

	-	-

52.2.7 show ipv6 pim sparse-mode nexthop

show ipv6 pim sparse-mode nexthop

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã T ` f

```
Ruijie# show ipv6 pim sparse-mode rp mapping
PIM Group-to-RP Mappings
```

G!5B _

-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

52.2.10 show ipv6 pim sparse-mode track

show ipv6 pim sparse-mode track

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã/

```
Errors:
Malformed packets:                              0
Bad checksums:                                  0
Send errors:                                    0
Packets received with unknown PIMv6 version:    0
```

¸Ì G Q¸

Q¸	£EÄ
clear ipv6 pim sparse-mode track	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

53 MLD

53.1

53.1.1 clear ipv6 mld group

A¹ Q ¸*ü 9#ÙL8 MLD #A, : 4 ,X | Õ4˜ ä , Ä | Õ4˜ ä , ÛEîE› : 4 report y [5à*ó ä,X,X4˜ ä ,A„) Ä

clear ipv6 mld group [*group-address*] [*interface-type interface-number*]

– DAÈ â

– D	£EÄ
	ôL8 Ý | Õ : 4 ,X4˜ ä ,A„) Ä
group-address	128 þ!¨(M ! IPv6 4˜ •4˜
interface-type	G6(y ·2O _
interface-number	G6(y ·4ê Ë

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð MLD 4È x- Ô þ ë><ÈA¹ ë><></ J,ÈE² $5% ,X ?U t 9 ¾ o4˜ •4˜ × V pA' Û D• 3 t 9 ¤ þ4˜ ÈA¹4˜ 3 î5+ ë üE- þ ë>< Ä?U ¢ MLD 4˜ ä , ë>< ôL8 <F¼,X \| Õ 4˜ ä ,A„) È Ã ¹*ü á ú – D,X clear ipv6 mld group Q ¸ Ä

G!5B –

ôL8 <F¼,X4˜A„) Ö

```
Ruijie# clear ipv6 mld group
```

ôL8 Ô 54˜A„) Ö

```
Ruijie# clear ipv6 mld group ff1e::100
```

ôL8(M n y · Þ,X4˜A„) Ö

```
Ruijie# clear ipv6 mld group ff1e::100 interfa fa0/1
```

,Ì G Q ¸

Q ¸	£EÄ
show ipv6 mld groups	-
show ipv6 mld interface	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.2 clear ipv6 mld interface

A¹ Q ¸*ü 9#ÙL8 y · Þ,X Ý MLD 4³Au µ C ž4˜ ä ‚A„) Ä

clear ipv6 mld interface *interface-type interface-number*

– DAÈ â

– D	£EÄ
interface-type	y ·‚X2O _
interfaceid	y ·‚X á/Ä

5 ‚ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð A¹ Q ¸*ü 9#ÙL8 y · Þ Ý MLD : 4 ‚X4˜ µ C ` y · Þ,X Ô o y [4³Au µ C ÄE- o y [4³Au µ C Ù ÿ y ‚X report y [þ D µ C È done y [þ D µ C È ¹ ž ' ! y · Þ,X 4˜ ä ‚A„)Au D µ C Ä

G!5B _ `Ruijie# **clear ipv6 mld interface** fa 1/1`

‚Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.3 ipv6 mld access-group

A¹ Q ¸*ü 9 ü y · Þ ÍLÔ?U&• •‚X4˜E¯> E›$¸ È ¾ Ý$µC‡‚Ì h ACL ‚X report y [! AŒE¯ > Ø)Ú Ä ü Q ¸ !#Ï no Ã ¹ ª#\!8 s6Ñ Ä

ipv6 mld access-group *word*

no ipv6 mld access-group

– DAÈ â

– D	£EÄ
Word	IPv6 A“KÂ { ë>< ACL ,X á/Ä

5 ,ÕG!5B þA’5BE›$¸ 5 Ê

Q ¸ õ ã y · õ ã

ü y · Þ V pLÔ?U/U!6&• • Ô o4˜ È Ã ¹ S*üA¹ Q ¸ ÄA¹ Q ¸ G6(Þ,Ì h,X ACL È V p y >•,Ì h ACL deny ,X report y PÃÃö ×F€Ì ° Ã¯Å = .<

S*ü Û Ð

Ô8 ü y · Þ,Ì h,X4˜ •$d ¾ Ý Ô þ y &• •,X ™ ‰ ß S*üA¹ s6Ñ Ä S*üA¹ Q ¸,X no 6 ã ª#\!8 s6Ñ Ä

ipv6 mld immediate-leave group-list *word*

no ipv6 mld immediate-leave group-list

– DAÈ â

– D	£EÄ
Word	IPv6 A“KÂ { ë>< ACL ,X á/Ä

5 ,ÕG!5B

GKÁ(Š Õ

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

üA¹ Q ¸"u Ý>•G!5B,X ™ ‰ ß È 'A' Û y MLD /• Ô y [â È Ú î ¥ Î(M n4˜ ¹A¶ y [Ä ' h1(ÊKÈCY Ê â È ¡' "u Ý ¡ h h1(y [ÈA' Û Ú ¢4˜ ä , ë>< ôL8,Ì h ,X4˜A„) ÄCY Ê,X ÊKÈKÈLh ª ‡ b Ô â ä , ¹A¶KÈLh ` MLD 9 Â û ¬G£ È5 ,Õ ™ ‰ ß 2s Ä

V pG!5B ZA¹ Q ¸ È ' y /• Ô y [â ÈA' Û J á ¥EÕ(M n4˜ ¹A¶ y [Ä5à ,È y ôL8 ,Ì h4˜ µ C ÄE- Í b y · ßM6 ¾ Ý Ô þ &• •,X ™ ‰ ß È û û £ å Z/• Ô Ê Ê Ä

G!5B _

ßM6,X _ $ ¤ o ZG!5B ¿Eó/• Ô s6Ñ,X r _ Ä

```
Ruijie# configure terminal
Ruijie(config)#ipv6 access-list acl
Ruijie(config-ipv6-acl)#permit ipv6 2222::3333/64 ff66::100/64
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ipv6 mld immediate-leave group-list acl
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 mld last-member-query-interval	-

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.5 ipv6 mld join-group

A¹ Q ¸ Ú x 6 ,Ì G y ·G!5B ä K Ý > JLÔ?U t 9,Ì h4˜ •4˜ ÈE- $ x 6 |
Ã ¹ : 4 ,Ì h,X4˜ µ C È üLÔ?U Ú y ·#Ï t Ô þ4˜ ä , Ê S*ü!8G!5B Ä S*üA¹ Q ¸,X no
EÝNM ª#\ x 6 t 9A¹4˜ •4˜ Ä

Ipv6 mld join-group *group-address*

no ipv6 mld join-group *group-address*

– DAÈ â

– D	£EÄ
group-address	ipv6 M21u)Ú4˜ •4˜

5 ,ÕG!5B

5 ,Õ ™ ‰ ß y ·"u Ý |G!5B t 9 î •4˜ Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

S*üA¹ Q ¸ y · | MLD y ·,X > s6Ñ Ä!8 Ê y · Ã ¹ | ¥ Î y [È 3 Ã ¹ Í
¹A¶ y [E¯> ,Ì h,X h1(Ä
üLÔ?U ü y · Þ#Ï t Ô þ4˜ ä , ÊG!5B!8 Q ¸ Ä
"¼ ã V p t 9 ¹ 0xFF*1 Ã0xFF3* Ô ,X4˜ È Ú á ÆG!5B Ä ¹ 0xFF*2 Ô ,X4˜
È á6Ñ ó 6 ä4˜ Ä

G!5B –

¹ ß _ $ ¹#Ï t Z 4˜ ä , Ö

```
Ruijie# configure terminal
Ruijie(config)# interface fast 0/1
Ruijie(config-if)# ipv6 mld join-group ff55::100
```

no ipv6 mld last-member-query-count

– DAÈ â

– D	£EÄ
number	Ô â ä , ¹A¶Au D , 8× È <2-7>

5 ,ÕG!5B 5 ,Õ,X last member query count 2 Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð 'A' Û,X y · MLD /• Ô y [È V p üCY Ê ÊKÈKÈLh Y ¡' "u Ý4˜ h1(È!8 y · Þ,X MLD 4˜ ä , ë><G M6 Ú ôL8A¼4˜ ÄE- þCY Ê ÊKÈ mld last-member-query-count á ,X(M n4˜ ¹A¶ ÊKÈKÈLh t Þ Ô ,X h1(ÊKÈ Ä

G!5B – A'5B Ô â ä , ¹A¶Au D 3.

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ipv6 mld last-member-query-count 3
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.7 ipv6 mld last-member-query-interval

S*üA¹ Q ¸A'5B ¥EÕ4˜(M n ¹A¶,X ÊKÈKÈLh È V p?U S*ü5 ,Õ È üA¹ Q ¸,X no 6 ã Ä

ipv6 mld last-member-query-interval *interval*

no ipv6 mld last-member-query-interval

Q ¸ õ ã

S*ü Û Ð

G!5B _

,Ì G Q ¸

G ÄAÈ â

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.8 ipv6 mld limit ( )

S*üA¹ Q ¸ ü y ·A'5BEîE› MLD #A, Ã ¹ : 4 ,X4˜ ä ,,X Ô û þ D Ä ª#\A¹NMG!5B È S *ü no 6 ã Ä

ipv6 mld limit *number* [except *access-list*]

3G!5B Z except _ ê ë>< È í Í b Ù À ü

G!5B _

¹ ß _ $A'5B ZL$ þ D 300 Ö
Ruijie Äconfig Å# **ipv6 mld limit** 300
¹ ß _ $A'5B ZL$ þ D 300 È $µC‡ acl ,X4˜ ¡' Ã ¹ : 4 È á «L$ Ö
Ruijie(config)# **ipv6 mld limit** 300 **except** acl

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.10 ipv6 mld mroute-proxy

A¹ Q ¸G!5B ` È y · Ã ¹ å J,Ì h,X Þ6(·E@ ¥ y [Ä

Ipv6 mld mroute-proxy *interface-type interface-number*

no ipv6 mld mroute-proxy

– DAÈ â

– D	£EÄ
interface-type interface-number	,Ì h,X Þ6(· á/Ä

5 ,ÕG!5B "u Ý!8G!5B s6Ñ

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ',Ì h,X Þ6(·G!5B proxy-service y · â ÈA¹ y · Ú Ã ¹E@ ¥ J ä , ¥E› 9,X MLD #A, y [Ä

G!5B _ ^ y ·G!5Bt r T õ ã

Q ¸ Z Æ	(Ë	AÈ â
	-	-

53.1.11 ipv6 mld proxy-service

A¹ Q ¸*ü 9 | Ý ß6(mroute-proxy y ·,X á u s6Ñ Äü y · ÞG!5BA¹ Q ¸ ÈA¹ y · ä ,Ì h mroute-proxy ,X Þ6(· È W Ú G6(2,X ß6(· È J4È x ß6(·Eî Þ 9,X4˜ µ C Ä

ipv6 mld proxy-service

no ipv6 mld proxy-service

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	Ý y ·FÑ á proxy-service (Š Õ

Q ¸ õ ã	y ·G!5B õ ã

S*ü Û Ð	' ! ÍE- þ Q ¸,X ÃG!5B Ô û þ D . ZL$ È Ô î ¾ AŒG!5B 32 þ Ä *ü MLD Proxy s6Ñ,X y · þ D «L$ bA' Û 6Ñ Õ,X4˜ • y · þ D Ä ' y · y ¹A¶ y [â È proxy-service y · Ú B7¾D•4È x,X ä , µ C È 0 Î,Ì h,X h1(Ä proxy-service y ·7¾ D•4È x,X ä , µ C ¢G!5B Ý mroute-proxy ,X y · LšE› 9,X ÆG!5B Z proxy-service È ,Ì ' b!8 y · ¾ K Û Z > È5à á K ÛCÃ+ <> . V p y · Í y · ;> switchport ¡ 0 Ê G6(,X ß6(· G!5B,X ipv6 mld mroute-proxy interface Q ¸ Ú>•7¾ | ôL8 Ä

G!5B _	^ y ·G!5B proxy-service õ + `Ruijie(config-if)# ipv6 mld proxy-service`

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

53.1.12 ipv6 mld query-interval

A¹ Q ¸*ü 9G!5B BEî ä , ¹A¶KÈLh È Ã ¹*ü no 6 ã 6 áG!5B T¬Ax Ä

ipv6 mld query-interval *seconds*

no ipv6 mld query-interval

– DAÈ â

– D	**£EÄ**
seconds	BEî ä , ¹A¶KÈLh Ä) ! s È³ 8× È 1 18000 Ä

5 ,ÕG!5B 125 /¦ Ä

Q ¸ õ ã

Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	A¹ Q ¸ { üA' Û ¥ Î ¹A¶ y [â È ,X Ô û ¡ h ÊKÈ Ä V p üE' Ô û ¡ h ÊKÈ â È ¡' "u Ý y ,X h1(ÈMLD Ú ¢4˜ ä , ë>< ôL8,Ì h,X4˜ Ä S*üA¹ Q ¸ È Ã ¹ { ,X ¡ h ÊKÈ Ä

G!5B _	ü y · gigabitEthernet 0/1 G!5B ÈG!5B Ô â ä , ¹A¶KÈLh 20s Ä
	`Ruijie(config-if)# ipv6 mld query-max-response-time 20`
	ü y · gigabitEthernet 0/1 G!5B È 6 á Ô â ä , ¹A¶KÈLh T¬Ax Ä
	`Ruijie(config-if)# no ipv6 mld query-max-response-time`

G! gH" Q G!5B Â Sÿf W tB5e…c

G!5B _

ü y · õ ã ßG!5B ÈG!5B J ª ¹A¶5ÙAu Ê <KÈLh 200s Ä

```
Ruijie(config-if)# ipv6 mld querier-timeout 200
```

ü y · Ethernet 0 G!5B ÈG!5BM2 ¹A¶5Ù n Ê <CY Ê ÊKÈKÈLh T¬Ax Ä

```
Ruijie(config-if)# no ipv6 mld querier-timeout
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.1.15 ipv6 mld robustness-variable

S*üA¹ Q ¸ Ã ¹ ¬ ¹A¶5Ù 9 Â û ¬G£,X È V p Ç?U 6 á5 ,Õ È,È y ü Q ¸ ! t no ,X 6 ã Ä

ipv6 mld robustness-variable *number*

no ipv6 mld robustness-variable

– DAÈ â

– D	£EÄ
number	9 Â û ¬G£,X È8× È Ç 2-7 È Ä

5 ,ÕG!5B 5 ,Õ 2

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ´

G!5B _

¹ ß _ $ ÚA'5B 9 Â û ¬G£,X 3 Ö

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ipv6 mld robustness-variable 3
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G!5BMLD Q ¸ W•@ 1E@ '€K‡H”
Q!7$ rQ,‘g$7 A– D A˜YR„ ,D5RAAg H Q6,$Q,95 pK‡– rQ- .Q1ÂC r¥– D A˜qfR„

no ipv6 mld ssm-map static *access-list X:X:X:X::X*

– DAÈ â

– D	**£EÄ**
access-list	ipv6 ,X Q á ACL
X:X:X:X::X	4˜A„) ô Ø,X) •

5 ,ÕG!5B "u Ý ô Ø$d

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ Q ¸ â ipv6 mld ssm-map enable G! Ü S*ü ÈG!5B `A¹ Q ¸ â È Í y ,X mldv2 ¹ ß,X y [FÑ Ú ô Ø Þ,Ì h,X$dA„) Ä

G!5B _ ^ ACL á/Ä te ,X Ý4˜A„) ô Ø Þ$d 198 8_0 45.43c 15.2 15.2 o1>6<09DC3002 0 0 10.02 .0

S*üA¹ Q ¸,È y ü y · Þ t 9 Ô þ î •4˜ Ä W â join-group &p’ ÿ IÀ¼ÐÇÑÀ•mÄ¸Îá ÇÕõ Â!gβ3žS C Ó

S*ü Û Ð

Ruijie(config-if)# **ipv6 mld version** 1

Q¸	£EÄ
-	-

´

1 Tf 2 Tr 10.02 0 0 10.02 78.36 765.0803 Tm([<2A510-6<09B8>095A6886]TJ /TT4 1 Tf 0 Tr 10.5 0 0 10.5 118.56 765.0803 Tm [–

_ 2 Ö ßM6 / 4˜,XAº4š µ C Ö

```
Ruijie# show ipv6 mld groups detail
Interface:     VLAN 1
Group:         ff66::1
Uptime:        00:10:26
Group mode:    Exclude (Expires: 00:02:47)
Last reporter:  fe80::2d0:f8ff:fe22:3378
Source list is empty
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

53.2.2 show ipv6 mld interface

S*üA¹ Q ¸ ¹,ß y ·,XG!5B µ C Ä

show ipv6 mld interface [*interface-type interface-number*]

– DAÈ â

– D	£EÄ
interface-type	G6(y ·2O _
interface-number	G6(y ·4ê Ë
	/ Ý y · µ C

5 ,ÕG!5B ´

Q ¸ õ ã *ü õ ã ê5Ù(M õ ã

S*ü Û Ð ´

G!5B –

ßM6 _ $ / ¹,ß Ý y ·,X(Š Õ µ C Ö

```
Ruijie# show ipv6 mld interface
Interface VLAN 2 (Index 4098)
 MLD Enabled, Inactive, Version 2 (default)
```

```
MLD interface limit is 1024
MLD interface has 0 group-record states
MLD interface has 1 join-group records
MLD interface has 0 static-group records
MLD activity: 0 joins, 0 leaves
MLD query interval is 125 seconds
MLD querier timeout is 255 seconds
MLD max query response time is 10 seconds
Last member query response interval is 10 (1/10s)
Last member query count is 2
Group Membership interval is 260
Robustness Variable is 2
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

(Ë	AÈ â

```
Ruijie# show ipv6 mld ssm-mapping ff66::1234
Group address: ff66::1234
Database    : Static
Source list  : 5555::1234
Ruijie# show ipv6 mld ssm-mapping
SSM Mapping : Enabled
Database    : Static mappings configured
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

54 MLD Snooping

54.1

54.1.1 ipv6 mld profile

MLD ,X profile *ü b n Ô2Ï ë,X4˜E›$¸ < Ä?UE¯ 9 profile õ ã È?UOj ü < õ ã ßG!5B Ô þ profile ÄA¹ Q ¸ õ ã Ð7þ Q ¸ ÈEÝ ½ profile-number È JE¯ 9 mld profile G!5B õ ã Ä

ipv6 mld profile *profile-number*

no ipv6 mld profile *profile-number*

– DAÈ â	– D	£EÄ
	profile-number	profile ,X4ê Ë È8× È 1-1024

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã < õ ã Ä

S*ü Û Ð MLD Profiles rL Þ Ô o4˜E›$¸ < È o SVGL õ ã h*ü,X4˜ • 8× È Ã CÃ+ E² y ·E›$¸4˜ • D B8× È Ã MLD Filtering 8× È ØNM s6Ñ S*ü Ä ´!8 È Z S profile CK 0*ü ÈLÔ?U Ú profile `(M n,X s6Ñ G6(S*ü Ä

G!5B _ ßM6,X/ _ ï Î Z Ô þ4ê Ë 1 ,X profile JE¯ 9 profile G!5B õ ã Ä

```
Ruijie(config)# ipv6 mld profile 1
Ruijie(config-profile)#
```

,Ì G Q ¸	Q ¸	£EÄ
	range	G!5Bprofile 4˜ • 8× È
	deny	Û n profile ,X> deny
	permit	Û n profile ,X> permit

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.4	1 Ô õ é 9

54.1.2 range

G!5B Ô þprofile Ê ÈLÔ?U Û nprofile 4˜ •# ,X8× È ÈAË ;> profile õ ã ß,XG!5B Q ¸ range È Ã ¹ Û n) þ4˜ • È 3 Ã ¹ Û n ¤ þ8× È Y,X4˜ • Ä S*üA¹ Q ¸,X no EÝNM ôL8 Û n,X4˜ • Ä

range *low-ipv6-address* [*high-ipv6-address*]

no range *low-ipv6-address* [*high-ipv6-address*]

– DAÈ â	– D	£EÄ
	low-ipv6-address	Û n8× È,X "
	high-ipv6-address]	Û n8× È,XP¬

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã profile G!5B õ ã Ä

S*ü Û Ð ?U" low-ipv6-address ,X ã b high-ipv6-address ,X ÈG!5B Q 8× È â È B rL LÔ?U Û n Ô þ> È5 ,ÕA¹ profile ,X> deny Ä

G!5B _ ßM6 ï Î Ô þ8× È FF77::1~FF77::100 4˜ •# profile ,X _ $:

```
Ruijie(config)# ipv6 mld profile 1
Ruijie(config-profile)# range FF77::1 FF77::100
```

Q ¸	£EÄ

54.1.3 deny

?U/U!6E@ ¥profile Û n8× È,X4˜•# ÈAË ;> profile õ ã ß,XG!5B Q¸ deny Ä

deny

– DAÈ â

– D	£EÄ

5 ,ÕG!5B profile 5 ,Õ ;> deny ¡ 0 Ä

Q¸õ ã profile G!5B õ ã Ä

S*ü Û Ð AË ü profile õ ã ß S*ü range Q¸G!5B Q4˜•8× È Ä

G!5B – ßM6 ï Î Ô þ/U!6E@ ¥ FF77::100 4˜•# profile ,X _ $:

```
Ruijie(config)# ipv6 mld profile 1
Ruijie(config-profile)# range FF77::100
Ruijie(config-profile)# deny
```

,Ì G Q¸

Q¸	£EÄ
ipv6 mld profile	ï Î Ô þ profile
range	G!5B4˜• 8× È
permit	Û n profile ,X> permit

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.4 permit

?U AŒprofile Û n8× È,X4˜•# ÈAË ;> profile õ ã ß,XG!5B Q¸ permit Ä

permit

– DAÈ â

– D	£EÄ

5 ,ÕG!5B	profile 5 ,Õ ;> deny ¡ 0 Ä
Q ¸ õ ã	profile G!5B õ ã Ä
S*ü Û Ð	AË ü profile õ ã ß S*ü range Q ¸G!5B Q4˜ •8× È Ä

G!5B –	ßM6 ï Î Ô þ ¾ AŒE@ ¥ FF77::1 4˜ •# profile ,X _ $:
	`Ruijie(config)# ipv6 mld profile 1`
	`Ruijie(config-profile)# range FF77::1`
	`Ruijie(config-profile)# permit`

Q ¸	£EÄ
ipv6 mld profile	ï ð …•%1ð ÄŒ÷ f„t #•…" v!C”˜ „yR†„WT $ dG•(gWT $ dï° 1 ÷

Q ¸ õ ã < G!5B õ ã

üA¹ õ ã ß È Ø VLAN KÈ,X4˜ •# ,Ì f(À0Ÿ,X Ä ¾6Ñ ñ â7¾ Å Ø b à Ô þ VLANVLAN/C2_0 1 T

S*ü Û Ð

Ý,X4˜8× ÈFÑ á ü SVGL ,X h*ü8× È È Ý,X4˜ •# Ú>• ö × Ä ´!8 È ™NO Ú SVGL G 6(Ô þ profile È*ü b Û n svgl õ ã,X4˜ • 8× È â Èsvgl õ ã !6Ñ!7 E¤> Ä

G!5B _

ßM6,X/ _$è/ üA' Û Þ ' Ô mld snooping JA'5B svgl õ ã Èprofile1 Û n,X4˜ 8× È 2 b SVGL ,X h*ü8× È Ö

```
Ruijie(config)# ipv6 mld snooping svgl profile 1
```

,Ì G Q¸

Q¸	£EÄ
ipv6 mld snooping ivgl	' Ô mld snooping JG!5B ivgl õ ã
ipv6 mld snooping ivgl-svgl	' Ô mld snooping JG!5B#Ë Ü õ ã

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.7 ipv6 mld snooping svgl profile

?U Û n ¾ o4˜ 8× È Y Ã ¹ h*ü SVGL õ ã ÈÆË ;> < G!5B ß,X Q¸ ipv6 mld snooping profile *profile-number,*ü no ipv6 mld snooping profile ª#\ G6(Ä

ipv6 mld snooping profile *profile-number*

no ipv6 mld snooping profile

– DAÈ â

– D	£EÄ
profile-number	profile ,X4ê Ë È8× È 1-1024

5 ,ÕG!5B þ | mld snooping Ä

Q¸õ ã < G!5B õ ã

S*ü Û Ð

'G!5B Z mld snooping ,X ¹ 0 õ ã 4*f* SVGL õ ã ê #Ë ,X IVGL-SVGL J , õ ã È !8 ÊFÑLÔ?U SVGL G6(Ô þ profile È*ü b Û â ¾ o4˜ 8× È Y Ã ¹ h*ü SVGL õ ã È G4˜ •E@ ¥><NM,X ä ,0Ã · Ã ¹ C¼ VLAN E@ ¥,X È5à J W,X4˜ • 8× È Y Í h,X4˜ •E@ ¥><NM,X ä ,0Ã · ™NO 2 b à Ô þ VLAN ,X Ä5 ,Õ,X ™ ‰ ß È"u Ý G6(Ï) Ô þ profile È íAx "u Ý Ô þ4˜ •4˜ Ã ¹ h*ü SVGL õ ã Ä

G!5B _

ßM6,X/ _$è/ Ú SVGL õ ã,X h*ü8× È Û n porfile 1 Û n,X4˜ 8× È Ö

Ruijie(config)# **ipv6 mld snooping svgl profile** 1

¸Ì G Q¸

Q¸	£EÄ
ipv6 mld snooping ivgl	' Ô mld snooping JG!5B ivgl õ ã
ipv6 mld snooping ivgl-svgl	' Ô mld snooping JG!5B#Ë Ü õ ã

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.8 ipv6 mld snooping svgl ivgl-svgl

?U ' Ô mld snooping J Û nE¤> ivgl-svgl õ ã ÈAË ;> < G!5B Q¸ ipv6 mld snooping ivgl-svgl ÄA¹ Q¸,X no 6 ã GKÁ mld snooping Ä

ipv6 mld snooping ivgl-svgl *profile-number*

no ipv6 mld snooping

– DAÈ â

– D	£EÄ
profile-number	profile ,X4ê Ë È8× È 1-1024

5 ¸ÕG!5B þ | mld snooping Ä

Q¸õ ã < G!5B õ ã

S*ü Û Ð A'5B ZA¹ õ ã È í IVGL ÃSVGL ø/¡ õ ã J , Ä IVGL ` SVGL ø/¡ õ ã Ã ¹ à Ê , ü È | Ã ¹*ü MLD Profile æ Ú Ô M4˜ • 8× È4- SVGL È üE- M4˜ • 8× È Y È4˜ •E@ ¥><NM,X ä ,0Ã · Ã ¹ C¼ VLAN E@ ¥,X È5à J W,X4˜ • 8× È Y Í h,X4˜ •E@ ¥>< NM,X ä ,0Ã · ™NO 2 b à Ô þ VLAN ,X Ä

G!5B _ ßM6,X/ _$è/ üA' Û Þ ' Ô mld snooping JA'5B ivgl-svgl õ ã Èprofile1 Û n,X4˜ 8× È 2 b SVGL ,X h*ü8× È Ö

Ruijie(config)# **ipv6 mld snooping ivgl-svgl**

Ruijie(config)# **ipv6 mld snooping svgl profile** 1

Q¸

ipv6 mld snooping ivgl-svgl	' Ô mld snooping JG!5B#Ë Ü õ ã

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.9 ipv6 mld snooping dyn-mr-aging-time

*ü ipv6 mld snooping dyn-mr-aging-time *time* G!5B | ÕCÃ+ E² y ·,X5Õ ê n Ê < È*ü no ipv6 mld snooping dyn-mr-aging-time 9 6 áT¬Ax Ä

ipv6 mld snooping dyn-mr-aging-time *time*

no ipv6 mld snooping dyn-mr-aging-time

– DAÈ â

– D	£EÄ
time	G! | ÕCÃ+ E² y ·,X5Õ ê ÊKÈ Èª 1-3600È)! /¦

5 ,ÕG!5B 300s Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ | ÕCÃ+ E² y · V p ü J5Õ ê ÊKÈCY Ê !"u Ý MLD BF!4˜ ¹A¶ y [ê5Ù IPv6 PIM Hello y [È x 6 Ú ^A¹0Ã · ¢CÃ+ <0Ã · ë>< ôL8 Ä

G!5B _ ßM6,X/ _$è/ A'5B | ÕCÃ+ E² y ·,X5Õ ê ÊKÈ 500s Ö

`Ruijie(config)#` ipv6 mld snooping dyn-mr-aging-time *500*

*ü ipv6 mld snooping query-max-response-time *time* G!5BMLD ¹A¶ y [,X Ô KS ¡ h ÊKÈ È*ü no ipv6 mld snooping query-max-response-time 9 6 áT¬Ax Ä

ipv6 mld snooping query-max-response-time *time*

no ipv6 mld snooping query-max-response-time

– D	£EÄ
time	MLD Ô8 ¹A¶ y [,X ÔKS ¡ h ÊKÈ È ª 1-65535 È) ! /¦

– DAÈ â

5 ,Õ Ñ„ !ðÁˆ gqÿ !ð ñ5 % ÝÌ ðÄ†Ða @576T /T66.84 634.2 394.98 0.576T /610. f 66.844 239.4 0.48 re f BT /TT0 1 T

no ipv6 mld snooping vlan *vid*

– DAÈ â

– D	**£EÄ**
vid	vlan ,X id 4ê Ë È ª 1-4094

5 ,ÕG!5B

ü < | mld snooping ,X Ê í È Ý vlan FÑ 5 ,Õ | mld snooping ,X Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

ü < | mld snooping ,X Ê í È Ý vlan FÑ 5 ,Õ | mld snooping ,X × Ã ¹ Í(M n,X vlan GKÁmld snooping s6Ñ Ä

G!5B _

ßM6,X/ _$è/ G!5B GKÁ VLAN 1 ,X mld snooping s6Ñ Ö

```
Ruijie(config)# no ipv6 mld snooping vlan 1
```

Q ¸	**£EÄ**

S*ü Û Ð

CÃ+ E² y · 4˜ •A' Û â J4˜ •F• A' Û,È y,ÌE²,X0Ã · Ä5 ,Õ,X ™ ‰ ß È Í b Ô þ VLAN áE¯> | ÕCÃ+ E² y ·,X : 4 Ì Ã ¹G!5BA} ` 4˜ •A' Û S6Ñ | ÕCÃ+ E² y ·,X : 4 È*ü,Ì h,X no EÝNM Q ¸ GKÁ | Õ : 4 È J#Ù0N Ý | Õ : 4 ,XCÃ+ E² y · Ä$d0Ã · " ¹ ' Ô Ê È ¾ Ý ¢CÃ+ E² y ·E¯ 9,X4˜ •# ! Ü"©,X È ` 4˜ •A' Û ^ W ÀE@ ¥ å Æ"¼ `,X0Ã · ×5à ¢M2CÃ+ E² y ·E¯ 9,X4˜ •# >•?š M2"©,X È Ú>• ö × Ä ü$d0Ã · " ¹ s6Ñ ' Ô,X ™ ‰ ß È S*ü | ÕCÃ+ E² y · : 4 È Ã ¹ ¤P¬ mld snooping ,X h*ü&I # û Ä

G!5B _

ßM6,X/ _$è/ üA' Û ' Ô | ÕCÃ+ E² y · : 4 s6Ñ Ö

```
Ruijie(config)# ipv6 mld snooping vlan 1 mrouter learn
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 mld snooping vlan mrouter interface	G!5BCÃ+ E² y ·

G ÄAÈ â

´

Q ¸ Z Æ

vid (Ë	AÈ â
10.4	1 Ô õ é 9

54.1.13 ipv6 mld snooping vlan mrouter interface

?UG!5BM- ÕCÃ+ E² y · ÈAË ;> < G!5B Q ¸ ipv6 mld snooping vlan mrouter interface ÄA¹ Q ¸,X no 6 ã ôL8 Ô þM- Õ4˜ •CÃ+ E² yCÃ+ · Ä

ipv6 mld snooping vlan *vid*vid ping vlan]TJ /TT0 1 Tf 0 Tc 0 Tw 112611 0 Td [

9,X4˜ •# !>•E@ ¥ È J W,X Ú>• ö × Ä

ßM6,X/ _$è/ üA' ÛG!5B Ô þ î •CÃ+ · Ö

G!5B _

```
Ruijie(config)# ipv6 mld snooping vlan 1 mrouter interface fastEthernet 0/1
```

,Ì G Q ¸

Q ¸	£EÄ
ipv6 mld snooping source-check port	î •$d0Ã · ” ¹

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.14 ipv6 mld snooping vlan static interface

ü mld snooping ' Ô,X ™ ‰ ß ÈM- Õ,XG!5B Ô þ ä ,0Ã · y ¤ þ4˜ •# ÈíA¹0Ã · Ú á « Ø/¡ MLD report y [,X E ¡ ÄAË ;> < G!5B Q ¸ ipv6 mld snooping vlan static interface ÄA¹ Q ¸,X no 6 ã ôL8 Ô þM- Õ ä ,0Ã · Ä

ipv6 mld snooping vlan *vid* static *ipv6-multiaddr* interface *interface-id*

no ipv6 mld snooping vlan *vid* static *ipv6-multiaddr* interface *interface-id*

– DAÈ â

– D	£EÄ
vid	vlan ,X id 4ê Ë È ª 1-4094
ipv6-multiaddr	4˜ •
interface-id	0Ã ·4ê Ë

5 ,ÕG!5B ´G!5B

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð Ã ¹ y ·G!5B ä î þM- Õ4˜ • ,X ä ,0Ã · Ä

G!5B _

ßM6,X/ _$è/ ü Ô þ0Ã · ÞG!5B FF88::1 4˜,XM- Õ ä ,0Ã · Ö

```
Ruijie(config)# ipv6 mld snooping vlan 1 static FF88::1 interface
```

fastEthernet 0/1

Q ¸	£EÄ
ipv6 mld snooping vlan mrouter interface	G!5BCÃ+ E² y ·

Q ¸ Z Æ	(Ë	
	10.4	

54.1.16 ipv6 mld snooping suppression ena

?U ' Ô mld snooping suppressio mld snooping suppression enable ÄA¹ Q ¸,X uppression Ä

ipv6 mld snooping suppressi

no ipv6 mld snooping supp

– DAÈ â	– D	£EÄ

5 ,ÕG!5B	´G!5B
Q ¸ õ ã	< G!5B õ ã

' S6Ñ Z MLD ä
¤

S*ü Û Ð

$d0Ã · ” ¹,X 0*ü L$ 4˜ •# ¾6Ñ+ CÃ+ E² y ·E¯ 9 ŸUG!5B mld snooping ,X$d 0Ã · ” ¹ s6Ñ ÈAË ;> < G!5B Q ¸ ipv6 mld snooping source-check port ÄA¹ Q ¸,X no 6 ã GKÁ$d0Ã · ” ¹ s6Ñ Ä

ipv6 mld snooping source-check port

no ipv6 mld snooping source-check port

– DAÈ â

– D	£EÄ

5 ,ÕG!5B

´G!5B

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

mld snooping $d0Ã · ” ¹ Û ù L$ n MLD 4˜ •# ,XE¯ 90Ã · Ä'$d0Ã · ” ¹ GKÁ Ê È¢ Ï)0Ã ·E¯ 9,X?šNe# Ü"©,X È ` 4˜ •A’ Û î Ý'; mld snooping ,XE@ ¥>< ^ W À E@ ¥ Æ"¼ `,X ä ,0Ã · Þ Ä ' mld snooping $d0Ã · ” ¹ ' Ô Ê È ¾ Ý ¢CÃ+ E² y ·E¯ 9,X4˜ •# ! Ü"©,X È ` 4˜ •A’ Û ^ W ÀE@ ¥ å Æ"¼ `,X0Ã · ×5à ¢M2CÃ+ E² y · E¯ 9,X4˜ •# >•?š M2"©,X È Ú>• ö × Ä
$d0Ã · ” ¹ < Ô G È Ô º ' Ô È Ý,X4˜ •# FÑ ™NO 97¾CÃ+ E² y · È ú í Ú>• ö × Ä

G!5B _

ßM6,X/ _ ' Ô mld snooping ,X$d0Ã · ” ¹ s6Ñ Ö

```
Ruijie(config)# ipv6 mld snooping source-check port
```

,Ì G Q ¸ –

Q ¸	£EÄ

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.18 ipv6 mld snooping filter

no ipv6 mld snooping filter *profile-number*

– DAÈ â

– D	£EÄ
profile-num	profile ,X4ê Ë

5 ,ÕG!5B ´G!5B

Q ¸ õ ã 0Ã ·G!5B õ ã

S*ü Û Ð | Ã ¹ ^ ¤ Ô þ MLD Profile h*ü ü Ô þ0Ã · ß È V pA¹0Ã · MLD Report y [È í ` 4˜ •A' Û î ¹ RE- þ0Ã · ?U t 9,X4˜ • ú ü MLD Profile AŒ8× È Y Ä 8¹ È í AŒ t 9 È â !E¯> â4Á Ø)Ú Ä™NO ï Î Û n,X profile È â !6Ñ ;> filter G6(Ä

G!5B _ ßM6,X/ _$è/ ü,R 0Ã · 0/1 Þ G6(profile 1 Ö

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ipv6 mld snooping filter 1
```

,Ì G Q ¸ –

Q ¸	£EÄ
ipv6 mld profile	ï Î Ô þ profile

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.19 ipv6 mld snooping max-groups

?UG!5B y · AŒ Ô î ´ þ4˜ | Õ,X t 9A¹0Ã ·, AË ;> 0Ã ·G!5B Q ¸ ipv6 mld snooping max-groups Q ¸ ÄA¹ Q ¸,X no 6 ã ª#\ Ô û4˜L$ Ä

ipv6 mld snooping max-groups *number*

no ipv6 mld snooping max-groups

– DAÈ â

– D	£EÄ
Number	– D8× È 0 – 1024

5 ,ÕG!5B 1024

Q ¸ õ ã	0Ã ·G!5B õ ã

S*ü Û Ð

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.1.21 debug mld-snp

?U ' Ô mld á uA×A© Ô G,AË ;> (M G!5B Q¸ debug mld-snp Q¸Ä

debug mld-snp

undebug mld-snp

– DAÈ â

– D	£EÄ

5 ,ÕG!5B ´

Q¸õ ã (M G!5B õ ã

S*ü Û Ð ' Ô mld á uA×A© Ô G Ä

G!5B _ ' Ô mld á uA×A© Ô G Ö

```
Ruijie# debug mld-snp
```

,Ì G Q¸ –

Q¸	£EÄ

G ÄAÈ â ´

' Ô mld á uA×A© Ô G Ä

/ mld snooping ,X,Ì G µ C Ä

Show ipv6 mld snooping [gda-table | interfaces | mrouter | statistics [vlan *vlan-id*]]

– DAÈ â

– D	£EÄ
´	/ mld snooping ,X s6ÑG!5B
gda-table	/ 4˜ •E@ ¥?˜ í><
interfaces	/ mld snooping Filtering ,XG!5B
mrouter	/ 4˜ •CÃ+ E² y · µ C Ä
statistics [vlan *vlan-id*]	/ snooping 4³Au µ C

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð / mld snooping ,X,Ì G µ C

G!5B _

_ 1 Ö S*ü **show ipv6 mld snooping** Q¸¹,ß mld snooping G!5B µ C Ö

```
Ruijie# show ipv6 mld snooping
MLD-snooping mode      : IVGL
SVGL vlan-id           : 1
SVGL profile number    : 0
Source check port      : Disabled
Query max respone time : 10(Seconds) Ä
```

_ 2 Ö S*ü **show ipv6 mld snooping statistics** Q¸¹,ß mld snooping ,XCÃ + E² y · µ C Ö

```
Ruijie# show ipv6 mld snooping statistics
GROUP    Interface    Last report       Last leave     Last
                        time          time         reporter
--------------- ------------ -------------  -------------   -
FF88::1 VL1:Gi4/2   0d:0h:0m:7s     ----    2003::1111
                       Report pkts: 1          Leave pkts: 0
```

_ 3 Ö S*ü **show ipv6 mld snooping mrouter** Q¸¹,ß mld snooping ,XCÃ+ E² y · µ C Ö

```
Ruijie# show ipv6 mld snooping mrouter
Vlan   Interface       State     MLD profile number
----     --------        -------     -------------------
1   GigabitEthernet 0/7   static       1
1   GigabitEthernet 0/12  dynamic      0
```

_ 4 Ö S*ü **show ipv6 mld snooping gda-table** ¹,ß GDA ><,X Ø4˜ •4˜ µ C ¹ ž Ô þ4˜ •4˜,X Ý ä ,0Ã ·,X µ C Ö

```
Ruijie# show ipv6 mld snooping gda-table
Abbr: M - mrouter
     D - dynamic
     S - static
VLAN  Address            Member ports
------------------------------------------------------------
1      FF88::1          GigabitEthernet 0/7(S)
```

_ 5 Ö S*ü show ipv6 mld snooping interface ¹,ß mld snooping Filtering ,XG!5B Ö

```
Ruijie# show ipv6 mld snooping interface GigabitEthernet 0/7
Interface         Filter Profile number     max-groups
----------       ----------------------    -----------
GigabitEthernet 0/7          1              4294967294
```

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

54.2.2 show ipv6 mld profile

/ MLD profile ,X,Ì GG!5B µ C Ä

show ipv6 mld profile [*profile-number*]

– DAÈ â

– D	£EÄ
´	/ Ý profile ,XG!5B µ C
profile-number	/ Û n profile ,XG!5B µ C

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð / mld profile ,X,Ì G µ C

G!5B _

_ 1 Ö S*ü **show ipv6 mld profile** Q¸¹,ß MLD profile G!5B µ C Ö

```
Ruijie# show ipv6 mld profile 1
MLD Profile 1
permit
range FF77::1 FF77::100
range FF88::123
```

,Ì G Q¸

Q¸	£EÄ

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	1 Ô õ é 9

55 NLB GROUP

55.1

55.1.1 nlb-group

ï Î Ô þ5xLš4˜ J Û n5xLš,X 2 û Ä5xLš 2,X VRF È5xLš,X IP È ¡ Ø · Å ê 5xLš âA’ Û E² y,X0Ã · ÄS*üA¹ Q ¸,X no EÝNM ôL85xLš,X 2 û ê5Ù)(À ôL85xLš E² y,X0Ã · Ä

nlb-group *group-number* [vrf *vrf-name*] ip *nlb-address* [reflector-port *interface-name*]

nlb-group *group-number* destination-port *interface-name*

no nlb-group *group-number* [[vrf *vrf-name*] ip *nlb-address* [reflector-port *interface-name*]]

no nlb-group *group-number* [destination-port *interface-name*]

no nlb-group all

– DAÈ â

– D	£EÄ
group-number	5xLš4˜4˜ Ë
vrf-name	VRF á +
nlb-address	NLB
reflector-port *interface-name*	¡ Ø · È 0 å5xLš ¥EÕ y [,X 4»0Ã · Ä Í b interface-name ÈAË Û n,Ì h,X y · Ë È ¾6Ñ (=)Ú 0Ã · Ä á Ù À L2AP Å Ä
destination-port *interface-name*	5xLš âA’ Û E² y,X0Ã · Ä Í b interface-name ÈAË Û n,Ì h,X y · Ë È ¾6Ñ (=)Ú0Ã · Ä Ù À L2AP ÅÈ á Ã ¹ SVI ê Routed Port

5 ,ÕG!5B

´ Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

Switch Port ` L2AP FÑ Ã ¹G!5B 5xLšE² y0Ã · È ¾ Ý Switch Port ! Ã ¹G!5B ¡ Ø · Ä ¾ ÝG!5B Z5xLš,XVRF È5xLš,X IP ` ¡ Ø · È y [!6ÑCÃ+ G!5B,XE² y0Ã · Ä V p"u ÝG!5B5xLš,XE² y0Ã · È í y [ü5xLš 2,X VLAN Y"¯"þ Ä

' ôL8 Z5xLš,X VRF È5xLš,X IP È ¡ Ø · µ C â ÈCÃ+ 5xLš,X y [¾6ÑCÃ+ 5x Lš ß,X) þ á u < Ä

/ 5xLš,X ' !G!5B(Š Õ Ä

show nlb-group [*group_number*]

– DAÈ â

– D	£EÄ
group-number	5xLš4˜4˜ Ë Ä

5 ,ÕG!5B

5 ,Õ / Ý,X5xLš4˜ Ä

Q ¸ õ ã

(M õ ã Ä

S*ü Û Ð

´ Ä

G!5B _

ßM6E- þ _ $AÈ â Z V)EîE› show nlb-group / 5xLš,X(Š Õ

```
Ruijie# show nlb-group 1
group-number Ö 1
cluster-vrf: vpn-1
cluster-ip: 192.168.10.1
destination-port: Gi 0/2, Gi 0/3, Gi 0/3
```

+!‰	AÈ â
group-number	5xLš4˜4˜ Ë
destination-port	5xLš âA’ Û,XE² y0Ã ·
cluster-vrf	5xLš 2,X VRF á +
cluster-ip	5xLš,X IP
reflector-port	¡ Ø ·

,Ì G Q ¸

Q ¸	£EÄ
nlb-group	ï Î Ô þ5xLš4˜ J Û n5xLš,X 2 û ê 5xLš âA’ Û E² y,X0Ã · Ä

Q ¸ Z Æ

(Ë	AÈ â
10.4 Ä2b2 Å	Q ¸ é 9

56

56.1

56.1.1 protected-ports route-deny

5 ,Õ ™ ‰ ß ± x · KÈ Ã ¹E¯> 3 CÃ+ ÈA¹ Q ¸ GKÁ ± x · KÈ,X 3 CÃ+ Ä

protected-ports route-deny

no storm-control {broadcast | multicast | unicast } [{level *percent* | pps *packets* | *rate-bps*}]

– DAÈ â

– D	£EÄ
broadcast	' Ô Í S •N¢ ˆ,X { s6Ñ Ä
multicast	' Ô Í þ-¹ á î •N¢ ˆ,X { s6Ñ Ä
unicast	' Ô Í þ-¹ á) •N¢ ˆ,X { s6Ñ Ä
percent	¹ ú ‘,X,R Ú!¨E¯> A’5B V 20 ></ 20%
packets	¹ pps) !E¯> A’5B G packets per second
Rate-bps	AŒ,XEîE›Eó)[Ä
64k-2M	¹ 64k) ! Ä
2-100M	¹ 1M) ! Ä
100M ¹ Þ	¹ 8M) ! Ä

5 ,ÕG!5B

´

Q ¸ õ ã

y ·G!5B õ ã Ä

S*ü Û Ð

' Ô þ0Ã · Þ y E›G£,X S • Ã î • ê) • Ù Ê È Ô þ D B Ù,XN¢ ˆ î {*ó ÈE- î Ð7È5%4° ¬ 6 `CY Ê r t Ä #A, Ü,X ;> JíAÃ ê Í5%4° Ô oJíAÃG!5BFÑ Ý Ã6Ñ Ð7ÈN¢ ˆ,X {*ó Ä

A’ Û Ã ¹ Ú ÿ S • Ã î • `) • D B# E¯> N¢ ˆ { Ä ' y ,X S • Ã î • ê) • Ù E›G£ Ê ÈA’ Û Ú V Ê/U!6,Ì h2O _,X Ù,XE@ ¥,È D B# 6 á!7 ÄE- Ê Ù,XE@ ¥ Ú 6 á!7 Å Ä

S*ü show storm-control Q ¸ ¹,ßA’5B Ä

G!5B –

ßM6,X _ $AÈ â Z ' Ô(=)Ú0Ã · GigabitEthernet 1/1 Þ,X î •N¢ ˆ { s6Ñ È J èA’5B AŒ,XEîE›Eó)[4M Ä

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if)# storm-control multicast 4096
Ruijie(config-if)# end
```

