Z »

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copyright © 201 i H à Ì

‘ + Î † C Î Ò ¢ %² ä Ó ïož

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wo• n no• ì è ¿ U § ˆo• 1 ¿ ¶ B ê B ã 9 Œ (ož

Y ® i H à Ì Œ öož

Î † U C ¿ U ñ Ä Œ ö ê h Æ Œ ö k _ ñ Ä K (Äož

Ó ñ Æ 1 D }o• Æ ê Ô Å ˆ • I Œ ` c y Ú . ³ Ø k Î † T ¶ B ê B ã D }o• Æ ê Ô Å U ¨ Ó Æ
1 ê … 8 $ Äož ” ³ ` c P Ä ³ k i H à Ì + Î † Ä Ÿ ` ~ ¢ P ê ó P Ò ¢ ê ‘ šož

9 D } Í Î ´ ê ¿ U = œ k Î † Ä k Ê g ¾ • ožI H à Ì ‘ ¨ Z Ä ` ~ * = ê ñ U P Õ Ñ + † Ä
g “ w Ó ïož

Î ô Æ N • … 6 -ož i H à Ì ¨ Ú Ê Î ô Æ ž] @ ‘ š ¿ Ä Õ G U ´ k x w G ‘ ô Æ Ä ¶ Z Ä j ¨ ê 4 ¥ k
Î ô Æ ñ Ä ’ Î - ã è ` ~ ¢ P ê ¹ P ‘ož

Î 0 ` ç K t ƒ ¯

à Ì W i d

Ð P z K t

à Ì ' ò t

i H à Ì • à { yhttp://www.ruijie.com.cn/

i H à Ì ¨ ¿ Æ yhttp://webchat.ruijie.com.cn

i H à Ì • à { Æ u 4 Í ² yhttp://www.ruijie.com.cn/service.aspx

7 ˜ 24 4 ž Ð Æ ½ ¿ y4008-111-000

i H à Ì Ð – ´ yhttp://bbs.ruijie.com.cn/portal.php

o • | Ê \ « yhttp://www.ruijie.com.cn/service/know.aspx

i H à Ì Ð u 4 F Ø ' " y4008111000@ruijie.com.cn

1.

x X g " Þ # ò y

y x X g ¼ p g x X ' 4 J · À Á ÿ B ã h J } n Pož

Š } y x X g @ ƒ g x X · À Ž › g Á W B ã h J Š } n P

[ ] y n P [ ] , Ü Û B ã k ¨ x X F å ž © U # ož

{ x | y | ... } y n P R ê Ú # ¾ # H%² ož

[x | y | ...] y n P R ê Ú # ¾ # H%² ê ñ #ož

// y E Š Ù • ÷ g n P h K gož

2.

Î 0 J _ _ I) ö º Û n P ¨ q • i • ¥ Ô ð h Þ ª • k ? ö º Þ # ò y

/

3.

Î ô Æ †ª¢ B ã € M • º c Ž U … k Ž q • ¬ } 7 Á _ D } ñ u 4 € M • º g F åož

Î ô Æ B ã † ª P ’ Î U m Ä ¿ D } © ç Ä g ò D } º Zo• T ˆ Ìk À } ª P ’ Î ¬ Y Ž … — Õ ’ Î Õož

Î ô Æ „ C è ˜ C è ˜ D } £ ö k W n 4‰² " Þ # è ˜ k Y C g 4 è # ‘ C A E Ñož

-

1.
2.
3. LINE
4. File System
5. SYS
6. TIME RANGE
7. HTTP
8.
9. CWMP
10. CA-MONITOR
11. ZAM
12.
13.
14. PKG_MGMT

1

1.1 alias

F%kXðož

alias *mode command-alias original-command*

ĺ#xXðk+9ðxXkUÊFåž

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

+9ðxXkUY* **default ÊFåž**

default alias *mode* [*command-alias*]

oÞ®	@	T
	mode	ðWnxXÊX%”ož
	command-alias	xXðož
	original-command	ðWnŽXšož

oÞFå- *Ê”kBãXðož

oxX%”o- ÞFå%”

oÞõ- 14

o6-o- *Ê”kXð ho•po•so•uo•un ŽdÃ **helpo•pingo•showo•undebugo•undebugož**

kXð* **no alias exec xÞž**

*FåXðkUY%%ÛW%kXoÞ%ðÛWn%kX%BãÀ

UYÞBãž

ðWnxXÊX%”ÞX%”kÞFå%”kÞ **alias** ?UYÞ

ÙYFåÞxX%”y

```
Ruijie(config)#alias ?
aaa-gs                AAA server group mode
acl                    acl configure mode
config                globle configure mode
```

ª ß. ª ˜Ḥ‘Y ẇ ’ ʒ Ụ ı ß. ª ˙ | h Ĭ ˥ A ĭ ᴺ ε *kwkY”Ÿy

*command-alias=original-command

æ ḅ ı ß EXEC %”kXð”s”nP”**show** ”Ÿ?” UYBH’s’ ßyð

ŷ

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

ḥ ʿ ̣ ᵉ ̈ΑΠЋ̂ù ̀ ᵘ ПЋ j ̂Ъ ̂Α ᴅ ص ι ̣̈ ḤÆ ̈ Ą̂ ᴺ Ń ᵘ ПЋ ̈γ ̀ ù ̀ ج æ ḥ ι ḡ EXEC %”Få”sv”W

ÁX show versionké

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

[illegible]

```
% Adding command alias fail.
```

oöjö- -

oüVö- -

1.2 privilege

F‰kXgÍ5%‰Xõž

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

ÊFåž

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

oÊ

@	T
mode	}lÓXR CLI xX%”
all	16xXÄXÓJ,cÓ
level *level*	6xXÊXgÓÊ 0-15
reset	1xXgÕ
command-string	**}lÓX.**

oFå- -

oxX%”o- ßF‰”

oÕ- 15

o6-o- nP%Pã **privilege xgÓ** CLI xX%”ÞkcÕUlÓX%”Ó

UkGÞkßF‰”kUY… **privilege ?ÓÓ** CLI xX%”ož

ßÞ 1 yå— CLI ð 1 MX"test" kwg— **reload xÍÜÜÕÞ**

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

%ˆH ı Æ ¤ ·¡ 1 µ CLI ¼GÜY… **reload xX**

```
Ruijie>reload ?
LINE    Reason for reload
<cr>
```

þ ' o Ñ **reload ¥ÍÜ©** xXy

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

oЪP’ȏ- -

oъV⓪- -

2

2.1 <1-99>

ÊÊE Telnet Client kN Nož

<1-99>

op	@	T

-

HÞUP*'Îå

no banner exec

oÞ®

@	T
c	*ÊÊÊž*
message	*Êž*

oHFå-

-

o×X%”o-

ÞFå”

oHÕ-

14

o6-o-

¥XUYFåUP*'ÎkÞÞÞÞ21tÕž

Ê- MOTDg**banner motd hÞkÀ1P** LOGIN UP'Îg**banner login hk**

Ê1GNB EXECg**banner exec**ÞÊ incomingg

	c	*ê* Telnet NUP'ÊkUP'Ïe ož
	message	*ê* Telnet NUP'Ïkž

oHFå- -

oxX%"o- ¶FÅ%"

oHõ- 14

o6-o- ¥XUYFêg Telnet NUP'ÎòÊQ¥21t©
Ïož
Ê- MOTDg**banner motd hÈkè1P** LOGIN UP'ê**banner loginh** **kï**
Êek1ÇNÈ EXECg**banner exec hÈÊ** incomingg**banner incomingh**
ÈÊbÊg Telnet ê incoming UP'ÎkÇNê EXEC UP'Îbž

oFåb- 1 yÊÇFg Telnet N'ê–
```
Ruijie(config)# banner incoming $ T J Æ ת ک à ح ؛ $
```

oào- FåkFg Telnet N£ line Ê%"kUPFîbž

oUP'Îb- -

oÈjö- -

oVÊ- -

2.4 banner login

Fê
banner login *c message c*

HÊFå
no banner login

oÊ	@	T
	c	*ê*

oxX%”o- ¶ÞFå%”

oHõ- 14

o6-o- ¥XUYFâ kòÞÈQÙÈ21tÜož
ê MOTDg **banner motd** hÈÞkè1P LOGIN UP’ïg **banner login** **hk**
ÕÞel1GNB EXEC g **banner exec** hÞÊ incoming g **banner incoming h**
HÔbÞg Telnet ê incoming UP’ïkUNê EXEC UP’ïž

oFåb- 1 yPÞgÞ—

```
Ruijie(config)# banner login $ enter your password $
```

oèo- FåkÜUPFâbž

oUP’ïb- -

oÞjÜo- -

oHVõ- -

2.5 banner motd

Fâ™’Î MOTDg message of the dayh

banner [**motd**] *c message c*

H?™Fâ

no banner [**motd**]

oÞ

@	T
c	ÕÞÊž
message	ÕÞž

oHFå- -

oxX%”o- ¶ÞFå%”

oHõ- 14

o6-o- ¥XUYFâ™’ïkòÞÈQÙÈ21tÜož

Ê MOTDg**banner motd hÈkÀ1P** LOGIN UP’ĵ

```
Ruijie(config)# banner exec $ ˘ ę Í ɔ ę̈ ̀H $
```

oòo- Fåk£ line ègk UP Fåž

oUP'ô- -

oöjö- -

ouVö- -

2.7 banner slip-ppp

ò SLIP/PPP ÙUP'Î

banner slip-ppp *c message c*

H*f* SLIP/PPP ÙUP'Î

no banner slip-pp

oÞ

@	T
c	[illegible]
message	[illegible]ž

oHFå- -

oxX%"o- ¶BFå%"

oHö- 14

o6-o- ¥XUYFåUP*'Î kpÞ Ù21tÖž

* SLIP/PPP ÙgÞZNhk+ÖP slip-ppp UP'ûbanner slip-ppp lož

oFåb- 1 yÞ'ù SLIP/PPP

ø -

2.8 boot config

‘woÑ¼d

boot config { flash:*filename* }

ÕÅd

no boot config

o¤ø

@	T
flash	*o¤ø* FLASH ¢

oÑÅ- ‘woÑ¼d flash:/config.text

o×X%”o- ¶FÅ%”

oÑõ- 14

o6-o- ¥XUY‘woÑ¼dož

flash:/ruijie.text

write

flash:/ruijie/ruijie.text flash:/ruijie

oFÅ¤- 1 y¤‘woÑ¼ flash:/ruijie.texty

```
Ruijie(config)#boot config flash:/ruijie.text
```

oè¤o- … show boot config xXUYÎoÑ¼d’ož

oÜP’ô- -

oÜjö- -

oÜVÎ- -

2.9 configure

ßFå%”ož

configure [**terminal**]

oß®

@	T
-	-

oÞFå- -

oxX%”o- Ø%”

oÞõ- 14

o6-o- -

oFåõ- 1 yßFå%”

```
Ruijie# configure
Ruijie(config)#
```

oèo- -

oUP’ô- -

oojö- -

ouVõ- -

2.10 disable

zõž

disable [*privilege-level*]

oß®

@	T
privilege-level	Ó

oÞFå- -

oxX%”o- *Ø%”

oÞõ- 0

ô	¥XRŨô"ħ%"dŢĕŨôÓž

disable

oFåŧ- 1 yðFåŨñ 10 ý

```
Ruijie# disable 10
```

oèo- * **show privilege xŨô**

oUP'ô- -

oojö- -

oVŧ- -

2.11 disconnect

5Ü Telnet Client Nož

disconnect *session-id*

op@

@	T
session-id	5Ü Telnet Client NkŽ

oFå- -

oxX%"o- *%"

oð- 1

o6o- *ŋ Telnet Client NkŽk6 Telnet Client Nož

oFåŧ- 1 yŋ Telnet Client NkŽk6 Telnet Client Nož

```
Ruijie# disconnect 1
```

oèo- 1 y… **show sessions xKVô6** Telnet Client Nkţ6ž

oUP'ô- -

oojö- -

Ø -

2.12 enable

Ê”ož

enable [*privilege-level*]

@	T
privilege-level	Ó

-

*X%”o-

0

¥XR*%”Ê”o Ó

óž

14 ý

```
Ruijie> enable 14

Password:
```

* **show privilege x**

-

-

-

2.13 enable password

ÓMXož

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

ÓMXož

no enable password [**level** *level*]

o¶®

p@	T
level	¶ó
0	*gÞ6Ì…*
password	*pÕ* EXEC FÊ¿MXÌx8y1~126
7 encrypted-password	*nÞ¶%*

oÞFå- -

o×X%”o- ¶ÞFå%”

oÞõ- 15

o6-o- *oÞ¶%%²ÕÌQÞÕÞMXÌÞ¶%%ž
ÞMX#ÞÞ
Ìn 1 ñ 26 ÝÊyÞž
MXÙÞYÌÞqkxtÞÞÌÌÞqÞMX%ÞÞãž

EXEC

oFåÞ- 1 yÞ¶MX pw10y

```
Ruijie(config)# enable password pw10
```

oÞo- -

oÞP’Ô- -

oÞÞ- -

oÞV¶- -

2.14 enable secret

>yxUp]ÞÞ@ÞWPÞÞf0@

ofp@

@	T
level	*ñ*
0	*gu6M…*
password	**ñ** EXEC FêMXlx8y1~126
5 *encrypted-password*	*0/E* MD5

	snmp-agent	¥¼	Snmp Agentk¥Xcž IPv4 y IPv6 ¥Ž

oHFå- ó telnet-serveros snmp-agent y web-server ® ssh-server ¢ž

o×X%”o- ¶FÅ¼”

oHÕ- 14

o6-o- ¥X9¶¼¥Ž . **no enable service x¥¼¥Ž**

enable service web-server 3 [http | https | all]
all http https

oFåò- 1 yÞ‡X **end** ÕÞ

```
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#end
*May 20 09:49:38: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#
```

oèo- -

oUP'Îb- -

oeÿo- -

ouVÕ- -

2.17 exec-banner

6 line ÕMP EXEC UP'Î **exec-banner**

W26 line Ÿ EXEC UP'Î **no exec-banner**

oÞ

@	T
-	-

oHFå- ÕÞ EXEC UP'Î

oxX%"o- LINE Fåo"

oHÕ- 14

o6-o- Fåò **banner exec** y **banner motd**kÕÞ line Ÿ EXEC y MOTD UP'Îbž line Ÿ EXEC y MOTD UP'ÎUY¥X **no** EXEC y MOTD UP'Îbž

⚠️ lnet.02 0 0 16.02 137.**SOD 74 H**8n.3655>-792 re4.00248 banner incoming

ÿ -

oHVØ- -

2.19 execute

ÿ%ôXož

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

oÞ

@	T
filename	*}ÿôž*

oHFå- FåX

oxX%”o- Ô”

oHÕ- 14

oG-o- RÿHÿož

oFåÙ- 1 yÞmP… execute xXFêNM ip ÿ

```
Ruijie#execute flash:mybin/config.text
executing script file mybin/config.text ......
executing done
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#ip address 192.168.21.158 24
Ruijie(config-if-GigabitEthernet 0/1)#end
*Sep 29 23:35:49: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#
```

oèo- -

oUP’Ô- -

oÞÿo- -

oHVØ- -

2.20 exit

RF%”%”R0”ß CLI µ
exit

p@	T
-	-

-

%”

0

-

1 yÞxX **exit %**

```
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#end
*May 20 09:49:38: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#con
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#line vty 0
Ruijie(config-line)#exit
Ruijie(config)#exit
*May 20 09:51:48: %SYS-5-CONFIG_I: Configured from console by console
Ruijie#exit

Press RETURN to get started
```

-

-

-

-

2.21 help

ônÏ‰?¼'ôž

help

o@	@	T
	-	-

oHFå- -

oxX%”o- ~Fß%”

oHõ- 1

o6-o- ¥XUYônÏ‰?¼ÌÌFåUY*”?” ôÏ‰%”Å
XêXeÏ‰Ï

oFåõ- 1 yÏ‰ÏÏP%?nÏ‰Ïy

```
Ruijie#help
Help may be requested at any point in a command by entering
a question mark '?'.  If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)
```

2yÏ‰ÏPNMFß%”gÅXy

```
Ruijie(config-if-GigabitEthernet 0/0)#?
Interface configuration commands:
  arp             ARP interface subcommands
  bandwidth       Set bandwidth informational parameter
  carrier-delay   Specify delay for interface transitions
  dampening       Enable event dampening
  default         Set a command to its defaults
  description     Interface specific description
```

```
dldp            Exec data link detection command
duplex          Configure duplex operation
efm             Config efm for an interface
end             Exit from interface configuration mode
exit            Exit from interface configuration mode
expert          Expert extended ACL
flowcontrol     Set the flow-control value for an interface
full-duplex     Force full duplex operation
global          Global ACL
gvrp            GVRP configure command
half-duplex     Force half duplex operation
help            Description of the interactive help system
ip              Interface Internet Protocol config commands
ipv6            Internet Protocol Version 6
isis            Intermediate System - Intermediate System (IS-IS)
l2              Config L2 attribute
label-switching Enable interface process mpls packet
lacp            LACP interface subcommands
lldp            Link Layer Discovery Protocol
load-interval   Specify interval for load calculation for an interface
mac             Mac extended ACL
mac-address     Set mac-address
mpls            Multi-Protocol Label Switching
mtu             Set the interface Maximum Transmission Unit (MTU)
no              Negate a command or set its defaults
ntp             Configure NTP
port-group      Aggregateport/port bundling configuration
redirect        Redirect packets
rmon            Rmon command
security        Configure the Security
show            Show running system information
shutdown        Shutdown the selected interface
snmp            Modify SNMP interface parameters
speed           Configure speed operation
switchport      Set switching mode characteristics
vrf             Multi-af VPN Routing/Forwarding parameters on the interface
vrrp            VRRP interface subcommands
xconnect        Xconnect commands
```