,Ì G Q ¸

Q ¸	£EÄ
show storm-control	/ N¢ ˆ { µ C Ä

G ÄAÈ â

-

G!5B Î b0Ã ·¸X# { Q ¸

no switchport port-security [violation]

– DAÈ â

– D	£EÄ
port-security	y ·] < Ô G
violation protect	¥)„E± _ È í ö ×E± _,X y [Ä
violation restrict	¥)„E± _ È í ö ×E± _,X y [J è ¥EÕ trap Ä
violation shutdown	¥)„E± _ È í ö × y [Ã ¥EÕ Trap J è GKÁ y · Ä

5 ,ÕG!5B

y ·,X] <5 ,Õ GKÁ,X Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

ý*ü0Ã ·] <E- þ(M û È Ã ¹EîE›L$ AŒA“KÂA’ Û Þ ¤ þ y ·,X MAC ¹ ž IP(Ã EÝ)9 r)„ ù { ÍA¹ y ·,XEg 9 Ä '] <0Ã ·(' Ô Z0Ã ·] < s6Ñ,X0Ã ·)G!5B Z Ô o] < â È íL8 Z$d E- o] < ,X Ù ê ÈE- þ0Ã · Ú áE@ ¥ J W Ï) y Ä !8 ê ÈE¬ Ã ¹L$ Ô þ0Ã · Þ6Ñ Ù ÿ,X] < Ô û þ D È V p Ú Ô û þ DA’5B 1 J è A¹0Ã ·G!5B Ô þ] < ÈíE² y E- þ ·,X ¹ 00-Ä J G!5B,X] < M Å Ú(À •A¹0Ã ·,X <F¼ ú ‘ Ä

G!5B _

ßM6,X _ $ ü y · Gigabitethernet 1/1 Þ ' Ô0Ã ·] < s6Ñ È JA’5BE± _ Ø)Ú shutdown Ö

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport port-security
Ruijie(config-if)# switchport port-security violation shutdown
```

,Ì G Q ¸

Q ¸	£EÄ
show port-security	/ 0Ã ·] <,XA’5B µ C `] < Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

56.1.5 switchport port-security aging

A¹ Q ¸ Ô þ y · Þ,X Ý] < G!5B5Õ ê ÊKÈ Ä ' ÔE- þ s6Ñ È LÔ?UA'5B] < ,X Ô û þ D ÈE- È Ã ¹A}A' Û7¾ |,X r t ` ôL8 y · Þ,X] < Ä S*üA¹ Q ¸,X no EÝ NMA'5B5Õ ê ÊKÈ ¾ h*ü b7¾ | : 4,X È ê5Ù GKÁ5Õ ê s6Ñ Ä

switchport port-security aging {static | time time }

no switchport port-security aging {static | time }

– DAÈ â	– D	£EÄ
	Static	></ 5Õ ê ÊKÈ Ú à Ê h*ü b ¹G!5B,X] < ` 7¾	: 4,X È ú í í ¾ h*ü b7¾	: 4,X Ä
	time time	></ E- þ0Ã · Þ] < ,X5Õ ê ÊKÈ È8× È 0 É 1440 È) ! ÚJs Ä V pA'5B 0 È í5Õ ê s6Ñ rL Þ>• GKÁ Ä

5 ,ÕG!5B á5Õ ê Ï)] <

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Ã ¹ ü y ·G!5B õ ã ß S*ü Q ¸ no switchport port-security aging time GKÁ Ô þ y · ,X] < 5Õ ê s6Ñ È S*ü Q ¸ no switchport port-security aging static 9 5Õ ê Ê KÈ ™ h*ü b | Õ : 4 ,X] < Ä

S*ü show port-security Q ¸ ¹,ßA'5B Ä

G!5B _

```
Ruijie(config)# interface gigabitethernet 1/1 C21
```

y · õ ã ß ¹G!5B] < 4¥ n È Ã ¹ Í] < E¯> $d IP+$d MAC ê5Ù ™$dP 4¥ n È 4¥ n â È ™NO 0ú Ü4¥ n,X] < ,X y [! Ã ¹E¯ 9 x 6 È á0ú Ü4¥ n,X y [Ú>• ö × Ä S*ü no EÝNM Ã ôL84¥ n,X Ö

[no] switchport port-security binding *mac-address* vlan *vlan_id ipv4-address* | *ipv6-address*

[no] switchport port-security binding *ipv4-address* | *ipv6-address*

– DAÈ â

– D	**£EÄ**
mac-address	4¥ n,X$d MAC
Vlan_id	4¥ n$d MAC ,X VID
Ipv4-address	4¥ n Ipv4 ,X Ip
Ipv6-address	4¥ n Ipv6 ,X Ip

5 ,ÕG!5B *4¥.O*

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

56.1.7 switchport port-security binding interface

(M õ ã ß ¹G!5B] < 4¥ n È Ã ¹ Í] < E¯> $d IP+$d MAC ê5Ù ™$dP 4¥ n È 4¥ n â È ™NO 0ú Ü4¥ n,X] < ,X y [! Ã ¹E¯ 9 x 6 È á0ú Ü4¥ n,X y [Ú>• ö × Ä S*ü no EÝNM Ã ôL84¥ n,X Ö

[no] switchport port-security binding interface i*nterface-id* *mac-address* vlan *vlan_id* *ipv4-address* | *ipv6-address*

[no] switchport port-security binding interface i*nterface-id ipv4-address* | *ipv6-address*

– DAÈ â

– D	£EÄ
i*nterface-id*	4¥ n,X y · ID
mac-address	4¥ n,X$d MAC
Vlan_id	4¥ n$d MAC ,X VID
Ipv4-address	4¥ n Ipv4 ,X Ip
Ipv6-address	4¥ n Ipv6 ,X Ip

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

_ 1 Ö4¥ n 192.168.1.100 y · 10 Ö

```
Ruijie(config)# switchport port-security binding interface g0/10
192.168.1.100
```

_ 2 Ö4¥ n 192.168.1.100 MAC 00d0.f800.5555, VID= 1 y · 10 Ö

Ruijie(config)# switchport port-security binding interface *g0/10 00d0.f800.5555* vlan *1 192.168.1.100*

,Ì G Q ¸ m)!h \@

Q ¸	£EÄ

switchport port-security binding	y · õ ã ßG!5B] < 4¥ n
Switchport port-security mac-address	A’5BM- Õ] <
switchport port-security aging	0Ã ·] < 5Õ ê
show port-security	/ 0Ã ·] < µ C

G ÄAÈ â ´

Q ¸Z Æ

(Ë	AÈ â
-	-

56.1.8 switchport port-security maximum

A’5B0Ã · Ô û] < þ D È S*ü no EÝNM Ã 6 á5 ,Õ þ D Ö

switchport port-security maximum *value*

[no] switchport port-security maximum

– DAÈ â

– D	£EÄ
value	] < þ D 1-128

5 ,ÕG!5B 128

Q ¸õ ã y · õ ã

S*ü Û Đ] < þ D Ù ÿM- ÕG!5B ` | Õ : 4,X ] < þ D,X ` È5 ,Õ 128 þ È V pA’ 5B,X] < þ D ã b ' ! Æ Ý,X] < þ D È Ú ¤/ A’5B Bù

G!5B _ _ 1 ÖA’5B · 10 ,X0Ã ·] < þ D 2 Ö

```
Ruijie(config)#inter g0/10
Ruijie(config-if)# switchport port-security maximum 2
```

,Ì G Q ¸

Q ¸	£EÄ
switchport port-security	' Ô0Ã ·] <
switchport port-security binding	G!5B] < 4¥ n

switchport port-security mac-address interface	(M õ ã ßA'5BM- Õ] <
switchport port-security aging	0Ã ·] < 5Õ ê
show port-security	/ 0Ã ·] < µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

56.1.10 switchport port-securi ty mac-address interface

(M õ ã ß ¹G!5BM- Õ] < È S*ü no EÝNM ôL8G!5B,X Ö

[no] switchport port-security interface i *nterface-id* mac-address *mac-address* [*vlan vlan-id*]

– DAÈ â

– D	£EÄ
i*nterface-id*	y · ID
mac-address	M- Õ] <
vlan-id	MAC ,X VID "¼ ã Ö ™ üTRUNK · ß ! ÕA'5B vlan-id ,XA'5B

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _ _ 1 ÖA'5BTRUNK y · 10 ,XM- Õ] < 00d0.f800.5555 VID=Tm [<4721>-6<35420412055F>]TJ

Switchport port-security mac-address	y · õ ã ßA’5BM- Õ] <
switchport port-security aging	0Ã ·] < 5Õ ê
show port-security	/ 0Ã ·] < µ C

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

56.2

56.2.1 show storm-control

/ N¢ ˆ { µ C Ä

show storm-control [*interface-id*]

– D

Q ¸ Z Æ	(Ë	AÈ â
	-	-

56.2.2 show port-security

/ 0Ã ·] <,XA'5B µ C `] < Ä

show port-security [address] [interface *interface-id*] [all]

– DAÈ â	– D	£EÄ
	address	/ Ý,X] < È ê5Ù Û n y ·,X Ý] < Ä
	interface *interface-id*	/ Û n y ·,X0Ã ·] <A'5B µ C Ä
	all	/ Ý y ·,X0Ã ·] <A'5B µ C Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð V p S*üA¹ Q ¸ Ê á t – D È í / Ý y ·,X] <A'5B(Š Õ ÃE± _ Ø)Ú1 µ C È à Ê / Ý] < ><,X µ C Ä

G!5B _

```
Ruijie# show port-security
Secure  Port  MaxSecureAddr(count)  CurrentAddr(count)  Security
Action
--------  --------------  -----------  -----------
Gi1/1  128  1  Restrict
Gi1/2  128  0  Restrict
Gi1/3  8  1  Protect
```

,Ì G Q ¸	Q ¸	£EÄ
	switchport port-security	A'5B0Ã ·] < s6Ñ È0Ã ·] <,XE± _ Ø)Ú1 Ä
	switchport port-security aging	Ô þ y · Þ,X Ý] < G!5B5Õ ê ÊKÈ Ä
	switchport port-security mac-address	A'5B0Ã ·] < >< Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

G!5B802.1X Q ¸

G!5B

57.1.4 dot1x auto-req user-detect

A’5BA’ Û | ¥ ÎAxA•AË" y [,X õ D Èno 6 ã Û T¬Ax Ä

dot1x auto-req user-detect

no dot1x auto-req user-detect

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ' Ô

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð A’5BA’ Û | ¥ ÎAxA•AË" y [,X õ D È Ã ¹ S*ü show dot1x auto-req Q ¸ ¹,ßA¹ s 6Ñ,XA’5B Ä

G!5B _

ßM6 A’5BA’ Û ü Ý*ü Þ4“ â 0!6 å Í h0Ã · ¥EÕAxA•AË" Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x auto-req user-detect
Ruijie(config)# end
Ruijie# show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num  : 0
Req-Interval: 60 Second
```

,Ì G Q ¸

Q ¸	£EÄ
show dot1x auto-req	¹,ß |AxA•,XA’5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	- 60147 0.05 re f 14 214.34 63.12 0.24 r

¸Ì G Q ¸	Q ¸	£EÄ
	show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.2.2 dot1x timeout re-authperiod

ü?U" GAË5Ù n ÊG¡AxA•,X Ô G ' Ô â È S*üA¹ Q ¸A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh È GAxA• < ó Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á 5 ,Õ Ä

dot1x timeout re-authperiod *seconds*

no dot1x timeout re-authperiod

– DAÈ â	– D	£EÄ
	seconds	AxA• < ó Ä ,X8× È 0 65535 Ä) ! s Ä

5 ,ÕG!5B 3600 /¦

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Ã ¹ S*ü show dot1x Q ¸ ¹,ß 802.1x A'5B Ä

G!5B –

ßM6 A'5BG¡AxA• < ó 1000s Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x timeout re-authperiod 1000
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      3 sec
```

```
Supplicant Timeout:   3 sec
Server Timeout:       5 sec
Re-authen Max:        3 times
Maximum 2Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

¸Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.2.3 dot1x timeout server-timeout

A¹ Q¸A'5BA' Û `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä S*üA¹ Q¸,X no EÝNM ÚA¹A'5B 6 á 5,Õ Ä

dot1x timeout server-timeout *seconds*

no dot1x timeout server-timeout

– DAÈ â

– D	£EÄ
seconds	A' Û `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ È ,X8× È 0 65535 Ä

5,ÕG!5B 5,Õ 5 /¦ Ä

Q¸õ ã < G!5B õ ã Ä

S*ü Û Ð Ã¹ S*ü show dot1x Q¸¹,ß 802.1x A'5B Ä

G!5B –

ßM6 A'5B á u < x fCY Ê ÊKÈ 10s Ö

```
Ruijie# configure terminal
```

```
Ruijie(config)# dot1x timeout server-timeout 10
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   3 sec
Server Timeout:       10 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

,Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C

G ÄAÈ â ´

5¸ÕG!5B 5¸Õ 3 /¦Ä

Q¸õã < G!5Bõãä

S*üÛÐ Ã¹S*ü show dot1x Q¸¹,ß 802.1x A'5BÄ

G!5B _

ßM6 A'5Bv 0Ãx fCY Ê ÊKÈ 10sÖ

```
Ruijie# configure terminal
Ruijie(config)# dot1x timeout supp-timeout 10
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   10 sec
Server Timeout:       10 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

¸Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

,Ì G Q ¸

Q ¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

57.3 dot1x

57.3.1 dot1x re-authentication

S*üA¹ Q ¸A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

[no] dot1x re-authentication

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ á?U" GAË5Ù n óG¡ „AxA• Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð A'5B ZA¹ Q ¸ È íAxA• GAË5ÙAxA•EîE› â È!£4£E› Ô n ÊKÈ âE¬ ™NOG¡ „AxA• Ä Ã ¹ S *ü show dot1x Q ¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 ' ÔG¡AxA• s6Ñ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x re-authentication
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Enabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
```

```
Tx Timer Period:      10 sec
Supplicant Timeout:   10 sec
Server Timeout:       10 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

¸Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.3.2 dot1x reauth-max

S*üA¹ Q¸A'5B GAË5Ù Ô ûG¡ „AxA• õ D Ä S*üA¹ Q¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä dot1x reauth-max *count*

no dot1x reauth-max

– DAÈ â

– D	£EÄ
count	Ô ûG¡AxA• õ D Ä

5 ,ÕG!5B 5 ,Õ 3

Q¸õ ã < G!5B õ ã Ä

S*ü Û Ð A'5B ZA¹ Q¸È í?˜8× ZAxA• GAË5Ù Ô î Ã ¹G¡AxA• Bù,X õ D Ä Ã ¹ S*ü show dot1x Q¸¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5BG¡AxA• Ô û õ D s6Ñ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x reauth-max 5
```

```
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Enabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      10 sec
Supplicant Timeout:   10 sec
Server Timeout:       10 sec
Re-authen Max:        5 times
Maximum Request:      3 times
```

ver

	£EÄ
	¹,ß 802.1x ,XA'5B µ C Ä

Æ		AÈ â
	-	-

57.4 dot1x

57.4.1 dot1x probe-timer

G!5B v 0Ã v# n Ê <.

dot1x probe-timer {interval | alive }*interval*

no dot1x probe-timer

– DAÈ â	– D	£EÄ
	no	6 áT¬Ax

G!5B

57.5.1 dot1x authentication

A¹ Q ¸A'5B 802.1X AŒAxA•,X >< Ä S*üA¹ Q ¸,X no EÝNM ôL8 ÃAxA• Ä

dot1x auth-address-table address *mac-addr* interface *interface*

no dot1x auth-address-table address *mac-addr* interface *interface*

– DAÈ â

– D	£EÄ
mac-addr	ÃAxA•,X(=)Ú Ä
Interface	y · Ë Ä

5 ,ÕG!5B 5 ,Õ "u Ý Ï) ÃAxA• Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ¾ Ý üA¹ >< ,X ! AŒ S*ü 802.1X AxA• Ä S*ü show dot1x auth-address table Q ¸ ¹,ßAxA• >< Ä

G!5B _

ßM6,X/ _$è/ ü y · Þ#Ï tAxA• Ä

```
Ruijie# configure terminal
Ruijie(config)# dot1x auth-address-table address
00d0f8000000 interface ehternet 1/1
Ruijie(config)# end
Ruijie#
```

,Ì G Q ¸

Q ¸	£EÄ
show dot1x auth-address-table	/ 802.1X AŒAxA•,X >< Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

57.5.3 dot1x auth-fail max-attempt

A'5BE¯ 9 Bù VLAN ,X Ô û ñA© õ D Ä

dot1x auth-fail max-attempt *num*

no dot1x auth-fail max-attempt

–DAÈâ

–D	£EÄ
num	E¯9 Bù VLAN,XE²4ÁAxA• Bù õD,8× È1-3

5,ÕG!5B 3

Q¸õã < G!5B õã Ä

S*üÛÐ Ã¹S*ü show dot1x Q¸¹,ßA'5B Ä

G!5B _

ßM6 A'5BE¯9 Bù VLAN,X Ô û ñA© õD,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x auth-fail max-attempt 5
Ruijie(config)# end
Ruijie#write
```

,ÌGQ¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x,XA'5B µC Ä

GÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
10.3(5)	Q¸é9

57.5.4 dot1x auth-fail vlan

A'5B802.1x AxA• Bù vlan Ä

dot1x auth-fail vlan *vid*

no dot1x auth-fail vlan

–DAÈâ

–D	£EÄ
vid	Bù vlan,X vid

5,ÕG!5B 5,Õ´ Bù vlan

Q¸õã y·G!5B õã Ä

S*ü Û Ð Ã¹ S*ü show dot1x interface Q¸¹,ßA'5B Ä

G!5B _

ßM6 A'5B 802.1x Bù vlan ,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# interface fa 0/1
Ruijie(config-if)# dot1x auth-fail vlan 2
Ruijie(config-if)# end
Ruijie#write
```

,Ì G Q¸

Q¸	£EÄ
show dot1x interface	¹,ß y ·,X 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.3(5)	Q¸é 9

57.5.5 dot1x auth-mode

A'5B 802.1x ,XAxA• • ã Ä

dot1x auth-mode {eap-md5 | chap | pap}

no dot1x auth-mode

– DAÈ â

– D	£EÄ
eap-md5	802.1x G›*ü EAP-MD5 • ãAxA• Ä
chap	802.1x G›*ü CHAP • ãAxA• Ä
pap	802.1x G›*ü PAP • ãAxA• Ä

5 ,ÕG!5B EAP-MD5 • ã

Q¸õ ã < G!5B õ ã Ä

S*ü Û Ð Ã¹ S*ü show dot1x Q¸¹,ß 802.1x A'5B Ä

G!5B _ ßM6 A'5B 802.1x AxA• • ã,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x auth-mode chap
Ruijie(config)# end
Ruijie#
```

,Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q¸ Z Æ

(Ë	AÈ â
-	-

57.5.6 dot1x default

ÚA' Û,X 802.1x A'5BF¼ Ú – D 6 á ä5 ,Õ Ä

dot1x default

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Ã ¹ S*ü show dot1x Q¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5B 802.1x T¬Ax – D,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x default
Ruijie(config)# end
Ruijie# end
```

,Ì G Q¸

Q¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.5.7 dot1x dynamic-vlan enable

G!5B ú AŒE¯> | Õ vlan CÇE@ Ä S*üA¹ Q ¸,Xno EÝNM Ã ¹ GKÁA¹ Ô G Ä

dot1x dynamic-vlan enable

no dot1x dynamic-vlan enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,ÕA¹ Ô G GKÁ
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	Ã ¹ S*ü show dot1x dynamic-vlan Q ¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5B 802.1x | Õ vlan CÇE@,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x dynamic-vlan enable
Ruijie(config)# end
Ruijie#
```

,Ì G Q ¸	Q ¸	£EÄ
	show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.5.8 dot1x guest-vlan

G!5B ú AŒ guest vlan CÇE@ Ä S*üA¹ Q ¸,Xno EÝNM Ã ¹ GKÁA¹ Ô G Ä

dot1x dynamic-vlan <1 - 4094>

no dot1x guest-vlan

– DAÈ â

– D	£EÄ
vid	– D,X8× È<1 - 4094>

5 ,ÕG!5B 5 ,ÕA¹ Ô G GKÁ

Q ¸ õ ã 0Ã · ßG!5B

S*ü Û Đ

1 Ô&• Öü S*ü guest vlan s6Ñ ! ÈŁÔ?U G!5B dot1x dynamic-vlan enable Q ¸ È ú íG!5B,X guest vlan á*ó Ä

1 `&• ÖG!5B guest vlan s6Ñ È Ô Q á?U Â A¹0Ã ·,X ` 2 û È ø J |G!5B 0Ã · t 9 ¤ þ vlan Ä

1 Ý&• Ö Ã ¹ S*ü show running-config Q ¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5B 802.1x ,X guest vlan CÇE@,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x guest-vlan 10
Ruijie(config)# end
Ruijie#
```

,Ì G Q ¸

Q ¸	£EÄ
show running-config	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

57.5.9 dot1x eapol-tag

G!5B ' Ô EAPOL û ú TAG ,X s6Ñ Ä

dot1x eapol-tag

no dot1x eapol-tag

– DAÈ â

– D	£EÄ

	-	-

5 ,ÕG!5B	5 ,ÕA¹ Ô G GKÁ
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Đ	Ã ¹ S*ü show dot1x Q ¸ ¹,ß 802.1x A'5B Ä
G!5B _	ßM6 A'5B 802.1X û ú tag ,X _ $ Ö Ruijie# **configure terminal** Ruijie(config)# **dot1x eapol-tag** Ruijie(config)# **end** Ruijie#

G!5B _

ßM6 A'5B 802.1x MAC •CÃAxA•• ã,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# interface fa 0/1
Ruijie(config-if)# dot1x mac-auth-bypass
Ruijie(config-if)# end
Ruijie#write
```

,Ì G Q¸

Q¸	£EÄ
show dot1x port-control interface	¹,ß y ·,X 802.1x µ C Ä

G ÄAÈ â ´

Q¸ Z Æ

(Ë	AÈ â
10.3(5)	Q¸ é 9

57.5.11 dot1x mac-auth-bypass timeout-activity

A'5B 802.1x MAC •CÃAxA•,X ü4" ÊKÈ Ä

dot1x mac-auth-bypass timeout-activity *value*

no dot1x mac-auth-bypass timeout-activity

– DAÈ â

– D	£EÄ
value	ü4" ÊKÈ È ¹/¦) !, 8× È 1-65535

5 ,ÕG!5B ü4'»EJÂ ü4'—•›r,

¸Ì G Q¸	Q¸	£EÄ
	show dot1x port-control interface	¹,ß y ·,X 802.1x µ C Ä

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	10.3(5)	Q¸é 9

57.5.12 dot1x mac-auth-bypass violation

A'5B 802.1x MAC •CÃAxA•,XE± _ Ä

dot1x mac-auth-bypass violation

no dot1x mac-auth-bypass violation

– DAÈ â	– D	£EÄ
	´	

5 ,ÕG!5B 5 ,Õ ´E± _ Ø)Ú

Q¸õ ã y ·G!5B õ ã Ä

S*ü Û Ð Ã ¹ S*ü show run Q¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5B 802.1x MAC •CÃAxA•E± _,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# interface fa 0/1
Ruijie(config-if)# dot1x mac-auth-bypass violation
Ruijie(config-if)# end
Ruijie#write
```

¸Ì G Q¸	Q¸	£EÄ
	show dot1x port-control interface	¹,ß y ·,X 802.1x µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.3(5)	Q ¸ é 9

57.5.13 dot1x max-req

ü DOT1X ` á u < x fE›/ß È V p DOT1X ü Ô n ÊKÈ Y"u Ý á u <,X ¡ h È í DOT1X Ú a õ å á u < ¥CKAË" Ä S*üA¹ Q ¸A'5B å á u <AË" AŒ,X Ô û õ D Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

dot1x max-req *count*

no dot1x max-req

– DAÈ â	– D	£EÄ
	count	AŒ,X Ô ûAxA•AË" ,X õ D Ä

5 ,ÕG!5B 5 ,Õ 3 õ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Ã ¹ S*ü show dot1x Q ¸ ¹,ß 802.1x A'5B Ä

G!5B _

ßM6 A'5B 802.1x AxA• Ô ûG¡ ô 7 õ,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# dot1x max-req 7
Ruijie(config)# end
Ruijie#
```

,Ì G Q ¸	Q ¸	£EÄ
	show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.5.14 dot1x private-supplicant-only

ü < G!5B õ ã ÈA'5B ú ¾ Õ/• Ý v 0Ã Èno EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

dot1x private-supplicant-only

no dot1x private-supplicant-only

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ áE›<% Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	Ã ¹ S*ü show dot1x private-supplicant-only Q ¸ ¹,ß 802.1x A'5B Ä

G!5B _	ßM6 A'5B ¾ S*ü/• Ý v 0Ã,X _ $ Ö Ruijie# **configure t** Ruijie(config)# **dot1x private-supplicant-only** Ruijie(config)# **end** Ruijie#

,Ì G Q ¸	Q ¸	£EÄ
	show dot1x private-supplicant-only	¹,ßA'5B µ C Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.5.15 dot1x port-control auto

ü y ·G!5B õ ã ÈA'5BA¹ y · ú – tAxA• Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A'5B 6 á ä5 ,Õ Ä

dot1x port-control auto

no dot1x port-control

–)g •Ñ .R 0 • Á9€ HmG6 …$sa(RG6 Q A˜YR„ Ž å# 2#" dï RG60sB)!–.û Â

5 ,ÕG!5B y ·5 ,Õ á – t 802.1x AxA• Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Ã ¹ S*ü show dot1x Q ¸ ¹,ß 802.1x A'5B Ä

G!5B –

ßM6 A'5B0Ã · 802.1x – âAxA•,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# interface g0/1
Ruijie(config-if)# dot1x port-control auto
Ruijie(config-if)# end
Ruijie#
```

,Ì G Q ¸

Q ¸	£EÄ
show dot1x	¹,ß 802.1x ,XA'5B µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

57.5.16 dot1x port-control-mode

802.1x Í*ü ,X { T¬Ax ™ ‰ ß Î b*ü MAC E¯> { ,X È ¾*üEîE›AxA•,X*ü !6Ñ S *ü5%4° È5à Í b J ª y ü à Ô0Ã ·,X*ü ´"© S*ü5%4° È5à Î b0Ã ·,X { õ ã ž></ ' ¤ Ô0Ã · Ý Ô þ*ü AxA•EîE› Ê È!80Ã · ¬ ä ÆAxA•0Ã · È Ý y ü!80Ã · ß,X*ü FÑ6Ñ ó !7 ,X S*ü5%4° Ä Î b0Ã ·)*ü ,X { õ ã ÈA¹0Ã · ß ¾ AŒ) Ô*ü AxA•EîE› Ê È!80Ã · ¬ ä ÆAxA•0Ã · È6Ñ ó!7 ,X S*ü5%4° Ä ü)*ü ,X { õ ã ß È '0Ã · ¬ ÆAxA•0Ã · È V p ¥)„0Ã · Ý J W,X*ü , ü È í ^0Ã · ß,X Ý*ü #ÙL8 ÈG¡ „AxA• ÄG!5BAxA• õ ã,X Q ¸ V ß Ö

dot1x port-control-mode {mac-based | {port-based [single-host]} }

no dot1x port-control-mode

– DAÈ â

– D	£EÄ
mac-based	Î b mac ,X 802.1X A"KÂ {
port-based	Î b0Ã ·,X 802.1X A"KÂ {

single-host	Î b0Ã ·)*ü ,X 802.1x A“KÂ {

5 ,ÕG!5B 5 ,Õ Î b mac-based A“KÂ {

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð Ã ¹ S*ü show dot1x port-control Q ¸ ¹,ß0Ã ·,X 802.1x A’5B Ä single-host + b ¾ Õ) Ô*ü 6 ã È |G!5B0Ã · default-user-limit È ü single-host õ ã ´ Ä V p üG!5B single-host â È0Ã · ßG!5B default-user-limit ÈE- þ DG£ Í single-host "u Ý4z 3 ÈA¹0Ã ·E¬ ¾ AŒ) Ô*ü Þ5% Ä

_ 1 Ö ßM6 A’5B0Ã · 802.1x – âAxA•,X _ $ Ö

```
Ruijie(config)# interface g 0/184195>6<2C580555>6W5-ho0016 9.06
```

G!5B _

G!5B802.1X

[no] dot1x redirect url

– DAÈ â

– D	£EÄ
url-string	URL

5 ,ÕG!5B ´

Q¸õã (M õã

S*ü Û Ð ´

G!5B – _ 1 ÖA'5BG¡ n å5% Öruijie.net/web Ö

```
Ruijie(config)# dot1x redirect url http://ruijie.net/web
```

Q¸	£EÄ
dot1x redirect for special tcp-destination port	G!5B Í,Â,X0Ã · (M n0Ã · È,Â,X

G!5B

S*ü Û Ð ´

G!5B – _ 1 ÖA'5BG¡ n åCY Ê ÊKÈ 5 /¦ Ö

```
Ruijie(config)# dot1x redirect time-out 5
```

¸Ì G Q¸

Q¸	£EÄ
dot1x redirect url	G!5B Í,Â,X0Ã · (M n0Ã · È,Â,X ip M2 !C ip ,X ,X web AË" E¯> G¡ n å
dot1x redirect for special tcp-destination port	G!5B4È ÕG¡ n åE² y,XCY Ê ÊKÈ
dot1x redirect num for special source-ip	G!5B Í à Ô þ$d AŒ,XG¡ n åE² y D
show dot1x	/ dot1x G¡ n å µ C

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.5.21 dot1x redirect num for special source-ip

G!5B Í à Ô þ$d AŒ,XG¡ n åE² y D È5 ,Õ 1 þ È ÃEÝ8× È 1-10 þ Ä S*ü no EÝNM Ã ¹ S Q¸6 á7Ç5 ,Õ Ö

dot1x redirect num for special source-ip *num*

no dot1x redirect num for special source-ip

– DAÈ â

– D	£EÄ
num	G¡ n åE² y D

5 ,ÕG!5B 1

Q¸õ ã (M õ ã

S*ü Û Ð ´

G!5B –

_ 1 ÖA'5BG¡ n åE² y D 3 Ö

```
Ruijie(config)# dot1x redirect num for special source-ip 3
```

¸Ì G Q¸

Q¸	£EÄ
dot1x redirect url	G!5BG¡ n å5%
dot1x redirect for special tcp-destination port	G!5B Í,Â,X0Ã · (M n0Ã · È,Â,X ip M2 !C ip ,X ,X web AË" E¯> G¡ n å
dot1x redirect time-out	G!5B4È ÕG¡ n åE² y,XCY Ê ÊKÈ
show dot1x	/ dot1x G¡ n å µ C

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.6 dot1x

57.6.1 show dot1x

¹,ß 802.1x ,XA'5B µ C Ä

show dot1x

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð ´

G!5B –

ßM6 / _$ Ö

```
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
```

```
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     3600 sec
Quiet Timer Period:   10 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   3 sec
Server Timeout:       5 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
Ruijie#
```

,Ì G Q¸

Q¸	£EÄ
dot1x auth-mode	A'5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A'5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauth-max	A'5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A'5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A'5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A'5BA' Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A'5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.6.2 show dot1x auth-address-table

A¹ Q ¸ / 802.1X AŒAxA•,X >< Ä

show dot1x auth-address-table [*addressmac-addr*][*interface interface*]

	– D	£EÄ
– DAÈ â	*mac-addr*	ÃAxA•,X(=)Ú
	interface	y · Ë

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã Ä
S*ü Û Ð	´
G!5B _	ßM6 / _ $ Ö Ruijie# **show dot1x auth-address-table** interface:g3/1 ---------- mac addr: 00D0.F800.0001 Ruijie#

Q ¸	£EÄ
dot1x auth-mode	A'5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A'5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauthenjax	A'5B o Å5ÙG¡OI P Ä y Ä

a dot1x mÃQÅêêj R Ô #T!—•›p – tAsõR

uth-mode	A’5B 802.1x ,XAxA• • ã Ä
nax-req	A’5B AŒ Ô ûG¡ ô y [,X õ D Ä
ort-control auto	A’5B y · ú – tAxA• Ä

dot1x reauth-max

dot1x timeout quiet-period	A’5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A’5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä

Ruijie#

Q ¸	£EÄ
dot1x auth-mode	A'5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A'5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauth-max	A'5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A'5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A'5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A'5BA' Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A'5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

57.6.6 show dot1x port-control

/ – âAxA•,X0Ã · Ä

show dot1x port-control [interface *interface*]

– DAÈ â	– D	£EÄ
	interface	Û n,X y ·

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ´

G!5B _

ßM6 / _$Ö

```
Ruijie# show dot1x port-control
interface dyn-user static-user max-user qos
ctrl-mode status
--------- -------- ----------- -------- ------- ------
Gi0/1     0        1           6000     dscp: 0 mac-base Authed
Ruijie#
```

,Ì G Q¸

Q¸	£EÄ
dot1x auth-mode	A'5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A'5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauth-max	A'5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A'5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A'5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A'5BA' Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A'5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õã (M õã

S*ü Û Ð / v 0Ã ü4“ v# n Ê <G!5B Ä

G!5B _

ßM6 / _$Ö

```
Ruijie# show dot1x probe-timer
Hello Interval: 20 Seconds
Hello Alive: 250 Seconds
Ruijie#
```

,Ì G Q¸

Q¸	£EÄ
dot1x auth-mode	A’5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A’5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A’5B y · ú – tAxA• Ä
dot1x reauth-max	A’5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A’5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A’5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A’5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A’5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A’5BA’ Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A’5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.6.8 show dot1x re-authentication

/ G¡AxA•G!5B

show dot1x re-authentication

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q¸õã (M õã Ä

S*ü Û Ð G¡AxA•G!5B ™ ‰

G!5B –

ßM6 / _$Ö

```
Ruijie# show dot1x re-authentication
reauth-enabled: disabled
Ruijie#
```

Q¸	£EÄ
dot1x auth-mode	A’5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A’5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A’5B y · ú – tAxA• Ä
dot1x reauth-max	A’5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A’5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A’5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A’5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä

Q ¸ Z Æ	(Ë	AÈ â
	-	

dot1x timeout supp-timeout	A’5BA’ Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A’5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

57.6.10 show dot1x summary

A¹ Q ¸ / 802.1X AxA•G!5B>< µ C

show dot1x summary

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð / V?UG!5B

G!5B _

ßM6 / _ $ Ö

```
Ruijie# show dot1x summary
ID    MAC       Interface VLAN Auth-State
Backend-State Port-Status Type
--------------- --------------- ---------------
1 00d0f8000000 Gi0/1       1  Authenticated Idle
Authed     Static
Ruijie#
```

,Ì G Q ¸

Q ¸	£EÄ
dot1x auth-mode	A’5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A’5B AŒ Ô ûG¡ ô y [,X õ D Ä

dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauth-max	A'5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A'5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A'5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A'5BA' Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A'5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.6.11 show dot1x user id

A¹ Q¸ / 802.1X AxA•G!5B>< µ C

show dot1x user id *<id>*

– DAÈ â

– D	£EÄ
id	ü show summary Î)„,X*ü id

5 ,ÕG!5B ´

Q¸õã (M õã Ä

S*ü Û Ð / (M n*ü ,X µ C

G!5B _

ßM6 / _ $ Ö

```
Ruijie# show dot1x user id 1
User name: caikov
id: 1
Type: static
```

```
Mac address is 0013.2049.8272
Vlan id is 217
Access from port Gi0/13
User ip address is 192.168.217.64
Max user number on this port is 6000
COS on this port is 5
Up-bandwidth is 1024 kbps
Down-bandwidth is 1024 kbps
Authorization vlan is dep7
Authorization seesion time is 1000000 seconds
Authorization ip address is 192.168.217.64
Start accounting
Permit proxy user
Permit dial user
IP privilige is 2
```

,Ì G Q¸

Q¸	£EÄ
dot1x auth-mode	A'5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A'5B AŒ Ô ûG¡ ô y [,X õ D Ä
dot1x port-control auto	A'5B y · ú – tAxA• Ä
dot1x reauth-max	A'5B GAË5Ù Ô ûG¡ „AxA• õ D
dot1x re-authentication	A'5B ú?U" GAË5Ù n óG¡ „AxA• Ä
dot1x timeout quiet-period	A'5BAxA• Bù â AŒ ñA©G¡ „AxA• ,X1 Y ÊKÈ Ä
dot1x timeout re-authperiod	A'5B GAË5Ù,XG¡AxA• ÊKÈKÈLh Ä
dot1x timeout server-timeout	A'5B `AxA• á u < KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout supp-timeout	A'5BA' Û ` GAË5Ù KÈAxA• x f,XCY Ê ÊKÈ Ä
dot1x timeout tx-period	A'5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

57.6.12 show dot1x timeout

A¹ Q¸ / 802.1X CY Ê – D µ C

show dot1x timeout quiet-period

show dot1x timeout re-authperiod

show dot1x timeout server-timeout

show dot1x timeout supp-timeout

show dot1x timeout tx-period

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B ´

Q¸õã (M õã

S*ü Û Ð / CY Ê – DG!5B

G!5B _

ßM6 / _ $ Ö

```
Ruijie# show dot1x timeout quiet-period
quiet-period: 60 sec
Ruijie#
```

Q¸	£EÄ
dot1x auth-mode	A’5B 802.1x ,XAxA• • ã Ä
dot1x max-req	A’5B AŒ Ô ûG¡ ô y [,X õ D Ä

dot1x port-control auto

dot1x timeout tx-period	A’5B!£ õG¡ ô,X ÊKÈKÈLh È GG¡ ô < ó Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

58 Web

58.1 Web

58.1.1 http redirect

?UG!5BHTTP G¡ n å,X IP s6Ñ ÈÄË ;> < G!5B Q ¸ http redirect ÄA¹ Q ¸,X no 6 ã #ÙL8HTTP G¡ n å,X IP Ä

http redirect *ip-address*

no http redirect

– D	

A'5B !AxA•,X5%4°C $d8× È Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM ôL8 !AxA•,X5%4°C $d8× È Ä

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

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

– DAÈ â

– D	£EÄ
ip-address	!AxA•5%4°C $d,XIP Ä
ip-mask	!AxA•5%4°C $d,XIP }-Õ Ä
arp	V p y 9A' Û *ü Z ARP CHECK s6Ñ ÈFw LÔ?U Í !AxA•,X5%4°C $d8× È¯> ARP 4¥ n ÈÔ?UG!5Barp GK + Ä

5 ,ÕG!5B 5 ,Õ"u ÝA'5B !AxA•,X5%4°C $d Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð | Web AxA• â È Ý*ü LÔ EîE› Web AxA• È !6ÑA"KÂ5%4°C $d Ä8¹?U Ô ¤ o5% 4°C $d È þAxA•*ü 3 Ã ¹A"KÂE- o Ô ,X5%4°C $d È S*ü!8 Q ¸ Ä ' ¤ þ5%0- 2 b ! AxA•,X5%4°C $d ÈFw Ý*ü FÑ Ã ¹A"KÂE- þ5%0- Ä

Ô î AŒG!5B 50 þ !AxA•,X5%4°C $d8× È

G!5B – _ 1 ÖA'5B IP 172.16.0.1 ,X5%0- !AxA•A"KÂ,X5%4°C $d Ä

```
Ruijie(config)# http redirect direct-site 172.16.0.1
```

,Ì G Q ¸

Q ¸	£EÄ
show http redirect	¹,ß HTTP G¡ n å,XG!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.2(5)	„ r Q ¸

58.1.3 http redirect homepage

A'5BG¡ n åNIM6,X NI Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM ôL8AxA•NIM6,X NI Ä

http redirect homepage *url-string*

no http redirect homepage

– D	£EÄ

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

'*ü A“KÂ5%4°C $d Ê È!8 Ê*ü î ¥ Î HTTP y [È y 9A’ ÛEîE› º þ 97¾*ü ,X HTTP y [È9 ø •*ü ú üA“KÂ5%4°C $d ×' y 9A’ Û ”# þAxA•,X*ü üA“KÂ5% 4°C $d Ê È ÚL !6*ü A“KÂ5%4°C $d È J å*ü ÎAxA•NIM6 Ä

5 ,Õ ™ ‰ ß È y 9A’ ÛEîE› º þ*ü ¥ Î,X0Ã · Ë 80 ,X HTTP y [È 9 ”# *ü ú üA“KÂ5%4°C $d Ä

?U È y 9A’ Û º þ*ü ¥ Î,X(M n0Ã · Ë,X HTTP y [È S*ü!8 Q ¸ Ä

Ô û AŒG!5B10 þ á à,X,Â,X0Ã · Ë È0Ã · Ë 80 3 ÿ üA¹ DG£8× È Y Ä

G!5B _

_ 1 Ö Í*ü ¥ Î,X0Ã · Ë 8080 ,X HTTP ,X WEB AË" E¯> G¡ n å Ä

```
Ruijie(config)# http redirect port 8080
```

_ 1 Ö á Í*ü ¥ Î,X0Ã · Ë 80 ,X HTTP ,X WEB AË" E¯> G¡ n å Ä

```
Ruijie(config)# no http redirect port 80
```

,Ì G Q ¸

Q ¸	£EÄ
show http redirect	¹,ß HTTP G¡ n å,XG!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.2(5)	„ r Q ¸

58.1.5 http redirect session-limit

A’5B < à Ô þAxA•*ü ,X Ô û HTTP îA± D Èê!£ þ0Ã · ß,X þAxA•*ü ,X HTTP îA± D Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM 6 á þAxA•*ü ,X Ô û HTTP îA± D Ä

http redirect session-limit *session-num* [port *port-session-num*]

no http redirect session-limit

– DAÈ â

– D	£EÄ
session-num	< à Ô þAxA•*ü ,X Ô û HTTP îA± D Èª 8× È 1-255 Ä
port-session-num	Ä ÃEÝ Æ£ þ0Ã · ß,X þAxA•*ü ,X HTTP îA± D È ª 8× È 1-300 Ä

5 ,ÕG!5B

GET/HEAD y [È' â ² á HTTP G¡ n å y [â !6Ñ GKÁE² y ÄA'5BE- þL$ Ã ¹L !6 *ü á ¥ GET/HEAD y [È5à œKS ÊKÈ 4*ü TCP E² y Ä

G!5B –

_ 1 ÖA'5B4È ÕG¡ n åE² y,XCY Ê ÊKÈ 4 Ä

```
Ruijie(config)# http redirect timeout 4
```

,Ì G Q ¸

Q ¸	£EÄ
show http redirect	¹,ß HTTP G¡ n å,XG!5B Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â

)ttp(C2_0 1 Tf 0 Tc 0 Tw 15e f293Td <1DB92CDFB8 /T728>Tj /TT1 1 Tf ( )Tj ET 66.84 572.78 034.160

,Ì G Q ¸	Q ¸	£EÄ
	show web-auth allow-vlan	¹,ß Õ Î b VLAN ,X Web AxA•,X VLAN ë>< µ C Ä

G ÄAÈ â Q ¸ ™ ü S5750 2Ï ë { • Þ Õ Ä

Q ¸ Z Æ	(Ë	AÈ â
	10.4(2b2)	„ r Q ¸

58.1.8 web-auth direct-host

A'5B ´LÔAxA•*ü IP 8× È Ä Ã ¹*üA¹ Q ¸,X no EÝNM ª#\ ´LÔAxA•*ü Ä

web-auth direct-host *ip-address* [i*p-mask*] [port *interface-name*] [arp]

– D	£EÄ
ip-address	´LÔAxA•*ü ,X IP Ä
ip-mask	´LÔAxA•*ü ,X IP }-Õ Ä
port *interface-name*	Ú*ü IP â y 9A' Û,X0Ã ·E¯> 4¥ n Ä

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.2(5)	„ r Q ¸

58.1.9 web-auth offline-detect-mode flow

A’5B Î b*ü # G£ 9 ”# *ü ú ß4“ Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM GKÁ Î b*ü # G£ 9 ”# *ü ú ß4“ Ä

web-auth offline-detect-mode flow

no web-auth offline-detect-mode flow

Q ¸ Z Æ	(Ë	AÈ â
	10.2(5)	„ r Q ¸

Q ¸ Z Æ	(Ë	AÈ â
	10.2(5)	„ r Q ¸
	10.4(2b2)	r t ip-only-mode – D

58.1.11 web-auth portal key

A'5B y 9A' Û âAxA• á u < KÈE¯> Eî µ,X šJy Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM#ÙL8*ü ,X HTTP ,X WEB AË" >•G¡ n å â,X „,X WEB AË" âAxA• á u <E¯> Eî µ,X šJy Ä

web-auth portal key *key-string*

no web-auth portal key

– DAÈ â	– D	£EÄ
	key-string	y 9A' Û âAxA• á u < KÈE¯> Eî µ,X šJy È Ô ûKS z 255 þ +0ú Ä

5 ,ÕG!5B 5 ,Õ"u ÝA'5B šJy Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ?U ä s h*ü Web AxA• s6Ñ È ™NOA'5B y 9A' Û âAxA• á u < KÈE¯> Eî µ,X šJy Ä

G!5B _ _ 1 ÖA'5B y 9A' Û âAxA• á u < KÈE¯> Eî µ,X šJy *web-auth* Ä

```
Ruijie(config)# web-auth portal key web-auth
```

Q ¸	£EÄ
http redirect	A'5BAxA• á u <,X IP Ä
http redirect homepage	A'5BAxA•NIM6,X NI Ä

58.1.12 web-auth update-interval

A'5B ü4"*ü µ C,X È „ ÊKÈKÈLh Ä*ü Ã ¹*üA¹ Q ¸,X no EÝNM 6 á ü4"*ü µ C,X È „ ÊKÈKÈLh 60 /¦ Ä

web-auth update-interval *seconds*

no web-auth update-interval

– DAÈ â

– D	£EÄ
seconds	È „ ÊKÈKÈLh È) !/¦ È ª 8× È 30-3600 Ä

5 ,ÕG!5B 5 ,Õ,X ü4"*ü µ C,X È „ ÊKÈKÈLh 60 /¦ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð y 9A' Û4È x- ü4"*ü µ C È y 9A' ÛLÔ?U n Ê È „ ü4"*ü µ C È Ù À ü4" ÊKÈ È ¹,¥ { ü4"*ü S*ü5%4°C $d,X ™ ‰ È!¨ V Ö*ü ,X ü4" ÊKÈ Ä
?U È ü4"*ü µ C,X È „ ÊKÈKÈLh È S*ü!8 Q ¸ Ä

G!5B _ _ 1 ÖA'5B ü4"*ü µ C,X È „ ÊKÈKÈLh 30 /¦ Ä