Ę 29 ĝ4 mpls,isis,VRFkFåNŒ@ÅÅÕ58 yµ

PřPxXeřŒ

```
Ruijie(config)#access-list 1 permit ?
```

A.B.C.D	Source address
any	Any source host
host	A single source host

oèo- -

oUP'ô- -

oöjö- -

ouVö- -

2.22 hostname

6ö/ÕöŽ

hostname *name*

oö@

2.23 ip telnet source-interface

6NM IP ª Telnet Nžž

ip telnet source-interface *interface-name*

o@	@	T
	interface-name	*6* IP ª Telnet NkNM; AP MoGi MoLoopback Mo• null MoTunnel Mo• VLAN Mož

oHFå- -

o×X%”o- BFå%”

oHõ- 14

o6-o- ¥X96NM IP B Telnet Nžž. telnet Telnet

No”MeÇE(6nZZ6cAP

oj6-1 LPoopl

ê -

oxX%”o- *P%”

oHõ- 1

o6-o- ™ÅMX™k¼Nkcž g{Ä2[ožY5ê{Ä

µ

- %µ µ **lock xKÏÏPµMX**
- 8µ µMXkUYõµkÏCUPGµMXkè kÏÏsk

  wPLocked ’ˆz

- }MÍÄÅµMXož

}ÄÄ{Ä}* line Få%”ü **lockable xK¨•** line ø

4g{Äž

oFåb- 1 yP¼{%Ä

```
Ruijie(config-line)# lockable
```

	@	T
	-	-

oHFå- ÃÕ4 **lock xÀž**

o×X%”o- LINE F%”

oHõ- 1

o6-o- ¥X9¨è4g{Ãg{ÄY*¨ EXEC %”ï **lock xÀž**
ïï **lock xÀ{ÃÄ<ÀX** **lockable ê–**
{ÃÄž

oFåï- 1 yÃÏÒÀMg{ÃÄwg{OÀy

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

oèo- -

oÜPˆî- -

oÞjö- -

oÜVê- -

2.26 login

¨ AAA {Ã LINE ÈÅ%ÍXèž
login

HÈÍXèž
no login

	@	T

-	-

oHFå- OÙ¥¼ login k AUXo-TTY y VTY login ož

oxX%”o- LINE F%”

oHõ- 14

o6-o- ÇÄ AAA -003>0 T443.39 9 0 121.8/C50BF304BTB46/TT0 1 Tf7.1288 Tc 9 Td199 741.0601 Tm `0TCT051T040>

-

-

ê 14

o6-o- ò AAA ¤¤¨ LINE ¢³ AAA ¤kÞF¤Xk¥ñ
¤¤¤¤ž

oFåò- 1 yÞ¦Þ¤ AAA ¤¤E VTY ¤¤ž

```
Ruijie(config)#log access non-aaa
Ruijie(config)#aaa new-model
Ruijie(config)#line vty 0 4
Ruijie(config-line)#login local
Ruijie(config-line)#
```

oèo- -

oUP'ò- -

oòÿò- -

ouVò- -

2.28 login authentication

¨ AAA ¤¤ LINE ¢å AAA ¤¤ož

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

ì¤¤ož

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

oò

@	T
default	¤¤d
list-name	¤¤d

oFå- AAA ¤¤. **default ¤ož**

oXX%"o- LINE F¤%"

oò- 14

o6-o- -

ê 1 yPP¨ VTY ê radius gê

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authentication login default group radius
Ruijie(config)# line vty 0
Ruijie(config-line)# login authentication default
```

oò- -

oUP'ô- -

oöjö- -

oVô- -

2.29 login local

¨ AAA LINE ê

login local

Hê

no login local

o	@	T
	-	-

oF- -

oX%"o- LINE F%"

oô- 14

o- ê AAA X9F LINE ê

* **username x ê**

oF- 1 yPP¨ VTY ê

```
Ruijie(config)# no aaa new-model
```

à -

oÙP'ô- -

oÖjÖ- -

oÙVÖ- -

2.30 login privilege log

ÊÙžÖÊÖž
login privilege log

HÖÊÖÖÙP'ôž
no login privilege log

oÖ®

@	T
-	-

oÙFå- ®ž

oxX%"o- ÖFå"

oÙÊÖ- 14

o6-o- ÖÊÖÙk}Få¥ÊÖ®ž

oFåÖ- 1 yÖÊÖÙUPož

```
Ruijie(config)# login privilege log
```

2yÖÊÖÙkgÓÙâ/žÙUPÊÖž

```
Ruijie>enable 10

Password:
Password:
Password:

% Access denied
Ruijie>
*Sep 10 11:34:19: %SYS-5-PRIV_AUTH_FAIL: Authentication to privilege level 10 from console failed
```

3yÞÞ¥k¨ÚÂ¥ÕUP'ÎÝž

```
Ruijie>enable 10

Password:
Ruijie#
*Sep 10 11:34:20: %SYS-5-PRIV_AUTH_SUCCESS: Authentication to privilege level 10 from console success
```

oèo- -

oÙP'Î- -

oÞÖ- -

oÙV¶- -

2.31 motd-banner

6 line ÞÞ MOTD UP'Î

motd-banner

W26 line Þ MOTD UP'Î

no motd-banner

oÞ

@	T
-	-

oÞFå- Å MOTD UP'Îž

oxX%"o- LINE Få%"

oÞ- 14

o6-o- Få **banner exec** y **banner motd** ÞÞ line Þ EXEC y MOTD UP'Îž

Ý line ¼ EXEC y MOTD UP'ÎÙY¥X **no** ¼

EXEC y MOTD UP'Îž

⚠	**banner incoming** incoming	**banner incoming** incoming Telnet

ê 1 yP1+ Vty1 W2UP MOTD ’Py

```
Ruijie(config)# line vty 1
Ruijie(config-line)no motd-banner
```

oò- Fåk F ož

oUP’ò- -

oj- -

oV0- -

2.32 password

Få line MXož

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

ï line MXož

no password

o@

@	T
0	*g* *…*
password	***6*** line MX x y1~25
7 *encrypted-password*	*n*

oFå- -

o×X%”o- LINE Få%”

oò- 14

o6-o- -

oFåò- 1 yP6 line MX redy

```
Ruijie(config)# line vty 0
Ruijie(config-line)# password red
```

oò- -

oUP’ò- -

oöjö- -

ouVõ- -

2.33 prompt

FåXNMgCLI **prompt** *string*	hUPož
HřXNMgCLI **no prompt**	hUPFåž

op

2.34 secret

Få line ê MD5 U"%MXož

secret { [**0**] *password* | **5** *encrypted-secret* }

ï line ê MD5 U"%MXož

no secret

o

0	*g* *1g* MD5 U"%
password	*6ïï* line 1~25
5 *encrypted-secret*	**96]Æ** MD5 U"%MX Få1%eMX g‘

o Få- -

o X%”o- line F%”

o 14

o- ¥X9Fåï£ line MD5 U"%MXož

⚠ 5 24 1 3 8 ”$”

⚠ 5

5

⚠ line password secret password secret secret secret password

oFå- ¥ line £ MD5 U"%MX vty0y

```
Ruijie(config)# line vty 0
Ruijie(config-line)# secret vty0
```

ف ق % Æ ПЪ θ ª ι vty0 1g MD5 U"%kshow ¥y

```
secret 5 $1$X834$wvx6y794uAD8svzD
```

o- -

ê -

oeÿo- -

ouVÔ- -

2.35 session

¨ VSU ÕÙ'"ÕÕ* session NÕÕ

session { **master** | **device** *device-number* }

oÕ

master	*6Ó*
device *device-number*	*6Ø-*

oHFå- -

oxX%"o- *%"

oHÕ- 1

o6-o- -

oFåÙ- 1 yÞ† VSU È6RÑÙ

```
Ruijie# session master
```

2yÞ† VSU ÕÙ'"ÕÕksession NÕ- 1y

```
Ruijie# session device 1
```

oèo- -

ÕoUP'Ô- -

oeÿo- -

ottÕ(p]P66Ó<0Ù

Få LINE]yÄÄÄž

session-timeout *minutes* [**output**]

Hƒ LINE ïÄÄkKÄž

no session-timeout

op

minutes	*6ÄÄ*
output	*ÄÄÄÄÄÄ*

oHFå- HÄ 0 minkWnKÄž

oxX%”o- LINE Få%”

oHÄ- 14

o6-o- ÇÄÄR1 LINE]yÄÄkZÄÄ14Nk

wÄ LINE q~UÄž

oFåb- 1 yÄ6 line vty 0 kÄ 5 5ly

```
Ruijie(config-line)# session-timeout 5 output
```

oèo- -

oUP’b- -

oojö- -

ouVÄ- -

2.37 show boot config

ÞoÑÄÄÄlož

show boot config

op

@	T
-	-

oxX%”o- Ä”

ê 14

o6-o- -

oFåò- 1 yÞ¶ **show boot config xÞy**