```
Ruijie(config)# web-auth update-interval 30
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.2(5)	„ r Q ¸

58.2

58.2.1 show http redirect

/ HTTP G¡ n å,XG!5B Ä

show http redirect

– DAÈ â

– D	£EÄ
´	

5 ,ÕG!5B ´Ä

Q ¸õã (M õãÄ

S*ü Û Đ ´Ä

G!5B _

_1Ö / HTTP G¡ n å,XG!5B Ä

```
Ruijie# show http redirect
HTTP redirection settings:
  server:         192.168.32.123
  port:           80  8000
  homepage:       http://192.168.32.123:8888/ePortal/index.jsp
  session-limit: 10
  timeout:        5

Direct sites:
  Address           MASK              ARP Binding
  ----------------- ----------------- -----------
  61.233.3.215      255.255.255.255    On
  61.233.3.220      255.255.255.255    Off
  192.168.5.140     255.255.255.255    Off
  218.30.66.101     255.255.0.0        Off
  218.30.66.101     255.255.255.255    Off

Direct hosts:
  Address           Mask              Port        ARP Binding
  ----------------- ----------------- ----------- ------------
  192.168.1.1       255.255.255.255   Fa0/1       On
```

+!‰	AÈ â
G¡ n å< A'5B Ö	
server	G¡ n á u< IP Ä
port	G¡ n å HTTP 0Ã · ë>< Ä
homepage	G¡ n åNIM6,X NI Ä

session-limit	à Ô þAxA•*ü ,X Ô û HTTP îA± D Ä
timeout	4È ÕG¡ n åE² y,XCY Ê ÊKÈ Ä
!AxA•5%4°C $d Ö	
Address	!AxA•5%4°C $d,XIP Ä
Mask	!AxA•5%4°C $d,XIP }-Õ Ä
ARP Binding	úE¯> ARP 4¥ n Ä
´LÔAxA•,X*ü Ö	
Address	´LÔAxA•*ü ,X IP Ä
Mask	´LÔAxA•*ü ,X IP }-Õ Ä
Port	â*ü IP 4¥ n,X y 9A’ Û,X0Ã · Ä
ARP Binding	úE¯> ARP 4¥ n Ä

,Ì G Q ¸

Q ¸	£EÄ
http redirect	A’5BAxA• á u <,X IP Ä
http redirect direct-site	A’5B !AxA•,X5%4°C $d8× È Ä
http redirect homepage	A’5BAxA•NIM6,X NI Ä
http redirect port	A’5B Í*ü ¥ Î,X(M n,Â,X0Ã · Ë,X HTTP ,X WEB AË" E¯> G¡ n å Ä
http redirect session-limit	A’5B à Ô þAxA•*ü ,X Ô û HTTP îA± D Ä
http redirect timeout	A’5B4È ÕG¡ n åE² y,XCY Ê ÊKÈ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.2(5)	„ r Q ¸

58.2.2 show web-auth allow-vlan

/ Õ Î b VLAN ,X Web AxA•,X VLAN ë>< µ C Ä

show web-auth allow-vlan

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´ Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ´ Ä

G!5B _

_ 1 Ö ¹,ß Õ Î b VLAN ,X Web AxA•,X VLAN ë>< µ C Ä

```
Ruijie# show web-auth allow-vlan
  Allow-vlan list : 1-3,5
```

+!‰	AÈ â
-	-

,Ì G Q ¸

Q ¸	£EÄ
web-auth allow-vlan	A'5B Î b VLAN ,X Web AxA• s6Ñ ž AŒAxA•,X VLAN ë>< Ä

G ÄAÈ â Q ¸ ™ ü S5750 2Ï ë { • Þ Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
10.4(2b2)	„ r Q ¸

58.2.3 show web-auth direct-host

/ ! web AxA•,X*ü 8× È Ä

show web-auth direct-host

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´ Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ´ Ä

G!5B _

_ 1 Ö / ´LÔAxA•,X*ü Ä

```
Ruijie# show web-auth direct-host
Direct hosts:
  Address          Mask             Port        ARP Binding
  ---------------- ---------------- ----------- ------------
  192.168.0.1      255.255.255.255  Fa0/2       On
  192.168.4.11     255.255.255.255  Fa0/10      On
  192.168.5.0      255.255.255.0    Fa0/16      Off
```

+!‰	AÈ â
Address	´LÔAxA•*ü ,X IP Ä
Mask	´LÔAxA•*ü ,X IP }-Õ Ä
Port	â*ü IP 4¥ n,X y 9A’ Û,X0Ã · Ä
ARP Binding	úE¯> ARP 4¥ n Ä

,Ì G Q ¸

Q ¸	£EÄ
web-auth direct-host	A’5B ´LÔAxA•*ü IP 8× È Ä

´

```
Ruijie# show web-auth user
  Current user num  :  4

Address          Online   Time Limit    Time Used    Status
---------------- -------  ------------ ------------- --------
192.168.0.11      On      0d 01:00:00   0d 00:15:10     Active
192.168.0.13      On      0             0d 00:00:59     Active
192.168.0.25      Off     0             0               Create
192.168.0.46      Off     0d 01:00:00   0d 01:00:00     Destroy

Ruijie# show web-auth user
```

	10.2(5)	„ r Q ¸

59 AAA

59.1

59.1.1 aaa authentication dot1x

?U S*üAAA E¯> 802.1X *ü AxA• ÈAË ;> < G!5B Q ¸ aaa authentication dot1x G!5B 802.1X *ü AxA•,X •"© ë>< ÄA¹ Q ¸,X no 6 ã ôL8 802.1X *ü AxA•,X •"© ë>< Ä

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

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

– D

,Ì G Q¸

Q¸	£EÄ
aaa new-model	S*ü AAA] < á u
dot1x authentication	ü 802.1X #A, Þ G6((M n •"© ë><
username	n *ü D B g

G!5B –

ßM6,X/ _ n AAA Enable D• ÑAxA• •"© ë>< ÄA¹AxA• •"© ë>< S*ü RADIUS] < á u <E¯> D• ÑAxA• È V p ü Ô n ÊL$ Y"u Ý RADIUS] < á u <,X h1(È í S*ü *ü D B gE¯> D• ÑAxA• Ä

```
Ruijie(config)# aaa authentication enable default group radius local
```

,Ì G Q¸

Q¸	£EÄ
aaa new-model	S*ü AAA] < á u
enable	Û 6*ü 4{ ÿ
username	n *ü D B g

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.1.3 aaa authentication login

?U S*üAAA E¯> Login Ä,O) ÅAxA• ÈAË ;> < G!5B Q¸ aaa authentication login G!5B Login AxA•,X •"© ë>< ÄA¹ Q¸,X no 6 ã ôL8AxA•,X •"© ë>< Ä

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

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

– DAÈ â

– D	£EÄ
default	S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Login AxA• ,XT¬Ax •"© Ä
list-name	n Ô þ Login AxA•,X •"© ë>< ÈÃ ¹ Ï) +0ú Ä
method	™NO local Ãnone Ãgroup ë GK + Ô È Ô þ •"© ë>< Ô î Ý 4 þ •"©
local	S*ü *ü á D B gE¯> D• ÑAxA•
none	áE¯> D• ÑAxA•
group	S*ü á u <4˜E¯> D• ÑAxA• È,Â ! Õ RADIUS ` TACACS+ á u <4˜

5 ,ÕG!5B ´

Q¸õ ã < G!5B õ ã Ä

S*ü Û Ð

V pA’ Û *ü AAA ,O)AxA•] < á u È*ü ™NO S*ü AAA E¯> Login AxA• # Ä | ™NO S*üaaa authentication login Q ¸G!5BT¬Ax,X ê ÃEÝ,X •"© ë><*ü b Login AxA• Ä ¾ Ý !M6,X •"©"u Ý ¡ h È !6Ñ S*ü âM6,X •"©E¯> D• ÑAxA• Ä

A’5B Z Login AxA• •"© â È™NO Ú J h*ü üLÔ?UE¯>Login AxA•,X4œ0Ã4“CÃ Þ Èú í Ú á *ó Ä

G!5B –

ßM6,X/ _ n Ô þ á list-1 ,X AAA Login AxA• •"© ë>< ÄA¹AxA• •"© ë>< S*ü RADIUS] < á u <E¯> AxA• ÈV p ü Ô n ÊL$ Y"u Ý RADIUS] < á u <,X h1(È í S*ü *ü D B gE¯> AxA• Ä

```
Ruijie(config)# aaa authentication login list-1 group radius local
```

	group	S*ü á u <4˜E¯> AxA• È,Â ! Õ RADIUS ` TACACS+ á u <4˜

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð V pA' Û *ü AAA PPP] < á u È*ü ™NO S*ü AAA E¯> PPP *ü AxA• # Ä| ™NO S*üaaa authentication ppp Q ¸G!5BT¬Ax,X ê ÃEÝ,X •"© ë><*ü b PPP *ü AxA• Ä ¾ Ý !M6,X •"©"u Ý ¡ h È !6Ñ S*ü âM6,X •"©E¯> AxA• Ä

G!5B – ßM6,X/ _ n Ô þ á rds_ppp ,X AAA PPP AxA• •"© ë>< ÄA¹AxA• •"© ë>< S*ü RADIUS] < á u <E¯> AxA• È V p ü Ô n ÊL$ Y"u Ý RADIUS] < á u <,X h 1(È È í S*ü *ü D B gE¯> AxA• Ä

```
Ruijie(config)# aaa authentication ppp rds_ppp group radius local
```

5 ,ÕG!5B ´

Q ¸ õ ã 4“CÃG!5B õ ã Ä

S*ü Û Ð T¬Ax,XLogin AxA• •"© ë>< Ô ºG!5B È Ú7¾ | h*ü Ý4œ0Ã Þ Ä ü4“CÃ Þ h*üM2T¬Ax Login AxA• •"© ë>< È Ú ª ·T¬Ax,X •"© ë>< Ä V pA© Ò h*ü þ n ,X •"© ë>< È í î4- Î Ô þA: ¤/ µ C ÈA¹4“CÃ Þ,X Login AxA• Ú á î*ó È¸È7Ç n ZA¹ Login AxA• •"© ë>< ! î*ó Ä

G!5B _ ßM6,X/ _ n Ô þ á list-1 ,X AAA Login AxA• •"© ë>< ÄA¹AxA• •"© ë>< S*ü *ü D B gE¯> AxA• Ä' â ÚA¹ •"© h*ü ü VTY 0 - 4 Þ Ä

```
Ruijie(config)# aaa authentication login list-1 local
Ruijie(config)# line vty 0 4
Ruijie(config-line)# login authentication list-1
```

¸Ì G Q ¸

Q ¸	£EÄ
aaa new-model	S*ü AAA] < á u
username	n *ü D B g
login authentication	G!5BLogin AxA• •"© ë><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

59.2

59.2.1 aaa authorization commands

Í b Æ,O) NAS ,X CLI + M6 Þ,X*ü È?U S*ü?U AAA Q ¸ \ s6Ñ Í*ü ;> ,X Q ¸E¯ > \ È AŒ ê/U!6 ¤ þ*ü ;> K ',X Q ¸ ÄAË ;> < G!5B Q ¸ aaa authorization commands ÄA¹ Q ¸,X no 6 ã GKÁ AAA Q ¸ \ s6Ñ Ä

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

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

– DAÈ â

– D	£EÄ

level	?UE¯> \ ,X Q ¸4{ ÿ È8× È 0~15 È ‡ n ¾ þ4{ ÿ ,X Q ¸LÔ?U \ EîE› â !6Ñ ;> Ä
default	S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Q ¸ \ ,X T¬Ax •"©
list-name	n Ô þ Q ¸ \ ,X •"© ë>< È Ã ¹ Ï) +0ú Ä
method	™NO none Ãgroup ë GK + Ô È Ô þ •"© ë>< Ô î Ý 4 þ •"©
none	áE¯> \
group	S*ü á u <4˜E¯> \ È,Â ! Õ TACACS+ á u < 4˜

?U S*üAAA ÍG!5B õ ãÄ Ù À < G!5B õ ã ž J $ õ ã Åß,X Q ¸E¯> \ È;> < G!5B Q ¸ aaa authorization config-commands ÆA¹ Q ¸,X no 6 ã GKÁ AAA ÍG!5B õ ã ß,X Q ¸,X \ s6Ñ Ä

aaa authorization config-commands

no aaa authorization config-commands

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B T¬Ax á ÍG!5B õ ã ß Q ¸,XE¯> \ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð V p ¾ ÍM2G!5B õ ã Ä V(M õ ã Å ß,X Q ¸E¯> \ È Ã ¹ S*üA¹ Q ¸,X no õ ã GKÁ

-	-

5 ,ÕG!5B T¬Ax á Í { Ä*ü ;> ,X Q ¸E¯> \ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð RGOS Õ ÚEîE› { Ä,O) ` J ª4œ0Ã,O),X*ü È Ã ¹A'5B { Ä,O),X*ü È úLÔ?UE¯> Q ¸ \ Ä V p GKÁ Z { Ä,X Q ¸ \ s6Ñ È í Æ4£ h*ü { Ä4"CÃ ,X Q ¸ \ •"© ë>< Ú á*ó Ä

G!5B _ ßM6,X/ _G!5B { Ä,O)*ü ,X Q ¸ \ s6Ñ Ö

```
Ruijie(config)# aaa authorization console
```

,Ì G Q ¸

Q ¸	£EÄ
aaa new-model	S6ÑAAA] < á u
aaa authorization commands	n AAA Q ¸ \
authorization commands	ü4œ0Ã4"CÃ Þ h*ü Q ¸ \

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

59.2.4 aaa authorization exec

?U S*üAAA Í,O) NAS ,X CLI + M6,X*ü E¯> Exec \ ÈC \ J L$4{ ÿ È ;> < G!5B Q ¸ aaa authorization exec ÄA¹ Q ¸,X no 6 ã GKÁ AAA Exec ,X \ s6Ñ Ä

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

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

– DAÈ â

– D	£EÄ
default	S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Exec \ ,XT¬Ax •"© Ä
list-name	n Ô þ Exec \ ,X •"© ë>< ÈÃ ¹ Ï) +0ú Ä
method	™NO local Ãnone Ãgroup ë GK + Ô È Ô þ •"© ë>< Ô î Ý 4 þ •"©

local	S*ü *ü á D B gE¯> \
none	áE¯> \
group	S*ü á u <4˜E¯> \ È,Â ! Õ RADIUS ` TACACS+ á u <4˜

5 ,ÕG!5B GKÁAAA Exec \ s6Ñ Ä

Q¸õã < G!5B õ ã Ä

S*ü Û Ð RGOS Õ Í,O) NAS ,X CLI + M6,X*ü E¯> \ È C \ J CLI L$4{ ÿÄ0~15 4{ ÅÄ ,Â ! Í bEîE› Z Login AxA•,X*ü È !E¯> Exec \ Ä V p Exec \ Bù È í ´"© E¯ 9 CLI + M6 Ä

G!5B ZExec \ •"© â È ™NO Ú J h*ü üLÔ?UE¯> Exec \ ,X4œ0Ã4“CÃ Þ È ú í Ú á *ó Ä

G!5B _ ßM6,X/ _ S*ü RADIUS á u <E¯> Exec \ Ö

```
Ruijie(config)# aaa authorization exec default group radius
```

Q¸	£EÄ
aaa new-model	S6ÑAAA] < á u

aa au< Td [71 10.02 439.32 428 0 841.98 595.2(i 0 8s)Tj /T21.952 0.006 Td <055336D1>Tj /TT0 1 Tf

default	Ö S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Network \ ,XT¬Ax •"© Ä
method	™NO none Ãgroup ë GK + Ô È Ô þ •"© ë>< Ô î Ý 4 þ •"©
none	áE¯> 5%4° \
group	S*ü á u <4˜E¯> \ È,Â ! Õ RADIUS ` TACACS+ á u <4˜

5 ,ÕG!5B GKÁAAA Network \ s6Ñ Ä

Q¸õ ã < G!5B õ ã Ä

S*ü Û Ð RGOS Õ Í Ý5%4° Ý G,X á uAË" V PPP ÃSLIP 1 #A,E¯> \ ÄV pG!5B Z \ È í Í Ý,XAxA•*ü ê y ·7¾ |E¯> \ Ä

Ã ¹ Û n Ý/¡ á à,X \ •"© È âD• ÑAxA• Ô È ¾ Ý ' !,X \ •"©"u Ý ¡ h È !6Ñ 4»4Á S*ü âM6,X •"©E¯> \ È V p ' ! \ •"© Bù È í á a S*ü J ª â4»,X \ • "© Ä

RADIUS ê TACACS+ á u < EîE›E¨ ² Ô2Ï ë,X 2 û Í 9 ` ä ÍAxA•*ü ,X \ Ä ¹ 5%4° \ Î0Ÿ üAxA•,X Î. Þ,X È ¾ ÝAxA•EîE› Z ! Ý Ã6Ñ9‹ ª5%4° \ Ä

G!5B _ ßM6,X/ _ S*ü RADIUS á u < Í5%4° á uE¯> \ Ö

```
Ruijie(config)# aaa authorization network default group radius
```

,Ì G Q¸

Q¸	£EÄ
aaa new-model	S6ÑAAA] < á u
aaa accounting	n AAA A„ ä
aaa authentication	n AAA D• ÑAxA•
username	n *ü D B g

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.2.6 authorization commands

?U Ú Q ¸ \ ë>< h*ü ü Û n4œ0Ã4“CÃ Þ È ;> 4“CÃG!5B õ ã aQthorization commands ÄA¹ Q ¸,X no 6 ã ª#\4“CÃ Þ Q ¸ \ s6Ñ Ä

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

no authorization commands *level*

– DAÈ â

– D	£EÄ
level	?UE¯> \ ,X Q ¸4{ ÿ È8× È 0~15 È ‡ n ¾ þ4{ ÿ ,X Q ¸LÔ?U \ EîE› â !6Ñ ;> Ä
default	S*üA¹ – D È h*ü Q ¸ \ ,XT¬Ax •"© Ä
list-name	h*ü Ô þ Æ n ,X Q ¸ \ ,X •"© ë>< Ä

5 ,ÕG!5B þG!5B AAA Q ¸ \ s6Ñ Ä

Q ¸ õ ã 4“CÃG!5B õ ã Ä

S*ü Û Ð T¬Ax,X Q ¸ \ •"© ë>< Ô ºG!5B È Ú7¾ | h*ü Ý4œ0Ã Þ Ä ü4“CÃ Þ h*üM2T¬Ax Q ¸ \ •"© ë>< È Ú ª ·T¬Ax,X •"© ë>< Ä V pA© Ò h*ü þ n ,X •"© ë>< È í î4- Î Ô þA: ¤/ µ C ÈA¹4“CÃ Þ,X Q ¸ \ Ú á î*ó È,È7Ç n ZA¹ Q ¸ \ •"© ë>< ! î*ó Ä

G!5B – ßM6,X/ _G!5B Ô þ á cmd ,X Q ¸ \ ë>< Ð\ Í 15 4{ Q ¸E¯> \ ÈS*ü TACACS+ 0] < á u < È V p á u <"u Ý ¡ h ÚG›*ü none •"© ÄG!5B â h*ü VTY 0 – 4 4“CÃ Þ Ö

```
Ruijie(config)# aaa authorization commands 15 cmd group tacacs+ none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization commands 15 cmd
```

œQmd G S–6 O " • N %3CV_ •H '!–. A˜YR„ ŽÑd tð2" , Nóg Gðé † '!–.û Â C

?U ÚExec \ ë>< h*ü ü Û n4œ0Ã4“CÃ Þ È ;> 4“CÃG!5B õ ã Q ¸ authorization exec Ä A¹ Q ¸,X no 6 ã ª#\4“CÃ Þ Exec \ s6Ñ Ä

authorization exec { default | *list-name*}

no authorization exec

– DAÈ â	– D	£EÄ
	default	S*üA¹ – D È h*ü Exec \ ,XT¬Ax •"© Ä
	list-name	h*ü Ô þ Æ n ,X Exec \ ,X •"© ë>< Ä

5 ,ÕG!5B þG!5B AAA Exec \ s6Ñ Ä

Q ¸ õ ã 4“CÃG!5B õ ã Ä

S*ü Û Ð T¬Ax,XExec \ •"© ë>< Ô ºG!5B È Ú7¾ | h*ü Ý4œ0Ã Þ Ä ü4“CÃ Þ h*üM2T¬Ax Exec \ •"© ë>< È Ú ª ·T¬Ax,X •"© ë>< Ä V pA© Ò h*ü þ n ,X •"© ë>< È í î4- Î Ô þA: ¤/ µ C ÈA¹4“CÃ Þ,X Exec \ Ú á î*ó È,È7Ç n ZA¹ Exec \ •"© ë>< ! î*ó Ä

Exec \ •¸Ò*•

G!5B _ S*ü Û Ð

Î b1u)Ú*ü # | ÈLÔ?U Í,O) NAS Þ,X*ü ;> ,X Q ¸# |E¯> A„ ä ÈAË ;> < G!5B Q ¸ aaa accounting commands ÄA¹ Q ¸,X no 6 ã ª#\ Q ¸A„ ä s6Ñ Ä

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

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

– DAÈ â

– D	£EÄ
level	?UE¯> A„Bú,X Q ¸4{ ÿ È8× È 0~15 È ‡ n ¾ þ4{ ÿ ,X Q ¸ ;> Ê ÈLÔ?UA„) µ C Ä
default	S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Q ¸A„Bú,X T¬Ax •"© Ä
list-name	n Ô þ Q ¸A„Bú,X •"© ë>< È Ã ¹ Ï) +0ú Ä
method Ö	™NO noneÃgroup ë GK + Ô È Ô þ •"© ë >< Ô î Ý 4 þ •"© Ö
none	áE¯> A„Bú
group	S*ü á u <4˜E¯> A„Bú È,Â ! Õ TACACS+ á u < 4˜

5 ,ÕG!5B GKÁA„ ä s6Ñ

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

RGOS ¾ Ý ü*ü EîE› Z,O)AxA• â È ! î *ü Q ¸A„Bú s6Ñ È V p*ü ,O) Ê þE¯> AxA• êAxA•G›*ü,X •"© none È í á îE¯> Q ¸A„Bú Ä *üA„Bú s6Ñ â È ü*ü !£ õ ; > Û n4{ ÿ,X Q ¸ â È Ú ;> ,X Q ¸ µ C È ¥EÕ4-] < á u < Ä

G!5B Z Q ¸A„Bú •"© â È ™NO Ú J h*ü üLÔ?UE¯> Q ¸A„Bú,X4œ0Ã4“CÃ Þ È ú í Ú á*ó Ä

G!5B _

ßM6,X/ _ S*ü TACACS+ Í*ü ;> ,X Q ¸AË" E¯> A„ ä È?U" A„Bú,X Q ¸4{ ÿ 15 4{ Ö

```
Ruijie(config)# aaa accounting commands 15 default start-stop group
```

Q ¸ Z Æ	(Ë	AÈ â
	-	-

59.3.2 aaa accounting exec

Î b1u)Ú*ü # | ÈLÔ?U Í*ü ,O) NAS ,XA“KÂ# |E¯> A„ ä ÈAË ;> < G!5B Q ¸ aaa accounting exec ÄA¹ Q ¸,X no 6 ã ª#\ Exec A„ ä s6Ñ Ä

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

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

– D	£EÄ
default	S*üA¹ – D È í âM6 n ,X •"© ë>< 0 Exec A„Bú ,XT¬Ax •"© Ä
list-name	n Ô þ Exec A„Bú,X •"© ë>< ÈÃ ¹ Ï) +0ú Ä
method	™NO noneÃgroup ë GK + Ô È Ô þ •"© ë >< Ô î Ý 4 þ •"©
none	áE¯> A„Bú

G!5B

y [Ö

```
Ruijie(config)# aaa accounting network default start-stop group radius
```

Q ¸	£EÄ
aaa new-model	S6ÑAAA] < á u
aaa authorization network	n AAA 5%4° \
aaa authentication	n AAA D• ÑAxA•
username	n *ü D B g

G ÄAÈ â ´

(Ë	AÈ â
-	-

59.3.4 aaa accounting update

?U *üA„ ä È „ s6Ñ ÈAË ;> < G!5B Q ¸ aaa accounting update Q ¸ ÈA¹ Q ¸*ü b S6Ñ < A„ ä È „ Ä S*üA¹ Q ¸,X no EÝNM GKÁA„ ä È „ s6Ñ Ä

aaa accounting update

no aaa accounting update

– D	£EÄ
-	-

5 ,ÕG!5B A„ ä È „ s6Ñ5 ,Õ GKÁ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð V p"u Ý *ü AAA] < á u È í á6Ñ S*üA„ ä È „ Ä V p Æ4£ *ü AAA] < á u È í A¹ Q ¸*üA'5BA„ äKÈLh Ä

G!5B _ ßM6,X/ _$è/ A'5BA„ ä È „ S6Ñ Ä

```
Rui4E8>6<2F0E419235424184>6<13E41CC8>6<1B84055336D101C4>]TJ/TT0 1 Tf( )Tj/T
```

aaa new-model	' Ô AAA] < á u
aaa accounting network	n 5%4°A„ ä,X •"© ë><

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

59.3.7 accounting exec

?U ÚExec A„Bú ë>< h*ü ü Û n4œ0Ã4“CÃ Þ È ;> 4“CÃG!5B õ ã Q ¸ accounting exec ÄA¹ Q ¸,X no 6 ã ª#\4“CÃ Þ Exec A„Bú s6Ñ Ä

accounting exec { default | *list-name*}

no accounting exec

– DAÈ â	– D	£EÄ
	default	S*üA¹ – D È h*ü Exec A„Bú,XT¬Ax •"© Ä
	list-name	h*ü Ô þ Æ n ,X Exec A„Bú,X •"© ë>< Ä

5 ,ÕG!5B GKÁA„ ä s6Ñ

Q ¸ õ ã 4“CÃG!5B õ ã Ä

S*ü Û Ð T¬Ax,XExec A„Bú •"© ë>< Ô ºG!5B È Ú7¾ | h*ü Ý4œ0Ã Þ Ä ü4“CÃ Þ h*üM2T¬Ax Exec A„Bú •"© ë>< È Ú ª ·T¬Ax,X •"© ë>< Ä V pA© Ò h*ü þ n ,X •"© ë>< È í î4- Î Ô þA: ¤/ µ C ÈA¹4“CÃ Þ,X Exec A„Bú Ú á î*ó È,È7Ç n ZA¹ Exec A„Bú •"© ë>< ! î*ó Ä

G!5B _ ßM6,X/ _G!5B Ô þ á exec-1 ,X Exec A„Bú ë>< È S*ü RADIUS 0] < á u < È V p á u <"u Ý ¡ h ÚG›*ü none •"© ÄG!5B â h*ü VTY 0 – 4 4“CÃ Þ Ö

```
Ruijie(config)# aaa accounting exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# accounting exec exec-1
```

,Ì G Q ¸	Q ¸	£EÄ
	aaa new-model	S6ÑAAA] < á u
	aaa accounting commands	n AAA Exec A„Bú •"© ë><

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â

-	-

59.4 AAA

59.4.1 aaa domain

E¯ 9 ³G!5B õ ã ÈG!5B ³,X 2 û ÄA¹ Q ¸,X no 6 ã ª#\A¹ Q ¸ Ä

aaa domain {default | *domain-name*}

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

– DAÈ â

– D	£EÄ
default	S*üA¹ – D ÈE¯> 5 ,Õ ³,XG!5B
domain-name	Û n ³,X á/Ä

5 ,ÕG!5B "u ÝG!5B Ï) ³ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Û n Î b ³ á,X AAA á uG!5B Ädefault 5 ,Õ ³G!5B È3 V p*ü "u Ý ú ³ µ C È 5%4°A' Û S*ü,X •"© ë>< Ä*domain-name* Û n ³ áG!5B È V p*ü úA¹ ³ á È í Û n S*üE- þ ³ G6(,X •"© ë>< Ä,Â !2Ï4³ Õ Ô îG!5B 32 þ ³ Ä

G!5B _ ßM6,X/ _$è/ A'5B ³ áG!5B Ö

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)#
```

,Ì G Q ¸

Q ¸	£EÄ
aaa new-model	' Ô AAA] < á u
aaa domain enable	' Ô Î b ³ á,X AAA á u Ô G
show aaa domain	/ ³G!5B

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

59.4.2 aaa domain enable

Î b ³ á,X AAA á u Ô G ÈT¬Ax ™ ‰ ß GKÁ(Š Õ Ä ' ' ÔA¹ Ô G,X Ê í Èì S*ü Î b ³ á,X AAA á uG!5B ÄA¹ Q ¸,X no 6 ã GKÁA¹ Ô G Ä

aaa domain enable

no aaa domain enable

– D

no access-limit

– DAÈ â

– D	£EÄ
num	³*ü ,X DG£L$ È ¾L$ IEEE802.1x *ü

5 ,ÕG!5B 5 ,Õ ™ ‰ ß áL$ *ü DG£ Ä

Q ¸ õ ã ³G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ Í ³,X*ü DG£E¯> L$ Ä

G!5B _ ßM6,X/ _$è/ A'5B ³ á ruijie.com ,X ³,X*ü DG£ 20 Ö

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# access-limit 20
```

,Ì G Q ¸

Q ¸	£EÄ
aaa new-model	' Ô AAA] < á u
aaa domain enable	' Ô Î b ³ á,X AAA á u Ô G
show aaa domain	/ ³G!5B

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

59.4.4 accounting network

ü ³G!5B õ ã ßG!5B Network A„Bú ë>< ÈA¹ Q ¸,X no 6 ã ª#\ Q ¸ Ä

accounting network {default | *list-name*}

no accounting network

– D AÈ â

– D	£EÄ
default	S*üA¹ – D È Û n S*ü5 ,ÕG!5B •"© ë><
list-name	Û n •"© ë>< á/Ä

5 ,Õ G! 5B	ü"u Ý Û n •"© ë>< Ê È V p Ý*ü ¥CKAË" È5%4°A' Û î ñA©4-A¹*ü Û n default •"© ë>< Ä
Q¸õã	³G!5B õ ã Ä
S*ü Û Ð	³ Û n S*ü,X Network A„Bú •"© ë>< Ä
G!5B _	ßM6,X/ _$è/ A'5B ³ Û n Network A„Bú •"© ë>< Ö Ruijie(config)# **aaa domain** ruijie.com Ruijie(config-aaa-domain)# **accounting network default**

S*ü Û Ð	³ Û n Ô þ IEEE802.1x AxA• •"© ë>< Ä

G!5B _	ßM6,X/ _$è/ A'5B ³ Û n IEEE802.1x AxA• •"© ë>< Ö
	`Ruijie(config)# aaa domain ruijie.com`
	`Ruijie(config-aaa-domain)# authentication dot1x default`

,Ì G Q¸

Q¸	£EÄ
aaa new-model	' Ô AAA] < á u
aaa domain enable	' Ô Î b ³ á,X AAA á u Ô G
show aaa domain	/ ³G!5B

G ÄAÈ â	´

Q¸Z Æ

(Ë	AÈ â
-	-

59.4.6 authorization network

ü ³G!5B õ ã ßG!5B Network \ ë>< ÈA¹ Q¸,X no 6 ã ª#\ Q¸Ä

authorization network { default | *list-name*}

no authorization network

– DAÈ â

– D	£EÄ
default	S*üA¹ – D È Û n S*ü5 ,ÕG!5B •"© ë><
list-name	Û n •"© ë>< á/Ä

5 ,ÕG!5B	ü"u Ý Û n •"© ë>< Ê È V p Ý*ü ¥CKAË" È5%4°A' Û î ñA©4-A¹*ü Û n default •"© ë>< Ä
Q¸õ ã	³G!5B õ ã Ä
S*ü Û Ð	³ Û n \ •"© ë>< Ä
G!5B _	ßM6,X/ _$è/ A'5B ³ Û n \ •"© ë>< Ö `Ruijie(config)# aaa domain ruijie.com`

Ruijie(config-aaa-domain)# **authorization network default**

¸Ì G Q¸

Q¸	£EÄ
aaa new-model	'Ô AAA]< á u
aaa domain enable	'Ô Î b ³ á,X AAA á u Ô G
show aaa domain	/ ³G!5B

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.4.7 state

A'5B ³ ú Ý ÈA¹ Q¸,X no 6 ã 6 á äT¬AxG!5B Ä

state { block | active }

no state

– D	£EÄ
block	G!5B,X ³ Ý

aaa new-model	'Ô AAA]< á u
aaa domain enable	'Ô Î b ³ á,X AAA á u Ô G
show aaa domain	/ ³G!5B

G ÄAÈ â ´

Q¸Z Æ	**(Ë**	**AÈ â**
	-	-

59.4.8 show aaa domain

/ '! ÝG!5B ³ µ C Ä

show aaa domain [default | *domain-name*]

– DAÈ â	**– D**	**£EÄ**
	default	S*üA¹ – D È Û n / T¬Ax,X ³ µ C
	domain-name	/ Û n ³ á,X ³ µ C

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð V p á Û n ³ á È í / Ý,X ³ µ C Ä

G!5B _

ßM6,X/ _ / Û n ³ á domain.com ,X ³ µ C Ä

```
Ruijie# show aaa domain domain.com

=============Domain domain.com=============
State: Active
Username format: Without-domain
Access limit: No limit
802.1X Access statistic: 0

Selected method list:
 authentication dot1x default
```

,Ì G Q¸	**Q¸**	**£EÄ**

aaa new-model	' Ô AAA] < á u
aaa domain enable	' Ô Î b ³ á,X AAA á u Ô G

G ÄAÈ â ´

Q ¸ Z Æ		
	(Ë	**AÈ â**
	-	-

59.4.9 username-format

ü ³G!5B õ ã ßG!5B NAS â á u < x f Ê*ü á ú ú ³ µ C ÈA¹ Q ¸,X no 6 á äT¬ AxG!5B Ä

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

no username-format

– DAÈ â	**– D**	**£EÄ**
	without-domain	9/• ³ µ C
	with-domain	á 9/• ³ µ C

5 ,ÕG!5B 5 ,Õ ™ ‰ ß á 9/• ³ µ C Ä

Q ¸ õ ã ³G!5B õ ã Ä

S*ü Û Ð ü ³G!5B õ ã ß ÈG!5B NAS J\ Í Û n ³ â á u < x f Ê È*ü á ú ú ³ µ C Ä

G!5B _ ßM6,X/ _$è/ A'5B 9/• ³ µ C Ö

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# username-domain without-domain
```

,Ì G Q ¸	**Q ¸**	**£EÄ**
	aaa new-model	' Ô AAA] < á u
	aaa domain enable	' Ô Î b ³ á,X AAA á u Ô G
	show aaa domain	/ ³G!5B

G ÄAÈ â ´

(Ë	AÈ â

#Ït AAA á u <4˜,X á u < Èno 6 ã ôL8 Ä

server *ip-addr* [authen-port *port1*] [acct-port *port2*]

no server *ip-addr* [authen-port *port1*] [acct-port *port2*]

– DAÈ â

– D	£EÄ
ip-addr	á u < ip
port1	á u <AxA•0Ã · Ä ™ RADIUS á u <4˜ Õ Å
port2	á u <A„Bú0Ã · Ä ™ RADIUS á u <4˜ Õ Å

5 ,ÕG!5B ´ á u <G!5B

Q¸õ ã á u <4˜G!5B õ ã Ä

S*ü Û Ð T Û n á u < #Ït á u < È á Û n0Ã · Ê S*üT¬Ax Ä

G!5B –

ßM6/ _ Ä

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
acct-port 5 authen-port 6
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
IP Address: 192.168.4.12
Authentication Port: 6
Accounting Port: 5
Referred:  1
```

,Ì G Q¸

Q¸	£EÄ
aaa group server	G!5Baaa á u <4˜
show aaa group	/ aaa á u <4˜

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â

	-	-

59.5.4 show aaa group

/ AAA G!5B,X Ý á u <4˜ Ä

show aaa group

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q¸õã	(M õã Ä

S*ü Û Ð	A¹ Q¸ / AAA Ý ÆG! ,X á u <4˜ Ä

G!5B _	ßM6/ _ Ä Ruijie# **show aaa group** Group Name: ss Group Type: radius Referred: 2 Server List: IP Address: 192.168.217.64 Authentication Port: 1812 Accounting Port: 1813 Referred: 1

,Ì G Q¸	Q¸	£EÄ
	aaa group server	G!5BAAA á u <4˜

G ÄAÈ â	´

Q¸Z Æ	(Ë	AÈ â
	-	-

59.6 AAA

59.6.1 aaa local authentication attempts

G!5Blogin ,O)*ü ñA©,O) Bù õ D

aaa local authentication attempts *max-attempts*

– DAÈ â

– D	£EÄ
max-attempts Ö	Ô û ñA© Bù õ D È ª 8× È 1~2147483647 Ä

5 ,ÕG!5B 5 ,Õ 3 õ

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð A¹ Q ¸G!5B Login ,O)*ü ñA©,O) Bù õ D

G!5B _

ßM6,X/ _ Ö

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication attempts 6
```

,Ì G Q ¸

Q ¸	£EÄ
Show running-config	/ x 6 ' !G!5B
Show aaa lockout	/ ' ! login ,XJÕ nG!5B – D

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

59.6.2 aaa local authentication lockout-time

G!5Blogin Ë‘ñ Â„96„1‰€$ ï 7 1€ ""“ C dB@… " A „U(A˜à…"—),,9B ï R 6s)ˆ,dBA–.û Â @hc AÈ â

,Ì G Q¸

Q¸	£EÄ
aaa authentication	n *ü AxA• •"© ë><
aaa authorization	n *ü \ •"© ë><
aaa accounting	n *ü A„ ä •"© ë><

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.6.4 clear aaa local user lockout

#ÙL8>•JÕ n,X*ü ë><

clear aaa local user lockout {all | user-name < *word*>}

– DAÈ â

– D	£EÄ
<*word*>	*ü ID

5 ,ÕG!5B

Q¸õ ã (M õ ã Ä

S*ü Û Ð #ÙL8>•JÕ n,X*ü ë>< È Ã ¹ <F¼#Ù . 3 Ã ¹ Û n*ü #ÙL8

G!5B _ ßM6,X/ _ Ö

```
Ruijie# clear aaa local user lockout all
```

,Ì G Q¸

Q¸	£EÄ
show running-config	/ x 6 ' !G!5B
show aaa lockout	/ ' ! login ,XJÕ nG!5B – D

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.6.5 debug aaa

' Ô AAA á uA×A© Ô G ÄA¹ Q ¸,X no 6 ã GKÁA×A© Ô G Ä

debug aaa event

no debug aaa event

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	(M EXEC G!5B õ ã Ä

S*ü Û Ð	´

G!5B _	´

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

59.6.6 show aaa method-list

/ AAA Ý,X •"© ë>< Ä

show aaa method-list

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´

Q ¸ õ ã	(M õ ã Ä

S*ü Û Ð A¹ Q¸ / AAA Ý,X •"© ë>< Ä

G!5B _

ßM6,X/ _ / AAA •"© ë>< Ä

```
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
```

,Ì G Q¸

Q¸	£EÄ
aaa authentication	n *ü AxA• •"© ë><
aaa authorization	n *ü \ •"© ë><
aaa accounting	n *ü A„ ä •"© ë><

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

59.6.7 show aaa user lockout

/ ' !>•JÕ n,X*ü ë>< Ä

show aaa user lockout {all | user-name < *word*>}

– DAÈ â

– D	£EÄ
<*word*>	*ü ID

5 ,ÕG!5B ´

Q¸õ ã (M õ ã Ä

S*ü Û Ð / ' !>•JÕ n,X*ü ë>< È ¹ žE¬ Ý î ?U>•?·L8JÕ n Ä

G!5B – ßM6,X/ _ Ö

```
Ruijie# show aaa user lockout all
```

¸Ì G Q¸

Q¸	£EÄ
show running-config	/ x 6 ' !G!5B
show aaa lockout	/ ' ! login ,XJÕ nG!5B – D

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

60 RADIUS

60.1 RADIUS

60.1.1 ip radius source-interface

?U Û n radius y [,X$d ÈAË ;> < G!5B Q ¸ ip radius source-interface ÄA¹ Q ¸,X no 6 ã ôL8 Û n,X RADIUS y [$d Ä

ip radius source-interface *interface*

no radius source-interface

– DAÈ â	– D	£EÄ
	Interface	radius y [,X$d y ·

5 ,ÕG!5B	radius y [,X$d + 5%4° A'5B Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	Z £ å ü radius á u < Þ4È x ûG£,X nas µ C,X ¹ 0G£ ÈÃ ¹EîE›A¹ Q ¸ 9A'5B radius y [,X$d ÄA¹ Q ¸ Ú ^ Û n y ·,X1 Ô þ ip 0 radius y [,X$d ÈA¹ Q ¸ ü Ý A' Û S*ü Ä
G!5B –	ßM6,X/ _ Û n Z radius y [¢ fastEthernet 0/0 y ·9‹ ª ip 9 0 radius y [,X $d Ö `Ruijie(config)# **ip radius source-interface fastEthernet** 0/0`

,Ì G Q ¸	Q ¸	£EÄ
	radius-server host	n RADIUS á u <
	ip address	G!5B y ·,X ip

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â

-	-

60.1.2 radius attribute

radius ttribute {<*id*> | down-rate-limit | dscp | mac-limit | up-rate-limit } vendor-type <*type*>

no radius attribute {<*id*>|down-rate-limit | dscp | mac-limit | up-rate-limit } vendor-type

– DAÈ â

– D	£EÄ
id	s6Ñ id <1-255>
type	/• Ý 2 û type

5 ,ÕG!5B

¾ Í å Ì/• Ý 2 ûAš ÿT¬AxG!5B Ö

id	s6Ñ	type
1	max down-rate	1
2	qos	2
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-diractory	9
10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	16
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

=) ™ ‰ Ö

id	s6Ñ	type
1	max down-rate	76
2	qos	77
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-diractory	9
10	file-count	10
11	file-name-0	11
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

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸G!5B/• Ý 2 û2O _ Ä

G!5B –

ßM6,X/ _ Ú max up-rate 2O _ n 211 Ö

```
Ruijie(config)# radius attribute 16 vendor-type 211
```

(

Q ¸ Z Æ	(Ë	AÈ â
	-	-

60.1.5 radius-server host

?U Û n RADIUS] < á u < ÈAË ;> < G!5B Q ¸ radius-server ÄA¹ Q ¸,X no 6 ã ôL8 Û n,X RADIUS] < á u < Ä

radius-server host { *ipv4-address* | *ipv6-address*} [auth-port *port-number*] [acct-port *port-number*]

no radius-server host { *ipv4-address* | *ipv6-address*}

– D	£EÄ
ipv4-address	RADIUS] < á u < ,X IPv4 Ä
ipv6-address	RADIUS] < á u < ,X IPv6 Ä
auth-port	RADIUS

radius-server retransmit	n RADIUS y [G¡ ¥ õ D
radius-server timeout	n RADIUS y [CY Ê n Ê <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

60.1.6 radius-server key

?U n 5%4°A“KÂ á u < ÄCÃ+ A’ Û Å â RADIUS] < á u <E¯> Eî µ,X E • · ¸ ÈAË ;> < G!5B Q ¸ radius-server key ÄA¹ Q ¸,X no 6 ã ª#\ Û n,X E • · ¸ Ä

radius-server key *text-string*

no radius-server key

– DAÈ â

– D	£EÄ
text-string	E • · ¸,X [

5 ,ÕG!5B "u Ý Û n E • · ¸ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð E • · ¸ A’ Û ` RADIUS ] < á u <E¯> !7.BEî µ,X Î. Ä Z SA’ Û ` RADIUS] < á u <6ÑE¯> Eî µ È ™NO üA’ Û ` RADIUS] < á u < Þ n ,Ì à,X E • · ¸ Ä

G!5B _ ßM6,X/ _ n RADIUS] < á u <,X E • · ¸ aaa Ö

```
Ruijie(config)# radius-server key aaa
```

,Ì G Q ¸

Q ¸	£EÄ
radius-server host	n RADIUS] < á u <,X
radius-server retransmit	n RADIUS y [G¡ ¥ õ D
radius-server timeout	n RADIUS y [CY Ê n Ê <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

-	-

60.1.7 radius-server retransmit

?UG!5BA' Û üAx RADIUS] < á u <"u Ý ¡ h ¹ !G¡ ¥ y [,X õ D ÈÆË ;> < G!5B Q ¸
radius-server retransmit ÄA¹ Q ¸,X no 6 ã 6 áT¬AxG¡ ¥ õ D Ä

radius-server retransmit *retries*

no radius-server retransmit

– DAÈ â

– D	£EÄ
retries	RADIUS ñA©G¡ ¥ õ D Ä

5 ,ÕG!5B T¬AxG¡ ¥ õ D 3 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð AAA ü S*ü ß Ô þ •"© Í*ü E¯> AxA•,X ! ¤ ' !AxA•,X] < á u <"u Ý ¡ h ÄA' Û ø •] < á u <"u Ý ¡ h,X Û š] < á u < üA' ÛG¡ ¥ Û n õ D RADIUS y [óKÈ "u Ý h1(È!£ õG¡ ¥ KÈ ÝCY ÊKÈLh Ä

G!5B – ßM6,X/ _ Û nG¡ ¥ õ D 4 Ö

```
Ruijie(config)# radius-server retransmit 4
```

,Ì G Q ¸

Q ¸	£EÄ
radius-server host	n RADIUS] < á u <,X
radius-server key	n RADIUS ,X E • · ¸
radius-server timeout	n RADIUS y [CY Ê n Ê <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

60.1.8 radius-server timeout

?UG!5BA' ÛG¡ ¤RADIUS y [1 Y] < á u < h1(,X ÊKÈ ÈAË ;> < G!5B Q ¸
radius-server timeout ÄA¹ Q ¸,X no 6 ã È 6 áT¬Ax Ä

radius-server timeout *seconds*

no radius-server timeout

– DAÈ â	– D	£EÄ
	seconds	CY Ê ÊKÈ Ä) ! /¦ Å Ä ÃA'5B,X 8× È /¦ Ä 1-1000

5 ,ÕG!5B 5 /¦

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ ÍG¡ ¥ y [,XCY Ê ÊKÈE¯> A× H Ä

G!5B – ßM6,X/ _ ÚCY Ê ÊKÈ n 10 /¦ Ö

```
Ruijie(config)# radius-server timeout 10
```

,Ì G Q ¸	Q ¸	£EÄ
	radius-server host	n RADIUS] < á u <,X
	radius-server retransmit	n RADIUS y [G¡ ¥ õ D
	radius-server key	n RADIUS ,X E • · ¸

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

60.1.9 radius set qos cos

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð G!5BA¹ Q ¸ È Ã ¹ Ú ô ß,X qos 0 cos ÈT¬Ax Ê 0 dscp

G!5B _ ßM6,X/ _ Ö

```
Ruijie(config)# radius set qos cos
```

,Ì G Q ¸

Q ¸	£EÄ
radius vendor-specific extend	Radius =) á ÿ/• Ý V id

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

60.1.10 radius vendor-specific extend

=) á ÿ/• Ý V id Ä

radius vendor-specific extend

no radius vendor-specific extend

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ¾Aš ÿ å Ì/• Ý V id

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ Ã Í Ý V id ,X 2 û Ý';G!5B + 2O _Aš ÿ Ä

G!5B _ ßM6,X/ _ Ö

```
Ruijie(config)# radius vendor-specific extend
```

,Ì G Q ¸

Q ¸	£EÄ
radius attribute	G!5B/• Ý2O _ Ë

	radius set	G!5Bqos ú S*ü cos

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

60.2 RADIUS

60.2.1 debug radius

' Ô RADIUS A×A© Ô G ÄA¹ Q ¸,Xno 6 ã GKÁ RADIUS A×A© Ô G Ä

debug radius [event | detail]

no debug radius [event | detail]

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ ´

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

60.2.2 show radius parameter

/ RADIUS á u < < – D Ä

show radius parameter

– D

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ / radius á u <,XG!5B ™ ‰ Ä

G!5B _

```
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
```

Q ¸	£EÄ
radius-server host	n RADIUS] < á u <,X
radius-server retransmit	n RADIUS y [G¡ ¥ õ D
radius-server key	n RADIUS ,X E • · ¸ y 5 9[A ö ö Ä‰ ”Ä „ AïF

G!5BRADIUS

G!5BRADIUS Q ¸

61 TACACS+

61.1 TACACS+

61.1.1 aaa group server tacacs+

!8 Q ¸G!5B TACACS+ á u <4˜ È Ú á à,X TACACS+ á u < æ Ú á à,X4˜ Ä

aaa group server tacacs+ *group-name*

no aaa group server tacacs+ *group-name*

– DAÈ â

– D	£EÄ
group-name	TACACS+ á u <4˜ á

5 ,ÕG!5B "u ÝG!5B TACACS+ á u <4˜ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð EîE› Í TACACS+ á u <E¯> Ú4˜ ÈAxA• Ã \ ÃAu ä Ã ¹ S*ü á à,X á u <4˜ 9 ` ä Ä

G!5B – ßM6,X/ _G!5B Ô þ á + tac1 ,X TACACS+ á u <4˜ È J è üA¹4˜ G!5B Ô þ 1.1.1.1 ,X TACACS+ á u < Ö

```
Ruijie(config)# aaa group server tacacs+ tac1
Ruijie(config-gs-tacacs+)# server 1.1.1.1
```

Q ¸	£EÄ
server	

61.1.2 ip tacacs source-interface

!8 Q ¸G!5B TACACS+ y [,X$d Ä

ip tacacs source-interface *interface*

no ip tacacs source-interface

– DAÈ â

– D	£EÄ
Interface	TACACS+ y [,X$d y ·

5 ,ÕG!5B TACACS+ y [,X$d + 5%4° A'5B Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Z £ å ü TACACS+ á u < Þ4È x ûG£,X nas µ C,X ¹ 0G£ È Ã ¹EîE›A¹ Q ¸ 9A'5B TACACS+ y [,X$d ÆA¹ Q ¸ Ú ^ Û n y ·,X1 Ô þ ip 0 TACACS+ y [,X$d ÈA¹ Q ¸ ü Ý A' Û S*ü Ä

G!5B _ ßM6,X/ _ Û n Z TACACS+ y [¢ fastEthernet 0/0 y ·9‹ ª ip 9 0 TACACS+ y [,X$d Ö

```
Ruijie(config)# ip tacacs source-interface fastEthernet 0/0
```

,Ì G Q ¸

Q ¸	£EÄ
tacacs-server host	n TACACS+ á u <
ip address	G!5B y ·,X ip

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

61.1.3 ip vrf forwarding(TACACS+)

!8 Q ¸G!5B TACACS+ á u <4˜ S*ü,X vrf á +(Õ VRF ,XA' Û , ü!8 Q ¸) Ä

ip vrf forwarding *vrf-name*

no ip vrf forwarding

– DAÈ â

– D	£EÄ

	vrf-name	vrf á +

5 ,ÕG!5B ´

Q ¸ õ ã

S*ü Û Ð

G!5B!8 Q ¸ ! È ™NOEîE› Q ¸ aaa group server tacacs+ E¯ 9 TACACS+4˜G!5B õ ã Ä TACACS+ á u <4˜ G!5B,X á u < È ™NO ü < G!5B õ ã ß ÈEîE› tacacs-server host Q ¸G!5B!8 á u < Ä

á u <4˜ ,XG!5B,X TACACS+ á u < È' Ô þ á u <"u Ý ¡ h Ê Èî å ß Ô þ á u < ¥EÕAË" Ä

G!5B –

ßM6,X/ _G!5B Ô þ á + tac1 ,X TACACS+ á u <4˜ È J è üA¼4˜ G!5B Ô þ 1.1.1.1 ,X TACACS+ á u < Ö

```
Ruijie(config)# aaa group server tacacs+ tac1
Ruijie(config-gs-tacacs+)# server 1.1.1.1
```

,Ì G Q ¸

Q ¸	£EÄ
aaa group server tacacs+	G!5BTACACS+ á u <4˜
ip vrf forwarding	G!5BTACACS+ á u <4˜ Õ,X VRF á +

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

61.1.5 tacacs-server host

!8 Q ¸G!5B TACACS+ á u < IP Ä

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

no tacacs-server host *ip-address*

– DAÈ â

– D	£EÄ
Ip-address	TACACS+] < á u < ,X IP Ä
ipv6-address	TACACS+] < á u < ,X IPV6 Ä
port *integer*	TACACS+EîA*f* S*ü,X TCP 0Ã ·
timeout *integer*	TACACS+ ,XCY Ê ÊKÈ Ä
key *string*	TACACS+ client â á u < E •,X šJy Ä

5 ,ÕG!5B "u Ý Û n,X TACACS+ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Z S*ü TACACS+ r)„ AAA] < á u È ™NO n TACACS+] < á u < Ä | Ã ¹ S*ü tacacs-server Q ¸ n Ô þ ê î þ TACACS+] < á u < Ä

G!5B _ ßM6,X/ _ n Ô þ TACACS+] < á u < Ö

```
Ruijie(config)# tacacs-server host 192.168.12.1
Ruijie(config)# tacacs-server host 2001::1
```

,Ì G Q ¸

Q ¸	£EÄ
aaa authentication	n AAA ,XD• ÑAxA• •"© ë><
tacacs-server key	< n TACACS+] < á u <,X E • · ¸
tacacs-server timeout	< n TACACS+ á u < ¡ h y [CY Ê n Ê <

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

61.1.6 tacacs-server key

!8 Q ¸G!5B TACACS+,X < šJy Ä

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

no tacacs-server key

– DAÈ â

– D	£EÄ
string	E • · ¸,X [
0	*7*	· ¸,X t š2O _ È0 ´ t š È7 1T) t š Ä

5 ,ÕG!5B "u Ý Û n E • · ¸ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð E • · ¸ A’ Û ` TACACS+

G!5B

tacacs-server host	n TACACS+] < á u <,X
tacacs-server key	n TACACS+,X E • · ¸

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

61.2 TACACS+

61.2.1 debug tacacs+

' Ô TACACS+A×A© Ô G ÄA¹ Q ¸,Xno 6 ã GKÁ TACACS+A×A© Ô G Ä

debug tacacs+

no debug tacacs+

– DAÈ â	**– D**	**£EÄ**
	-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã Ä

´

61.2.2 show tacacs

/ ` Ø TACACS+ á u <,X x fE¤> ™ ‰ Ä

show tacacs

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð S*üA¹ Q ¸ / ` Ø TACACS+ á u <,X x fE¤> ™ ‰ Ä

G!5B _

```
Ruijie# show tacacs
Tacacs+ Server : 172.19.192.80/49
Socket Opens: 0
Socket Closes: 0
Total Packets Sent: 0
Total Packets Recv: 0
Reference Count: 0
```

,Ì G Q ¸

Q ¸	£EÄ
tacacs-server host	n / ` Ø TACACS+ á u <,X x fE¤> ™ ‰] < á u <,X

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

62 SSH

62.1 SSH

62.1.1 crypto key generate

*ó ä á u <0Ã,X @ E šJy È ü < G!5B õ ã ß È ;> Q ¸ Ö

crypto key generate {rsa | dsa}

– DAÈ â	– D	£EÄ
	rsa	*ó ä RSA šJy
	dsa	*ó ä DSA šJy

5 ,ÕG!5B	T¬Ax ™ ‰ ßSSH Server "u Ý*ó ä @ E šJy Ä
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	'LÔ?U ' Ô SSH Server á u Ê ÈEîE›!8 Q ¸*ó ä SSH á u <0Ã,X @ E šJy Ä à Ê ;> enable service ssh-server Q ¸ È ' Ô SSH Server s6Ñ ÄSSH 1 S*ü RSA šJy × SSH 2 S*ü RSA ê5ÙDSA šJy Ä´!8 È V p ' ! Æ*ó ä RSA šJy È í SSH1 â SSH2 FÑ Ã ¹ S*ü × V p ™*ó ä DSA šJy È í ™ Ý SSH2 Ã ¹ S*ü Ä ôL8 šJy Ê È á ¸ ü Q ¸ no crypto key generate È5à EîE› Q ¸ crypto key zeroize Q ¸ ôL8 šJy Ä
G!5B –	Ruijie# **configure terminal** Ruijie(config)# **crypto key generate rsa**

,Ì G Q ¸	SSH Server ,X ' !(Š Õ µ C Ä	
	crypto key zeroize {rsa | dsa }	ôL8 DSA â RSA šJy È GKÁ SSH Server s6Ñ Ä

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ
Q ¸ Z Æ	(Ë Se• 9B N)q• 1T &")!–. A˜YR„ Ž R)qˆ$b9B Nð…# 4ƒ'" bï°Â õ l! $ †‰ AÈ â

	-	-

62.1.2 crypto key zeroize

ôL8 SSH á u <0Ã,X @ E šJy È ü < G!5B õ ã ß È ;> Q¸ Ö

crypto key zeroize {rsa | dsa}

	– D	£EÄ
– DAÈ â	rsa	ôL8 RSA šJy
	dsa	ôL8 DSA šJy

5 ,ÕG!5B

Q¸õ ã < G!5B õ ã

S*ü Û Ð EîE›!8 Q¸ 9 ôL8 á u <,X @ E šJy ÄšJy>• ôL8 â È SSH Server (Š Õ ä DISABLE Ä V pLÔ?U GKÁSSH Server ÈLÔ?U ;> no enable service ssh-server Q¸ Ä

G!5B –

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

Q¸	

– DAÈ â	– D	£EÄ
	retry times	G!5B*ü AxA•,XG¡AxA• õ D Ä

5 ,ÕG!5B

5 ,ÕA'5B ßG¡AxA• õ D 3 õ Ä 'A'5BG¡AxA• õ D â È S*ü no ip ssh authentication-retries Q ¸ 3 Ã ¹ SA'5B 6 á T¬Ax Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

A¹ Q ¸G!5B SSH Server E¯> *ü AxA•,XG¡AxA• õ D Ä 'CYE› SSH Server G!5B,XG¡AxA• õ D È¡"u ÝAxA• ä s ÈíAx *ü AxA• Bù Ä S*ü show ip ssh Q ¸ ¹,ß SSH Server ,XG!5B µ C Ä

G!5B I• <4 • ISw cÂðÀ Fp mG!5B*ü A'5B ßG¡AxA• % ô R

Clear line vty *line_number*	• Ô ' !,X VTY E² y îA± Ä

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

62.2.2 show crypto key mypubkey

/ SSH Server @ E šJy,X @ Ô šJyF¼ Ú,X µ C Ä

show crypto key mypubkey {rsa/dsa}

– DAÈ â

– D	£EÄ
rsa	/ RSA šJy,X @JyF¼ Ú
dsa	/ DSA šJy,X @JyF¼ Ú

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð / Æ4£*ó ä,X SSH Server @ E šJy,X @ Ô šJyF¼ Ú,X µ C Ä Ù À Ö šJy*ó ä ÊKÈ Ã š Jy á + Ã @ Ô šJyF¼ Ú Y •1 µ C Ä

G!5B _ `Ruijie# show crypto key mypubkey rsa`

,Ì G Q ¸

Q ¸	£EÄ
crypto key generate {rsa | dsa}	*ó ä DSA â RSA šJy Ä

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

62.2.3 show ip ssh

/ SSH Server ,X ' !*ó ,XG!5B µ C Ä

Q¸õã (M *ü õã

S*üÛÐ / Æ4£ Î0Ÿ,X SSH E² y,XE² y µ C Ä Ù À ÖE² y 4*ü,X VTY Ë ÃSSH (Ã t š 1k"© Ã#\ CAxA•1k"© ÃE² y(Š Õ Ã*ü á Ä

G!5B _ Ruijie# **show ssh**

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈâ EC Ê(RGOS10.1 ¹Þ

Q¸ZÆ

(Ë	AÈâ
-	-

63 CPU

63.1

63.1.1 cpu-protect type packet-type pps pps_value

A'5B CPU 0Ã · y Û n2O _ y [,X ú ' Ä

cpu-protect type { arp | bpdu | dhcp | ipv6mc | igmp | rip | ospf | vrrp | pim | ttl1 | unknown-ipmc | dvmrp | …} pps *pps_value*

– DAÈ â

– D	£EÄ
pps_value	!£/¦ y [D Ä

5 ,ÕG!5B CPU Í b!£/¡2O _ y [,X y ú ',X5 ,Õ 1000 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð

G!5B _ ßM6 A'5B CPU y BPDU y [ú ',X _ $ Ö

```
Ruijie(config)# cpu-pr type bpdu pps 100
Set packet type bpdu pps 100 .
```

,Ì G Q ¸

Q ¸	£EÄ
cpu-protect type packet-type pri *pri_num*	A'5BCPU · y ,X Û n2O _ y [Í h ,X ì 4{ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

63.1.2 cpu-protect type packet-type pri pri_num

A'5B CPU · y ,X Û n2O _ y [Í h,X ì 4{ Ä

cpu-protect type { arp | bpdu | dhcp | ipv6mc | igmp | rip | ospf | vrrp | pim | ttl1 | unknown-ipmc | dvmrp | …} pri *pri_num*

– DAÈ â

– D	£EÄ
pri_num	ID È ª 8× È 0 É7

5 ,ÕG!5B !£/¡2O _ y [Í h,XKó ë5 ,Õ 0 Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _ ßM6 Ú BPDU y [Í h Kó ë 7 ,X _ $ Ö

```
Ruijie(config)# cpu-protect type bpdu pri 7
Set packet type bpdu pri 7.
```

,Ì G Q ¸

Q ¸	£EÄ
cpu-protect type packet-type pps *pps_value*	A'5B Û n2O _ y [,X ú ' Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

63.2

63.2.1 show cpu-protect mboard

/ 1u)Ú S CPU ± x,X Ø2O y [,X4³Au µ C Ä

show cpu-protect mboard

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð A¹ Q ¸ / 1u)Ú S CPU '! y y [,X4³Au µ C Ä

G!5B _

ßM6,X/ _ / S9610 1u)Ú S,X CPU ± x4³Au µ C Ä

```
Ruijie# show cpu-protect mboard
ype        Pps      Total    Drop
------------ --------- --------- ---------
arp         500       19       0
bpdu        200       24       0
dhcp        0         0        0
gvrp        0         0        0
ipv6-mc     0         0        0
dvmrp       0         0        0
igmp        0         0        0
ospf        0         0        0
pim         0         0        0
rip         0         0        0
vrrp        0         0        0
unknow-ipmc  0         0        0
ttl1        0         0        0
...
```

,Ì G Q ¸

Q ¸	£EÄ
show cpu-protect slot *slot-num*	/ Û n4“ 5,X CPU ± x4³Au µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

63.2.2 show cpu-protect slot

/ Û n4“ 5,X CPP 4³Au µ C Ä

show cpu-protect slot *slot_num*

– DAÈ â

– D	£EÄ

64 DoS

64.1

64.1.1 ip deny invalid-l4port

Ô L 7¾D•#\5ë Ï s6Ñ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁL 7¾D•#\5ë Ï s6Ñ Ä

ip deny invalid-l4port

no ip deny invalid-l4port

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	5 ,Õ ™ ‰ ß ÈA’ Û,XL 7¾D•#\5ë Ï s6Ñ GKÁ,X Ä
Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	´

G!5B _	_ 1 Ö üA’ Û Þ Ô L 7¾D•#\5ë Ï s6Ñ Ö
	`Ruijie(config)# ip deny invalid-l4port`
	_ 2 Ö üA’ Û Þ GKÁL 7¾D•#\5ë Ï s6Ñ Ö
	`Ruijie(config)# no ip deny invalid-l4port`

,Ì G Q ¸	Q ¸	£EÄ
	show ip deny invalid-l4port	¹,ßL 7¾D•#\5ë Ï,X(Š Õ

G ÄAÈ â	-

Q ¸ Z Æ	(Ë	AÈ â
	-	-

64.1.2 ip deny invalid-tcp

Ô L M2"© TCP y [Ï s6Ñ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁL M2"©TCP y [Ï s6Ñ Ä

ip deny invalid-tcp

no ip deny invalid-tcp

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß ÈA' Û,XL M2"©TCP y [Ï s6Ñ GKÁ,X Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ´

G!5B _

_ 1 Ö üA' Û Þ Ô L M2"© TCP y [Ï s6Ñ Ö

```
Ruijie(config)# ip deny invalid-tcp
```

_ 2 Ö üA' Û Þ GKÁL M2"©TCP y [Ï s6Ñ Ö

```
Ruijie(config)# no ip deny invalid-tcp
```

,Ì G Q ¸

Q ¸	£EÄ
show ip deny invalid-tcp	¹,ßL M2"© TCP y [Ï,X(Š Õ

G ÄAÈ â -

Q ¸ Z Æ	(Ë	AÈ â
	-	-

64.1.3 ip deny land

Ô L Land Ï s6Ñ Ä S*üA¹ Q ¸,X no EÝNM Ú GKÁLand Ï s6Ñ Ä

ip deny land

no ip deny land

– DAÈ â	– D	£EÄ
	É	É

5 ,ÕG!5B 5 ,Õ ™ ‰ ß ÈA' Û,XL Land Ï s6Ñ GKÁ,X Ä

Q ¸ õ ã < G!5B õ ã Ä

protect against invalid l4port attack Off

Q ¸	£EÄ
-	-

´

(Ë	AÈ â
b"ðäÀdÓ"*‘ðÂ 0 ïQ˜ ŒæhFFNQ˜ 5‘´{ Ï‚Xï¡]P „ddf1	$" “ ï“ c b0€ †

64.2.3 show ip deny land

/ L Land Ï,X(Š Õ Ä

show ip deny land

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Ð ´

G!5B _

```
Ruijie# show ip deny land
DoS Protection Mode              State
-------------------------------  -----
protect against land attack      On
```

,Ì G Q ¸

Q ¸	£EÄ
(no) ip deny land	Ô ê GKÁL Land Ï s6Ñ

65 GSN

65.1

65.1.1 security address-bind enable

A¹ Q ¸*ü bG!5BA’ Û0Ã · ú ' Ô 4¥ n1*+9 Ä

security address-bind enable

no security address-bind enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã y · õ ã È Õ BEî,X ` x 6 · Ä á Ù À AP ` AP ä , · Å Ä

S*ü Û Ð ;> A¹ Q ¸ Ä í0Ã ·,X 4¥ n G ' Ô ÈŁÔ?U"¼ ã!8 Q ¸ ™NO ü GSN < Ô G ' Ô Ê ! 6ÑCK 0*ü Ä

G!5B _ G!5B] < _ Ê Ô ã ÊKÈKÈLh Ö

```
Ruijie(config-if)# security address-bind enable
```

¸Ì G Q ¸

Q ¸	£EÄ
security gsn enable	GSN < Ô G

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

65.1.2 security community

A¹ Q ¸*ü bG!5B ` smp á u < KÈEîA ƒ ,X] < á Ä

security { [v1 | v2] community *community* | v3 user *username* }

no security { [v1 | v2] community *community* | v3 user *username* }

– DAÈ â

– D	£EÄ
community	à á u < x f,X *community* +0ú Ä
username	S*ü,X v3] <EîAƒ á Ä

5 ,ÕG!5B "u ÝG!5B

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð 'LÔ?UG!5BA' Û ` á u < KÈ,XEîAƒ,X Ê í ÈLÔ?U B á u <,XG!5BEÝ ½ ÜEÖ,X #A,(,XG!5BEÖ ',XAxA• á È8¹EÝ ½ v3ÈÍLÔ?Uü snmp-server Q ¸ ßG!5B,Ì G v3 *ü á È K ',XG!5B?• SNMP Q ¸ –5× Ä

G!5B _

_ 1 ÖG!5Bv1 community Ö

```
Ruijie(config)# security v1 community public
```

_ 2 ÖG!5Bv3 *ü á start Ö

```
Ruijie(config)# security v3 user start
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

65.1.3 security event inteval

A¹ Q ¸*ü bG!5BA' Û,X ôEg ÊKÈ,X Ô ãKÈLh ÊKÈ

security event inteval *interval*

no security event inteval

– DAÈ â

– D	£EÄ
interval	G!5B] < _ Ê,X ÊKÈKÈLh Ä

5 ,ÕG!5B 5

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ;> A¹ Q ¸ Ä S*ü show security event interval 9 ¹,ßG!5B Ä

G!5B _ G!5B] < _ Ê Ô ã ÊKÈKÈLh Ö

```
Ruijie(config)# security event interval 10
```

,Ì G Q ¸

Q ¸	£EÄ
show security event interval	¹,ß] < _ Ê Ô ã ÊKÈKÈLh Ä

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

Q ¸ Z Æ

(Ë	AÈ â
-	-

65.1.4 security gsn enable

Q ¸*ü b < ,X { GSN s6Ñ,X Ô G Äno !4Ô ôL8

security gsn enable

no security gsn enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B GKÁ

Q ¸ õ ã < G!5B õ ã

[redacted]

,Ì G Q ¸ Q ¸

	-	-

G ÄAÈ â EC Ê(RGOS10.1 ¹ Þ

¹,ß] < _ Ê Ô ã ÊKÈKÈLh Ä

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Ð	¹,ß] < _ Ê Ô ã ÊKÈKÈLh Ä

G!5B _	Ruijie# **show security event interval** Event sending interval(Seconds):5

,Ì G Q ¸	Q ¸	£EÄ
	security event interval *interval*	G!5B] < _ Ê Ô ã ÊKÈKÈLh Ä

G ÄAÈ â	EC Ê(RGOS10.1 ¹ Þ Ä

Q ¸ Z Æ	(Ë	AÈ â
	-	-

65.2.2 show smp-server

/ smp server ,X IP

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Ð	/ smp server ,X IP Ä

G!5B _	Ruijie# **show smp-server**

SMP-Server IP Ö192.168.20.30

¸Ì G Q¸

Q¸	£EÄ
smp-server host	G!5Bsmp server ip Ä

G ÄAÈ â EC Ê(RGOS10.1 ¹Þ Ä

Q¸Z Æ

(Ë	AÈ â
-	-

66 DAI

66.1 VLAN DAI

66.1.1 ip arp inspection vlan

S*üA¹ Q ¸ ÈÃ ¹ *ü *vlan-id* Í h,X VLAN ,X DAI y [” ¹ s6Ñ ÄA¹ Q ¸,X no 6 ã Ã ¹ GKÁ*vlan-id* Í h,X VLAN ,X DAI y [” ¹ s6Ñ ÈV p,Õ+9 – D *vlan-id* Èí GKÁ Ý VLAN Þ,X DAI y [” ¹ s6Ñ Ä

ip arp inspection vlan *vlan-id*

no ip arp inspection vlan [*vlan-id*]

– DAÈ â

– D	£EÄ
vlan-id	></ vlan 4ê Ë Ä

5 ,ÕG!5B Ý VLAN Þ GKÁDAI y [” ¹ s6Ñ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ?U S!8 Q ¸ ¥ ù 0*ü ÈOj LÔ?U *ü DAI s6Ñ ÈAË –5× Þ Ô8V Ä

G!5B _

¹ ßG!5B È ” ¹ VLAN 1 Þ y ,X ARP y [Ä

```
Ruijie(config)# ip arp inspection
Ruijie(config)# ip arp inspection vlan 1
```

,Ì G Q ¸

Q ¸	£EÄ
show ip arp inspection vlan	/ VLAN ú ' Ô DAI y [” ¹ s 6Ñ Ä

G ÄAÈ â ´ Ä

Q ¸ Z Æ

(Ë	AÈ â
-	-

66.2

66.2.1 ip arp inspection trust

?UG!5B ` 0Ã · ú Ã µ Ï ÈAË S*ü y ·G!5B Q ¸ ip arp inspection trust ÄA¹ Q ¸,X no 6 ã 6 á ` 0Ã · á µ Ï(Š Õ Ä

ip arp inspection trust

no ip arp inspection trust

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 0Ã · Ø b á µ Ï(Š Õ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Đ 'LÔ?U S ¤ þ y · ,X ARP y [´ 5 Ê,XEîE› DAI ,X ” ¹ Ê È Ã ¹ Ú JA’5B ä « µ Ï(Š Õ È></ å À áLÔ?U ” ¹!8 y · ,X ARP y [È W À Ü"©,X Ä

Õ NFPP(5%4° Î. ± x1*+9)

AÈ â

' *ü Z VLAN ,X Í h,X DAI s6Ñ Èè y ,X ARP y [,X ` 0Ã · Ø b á « µ Ï,X(Š Õ Ê È !8 ARP y [íLÔ?UE¯ Ô!9,X Ü"© û " ¹ È' ¹,X q B DHCP Snooping D B g,X,Ì G µ C. V p"u Ý Í D B gE¯> Ï)G!5B È í1k " ¹EîE› Ä DHCP Snooping ,Ì GG!5BAË –5×ÉDHCP Snooping G!5B Ê Ä

67 arp

67.1 arp

67.1.1 anti-arp-spoofing ip

A’5BL 5% Garp ! Pk Ä S*üA¹ Q ¸,X no EÝNM ÚA¹A’5B 6 á ä5 ,Õ Ä

anti-arp-spoofing ip *ip-address*

no anti-arp-spoofing ip *ip-address*

– DAÈ â	– D	£EÄ
	Ip-address	5% GP

5 ,ÕG!5B A¹ s6Ñ5 ,Õ á*ó

Q ¸ õ ã

/ Ý y · ß,XL 5% G arp ! Pk µ C Ä

show anti-arp-spoofing

– DAÈ â

– D	£EÄ

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie#show anti-arp-spoofing
                port            ip
                -------         -----------
                Fa0/1           192.168.1.1
```

,Ì G Q ¸

Q ¸	£EÄ
anti-arp-spoofing ip	A'5BL 5% Garp ! Pk Q ¸

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

68 IP Source Guard

68.1 IP Source Guard

68.1.1 ip source binding

ü IP $d 4¥ n D B g #Ï tM- Õ*ü µ C Èno 6 ã ôL8 Í h,XM- Õ*ü Ä

[no] ip source binding *mac-address* vlan *vlan-id ip-address* interface *interface-id*

– DAÈ â

– D	£EÄ
mac-address	M- Õ#Ï t,X*ü ,X MAC ×
vlan-id	M- Õ#Ï t,X*ü ,X vlan id ×
ip-address	M- Õ#Ï t,X*ü ,X IP ×
interface-id	M- Õ#Ï t,X*ü 2,X0Ã · Ä

5 ,ÕG!5B "u Ý#Ï t Ï)M- Õ*ü ,X Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð EîE›G!5B!8 Q ¸ Ã ¹ AŒF¼ Ú*ü Ã ¹EîE› IP Source Guard ,X "# ÈáLÔ?UEîE› DHCP • ãE¯> 4³ Ô { Ä

G!5B _

ßM6 A'5BG!5B Ô þM- Õ*ü 0Ã · 1 ,X _ $ Ö

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1
interface FastEthernet 0/1
Ruijie(config)# end
Ruijie# show ip source binding
MacAddress    IpAddress  Lease(sec)  Type    VLAN  Interface
------------- --------- ----------  ----    ----  ------------
0000.0000.0001 1.1.1.1   infinite    static   1  FastEthernet 0/1
Total number of bindings: 1
```

,Ì G Q ¸

Q ¸	£EÄ

G!5BIP Source Guard Q ¸

Q ¸ Z Æ	(Ë	AÈ â
	-	-

68.3 IP Source Guard

68.3.1 show ip source binding

A¹ Q ¸ ¹,ß IP $d 4¥ n D B g,X µ C Ä

show ip source binding [*ip-address*] [*mac-address*] [dhcp-snooping] [static] [vlan *vlan-id*] [interface *interface-id*]

– DAÈ â	– D	£EÄ
	ip-address	/ Í h ip ,X*ü 4¥ n µ C ×
	mac-address	/ Í h mac ,X*ü 4¥ n µ C ×
	dhcp-snooping	/ | Õ*ü ,X4¥ n µ C ×
	static	/ M- Õ*ü ,X4¥ n µ C ×
	vlan-id	/ Í h vlan ,X*ü 4¥ n µ C ×
	interface-id	/ Í h y ·,X*ü 4¥ n µ C Ä

5 ,ÕG!5B ´ Ä

Q ¸ õ ã (M õ ã Ä

S*ü Û Ð ´ Ä

G!5B _

ßM6 / _ $ Ö

```
Ruijie# show ip source binding static
MacAddress    IpAddress  Lease(sec)  Type    VLAN  Interface
------------- --------- ----------  ----    ----  ------------
0000.0000.0001 1.0.0.1   infinite   static   1  FastEthernet 0/1
Total number of bindings: 1
```

,Ì G Q ¸	Q ¸	£EÄ
	ip source binding	A'5B IP $d 4¥ nM- Õ*ü Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

68.3.2 show ip verify source

A¹ Q ¸ ¹,ß IP Source Guard *ü E›$¸><NM

show ip verify source [interface *interface-id*]

G ÄAÈ â ´

69 NFPP

69.1

69.1.1 cpu-protect sub-interface {man age|protocol|route} pps

A¹ Q ¸*ü 9G!5B!£/¡2O _ y [,X# G£ ú ‘ Ä

cpu-protect sub-interface { manage |protocol |route } pps *pps_vaule*

– DAÈ â	– D	2d
	pps_vaule	L$Eó" 4“ È ª 8× È 1-8192

5 ,ÕG!5B

1u)Ú2Q(Manage),X5 ,Õ# G£ ú ‘ 3000 È

E@ ¥2Q(Route) ,X5 ,Õ# G£ ú ‘ 3000 È

#A,2O(Protocol) ,X5 ,Õ# G£ ú ‘ 3000 Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

´

G!5B _

```
Ruijie(config)# cpu-protect sub-interface manage pps 200
```

,Ì G Q ¸

Q ¸	2d
cpu-protect sub-interface { *manage* | *protocol* | *route* } percent	G!5B!£ þ2O _ y [# G£ ú ‘

G ÄAÈ â

´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

69.2

69.2.1 cpu-protect sub-interface {manag e|protocol|route} percent

A¹ Q ¸*ü 9G!5B!£/¡2O _ y [4*üKó ë,X,R Ú!¨ Ä

cpu-protect sub-interface {*manage*|*protocol*|*route*} percent *percent_vaule*

– DAÈ â

– D	£EÄ
percent_vaule	,R Ú!¨ È ª 8× È 1 100

5 ,ÕG!5B

1u)Ú2Q(Manage) 4*ü4ç † ,R Ú!¨ 30 È
E@ ¥2Q(Route) 4*ü4ç † ,R Ú!¨ 25 È
#A,2O(Protocol) 4*ü4ç † ,R Ú!¨ 45 Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

´

G!5B _

```
Ruijie(config)# cpu-protect sub-interface manage percent 60
```

¸Ì G Q ¸

Q ¸	£EÄ
cpu-protect sub-interface { *manage* | *protocol* | *route* } pps	A'5B!£ þ2O _ y [,X 4*üKó ë,X,R Ú !¨

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.3 ARP ى ή 3 ψ º ב ò

	pps	Ï" 4“ È) ! !£/¦ y [D È ª 8× È [1,9999] Ä

5 ,ÕG!5B

!£ þ$d IP `!£ þ$d MAC ,X5 ,Õ Ï" 4“ !£/¦ 8 þ È!£ þ0Ã ·,X5 ,Õ Ï" 4“ !£/¦ 200 þ Ä

Q ¸ õ ã

NFPP G!5B õ ã

S*ü Û Ð

Ï" 4“ á6Ñ ã bL$Eó" 4“ Ä

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-mac 3
Ruijie(config-nfpp)# arp-guard attack-threshold per-port 50
```

Q ¸	£EÄ
nfpp arp-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp arp-guard summary	¹,ßG!5B µ C

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard enable
```

¸Ì G Q ¸

Q ¸	£EÄ
nffp arp-guard enable	ü0Ã · Þ ' Ô ARP k Ï s6Ñ
show nfpp arp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.3.3 arp-guard isolate-period

A¹ Q ¸*ü 9G!5B < Lh/• ÊKÈ Ä

arp-guard isolate-period {*seconds* | permanent}

– DAÈ â

– D	£EÄ
seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] Ä
permanent	" Lh/•

5 ¸ÕG!5B < Lh/• ÊKÈ,X5 ¸Õ 0 È G áLh/• Ä

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard isolate-period 180
```

¸Ì G Q ¸

Q ¸	£EÄ
nfpp arp-guard isolate-period	ü0Ã · ÞG!5B F¼Lh/• ÊKÈ
show nfpp arp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

69.3.4 arp-guard monitor-period

A¹ Q ¸*ü 9G!5B,¥ { ÊKÈ Ä

arp-guard monitor-period *seconds*

– DAÈ â	– D	£EÄ
	seconds	

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð V p 10 /¦Js 15 þ ¹ Þ ARP y [ÈJÒCÃ $d MAC Î n5à$d IP ¬ ê È ê5ÙJÒCÃ $dMAC `$d IP Î n5à,Â Û IP á • ¬ ê È Ax Ý ? £ +e Ä

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard scan-threshold 20
```

,Ì G Q ¸

Q ¸	£EÄ
nfpp arp-guard scan-threshold	ü0Ã · ÞG!5B ? £" 4“
show nfpp arp-guard summary	¹,ßG!5B µ C
show nfpp arp-guard scan	¹,ß ARP ? £><
clear nfpp arp-guard scan	#ÙL8ARP ? £><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.3.8 clear nfpp arp-guard hosts

#ÙL8 «,¥ { È V p >•Lh/• ÈLÔ?U?·L8Lh/• Ä

clear nfpp arp-guard hosts [vlan *vid*] [interface *interface-id*] [*ip-address* | *mac-address*]

– DAÈ â

– D	£EÄ
vid	<. ³ ³5% Ë
interface-id	0Ã · á/Ä
ip-address	IP
mac-address	MAC

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð V p á ú – D È></ #ÙL8 Ý>•,¥ {,X Ä

G!5B _ ^ VLAN 1 0Ã· g 0/1 ,X ?·L8Lh/• Ä

```
Ruijie# clear nfpp arp-guard hosts vlan 1 interface g0/1
```

,Ì G Q¸

Q¸	£EÄ
arp-guard attack-threshold	G!5B < Ï" 4“
nfpp arp-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp arp-guard hosts	¹,ß «,¥ {

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

69.3.9 clear nfpp arp-guard scan

#ÙL8ARP ? £>< Ä

clear nfpp arp-guard scan

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# clear nfpp arp-guard scan
```

,Ì G Q¸

Q¸	£EÄ
arp-guard scan-threshold	G!5B < ? £" 4“
nfpp arp-guard scan-threshold	G!5B F¼ ? £" 4“
show nfpp arp-guard scan	¹,ß ARP ? £><

G ÄAÈ â ´

(Ë

	seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] È 0 ></ áLh/• Ä
	permanent	" Lh/•

5 ,ÕG!5B 5 ,Õ ™ ‰ "u ÝG!5B F¼Lh/• ÊKÈ ÈG›*ü < Lh/• ÊKÈ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ´

G!5B _ 'ƒf b S*ü Û Ð

Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	Ï" 4“ á6Ñ ã bL$Eó" 4“ Ä

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard policy per-src-ip 2 10
Ruijie(config-if)# nfpp arp-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp arp-guard policy per-port 50 100
```

,Ì G Q ¸

Q ¸	£EÄ
arp-guard attack-threshold	G!5B < Ï" 4“
arp-guard rate-limit	G!5B < L$Eó" 4“
show nfpp arp-guard summary	¹,ßG!5B µ C
show nfpp arp-guard hosts	¹,ß «,¥ {
clear nfpp arp-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.3.13 nfpp arp-guard scan-threshold

ü0Ã · ÞG!5B F¼ ? £" 4“ Ä

nfpp arp-guard scan-threshold *pkt-cnt*

– DAÈ â

– D	£EÄ
pkt-cnt	? £" 4“ È ª 8× È [1,9999] Ä

5 ,ÕG!5B	"uG!5B Î b0Ã ·,X ARP ? £KÜ ÈG›*ü < ARP ? £KÜ Ä
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	´

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard scan-threshold 20
```

¸Ì G Q ¸

Q ¸	£EÄ
arp-guard scan-threshold	G!5B < ? £" 4“
show nfpp arp-guard summary	¹,ßG!5B µ C
show nfpp arp-guard scan	¹,ß ARP ? £><
clear nfpp arp-guard scan	#ÙL8ARP ? £><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.4 DHCP

69.4.1 dhcp-guard attack-threshold

G!5B < Ï" 4“ È G ' y [Eó zCYE› Ï" 4“,X Ê í ÈAx , ü Ï> Ä

dhcp-guard attack-threshold { per-src-mac | per-port } *pps*

– DAÈ â

– D	£EÄ
per-src-mac	G!5B!£ þ$d MAC ,X Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,X Ï" 4“ Ä
pps	Ï" 4“ È) ! !£/¦ y [D È ª 8× È [1,9999] Ä

5 ¸ÕG!5B !£ þ$d MAC ,X5 ¸Õ Ï" 4“ !£/¦ 10 þ ÈŁ þ0Ã ·,X5 ¸Õ Ï" 4“ !£/¦ 300 þ Ä

Q ¸ õ ã NFPP G!5B õ ã

Q ¸	£EÄ

	-	-

69.4.3 dhcp-guard isolate-period

A¹ Q ¸*ü 9G!5B < Lh/• ÊKÈ Ä

dhcp-guard isolate-period {*seconds* | permanent }

– D	£EÄ

Q ¸ õ ã

NFPP G!5B õ ã

S*ü Û Ð

V p «,¥ { D Æ4£E' T¬Ax,X 1000 þ È8 Ê1u)Ú , ^ «,¥ { ,X Ô û D,ÂA'5B ä ã b 1000 È á î ôL8 Æ Ý,X «,¥ { È5à ' D µ C %ERROR ÖThe value that you configured is smaller than current monitored hosts 1000 ÄG!5B,X «,¥ { D Å È please clear a part of monitored hosts. 9 ¤Gf1u)Ú ,G!5B"u Ý*ó ÈLÔ?U ôL8F¼ Ú Æ 4£>•,¥ {,X Ä

' «,¥ { ><$µ Ê È' D ¹ « % NFPP_DHCP_GUARD-4-SESS ION_LIMIT: Attempt to exceed limit of 1000 ÄG!5B «,¥ { D Å monitored hosts. ¤Gf1u)Ú , Ä

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200
```

¸Ì G Q ¸

Q ¸	£EÄ
show nfpp dhcp-guard summary	¹,ßG!5B µ C

G ÄAÈ â

´

Q ¸ Z Æ

[redacted]	AÈ â	
-	-	ÑÐsÁ!GÂD_1ƒI1u) m

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcp-guard rate-limit per-port 100
```

¸Ì G Q¸

Q¸	£EÄ
nfpp dhcp-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp dhcp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

69.4.7 clear nfpp dhcp-guard hosts

#ÙL8*ü È G ^*ü ?·L8Lh/• Ä

clear nfpp dhcp-guard hosts [*vlan vid*] [interface *interface-id*] [*mac-address*]

– DAÈ â

– D	£EÄ
vid	<. ³ ³5% Ë
interface-id	0Ã · á/Ä
mac-address	MAC

5 ¸ÕG!5B ´

Q¸õ ã (M õ ã

S*ü Û Ð V p á ú – D È></ #ÙL8 Ý>•Lh/•¸X*ü Ä

G!5B _

^ VLAN 1 0Ã · g 0/1 ¸X*ü ?·L8Lh/• Ä

```
Ruijie# clear nfpp dhcp-guard hosts vlan
```

show nfpp dhcp-guard hosts	¹,ß>•,¥ {

G ÄAÈ â ´

Q ¸ Z Æ	
(Ë	AÈ â
-	-

69.4.8 nfpp dhcp-guard enable

A¹ Q ¸*ü 9 ü0Ã · Þ ' Ô DHCP k Ï s6Ñ Ä

nfpp dhcp-guard enable

– DAÈ â	
– D	£EÄ
-	-

5 ,ÕG!5B 0Ã ·"u ÝG!5B DHCP k Ï Ô G ÈG›*ü < Ô G Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð 0Ã ·,X DHCP k Ï Ô G ì b < DHCP k Ï Ô G Ä

G!5B –

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcp-guard enable
```

,Ì G Q ¸	
Q ¸	£EÄ
dhcp-guard enable	< ' Ô DHCP k Ï s6Ñ
show nfpp dhcp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ	
(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.4.9 nfpp dhcp-guard isolate-period

A¹ Q ¸*ü 9 ü0Ã · ÞG!5B F¼Lh/• ÊKÈ Ä

nfpp dhcp-guard isolate-period {*seconds* | permanent }

– DAÈ â

– D	£EÄ
seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] È 0 ></ áLh/• Ä
permanent	" Lh/•

5 ,ÕG!5B 5 ,Õ ™ ‰ "u ÝG!5B F¼Lh/• ÊKÈ ÈG›*ü < Lh/• ÊKÈ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard isolate-period 180
```

,Ì G Q ¸

Q ¸	£EÄ
dhcp-guard isolate-period	G!5B < Lh/• ÊKÈ
show nfpp dhcp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.4.10 nfpp dhcp-guard policy

ü0Ã · ÞG!5B F¼,XL$Eó" 4“ ` Ï" 4“ Ä

nfpp dhcp-guard policy { per-src-mac | per-port } *rate-limit-pps attack-threshold-pps*

– DAÈ â

– D	£EÄ
per-src-mac	G!5B!£ þ$d MAC ,XL$Eó" 4“ ` Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,XL$Eó" 4“ ` Ï" 4“ Ä
rate-limit-pps	L$Eó" 4“ È ª 8× È 1 9999 Ä
attack-threshold-pps	Ï" 4“ È ª 8× È 1 9999 Ä

5 ,ÕG!5B 0Ã ·"u Ý7¾ Å,XL$Eó" 4“ ` Ï" 4“ ÈG›*ü < ,XL$Eó" 4“ `L$Eó" 4“ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Ï" 4“ á6Ñ ã bL$Eó" 4“ Ä

G!5B _

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp dhcp-guard policy per-port 50 100
```

¸Ì G Q ¸

Q ¸	£EÄ
dhcp-guard attack-threshold	G!5B < Ï" 4“
dhcp-guard rate-limit	G!5B < L$Eó" 4“
show nfpp dhcp-guard summary	¹,ßG!5B µ C
show nfpp dhcp-guard hosts	¹,ß «,¥ {
clear nfpp dhcp-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.5 DHCPv6

69.5.1 dhcpv6-guard attack-threshold

G!5B < Ï" 4“ È G ' y [Eó zCYE› Ï" 4“,X Ê í ÈAx , ü Ï> Ä

dhcpv6-guard attack-threshold { per-src-mac | per-port } *pps*

– DAÈ â

– D	£EÄ
per-src-mac	G!5B!£ þ$d MAC ,X Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,X Ï" 4“ Ä
pps	Ï" 4“ È) ! !£/¦ y [D È ª 8× È [1,9999] Ä

5 ¸ÕG!5B !£ þ$d MAC ,X5 ¸Õ Ï" 4“ !£/¦ 10 þ È£ þ0Ã ·,X5 ¸Õ Ï" 4“ !£/¦ 300 þ Ä

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-port 200
```

,Ì G Q¸

Q¸	£EÄ
nfpp dhcpv6-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp dhcpv6-guard summary	¹,ßG!5B µ C
show nfpp dhcpv6-guard hosts	¹,ß «,¥ { ><
clear nfpp dhcpv6-guard hosts	#ÙL8 «,¥ {

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q¸

69.5.2

nffp dhcpv6-guard enable	ü0Ã · Þ ' Ô DHCPv6 k Ï s6Ñ
show nfpp dhcpv6-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.5.3 dhcpv6-guard isolate-period

A¹ Q ¸*ü 9G!5B < Lh/• ÊKÈ Ä

dhcpv6-guard isolate-period {*seconds* | permanent }

– DAÈ â

– D	£EÄ
seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] È 0 ></ áLh/• Ä
permanent	" Lh/•

5 ,ÕG!5B < Lh/• ÊKÈ,X5 ,Õ 0 È G áLh/• Ä

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Đ Í Ï5Ù,XLh/• ÊKÈ Ú < Lh/• ÊKÈ ` Î b0Ã ·,XLh/• ÊKÈ Ä G F¼Lh/• ÊKÈ Å Ä Í b ¤ þ0Ã · È V p"u ÝG!5B Î b0Ã ·,XLh/• ÊKÈ ÈFw G›*ü < Lh/• ÊKÈ × ú í ÈG›*ü Î b0Ã ·,XLh/• ÊKÈ Ä

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard isolate timeout 180
```

,Ì G Q ¸

Q ¸	£EÄ
nfpp dhcpv6-guard isolate-period	ü0Ã · ÞG!5B F¼Lh/• ÊKÈ
show nfpp dhcpv6-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â

10.4	„ rA¹ Q ¸

69.5.4 dhcpv6-guard monitor- period

A¹ Q ¸*ü 9G!5B,¥ { ÊKÈ Ä

dhcpv6-guard monitor- period *seconds*

– DAÈ â	– D	£EÄ
	seconds	,¥ { ÊKÈ È) ! /¦ È ª 8× È [180, 86400] Ä

5 ,ÕG!5B < ,¥ { ÊKÈ,X5 ,Õ 600 /¦ Ä , 8'25B9.88 1.24 20.34re f 66.84 597.88 1.632 -224 re f 14 /TT0

dhcpv6-guard monitored-host-limit *number*

– DAÈ â

– D	£EÄ
number	Õ,X Ô û Ô û «,¥ { D È ª 8× È 1 4294967295

5 ,ÕG!5B 5 ,Õ Õ,X Ô û «,¥ { D 1000 þ

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð

V p «,¥ { D Æ4£E' T¬Ax,X 1000 þ È8 Ê1u)Ú , ^ «,¥ { ,X Ô û D,ÂA'5B ä ã b 1000 È á î ôL8 Æ Ý,X «,¥ { È5à ' D µ C %ERROR ÖThe value that you configured is smaller than current monitored hosts 1000 ÄG!5B,X «,¥ { D Å È please clear a part of monitored hosts. 9 ¤Gf1u)Ú ,G!5B"u Ý*ó ÈLÔ?U ôL8F¼ Ú Æ 4£>•,¥ {,X Ä