```
Ruijie#show boot config
Boot config file: [flash:/ruijie.text]
```

È ª ½... ª χ

<	¢
flash:/ruijie.text	oÑ¶d

oÙP'ô- **-**

oÙVÞ- -

2.38 show debugging

Ÿ¶ÞÑ¶ž

show debugging

oÞ

@	T
-	-

o×X%"o- Ñ¶"

oÞÑ- 15

o6-o- -

oFåò- 1 yÞ¶ **show debugging xÞy**

```
Ruijie#show debugging

debug fw-group detect intf-state
```

oÙP'ô- **-**

oÙVÞ- -

2.39 show line

ôÊâbž

show line { **console** *line-num* | **vty** *line-num* **|** *line-num* }

oÞ®

p@	T
console	**ôOÊâbž**
vty	*ôÊâbž*
line-num	*ô* line è žž

oxX%”o-

Ôâ”

oHô-

14

o6-o-

-

oFâb- 1

yô console MFâbž

```
Ruijie# show line console 0
CON      Type     speed    Overruns
* 0      CON      9600     45927
Line          MMM ξ f ɔ l MMMM T ɔ ħ   MMM ɯ ʼ ʼ    MM ɤ ¯ Ḥ              Ú              ˘ ɾ ɹ l M<        \ ʼ
```

Location: ""	è location åž
Type: "vt100"	®Ž
Special Chars	Â¤ Escape ¤Disconnect y Activation ¤ž
Timeouts	never nPKÓž
History	7WxXÝZCÝÓž
Total input	RÑvÇOÏž
Total output	GÑOÏž
Data overflow	NvÇOÏž
stop rx interrupt	Ü RX ÇÏž

oÞP'Î-

-

oÞVÎ-

-

2.40 show reload

ÔÏÑoåž

show reload

oÞ

Ç@	T
-	-

oxX%"o-

Ñ"

oÞÓ-

1

o6-o-

oFåÎ- 1 yÇÔÏÑoå—

```
Ruijie# show reload
System reload state: Warm
```

È ÷ ½... ¤ χ

<	Ê
System reload state	ÑÑ

oÞP'Î-

-

oÞVÎ-

-

2.41 show running-config

ò¡ÕgFâlMFâbž

show running-config [**interface** *interface*]

o¡Ê

@	T
-	-

o»X%”o- Ô”

oÑ- 14

o6-o- -

oFåÛ- -

oÜP´Ô- -

oÜVÛ- -

2.42 show service

ò¡ÕÕž

show service

o¡Ê

@	T
-	-

o»X%”o- Ô”

oÑ- 1

o6-o- -

oFåÛ- 1 yò¡ÕÕž

```
Ruijie# show service
web-server   : disabled
web-server(https): disabled
```

```
snmp-agent    : enabled
ssh-server    : enabled
telnet-server : disabled
```

oUP'ô- -

ouVÛ- -

2.43 show sessions

ÊP]yÊE Telnet Client ?'ôž

show sessions

o®®	®@	T
	-	-

oxX%"o- *Ì%"

oÊÕ- 1

o6-o- ÊP]yÊE Telnet Client ?'ÊÎk,yNÙñ VTY ZoÊÊZ

oFåÛ- 1 yÊP]y Telnet Client kÙN'ôž

```
Ruijie#show sessions
Conn  Address
*1    127.0.0.1
*2    192.168.21.122
```

oUP'ô- -

ouVÛ- -

2.44 show startup-config

ÛÓ¥ NVRAMgÊÊÊÕÊaž

show startup-config

o®®	®@	T

-	-

oxX%”o- Ê”

oHõ- 14

o6-o- ¥ NVRAMgÊ¼ÕÊå startup-config ÕÊgFåž

îHÕstartup-config 6ÊÕ- Flash ÊÅconfig.text Fåž

oFåb- -

oUP’b- -

ouVÊ- -

2.45 show this

ôÊ%”ÙFåž

show this

ÊÊ		
	@	T
	-	-

oxX%”o- Ä%”

oHõ- 14

o6-o- ¨ range %”UYÊ%”Fåžy

1. * **line** *first-line last-line xX6ÊwÊ* LINE F%”z
2. * **vlan range xÊFÊ** VLANkwÊ vlan range F%”z
3. * **interface range xÊFÊ|MÊFÊ| o|Ì0ntÊPiÊ@1. cÊ%|Fåž 3.0.852 92.03 612 -792 reW n0.852 g236 0,ÊDV**

1 1 Tf 0 Tc T* <6FAC08 ( )Tj -0.</TT097C09BD50E80365T048607F209301 Tf -0002 Tc c 0.0

```
Ruijie (config-if-FastEthernet 0/1)#show this
Building configuration...
 !
 spanning-tree link-type point-to-point
 spanning-tree mst 0 port-priority 0
 !
end
Ruijie (config-if-FastEthernet 0/1)#
```

2yÞ interface range vlan 1-3 ¡F

```
Ruijie(config-if-range)#show this


Building configuration...
```

oxX%”o- LINE F%”

oH- 14

o6-o- UYG}êêêX **speed 1cêNv,ÿCG,ëž**

oFåo- 1: P1M,å– 57600 bpsy

```
Ruijie(config)# line console 0
Ruijie(config-line)# speed 57600
```

oèo- * **show line xê** LINE êå,ëž

oUP’ô- -

oojö- -

ouVo- **2.47 telnet** [**vrf** *vrf-name*] [*host* [*port*]] [**/source-interface** *interface-name*] [**/source** *A.B.C.D* | **ipv6** *X:X:X::X* | **interface** *interface-name*]

@	T
host Telnet Æ	IPV4 ò• IPV6 ê
port Telnet Æ	TCP ÉMZkó 23
/source	*6* Telnet ‰ IêM
ip *A.B.C.D* Telnet ‰ IPV4 ª	
ipv6 *X:X:X::X* *6* Telnet ‰	IPV6 ª
interface *interface-name*	*6* Telnet ‰

oêÿD -

oxX%”o- *nÞi@

oH@D 1

osbD -

ê

1yÿtelnet)Ô- IPV6 ª 2AAA:BBBB::CCCC

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

oèo- -

oÙP'ô- -

oeÿö- -

oÙVÕ- -

2.48 username

FÃYCU#IÔž

username *name* [**login mode** { **aux** | **console** | **ssh** | **telnet** }] [**online amount** *number*] [**permission** *oper-mode path*] [**privilege** *privilege-level*] [**reject remote-login**] [**web-auth**] [**pwd-modify**] [**nopassword** | **password** [**0** | **7**] *text-string* | **secret [0 | 5]** *text-string*]

ïÔž

no username *name*

oÕ

¢@	T
name	*ïd*
login mode	Ãž
aux	Ã auxož
console	Ã consoleož
ssh	Ã sshož
telnet	Ã telnetož
online amount *number*	FÃcÇož
permission *oper-mode path*	FÃ+6¢¢ *op-mode n* *path n* ÿž
privilege *privilege-level*	**FÃ H8** 0 ñ 15ož
reject remote-login	'Ãgi6ž
web-auth	**4ÃÇ** web ¢ž
pwd-modify	**Ã.** web ¢ %Ak¥ÇÄ **web-auth** **¢ž**
nopassword	ÃF%Aož
password [**0**	**7**] *text-string*	FÃ%Ak0 nP¢%Ak7 nP¢%Akÿ

	¶
secret [**0** | **5**] *text-string*	**F**ã¾%, ¥X¶@å%A1YU"%"ÿ%A% ¥ 0 nP¶%Ak 5 nP¶%%Ak¶%Aož

oHFå- -

o×X%”o- ¶FÅ%”

oHõ- 15

o6-o- ¥X9yÊ¶Ãõž

⚠ 7

⚠ 7

7

oFåb- 1 yÞFÅ%ÈyMXkwÇ 15 ý

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

2yÞFÅ web ÈyMXy

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

3yÞFå test ÈÕ

```
Ruijie(config)# username test permission rw /
```

4yÞFå test ”4 config.text ¶ÈÕ

```
Ruijie(config)# username test permission n /config.text
Ruijie(config)# username test permission rwx /
```

oèo- -

oUP’Îb- -

oÞjÖ- -

oVÕ- -

2.49 username export

ÎÕž

username export *filename*

o@	@	T
	filename	¶

oHFå- -

o×X%”o- Ø”

oHØ- 1

o6-o- ¥X9îÎ¶ž

oFåb- 1 yÞFåÎ

```
Ruijie# username export user.csv
```

5 ش Ä | -

oUP’Îb- -

oeÞÖ- -

ouVØ- -

2.50 username import

RÞÎ¶ž

username import *filename*

o@	@	T
	filename	¶

oHFå- -

o×X%”o- Ø”

oHØ- 1

o6-o- ¥X9RÐ-Î¶ž

oFåb- 1 yÞFåÎ

```
Ruijie# username import user.csv
```

5 ش Á | -

oЧP'ô- -

oəjö- -

oиVØ- -

2.51 write

1ëårunning-config hõyâž

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

oÞ®

@	T
memory	*1ß* NVRAMkĉ9 **copy running-config startup-configož**
terminal	*ëc9* show running-configož

oHFå- -

oxX%"o- Ø"

oHõ- 14

o6-o- ¥XJÃVxXkx9ƶdytÚkñÃ
ëe1wßåÛ
ÿbFõ6Ugkg **write** [**memory**]xXÃÚk
ëHC}1ÃaoFa /config.textkwÇÿg,q
ož

oFãb- 1 yYP8èëÕå

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

oèao- -

oЧP'ô- -

oəjö- -

oUV[illegible]- -

2.52 zcm

[illegible]

zcm enable

[illegible]

zcm disable

o[illegible]

[illegible]@	T
enable	[illegible]
disable	[illegible]

o[illegible]- [illegible]

o×X%”o- [illegible]”

o[illegible]- 14

o[illegible]-o- ¥XUYoy[illegible]

ACS

MGMT 2 DHCP Snooping Trust

oF[illegible]- 1 yYP8o[illegible]

```
Ruijie# zcm enable
%% Warning: After switching mode the device will automatically restart!
% Do you want to switch to zero configuration mode? [yes/no]:y
*Sep 29 12:36:20: %ZCM-5-MODE_SWITCH: The device is reloading due to zero or non-zero configuration mode switch.
```

o[illegible]o- -

oUP’[illegible]- -

3 LINE

3.1 absolute-timeout

[illegible]

absolute-timeout *minutes*

[illegible]

no absolute-timeout

[illegible]

[illegible]	T
minutes	[illegible]<0~60>[illegible]

[illegible]

[illegible] LINE [illegible]

[illegible] 14

[illegible]

/1[illegible]

```
Terminal will be login out after 20 second
```

[illegible] 1 [illegible] 2 [illegible]

```
Ruijie(config)# line console 0
Ruijie(config-line)#absolute-timeout 2
```

[illegible] -

[illegible] -

[illegible] -

[illegible] -

3.2 access-class

* ACL gIPv4 hOéž

access-class { *access-list-number* | *access-list-name* } { **in** | **out** }

Hƒ ACL gIPV4 hOéž

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

oÞ

p@	T
access-list-number	ACL ÍkJF8y IP õ ACL(1-99k1300-1999)zIP ý ACL(100-199k 2000-2699)ož
access-list-name	ACL dfož
in	ÞÍž
out	ÞÌž

oHFå- -

oxX%”o- LINE F%”

oHõ- 14

o6-o- -

oFåÞ- 1 yFåÍ8 0-5 VTY ÎgÍ 20 ACL pž

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)#access-class 20 in
```

2yFåÍ8 6-7 VTY 3Ng ACL df test ACL pž

```
Ruijie(config)# line vty 6 7
Ruijie(config-line)#access-class test out
```

oèo- -

oUP’Îo- -

oöjö- -

ouVÞ- -

3.3 accounting commands

- line èXtõž

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

HÿXtõž

no accounting commands *level*

op

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

H*f*

	ascii-value	[illegible] ASCII kH8<0~127> ož

oHFå- [illegible](CR kASCII › 0x0D)ož

oxX%”o- LINE F%”

oHõ- 14

o6-o- [illegible]#+(**autoselect**)k+[illegible]ož

oFat- 1 y[illegible]M+[illegible]. Ctrl+Yož

```
Ruijie(config)#line console 0
Ruijie(config-line)#activation-character 25
Ruijie(config-line)#end
Ruijie#exit

Press CTRL+y to get started

Ruijie>
```

oào- -

oUP’b- -

oəjö- -

ouVõ- -

3.6 authorization commands

[illegible]XIÓž

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

H,XIÓž

no authorization commands *level*

oj® [illegible]

@	T
level	}gIÓX8 0~15k[illegible]X}HÓ[illegible]ož
default	*[illegible]ndož*
list-name	*[illegible]ndož*

oHFå- ¼XIÓž

oxX%”o- LINE Fâ%”

oHõ- 14

o6-o- AAA ÈFå AAA xXIÓekÇgxXIÓž

oFåt- 1 y+ Vty 1 ÿ 15 ýXgIÓž

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authorization commands 15 default group tacacs+
Ruijie(config)# line vty 1
Ruijie(config-line)# authorization commands 15 default
```

oèo- -

oUP’Ô- -

oÞÿö- -

ouVõ- -

3.7 authorization exec

oè Exec IÓž

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

Hƒ Exec IÓž

no authorization exec

o@	@	T
	default	*ÖÇdož*
	list-name	*ÖÇdož*

oHFå- ¼ Exec IÓž

oxX%”o- LINE Fâ%”

oHõ- 14

o6-o-		AAA ès-å	AAA Exc lcekg	Exec lőz	
oFåo-	1	y+ Vty 1 è	Exec lőz		

oèo- -

oÜP´ô- -

3.11 disconnect-character

[illegible]

disconnect-character *ascii-value*

[illegible]

no disconnect-character

[illegible]

[illegible]	T		
ascii-value	[illegible]	ASCII A+[illegible]H8	0-255[illegible]

[illegible] **Ctrl+Dk-<©** 0x04 +[illegible]

[illegible] LINE [illegible]

[illegible] 14

[illegible] [illegible] ASCII A([illegible] ~ zkA~ Z YC0 ~ 9 [illegible]

3o*'[illegible]

[illegible] 1 [illegible] Vty0-5 [illegible] Ctrl+E(¿ ASCII › 0x05)[illegible]

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# disconnect-character 5
```

[illegible] -

[illegible] -

[illegible] -

[illegible] -

3.12 escape-character

[illegible]

escape-character *escape-value*

[illegible]

no escape-character

o[illegible]

[illegible]	T
escape-value	#ß. ASCII A+[illegible]H8 0-255ož

o[illegible]Få- [illegible] *escape-value* › 30 k<© **Ctrl+^**([illegible] **Ctrl+Shift+6**)ož

o×xX%”o- LINE F%”

o[illegible]- 14

o6-o- [illegible] **escape-character** *escape-value xX[illegible]. escape-value* [illegible]

[illegible] k<UY[illegible]oož

oFåb- 1 yå– Vty 0 [illegible]. 23(+[illegible]**Ctrl+w**))ož

```
Ruijie(config)# line vty 0
Ruijie(config-line)# escape-character 23
```

o[illegible]o- -

oUP’[illegible]- -

o[illegible]- -

o[illegible]V[illegible]- -

3.13 exec

[illegible] line [illegible]Xgµž

exec

’ò line [illegible]Xgµž

no exec

o[illegible]

[illegible]	T
-	-

o[illegible]Få- [illegible]Xgµž

oxX%”o- LINE F%”

oH- 14

o6-o- 3ª line ìXgkUYFå no exec FìXgk
QìXgpž

oFåt- 1 y’ò 1 ìXgpž

```
Ruijie(config)# line vty 1
Ruijie(config-line)# no exec
Ruijie# show users
Line             User         Host(s)              Idle       Location
---------------- ------------ -------------------- ---------- ------------------
*  0 con 0       ---          idle                 00:00:00   ---
   1 vty 0       ---          idle                 00:01:03   20.1.1.2
   3 vty 2       ---          idle                 00:00:13   20.1.1.2
```

oòo- -

oUP’ò- -

oojò- -

ouVò- -

3.14 exec-character-bits

ìXgò EXEC) Ú:ož
exec-character-bits { **7 | 8** }

ìXgò
no exec-character-bits

o®

@	T
7	# 7 yìXgò
8	# 8 yìXgò

oHFå- ¶ 8 yìXgò

oxX%”o- LINE F%”

oH-	14	
o6-o-	ÿxXgjWPNoHÿGÿa–	**exec-character-bits 8**

flowcontrol) k - f $ F v O k . F ^ ûgož 9 ÷ v O k ¢ Ò Ä o ¤ ®
Ctrl+S(XOFF k ASCII › 19) y Ctrl+Q(XON k ASCII › 17) k ¢ U ˆ x X **stop-character** o•
start-character ¢ ¤ ž

oFå¤- 1 yÒ ÙM+5 ¤ å¤ O%”¥Oož

```
Ruijie(config)#line console 0
Ruijie(config-line)#flowcontrol software
```

oèo- -

oÙP’ò- -

oæjö- -

oÙVÒ- -

3.16 history

o line ¢ WxX ¢ 256 Få line ¢ WxX ¢ ¤ ž
history [**size** *size*]

Hƒ line ¢ WxX ¢ ¤ ž
no history

Ê line ¢ WxX ¢ ¤ ƒ
no history size

o¤ ®

¤ @	T
size *size*	¤ ¤ H 8 y 0~256ož

oHFå- H 5 7 WxX ¢ 27 WxX ¢ ¤ ƒ 10

oxX%”o- LINE F% ”

oH 8- 14

o6-o- -

oFå¤- 1 yFå 0-5 line ¢ W ¢ ¤ ƒ 20ož

```
Ruijie(config)# line vty 0 5
```

```
Ruijie(config-line)# history size 20
```