' «,¥ { ><$µ Ê È' D ¹ « % NFPP_DHCP_GUARD-4-SESS ION_LIMIT: Attempt to exceed limit of 1000 ÄG!5B «,¥ { D Å monitored hosts. ¤Gf1u)Ú , Ä

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200
```

,Ì G Q ¸

Q ¸	£EÄ
show nfpp dhcpv6-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.5.6 dhcpv6-guard rate-limit

G!5B < L$Eó" 4“ Ä

dhcpv6-guard rate-limit { per-src-mac | per-port } *pps*

– DAÈ â

– D	£EÄ
per-src-mac	Í!£ þ$d MAC E¯> L$Eó
per-port	Í!£ þ0Ã ·E¯> L$Eó
pps	L$Eó" 4“ È ª 8× È [1,9999] Ä

5 ,ÕG!5B	!£ þ$d MAC ,X5 ,ÕL$Eó" 4“ !£/¦ 5 þ È!£ þ0Ã ·,X5 ,ÕL$Eó" 4“ !£/¦ 150 þ Ä
Q ¸ õ ã	NFPP G!5B õ ã
S*ü Û Ð	´

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcpv6-guard rate-limit per-port 100
```

,Ì G Q ¸

Q ¸	£EÄ
nfpp dhcpv6-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp dhcpv6-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

(Ë	AÈ â
[redacted]	„ rA¹ Q ¸

G!5B –

^ VLAN 1 0Ã · g 0/1 ,X*ü ?·L8Lh/• Ä

```
Ruijie# clear nfpp dhcpv6-guard hosts vlan 1 interface g0/1
```

,Ì G Q ¸

Q ¸	£EÄ
dhcpv6-guard attack-threshold	G!5B < Ï" 4“
nfpp dhcpv6-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp dhcpv6-guard hosts	¹,ß>•,¥ {

G ÄAÈ â

´

(Ë	

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ rA¹ Q ¸

69.5.9 nfpp dhcpv6-guard isolate-period

A¹ Q ¸*ü 9 ü0Ã · ÞG!5B F¼Lh/• ÊKÈ Ä

nfpp dhcpv6-guard isolate-period {*seconds* | permanent }

– DAÈ â	– D	£EÄ
	seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] È 0 ></ áLh/• Ä
	permanent	" Lh/•

5 ,ÕG!5B	5 ,Õ ™ ‰ "u ÝG!5B F¼Lh/• ÊKÈ ÈG›*ü < Lh/• ÊKÈ Ä
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	´

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcpv6-guard isolate-period 180
```

,Ì G Q ¸	Q ¸	£EÄ
	dhcpv6-guard isolate-period	G!5B < Lh/• ÊKÈ
	show nfpp dhcpv6-guard summary	¹,ßG!5B µ C

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ rA¹ Q ¸

69.5.10 nfpp dhcpv6-guard policy

ü0Ã · ÞG!5B F¼,XL$Eó" 4“ ` Ï" 4“ Ä

nfpp dhcpv6-guard policy { per-src-mac | per-port } *rate-limit-pps attack-threshold-pps*

– DAÈ â

– D	£EÄ
per-src-mac	G!5B!£ þ$d MAC ,XL$Eó" 4“ ` Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,XL$Eó" 4“ ` Ï" 4“ Ä
rate-limit-pps	L$Eó" 4“ È ª 8× È 1 9999 Ä
attack-threshold-pps	Ï" 4“ È ª 8× È 1 9999 Ä

5 ,ÕG!5B

– DAÈ â

– D	£EÄ
per-src-ip	G!5B!£ þ$d IP ,X Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,X Ï" 4“ Ä
pps	Ï" 4“ È) ! !£/¦ y [D È ª 8× È [1,9999] Ä

5 ,ÕG!5B

!£ þ$d IP ,X5 ,Õ Ï" 4“ !£/¦ 1200 þ È!£ þ0Ã ·,X5 ,Õ Ï" 4“ !£/¦ 1500 þ Ä

Q ¸ õ ã

NFPP G!5B õ ã

S*ü Û Ð

´

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard attack-threshold per-src-ip 600
Ruijie(config-nfpp)# icmp-guard attack-threshold per-port 1200
```

,Ì G Q ¸

Q ¸	£EÄ
nfpp icmp-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp icmp-guard summary	¹,ßG!5B µ C
show nfpp icmp-guard hosts	¹,ß «,¥ {
clear nfpp icmp-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.6.2 icmp-guard enable

A¹ Q ¸*ü 9 ' Ô ICMP L Ï s6Ñ Ä

icmp-guard enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B

T¬AxlCMP L Ï s6Ñ ' Ô

Q ¸ õ ã	NFPP G!5B õ ã
S*ü Û Ð	´
G!5B _	Ruijie(config)# **nfpp** Ruijie(config-nfpp)# **icmp-guard enable**

¸Ì G Q ¸

Q ¸	£EÄ
nffp icmp-guard enable	ü0Ã · Þ ' Ô ICMP k Ï s6Ñ
show nfpp icmp-guard summary	¹,ßG!5B µ C

G ÄAÈ â	´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.6.3 icmp-guard isolate-period

A¹ Q ¸*ü 9G!5B < Lh/• ÊKÈ Ä

icmp-guard isolate-period

,Ì G Q ¸	Q ¸	£EÄ
	nfpp icmp-guard isolate-period	ü0Ã · ÞG!5B F¼Lh/• ÊKÈ
	show nfpp icmp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

69.6.4 icmp-guard monitor-period

A¹ Q ¸*ü 9G!5B,¥ { ÊKÈ Ä

icmp-guard monitor-period *seconds*

– DAÈ â	– D	£EÄ
	seconds	,¥ { ÊKÈ È) ! /¦ È ª 8× È [180, 86400] Ä

5 ,ÕG!5B < ,¥ { ÊKÈ,X5 ,Õ 600 /¦ Ä

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð ”# Î Ï5Ù,X Ê í È V pLh/• ÊKÈ 0 È Ú Í Ï5ÙE¯> EC Ê,¥ { ÈCY Ê ,¥ { Ê KÈ Ä üEC Ê,¥ {E›/ß È 'Lh/• ÊKÈ>•G!5B M2LÊ Ê È Ú7¾ | ÍEC Ê,¥ {,X Ï 5ÙG› ª.@ ÊLh/• È J è ^CY ÊA’5B Lh/• ÊKÈ Ä,¥ { ÊKÈ üLh/• ÊKÈ 0 ,X ™ ‰ ß ! Ý ã Ä

V p ^Lh/• ÊKÈ ¢M2LÊ äLÊ È Ú,È y ^,Ì G0Ã ·,X Ï5Ù ôL8 È5à á E¯> EC Ê,¥ { Ä

G!5B _

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitor-period 180
```

,Ì G Q ¸	Q ¸	£EÄ
	show nfpp icmp-guard summary	¹,ßG!5B µ C
	show nfpp icmp-guard hosts	¹,ß «,¥ { ><
	clear nfpp icmp-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.6.5 icmp-guard monitored-host-limit

A¹ Q ¸*ü 9G!5B Õ,X Ô û «,¥ { D Ä

icmp-guard monitored-host-limit *number*

– DAÈ â

– D	£EÄ
number	Õ,X Ô û «,¥ { D È ª 8× È 1 4294967295

5 ,ÕG!5B 5 ,Õ Õ,X Ô û «,¥ { D 1000 þ Ä

Q ¸ õ ã NFPP G!5B õ ã

S*ü Û Ð

V p «,¥ { D Æ4£E' T¬Ax,X 1000 þ È8 Ê1u)Ú , ^ «,¥ { ,X Ô û D,ÂA'5B ä ã b 1000 È á î ôL8 Æ Ý,X «,¥ { È5à ' D µ C %ERROR ÖThe value that you configured is smaller than current monitored hosts 1000 ÄG!5B,X «,¥ { D Å È please clear a part of monitored hosts. 9 ¤Gf1u)Ú ,G!5B"u Ý*ó ÈLÔ?U ôL8F¼ Ú Æ 4£>•,¥ {,X Ä

' «,¥ { $µ Ê È' D ¹ « % NFPP_ICMP_GUARD-4-SESSI ON_LIMIT: Attempt to exceed limit of 1000 ÄG!5B,X «,¥ { D Å monitored hosts. ¤Gf1u)Ú , Ä

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitored-host-limit 200
```

¸Ì G Q ¸

Q ¸	£EÄ
show nfpp icmp-guard summary	¹,ßG!5B µ C

trusted-host G!5B á.¥ {.X Ã u 34ÄC .ÕL$Eó" 4" rate-limit b Ä {

ip	IP
mask	IP ,X }-Õ
all	` no ÔCK S*ü È ôL8 Ý Ã µ G!5B

5 ,Õ"u ÝA'5B Ï

5 ,Õ"u ÝA'5B Ï) Ã µ Ä

Q õã

NFPP G!5B õ ã

5¦ü Û Ð

V p1u)Ú , à ï Í ¤ Ä áE¯> ,¥ { È G ÍA¹ ></ µ Ï È í Ã ¹EîE›A¹ Q ¸G!5B Ä
A¹ Ã µ ¥ T CPU ,X ICMP y [Ú>• AŒ ¥ T CPU È á . Ï),XL$Eó ` A: Ø)Ú Ä
EîE›G!5B }-Õ Ã ¹E' Í ¤ Ô þ5%!‰,X Ý FÑ áE¯> ,¥ { Ä
Ô î ÕA'5B 500 5 Ã µ Ä

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard trusted-host 1.1.1.0 255.255.255.0
```

Q ¸	

Q¸õã (M õã

S*üÛÐ V p á ú – D È></ #ÙL8 Ý>•,¥{,X Ä

G!5B _ #ÙL8VLAN 1 0Ã· g 0/1 ,X «,¥{ Ä

```
Ruijie# clear nfpp icmp-guard hosts vlan 1 interface g 0/1
```

,ÌGQ¸

Q¸	£EÄ
icmp-guard attack-threshold	G!5B < Ï" 4“
nfpp icmp-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp icmp-guard hosts	¹,ß>•,¥{

GÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
-	-

69.6.9 nfpp icmp-guard enable

A¹Q¸*ü 9 ü0Ã·Þ'Ô ICMP k Ïs6Ñ Ä

nfpp icmp-guard enable

–DAÈâ

–D	£EÄ
-	-

5,ÕG!5B 0Ã·"u ÝG!5B ICMP k ÏÔG ÈG›*ü < ÔG Ä

Q¸õã y·G!5B õã

S*üÛÐ 0Ã·,X ICMP k ÏÔG ì b < ICMP k ÏÔG Ä

G!5B _

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp icmp-guard enable
```

,ÌGQ¸

Q¸	£EÄ
icmp-guard enable	< 'Ô ICMP k Ïs6Ñ

show nfpp icmp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.6.10 nfpp icmp-guard isolate-period

A¹ Q ¸*ü 9 ü0Ã · ÞG!5B F¼Lh/• ÊKÈ Ä

nfpp icmp-guard isolate-period {*seconds* | permanent }

– DAÈ â

– D	£EÄ
seconds	Lh/• ÊKÈ È) ! /¦ Èª 8× È 0 ê5Ù[30, 86400] È 0 ></ áLh/• Ä
permanent	" Lh/•

5 ,ÕG!5B 5 ,Õ ™ ‰ "u ÝG!5B F¼Lh/• ÊKÈ ÈG›*ü < Lh/• ÊKÈ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp icmp-guard isolate-period 180
```

,Ì G Q ¸

Q ¸	£EÄ
icmp-guard isolate-period	G!5B < Lh/• ÊKÈ
show nfpp icmp-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.6.11 nfpp icmp-guard policy

69.7.1 ip-guard attack-threshold

G!5B < Ï" 4“ È G ' y [Eó zCYE› Ï" 4“,X Ê í ÈAx , ü Ï> Ä

ip-guard attack-threshold {per-src-ip | per-port } *pps*

– DAÈ â

– D	£EÄ
per-src-ip	G!5B!£ þ$d IP ,X Ï" 4“ Ä
per-port	G!5B!£ þ0Ã ·,X Ï" 4“ Ä
pps	Ï" 4“ È) ! !£/¦ y [D È ª 8× È [1,9999] Ä

5 ,ÕG!5B þ0IPa Å€ G!°ð|ð" 4“ Ä!£/¦ ƒa€ 1 g Ò †Y½ 0 þ0›v 6 G!°ð|ð" 4“ Ä!£/¦ ƒa€ 1 f -â l& ¬m ÄÅ0l" m Â T

– D

G!5B –

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard isolate-period 180
```

clear nfpp ip-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â ´

(Ë	**AÈ â**
10.4	„ rA¹ Q ¸

Q ¸ Z Æ

69.7.5 ip-guard monitored-host-limit

G!5B

S*ü Û Ð

V p1u)Ú , à ï Í ¤ Ä áE¯> ,¥ { È G ÍA¹ ></ µ Ï È í Ã ¹EîE›A¹ Q ¸G!5B Ä A¹ Ã µ ¥ T CPU ,X IP y [Ú>• AŒ ¥ T CPU È á . Ï),XL$Eó ` A: Ø)Ú Ä Ô î ÕA'5B 500 5 Ã µ Ä

G!5B _

^ 1.1.1.0/24 5%!‰,X Ý G!5B Ã µ Ä

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#ip-guard trusted-host 1.1.1.0 255.255.255.0
```

,Ì G Q ¸

Q ¸	£EÄ
show nfpp ip-guard trusted-hosts	¹,ß Ã µ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.7.9 clear nfpp ip-guard hosts

#ÙL8 «,¥ { È V p >•Lh/• ÈLÔ?U?·L8Lh/• Ä

clear nfpp ip-guard hosts [vlan *vid*] [interface *interface-id*] [*ip-address*]

– DAÈ â

– D	£EÄ
vid	<. ³ ³5% Ë
interface-id	0Ã · á/Ä
ip-address	IP

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð V p á ú – D È></ #ÙL8 Ý>•,¥ {,X Ä

G!5B _

^ VLAN 1 0Ã · g 0/1 ,X ?·L8Lh/• Ä

```
Ruijie# clear nfpp ip-guard hosts vlan 1 interface g0/1
```

,Ì G Q ¸

Q ¸	£EÄ

ip-guard attack-threshold	G!5B < Ï" 4“
nfpp ip-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp ip-guard hosts	¹,ß «,¥ {

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.7.10 nfpp ip-guard enable

A¹ Q ¸*ü 9 ü0Ã · Þ ' Ô IP L ? £ s6Ñ Ä

nfpp ip-guard enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 0Ã ·"u ÝG!5B IP L ? £ Ô G ÈG›*ü < Ô G Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð 0Ã ·,X IP L ? £ Ô G ì b < L ? £ Ô G Ä

G!5B _

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp ip-guard enable
```

¸Ì G Q ¸

Q ¸	£EÄ
ip-guard enable	< ' Ô IP L ? £ s6Ñ
show nfpp ip-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.7.11 nfpp ip-guard isolate-period

5 ,ÕG!5B 0Ã ·"u Ý7¾ Å,XL$Eó" 4“ ` Ï" 4“ ÈG›*ü < ,XL$Eó" 4“ ` Ï" 4“ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð Ï" 4“ á6Ñ ã bL$Eó" 4“ Ä

G!5B _

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard policy per-src-ip 2 10
Ruijie(config-if)# nfpp ip-guard policy per-port 50 100
```

,Ì G Q ¸

Q ¸	£EÄ
ip-guard attack-threshold	G!5B < Ï" 4“
ip-guard rate-limit	G!5B < L$Eó" 4“
show nfpp ip-guard summary	¹,ßG!5B µ C
show nfpp ip-guard hosts	¹,ß «,¥ {
clear nfpp ip-guard hosts	#ÙL8 ÆLh/•

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.7.13 nfpp ip-guard scan-threshold

ü0Ã · ÞG!5B F¼ ? £" 4“ Ä

nfpp ip-guard scan-threshold *pkt-cnt*

– DAÈ â

– D	£EÄ
pkt-cnt	? £" 4“ È ª 8× È [1,9999] Ä

5 ,ÕG!5B "uG!5B Î b0Ã ·,X IP ? £" 4“ ÈG›*ü < ARP ? £" 4“ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð ´

G!5B –

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard scan-threshold 20
```

ect 10

Q ¸	£EÄ
nfpp nd-guard policy	G!5B F¼,XL$Eó" 4“ ` Ï" 4“
show nfpp nd-guard summary	¹,ßG!5B µ C

´

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.8.2 nd-guard enable

A¹ Q ¸*ü 9 < ' Ô ND k Ï s6Ñ Ä

nd-guard enable

– D	£EÄ
-	-

T¬AxND k Ï s6Ñ ' Ô

NFPP G!5B õ ã

´

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nd-guard enable
```

69.8.3 nd-guard rate-limit

G!5B < L$Eó" 4“ Ä

nd-guard rate-limit per-port {ns-na | rs | ra-redirect } *pps*

– DAÈ â

– D	**£EÄ**
ns-na	F• AË" `F• @
rs	CÃ+ <AË"
ra-redirect	CÃ+ < @ `G¡ n å y [
pps	L$Eó" 4“ È ª 8× È [1,9999] Ä

5 ,ÕG!5B

!£ þ0Ã ·F• AË" / @ ,X5 ,ÕL$Eó" 4“ !£/¦ 15 þ ÈCÃ+ <AË" ,X5 ,Õ Ï" 4“ !£/¦ 15 þ ÈCÃ+ < @ / G¡ n å y [,X5 ,Õ Ï" 4“ !£*ñ I!` 2 2ú`

Q ¸ õ ã

NFPP G!5B õ ã

```
Ruijie(config)#nfpp
Ruijie(config-nfpp)#nfpp nd-guard rate-limit
```

S*ü Û Ð

```
Ruijie(config-nfpp)#nfpp nd-guard rate-limit
Ruijie(config-nfpp)#nfpp nd-guard rate-limit
```

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 0Ã ·"u ÝG!5B ND k Ï Ô G ÈG›*ü < Ô G Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð 0Ã ·,X ND k Ï Ô G ì b < Ô G Ä

G!5B –

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp nd-guard enable
```

,Ì G Q ¸

Q ¸	£EÄ
nd-guard enable	< ' Ô ND k Ï s6Ñ
show nfpp nd-guard summary	¹,ßG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.8.5 nfpp nd-guard policy

ü0Ã · ÞG!5B F¼,XL$Eó" 4“ ` Ï" 4“ Ä

nfpp nd-guard policy per-port {ns-na | rs | ra-redirect } *rate-limit-pps attack-thresh old-pps*

– DAÈ â

– D	£EÄ
ns-na	F• AË" `F• @
rs	CÃ+ <AË"
ra-redirect	CÃ+ < @ `G¡ n å y [
rate-limit-pps	L$Eó" 4“ È ª 8× È 1 9999 Ä
attack-threshold-pps	Ï" 4“ È ª 8× È 1 9999 Ä

5 ,ÕG!5B 0Ã ·"u Ý7¾ Å,XL$Eó" 4“ ` Ï" 4“ ÈG›*ü < ,XL$Eó" 4“ ` Ï" 4“ Ä

G!5BNFPP Q ¸ 78.02 473.58 0.61.160.84 786.02 473f BT00.2 w 2.M 67 Tc 2.913 0

5¸ÕG!5B ´

Q¸õã (M õã

S*üÛÐ ´

G!5B _

```
Ruijie# clear nfpp log
32 log-buffer entries were cleared.
```

¸Ì G Q¸

Q¸	£EÄ
show nfpp log	/ NFPP ¹«G!5B ê¹«4ç †

GÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
10.4	„ rA¹ Q¸

69.9.2 log-buffer entries

G!5BNFPP ¹«4ç † ûãÄ

log-buffer entries *number*

–DAÈâ

–D	£EÄ
number	4ç † ûãÈ)! ¹«5DÈª 8×È [0,1024]

5¸ÕG!5B T¬Ax4ç † ûã 256Ä

Q¸õã NFPP G!5B õã

S*üÛÐ ´

G!5B _

```
^ NFPP ¹«4ç † ûãG!5B 50 5¹«Ä
Ruijie(config)# nfpp
Ruijie(config-nfpp)# log-buffer entries 50
```

¸Ì G Q¸

Q¸	£EÄ

log-buffer logs number_of_message interval length_in_seconds	G!5BNFPP ¢4ç † ª ¹ «*ó ä2Ï4³ #\ C,XEó)[Ä
show nfpp log	/ NFPP ¹ «G!5B ê ¹ «4ç †

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	**AÈ â**
10.4	„ rA¹ Q ¸

69.9.3 log-buffer logs

G!5BNFPP ¢ ¹ «4ç † ª ¹ «*ó ä2Ï4³#\ C,XEó)[Ä

log-buffer logs *number_of_message* interval *length_in_seconds*

– D	**£EÄ**

show nfpp log summary	/ NFPP ¹ «G!5B ê ¹ «4ç † Ä

G ÄAÈ â ´

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.9.5 show nfpp log

/ NFPP ¹ «G!5B Ä

show nfpp log summary

/ NFPP ¹ «4ç † Y • Ä

show nfpp log buffer [statistics]

– DAÈ â

– D	£EÄ
statistics	/ NFPP ¹ «4ç † ,X4³Au µ C

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð

' ¹ «4ç † $v Î Ê È â4Á,X ¹ « Ú>• ö × È à Ê ü ¹ «4ç † / Ô 5 Ý 2 ûFÑ
”-”,X><NM Ä1u)Ú ,LÔ?U r t ¹ «4ç † •G£ ê5Ù ¤P¬*ó ä2Ï4³#\ C,XEó)[Ä
¢ ¹ «4ç † ª ¹ «*ó ä,X2Ï4³#\ C ú Ý _ Ê ¥*ó,X ÊKÈ È V ß / Ö

%NFPP_ARP_GUARD-4-DOS_DETECTED: Host<IP=N/A,MAC=0000.0000.0004,port=Gi4/1,VLAN=1> was detected.(2009-07-01 13:00:00)

G!5B _

¹,ß NFPP ¹ « µ CG!5B Ä

```
Ruijie#show nfpp log summary
Total log buffer size : 10
Syslog rate : 1 entry per 2 seconds
Logging:
  VLAN  1-3, 5
  interface Gi 0/1
  interface Gi 0/2
```

¹,ß NFPP ¹ «4ç † ¹ « 5 D Ä

```
Ruijie#show nfpp log buffer statistics
There are 6 logs in buffer.
```

¹,ß NFPP ,X ¹ «4ç † Ä

```
Ruijie#show nfpp log buffer
Protocol VLAN  Interface IP address MAC address     Reason
 Timestamp
------- ----  --------   ---------  -----------     ------
 ---------
ARP     1     Gi0/1      1.1.1.1     -              DoS
2009-05-30 16:23:10
ARP     1     Gi0/1      1.1.1.1     -              ISOLATED
2009-05-30 16:23:10
ARP     1     Gi0/1      1.1.1.2     -              DoS
2009-05-30 16:23:15
ARP     1     Gi0/1      1.1.1.2     -              ISOLATE_FAILED
2009-05-30 16:23:15
ARP     1     Gi0/1      -         0000.0000.0001   SCAN
2009-05-30 16:30:10
ARP     -     Gi0/2      -         -                PORT_ATTACKED
2009-05-30 16:30:10
```

Protocol Ý ¹ ß ª Ö

ARP Ä Í h ARP k Ï Å

IP Ä Í h IP L ? £ Å

ICMP Ä Í h ICMP k Ï Å

DHCP Ä Í h DHCP k Ï Å

DHCPv6 Ä Í h DHCPv6 k Ï Å

NS-NA Ä Í h ND k Ï ,XF• AË" `F• @ Å

RS Ä Í h ND k Ï ,XCÃ+ <AË" Å

RA-REDIRECT Ä Í h ND k Ï ,XCÃ+ < @ `G¡ n å y [Å

Reason ></ s ´ È Ý 5 /¡ ª Ö

DoS ></ ”# ¦4± á u Ï

ISOLATED ></ Ï5Ù>•.@ Ê ä s Lh/•

ISOLATE_FAILED ></ Lh/• Ï5Ù Bù

clear nfpp log	#Ù0NNFPP ¹ «4ç †

G ÄAÈ â ´

(Ë	AÈ â
10.4	„ rA¹ Q ¸

ow nfpp arp-guard hosts

{ Ä

pp arp-guard hosts [statistics | [[*vlan vid*] [interface *interface-id*] [*ip-address* | *dress*]]]

```
Ruijie# show nfpp arp-guard hosts
If column 1 shows '*', it means "hardware do not isolate user" .
VLAN  interface IP address   MAC address     remain-time(s)
----  --------   ---------    -----------     -------------
1     Gi0/1      1.1.1.1      -               110
2     Gi0/2      1.1.2.1      -               61
*3    Gi0/3      -            0000.0000.1111  110
4     Gi0/4      -            0000.0000.2222   61
Total Ö4 hosts
```

,Ì G Q ¸

Q ¸	£EÄ
clear nfpp arp-guard hosts	#ÙL8 «,¥ {

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

69.10.2 show nfpp arp-guard scan

¹,ß ARP ? £>< Ä

show nfpp arp-guard scan [statistics | [[vlan *vid*] [interface *interface-id*] [*ip-address*] [*mac-address*]]]

– DAÈ â

– D	£EÄ
statistics	¹,ß ARP ? £><,XA„) 5 D
vid	<. ³ ³5% Ë
interface-id	0Ã · á/Ä
ip-address	IP
mac-address	MAC

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie# show nfpp arp-guard scan statistics
ARP scan table has 4 record(s).
```

ãñ Ö ARP ?£>< E Ý 4 5A„) Ä

```
Ruijie# show nfpp arp-guard scan
VLAN    interface   IP address   MAC address      timestamp
----    --------    ----------  -----------      ----------
1       Gi0/1       N/A          0000.0000.0001   2008-01-23
16:23:10
2       Gi0/2       1.1.1.1      0000.0000.0002   2008-01-23
16:24:10
3       Gi0/3       N/A          0000.0000.0003   2008-01-23
16:25:10
4       Gi0/4       N/A          0000.0000.0004   2008-01-23
16:26:10
Total Ö4 record(s)
```

timestamp A„),X "# Î ARP ?£,X ÊKÈ È V 2008-01-23 16:23:10 ></ ü 2008 H 1 Ü 23 ¹ 16 &• 23 Ú 10 /¦ "# Î ARP ?£Ä

```
Ruijie# show nfpp arp-guard scan vlan 1 interface  G 0/1
0000.0000.0001
VLAN    interface   IP address   MAC address      timestamp
----    --------    ----------    -----------      ----------
1       Gi0/1       N/A           0000.0000.0001   2008-01-23
16:23:10
Total Ö1 record(s)
```

,Ì G Q¸

Q¸	£EÄ
arp-guard scan-threshold	G!5B < ?£" 4“
nfpp arp-guard scan-threshold	G!5B F¼?£" 4“
clear nfpp arp-guard scan	#ÙL8ARP ?£><

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

69.10.3 show nfpp arp-guard summary

¹,ßG!5B µ C Ä

show nfpp arp-guard summary

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ Ã ¹ ¹,ßG!5B µ C Ä

G!5B _

```
Ruijie# show nfpp arp-guard summary
 ÄFormat of column Rate-limit and  Attack-threshold is per-src-ip
/per-src-mac/per-port. Å
Interface  Status  Isolate-period Rate-limit Attack-threshold Sc
an-threshold
Global     Enable  300            4/5/60    8/10/100          15
Gi 0/1      Enable  180            5/-/-      8/-/-             -
Gi 0/2      Disable 200            4/5/60    8/10/100          20

Maximum count of monitored hosts: 1000
Monitor period Ö300s
```

AÈ â Ö

Ä1 Å +!‰ Interface Global ></ < G!5B Ä

Ä2 Å +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä

Ä3 Å +!‰ Rate-limit ,X ã Ä Í$d IP ,XL$Eó" 4“/ Í$d MAC ,XL$Eó " 4“/ 0Ã ·,XL$Eó" 4“ Å È +!‰ Attack-threshold ,X / ã2O Ä - ></ "u ÝG!5B Ä

Q ¸	£EÄ
arp-guard attack-threshold	G!5B < Ï" 4“
arp-guard enable	< ' Ô ARP k Ï s6Ñ
arp-guard isolate-period	G!5B < Lh/• ÊKÈ

/ Í$d

nfpp arp-guard enable	ü0Ã · Þ ' Ô ARP k Ï s6Ñ
nfpp arp-guard isolate-period	G!5B F¼Lh/• ÊKÈ
nfpp arp-guard policy	G!5B F¼L$Eó" 4“ ` Ï" 4“
nfpp arp-guard scan-threshold	G!5B F¼ ? £" 4“

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

69.11 DHCP

69.11.1 show nfpp dhcp-guard hosts

¹,ß «,¥ { Ä

show nfpp5 .6C0EA10CB50EAD06910A610997>Tj /TT1 1 Tf 0 Tc 0 Tr ( )w.-6(10.5 1)Tj /C2_0 1 T

ÄEî éCK,X s ´ Ý Y , áC‡ È ê5Ù.@ ÊC $d áC‡ Å Ä

¹,ß «,¥ { È1 ¯ ë remain-time(seconds) Û = -,XLh/• ÊKÈ Ä

Ruijie# show nfpp dhcp-guard hosts

If column 1 shows '*', it means "hardware failed to isolate host".

VLAN	interface	MAC address	remain-time(seconds)
1	gi0/2	0000.0000.0001	10
*2	gi0/1	0000.0000.0002	20

Total Ö2 host(s)

Q ¸	£EÄ

```
Global     Enable  300            -/5/150     -/10/300
Gi 0/1      Enable  180            -/6/-       -/8/-
Gi 0/2      Disable 200            -/5/30      -/10/50

Maximum count of monitored hosts: 1000
Monitor period Ö300s
```

AÈ â Ö

Ä1 Å +!‰ Interface Global ></ < G!5B Ä

Ä2 Å +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä

Ä3 Å +!‰ Rate-limit ,X ã Ä Í$d IP ,XL$Eó" 4“/ Í$d MAC ,XL$Eó" 4“/ 0Ã ·,XL$Eó" 4“ Å È +!‰ Attack-threshold ,X / ã2O Ä - ></ "u Ý G!5B Ä

,Ì G Q ¸

Q ¸	£EÄ
dhcp-guard attack-threshold	G!5B < Ï" 4“
dhcp-guard enable	< ' Ô DHCP k Ï s6Ñ
dhcp-guard isolate-period	G!5B < Lh/• ÊKÈ
dhcp-guard monitor-period	G!5B,¥ { ÊKÈ
dhcp-guard monitored-host-limit	G!5B Ô û «,¥ { D
dhcp-guard rate-limit	G!5B < L$Eó" 4“
nfpp dhcp-guard enable	ü0Ã · Þ ' Ô DHCP k Ï s6Ñ
nfpp dhcp-guard isolate-period	G!5B F¼Lh/• ÊKÈ
nfpp dhcp-guard policy	G!5B F¼L$Eó" 4“ ` Ï" 4“

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.12 DHCPv6

69.12.1 show nfpp dhcpv6-guard hosts

¹,ß «,¥ { Ä

show nfpp dhcpv6-guard hosts [statistics | [[vlan *vid*] [interface

– DAÈ â

– D	£EÄ
statistics	¹,ß «,¥ { ,X4³Au µ C
vid	<. ³ ³5% Ë
interface-id	0Ã · á/Ä
mac-address	MAC

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

G!5B –

¹,ß «,¥ { ,X4³Au µ C Ä

Ruijie# show nfpp dhcpv6-guard hosts statistics

success fail total

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

100 20 120

' ! Ý 120 Ä >•,¥ { È J 100 Ä >•.@ Ê ä s Lh/• È 20 Ä .@ ÊLh/• Bù ÄEî éCK,X s ´ Ý Y , áC‡ È ê5Ù.@ ÊC $d áC‡ Å Ä

¹,ß «,¥ { È1 ¯ ë remain-time(seconds) Û = -,XLh/• ÊKÈ Ä

Ruijie# show nfpp dhcpv6-guard hosts

If column 1 shows '*', it means "hardware failed to isolate host".

VLAN interface MAC address remain-time(seconds)

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

1 gi0/2 0000.0000.0001 10

*2 gi0/1 0000.0000.0002 20

Total Ö2 host(s)

,Ì G Q ¸

Q ¸	£EÄ
clear nfpp dhcpv6-guard hosts	#ÙL8 «,¥ {

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.12.2 show nfpp dhcpv6-guard summary

¹,ßG!5B µ C Ä

show nfpp dhcpv6-guard summary

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ Ã ¹ ¹,ßG!5B µ C Ä

G!5B _

```
Ruijie# show nfpp dhcpv6-guard summary
ÄFormat of column Rate-limit and  Attack-threshold is per-src-ip
/per-src-mac/per-port. Å
Interface  Status  Isolate-period Rate-limit Attack-threshold
Global     Enable  300            -/5/150     -/10/300
Gi 0/1      Enable  180            -/6/-       -/8/-
Gi 0/2      Disable 200            -/5/30      -/10/50

Maximum count of monitored hosts: 1000
Monitor period Ö300s
AÈ â Ö
Ä1 Å  +!‰ Interface  Global ></ < G!5B Ä
Ä2 Å  +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä
Ä3 Å  +!‰ Rate-limit ,X ã Ä Í$d IP ,XL$Eó" 4“/ Í$d MAC ,XL$Eó"
      4“/ 0Ã ·,XL$Eó" 4“ Å È +!‰ Attack-threshold ,X / ã2O Ä - ><
      / "u ÝG!5B Ä
```

,Ì G Q ¸

Q ¸	£EÄ
dhcpv6-guard attack-threshold	G!5B < Ï" 4“
dhcpv6-guard enable	< ' Ô DHCPv6 k Ï s6Ñ
dhcpv6-guard isolate-period	G!5B < Lh/• ÊKÈ
dhcpv6-guard monitor-period	G!5B,¥ { ÊKÈ
dhcpv6-guard monitored-host-limit	G!5B Ô û «,¥ { D

dhcpv6-guard rate-limit	G!5B < L$Eó" 4“
nfpp dhcpv6-guard enable	ü0Ã · Þ ' Ô DHCPv6 k Ï s6Ñ
nfpp dhcpv6-guard isolate-period	G!5B F¼Lh/• ÊKÈ
nfpp dhcpv6-guard policy	G!5B F¼L$Eó" 4“ ` Ï" 4“

G ÄAÈ â ´

G!5B Q ¸ T

Maximum count of monitored hosts: 1000
Monitor period Ö300s
AÈ â Ö
Ä1 Å +!‰ Interface Global ></ < G!5B Ä
Ä2 Å +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä
Ä3 Å +!‰ Rate-limit ,X ã Ä Í$d IP ,XL$Eó" 4“/ Í$d MAC ,XL$Eó" 4“ / 0Ã ·,XL$Eó" 4“ Å È +!‰ Attack-threshold ,X / ã2O Ä - ></ "u ÝG!5B Ä

,Ì G Q ¸

Q ¸	£EÄ
icmp-guard attack-threshold	G!5B < Ï" 4“
icmp-guard enable	< ' Ô ICMP k Ï s6Ñ
icmp-guard isolate-period	G!5B < Lh/• ÊKÈ
icmp-guard monitor-period	G!5B,¥ { ÊKÈ
icmp-guard monito red-host-limit	G!5B Ô û «,¥ { D
icmp-guard rate-limit	G!5B < L$Eó" 4“
nfpp icmp-guard enable	ü0Ã · Þ ' Ô ICMP k Ï s6Ñ
nfpp icmp-guard isolate-period	G!5B F¼Lh/• ÊKÈ
nfpp icmp-guard policy	G!5B F¼L$Eó" 4“ ` Ï" 4“

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ rA¹ Q ¸

69.13.3 show nfpp icmp-guard trusted-host

¹,ß á,¥ {,X Ã µ Ä

show nfpp icmp-guard trusted-host

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q¸õã (M õã

S*üÛÐ ´

G!5B _

¹,ß Ãµ G!5B Ä

```
Ruijie# show nfpp icmp-guard trusted-host
IP address     mask
---------      ------
1.1.1.0        255.255.255.0
1.1.2.0        255.255.255.0
TotalÖ2 record(s)
```

,Ì G Q¸

Q¸	£EÄ
icmp-guard trusted-host	G!5B á,¥{,X Ãµ

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
10.4	„ rA¹ Q¸

69.14 IP

69.14.1 show nfpp ip-guard hosts

¹,ß «,¥{ Ä

show nfpp ip-guard hosts [statistics | [[vlan *vid*] [interface *interface-id*] [*ip-address*]]]

–DAÈâ

–D	£EÄ
statistics	¹,ß «,¥{ ,X4³Au µC
vid	<.³ ³5% Ë
interface-id	0Ã·á/Ä
ip-address	IP

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð ´

Ruijie#show nfpp ip-guard hosts statistics

success fail total

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

100 20 120

ã ñ Ö E Ý 120 Ä >•Lh/• È J 100 Ä Lh/• ä s È 20 Ä Lh/• Bù Ä

Ruijie#show nfpp ip-guard hosts

G!5B _ If column 1 shows '*', it means "hardware do not isolate host" .

VLAN interface IP address Reason remain-time(s)

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

1 Gi0/1 1.1.1.1 ATTACK 110

2 Gi0/2 1.1.2 ATTAC Ä L h / • B ù Ä Ö ™ ! š â ¢ Å " š 0 (É 3 ¥

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ Ã ¹ ¹,ßG!5B µ C Ä

G!5B _

Ruijie# show nfpp ip-guard summary

Ä Format of column Rate-limit and Attack-threshold is per-src-ip/per-src-mac/per-port. Å

Interface	Status	Isolate-period	Rate-limit	Attack-threshold	Scan-threshold
Global	Enable	300	4/-/60	8/-/100	15
Gi 0/1	Enable	180	5/-/-	8/-/-	-
Gi 0/2	Disable	200	4/-/60	8/-/100	20

Maximum count of monitored hosts: 1000

Monitor period Ö300s

AÈ â Ö

Ä1 Å +!‰ Interface Global ></ < G!5B Ä

Ä2 Å +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä

Ä3 Å +!‰ Rate-limit ,X ã Ä Í$d IP ,XL$Eó" 4“/ Í$d MAC ,XL$Eó" 4“ / 0Ã ·,XL$Eó" 4“ Å È +!‰ Attack-threshold ,X / ã2O Ä - ></ "u ÝG!5B Ä

Q ¸	£EÄ
ip-guard attack-threshold	G!5B < [illegible]
ip-guard enable	' Ô [illegible] £ s[illegible]Ñ [illegible] G!5B 0
ip-guard isolate-period	G!5B < Lh/• ÊKâE Â ðÎÂ ñc S”˜ Ž÷hC ˜ B î÷hC ˜ , ï°

d enabl

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ rA¹ Q ¸

69.14.3 show nfpp ip-guard trusted-host

¹,ß á,¥ {,X Ã µ Ä

show nfpp ip-guard trusted-host

– DAÈ â	– D	

¹,ßG!5B µ C Ä

show nfpp nd-guard summary

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›A¹ Q ¸ Ã ¹ ¹,ßG!5B µ C Ä

G!5B _

```
Ruijie# show nfpp nd-guard summary
ÄFormat of column Rate-limit and  Attack-threshold is NS-NA/RS/R
A-REDIRECT. Å
Interface  Status  Rate-limit Attack-threshold
Global     Enable  20/5/10    40/10/20
Gi 0/1     Enable  15/15/15   30/30/30
Gi 0/2     Disable -/5/30     -/10/50
```

AÈ â Ö

Ä1 Å +!‰ Interface Global ></ < G!5B Ä

Ä2 Å +!‰ Status ></ ú ' Ô k Ï s6Ñ Ä

Ä3 Å +!‰ Rate-limit ,X ã Ä ÍF• AË" / @ ,XL$Eó" 4“/ ÍCÃ+ <AË" ,XL$Eó" 4“ / ÍCÃ+ < @ / G¡ n å y [,XL$Eó" 4“ ÅÈ +!‰ Attack-threshold ,X / ã2O Ä - ></ "u ÝG!5B Ä

_AÈ â Ö -/5/30 ></ ü0Ã · G 0/2 Þ"u ÝG!5BF• AË" / @ ,XL$Eó" 4“ È ÍCÃ+ < AË" ,XL$Eó" 4“ 5 È ÍCÃ+ < @ / G¡ n å y [,XL$Eó" 4“ 30 Ä

,Ì G Q ¸

Q ¸	£EÄ
nd-guard attack-threshold	G!5B < Ï" 4“
nd-guard enable	< ' Ô ND k Ï s6Ñ
nd-guard rate-limit	G!5B < L$Eó" 4“
nfpp nd-guard enable	ü0Ã · Þ ' Ô ND k Ï s6Ñ
nfpp nd-guard policy	G!5B F¼L$Eó" 4“ ` Ï" 4“

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ rA¹ Q ¸

70 ACL

ü ¹ ß Q ¸ *ü ,X ÛAš0ú Ã –?• ¹ ß Q ¸ ÛAš0ú><

ÛAš0ú	ÿ
id	A“KÂ ë>< D Û Ë Ä ÃG!8× È IP Û š ACL Ö1-99 È1300-1999 IP =) ACL Ö100-199 È2000-2699 MAC =) ACL Ö700–799 ç Š =) ACL Ö2700–2899
name	ACL á +
sn	ACL ><NM c Ë Õ Ý ì 4{A’5B { •)
start-sn	c ËCK Ÿ
inc-sn	c Ë rG£
deny	V p G! È í ¦4±A“KÂ
permit	V p G! È í AŒA“KÂ
prot	#A,4ê Ë È Í b IPv6 ,XA¹ +!‰ Ã ipv6 È icmp È tcp È udp ž D 0-255 È Í b IPv4 È Ã ¹ eigrp È gre È ipinip È igmp È nos È ospf È icmp È udp È tcp È ip ,X Ô þ È 3 Ã ¹ ·>< IP #A,,X 0-255 4ê Ë È Ô oG¡ ?U #A, V icmp/tcp/udp 1)(À ë ÎE¯> AÈ â
interface idx	Eg 9 G!,X y ·
src	y [$d Ä ê5%4° Å

src-wildcarde f 296.7 330.56 0.48 20.16 re f BT /TT0 1 Tf 124640D04[illegible]

precedence precedence	y [,X ì 4{ ÿ Ä0-7 Å
range	y [,X ¯ 0Ã · Ë8× È
time-range tm-rng-name	y [E›$¸,X ÊKÈ È á/Ä tm-rng-name
tos tos	y [,X á u2O _ Ä0-15 Å
cos cos	y [cos (0-7)
cos inner cos	y [YF¼ tag ,X cos
icmp-type	ICMP y [,X#\ C2O _ Ä0-255 Å
icmp-code	ICMP y [,X#\ C2O _ ··Õ Ä0-255 Å
icmp-message	ICMP y [,X#\ C2O _ á/Ä

	B	$d MAC	6	P	#A, Ë	35
	C	D B ûKS z +!‰	12	Q	IP õP` `	36
	D	VLAN tag +!‰	14	R	$d ip	38
	E	DSAP(,Â,X á uA“ KÂ&•)+!‰	18	S	,Â,X ip	42
	F	SSAP($d á uA“ KÂ&•)+!‰	19	T	TCP $d0Ã ·	46
	G	Ctrl +!‰	20	U	TCP ,Â,X0Ã ·	48
	H	Org Code +!‰	21	V	c ë Ë	50
	I	Õ>™,X D B2O _	24	W	.BAx +!‰	54
	J	IP (Ë	26	XY	IP KS z ` ±+-!¨ (M !	58
	K	TOS +!‰	27	Z	±+-!¨(M ! ` flags !¨(M !	59
	L	IP Ù,XKS z	28	a	Windows size +!‰	60
	M	ID Ë	30	b	J ª	62
	N	Flags +!‰	32			

Þ>< Ø þ +!‰,X #/ÏG£ W À ü SNAP Çtag ,X 802.3 D B û ,X #/ÏG£ Ä

70.1

70.1.1 access-list

A¹ Q ¸ ï Î Ô þA“KÂ ë><?˜ í È*ü bE›$¸ D B y [ÄA¹ Q ¸,X no 6 ã ôL8 Û n,XA“KÂ ë>< ><NM Ä

1) IP Û šA“KÂ ë>< Ä1 - 99 È1300 - 1999 Å

access-list *id* {deny | permit } {*source source-wildcard* | host *source* | any}

2) IP =)A“KÂ ë>< Ä100 - 199 È2000 - 2699 Å

access-list *id* {deny | permit } protocol {*source source-wildcard* | host *source* | any} {*destination destination-wildcard* | host *destination* | any} [precedence *precedence*] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*]

3) MAC =)A“KÂ ë>< Ä700 - 799 Å

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

4) Expert =)A“KÂ ë>< Ä2700 - 2899 Å

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] [range *lower upper*] [time-range *time-range-name*]

EÝ ½ +!‰ Ù ÿ ¹ þ5%2O _Ethernet-type ê cos +!‰ Ê Ö

access-list *id* {deny | permit } {*ethernet-type*| cos [*out*][inner *in*]} [VID [*out*][inner]]n cos

– DAÈ â

– D	£EÄ
id	A“KÂ ë>< Û Ë Ä ÃG!8× È Ä1-99 È100-199 È 1300-1999 È2000-2699 È2700 – 2899 È700 - 799 ÅÄ
Deny	V p G! È í ¦4±A“KÂ Ä
Permit	V p G! È í AŒA“KÂ Ä
Source	y [$d Ä ê5%4° Å
source-wildcard	$d EîG!0ú Ä Ã ¹ S áE²4Á,X È V 0.255.0.32
protocol	IP #A,4ê Ë È Ã ¹ EIGRP ÃGRE ÃIPINIP ÃIGMP Ã NOS ÃOSPF ÃICMP ÃUDP ÃTCP ÃIP ,X Ô þ È 3 Ã ¹ ·>< IP #A,,X 0-255 4ê Ë Ä Ô oG¡?U #A, V ICMP/TCP/UDP 1)(À ë ÎE¯> AÈ â Ä
Destination	y [,Â Û Ä ê5%4° Å
destination-wildcard	,Â Û EîG!0ú Ä Ã ¹ S áE²4Á,X È V 0.255.0.32
fragments	y [Ú(,XE›$¸
precedence	y [,X ì 4{ ÿ
precedence	y [,X ì 4{ ÿ Ä0-7 Å
range	y [,X ¯ 0Ã · Ë8× È
lower	¯ 0Ã · Ë8× È,X ßL$
upper	¯ 0Ã · Ë8× È,X ÞL$
time-range	y [E›$¸,X ÊKÈ
time-range-name	y [E›$¸,X ÊKÈ á/Ä
tos	y [,X á u2O _
tos	y [,X á u2O _ Ä0-15 Å
icmp-type	ICMP y [,X#\ C2O _ Ä0-255 Å
icmp-code	ICMP y [,X#\ C2O _ ·-Õ Ä0-255 Å
icmp-message	ICMP y [,X#\ C2O _ á/Ä
operator	¡ 00úÄlt- ã b Èeq-1 b Ègt- û b Èneq- á1 b Èrange- 8× È Å
port [*port*]	0Ã · Ë È *range* LÔ?U ø þ0Ã · Ë-Õ È J ª,X ¡ 00ú ¾ ?U Ô þ0Ã · Ë Ä
host *source-mac-address*	$d ,X(=)Ú Ä
host *destination-mac-address*	,Â,X ,X(=)Ú Ä
VID *vid*	Í Û n,X vid E¯> G!
ethernet-type	¹ þ5% #A,2O _

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

ttl-exceeded
unreachable
ßM6 TCP 0Ã · á/Ä ÈTCP Ã ¹ S*ü0Ã · á/Ä ê0Ã · Ë 9 Û n K ',X0Ã · Ö
bgp
chargen
cmd
daytime
discard
domain
echo
exec
finger
ftp
ftp-data
gopher
hostname
ident
irc
klogin
kshell
login
nntp
pim-auto-rp
pop2
pop3
smtp
sunrpc
syslog
tacacs
talk
telnet
time
uucp
whois
www
ßM6 UDP 0Ã · á/Ä ÈUDP Ã ¹ S*ü0Ã · á/Ä ê0Ã · Ë 9 Û n K ',X0Ã · Ö
biff
bootpc

bootps
discard
dnsix
domain
echo
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

¹ þ5% #A,2O _ Ethernet-type V ß Ö

aarp
arp
appletalk
decnet-iv
diagnostic
etype-6000
etype-8042
lat
lavc-sca
mop-console
mop-dump
mumps
netbios

70.1.2 deny

+ â Ô þ ê î þ,X ö ×(deny),X 5 Ê ¹*ü b ‡ n y [E@ ¥ êE¬ ö × Ä

1 Å IP Û šA“KÂ ë><

[*sn*] deny {*source source-wildcard* | host *source* | any}

2 Å IP =)A“KÂ ë><

[*sn*] deny protocol *source source-wildcard destination destination-wildcard* [precedence *precedence*] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*]

Ô oG¡?U #A,,X IP =)A“KÂ { ë>< Ö

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 *[[* } [

erato)/TT0 /TT0 1 Tf0.0022 Tc 0.9143 Tw 5.225028Td[ ]TJ/TT1 1 Tf-0.0005 Tc 0 Tw 1.754 0 Td(o3)14(y)11 Tf0.0023.057 0 Td[()os

destination-wildcard | host *destination* | any} {host *destination-mac-address* | any} [time-range *time-range-name*]

b) EÝ ½ #A,protocol +!‰ Ê

[*sn*] deny protocol [[VID [*out*][inner *in*]]] {*source source-wildcard* | host *source* | any} {host *source-mac-address* | any } {*destinationdestination-wildcard* | host *destination* | any} {host *destination-mac-address* | any} [precedence *precedence*] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*]

c) Ô oG¡?U #A,,X expert =)A“KÂ ë>< Ö

Internet Control Message Protocol (ICMP)

[*sn*] deny icmp [[VID [*out*][inner *in*]]] {*source source-wildcard* | host *source* | any} {host *source-mac-address* | any} {*destination destination-wildcard* | host *destination* | any} {host *destination-mac-address* | any} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [precedence *precedence*] [tos *tos*] [fragments] [time-range *time-range-name*]

Transmission Control Protocol (TCP)

[*sn*] deny tcp [[VID [*out*][inner *in*]]]{*source source-wildcard* | host *Source* | any} {host *source-mac-address* | any } [*operator* port [*port*]] {*destination destination-wildcard* | host *destination* | any

[

[[*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] [range *lower upper*] [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*] [mened] [range *lower upper*]

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)#
```