2y¼ 0-5 line ¢WÞž

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# no history
```

oèo- -

oÙP'ô- -

oæjö- -

oÙVÞ- -

3.17 ipv6 access-class

* ACL gIPv6 hOÞž

ipv6 access-class *access-list-name* { **in | out** }

H¾ ACL gIPv6 hOÞž

oЧP’b- -

oэjö- -

oчVt- -

3.18 length

ееkolЙgf ož

length *screen-length*

ееž

no length

opЕ

@	T
screen-ength	gkH8 0-512ož

oHFå- HЙ%lЙgf 24 gož

oxX%”o- LINE Få%”

oHЙ- 14

o6-o- -

oFåt- 1 yееkolЙgf 10 gož

```
Ruijie(config-line)# length 10
```

oèo- -

oЧP’b- -

oэjö- -

oчVt- -

3.19 line

ß LINE %”ož

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

	@	T
	console	**O Mož**
	vty	**Z 9** Telnet ê SSH Nož
	first-line	**}µ** first-line Ózož
	last-line	**}µ** last-line Ózož

-

BF%”

14

- ó

D

oÞ®

(@	T
line-number	VTY NÿÎk8y0~35 ož

oHFå- -

o×X%”o- ¶ÞFÅ%”

oHÞ- 14

o6-o- -

oFÅÞ- 1 y1U VTY NÿÍñ 20kU VTY ÍØ8 0-19ož

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

2y1U VTY NÿÍñ 10kU VTY ÍØ8 0-9ož

```
Ruijie(config)# no line vty 10
```

oèo- -

oÜP’Îb- -

oÞÿö- -

oÜVÞ- -

3.21 location

ÊÈÈ ož

location *location*

ÈÈ ož

no location

oÞ®

(@	T
location	ÈÈ ož

oHFå- -

o×X%”o- LINE F%”

oH- 14

o6-o- -

oFa- 1 yéga Swtich’s Line Vty 0ož

```
Ruijie(config)# line vty 0
Ruijie(config-line)# location Swtich’s Line Vty 0
```

oЧP’ĉ- -

oэjö- -

oчVĝ- -

3.23 parity

ŝĝož

parity { **even | none | odd** }

ĵĝž

no parity

oĝ	@	T
	even	**ĝž**

od	**Zĝ**	

3.24 privilege level

Få line ðž

privilege level *level*

Ê line ðž

no privilege level

op	@	T

oxX%”o-	”
oH-	14
o6-o-	-
oFa-	P line WxXož

```
Ruijie# show history
exec:
sh privilege
sh run
show user
sh user all
show history
```

oo-	-
oUP’b-	-
oj-	-
oV-	-

3.26 show line

ožb

oFåb- 1 yô console MFåbž

```
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
```

È ‹ ½... ¨ χ

<	¢
CON	¥CON nPOÙoØ nPÐkÍÚ ZnP ÐÄž
Type	¥, CONoAUX oTTY oVTY ôž
speed	5,äž
Overruns	Ñv overrun jÞÏbž
Line 0	ÐÄož
Location: ""	è location åž
Type: "vt100"	ÕÄž
Special Chars	Ê„. Escape oÐDisconnect y.. Activation ož
Timeouts	¥never nPKÍž
History	7WxX¥ZCÄÞbž
Total input	RÑvÞGOÏbž
Total output	GÞOÏbž
Data overflow	NvÞGOÏbž
stop rx interrupt	Ü RX ÞÏbž

oÙP'Ô- -

oÙVÞ- -

3.27 show privilege

₱Ů line ₱ž

show privilege

o₱₱

@	T
-	-

o×X%”o-

Ů”

oH₱-

1

o6-o-

-

oFåů-

₱Ů line ₱ž

```
Ruijie# show privilege
Currf    r]φ   ∃   š                                    Æ מ˝YṀ
```

```
*  2 vty 1       ---          idle                00:00:00   20.1.1.2
```

2yÊ

```
Ruijie(config)# show users all
Line             User         Host(s)              Idle       Location
---------------- ------------ -------------------- ---------- ------------------
   0 con 0       ---          idle                 00:00:49   ---
   1 vty 0       ---          idle                 00:00:32   20.1.1.2
*  2 vty 1       ---          idle                 00:00:00   20.1.1.2
   3 vty 2       ---                               00:00:00   ---
   4 vty 3       ---                               00:00:00   ---
   5 vty 4       ---                               00:00:00   ---
   6 vty 5       ---                               00:00:00   ---
```

oUP’b- -

ouV- -

3.29 speed

speed *baudrate*

no speed

o

@	T
baudrate	8 9600-115200ož

oF- 9600ož

oxX%”o- LINE F%”

o- 14

o- -

oF- 1 y 115200ož

```
Ruijie(config-line)# speed 115200
```

oè¤o- -

oÙP'Î- -

oêjÖ- -

oÛV¶- -

3.30 start-character

ê¤è¢Ooœž

start-character *ascii-value*

ïÞ¤ž

no start-character

oÞ¤

@	T
ascii-value	5è¢O+… ASCII kH8<0~255> ož

oÞFå- 5è¢Oo… Ctrl+Q(ASCII › 17)ož

o×X%"o- LINE F%"

oÞ¤- 14

o6-o- 5è¢O%"¥Oœ¥Ooœ5¢Gnÿž

oFåÞ- 1 yOÙM+5è¢Oo… Ctrl+Y(ASCII › 25)ož

```
Ruijie(config)#line console 0
Ruijie(config-line)#start-character 25
```

oè¤o- -

oÙP'Î- -

oêjÖ- -

oÛV¶- -

3.31 stopbits

[illegible]

stopbits { **1 | 2** }

[illegible]

no stopbits

[illegible]

[illegible]	T
1	1 2yož
2	2 2yož

[illegible] 2

[illegible] LINE [illegible]

[illegible] 14

[illegible] Modem [illegible]2yož

[illegible] 1 [illegible] 1ož

```
Ruijie(config)#line console 0
Ruijie(config-line)#stopbits 1
```

[illegible] -

[illegible] -

[illegible] -

[illegible] -

3.32 stop-character

[illegible]

stop-character *ascii-value*

[illegible]

no stop-character

	@	T
	ascii-value	5 ... ASCII 8<0~255> ož

5 Ctrl+S(ASCII › 19)ož

LINE

14

5 5 ož

1 y M+5 Ctrl+Z(ASCII › 26)ož

```
Ruijie(config)#line console 0
Ruijie(config-line)#stop-character 26
```

-

-

-

-

3.33 terminal databits

ož

terminal databits *bit*

ož

terminal no databits

	@	T
	bit	**?** **8**<5~8>ož

8ož

oH- 14

o6-o- -

oFa- 1 y*'%”Gy 7ož

```
Ruijie#terminal databits 7
```

oao- -

oUP’o- -

oojo- -

ouV- -

3.34 terminal escape-character

terminal escape-character *escape-value*

terminal no escape-character

o

@	T		
escape-value	#ß.	ASCII A+H8	0-255ož - 6 re0 Tc 2.553

oЧP’ĵ- -

oэjö- -

oчVØ- -

3.35 terminal exec-character-bits

ÅXgØEXEC) ÁÙ¾ož

terminal exec-character-bits { **7 | 8** }

ïØž

terminal no exec-character-bits

o®

@	T
7	# 7 yèXgØž
8	¶# 8 yèXgØž

oÅ-å- ïØ+¶ 8 yèXgØž

o×X%”o- Ø”

oÅ- 14

o6-o- òç} ¨x X g ÿµN êñªP N o•£×êñ¿ ¢Ž .k ·ÀG ‘–å **terminal exec-character-bits** 8ož

oFåb- 1 yÅXgØ¾ 7bitož

```
Ruijie#terminal exec-character-bits 7
```

oèo- -

oЧP’ĵ- -

oэjö- -

oчVØ- -

3.36 terminal flowcontrol

[illegible]O%”ož

terminal flowcontrol { **hardware | none | software** }

[illegible]ž

terminal no flowcontrol { hardware | none | software }

o[illegible]

[illegible]@	T
hardware	**vO[illegible]vOož**
none	*v[illegible]ož*
software	*v[illegible]ož*

o[illegible]å- 5[illegible]O%”[illegible]Oož

o[illegible]X%”o- [illegible]”

o[illegible]- 14

o[illegible]-o- -

oF[illegible]- 1 y[illegible]O%”[illegible]Oož

```
Ruijie#terminal flowcontrol software
```

o[illegible]o- -

o[illegible]P’[illegible]- -

o[illegible]- -

o[illegible]V[illegible]- -

3.37 terminal history

[illegible] line [illegible]WxX[illegible]å line [illegible]WxX[illegible]ož

terminal history [**size** *size*

terminal no history

line

terminal no history size

	@	T
size *size*		0~256

10

14

-

1 y line 20

```
Ruijie# terminal history size 20
```

2y line

```
Ruijie# terminal no history
```

-

-

-

-

3.38 terminal length

terminal length *screen-length*

terminal no length

	@	T
screen-ength		0-512

oHFå- HÕ%lÕf 24 gož

oxX%”o- Ô”

oHÕ- 14

o6-o- -

oFåb- 1 yÕ%lÕf 10 gož

```
Ruijie# terminal length 10
```

oèo- -

oUP’Îb- -

oeÏo- -

ouVÕ- -

3.39 terminal location

gož

terminal location *location*

gož

terminal no location

oÕ

@	T
location	gož

oHFå- -

oxX%”o- Ô”

oHÕ- 14

o6-o- -

oFåb- 1 yÕ

```
Ruijie# terminal location Swtich's Line Vty 0
```

oèo- -

oÙP'Ô- -

oêjÖ- -

oÙVÔ- -

3.40 terminal parity

terminal parity { **even | none | odd** }

terminal no parity

@	T
even	
none	
odd	

oÙFå- 5

oxX%"o- "

oÙÕ- 14

o6-o- ?{MoÒVM)*'ko}Lå%

oFåÙ- 1 y5

```
Ruijie#terminal parity even
```

oèo- -

oÙP'Ô- -

oêjÖ- -

ouV0- -

3.41 terminal speed

terminal speed *baudrate*

terminal no speed

baudrate	T	9600-115200ož

9600ož

14

-

1 y1ož

terminal no start-character

	ascii-value	5è0… ASCII kH8<0~255> ož

	5è0… Ctrl+Q(ASCII › 17)ož
	14
	-
1	yè0… Ctrl+Y(ASCII › 25)ož

```
Ruijie#terminal start-character 25
```

	-
	-
	-
	-

3.43 terminal stopbits

1 2yož

terminal stopbits { **1 | 2** }

ož

terminal no stopbits

	1	1 2yož
	2	2 2yož

	5è yå– 2

oHõ- 14

o6-o- -

oFåb- 1 yõy 1ož

```
Ruijie#terminal stopbits 1
```

oèo- -

oUP'Îb- -

oejö- -

ouVõ- -

3.44 terminal stop-character

ÄOÄož

terminal stop-character *ascii-value*

ïõž

terminal no stop-character

opõ

@	T		
ascii-value	5èÄ…	ASCII kH8<0~255>	ož

oHFå- 5èOÄ… Ctrl+S(ASCII › 19)ož

oxX%"o- Ïõ"

oHõ- 14

o6-o- -

oFåb- 1 yõOÄ… Ctrl+Z(ASCII › 26)ož

```
Ruijie#terminal stop-character 26
```

oèo- -

oUP'Îb- -

oeÿò- -

ouVÔ- -

3.45 terminal terminal-type

terminal terminal-type *terminal-type-string*

terminal no terminal-type

	@	T
	terminal-type-string	kò vt100kansi ôž

oFå- vt100ož

oxX%”o- ”

oÔ- 14

o6-o- -

oFåÔ- 1 y ansiož

```
Ruijie#terminal terminal-type ansi
```

oòo- -

oUP’ô- -

oeÿò- -

ouVÔ- -

3.46 terminal width

F%g%ž

terminal width *screen-width*

[illegible]bž

terminal no width

o[illegible]

[illegible]@	T
screen-width	gkH8 0-256ož

oHFå- HÕ%g[illegible] 79 ož

o×X%”o- [illegible]”

oH[illegible]- 14

o6-o- -

oFåb- 1 y[illegible]g[illegible] 10 ož

```
Ruijie# terminal width 10
```

oèo- -

oUP’b- -

oöjö- -

ouV[illegible]- -

3.47 terminal-type

[illegible]bž

terminal-type *terminal-type-string*

[illegible]ž

no terminal-type

o[illegible]

[illegible]@	T
terminal-type-string	[illegible]kò vt100kansi ôž

oHFå- [illegible] vt100ož

oxX%”o- LINE F%”

oH- 14

o6-o- ïUYxX **terminal-type vt100** Telnet Nˆ
kUYC}jkX Telnet Nž<k…
Telnet 0x18)kÂUY@ RFC 854ož

oFd- 1 yeVM+5 ansiož

```
Ruijie(config)#line console 0
Ruijie(config-line)#
```

oFåb- Få 0-5 line Vty ß 300 aož

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)#timeout login response 300
```

oèo- -

oUP'ô- -

oejö- -

ouVß- -

3.49 transport input

6 line ùY*'#bž

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

Ê line ùY*'#bž

no transport input { **all** | **ssh** | **telnet** | **none** }

oß@

```
@
```

3.51 width

Fâ%gÃ%ž

width *screen-width*

Ã%bž

no width

o@	@	T
screen-width	gkH8 0-256ož

oF-å- HÕ%gÃ 79 ož

o×X%”o- LINE F%”

oHõ- 14

o6-o- -

oFåb- 1 yâ%gÃ 10 ož

```
Ruijie(config-line)# width 10
```

oèo- -

oUP’ô- -

oöjö- -

ouVõ- -

4 File System

4.1 cd

[illegible]

cd [*filesystem*:] [*directory*]

o[illegible]

[illegible]	T
filesystem:	[illegible] urlkeÿ½ÈkUÜ[illegible]**flash:** , **, tmp:ož**
directory	[illegible] Ã˘ ı¨ ß ˥ ˡ Ń ž Ể ı ˚¨ ß ˥ Ń ž Ể

o[illegible]F-å- [illegible] **flash:kę[illegible]ZÖkéP[illegible]ož**

o×X%”o- [illegible]”

o[illegible]- 15

o6-o- -

oFå[illegible]- **-**

oè[illegible]o- * **cd y pwd x[illegible]Jº[illegible]Wèž**

oÜP’ô- -

oÜ[illegible]ö- -

oÜ[illegible]- -

4.2 copy

[illegible]

copy *src-url dst-url*

o[illegible]

[illegible]	T
src-url	/[illegible]4 URLo[illegible]UY[illegible]ož

dst-url	/¾ URLoÿÛUYÎbž

oHFå- -

oxX%”o- Ô”

oHõ- 15

o6-o- ⚠ URL

url UYÒy

@	T
running-config	0EFå
startup-config	9Få
flash:	Î flash È
tftp:	TFTP ÈE URLkSÈy **tftp**:[[//location]/directory]**/filename**

oFåÛ- 1y/¾ 192.168.64.2 Ê- netconfig ñ flash M& netconfigkÎ netconfig]ÿE

```
Ruijie#copy tftp://192.168.64.2/netconfig flash:/netconfig
Do you want to overwrite [/data/netconfig]? [Y/N]:y
Press Ctrl+C to quit
!
Copy success.
```

oèo- * **copy y dir xÊÿP↑Îbž**

oÙP’Îo- -

oÿÏo- 6/¾)E/ÿž

oÙVÔ- -

4.3 delete

Î%ÔÛž

delete [*filesystem*:] *file-url*

oÔ@ | @ | T |

filesystem:	® urlkep%ožkUÜ®**flash:** , **tmp:ož**
file-url	*k®kk®* ®éPÍ-®k®éP,+®ož

oHFå- ® **flash**:ož

o×X%”o- Ø”

oH®- 15

o6-o- -

oFåb- 1 yl flash M& fstaby

```
Ruijie#pwd
flash:/
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  fstab
2   -rw-       4096   Jan 03 2012 12:32:09  rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,192 bytes total (13,192,656 bytes free)
Ruijie#delete flash:/fstab
Do you want to delete [flash:/fstab]? [Y/N]:y
Delete success.
Ruijie#dir
Directory of flash:/
1   -rw-       4096   Jan 03 2012 12:32:09  rc.d
2   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
2 files, 0 directories
10,489,856 bytes total (13,192,992 bytes free)
```

oè®o- * **delete x®k*** **dir x®^ôž**

oUP´ô- -

oèjö- -

oUV®- -

4.4 dir

P%ğož

oèo- -

oЧP’ô- -

oəjö- -

oиVô- -

4.5 erase

s”Z

erase *filesystem*:

o

@	T
filesystem:	**ü**fke

oFå-

o×X%”o- ”

o 15

o6-o- -

oFåo- **-**

oèo- **erase dir x**

oЧP’ô- -

oəjö- -

oиVô- -

4.6 file

%ôž

file [*filesystem*:] *file-url*

o@ß

@	T
filesystem:	ë urlke½ozÈkUÜ **flash:** , **tmp:ož**
file-url	*kØlkØ* ßáPÍ+ßkáP,+ò ž

oHFå-

ë flash:ož

oxX%”o-

Ô”

oHß-

15

o6-o-

-

oFåb-

1yP gcc UgÎy

```
Ruijie#file flash:/gcc
/usr/bin/gcc-4.6: ELF 32-bit LSB executable, Intel 80386, version 1 (SYSV), dynamically linked (uses
shared libs), for GNU/Linux 2.6.15, stripped
```

oòo-

-

oUP’Îb-

-

oojö-

-

ouVß-

-

4.7 file prompt

6UPõž

file prompt [**noisy** | **quiet**]

o@ß

@	T
noisy	**ÑqgG•**
quiet	**ßÞ**

oHFå-

noisy

oxX%”o-

Ô”