_ 2 ÖßM6 IP =) ACL S*ü8× _ È‚Â‚X ¦4± IP 192.168.4.12 ‚X$d ¤ o TCP 0Ã · 100 ‚X á u È J h*ü y · 1 ÄG!5B •"©

```
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)#
```

_ Ï ÖßM6 MAC =) ACL S*ü8× _ È‚Â‚X ¦4± MAC 0013.0049.8272 ‚X$d ¥EÕ2O _ 100 ‚X ¹ þ5% û È J h*ü y · 1 ÄG!5B •"©

```
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
```

_ Ð ÖßM6 IP Û š ACL S*ü8× _ È‚Â‚X ¦4± IP 192.168.4.12 ‚X$d È J h*ü y · 1 ÄG!5B •"© Ö

```
Ruijie(config)# ip access-list standard 34
Ruijie(config-ext-nacl)# deny host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 34 in
```

_ Ñ ÖßM6 IPV6 =) ACL S*ü8× _ È‚Â‚X ¦4± IP 192.168.4.12 ‚X$d È J h

*ü y· 1 ÄG!5B •"© Ö

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 deny ipv6 host 192.168.4.12    any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl   in
```

Q¸	£EÄ

show access-lists

	in	ÍE¯ 9A¹ y ·,X y [E¯> E›$¸
	out	

S*ü Û Đ A¹ Q ¸,XG!5B4§ p Ã ¹EîE› show expert access-lists Q ¸ ¹,ß Ä

G!5B _

_ 1 Ö ï Î ç Š =) ACL Ö

```
Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# show expert access-lists
expert access-list extended exp-acl
Ruijie(config-exp-nacl)#
```

_ 2 Ö ï Î ç Š =) ACL Ö

```
Ruijie(config)# expert access-list extended 2704
Ruijie(config-exp-nacl)# show expert access-lists
expert access-list extended 2704
Ruijie(config-exp-nacl)#
```

Q¸õã y ·G!5B õã

S*üÛÐ S*ü ip access-group Q¸ÚA“KÂ ë>< h*ü b y · ÈL &? m G *ü Ä

G!5B _ ßM6,X/ _ü fastEthernet0/0 Þ h*üA“KÂ ë>< 120 ÍE¯ 9,X y [E¯> E›$¸Ö

```
Ruijie(config)# interface fastEthernet 0/0
Ruijie(config-if)#ip access-group 120 in
```

,Ì G Q¸

Q¸	£EÄ
access-list	n A“KÂ ë>< Ä
show access-lists	¹,ß Ý,XA“KÂ ë><
show ip access-list	¹,ß IP F¼ Ú,XA“KÂ ë><Ä-199 È1300 – 2699 È3000 É3199 Å

G ÄAÈâ ´

Q¸ZÆ

(Ë	AÈâ
V10.0	EC Ê(V10.0 ¹Þ

70.1.6 ip access-list

A¹Q¸ïÎÛš IP ACL ê=) IP ACL È JE¯ 9A¹G!5B õã Ä S*üA¹Q¸,X no EÝNM ôL8A¹ ACL

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

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

– DAÈâ

– D	£EÄ
id	IP A“KÂ ë><,X4ê Ë È Û š Ä1-99 È1300-1999 Å È =) Ä100-199 È2000-2699 Å
name	IP A“KÂ ë><,X á +

5 ,ÕG!5B "u Ý Ï) ACL

Q¸õã < G!5B õã

S*üÛÐ Û š ACL G!5B õã `=)G!5B õã,X á à È =) õã Í ACL ,XA’5B È t4š7È Ä–5× deny ` permit Q¸,X Û š `=) 6 ã ÄS*ü show ip access-lists Q¸¹,ß ACL A’5B Ä

G!5B _

_ 1 Ö ï Î Û š ACL Ö

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show ip access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

_ 2 Ö ï Î =) ACL Ö

```
Ruijie(config)# ip access-list extended 123
Ruijie(config-ext-nacl)# show ip access-lists
ip access-list extended 123
```

,Ì G Q ¸

Q ¸	£EÄ
show ip access-lists	¹,ß IP 2OA“KÂ ë><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.1.7 ip access-list resequence

A¹ Q ¸ Í ip 2O _,X ACL ><NMG¡ f È ï Î IPV6 =) ACL È JE¯ 9A¹G!5B õ ã Ä S*üA¹ Q ¸ ,X no EÝNM 6 áT¬Ax

ip access-list resequence {*id* | *name*} start-sn inc-sn

no ip access-list resequence {*id* | *name*}

– DAÈ â

– D	£EÄ
Id	ACL 4ê Ë
name	ACL á +
start-sn	c ËCK Ÿ
inc-sn	c Ë rG£

5 ,ÕG!5B

start-sn Ö10

inc-sn Ö10

Q ¸ õ ã < G!5B õ ã

S*ü Û Đ A¹ Q ¸,XG!5B4§ p Ã ¹EîE› show access-lists Q ¸ ¹,ß Ä

G!5B –

ACL ,X><NMG¡ f Ö

```
Ruijie# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
Ruijie# config
Ruijie(config)# ip access-list resequence 1 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
```

,Ì G Q ¸

Q ¸	£EÄ
show access-lists	¹,ßA“KÂ ë><

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.1.8 ipv6 traffic-filter

Ú Ô þA’ n,X IPV6 ACL h*ü Û n,X y · Ä S*üA¹ Q ¸,X no EÝNM ª#\ h*ü Ä

ipv6 traffic-filter *name* {in | out}

no ipv6 traffic-filter *name* {in | out}

– D

Q ¸ õ ã @ ·5B ã

¸Ì G Q ¸	Q ¸	£EÄ
	show ipv6 access-lists	¹,ß IPV6 =)2OA“KÂ ë><

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	V10.0	EC Ê(V10.0 ¹ Þ

70.1.10 list-remark text

Û n,X ACL #Ï t"¼Gž µ C Èno !4Ô ôL8

list-remark *text*

– DAÈ â	– D	£EÄ
	Text	"¼Gž µ C

5 ¸ÕG!5B ´

Q ¸ õ ã ACL G!5B õ ã

S*ü Û Ð Û n,X ACL #Ï t"¼Gž µ C

G!5B _

```
Ruijie# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark t hisaclistofilterthehost
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)#
```

¸Ì G Q ¸	Q ¸	£EÄ
	show access-lists	/ A“KÂ ë><
	ip access-list	IP A“KÂ ë>< n

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ Ä

70.1.11 MAC access-group

Ú Ô þA' n,X MAC ACL h*ü Û n,X y · Ä S*üA¹ Q ¸,X no EÝNM ª#\ h*ü Ä

mac access-group {*id* | *name*}{in | out}

no mac access-group {*id* | *name*} {in | out}

– DAÈ â

– D	£EÄ
id	MAC A"KÂ ë><,X4ê Ë Ä700-799Å
name	MAC A"KÂ ë><,X á +
in	ÍE¯ 9A¹ y ·,X y [E¯> E›$¸
out	Í ¢A¹ y ·Eg Î,X y [E¯> E›$¸

5 ,ÕG!5B y ·"u Ý h*ü ACL

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð A¹ Q ¸,XG!5B4§ p Ã ¹EîE› show running-config Q ¸ ¹,ß Ä

G!5B _ ß _ / V) Ú access-list accept_00d0f8xxxxxx_only h*ü b Gigabit y · 1 Þ Ö

```
Ruijie(config)# interface GigaEthernet 1/1
Ruijie(config-if)# mac access-group accept_00d0f8xxxxxx_only in
```

¸Ì G Q ¸

Q ¸	£EÄ
show access-group	/ y · Þ4¥ n,X ACL G!5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.1.12 MAC access-list

A¹ Q¸ï Î MAC =) ACL È JE¯ 9A¹G!5B õ ã Ä S*üA¹ Q¸,X no EÝNM ôL8ÆACL

mac access-list extended { *id* | *name*}

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

– DAÈ â

– D	£EÄ
Id	MAC A“KÂ ë><,X4ê Ë Ä700-799Å
name	MAC A“KÂ ë><,X á +

5 ,ÕG!5B "u Ý MAC ACL

Q¸õ ã < G!5B õ ã

S*ü Û Ð A¹ Q¸,XG!5B4§ p Ã ¹EîE› show mac access-lists Q¸ ¹,ß Ä

G!5B –

_ 1 Ö ï Î MAC =) ACL Ö

```
Ruijie(config)# mac access-list extended mac-acl
Ruijie(config-mac-nacl)# show mac access-lists
mac access-list extended mac-acl
```

_ 2 Ö ï Î MAC =) ACL Ö

```
Ruijie(config)# mac access-list extended 704
Ruijie(config-mac-nacl)# show mac access-lists
mac access-list extended 704
```

,Ì G Q¸

Q¸	£EÄ
show mac access-lists	¹,ß mac =)2OA“KÂ ë><

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.1.13 no sn

ôL8 ACL ,X Ô þ><NM

no *sn*

– DAÈ â

– D	£EÄ

sn	ACL ,X Ô þ><NM,X c Ë

5 ,ÕG!5B ´

Q ¸ õ ã ACL G!5B õ ã ß

S*ü Û Đ ü ACL G!5B õ ã ß ôL8 ACL ><NM

G!5B _

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# permit ipv6 host ::192.168.4.12      any
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)#
```

,Ì G Q ¸

Q ¸	£EÄ
show access-lists	¹,ß Ý,XA“KÂ ë><
ip access-list	ip ACL ,X n
ipv6 access-list	IPV6 =) ACL n
deny	n ¦4±AÁ ACL ><NM
permit	n AŒAÁ ACL ><NM

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.1.14 permit

+ â Ô þ ê î þ,X AŒ(permit),X 5 Ê ¹*ü b ‡ n y [E@ ¥ êE¬ ö × Ä

1) IP Û šA“KÂ ë><

[*sn*] permit {*source source-wildcard* | host *source* | any}

2) IP =)A“KÂ ë><

[*sn*] permit protocol *source source-wildcard destination destination-wildcard* [precedence *precedence*] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*]

Ô oG¡?U #A,,X IP =)A“KÂ { ë>< Ö

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)

] Jan 1 86 0 Td [(ho)6(s)8(t)]TJ ET 0 1 Tf 0 Tc 20 1 54Td ({)n 2_1 1 T61wnce

[*sn*] permit tcp {*source source-wildcard*

[*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] [range *lower upper*] [time-range *time-range-name*]

Ô oG¡?U #A,,X Expert =)A“KÂ ë>< Ö

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

Transmission Control Protocol (TCP)

[*sn*] permit tcp [VID [*out*][inner *in*]]{*source source-wildcard* | host *Source* | any} {host *source-mac-address* | any } [*operator* port [*port*]] {*destination destination-wildcard* | host *destination* | any} {host *destination-mac-address* | any} [*operator* port [*port*]] [precedence *precedence*] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*] [match-all *tcp-flag*]

User Datagram Protocol (UDP)

[*sn*] permit udp [VID [*out*][inner *in*]]{*source source –wildcard* | host *source* | any} {host *source-mac-address* | any } [*operator* port [*port*]] {*destination destination-wildcard* | host *destination* | any} {host *destination-mac-address* | any} [*operator* port [*port*]] [precedenceprecedence] [tos *tos*] [fragments] [range *lower upper*] [time-range *time-range-name*]

Address Resolution Protocol (ARP)

[*sn*] permit arp {vid *vlan-id*} [host *source-mac-address* | any] [host *destination –mac-address* | any] {*sender-ip sender-ip–wildcard* | host *sender-ip* | any} {*sender-mac sender-mac-wildcard* | host *sender-mac* | any} {*target-ip target-ip–wildcard* | host *target-ip* | any}

5) IPV6 =)A“KÂ ë><

[*sn*] permit protocol {*source-ipv6-prefix* / *prefix-length* | any | host *source-ipv6-address*} {*destination-ipv6-prefix* / *prefix-length* | any| *hostdestination-ipv6-address*} [dscp *dscp*] [flow-label *flow-label*] [fragments] [range *lower upper*] [time-range *time-range-name*]

Ô oG¡?U #A,,X IPV6 =)A“KÂ { ë>< Ö

Internet Control Message Protocol (ICMP)

[*sn*] permit 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*]

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#
_ 3 Ö ßM6 MAC = ) ACL S*ü8× _ È,Â,X šAŒ MAC 0013.0049.8272 ,X$d
¥EÕ2O _ 100 ,X ¹ þ5% û È J h*ü y · 1 ÄG!5B •"©
Ruijie(config)# mac access-list extended 702
Ruijie(config-mac-nacl)# permit host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended
10 permit host 0013.0049.8272 any aarp702
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in
_ 4 Ö ßM6 ip Û š ACL S*ü8× _ È,Â,X AŒ IP 192.168.4.12 ,X$d È J h*ü
y · 1 ÄG!5B •"© Ö
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# permit host 192.168.4.12
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
10 permit host 192.168.4.12
Ruijie(config-std-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group std-acl in
_ 5 ÖßM6 IPV6 = ) ACL S*ü8× _ È,Â,X AŒ IP 192.168.4.12 ,X$d È J h
*ü y · 1 ÄG!5B •"© Ö
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 permit ipv6
host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

,Ì G Q¸

Q¸	£EÄ
show access-lists	¹,ß Ý,XA“KÂ ë><
ipv6 traffic-filter	ü y · Þ h*ü IPV6 =)A“KÂ ë><

G!5BACL Q ¸

```
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
```

,Ì G Q¸

Q¸	£EÄ
ip access-group	ip A“KÂ ë><KÂ n
mac access-group	MAC A“KÂ ë><KÂ n
expert access-group	Expert A“KÂ ë><KÂ n
ipv6 traffic-filter	IPV6 A“KÂ ë><KÂ n

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.2.2 show access-lists

/ Ý ACL G!5B ê Û n á +,X ACL

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

– DAÈ â

– D	£EÄ
id	A“KÂ ë><,X4ê Ë
name	A“KÂ ë><,X á +

5 ,ÕG!5B ´

Q¸õã (M õã

S*ü Û Ð / Û n,X acl È8¹"u Ý Û n *id* ê *name* È í / Ý,X ACL

G!5B –

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
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
```

,Ì G Q¸

Q¸	£EÄ
ip access-list	IP ACL n Ä
mac access-list	MAC =) ACL n
expert access-list	Expert =) ACL n
ipv6 access-list	IPv6 =) ACL n

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹Þ

70.2.3 show expert access-group

/ y · G!5B,X Expert A“KÂ ë>< Ä

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

– DAÈ â

– D	£EÄ
<*interface*>	Û n,X y ·

5 ,ÕG!5B ´

Q¸õ ã (M õ ã

S*ü Û Ð / y ·G!5B,X Expert ACL È8¹"u Ý Û n y · È í / Ý y · G6(Expert ACL Ä

G!5B _

```
Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

,Ì G Q¸

Q¸	£EÄ
expert access-list	Expert =) ACL n

G ÄAÈ â ´

(Ë

– D	£EÄ

mac access-group mm in
Applied On interface GigabitEthernet 0/3.

¸Ì G Q ¸

Q ¸	£EÄ
mac access-list	MAC =) ACL n

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
V10.0	EC Ê(V10.0 ¹ Þ

70.3

70.3.1 security access-group

G!5B y ·] <EîF'

security access-group {*id*|*name*}

no security access-group

– DAÈ â

– D	£EÄ
id	ACL id
name	ACL á +

5 ¸ÕG!5B ´

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð G!5B y · ß] <EîF'

G!5B _ Ruijie(config-if)#**security access-group** 1

¸Ì G Q ¸

Q ¸	£EÄ
show secu-acl	/] <EîF'G!5B

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	V10.2	EC Ê(V10.2 ¹ Þ

70.3.2 security global access-group

G!5B <] <EîF'

security global access-group {*id*|*name*}

no security global access-group

– D	£EÄ
id	ACL id

	-	-

G!5B

71 QOS

71.1

*ü üE¯> QoS G!5B ! ÈLÔ?U#Ù . ` QoS Ý G,X ¹ ß ´&• µ C Ö

Ô þ y · Ô î G6(1 þ policy-map ×

Ô þ policy-map Ã ¹ ¹ Ý î þ class-map ×

Ô þ class-map Ô î G6(1 þ ACL ÈA¹ ACL ,X Ý ACE ™NO K Ý,Ì àE›$¸ ³ õ S ×

Ô þ y · Þ G6(,X ACE ,X þ D á ¢“ G!5B] < ACL”0´8V,XL$ Ä

5 ,Õ ™ ‰ ß ÈQoS s6Ñ GKÁ,X ÄGA’ Û Í Ý,X y [à1 Ø)Ú Ä ' 4 Ú Ô þ Policy Map G6(¤ Ô þ y · Þ È ¤A’5B Z y ·,X µ Ï õ ã Ê ÈA¹ y ·,X QoS s6Ñ G>• ' Ô Ä?U GKÁ A¹ y ·,X QoS s6Ñ È |EîE›?· ‡A¹ y ·,X Policy Map A’5B È J Ú y ·,X µ Ï õ ãA’ Off G Ã Ä ¹ ß QOS ,X5 ,ÕG!5B Ö

5 ,ÕG!5B

5 ,Õ CoS	0
Kó ë þ D	8
Kó ëEBE@1k"©	WRR
QueueWeight	1:1:1:1:1:1:1:1
WRR Weight Range	1:15
DRR Weight Range	1:15
µ Ï õ ã	No Trust

Cos Kó ë,XT¬Ax ô Ø><

CoS	**Kó ë**
0	1
1	2
2	3
3	4
4	5
5	6
6	7

CoS to DSCP

CoS	DSCP
0	0
1	8
2	16
3	24
4	32
5	40
6	48
7	56

IP-Precedence to DSCP T¬Ax ô Ø><

IP-Precede

IP-Precedence	DSCP
0	0
1	8
2	16
3	24
4	32
5	40
6	48

71.2

71.2.1 class maps

ï Î ACL Ö

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

ê mac access-list extended {*acl-id* | *acl-name*}

ê expert access-list extended {*acl-id* | *acl-name*}

ê ipv6 access-list extended *acl-name*

ê access-list acl-id 2Ï ë Q ¸ Ä –?• ACL ,Ì G0´8V Å

ï Î class map È JE¯ 9 class map G!5B õ ã Ö

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

ï ÎA¹ class map ,X G! Û š Ö

[no] match access-group *acl-name*| *acl-id*

– DAÈ â

– D	£EÄ
acl-name	Æ4£#" ï Î,X ACL ,X á +
acl-id	Æ4£#" ï Î,X ACL ,X id
class-map-name	?U ï Î,X class map ,X á +
no class-map *class-map-name*	ôL8 Æ4£ , ü,X class map
no match access-group *acl-name*| *acl-id*	ôL8A¹ G!

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

_ 4 Ö ï Î class-map, Q á cm

	-	-

71.2.4 mls qos cos

G!5B y ·,X CoS

mls qos cos *default-cos*

no mls qos cos

– DAÈ â	– D	£EÄ
	default-cos	0 7
	no	6 á5 ,Õ

5 ,ÕG!5B	CoS 0
Q ¸ õ ã	y ·G!5B õ ã
S*ü Û Ð	´

G!5B –

```
Ruijie(config)# interface gigabitethernet 1/ 1
Ruijie(config-if)# mls qos cos 7
```

,Ì G Q ¸	Q ¸	£EÄ
	show mls qos interface *interface-id*	-

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

71.2.5 mls qos map cos-dscp

A’5B CoS ô Ø YF¼ DSCP

mls qos map cos-dscp *dscp1...dscp8*

no mls qos map cos-dscp

– DAÈ â	– D	£EÄ

dscp	ª 8× È q { • á à5à á à
no	6 á5 ,Õ

5 ,ÕG!5B ?•5 ,ÕG!5B

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

G!5B _ Ruijie(config)# **mls qo map cos-dscp** 8 10 16 18 24 26 32 34

,Ì G Q ¸

Q ¸	[redacted]€A €€B%!V= B
show mls qos maps	/ dscp-cos maps,dscp-cos maps ` ip-prec-dscp maps **5 ,ÕG¥ K€**

G!5B _ Ruijie(config)# **mls qos map dscp-cos** 8 10 16 18 to 0

71.2.8 mls qos scheduler

A’5BEg ÎKó ëA× z1k"©

mls qos scheduler [sp | rr | wrr | drr]

no mls qos scheduler

– DAÈ â

– D	£EÄ
sp	4± Í ì 4{A× z
rr	EBE@A× z
wrr	ú û DG£ G¡EBE@A× z
drr	ú ûKS z G¡EBE@A× z
no	6 á5 ,Õ

5 ,ÕG!5B 5 ,Õ wrr A× z

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð ´

G!5B _

```
Ruijie(config)# mls qos scheduler sp
```

,Ì G Q ¸

Q ¸	£EÄ
show mls qos scheduler	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

71.2.9 mls qos trust

G!5B y ·,X Qos µ Ï õ ã

mls qos trust [cos | dscp | *ip-precedence*]

no mls qos trust

– DAÈ â

– D	£EÄ

cos 0Ã ·,X Qos

– DAÈ â

– D	£EÄ
policy-map-name	?U ï Î,X policymap ,X á +
no policy-map *policy-map-name*	ôL8 Æ4£ , ü,X policy map
class-map-name	Æ4£ ï Î,X class map ,X á +
no class *class-map-name*	ôL8A¹ D B Ú2O
new-dscp	„ DSCP × ª 8× È q { • á à5à á à
rate-bps	!£/¦Js,X ú 'L$ G£ È) ! kbps
burst-byte	(ñ ¥# G£L$ È) ! kbyte
drop	ö × ú 'CYL$F¼ Ú,X y [
dscp-value	m ú 'CYL$F¼ Ú y [DSCP ª 8× È q { • á à5à á à

ôÂ ñIp -ôÂ ñIp - „
,OG!5B

71.2.11 priority-queue

A’5BEg ÎKó ëA× z1k"©

[no] priority-queue

	show mls qos interface	-

G ÄAÈ â -

Q ¸ Z Æ

(Ë	**AÈ â**
-	-

71.2.14 wrr-queue bandwidth

A’5B WRR 1k"©,XKó ë G¡!¨ _

wrr-queue bandwidth *weight1 ... weightn*

no wrr-queue bandwidth

– D	

G!5B

71.3.4 show mls qos maps

/ dscp-cos maps,dscp-cos maps ` ip-prec-dscp maps

show mls qos maps [cos-dscp | dscp-cos | ip-prec-dscp]

– D	£EÄ
cos-dscp	/ Q

Q¸õã	(M õã
S*üÛÐ	´
G!5B _	Ruijie# **show mls qos queueing**

¸Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈâ	-

Q¸ZÆ	(Ë	AÈâ
		-

71.3.6 show mls qos rate-limit

/ 0ã.Eo)[L$ µC

show mls qos rate-limit [interface *interface-id*]

–DAÈâ	–D	£EÄ
	interface	interface-id G!5Brate-limit Q¸,,X y ·

5¸ÕG!5B	´
Q¸õã	(M õã
S*üÛÐ	´
G!5B _	Ruijie# **show mls qos rate-limit**

	Q¸	

	-	-

71.3.7 show mls qos scheduler

/ 0Ã · ì 4{Kó ëA× z • ã

show mls qos scheduler

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	´
Q¸õã	(M õã
S*ü Û Ð	´
G!5B _	Ruijie# **show mls qos scheduler**

,Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	-

Q¸Z Æ	(Ë	AÈ â
	-	-

72 Voice VLAN

72.1

72.1.1 voice vlan

< S6Ñ Voice VLAN ÈA’5B Ô þ VLAN Voice VLAN Ä*ü Ã ¹ S*üA¹ Q ¸,X no EÝNM G KÁVoice VLAN s6Ñ Ä

voice vlan *vlan-id*

no voice vlan

– DAÈ â	– D	£EÄ
	vlan-id	></ Voice VLAN ,X ID Ä

5 ,ÕG!5B	5 ,Õ GKÁ,X Ä
Q ¸ õ ã	< G!5B õ ã

S*üA¹ Q ¸ S6ÑA’ Û,X Voice VLAN s6Ñ È à Ê Û n Voice VLAN ID Ä		
S*ü Û Đ	"¼ ã	1 ÅG!5BVoice VLAN ! ÈNO ï Î Í h,X VLAN Ä 2 ÅVLAN 1 T¬Ax VLAN È´LÔ ï Î È VLAN 1 á6Ñ>•A’5B Voice VLAN Ä 3 Å á AŒ Ú ¤ þ VLAN à ÊA’5B Voice VLAN â Super VLAN Ä 4 Å V p y 9,X0Ã · Þ Ô Z 802.1x VLAN 7¾ |CÇE@ s6Ñ È ±A• s 6Ñ,X!7 S*ü ÈAË á?U Ú ß ¥,X VID A’5B Voice VLAN ID Ä 5 Å á?U Ú RSPAN ,X Remote VLAN â Voice VLAN G!5B ä à 1 þ VLAN È ú í Ã6Ñ î E ¡E°/ß0Ã ·K0 £ s6Ñ â Voice VLAN s6Ñ Ä

G!5B –	_ 1 Ö < S6ÑA’ Û,X Voice VLAN s6Ñ È JA’5B VLAN2 Voice VLAN Ä
	`Ruijie(config)# vlan 2`
	`Ruijie(config-vlan)# exit`
	`Ruijie(config)# voice vlan 2`

,Ì G Q ¸	Q ¸	£EÄ

	show voice vlan	/ Voice VLAN ,XG!5B µ C â ' ! (Š Õ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.1.2 voice vlan aging

< A'5B Voice VLAN 5Õ ê ÊKÈ Ä*ü Ã ¹ S*üA¹ Q ¸,X no EÝNM Ú5Õ ê ÊKÈ 6 á 5 ,Õ Ä voice vlan aging *minutes*

no voice vlan aging

– DAÈ â

– D	£EÄ
minutes	></ Voice VLAN ,X5Õ ê ÊKÈ Ä

5 ,ÕG!5B *minutes* – D,X5 ,Õ 1440 ÚJs Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð *ü Ã üA' Û ÞA'5B Voice VLAN ,X5Õ ê ÊKÈ È ' ü5Õ ê ÊKÈ Y ÈA' Û"u Ý ¢Eg 90Ã · Ï)AÁMÇ y [Ê È Ú ^A¹0Ã · ¢ Voice VLAN ôL8 Ä

AÈ â	5Õ ê ÊKÈ ™ Í7¾	õ ã*ó Ä

G!5B _ _ 1 ÖA'5B Voice VLAN 5Õ ê ÊKÈ 10 ÚJs

```
Ruijie(config)# voice vlan aging 5
```

,Ì G Q ¸

Q ¸	£EÄ
show voice vlan	/ Voice VLAN ,XG!5B µ C â ' ! (Š Õ Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.1.3 voice vlan cos

< A’5B Voice VLAN AÁMÇ# ,XCoS Ä*ü Ã ¹ S*üA¹ Q ¸,X no EÝNM ÚA¹G!5B 6 á 5 ,Õ Ä

voice vlan cos *cos-value*

no voice vlan cos

	– D	£EÄ

– DAÈ â

	dscp-value	></ Voice VLAN AÁMÇ# ,XDSCP Ä

5 ,ÕG!5B *dscp-value* – D,X5 ,Õ 46 Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A' ÛEîE› Â Voice VLAN ,XAÁMÇ# ,XCoS â DSCP 9 ¤P¬AÁMÇ# ,X ì 4{ È±A•Eî A±BüG£ Ä

G!5B _ _ 1 ÖG!5BVoice VLAN ,XAÁMÇ# ì 4{ ÈDSCP 40 Ä

```
Ruijie(config)# voice vlan dscp 40
```

,Ì G Q ¸

Q ¸	£EÄ
show voice vlan	/ Voice VLAN ,XG!5B µ C â ' ! (Š Õ Ä

G ÄAÈ â -

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.1.5 voice vlan enable

ü y ·G!5B õ ã ß S*ü!8 Q ¸ S6Ñ0Ã ·,X Voice VLAN s6Ñ Ä*ü Ã ¹ S*üA¹ Q ¸,X no EÝ NM GKÁ0Ã ·,XVoice VLAN s6Ñ Ä

voice vlan enable

no voice vlan enable

– DAÈ â

– D	£EÄ
´	´

5 ,ÕG!5B 5 ,Õ ™ ‰ ß0Ã ·,X Voice VLAN s6Ñ GKÁ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð EîE›A¹ Q ¸ ' Ô0Ã ·,X Voice VLAN s6Ñ ÈVoice VLAN s6Ñ ¾6Ñ ü(=)Ú0Ã · Þ *ü ÄJä K { • Õ ü Access Port ÃTrunk Port ÃHybrid Port ÃPrivate VLAN · Ã Private VLAN

#Ë · â Uplink · Þ *ü Voice VLAN s6Ñ Ä

ü < Voice VLAN GKÁ,X ™ ‰ ß È

AÈ â

G!5B _

_ 1 ÖA'5B OUI 0012.3400.0000 Voice VLAN ,X Ü"© È V Company A Ä

```
Ruijie(config)# voice vlan mac-address 0012.3400.0000 mask
ffff.ff00.0000 description Company A
```

,Ì G Q ¸

Q ¸	£EÄ
show voice vlan oui	/ ' !A' Û Õ,X OUI ÃOUI }-Õ ` £EÄ µ C Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.1.7 voice vlan mode auto

ü y ·G!5B õ ã ßG!5B0Ã ·,X Voice VLAN ¹ 0 õ ã 7¾ | õ ã Äü Ã ¹ S*üA¹ Q ¸,X no EÝNMA'5B0Ã ·,XVoice VLAN ¹ 0 õ ã | õ ã Ä

voice vlan mode auto

no voice vlan mode auto

– DAÈ â

– D	£EÄ
´	´

5 ,ÕG!5B

0Ã ·,X Voice VLAN ¹ 0 õ ã5 ,Õ 7¾ | õ ã Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

Voice VLAN ,X ¹ 0 õ ã Ú 7¾ | õ ã â | õ ã È Ê b0Ã ·G!5B ÄØ þ0Ã · Voice VLAN ,X ¹ 0 õ ã,Ì f(À0Ÿ È á à,X0Ã · Ã ¹A'5B á à,X õ ã Ä ü á à,X ¹ 0 õ ã ß0Ã · t

9 Voice VLAN ,X • ã á à È Ã q B0Ã · ßE²,X IP + A±2O _ Ã0Ã ·,X2O _ 9A'5B0Ã ·,X Voice VLAN ¹ 0 õ ã Ä

"¼ ã	1 Å'0Ã · S6Ñ Z Voice VLAN J ¹ 0 ü ¹ õ ã Ê È ™NO ¹ Ú0Ã · t 9 Voice VLAN È !6Ñ ±A• Voice VLAN s6Ñ*ó Ä 2 Å '0Ã · ¹ 0 b7¾ | õ ã Ê È ±A• s6ÑE¤> !7 ÈAË"¼ ã á?U Ú0Ã ·,X native VLAN A'5B Voice VLAN Ä 3 ÅJä K { • Trunk Port/Hybrid Port 5 ,Õ Ã ¹ ôEg Ý VLAN ,X y [È AË Ú Voice VLAN ¢0Ã ·,X VLAN AŒ Ã ë>< /ï Î È a ' Ô Voice VLAN s6Ñ È ¹ ±A• þE² yAÁMÇA' Û,X0Ã · á î t 9 Voice VLAN È ê KS ÊKÈ á S*ü,X0Ã · Ô,ÈPO+- üVoice VLAN Ä
AÈ â	1 Å0Ã · S6Ñ Z Voice VLAN s6Ñ â È á AŒE¯> | õ ã `7¾ | õ ã ,X Û 6 È8¹LÔE¯> õ ã Û 6 ÈAË GKÁ0Ã ·,X Voice VLAN s6Ñ Ä 2 Å7¾ | õ ã ß È á AŒEîE› ¹G!5B Q ¸ Ú0Ã · t 9 Voice VLAN ê ¢ Voice VLAN ôL8 Ä

G!5B _

_ 1 ÖA'5B0Ã · FastEthernet 0/1 ,X Voice VLAN õ ã 7¾ | õ ã Ä

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-vlan)# voice vlan mode auto
```

,Ì G Q ¸

Q ¸	£EÄ
show voice vlan	/ Voice VLAN ,XG!5B µ C â ' ! (Š Õ ÈÙ À S6Ñ Voice VLAN s6Ñ,X0Ã ·,X ¹ 0 õ ã Ä

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.1.8 voice vlan security enable

< ' Ô Voice VLAN ,X] < õ ã Ä*ü Ã ¹ S*üA¹ Q ¸,X no EÝNM GKÁ] < õ ã Ä

voice vlan security enable

no voice vlan security enable

– DAÈ â

– D	£EÄ
´	´

5 ,ÕG!5B

Voice VLAN ,X] < õ ã5 ,Õ ' Ô Ä

Q ¸ õ ã < G!5B õ ã

Z6Ñ ó È Q E¯> *ü AÁMÇ# â D B# Ú/• ôEg È Ã ¹ ' Ô Voice VLAN ,X] < õ ã Ä ' Ô] < õ ã âA' Û î Í y [,X$d MAC

S*ü Û Ð

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›!8 Q ¸ È Ã ¹,ß Voice VLAN ,XG!5B µ C â ' !(Š Õ È Ù À S6Ñ Voice VLAN s6Ñ,X 0Ã ·,X ¹ 0 õ ã Ä

G!5B _

_ 1 Ö ¹,ßA' Û ' !,X Voice VLAN (Š Õ

```
Ruijie(config)# show voice vlan
Voice VLAN status: ENABLE            //Voice VLAN S6Ñ(Š Õ
Voice VLAN ID: 2                     //Voice VLAN ID
Voice VLAN security mode: Security   //]< õ ã ú'Ô
Voice VLAN aging time: 5 minutes     //5Õ ê ÊKÈ
Voice VLAN cos: 6                    //AÁMÇ#CoS
Voice VLAN dscp: 46                  //AÁMÇ#DSCP
Current voice vlan enabled port mode: // S6ÑVoice VLAN ,X0Ã · â õ ã
PORT                    MODE
--------------------------------------------------
Fa0/1                   Auto
```

,Ì G Q ¸

Q ¸	£EÄ
voice vlan *vlan-id*	< S6Ñ Voice VLAN È A'5B Ô þ VLAN Voice VLAN Ä
voice vlan aging *minutes*	A'5B Voice VLAN 5Õ ê ÊKÈ Ä
voice vlan cos *cos-value*	A'5B Voice VLAN AÁMÇ# ,XCoS Ä
voice vlan dscp *dscp-value*	A'5B Voice VLAN AÁMÇ# ,XDSCP Ä
voice vlan enable	S6Ñ0Ã ·,X Voice VLAN s6Ñ Ä
voice vlan mode auto	G!5B0Ã ·,X Voice VLAN ¹ 0 õ ã Ä
voice vlan security enable	'Ô Voice VLAN ,X]< õ ã Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.4	„ r Q ¸

72.2.2 show voice vlan oui

/ ' !A' Û Õ,X OUI ÃOUI }-Õ ` £EÄ µ C Ä

show voice vlan oui

– DAÈ â

– D	£EÄ
´	´

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›!8 Q ¸ È Ã ¹,ß ' !A' Û Õ,XAÁMÇ OUI Ä

G!5B _

_ 1 Ö ¹,ßA' Û,X Voice VLAN OUI

```
Ruijie(config)# show voice vlan oui
OUI             Mask             Description
--------------- ---------------- ---------------
0001.e300.0000  ffff.ff00.0000  Siemens phone
0003.6b00.0000  ffff.ff00.0000  Cisco phone
0004.0d00.0000  ffff.ff00.0000  Avaya phone
0060.b900.0000  ffff.ff00.0000  Philips/NEC phone
00d0.1e00.0000  ffff.ff00.0000  Pingtel phone
00e0.7500.0000  ffff.ff00.0000  Polycom phone
00e0.bb00.0000  ffff.ff00.0000  3com phone
```

show voice vlan oui Q ¸ / µ CAÈ â Ö

+!‰	AÈ â
OUI	OUI ÈAÁMÇ y [,X$d MAC Ä
Mask	OUI }-Õ È OUI ,X Ý KS z È*ü }-Õ></ Ä
Description	OUI ,X £EÄ

73

73.1

73.1.1 rgos-security compatible

5 ,Õ ™ ‰ ß ÈJä K x 6] < s6Ñ RGOS P • õ ã E , ÈEîE› Q ¸ rgos-security compatible A'5B P • õ ã E , ×V p?UA'5B ä RGOS M2 P • õ ã E , ÈS*ü no Q ¸A'5B Ö

rgos-security compatible

no rgos-security compatible

– DAÈ â	– D	£EÄ
	´	´

5 ,ÕG!5B	5 ,ÕG!5B ß ÈJä K x 6] < s6Ñ RGOS P • õ ã E ,
Q ¸ õ ã	< G!5B õ ã
S*ü Û Ð	"¼ ã Â P • õ ã E , Q ¸ â È ™NOG¡ x 6 !6Ñ SG!5B*ó
G!5B _	_ 1 ÖG!5B] < s6Ñ M2 RGOS P • õ ã E , Ö Ruijie(config)#**no gos-security compatible**

,Ì G Q ¸	Q ¸	£EÄ
	´	´

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	10.4	„ r Q ¸

74 VRRP

74.1

74.1.1 vrrp authentication

Q ¸ *ü VRRP D B ÙP`A• s6Ñ È J no 6 ã Ú GKÁE- Ô s6Ñ Ä

vrrp group authentication *string*

no vrrp *group* authentication

– DAÈ â

– D	£EÄ
group	VRRP 4˜ Ë
string	*ü b VRRP 4˜P`A•,X +0ú ( á6ÑCYE8 þ +8V ÈE-G ,XP`A• · ¸ â [· ¸)

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü VRRP s6Ñ Ä G “ *ü VRRP s6Ñ È2Ï4³"u Ý5 ,Õ A’5B Ï)P`A• · ¸ Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

ü à Ô þ VRRP 4˜ ,XA’ Û ™NOA’5B,Ì à,XP`A• · ¸ Ä â [P`A• · ¸ á6Ñ ±A•] < û È W ¾ *ü 9L !6/ ¤/ JíAÃ,X VRRP G!5B Ä

"¼ ã

IPv6 VRRP Æ4£ sL8 ZAxA• s6Ñ ÈV p ü IPv6 <. ³CÃ+ < ÞG!5B ZE-5 Q ¸ È á î*ó Ä

-	-

74.1.2 vrrp description

Q ¸ VRRP Û n Ô þ £EÄ0ú È J no 6 ã Ú 6 á2Ï4³5 ,ÕA’5B Ä

vrrp *group* description *text*

no vrrp group description

– D	£EÄ

Q ¸ ü y · Þ *ü VRRP JA’5B Í h,X<. ³ IP ÈJ no 6 ã Ú/U!6A¹ y · Þ,X VRRP s6Ñ J ª#\<. ³ IP ,XA’5B Ä

vrrp *group* ip *ipaddress* [secondary]

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

– DAÈ â

– D	£EÄ
group	<. ³A’ Û,X VRRP 4˜ Ë
ipaddress	<. ³A’ Û,X IP
secondary	Û â A¹<. ³A’ Û,X õ IP

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü VRRP s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð V rI’ ‘ð ˜É,E VÂ ø6cf.,Ôð ¹²Ä€ õ<. ³A’ Û,X

Q ¸ ü y · Þ *ü IPv6 ,X VRRP JA'5B Í h,X<. ³ IPv6 È J no 6 ã Ú/U!6A¹ y · Þ,X VRRP s6Ñ J ª#\<. ³ IPv6 ,XA'5B Ä

vrrp *group* ipv6 *ipv6-address*

no vrrp *group* ipv6 *ipv6-address*

– DAÈ â

– D	£EÄ
group	<. ³A' Û,X VRRP 4˜ Ë
ipv6-address	<. ³A' Û,X IPv6

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü IPv6 ,X VRRP s6Ñ Ä

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð IPv6 ,X VRRP â IPv4 ,X VRRP E*ü 1 255 ,X4˜ Ë ÄÔ þ VRRP 4˜ ÈIPv4 ` IPv6 á6Ñ E , È V pG!5B Z IPv6 È á AŒG!5B IPv4 È ™NO ^ Ý IPv6 ô L8 È' â !6ÑG!5B IPv4 Ä

1 Ô þG!5B,X ™NO JÒCÃ ÈJÒCÃ ™NO ü J W<. ³ ôL8 â !6Ñ ôL8 Ä

G!5B – ü ßM6,XG!5B/ _ È ü ¹ þ5% · FastEthernet 0/0 Þ *ü IPv6 ,X VRRP s6Ñ ÄA¹ VRRP 4˜ Ë 1 È<. ³ IPv6 FE80::1 ` 2001::1 Ä

```
interface FastEthernet 0/0
no switchport
ipv6 enable
ip6 address 2001::2/64
vrrp 1 ipv6 FE80::1
vrrp 1 ipv6 2001::1
```

,Ì G Q ¸

Q ¸	£EÄ
Ruijie# show vrrp [brief | group]	/ ' !,X VRRP A'5B

G ÄAÈ â Ý G ÄFÑ Õ Ä

Q ¸ Z Æ

(Ë	AÈ â
RGOS10.4	A¹ Q ¸ ¢ RGOS10.4 (Ô Ÿ Õ Ä

74.1.5 vrrp preempt

Q ¸A'5B VRRP 4˜ Ø b v 4 õ ã È J no 6 ã Ú/U!6 VRRP v 4 s6Ñ Ä

vrrp *group* preempt [delay *seconds*]

no vrrp *group* preempt [delay]

– DAÈ â

– D	£EÄ
group	VRRP 4˜ Ë
delay *seconds*	ÃEÝ – D ÈA¹ – D n Z š Û w 7¾ Å ¹ Ý Master D• Ñ !,X ÊE³ Ä5 ,Õ 0 /¦ Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü VRRP s6Ñ Ä Ô º *ü VRRP s6Ñ ÈVRRP 4˜T¬Ax ¹ 0 ü v 4 õ ã ß Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

V p VRRP 4˜ ¹ 0 ü v 4 õ ã ß È Ô º W ¥)„7¾ Å,X ì 4{P¬ b ' ! Master ,X ì 4{ È W Ú v 4 ä A¹ VRRP 4˜,X A' Û Ä V p VRRP 4˜ ¹ 0 üM2 v 4 õ ã ß È G " W ¥)„7¾ Å,X ì 4{P¬ b ' ! Master ,X ì 4{ È W 3 á î v 4 ä A¹ VRRP 4˜,X A' Û Ä VRRP 4˜ S*ü ¹ þ5% y · IP ™ ‰ ß È v 4 õ ã úA'5B ã á û È´ !8 ÊA¹ VRRP 4˜ K Ý Ô û ì 4{ È W7¾ | ä A¹ VRRP 4˜ ,X A' Û Ä

G!5B –

ü ßM6,XG!5B/ _ È Ô º VRRP 4˜ ¥)„7¾ Å,X ì 4{(200) P¬ b ' ! A' Û,X ì 4{ È W î ü1 Y 15 /¦ â w 7¾ Å v 4 A' Û Ä

```
vrrp 1 preempt delay 15
vrrp 1 priority 200
```

,Ì G Q ¸

Q ¸	£EÄ
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	*ü VRRP s6Ñ JA'5B<. ³A' Û,X IP
Ruijie(config-if)# vrrp *group* priority *level*	A'5B VRRP 4˜,X ì 4{

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

74.1.6 vrrp priority

Q ¸A'5B VRRP 4˜,X ì 4{ È J no 6 ã Ú 6 á2Ï4³T¬AxA'5B Ä

vrrp *group* priority *level*

no vrrp *group* priority

– DAÈ â

– D	£EÄ
group	VRRP 4˜ Ë
level	VRRP 4˜,X ì 4{

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü VRRP s6Ñ Ä Ô º *ü VRRP s6Ñ ÈVRRP 4˜T¬Ax J ì 4{ 100 Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

A¹ Q ¸ Ú |A'5B VRRP 4˜,X ì 4{ Ä

G!5B –

ßM6 _ $ A'5B VRRP 4˜ 1 ,X ì 4{ 254 Ä

```
vrrp 1 priority 254
```

,Ì G Q ¸

Q ¸	£EÄ
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	*ü VRRP s6Ñ JA'5B<. ³A' Û,X IP
Ruijie(config-if)# vrrp *group* preempt [delay *seconds*]	A'5B VRRP Ø b v 4 õ ã

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

74.1.7 vrrp timers advertise

Q ¸A'5B A' Û ¥EÕ VRRP Eî ,XKÈLh È J no 6 ã Ú 6 á2Ï4³T¬AxA'5B Ä

vrrp *group* timers advertise *interval*

no vrrp *group* timers advertise

6Ñ â È W î ¢ A’ Û,X VRRP Eî : 4 VRRP Eî ¥EÕKÈLh È J+ !8 9Au1k Master A’ Û KÈLh È5à á S*ü7¾ Å A’5B,X VRRP Eî ¥EÕKÈLh 9Au1k Ä Q ¸ Ã ¹ r)„ â Master A’ Û,X VRRP Eî ¥EÕ n Ê < à!9 Ä

G!5B –

ßM6,X _ $ ü VRRP 4˜ 1 Þ *ü Z n Ê < : 4 s6Ñ Ä

```
vrrp 1 timers learn
```

,Ì G Q ¸

Q ¸	£EÄ
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	*ü VRRP s6Ñ JA’5B<. ³A’ Û,X IP
Ruijie(config-if)# vrrp *group* timers advertise [msec] *interval*	A’5B VRRP Eî ¥EÕKÈLh

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

74.1.9 vrrp track

*ü

ipv4-addres	>•,¥?š,X IPv4 È È h*ü bfd Ê Û îA±,XF• Ä
ipv6-global-addres	IPv6 <)×) •
ipv6-linklocal-addree	IPv6 JÒCÃ
interval-value	¥EÕ v# y [,X ÊKÈKÈLh Ä) ! /¦ Ä V p áA' n È 2Ï4³5 ,Õ 3 /¦ Ä
timeout-value	¥EÕ v# y [â1 Y h1(,XCY Ê ÊKÈ Ä V pCY Ê ÊKÈ Z È"u Ý h1(È íAx á ÃE' Ä) ! /¦ Ä V p áA' n È2Ï4³5 ,Õ 1 /¦ Ä
priority	>•,¥?š,X y ·(Š Õ ¬ Ê J VRRP ì 4{ ¬,X z Ä V p áA' n È2Ï4³5 ,Õ 10 Ä

5 ,ÕG!5B

5 ,Õ ™ ‰ ß È2Ï4³ ü y · Þ"u Ý *ü VRRP s6Ñ Ä G " *ü VRRP s6Ñ È2Ï4³"u Ý5 ,Õ Û n,¥?š,X y · ÃIPv4 ê5Ù IPv6 Ä

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

Ã ¹ S*ü Q ¸,¥?š Î ·JÒCÃ ÈLÔ?U"¼ ã,X >•,¥?š,X y · ¾ AŒ Ý ÃCÃ+ ,XF Ee y ·(V Routed Port ÈSVI ÈLoopback ÈTunnel 1 1) Ä

V p ,¥?š È Í b IPv4 <. ³CÃ+ < È Û n ,X IPv4 ×Í b IPv6 <. ³CÃ+ < È Û n ,X IPv6 Ä

V p>•C³Cþ,X JÒCÃ È ™NO Û n5%4° y · Ä

G!5B _

_ 1 Ö ü ßM6,X _ $ È VRRP 4˜ 1 Í Routed Port Fa1/1 E¯> ,¥?š Ä V p Fa1/1 JÒCÃ • Ô ÈVRRP 4˜,X ì 4{ £ å 30 × ü Fa1/1 ,XJÒCÃ 6 á â ÈVRRP 4˜ 1 ,X ì 4{ 6 á Ä

```
vrrp 1 track FastEthernet 1/1 30
```

_ 2 Ö ßM6,X _ $ C³Cþ 1000::1 ú Ã E' Ä

```
vrrp 1 track 1000::1
```

_ 3 Ö ßM6,X _ $ C³Cþ5%4° y · VLAN 1 Þ,X FE80::1 ú Ã E' È"¼ ã ™NO Û n5%4° y · Ä

```
vrrp 1 track FE80::1 vlan 1
```

#G!5B Û n VRRP 4˜EîE› BFD C³Cþ Û n,XF• 192.168.1.3

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface FastEthernet 0/1
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.1.1 255.255.255.0
Ruijie(config-if)#bfd interval 50 min_rx 50 multiplier 3
Ruijie(config)#interface FastEthernet 0/2
```

```
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.201.17 255.255.255.0
Ruijie(config-if)#vrrp 1 priority 120
Ruijie(config-if)#vrrp 1 ip 192.168.201.1
Ruijie(config-if)#vrrp 1 track bfd FastEthernet 0/1 192.168.1.330
Ruijie(config-if)#end
```

,Ì G Q ¸

Q ¸	£EÄ
Ruijie(config-if)# vrrp *group* ip *ipaddress* [secondary]	*ü VRRP s6Ñ JA'5B<. ³A' Û,X IP
Ruijie(config-if)# vrrp *group* priority level	A'5B VRRP 4˜,X ì 4{

G ÄAÈ â Ý G ÄFÑ Õ Ä

```
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: FastEthernet 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: FastEthernet 0/0 Grp 1 state Backup -> Master
Ruijie#
```

,Ì G Q¸

Q¸	£EÄ
Ruijie# debug vrrp errors	'Ô VRRP ÎJí ¤/ A×A© Ô G
Ruijie# debug vrrp events	'Ô VRRP _ ÊA×A© Ô G
Ruijie# debug vrrp state	'Ô VRRP (Š ÕA×A© Ô G

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

74.2.2 debug vrrp errors

Q¸'Ô VRRP ÎJí ¤/ A×A© Ô G È J no 6 ã Ú GKÁA¹A×A© Ô G Ä

debug vrrp errors

no debug vrrp errors

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È2Ï4³"u Ý 'Ô VRRP

```
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
```

,Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

(Ë	

,Ì G Q ¸	Q ¸	£EÄ
	-	-

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

74.2.4 debug vrrp packets

Q ¸ ' Ô VRRP D B ÙA×A© Ô G È Jho 6 ã Ú GKÁA¹A×A© Ô G Ä

debug vrrp packets

no debug vrrp packets

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È2Ï4³"u Ý ' Ô VRRP D B ÙA×A© Ô G Ä

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð ´

_ 1 Ö ü ßM6,X _ $ È*ü ' Ô Z VRRP D B ÙA×A© Ô G È ü J / Z VRRP 4˜ 1 ,X D B Ù,X õP` ` Ä

```
Ruijie# debug vrrp packets
```

G!5B _

VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213

¸Ì G Q¸

Q¸	£EÄ
-	-

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

74.2.5 debug vrrp state

Q¸' Ô VRRP (Š Õ,XA×A© Ô G È Jho 6 ã Ú GKÁA¹A×A© Ô G Ä

debug vrrp state

no debug vrrp state

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È2Ï4³"u Ý ' Ô VRRP A×A© Ô G Ä

Q¸õ ã (M *ü õ ã

S*ü Û Ð ´

ßM6 _ $ È*ü ' Ô Z VRRP (Š Õ,XA×A© Ô G Ä

```
Ruijie# debug vrrp state
Ruijie#
%VRRP-6-STATECHANGE: FastEthernet 0/0 Grp 2 state Master -> Backup
%VRRP-6-STATECHANGE: FastEthernet 0/0 Grp 2 state Backup -> Master
Ruijie# config terminal
```

G!5B _

	Ruijie#

¸Ì G Q¸	Q¸	£EÄ
	-	-

G ÄAÈ â	´

Q¸Z Æ	(Ë	AÈ â
	-	-

74.3

74.3.1 show vrrp

Q¸ / VRRP ,X V ‰ ê5Ù4š8V Ä

show vrrp [brief | *group*]

– DAÈ â	– D	£EÄ
	brief	ÃEÝ – D È Û â / VRRP ,X V ‰
	group	Y / ,X VRRP 4˜ Ë

5 ,ÕG!5B	´

Q¸õ ã	(M *ü õ ã

S*ü Û Ð	V p á S*ü ÃEÝ – D È Ú / Ý,X VRRP 4˜,X ™ ‰ Ä

G!5B _	_ 1 Ö / Ý,X VRRP 4˜ ™ ‰ Ruijie# **show vrrp** FastEthernet 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
FastEthernet 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
_ 2 Ö / VRRP 4˜,X V ‰
Ruijie# show vrrp brief
Interface   Grp Pri Time  Own Pre State   Master addr     Group addr
FastEthernet 0/0   1   100   -    -   P  Backup  192.168.201.213
192.168.201.1
FastEthernet 0/0   2   120   -    -   P  Master  192.168.201.217
192.168.201.2
```

,Ì G Q¸	Q¸	£EÄ
	Ruijie(config-if)# vrrp *group ip ipaddress* [secondary]	*ü VRRP s6Ñ JA'5B<. ³A' Û,X IP

G ÄAÈ â ´

Q¸Z Æ	(Ë	AÈ â
	-	-

74.3.2 show vrrp interface

Q¸ / Û n y · Þ,X VRRP 4˜,X ™ ‰ Ä

show vrrp interface *type number* [brief]

– DAÈ â	– D	£EÄ

type	y ·,X2O _
number	y ·,X c Ë
brief	ÃEÝ – D Ä8¹ S*ü Ú / V ‰

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð ´

G!5B _

ßM6,X _ $ / Z ¹ þ5% · E1/0 Þ,X VRRP ™ ‰

```
Ruijie# show vrrp interface fastethernet 0/0
FastEthernet 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
FastEthernet 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
```

,Ì G Q ¸

Q ¸	£EÄ

	Ruijie(config-if)# vrrp *group* ip *ip address* [secondary]	*ü VRRP s6Ñ JA'5B<. ³A' Û,X IP

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

75 BFD

G!5B _

üCÃ+ G!5B õ ã ß S6Ñ Ý y · AŒ #A, â 6(| Ä

```
config)#
config-router)#
```

,Ì G Q ¸

Q ¸	£EÄ
bfd	G!5B îA± – D Ä
ip ospf bfd	S6Ñ AŒPF â 6(	Ä
ip rip bfd	S6Ñ AŒP â 6(	

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
4b3)	„ r Q ¸

75.1.3

ü < õ ã ßEîE› Q ¸G!5B *ü ± x1*+9 ÈS*ü Q ¸ GKÁ ± x1*+9 Ä

– DAÈ â

– D	£EÄ

5 ,ÕG!5B 5 ,Õ ™ ‰ ßD ± x1*+9 *ü

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

BFD #A, M2 # ó #A, ÈV p *ü BFD s6Ñ,XA' Û « Ï Ã ¹EîE›G!5B *ü BFD ,X ± x1*+9E¯> ± x Ä V p *üA¹A' Û BFD s6Ñ,X à Ê ' ÔA¹ ± x1*+9 È î Ð7È Þ Ô CÇA' Û ¥ Î,X BFD y [4£E›A¹A' Û Ê ÈA¹A' Û î Ú BFD y [ö × È ¢5à E ¡ Þ ÔCÇA' Û â J ªA' Û,X BFD îA± Î0Ÿ ÄA¹ s6Ñ žL$ ™ Í x 6 *ó Ä

G!5B –

#G!5B *ü BFD ± x1*+9 Ä

```
Ruijie(config)# bfd cpp
```

,Ì G Q¸

Q¸	£EÄ
´	´

G ÄAÈ â ´

,Ì•Î* œ0K ðN)¢…s2 …sh)e…sh)e…s2$TUC"EETqG4UG sET2$7Dïf„`'&1 $ï±…sh

S*ü Û Ð

5 ,Õ ™ ‰ ßG!5B ŽBFD îA± – D,X à Ê2Ï4³7¾ | S6Ñ echo õ ã È echo y [,X Ô ã ¥EÕ KÈLh ` Ô ã y y ·G›*ü îA±G!5B,X Interval milliseconds ` min_rx *milliseconds* – D Ä

"¼ ã	A¹ Q¸ á AŒ ü L3 AP y · ßE¯> G!5B ü BFD *ü ECHO õ ã !, LÔ?U üBFD îA±,XF• A' Û Þ ;> no ip redirects GKÁ ¥EÕCMP G¡ n å y [,X s6Ñ È ;> no ip deny land Q¸ GKÁ DDOS s6Ñ(L !6 Land-based Ï) Echo õ ã ™NO BFD îA±,X ø0Ã2Ï4³FÑ S6ÑA¹ õ ã !6Ñ*ó x 6 { • S5760 2Ï ë á ÕG!5B ä Echo õ ã

G!5B –

ü Routed Port y · FastEthernet 0/2 ÞG!5Becho õ ã Ä

```
Ruijie(config)# interface fastEthernet 0/2
Ruijie(config)# no switchport
Ruijie(config-if)# bfd echo
```

,Ì G Q¸

Q¸	£EÄ
bfd	G!5BBFD îA± – D Ä
ip redirects	S6ÑICMP G¡ n å y [s6Ñ Ä
ip deny land	S6ÑL !6 Land-based Ï s6Ñ Ä
bfd slow-timer	G!5B 6Eó n Ê < n Ê ÊKÈ

no bfd slow-timer

– DAÈ â

– D	£EÄ
milliseconds	ÃEÝ %) ' ,X 6Eó n Ê < ÊKÈ È) ! !¿/¦ Ä ÃG!5B 8× È ¢ þG!5B5 ,Õ Ä

5 ,ÕG!5B 5 ,Õ P V

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

G!5B – #G!5Bslow-timer 14000 !¿/¦ Ä

```
Ruijie(config)# bfd slow-timer 14000
```

,Ì G Q ¸

Q ¸	£EÄ
bfd echo	S6ÑBFD Echo s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

75.1.6 bfd up-dampening

ü y ·G!5B õ ã ß G!5BEî 4- G6(h*ü îA± UP (Š Õ ! LÔ 8 3 (Š Õ0 n,X ÊKÈ ÄEîE› Q R Q ¸ Ú 6 á ä5 ,Õ Ä

bfd up-dampening [*milliseconds*]

no bfd up-dampening

– DAÈ â

– D	£EÄ

milliseconds	ÃEÝ Eî 4- G6(h*ü îA± UP ö Õ ! dÍBQ 8 3& a]P 0 n,X ÊKÈ È) ! !¿/¦ Ä ÃG!5B8× È ¢$€ 2W $€ ` 6 ` ð 0 G!5B P ð G ' îA±,Xñ]PJ!ˆ ' 2 : 1 }±“`@áˆ 8 3 Q¼¡ £ ð”t^à 4- h*ü 5 ,Õ % 3 Ä

5 bÍTr T 5 ,Õ % 0 `,€C1 QÀ00 n,X ÊKÈ % 3 È Î)„$` € 3%S ð”pEî

Q`K•ÿQN0 y ·G!5B õ ã

Sb¯Á•±

G!cT A Uð # V ß _ $ ÚEî 4- G6(h*ü îA± UP ñ]P, •FLÔ3 € 33O Õ0 n,X ÊKÈG!5B 3 • 0 ð 0 0 0 `a…}!¿

,Ì`tp¥ K€

Q ¸	£EÄ
bfd	G!5BBFD îd ™a´@ @

G`œD •¾ ´

Q`K€• œ`

(Ë	AÈ â
10.3(5)	„ r Q ¸

75.1.7 ip ospf bfd

ü y · õ ã ßEîE› ip ospf bfd Q ¸G!5B S6Ñ y · AŒ OSPF #A, â BFD 6(| È*ü disable GK + GKÁ S6Ñ ÈEîE›no Q ¸ ôL8A¹G!5B Ä

ip ospf bfd [disable]

no ip ospf bfd

– DAÈ â	– D	£EÄ
	disable	ÃEÝ GKÁA¹ y · Þ AŒ 2 6 3) #A, â %) ' 6(| Ä

5 ,ÕG!5B '"u ÝEg 9 **G L V D E5QÕ¸HXÈ** S6Ñ y · AŒ OSPF #A, â %) ' 6(|

Q ¸ õ ã y ·G!5B õ ã

S*ü Û Ð

ø/¡ • ã Ã ¹ S6Ñ ê5Ù GKÁ y · AŒ OSPF #A, â BFD 6(| Ö

1 Ô/¡ • ã Ö ü OSPF CÃ+ G!5B õ ã ßEîE›[no] bfd all-interfaces Q ¸ S6Ñ ê5Ù GKÁ Ý y · AŒCÃ+ #A, â BFD 6(| ×

1 `/¡ • ã ÖÃ ¹E¯ 9 y ·G!5B õ ãEîE› ip ospf bfd [disable] Q ¸ S6Ñ ê5Ù GKÁ Û n y · AŒ OSPF #A, â BFD 6(| ×

G!5B –

ü Routed Port y · FastEthernet 0/2 Þ GKÁ AŒOSPF #A, â BFD 6(|.

```
Ruijie(config)# interface FastEthernet 0/2
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip ospf bfd disable
```

,Ì G Q ¸	Q ¸	£EÄ
	bfd	G!5BBFD îA± – D Ä
	bfd all-interfaces	S6Ñ Ý y ·CÃ+ #A, â BFD 6(|

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	10.3(4b3)	„ r Q ¸

75.1.8 ip rip bfd

ü y · õ ã ßEîE› ip rip bfd Q ¸G!5B S6Ñ y · AŒ RIP #A, â BFD 6(| È *ü disable GK + GKÁ S6Ñ ÈEîE›no Q ¸ ôL8A¹G!5B Ä

ip rip bfd [disable]

no ip rip bfd

– DAÈ â

– D	£EÄ
disable	ÃEÝ GKÁA¹ y · Þ AŒ 5 , 3 #A, â %) ' 6(| Ä

5 ,ÕG!5B

'"u ÝEg 9 **G L V D E** 5,ÕÃ,ÈÈ S6Ñ y · AŒ RIP #A, â %) ' 6(|

Q ¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

ø/¡ • ã Ã ¹ S6Ñ ê5Ù GKÁ y · AŒ RIP #A, â BFD 6(| Ö

1 Ô/¡ • ã Ö ü RIP CÃ+ G!5B õ ã ßEîE›[no] bfd all-interfaces Q ¸ S6Ñ ê5Ù GKÁ Ý y · AŒCÃ+ #A, â BFD 6(| ×

1 `/¡ • ã ÖÃ ¹E¯ 9 y ·G!5B õ ãEîE› ip rip bfd [disable] Q ¸ S6Ñ ê5Ù GKÁ Û n y · AŒRIP #A, â BFD 6(| ×

G!5B _

ü Routed Port y · FastEthernet 0/2 Þ GKÁ AŒRIP #A, â BFD 6(| Ä

```
Ruijie(config)# interface FastEthernet 0/2
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip rip bfd disable
```

,Ì G Q ¸

Q ¸	£EÄ
bfd	G!5BBFD îA± – D Ä
bfd all-interfaces	S6Ñ Ý y ·CÃ+ #A, â BFD 6(|

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

75.1.9 ip route static bfd

ü < õ ã ßEîE› ip route static bfd Q ¸G!5BM- ÕCÃ+ âBFD 6(| ÈEîE› no Q ¸ ôL8G! 5B Ä

ip route static bfd [vrf *vrf-name*] *interface-type interface-number gateway* [source *ip-address*]

no ip route static bfd [vrf *vrf-name*] *interface-type interface-number gateway* [source *ip-address*]

– DAÈ â

– D	£EÄ
vrf *vrf-name*	(ÃEÝG!5BM- ÕCÃ+ < 2,X VRF á/Ä Ä
interface-type interface-number	G!5B y ·2O _ ` y ·4ê Ë Ä
gateway	G!5B5% ŒP È G BFD ,XF• IP ÄM- ÕCÃ+ G!5B ß ÔCÇ A¹F• ,X ÚEîE› BFD E¯> ”# A¹E@ ¥CÃ X,X ÃE’ û Ä
V R X U/F5H *D G G U H V* V(ÃEÝG!5BBFD îA± G›*ü,X$d IP , V pF• IP îCÇ,X ™ ‰ ß ÈLÔ?UG!5BA¹ – D Ä	

5 ,ÕG!5B "u ÝG!5BM- Õ â %) ' 6(|

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

"¼ ã	G!5B ÊOj .B ±A¹ y ·,X %) ' îA± – D Æ4£G!5B

G!5B _

#G!5B S6ÑM- ÕCÃ+ G6ŒFD h*ü ÈEîE› BFD ”# â 172.16.0.2 F• KÈ,XE@ ¥CÃ X Ä

```
Ruijie(config)# interface FastEthernet 0/1
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip address 172.16.0.1 255.255.255.0
Ruijie(config-if)# bfd interval 50 min_rx 50 multiplier 3
Ruijie(config-if)# ip route static bfd FastEthernet 0/1 172.16.0.2
Ruijie(config-if)# ip route 10.0.0.0 255.0.0.0 FastEthernet 0/1
172.16.0.2
```

,Ì G Q ¸

bfd	G!5BBFD îA± – D Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

75.1.10 ipv6 route static bfd

ü < õ ã ßEîE› ipv6 route static bfd Q ¸G!5BM- ÕCÃ+ âBFD 6(| ÈEîE› no Q ¸ ôL8 G!5B Ä

Ipv6 route static bfd [vrf *vrf-name*] *interface-type interface-number gateway* [source *ipv6-address*]

no ipv6 route static bfd [vrf *vrf-name*] *interface-type interface-number gateway* [source *ipv6-address*]

– DAÈ â

– D	£EÄ
vrf *vrf-name*	(ÃEÝ)G!5BM- ÕCÃ+ < 2,X VRF á/Ä Ä
interface-type interface-number	G!5B y ·2O _ ` y ·4ê Ë Ä
gateway	G!5B5% ÔIP È G BFD ,XF• IP ÄM- ÕCÃ+ G!5B ß ÔCÇ A¹F• ,X ÚEîE› BFD E¯> ”# A¹E@ ¥CÃ X,X ÃE’ û Ä
V R X U/F$H*Y D G G U H*	(ÃEÝ)G!5BBFD îA± G›*ü,X$d IP , V pF• IP îCÇ,X ™ ‰ ß ÈLÔ?UG!5BA¹ – D Ä

5 ,ÕG!5B "u ÝG!5BM- Õ â %) ' 6(|

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð

"¼ ã	G!5B ÊOj .B ±A¹ y ·,X %) ' îA± – D Æ4£G!5B

G!5B _

#G!5B S6ÑM- ÕCÃ+ G6BFD h*ü ÈEîE› BFD ”# â 2001:1::2 F• KÈ,XE@ ¥CÃ X Ä

```
Ruijie(config)# interface FastEthernet 0/1
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip address 2001:1::1/64
Ruijie(config-if)# bfd interval 50 min_rx 50 multiplier 3
Ruijie(config-if)# ipv6 route static bfd FastEthernet 0/1 2001:1::2
Ruijie(config-if)# ipv6 route 2002::/64 FastEthernet 0/1 2001:1::2
```

,Ì G Q¸

Q¸	£EÄ
bfd	G!5BBFD îA± – D Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
RGOS10.4E	„ r Q¸

75.1.11 neighbor fall-over bfd

ü router ê5Ùaddress-family G!5B õ ã ß, EîE› neighbor fall-over Q¸G!5B BGP â BFD 6(| 9 ”# (M nF• ,X ¬ ê 9 tEó BGP /, EîE› no Q¸GKÁA¹ s6Ñ

neighbor *ip-address* fall-over bfd

no neighbor *ip-address* fall-over bfd

– DAÈ â

– D	£EÄ
ip-address	Û n BGP F• Ä

5 ,ÕG!5B 5 ,Õ % * 3 á G6(%) ' s6Ñ

Q¸õ ã CÃ+ ê5Ù £G!5B õ ã

S*ü Û Ð

"¼ ã	G!5B ÊOj .B ±F• , 3 Í h,X y ·,X %) ' îA± – D Æ4£G!5B

G!5B –

#G!5B S6ÑBGP G6(BFD h*ü ÈEîE› BFD ”# â 172.16.0.2 F• KÈ,XE@ ¥CÃ X
Ruijie(config)# **router bgp 44000**
Ruijie(config-router)# **bgp log-neighbors-changes**
Ruijie(config-router)# **neighbor** 172.16.0.2 **remote-as 45000**
Ruijie(config-router)# **neighbor** 172.16.0.2 **fall-over bfd**
Ruijie(config-router)# **end**

¸Ì G Q¸

Q¸	£EÄ
bfd	G!5BBFD îA± – D Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
10.3(4b3)	„ r Q¸

75.1.12 set ip next-hop verify-availability

ü Route-map õ ã ßEîE› set ip next-hop verify-availability Q¸G!5B S6Ñ Î b BFD ê5Ù TRACK ”# F• IP ¹.B nG!5B,XCÃ+ 1*+9 ß ÔCÇ ú*ó ÄEîE› no Q¸GKÁA¹ s6Ñ Ä

set ip next-hop verify-availability [*next-hop-address* [track number|bfd [vrf *vrf-name*] *interface-type interface-number gateway*]]

no set ip next-hop verify-availability [*next-hop-address* [track *number*|bfd [vrf *vrf-name*] *interface-type interface-number gateway*]]

– DAÈ â

– D	£EÄ
vrf *vrf-name*	ÃEÝ G!5BM- ÕCÃ+ < 2,X 9 5) á/Ä
next-hop-address	ÃEÝ ß ÔCÇ , 3
track	ÃEÝ EîE› 7 U D F N • ã ”# ¹ ø • ß ÔCÇ ú*ó
number	ÃEÝ W U D F N ÍB54ê Ë
bfd	ÃEÝ EîE› %) ' • ãE¯> F• ”#
interface-type interface-number	ÃEÝ G!5B y ·2O _ ` y ·4ê Ë

gateway (ÃEÝ)G!5B5% ŒP È G IPm<02C80T9 2.5 147.36 750.561/C2_D.72

ü y · õ ã ßEîE› vrrp bfd üG!5B VRRP #A,,X y · Þ S6Ñ G6(BFD 9 ”# master CÃ+ < ú Ø b# | ÈEîE› no Q¸ GKÁA¹ s6Ñ Ä

vrrp *group-number* bfd *ip-addess*

no vrrp *group-number* bfd *ip-addess*

– DAÈ â

– D	£EÄ
group-number	Û n 9 5 5 3 4˜ Ë h*ü %) ' ”# P D V W H U CÃ+ < ú Ø b # | Ä
ip-addess	Û n,XF• , 3

5 ,ÕG!5B

5 ,Õ ™ ‰ 9 5 5 3 áG›*ü %) ' • ã ”# P D V W H U ê5Ù Û ÑCÃ+ < ú Ø b# |

Q¸ õ ã

y ·G!5B õ ã

S*ü Û Ð

"¼ ã	G!5B ÊOj .B ±F• , 3 Í h,X y ·,X %) ' îA± – D Æ4£G!5B V p 9 5 5 3 4˜ , ü î þCÃ+ < LÔ?UEîE›A¹ Q¸G!5B Ý Ã6Ñ ä Û ÑCÃ+ <,XF• , 3

G!5B _

#G!5B S6ÑVRRP G6(BFD h*ü ÈEîE› BFD ”# ÛCÃ+ <KÈ,XE@ ¥CÃ X

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface FastEthernet 0/1
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.201.11 255.255.255.0
Ruijie(config-if)#bfd interval 50 min_rx 50 multiplier 3
Ruijie(config-if)#vrrp 1 priority 120
Ruijie(config-if)#vrrp 1 ip 192.168.201.1
Ruijie(config-if)#vrrp 1 bfd 192.168.201.12
Ruijie(config-if)#end
```

¸Ì G Q¸

Q¸	£EÄ
bfd	G!5BBFD îA± – D Ä

;> show bfd neighbors Q¸ / V ß Ö

```
Ruijie# show bfd neighbors

OurAddr       NeighAddr    LD/RD RH/RS  Holdown(mult) State  Int

172.16.11.1   172.16.11.2 1/2    Up     532 (3 )      Up
   Ge2/1
```

;> show bfd neighbors details Q¸ / V ß Ö

```
Ruijie# show bfd neighbors details

OurAddr       NeighAddr    LD/RD RH/RS  Holdown(mult) State  Int

172.16.11.1   172.16.11.2 1/2    Up     532 (3 )      Up
   Ge2/1

Local Diag: 0, Demand mode: 0, Poll bit: 0

MinTxInt: 200000, MinRxInt: 200000, Multiplier: 5

Received MinRxInt: 50000, Received Multiplier: 3

Holdown (hits): 600(22), Hello (hits): 200(84453)

Rx Count: 49824, Rx Interval (ms) min/max/avg: 208/440/332

Tx Count: 84488, Tx Interval (ms) min/max/avg: 152/248/196
```

G!5B _

```
Registered protocols: BGP

Uptime: 02:18:49

Last packet: Version: 1              - Diagnostic: 0

             I1 TsTJ0 Tw -6.m2uTjT*1TJ0.515 Tw w 14.371 0 T 478      - Dia
```

Session state is UP and	îA± úG›*ü H F K R õ ã ¹ ž H F K R ,X ÊKÈKÈLh A¹ µ C ¾ Ý ü ¹ 0
Local Diag	îA±,XAž • µ C
Demand	îA± ¹A¶ õ ã ú%”#
Poll bit	îA±,XG!5B ú ÂAv
MinTxInt	îA± G!5B,X Ô ã ¥EÕKÈLh
MinRxInt	îA± G!5B,X Ô ã y KÈLh
Multiplier	îA± G!5B,XCY Ê ”# õ D
Received	îA±E°0ÃG!5B,X Ô ã ¥EÕKÈLh
Received	îA±E°0ÃG!5B,XCY Ê ”# õ D
Holdown (hits)	îA± ”# ÊKÈ ž ”# CY Ê,X õ
Hello (hits)	îA± # â K H O O R ± [,X y Ô
Rx Count	îA± y %) ' y [,X þ D
Rx Interval	îA± y ,X Ô ãKÈLh È Ô û
Tx Count	îA± ¥EÕ %) ' y [,X þ D
Tx Interval	îA± ¥EÕ,X Ô ãKÈLh È Ô û
Registered	'¼ ` A¹ îA±,X h*ü #A,2O _
Uptime	îA± ± Õ 8 3 ,X ÊKÈ
Last packet	îA± ,X Ô â Ô þ %) ' y

,Ì G Q ¸

Q ¸	£EÄ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

76 RERP

76.1

76.1.1 rerp enable

A¹ Q ¸ { RERP ,X < s6Ñ Ô G Ä

rerp enable

no rerp enable

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	disable Ä

G!5B –

ßM6 Ô þG!5B v# KÈLh 2s ,X _ $ Ö

```
Ruijie(config)# rerp hello-interval 2
```

,Ì G Q ¸

Q ¸	£EÄ
rerp fail- interval	G!5BCY Ê ÊKÈ

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.1.4 rerp region

A¹ Q ¸ ï Î RERP ³ JE¯ 9 RERP ³G!5B õ ã Ä

rerp region *num*

no rerp region *num*

– DAÈ â

– D	£EÄ
num	³ ÛAš, 8× È 1-64

5 ,ÕG!5B

´5 ,Õ Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

ï Î Z Ô þ ³ à Ê Û n ZA¹A' Û AŒE¯ 9A¹ ³ Ä

G!5B –

ßM6,X/ _$è/ A¹ Q ¸,X S*ü Ö

```
Ruijie# rerp region 1
```

,Ì G Q ¸

Q ¸	£EÄ
rerp enable	RERP < G!5B Q ¸

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â

-

-

76.1.6 edge-ring

G!5B $)ƒ ÈG!5BA¹ Q ¸ ! ÈLÔ?U7Ç å G!5B Q Ô þ RERP ring Ä

edge-ring *num* role [primary-edge|secondary-edge] ctrl-vlan *vid* shared-port interface *interface-id* sub-port interface *interface-id*

no ring *num*

– DAÈ â

– D	£EÄ
num	)ƒ id
primary-edge|secondary-edge	E•4ì ê ¢E•4ìA’ Û
vid	{ vlan ,X
interface-id	0Ã · ÛAš0ú

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã RERP ³G!5B õ ã Ä

S*ü Û Ð E •0Ã · ™NO ! Æ4£>•G!5B ü ¤ þ RERP)ƒ È 3 AÈG!5BA¹ Q ¸ ! ÈLÔ?U7Ç å G!5B Q Ô þRERP ring Ä

G!5B _

ßM6,X/ _$è/ A¹ Q ¸,X S*ü Ö

```
Ruijie# rerp region 1
Ruijie(rerp)# edge-ring 2 role primary-edge ctrl-vlan 200 shared-port interface GigabitEthernet 0/1 sub-port interface GigabitEthernet 0/3
```

,Ì G Q ¸

Q ¸	£EÄ
rerp region	ï Î RERP ³
ring	G!5Brerp)ƒ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.1.7 major-ring

Z SE•4ì)ƒ,X y [Ã ¹ ü)ƒ0Ã · Þ ôEg È å ÀLÔ?U ü)ƒA' Û Þ Û n,X)ƒG!5BLÔ?U Õ,XE•4ì)ƒ Ä

major-ring *num* edge-ring-vlan *vid*

– DAÈ â

– D	£EÄ
num	Í h,X)ƒ id
vid	{ vlan

5 ,ÕG!5B ´5 ,Õ Ä

Q ¸ õ ã RERP ³G!5B õ ã Ä

S*ü Û Ð G!5B,X Ê íLÔ?U"¼ ãmajory-ring ™NO Æ4£ , ü Ä

G!5B _

ßM6,X/ _$è/ A¹ Q ¸,X S*ü:

```
Ruijie# rerp region 1
Ruijie(rerp)# major-ring 1 edge-ring-vlan 100
```

,Ì G Q ¸

Q ¸	£EÄ
rerp region	ï Î RERP ³
ring	G!5Brerp)ƒ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.2

76.2.1 show rerp

/ RERP ,X – D ž(Š Õ Ä

show rerp

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B –

ßM6,X/ _$è/ A¹ Q ¸,X S*ü Ö

```
Ruijie# show rerp
rerp state                    : enable
rerp admin hello interval     : 1(*1s)
rerp admin fail interval      : 3(*1s)
rerp edge interval        : 1(*300 ms)
rerp local bridge         : 001a.a902.fe0b
-----------------------------------
region 1
ring                          : 1
rerp oper hello interval      : 1
rerp oper fail  interval      : 3
ring master                   : 001a.a902.fe0b
ctrl-vlan                     : 100
edge-vlan                     :
role                          : master
primary-port                  : Gi 0/4(forwarding)
secondary-port                : Gi 0/21(down)
```

¸Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.2.2 show rerp statistics

/ RERP ,X y [4³Au µ C Ä

show rerp statistics region *num* ring *ring_id*

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B –

ßM6,X/ _$è/ A¹ Q ¸,X S*ü:

```
Ruijie# sh rerp statistics regiong 1 ring 1
The statistics for region 1 ring 1 GigabitEthernet 0/4
TX hello packets       23, RX hello packets          0
TX edge-hello packets   0, RX edge-hello packets     0
TX flush packets        0, RX flush packets          0
TX down packets      0, RX down packets              0
TX up packets           0, RX up packets            0
TX major fail packets   0, RX major fail packets     0
TX major resume packets  0, RX major resume packets  0
TX sub complete packets  0, RX sub complete packets  0
The statistics for region 1 ring 1 GigabitEthernet 0/5
TX hello packets       23, RX hello packets           0
TX edge-hello packets   0, RX edge-hello packets      0
TX flush packets        0, RX flush packets           0
TX down packets      0, RX down packets               0
TX up packets           0, RX up packets             0
TX major fail packets   0, RX major fail packets      0
TX major resume packets  0, RX major resume packets    0
TX sub complete packets  0, RX sub complete packets    0
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.2.3 clear rerp statistics

#ÙL8RERP ,X y [4³Au µ C Ä

clear rerp statistics

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B _ ´

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

76.2.4 debug rerp

' Ô RERP á uA×A© Ô G ÄA¹ Q ¸,X no 6 ã GKÁA×A© Ô G Ä

debug rerp [packet | event]

undebug rerp [packet | event]

– DAÈ â

– D	£EÄ
packet	¥ ÙA×A© µ C Ä
event	_ Ê ž(Š Õ µ C Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B _ ´

Q ¸	£EÄ

77 REUP

77.1

77.1.1 mac-address-table move update receive

REUP y MAC È „#\ C,X Ô G Ä

mac-address-table move update receive

no mac-address-table move update receive

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B disable

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ' JÒCÃ Û Ñ ¥*ó Û 6 Ê È+ b ÞJÒ x 6 ,X MAC ><"u Ý ž Ê È „ Èî Ð7È ß> D B# ö Ä Z £ å ` D B# ,X ö ÈÔ?U Í ÞJÒ x 6 E¯> MAC >< È „,X Ø)Ú Ä E- LÔ?U ü ÞJÒ x 6 Þ ' Ô y MAC È „#\ C,X Ô G Ä

G!5B _ ßM6 y MAC È „#\ C,X _ $ Ö

```
Ruijie(config)# mac-address-table move update receive
```

,Ì G Q ¸

Q ¸	£EÄ
mac-address-table move update transit	' Ô x 6 ¥EÕ MAC È „#\ C ,X Ø)Ú Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

77.1.2 mac-address-table move update transit

REUP ¥EÕMAC È „#\ C,X Ô G Ä

mac-address-table move update transit

no mac-address-table move update transit

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B disable Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð Z £ åJÒCÃ Û 6 Ê È ß> D B# ,X ö ÈLÔ?U ü ¥*ó Û 6,X x 6 Þ ' Ô ¥EÕ MAC È „#\ C,X s6Ñ Ä

G!5B – ßM6 ' Ô MAC È „#\ C,X _ $ Ö

```
Ruijie(config)# mac-address-table move update transit
```

,Ì G Q ¸

Q ¸	£EÄ
mac-address-table move update transit	' Ô x 6 ¥EÕ MAC È „#\ C ,X Ô G Ä

G ÄAÈ â ´

(•A1Ä | G –.)q€„ …••(Ž, …#b C˜!tB dï R6s)q€D$ žû 4&hÂ, C“$FT £EÄ

Q ¸ õ ã y · õ ãA'5B Ä

S*ü Û Ð Z £ å ´ MAC È „5à Ð7È,X ûG£"¯"þ È E ¡ x 6 ,X!7 D B ôEg È å À r t Z Ô þ MAC È „4˜,XA'5B Ä ¾ Ý ^ Û 6CÃ X Þ,X Ý0Ã · t 9 à Ô þ MAC È „4˜ È !6ÑE' ¿Eó 6 á ß> D B ôEg,X s6Ñ Ä

G!5B _ ßM6 ^0Ã · t 9 MAC È „4˜,X _ $ Ö

```
Ruijie(config-if)# mac-address-table update group 2
```

,Ì G Q ¸

Q ¸	£EÄ
show mac-address-table update group	/ x 6 Þ,X MAC È „4˜ µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

77.1.4 switchport backup interface interface-id

G!5BREUP ,X JÒCÃ Û Ñ Ä

switchport backup interface *interface-id*

no switchport backup

– DAÈ â

– D	£EÄ
interface-id	Û ÑJÒCÃ,X0Ã ÍD Ä

5 ,ÕG!5B "u Ý Ï) JÒCÃ Û Ñ Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð õ ã ü,X0Ã · 0Ã · È – D ,X interface-id Í h,X0Ã · Û Ñ0Ã · Ä '# |JÒCÃ ¥*ó Lp â È ¿Eó 6 á Û ÑJÒCÃ,X ôEg Ä

G!5B _ ßM6 A'5B Ô þ JÒCÃ Û Ñ ÈA'5B fa 0/1 0Ã · Èfa 0/2 Û Ñ0Ã ·,X _ $ Ö

```
Ruijie(config)# interface fa 0/1
```

Ruijie(config-if)# **switchport backup interface fa** 0/2

,Ì G Q ¸

Q ¸	£EÄ
show interface switchport backup	/ x 6 Þ,X JÒCÃ Û ÑA'5B Ä

G ÄAÈ â ´

(Ë	AÈ â

preemption delay 40

¸Ì G Q¸

Q¸	£EÄ
show interface switchport backup	/ x 6 Þ,X JÒCÃ Û ÑA'5B Ä

G ÄAÈ â ´

Q¸Z Æ

(Ë	AÈ â
-	-

77.2

77.2.1 show mac-address-table update group [detail]

/ x 6 Þ,X MAC È „4˜,X µ C

– DAÈ â

– D	£EÄ
detail	/ È „4˜,XAº4š µ C

5 ,ÕG!5B ´5 ,Õ Ä

Q¸õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B _

ßM6 / JÒCÃ Û Ñ µ C,X _ $ Ö

```
Ruijie# show mac-address-table update group detail
Mac-address-table Update Group:1
Received mac-address-table update message count:0
Group member  Receive Count    Last Receive Switch-ID    Receive
Time
-------------------------------------------------------
Gi0/1         0              0000.0000.0000
Gi0/2         0              0000.0000.0000
```

¸Ì G Q¸

Q¸	£EÄ

-	-

G ÄAÈ â ´

Q ¸ Z Æ	**(Ë**	**AÈ â**
	-	-

77.2.2 show interfaces [interface-id] switchport backup [detail]

/ 0Ã ·,X JÒCÃ Û Ñ(Š Õ µ C

– DAÈ â

– D	**£EÄ**
interface-id	LÔ?U / JÒCÃ Û Ñ,X0Ã · ID
detail	/ JÒCÃ Û Ñ,XAº4š µ C

5 ,ÕG!5B / Ý0Ã ·,X JÒCÃ Û Ñ µ C Ä

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B –

ßM6 / JÒCÃ Û Ñ µ C,X _ $ Ö

```
Ruijie # show interfaces switchport backup detail
Switch Backup Interface Pairs:
Active Interface     Backup Interface      State
------------------------------------------------------------
Gi0/23     Gi0/24      Active Up/Backup Standby
Interface Pair : Gi0/23, Gi0/24
Preemption Mode : Off
```

Q¸Z Æ	(Ë	AÈ â
	-	-

78 REUP

78.1

78.1.1 link state track

*üJÒCÃ(Š ÕC³Cþ4˜ Ä S*üA¹ Q ¸,X no EÝNM GKÁJÒCÃ(Š ÕC³Cþ4˜ Ä

link state track [*num*]

no link state track [*num*]

no link state group

– D	£EÄ

num

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð ' JÒCÃ Û Ñ ¥*ó Û 6 Ê È+ b ÞJÒ x 6 ,X MAC ><"u Ý ž Ê È „ È î Ð7È ß> D B# ö Ä Z £ å ` D B# ,X ö ÈÔ?U Í ÞJÒ x 6 E¯> MAC >< È „,X Ø)Ú Ä E- LÔ?U ü ÞJÒ x 6 Þ ' Ô y MAC È „#\ C,X Ô G Ä

G!5B _ ßM6 y MAC È „#\ C,X _ $ Ö

```
Ruijie(config)# mac-address-table move update receive
```

,Ì G Q ¸

Q ¸	£EÄ
mac-address-table move update transit	' Ô x 6 ¥EÕ MAC È „#\ C ,X Ø)Ú Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

78.1.4 mac-address-table move update transit

REUP ¥EÕMAC È „#\ C,X Ô G Ä

mac-address-table move update transit [compatible]

no mac-address-table move update transit [compatible]

– D	£EÄ

Ruijie(config)# **mac-address-table move update transit**

,Ì G Q ¸

Q ¸	£EÄ
mac-address-table move update transit	' Ô x 6 ¥EÕ MAC È „#\ C ,X Ô G Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

78.1.5 mac-address-table update group

A’5B x 6 ,X MAC È „4˜ Ä

mac-address-table update group [*group-num*]

no mac-address-table update group

– DAÈ â

– D	£EÄ
group-num	MAC È „4˜,X ID

5 ,ÕG!5B

T¬Ax,X È „4˜ ID 1 Ä

"u Ý Ï),X MAC È „4˜ Ä

Q ¸ õ ã y · õ ãA’5B Ä

S*ü Û Ð Z £ å ´ MAC È „5à Ð7È,X ûG£"¯"þ È E ¡ x 6 ,X!7 D B ôEg´z2,Å À r t Z Ô þ MAC È „4˜,XA’5B Ä ¾ Ý ^ Û 6CÃ X Þ,X Ý0Ã · t 9 à Ô þ MAC È „4˜ È !6ÑE’ ¿Eó 6 á ß> D B ôEg,X s6Ñ Ä

G!5B _ ßM6 ^0Ã · t 9 MAC È „4˜,X _ $ Ö

Ruijie(config-if)# **mac-address-table update group** 2

,Ì G Q ¸

Q ¸	£EÄ
show mac-address-table update group	/ x 6 Þ,X MAC È „4˜ µ C Ä

G ÄAÈ â ´

G!5B

switchport backup interface *interface-id*

switchport backup interface *interface-id* prefer vlan *vlanrange1* active prefer vlan *vlanrange2*

no switchport backup interface *interface-id* prefer

– DAÈ â

– D	£EÄ
interface-id	Û ÑJÒCÃ,X0Ã ŀD Ä
vlanrange1	Û Ñ0Ã ·BóEQVLAN 8× È Ä
vlanrange1	0Ã ·BóEQ VLAN 8× È Ä

5 ,ÕG!5B 5 ,Õ ™ ‰ ß Û Ñ0Ã ·"u ÝBóEQVLAN Ä

Q ¸ õ ã y ·G!5B õ ã Ä

S*ü Û Ð ¢0Ã · Ø7¾BóEQ,X Y O D Q 8× È ™NO f y,X Ä

G!5B _

ßM6 A'5B Ô þ JÒCÃ Û Ñ vlan BóEQ >5,X _ $ Ö

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport backup interface gigabitEthernet0/2
prefer vlan 101-200 active prefer vlan 201-300
```

,Ì G Q ¸

Q ¸	£EÄ
show interface switchport backup	/ x 6 Þ,X JÒCÃ Û ÑA'5B Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

78.2

78.2.1 show link state group

/ JÒCÃ(Š ÕC³Cþ4˜,X µ C

show link state group *num*

– DAÈ â

– D	£EÄ
num	JÒCÃ(Š ÕC³Cþ4D

5 ,ÕG!5B	´5 ,Õ Ä
Q ¸ õ ã	(M EXEC G!5B õ ã
S*ü Û Ð	
G!5B _	ßM6 / JÒCÃ(Š ÕC³Cþ4˜,X _ $ Ö Ruijie # **show link state group** Link State Group:1 Status: Enabled, UP Upstream Interfaces :Gi0/1(Up) Downstream Interfaces :Gi0/3(Dwn), Gi0/4(Dwn) Link State Group:2 Status: Disabled, Down Upstream Interfaces : Downstream Interfaces : (Up):Interface up (Dwn):Interface Down (Dis):Interface disabled

,Ì G Q ¸		
	Q ¸	£EÄ
	-	-

G ÄAÈ â	´

Q ¸ Z Æ		
	(Ë	AÈ â
	-	-

78.2.2

G!5B _

ßM6 / È „4˜,X _ $ Ö

```
Ruijie # configure terminal
Ruijie (config)# mac-address-table move update receive
Ruijie (config)# interface range gigabitEthernet 0/3-4
Ruijie (config-if-range)# mac-address-table update group
Ruijie (config-if-range)# end
Ruijie # show mac-address-table update group detail
Mac-address-table Update Group:1
Received mac-address-table update message count:7
Group member  Receive Count  Last Receive Switch-ID  Receive Time
-----------------------------------------------------------
GigabitEthernet 0/3  0             0000.0000.0000
GigabitEthernet 0/4  0             0000.0000.0000
```

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

78.2.3 show interfaces [interface-id] switchport backup [detail]

/ 0Ã ·,X JÒCÃ Û Ñ(Š Õ µ C

– DAÈ â

– D	£EÄ
interface-id	LÔ?U / JÒCÃ Û Ñ,X0Ã · ID
detail	/ JÒCÃ Û Ñ,XAº4š µ C detail ´

ßM6 / JÒCÃ Û Ñ µ C,X _ $ Ö

```
Ruijie # show interfaces switchport backup detail
Switch Backup Interface Pairs:
Active Interface     Backup Interface      State
------------------------------------------------------------
Gi0/23     Gi0/24      Active Up/Backup Standby
Interface Pair : Gi0/23, Gi0/24
Preemption Mode : Off
```

G!5B _

79 RLDP

79.1

79.1.1 rldp detect-interval

S*üA¹ Q ¸G!5B RLDP ü0Ã · Þ ¥EÕ v# y [,XKÈLh Ä

rldp detect-interval *interval*

no rldp detect-interval

– DAÈ â

– D	£EÄ
interval	v# KÈLh È ª 8× È 2-15 /¦

5 ,ÕG!5B 3 /¦ Ä

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð V B2À6€ M@ 4E¯f„BPg ü3Ÿ¦p ( )Tj ET 66.84 518.53 T8C309B70[<007 29820.34E570.343DF5

rldp detect-max

S*ü Û Ð ¾ Ý < RLDP ' Ô È0Ã · RLDP !6ÑE¤> Ä

G!5B _ ßM6 ' Ô,X _ $ Ö

```
Ruijie(config)# rldp enable
```

¸Ì G Q ¸

Q ¸	£EÄ
rldp port	G!5B0Ã ·,X RLDP s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

79.1.4 rldp port

A¹ Q ¸G!5B0Ã ·,X rldp ”# È à Ê Û n ”# 2O _ ` Lp Ø)Ú •"© Ä

rldp port {unidirection-detect | bidir ection-detect | loop-detect } {warning | shutdown-svi | shutdown-port | block }

no rldp port { unidirection-detect | bidir ection-detect | loop-detect }

– DAÈ â

– D	£EÄ
unidirection-detect	) åJÒCÃ ”# 2O _
bidirection-detect	åJÒCÃ ”# 2O _
loop-detect	)ƒCÃ ”# 2O _
warning	A: Ø)Ú
shutdown-svi	shutdown 0Ã · ü svi
shutdown-port	shutdown 0Ã ·
block	GK[illegible]

·: 4E@ ¥Ä

```
Ruijie(config)# interface fas 0/1
Ruijie(config-if)# rldp port loop-detect block
```

,Ì G Q¸

Q¸	£EÄ
rldp enable	< rldp G!5B Q¸

G ÄAÈ â ´

(Ë [redacted]

79.2

79.2.1 show rldp

/ rldp ,X0Ã · ”# µ C Ä

show rldp [interface *interface-id*]

– DAÈ â

– D	**£EÄ**
Interface-id	LÔ?U / ,X0Ã ·

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B _ ´

Q ¸

5 ,ÕG!5B ´

Q ¸ õ ã (M EXEC G!5B õ ã

S*ü Û Ð ´

G!5B _ ´

,Ì G Q ¸

Q ¸	£EÄ
-	-

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

80 TPP

80.1

80.1.1 topology guard

ü < G!5B Q ¸ õ ã ß È S*ü topology guard Q ¸ Ô § %L x s6Ñ,X < Ô G Ä S*üA¹ Q ¸,X no EÝNM 9/U!6 § %L x s6Ñ Ä

[no] topology guard

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B	§ %L x s6Ñ5 ,Õ ' Ô
Q ¸ õ ã	< G!5B Q ¸ õ ã
S*ü Û Ð	§ %L x s6ÑT¬Ax ' Ô,X ÈE- Ã ¹ È Q,X ± x5%4° È ¹ !5%4° ´ « Ï5àEô ä § % 95 Ä WLÔ?U â Q ¸ cpu topology-limit G! Ü S*ü Ä
G!5B _	ßM6,X _ $ / V) Ô ` GKÁ < § %L x s6Ñ Ö `Ruijie(config)# **topology guard**` `Ruijie(config)# **no topology guard**`

,Ì G Q ¸	Q ¸	£EÄ
	tp-guard port enable	S6ÑA¹0Ã ·,X § %L x s6Ñ Ä
	cpu topology-limit	A'5B CPU ý*ü)[NXA: Ä

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

80.1.2 tp-guard port enable

S6ÑA¹0Ã ·,X § %L x s6Ñ È S*üA¹ Q ¸,X no EÝNM 9/U!6A¹0Ã ·,X § %L x s6Ñ Ä

[no] tp-guard port enable

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã y ·G!5B Q ¸ õ ã

S*ü Û Ð ü < § %L x s6Ñ Ô ,X ™ ‰ ß ÈB¹A¹0Ã · Ô § %L x s6Ñ È ' A' Û Î)„ CPU ý*ü)[E›P¬ ê J ª Ö)„B5 Ê È ÚEî A¹0Ã ·,X Í0ÃA' Û ÄA¹ Q ¸EÖ*ü b ` x 6 · ` CÃ+ · È J ª y ·(Ù À AP ä , ·) á ÕA¹ Q ¸ Ä

G!5B _ ßM6,X _ $ / V)G!5B0Ã ·,X § %L x s6Ñ Ö

```
Ruijie(config-if)# tp-guard port enable
Ruijie(config-if)# no tp-guard port enable
```

,Ì G Q ¸

Q ¸	£EÄ
topology guard	S6Ñ < § %L x s6Ñ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

80.2 TPP

80.2.1 show tpp

/ L § %,XG!5B ž(Š Õ Ä

show tpp

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M Q ¸ õ ã

S*ü Û Đ A¹ Q ¸*ü b ¹,ß ' !,X tpp G!5B ž0Ã · ”# ™ ‰ Ä

81

81.1

81.1.1 cd

A’5B [Ê2Ï4³,X ' !CÃ X Ä

cd [*filesystem:*][*directory*]

– DAÈ â

– D	£EÄ
filesystem	Û n,X [Ê2Ï4³ ÄA¹ – D ™NO ú Ö
directory	Û n,X,Â)

5 ,ÕG!5B 5 ,Õ ' !,Â) ü ü flash ,X ,Â) ß

Q ¸ õ ã (M õ ã

S*ü Û Ð cd Q ¸ Ú ¬ ' ! [Ê2Ï4³,X ' ! Ä [Ê2Ï4³ J ª Q ¸ È8¹ S*ü,Ì ÍCÃ X Ä GCÃ X á
¹ / Ô Ÿ Å È í å Í b2Ï4³,X ' !CÃ X Ä?U ¹,ß2Ï4³ ' !CÃ X È S*ü pwd Q ¸ Ä

G!5B _

_ 1 Ö Ú ' !CÃ XA’5B usb0 ,X ,Â)

```
Ruijie# cd usb0:/
```

_ 2 Ö Ú ' !CÃ XA’5B sd 5,X ,Â)

```
Ruijie# cd sd0:/
```

,Ì G Q ¸

Q ¸	£EÄ
pwd	/ ' ! [ÊCÃ X

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
´	

81.1.2 copy

¢$d ,Â,X ËBñ Ï ã [Ê Ä

copy *source-url destination-url*

– D	£EÄ
source-url	>• ËBñ,X$d [Ê URL Ä B [Ê Þ ôE¬ ßEQ |

```
Ruijie#copy tftp://192.168.201.54/rgos.bin flash:/
_ 2 Ö Þ ô [ Ê      tftp á u <
Ruijie#copy flash:/rgos.bin tftp://192.168.201.54/rgos.bin
_ 3 Ö S*ü xmodem ßEQ [ Ê
Ruijie# copy xmodem: flash:/config.text
_ 4 Ö Ú [ Ê ËBñ     U ,¬
Ruijie#copy flash:/config.text usb0:/config.text
_ 5 Ö Ú [ Ê ËBñ   ¢1u)Ú S
Ruijie#    copy flash:/config.text slave:/config.text
_ 6 Ö Ú [ Ê ¢   flash  ËBñ    sd  5
Ruijie#    copy flash:/rgos.bin sd0:/rgos.bin
_ 7 Ö Ú [ Ê ¢   U ,¬ ËBñ    sd  5
Ruijie#    copy usb0:/config.text sd0:/config.text
_ 8 Ö Ú [ Ê ¢   sd  5 ËBñ    U ,¬
Ruijie#    copy sd0:/config.text usb0:/config.text
```

1 ¸p

Q ¸ õ ã (M õ ã

S*ü Û Đ ôL8 url Û n !5B,X [Ê ÄA¹ Q ¸ Õ ôL8 , | ŸBü Þ,X [Ê ÈG URL ™NO flash:/ usb0:/ Èusb1:/ slave:/ ,X Ô þ Ä ' url á Û n !4Ô Ê È></ ôL8 ' ! [Ê2Ï4³ Þ,X [Ê Ä

"¼ ã A¹ ¡ 0 á ÕEîG!0ú.

G!5B _

_ 1 Ö ôL8 ' !,Â) ß,X tmpfile [Ê

```
Ruijie# delete tmpfile
```

_ 2 Ö ôL8 ¢ S Þ,X rgos.bin.bak [Ê

```
Ruijie# delete slave:/rgos.bin.bak
```

_ 3 Ö ôL8 sd 5 Þ,X aaa.bin [Ê

```
Ruijie# delete sd0:/aaa.bin
```

,Ì G Q ¸

Q ¸	£EÄ
copy	ËBñ [Ê
dir	/ ' !,Â) Þ,X [Ê#Ù)

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
´	

81.1.4 dir

/ ' !,Â) ß,X [Ê µ C Ä

dir [*filesystem:*][*directory*]

– DAÈ â

– D	£EÄ
filesystem	Ù ÿ Y / [Ê,X [Ê2Ï4³ ÈA¹ – DNO ú ":"
directory	Ù ÿ Y / [Ê,X,Â)CÃ X

5 ,ÕG!5B / ' !CÃ X ß,X [Ê µ C

Q ¸ õ ã (M õ ã

S*ü Û Ð Eg 9 Û n,X,Â)CÃ X / A¹,Â) ß,X Ý [Ê µ C È5 ,Õ ´ – D Ê / ,X ,Â) ß,X [Ê µ C Ä

"¼ ã	A¹ ¡ 0 á ÕEîG!0ú.

G!5B _

_ 1 Ö / ¢ S Þ ,Â),X [Ê µ C

```
Ruijie# dir slave0:/
Directory of slave:/
   Mode Link     Size             MTime Name
-------- ---- --------- ------------------ -----------------
          1  10838016 2008-01-01 00:01:53 rgos.bin
          1      399 2008-01-01 00:01:37 config.text
          1      399 2008-01-01 00:17:58 cfg.txt
------------------------------------------------------------
3 Files (Total size 11210782 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB)
available.
```

_ 2 Ö / ' !,Â) ß,X Ý [Ê,X µ C

```
Ruijie# dir
Directory of temp:/
   Mode Link     Size             MTime Name
-------- ---- --------- ------------------ -----------------
          1      399 2008-01-01 00:17:58 a.dat
------------------------------------------------------------
1 Files (Total size 399 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB)
available.
```

¸Ì G Q ¸

Q ¸	£EÄ
pwd	/ ' !CÃ X
cd	A'5B [Ê2Ï4³,X ' !CÃ X

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
´	

81.1.5 mkdir

ï Î,Â)

mkdir *directory*

– D	£EÄ
directory	?U ï Î,X,Â),X á/Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð

Eg 9?U ï Î,X,Â) á/Ä G Ã (Ù ÀCÃ X µ C) Ä

"¼ ã

V p ï Î,X [Ê Æ4£ , ü È í Ú ï Î Bù Ä V p?U ï Î,Â),X Þ Ô
4{,Â) á , ü È í ´"© ï Î Û n,Â) Ä G È V p?U ï Î
flash:/backup/temp ,Â) È flash:/backup ,Â) á , ü È í,Â) ï
Î Bù Ä?· ‡,X •"© ï Î flash:/bakcup ,Â) È' â a ï Î
flash:/backup/temp

G!5B _

_ 1 Ö ü ,Â) ß ï Î test ,Â) Ö

```
Ruijie# mkdir test
```

_ 2 Ö ü sd 5 ,Â) ß ï Î,Â) test2

Ruijie# mkdir sd0:/test2

,Ì G Q ¸

Q ¸	£EÄ
rmdir	ôL8,Â)
pwd	/ ' ! [Ê2Ï4³CÃ X

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
´	

81.1.6 rename

/Ï | Û n,X [Ê ê5Ù È á [Ê

rename *url1 url2*

– DAÈ â

– D	£EÄ
url1	>•/Ï |,X$d [Ê URL Ä
url2	,Â,X [Ê ê5Ù,Â),X URL

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð EîE›E- þ Q ¸ È Ã ¹ ü à Ô þ,Â) ß Ú [Ê È á È ê5Ù S*üE- þ Q ¸ Ú [Ê ü á à,X , | ŸBü E¯> /Ï | Ä E- 5 Q ¸ ™ ™ Õ ,X [Ê/Ï | Ä á Õ S*ü #A, Ú [Ê ô Eæ á u < Þ Ä Õ,X !4Ô Ý Ö

´	

81.1.7 rmdir

ôL8,Â) Ä

rmdir *directory*

– D	£EÄ
directory	?U ôL8,X,Â) á, ™NO 0N,Â)

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð á ÕEîG!0ú ¡ 0, ?U ôL8,X,Â) ™NO 0N,Â) Ä

G!5B – V p ' !,Â) ß Ý Ô þ tmp ,Â) È J èA¹,Â) "u Ý [Ê Ä

```
Ruijie# rmdir tmp
```

Q ¸	£EÄ
mkdir	ï Î,Â)

G ÄAÈ â ´

(Ë	AÈ â
´	

81.2

81.2.1 pwd

/ ' ! ¹ 0CÃ X

pwd

– DAÈ â	– D	£EÄ
	´	

5 ,ÕG!5B	´
Q ¸ õ ã	(M õ ã
S*ü Û Ð	/ ' ! Ø,X [Ê2Ï4³CÃ X Ä
G!5B _	_ 1 Ö ßM6,X/ _ / ' ! ¹ 0CÃ X µ C Ä Ruijie# **pwd** **flash:/**

,Ì G Q ¸	Q ¸	£EÄ
	cd	È 6 [Ê2Ï4³ ' !CÃ X

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	´	
	á,ÕG$@ ñgp mÂ ñ € ¤ ´	

81.2.2

S*ü Û Ð

82

82.1 CPU

82.1.1 cpu-log

?U ¹G!5B CPU ý*ü)[¹ « µ C?º ¥K¼L$, Ã ¹ S*ü cpu-log Ä

cpu- log *log-limit low_num high_num*

– DAÈ â

– D	£EÄ
log-limit	8× È ¤/ ,X Q ¸0ú
low_num	CPU ý*ü)[?º ¥ "K¼L$
high_num	CPU ý*ü)[?º ¥P¬K¼L$

5 ,ÕG!5B

T¬Ax ™ ‰ ßA¹P¬K¼L$100% È "K¼L$ 90% Ä

Q ¸ õ ã

< G!5B õ ã Ä

S*ü Û Ð

S*üA¹ Q ¸ Ã ¹G!5B CPU ý*ü)[¹ « µ C?º ¥P¬ "K¼L$ ÈCPU ý*ü)[CY ÎP¬K¼L$,X ™ ‰ ß ¥EÕ ¹ « µ C È CPU ý*ü)[Õ4ÁP¬ b?º ¥P¬K¼L$ Ê,¾ ¥EÕ Ô õ ¹ « µ C ×´ CPU ý*ü)[" b?º ¥ "K¼L$ â, ¥EÕ ¹ « µ C ,Eî ' ! CPU ý*ü)[Æ4£ ßL! ÈA¹ µ C ¾ Ý ü CPU ý*ü)[P¬ bP¬K¼L$CÇ ¬ " b "K¼L$ Ê ¥EÕ Ä

G!5B –

ßM6,X/ _ Ú CPU ý*ü)[?º ¥ "K¼L$G!5B 70% ÈCPU ý*ü)[?º ¥P¬K¼L$G!5B 80% Ä

```
ruijie(config)# cpu-log log-limit 70 80
8¹ CPU ý*ü)[P¬ b 80% Ú / V ß µ C Ö
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU utilization in one
minute : 95% ÈUsing most cpu's task is ktimer : 94%
8¹ CPU ý*ü)[ " b 70% Ú / V ß µ C Ö
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: CPU
utilization in one minute :68% ÈUsing most cpu's task
is ktimer : 60%
Oct 20 15:47:01 %SYSCHECK-5-CPU_USING_RATE: The CPU
using rate has down!
```

```
 5    0%    0%    0%   waitqueue_process
 6    0%    0%    0%   tasklet_task
 7    0%    0%    0%   kevents
 8    0%    0%    0%   snmpd
 9    0%    0%    0%   snmp_trapd
10    0%    0%    0%   mtdblock
11    0%    0%    0%   gc_task
12    0%    0%    0%   Context
13    0%    0%    0%   kswapd
14    0%    0%    0%   bdflush
15    0%    0%    0%   kupdate
16    0%    3%    1%   ll_mt
17    0%    0%    0%   ll main process
18    0%    0%    0%   bridge_relay
19    0%    0%    0%   d1x_task
20    0%    0%    0%   secu_policy_task
21    0%    0%    0%   dhcpa_task
22    0%    0%    0%   dhcpsnp_task
23    0%    0%    0%   igmp_snp
24    0%    0%    0%   mstp_event
25    0%    0%    0%   GVRP_EVENT
26    0%    0%    0%   rldp_task
27    0%    2%    1%   rerp_task
28    0%    0%    0%   reup_event_handler
29    0%    0%    0%   tpp_task
30    0%    0%    0%   ip6timer
31    0%    0%    0%   rtadvd
32    0%    0%    0%   tnet6
33    2%    0%    0%   tnet
34    0%    0%    0%   Tarptime
35    0%    0%    0%   gra_arp
36    0%    0%    0%   Ttcptimer
37    8%    1%    0%   ef_res
38    0%    0%    0%   ef_rcv_msg
39    0%    0%    0%   ef_inconsistent_daemon
40    0%    0%    0%   ip6_tunnel_rcv_pkt
41    0%    0%    0%   res6t
42    0%    0%    0%   tunrt6
43    0%    0%    0%   ef6_rcv_msg
```

```
44    0%    0%    0%    ef6_inconsistent_daemon
45    0%    0%    0%    imid
46    0%    0%    0%    nsmd
47    0%    0%    0%    ripd
48    0%    0%    0%    ripngd
49    0%    0%    0%    ospfd
50    0%    0%    0%    ospf6d
51    0%    0%    0%    bgpd
52    0%    0%    0%    pimd
53    0%    0%    0%    pim6d
54    0%    0%    0%    pdmd
55    0%    0%    0%    dvmrpd
56    0%    0%    0%    vty_connect
57    0%    0%    0%    aaa_task
58    0%    0%    0%    Tlogtrap
59    0%    0%    0%    dhcp6c
60    0%    0%    0%    sntp_recv_task
61    0%    0%    0%    ntp_task
62    0%    0%    0%    sla_deamon
63    0%    3%    1%    track_daemon
64    0%    0%    0%    pbr_guard
65    0%    0%    0%    vrrpd
66    0%    0%    0%    psnpd
67    0%    0%    0%    igsnpd
68    0%    0%    0%    coa_recv
69    0%    0%    0%    co_oper
70    0%    0%    0%    co_mac
71    0%    0%    0%    radius_task
72    0%    0%    0%    tac+_acct_task
73    0%    0%    0%    tac+_task
74    0%    0%    0%    dhcpd_task
75    0%    0%    0%    dhcps_task
76    0%    0%    0%    dhcpping_task
77    0%    0%    0%    dhcpc_task
78    0%    0%    0%    uart_debug_file_task
79    0%    0%    0%    ssp_init_task
80    0%    0%    0%    rl_listen
81    0%    0%    0%    ikl_msg_operate_thread
82    0%    0%    0%    bcmDPC
```

```
 83    0%    0%    0%   bcmL2X.0
 84    3%    3%    3%   bcmL2X.0
 85    0%    0%    0%   bcmCNTR.0
 86    0%    0%    0%   bcmTX
 87    0%    0%    0%   bcmXGS3AsyncTX
 88    0%    2%    1%   bcmLINK.0
 89    0%    0%    0%    bcmRX
 90    0%    0%    0%    mngpkt_rcv_thread
 91    0%    0%    0%    mngpkt_recycle_thread
 92    0%    0%    0%    stack_task
 93    0%    0%    0%    stack_disc_task
 94    0%    0%    0%    redun_sync_task
 95    0%    0%    0%    conf_dispatch_task
 96    0%    0%    0%    devprob_task
 97    0%    0%    0%    rdp_snd_thread
 98    0%    0%    0%    rdp_rcv_thread
 99    0%    0%    0%    rdp_slot_change_thread
100    4%    2%    1%    datapkt_rcv_thread
101    0%    0%    0%    keepalive_link_notify
102    0%    0%    0%    rerp_msg_recv_thread
103    0%    0%    0%    ip_scan_guard_task
104    0%    0%    0%    ssp_ipmc_hit_task
105    0%    0%    0%    ssp_ipmc_trap_task
106    0%    0%    0%    hw_err_snd_task
107    0%    0%    0%   rerp_packet_send_task
108    0%    0%    0%   idle_vlan_proc_thread
109    0%    0%    0%   cmic_pause_detect
110    1%    1%    1%   stat_get_and_send
111    0%    1%    0%   rl_con
112   75%   80%   90%    idle
```

Q ¸ ë><,X ! 2 > !¨EW(M!^ ÈÚ ÿ></ Ý LISR ,X CPU ý*ü)[` Ý HISR ,X CPU ý *ü)[È ¢1 3 > Ô Ÿ È ></ Ï u,X CPU ý*ü)[Z Ä Ô â Ô> idle 4“/ß,X CPU ý*ü)[ÈC³ Windows ß,X System Idle Process Ô È></ 2Ï4³,X0NKÆ(Š Õ Ä ü ÞM6,X _ $ Èidle 4“/ß 5 /¦ Y,X CPU ý*ü)[75% ÈAÈw• Ô Ñ

1*+9 bgp Ä

Í b þ Ô ,XCÃ+ #A, È Û n ì EÔ Î,XCÃ+ #A, È J á6Ñ }2Ï4³9‹ kC‡ ó,X Y , C $d Ä

AÈ â	Û n ZA¹1*+9 ™ ™ Ô n/ß z Þ ± x2Ï4³ Y , áC‡ Ê,XG¡?U5%4° î u È8¹ Y ,E¯ Ô!9#\5ë È ÝCÃ+ #A,FÑ ÚEÔ Î J 0!6E¤> ÄCÃ+ # A,EÔ Î â î ü ø ÚJs â ñA©G¡ „ | Ä

ïG!5B*ü _ Đ

_ 1 Ö ¹ ß _ Z Ú BGP A' n ì EÔ Î,XCÃ+ #A, Ä

```
Ruijie(config)# memory-lack exit-policy bgp
```

Ï,Ì G Q ¸ Đ

Q ¸	£EÄ
show memory	/ Y , µ C

Ï G ÄAÈ â Đ

-

Ï Q ¸ Z Æ Đ

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

82.2.2 show memory

?U ¹,ß2Ï4³ ' ! Y , S*ü ™ ‰ µ C ÈAË ;> (M *ü õ ã Q ¸ show memory Ä

show memory

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã Ä

S*ü Û Đ S*üA¹ Q ¸ Ã ¹ ¹,ß2Ï4³ ' !,X Y ,(Š Õ ` Y , S*ü ™ ‰ È Ù À2Ï4³,X(=)Ú Y , G£ È ¹ ž ' !2Ï4³,X0NKÆNI D Ã0NKÆ Y , G£1 ,Ì G µ C Ä

G!5B _ ßM6,X/ _ ;> show memory ,X Ô þE¤> 4§ p Ä

```
Ruijie#show memory
System Memory Statistic:
```

Ï – DAÈ â Ð

– D	£EÄ
´	

Ï Q ¸ õ ã Ð

;> õ ã

Ï S*ü Û Ð Ð

S*üA¹ Q ¸ ¹,ß ØCÃ+ #A, 4*ü Y ¸ ™ ‰ Ä

AÈ â	á à,XA' Û ž(Õ,XCÃ+ #A, á à È ?U,XCÃ+ #A, Ý BGP,OSPF,RIP,LDP,PIM,ISIS 1 Ä

ÏG!5B*ü _ Ð

_ 1 Ö ß _ show memory protocols Eg Î Y •

```
Ruijie(config)# show memory protocols
=================================================
protocol      |memory(byte)
BGP            102000000
OSPF            24000000
RIP             10000000
PIM             50000000
LDP             20000000
Total          206000000
```

Ï,Ì G Q ¸ Ð

Q ¸	£EÄ
show memory	/ Y ¸ S*ü µ C

Ï G ÄAÈ â Ð

-

Ï Q ¸ Z Æ Ð

(Ë	AÈ â
10.3(4b3)	„ r Q ¸

83

83.1

83.1.1 threshold set

A’5B Û nA’ Û,X Ø2OK¼L$ È Ã oA’5BK¼L$ Ý3 2O È Ú ÿ CPU ý*ü)[K¼L$ Ã Y , ý*ü)[K¼L$ Ã#ý zK¼L$ Ä Í bCPU ý*ü)[K¼L$ ` Y , ý*ü)[K¼L$ È ?U*ü b o MIB AÏ ª È 9 Z?· 2Ï4³ CPU ` Y ,,X4 -/ß z È"u Ý Í h,X syslog Ä5à#ý zK¼L$ È*ü b,¥ {A’ Û,X#ý z È ü #ý z ÝCYE›K¼L$ Ê È î ' D syslog Ä

*ü Ã*ü no Ú ¤ Ô2OK¼L$ 6 á äT¬Ax Ä

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

no threshold set {cpu | memory | temperature}

– DAÈ â

– D	£EÄ
cpu | memory | temperature	Û n?UA’5B,XK¼L$2O _ È„ Õ Ý/¡K¼L$,XA’5B È cpu CPU ý*ü)[K¼L$ Èmemory Y , ý*ü)[K¼L$ È temperature #ý zK¼L$
M1 | M2 | slot *n*	Û n?UA’5BK¼L$,X Ñ ! È ü 1… ãA’ Û Þ ™NO Û n È *n* 4“ 5 Ñ Ë
member *n*	Û n?UA’5BK¼L$,X Ú ´ ä , È ü Õ Ú ´A’ Û Þ ™NO Û n È *n* Ú ´ ä , Ë
warning_value	1 Ô4{K¼L$ È A:K¼L$ Ècpu ` memory K¼L$,X8× È 1 ~ 100 Ètemperature K¼L$8× È 0 ~ 2147483647

cpu | memory ... 8 ... C €Ð1$pà

Q ¸ õ ã	< G!5B õ ã Ä
S*ü Û Ð	´
G!5B _	_ 1 ÖA'5B 1… ãA' Û M1 Ñ,X Y , ý*ü)[K¼L$ Ä `Ruijie(config)# threshold set memory M1 70 90` _ 2 ÖA'5B Ú ´A' Û ` Ë ä ,,X CPU ý*ü)[K¼L$ Ä `Ruijie(config)# threshold set cpu member 2 70 90`

84

84.1

84.1.1 clear logging

?U#ÙL8 Y ,4ç † ,X ¹ « µ C ÈAË ü(M *ü õ ã ß ;> A¹ Q ¸ Ä

clear logging

– D

more flash:filename

– DAÈ â	– D	£EÄ
	Filename Ö	¹ « [Ê á/Ä

5 ,ÕG!5B	´

Q ¸ õ ã	(M *ü õ ã

S*ü Û Ð	ü =) FLASH ¹ « [Ê Û [Ê á !4Ô ú Ý ”//f2/” È”//f3/’,X [Ê ÄA¹ Q ¸ ¾ AŒ ¹,ß ¹ « [Ê È á AŒ S*üA¹ Q ¸ –5× J ªM2 ¹ « [Ê Ä

G!5B _	ßM6/ _ ¹,ß =) FLASH ¹ « [Ê,X Ô þ4§ p Ö 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

,Ì G Q ¸	Q ¸	£EÄ
	logging file flash:	Ú ¹ « µ CA„) ü =) FLASH Þ

G ÄAÈ â	´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

84.1.3 logging buffered

- - -

	levell	¹ « µ C,X ùG¡ û È ¢ 0 7 Ä Ã ¹ S*ü4{ ÿ á/Ä È 3 Ã ¹,È y S*ü D + Ä

5 ,ÕG!5B

4ç † T¬Ax û ã 4k Bytes Ä
¹ « µ C,X ùG¡ û 7 Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.4 logging console

?UA’5B AŒ ü { Ä Þ / ,X ¹ « µ C4{ ÿ ÈAË ü < G!5B õ ã ß ;> A¹ Q ¸ ÄA¹ Q ¸,X no 6 ã/U!6 ü { Ä Þ ' D ¹ « y [Ä

logging console *level*

no logging console

– DAÈ â

– D	£EÄ
level	¹ « y [,X ùG¡ û È8× È ¢ 0 7 Ä Ã ¹ S*ü4{ ÿ á /Ä È 3 Ã ¹,È y S*ü D + Ä G b ¹ « µ C ùG¡ û,XAº 4šAÈ â ÈAË –5×>◁ Ä

5 ,ÕG!5B Debugging (7)

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A’5B Ô þ ¹ « ùG¡ û ¹ â È ü D Þ1 b ê " bA¹ ùG¡ û4{ ÿ,X ¹ « y [Ú>• / ü { Ä Þ Ä

EîE› show logging Q ¸ Ã ¹ ¹,ß ¹ «A’5B,X,Ì G – D `4³Au Ä

G!5B _ ßM6/ _A’5B AŒ ü { Ä / ,X ¹ « µ C4{ ÿ 6 Ö

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

,Ì G Q ¸

Q ¸	£EÄ
logging on	' Ô ¹ « Ô G
show logging	¹,ß4ç † ¹ « y [€’ l¡ò Sa–" ð À f Ab8 ’ Ab8 ’ l

84.1.5 logging count

?U ' Ô ¹ «4³Au s6Ñ ÈAË ü < G!5B õ ã ß ;> A¹ Q ¸ Ä?U#ÙL8 ¹ «4³Au D B J GKÁ ¹ «4³ Au s6Ñ ÈAË S*üA¹ Q ¸,X no 6 ã Ä

logging count

no logging count

– DAÈ â	– D	£EÄ
	facility-type	Syslog A’ Û È K ',XA’5B AË –5× S*ü Û + Ä

5 ,ÕG!5B Local7(23)

Q ¸ õ ã < G!5B õ ã

ß>< Ä><2 Å Syslog Ã6Ñ,XA’ Û Ö

Numerical Code

S*ü Û Ð

T¬AxA’ Û (local7) 23 Ä

ßM6,XA’5BSyslog A’ Û kernel Ö

G!5B _

"¼ ã	Ú ¹ « µ CA„) =) FLASH È ™NO º êG›C =) FLASH È V p"u ÝG›C =) FLASH È logging file flash Ú>•7¾ |Ld;£ È á AŒE¯> G!5B Ä

G!5B _

ßM6/ _ Ú ¹ « µ CA„) ü =) FLASH È[Ê á trace.txt È[Ê û ã 64K, ¹ « µ C4{ ÿ 6 Ä

```
Ruijie(config)# logging file flash:trace
```

,Ì G Q ¸

Q ¸	£EÄ
logging on	' Ô ¹ « Ô G
show logging	¹,ß4ç † ¹ « y [È ¹ ž,Ì G ¹ «G!5B – D
more flash	¹,ß =) FLASH ¹ « µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.8 logging monitor

?UA'5B AŒ üVTY 0k · Ätelnet 0k · ÃSSH 0k ·1 Å Þ / ,X ¹ « µ C4{ ÿ ÈAË ü < G! 5B õ ã ß ;> A¹ Q ¸ ÄA¹ Q ¸,X no 6 ã/U!6 ü VTY 0k · Þ ' D ¹ « y [Ä

logging monitor *level*

no logging monitor

– D	£EÄ
level	¹ « y [,X ùG¡ û Ä Ã ¹ S*ü4{ ÿ á/Ä È 3 Ã ¹,È y S*ü D + Ä G b ¹ « µ C ùG¡ ûc + , ÄÄ

– DAÈ â

G!5B –

ßM6/ _G!5B AŒ ü VTY 0k · Þ ' D,X ¹ « µ C4{ ÿ 6 Ö

```
Ruijie(config)# logging monitor informational
```

,Ì G Q ¸

Q ¸	£EÄ
logging on	' Ô ¹ « Ô G
show logging	¹,ß4ç † ¹ « y [È ¹ ž,Ì G ¹ «G!5B – D

G ÄAÈ â

´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.9 logging on

?U AŒ ¹ « µ C ü á àA' Û Þ,X / ÈAË S*üA¹ < Q ¸ Ä?U/U!6 ¹ « µ C,X / ÈAË S*ü A¹ Q ¸,X no 6 ã Ä

logging on

no logging on

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B

AŒ ¹ « µ C ü á àA' Û Þ / Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Ð

¹ « µ C á ™ Ã ¹ / ü Console 0k · Ã VTY 0k · Þ È 3 Ã ¹A„) ü á à,XA' Û Þ Ö Y ,4ç † Ã =) FLASH ÃSyslog Server ÄA¹ Q ¸ ¹ « Ô G È V p GKÁ ¹ « Ô G È Ý ¹ « µ C Ú á>• / êA„) ÈL8 Z ùG¡ û4{ ÿ û b 1 ,X Log Ä

G!5B –

ßM6,X/ _ üA' Û Þ GKÁ ¹ « Ô G Ö

```
Ruijie(config)# no logging on
```

,Ì G Q ¸

Q ¸	£EÄ
logging buffered	Ú ¹ « µ CA„) Y ,4ç †

logging	Ú ¹ « µ C ¥4- Syslog Server
logging file flash:	Ú ¹ « µ CA„) ü =) FLASH Þ
logging console	A'5B AŒ ü { Ä Þ / ,X ¹ « µ C 4{ ÿ
logging monitor	A'5B AŒ üVTY 0k · (V telnet 0k ·) Þ / ,X ¹ « µ C4{ ÿ
logging trap	A'5B AŒ ¥EÕ4Syslog Server ,X ¹ « µ C4{ ÿ

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.10 logging rate-limit

?U ' Ô ¹ «Eó)[L$ s6Ñ ÈL$!£/¦ Y AŒEg Î,X ¹ « µ C ÈAË ü < G!5B õ ã ß ;> A¹ Q ¸ Ä?U GKÁ ¹ «Eó)[L$ s6Ñ ÈAË S*üA¹ Q ¸,X no 6 ã Ä

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

no logging rate-limit

– DAÈ â

– D	£EÄ
number	!£/¦Js Y AŒ Ø)Ú,X ¹ « µ C È8× È 1—10000 ×
all	A'5B Í Ý,X ¹ « µ CE¯> Eó)[{ È Ù À 0—7 4{ Ý ¹ « µ C ×
console	A'5B!£/¦Js Y AŒ ü { Ä Þ / ,X ¹ « µ C D ×
except	ã b1 b!8 ùG¡ û4{ ÿ,X ¹ « µ C È áE¯> Eó)[{ ×T¬Ax4{ ÿ error(3) È Í ã b1 b error 4{ ÿ,X ¹ « µ C áE¯> Eó)[{ ×
severity	¹ « µ C ùG¡ û4{ ÿ È4{ ÿC^ ã È ùG¡ ûC^P¬ È8× È 0—7

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È áE¯> Eó)[{ Ä

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð !8 Q ¸ { 2Ï4³,X ¹ « µ CEg Î Ä S*ü!8 Q ¸ È Ã ¹L !6 ûG£,X ¹ « µ CEg Î Ä

G!5B _

A'5B!£/¦Js Y AŒ Ø)Ú,X Ý ¹ « µ C Ä Ù À debug Å 10 5 È Í warning ž È ù G¡4{ ÿ áE¯> { Ö

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

,Ì G Q ¸

Q ¸	£EÄ
show logging count	¹,ß2Ï4³ Ø õ + ¹ « µ C
show logging	¹,ß ¹ « õ +,X Î G!5B µ C â ¹ « 4ç † ,X ¹ « µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.11 logging server

?U Ú ¹ «A„) Û n,X Syslog Sever ÈAË ü < G!5B õ ã ß S*üA¹ Q ¸ Ä?U ôL8 Syslog server ë>< ,X Û n ,X Syslog Server ÈAË S*üA¹ Q ¸,X no 6 ã Ä

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

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

– DAÈ â

– D	£EÄ
ip-address	y ¹ « µ C,X IP ×
vrf vrf-name	Û nE² y ¹ « ,X VRF ÄVPN CÃ+ E@ ¥>< Å r _ ×
ipv6 ipv6-address	Û n y ¹ « µ C,X IPV6 ×

5 ,ÕG!5B T¬Ax á å Ï) syslog server ¥EÕ ¹ « µ C

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð A¹ Q ¸ Û n Ô þ Syslog server 9 y A' Û,X ¹ « µ C Ä*ü Ã ¹G!5B îE' 5 þ Syslog Server Ä ¹ « µ C Ú à Ê ¥4-G!5B,X Ý Syslog Server Ä

G!5B – _ 1 Ö ßM6,X/ _ Û n Ô þ 202.101.11.1 ,X syslog server Ö

```
Ruijie(config)# logging server 202.101.11.1
```

_ 2 Ö ßM6,X/ _ Û n Ô þ IPV6 AAAA:BBBB::FFFF ARuijie(config)#

,Ì G Q ¸	Q ¸	£EÄ
	logging	Ú ¹ « µ C ¥4- Syslog server

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â
	-	-

84.1.13 logging source interface

?UA’5B ¹ « y [,X$d y · ÈAË ü < G!5B õ ã ß ;> A¹ Q ¸ ÄA¹ Q ¸,X no 6 ã ª#\ Û n y [,X$d y ·A’5B Ä

logging source interface *interface-type interface-number*

no logging source interface

– DAÈ â	– D	£EÄ
	interface-type	y ·2O _
	interface-number	y ·4ê Ë

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð T¬Ax ™ ‰ ß È ¥EÕ4Syslog Server ,X ¹ « y [$d y [¥EÕ y ·,X Ä Z “ bC³Cþ1u)Ú È Ã ¹ S*üA¹ Q ¸ Ú Ý ¹ « y [,X$d Î n ¤ þ y · ÈE- 1u)Ú , EîE› Ô Aš ÿ ¢ ¾ ÄA’ Û ¥EÕ Î 9,X ¹ « y [Ä

G!5B _ ßM6,X/ _ Û n Loopback 0 ,X Syslog y [,X$d Ö

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

,Ì G Q ¸	Q ¸	£EÄ
	logging	Ú ¹ « µ C ¥4- Syslog Server

G ÄAÈ â ´

Q ¸ Z Æ	(Ë	AÈ â

-	-

84.1.14 logging synchronous

?U ' Ô*ü Eg 9 â ¹ « µ CEg Î à!9 s6Ñ ÈL !6*ü !7 üEg 9 +0ú Ê>• ' • ÈAË ü4“CÃG!5B õ ã ß ;> A¹ Q ¸ Ä?U GKÁ*ü Eg 9 â ¹ « µ CEg Î à!9 s6Ñ ÈAË S*üA¹ Q ¸,X no 6 ã Ä

logging synchronous

no logging synchronous

– DAÈ â	– D	£EÄ
	-	-

5 ,ÕG!5B 5 ,Õ ™ ‰ ß È*ü Eg 9 â ¹ « µ CEg Î à!9 s6Ñ GKÁ Ä

Q ¸ õ ã 4“CÃG!5B õ ã

S*ü Û Ð !8 Q ¸ ' Ô*ü Eg 9 â ¹ « µ CEg Î à!9 s6Ñ È Ã ¹L !6*ü !7 üEg 9,X +0ú Ê>• ' • Ä

G!5B _

```
Ruijie(config)#line console 0
Ruijie(config-line)#logging synchronous
 V p!7 üEg 9 Q ¸ Ê È ' D0Ã ·    UP-DOWN ¹ « µ C È íEg 9,X Q ¸ îG¡ „Eg Î Ö
Ruijie#configue terminal
Oct  9 23:40:55 %LINK-5-CHANGED: Interface GigabitEthernet 0/1,
changed state to down
Oct  9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet 0/1, changed state to DOWN
Ruijie# configue terminal          //*ü Eg 9,X Q ¸G¡ „Eg Î È5à á>• ' •
```

,Ì G Q ¸

Q ¸	£EÄ
show running-config	¹,ß2Ï4³,XG!5B µ C

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.1.15 logging trap

service sequence-numbers

no service sequence-numbers

– DAÈ â

– D	£EÄ
-	-

Q ¸ õ ã	< G!5B õ ã
S*ü Û Đ	EîE›!8 Q ¸ È Ã ¹ BLÔ?U È ‡ n ü ¹ « µ C ú#Ï t2Ï4³ á Ä

G!5B _

ßM6/ _G!5B ü ¹ « µ C t Þ2Ï4³ á Ö

```
Mar 22 15:28:02 %SYS-5-CONFIG: Configured from console by console
Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# service sysname
```

msec	' !A' Û ¹ ó Õ!¿/¦ / È ã Ö Ü ¹ ó Ê: Ú: /¦. !¿/¦ _ ÖJul 27 16:53:07.299
year	' !A' Û ¹ ó Õ H Ñ / È ã Ö H Ü ¹ ó Ê Ö Ú Ö/¦ _ Ö2007 Jul 27 16:53:07

5 ,ÕG!5B

¹ « µ C ,X ÊKÈ È ' !A' Û ÊKÈ Ä V pA' Û"u Ý RTC È í7¾ |A× H A' Û | Ê KÈ Ä

Q ¸ õ ã

< G!5B õ ã

S*ü Û Đ

S*ü Uptime EÝNM,X ÊKÈ ã A' Û7¾ ¢ Þ õ | ,Â !,XE¤> ÊKÈ È) ! /¦ Ä S*ü Datetime EÝNM,X ÊKÈ ã ' !A' Û,X ¹ ó È H É Ü É ¹ ã Ê Ö ÚJs Ö/¦ Ä

ßM6/ _G!5B *ü Log µ C ` Debug µ C,X ÊKÈ È ã Datetime Ö È J è Õ!¿/¦ / ÑÍÀ

G!5B _

S*ü Û Ð ´

ßM6/ _ ;> show logging ,X Ô þ4§ p Ö

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
```

G!5B _

Trap logging	¥EÕ4-Syslog Server ¹ « µ C,X4{ ÿ È ¹ ž4³Au
Log Buffer	A„) ü Y ,4ç † ,X ¹ « y [

,Ì G Q ¸

Q ¸	£EÄ
logging on	' Ô ¹ « Ô G
clear logging	#ÙL8 ¹ «4ç † ,X ¹ « y [

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

84.2.2 show logging count

?U ¹,ß2Ï4³ Ø õ + ¹ « µ C {*ó,X õ D È ¹ ž Ô â {*ó,X ÊKÈ1 4³Au µ C ÈAË ü(M õ ã ß ;> A¹ Q ¸ Ä

show logging count

– DAÈ â

– D	£EÄ
-	-

5 ,ÕG!5B ´

Q ¸ õ ã (M õ ã

S*ü Û Ð Z S*ü ¹ « y [4³Au s6Ñ ÈLÔ?U ü < G!5B õ ã ß È ;> logging count Q ¸ Ä show logging count Q ¸ È Ã ¹ / ¤ 5 ¹ « µ C È {*ó,X õ D È Ô â Ô õ Î)„,X ÊKÈ Ä EîE› show logging Q ¸ È Ã ¹,ß ¹ « µ C4³Au s6Ñ ú ' Ô Ä

G!5B _

ßM6/ _ ;> show logging count ,X4§ p Ö

```
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
```

,Ì G Q ¸

Q ¸	£EÄ

85

85.1

85.1.1 device-priority

device-priority [*member*] *priority*

– DAÈ â

– D	£EÄ
member	Û n ä , ID ÄÃ ¹,Õ+9 È V p,Õ+9 í Í member 1 E¯ > G!5B
priority	ä ,,X ì 4{ È ª 8× È [1, 10]

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã

S*ü Û Ð EîE› Q ¸ 9G!5B ¤ þ ä ,,X Ú ´ ì 4{ È ì 4{ ª 8× È 1 10 È J 10 ,X ì 4{ ÔP¬ È Î V,XT¬Ax 1 Ä
A'5B âLÔ?U ;> write ± , !6Ñ*ó Ä

G!5B – Û n ä ,A' Û 2 ,X ì 4{ 8

```
Ruijie(config)# device-priority´
```

– DAÈ â

– D	£EÄ
member *member*	Û n ä , ID ÄÃ ¹,Õ+9 È V p,Õ+9 í Í member 1 E¯ > G!5B Ä
description	ä ,,X £EÄ0ú È Ô î Õ +0úKS z 31 Ä

5 ,ÕG!5B ´

Q ¸ õ ã < G!5B õ ã Ä

S*ü Û Ð EîE› Q ¸ 9A'5B ¤ þ ä ,,X ÿ á ÈA'5B âLÔ?U ;> write ± , !6Ñ*ó Ä

G!5B _ Û n ä ,A' Û 2 ,X ÿ á red-giant

```
Ruijie(config)# device-description member 2 red-giant
```

,Ì G Q ¸

Q ¸	£EÄ
show member	/ Ú ´ ä ,,XAº4š µ C Ä

G ÄAÈ â ´

Q ¸ Z Æ

(Ë	AÈ â
-	-

85.2

85.2.1 show member

show member [*member*]

– DAÈ â

– D	£EÄ
member	Û n ä , ID È V p Ñ+9 í / Ý ä , Ä

5 ,ÕG!5B ´

Q ¸ õ ã (M *ü õ ã

S*ü Û Ð ;> Q ¸ Ã ¹ ¹,ß Ú ´2Ï4³,X ä , µ C Ä

G!5B _

```
Ruijie# show member
Member  Mac Address    Priority  Software Version
HardwareVersion  Description
------ ---------  -------  ---------- ---------   --------
1  00d0.f810.3323  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
2  00d0.f822.33aa  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
3  00d0.f822.33ae  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
4  00d0.f822.33b0  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
5  00d0.f822.33b2  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
6  00d0.f824.23b4  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
7  00d0.f833.44b4  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
8  00d0.f855.33ae  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
```