oHõ- 15

o6-o- -

oFåb- 1yWtUPõ noisy %”y

```
Ruijie#file prompt noisy
```

oèo- -

oUP’ô- -

oojö- -

ouVõ- -

4.8 mkdir

%ÿ6ž

mkdir [*filesystem*:] *directory*

opõ

@	T
filesystem:	urlkeÿ%ŽkUÿ**flash** **, tmp:ož**
directory	ÃÕ ι ů ℕ ℵ Ń ز Ê ι ε ů ℕ Ń ز Ê

oHFå- **flash:kÿZÿkéP¥ÿž**

o×X%”o- Ôb”

oHõ- 15

o6-o- -

oFåb- 1 y%ïd newdir)£

```
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  fstab
2   -rw-       4096   Jan 03 2012 12:32:09  rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,132 bytes total (13,192,656 bytes free)
```

```
Ruijie#mkdir newdir
Created dir flash:/newdir
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  fstab
2   -rw-       4096   Jan 03 2012 12:32:09  rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
4   drw-       4096   Jan 03 2012 18:13:37  newdir
3 files, 1 directories
10,494,228 bytes total (13,188,560 bytes free)
```

oàoo- -

oUP'ĵb- -

oəjö- -

ouVØ- -

4.9 more

Þ%Ä®ož

more [**/ascii** | **/binary**] [*filesystem*:] *file-url*

oÞ®

®@	T
/ascii	Y ASCII "ÞÄ
/binary	Y 16 b ÎÞÄ
filesystem:	® urlkeÞ%ŽkUÞ**flash, tmp:** **ož**
file-url	*ekØb* Ã˘ ι ˵ ß ٧ ٨ Ḿ ز Ê ι ε ˵ ß ٧ Ḿ ز Ê

oHFå- ÞY4ÄÞ

o×X%"o- Ø"

oHÖ- 15

o6-o- -

oFåb- 1 yÞ flash MÞÞ netconfig Ãy

```
Ruijie#more flash:/netconfig
```

```
#
# The network configuration file. This file is currently only used in
# conjunction with the TI-RPC code in the libtirpc library.
#
# Entries consist of:
#
#       <network_id> <semantics> <flags> <protofamily> <protoname> \
#               <device> <nametoaddr_libs>
#
# The <device> and <nametoaddr_libs> fields are always empty in this
# implementation.
#
udp        tpi_clts      v     inet     udp     -       -
tcp        tpi_cots_ord  v     inet     tcp     -       -
udp6       tpi_clts      v     inet6    udp     -       -
tcp6       tpi_cots_ord  v     inet6    tcp     -       -
rawip      tpi_raw       -     inet      -      -       -
local      tpi_cots_ord  -     loopback  -      -       -
```

oèo- -

oUP'Î- -

oÖÏo- -

oVÔ- -

4.10 pwd

PWÝêž

pwd

oÊ

@	T
-	-

oFå- -

oXX%"o- Ô"

oÕ- 14

o6-o- -

oFåb- -

oèo- -

oUP'ô- -

oojö- -

ouV0- -

4.11 rename

g%ôž

rename *src-url dst-url*

o@

@	T
src-url	gÿd
dst-url	¼ÿd

oHFå- -

o×X%"o- Ô"

oHõ- 15

o6-o- -

oFåb- 1 y1 flash MÿÈ fstab fMxd new-fstaby

```
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  fstab
2   -rw-       4096   Jan 03 2012 12:32:09  rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
```

```
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  new-fstab
2   -rw-       4096   Jan 03 2012 12:32:09  rc.d
3   -rw-   10485760   Jan 03 2012 18:13:37  rpmdb
3 files, 0 directories
10,490,192 bytes total (13,192,656 bytes free)
```

oèo- -

oUP'ô- -

oejö- -

ouV0- -

4.12 rmdir

ï%ä)6ž

rmdir [*filesystem***:**] *directory*

op@

@	T
filesystem:	urlkep½žkUÜ**flash:** , **tmp:ož**
directory	

oFå- **flash:ož**

o×X%"o- "

oH- 15

o6-o- -

oFåb- 1 y**rmdir**

ou¥V0- -

4.15 show mount

PÏ6ÛÎ žP

show mount

o®p®	p@	T
	-	-

o×X%”o- ¥%”oÊ”o¶B%”o¥NM%”

o¥Ê- 1

52 g277.26 572.64 278.16 15.6 refBT0.199 g/C2_0 T0.( )2D(-)Tj0.371 g/TT2 1 Tf0.0006 Tc 13.98 0 0 13.98 56.Tc T*93 Td(52 g277.26 572

oUP'ô- -

ouV0- -

4.16 tftp-client source

TFTP Client UY€ç IP ÑMRÑM IP 6 IP ÑE IP ğ*'ož

tftp-client source {**ip** *ip-address* | **ipv6** *ipv6-address* | *interface*}

H‡€ IP ğž

no tftp-client source {**ip** *ip-address* | **ipv6** *ipv6-address* | *interface*}

ÊFå ož

default tftp-client source {**ip** *ip-address* | **ipv6** *ipv6-address* | *interface*}

oÞ

@	T
ip-address	*6* IPv4 ª
Ipv6-address	*6* IPv6 ª
interface	*6M*

oHFå- HÕÊâ ÑMKçg#+ož

o×X%"o- ÞFå%"

oHÕ- 14

o6-o- -

oFåb- 1 yFå TFTP Client €ç IP 192.168.23.236 ªož

```
Ruijie(config)# tftp-client source ip 192.168.23.236
```

2yFå TFTP Client €ç IP 2003:0:0:0::2 ªož

7yTFTP Client Fåž

```
Ruijie(config)# default tftp-client source ip 192.168.23.236
```

oào- 1 y… show run xXkUYô tftp-client source ip192.168.23.236 Fåž
2y… show run xXkUYô tftp-client source ipv6 2003:0:0:0::2 Fåž
3y… show run xXkUYô tftp-client source gigabitEthernet 0/0 Fåž

oUP'ô- 1 yõå ip ÊMÊkUPjžõEåkBUPož
2y%FåkBUPož

oojö- -

ouVô- -

4.17 tree

%ož
tree [*filesystem*:] [*directory*]

oõ

@	T
filesystem:	urlkeõkÊkUõ**flash, tmp:** **ož**
directory	**dkõ**/ ß Ã˘ ı ˛ ß ˇ ˙ Ḿ ˘ Ê ı ˚ ß ˇ Ḿ ˘ Ê

oFå- **flash:ož**

oxX%"o- %"oô"

oFô- 1

o6-o- -

oFåô- 1 yP flash:/echo

```
Ruijie#tree flash:/echo
+-- client_module
+-- client_userspace
+-- echo_cli.c
+-- echo_client.c
+-- echo_client.h
+-- echo_client.o
```

```
+-- echo_cli.o
+-- echo_flag.h
+-- echo.h
+-- echo.ko
+-- echo_server.h
+-- exec_set_echo.h
+-- exec_show_echo.h
+-- Makefile
+-- module
¦   +-- echo.ko
¦   +-- echo.mod.c
¦   +-- echo.mod.o
¦   +-- echo_module.c
¦   +-- echo_module.o
¦   +-- echo.o
¦   +-- echo_server.c
¦   +-- echo_server.o
¦   +-- echo_sysfs.c
¦   +-- echo_sysfs.h
¦   +-- echo_sysfs.o
¦   +-- Makefile
¦   +-- modules.order
¦   +-- Module.symvers
¦   +-- msg_fd.c
¦   +-- msg_fd.o
+-- readme
+-- server_module
+-- server_userspace
+-- sys_rgos.ko
+-- user_space
    +-- echo_server.c
    +-- echo_server.o
    +-- Makefile
    +-- msg_fd.c
    +-- msg_fd.o 10,490,132 bytes total (13,192,656 bytes free)
```

oèo- -

oÜP'ô- -

oèjö- -

oHV0- -

4.18 verify

bPod md5 'Î

verify [**/md5** *md5-value*] *filesystem***:** [*file-url*]

op@

oнV0- -

5 SYS

5.1 calendar set

calendar set { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]

	T	
hour [:*minute* [:*second*]]	kak.	
month		1~12ož
day		1~31k3
year		1970~2069

```
Ruijie# calendar set 18 3 2
18:43:05 UTC Fri, Mar 2, 2012
```

hour

18 “3 2”

oèo- -

oUP’ô- -

oəjö- -

ouVô- -

5.2 clock read-calendar

yFÊ5ž

clock read-calendar

ojê

@	T
-	-

oHFå- -

oxX%”o- Ô”

oHõ- -

o6-o- *¥XkkÖ

oFåÛ- 1 yFÊ5ž

```
Ruijie# clock read-calendar
Set the system clock from the hardware time.
```

oèo- -

oUP’ô- -

oəjö- -

oHVÕ- -

5.3 clock set

clock set { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]

hour [:*minute* [:*second*]]	akQkMÕ4k5Ukak. B	
month	*Ak*	1~12ož
day		1~31k3 gePož
year	*akB*	1970~2069ož

oHFÕ- -

oxX%”o- ”

oHÕ- -

o6-o- 1. *monthkE™ daykv year*

18:42:48 CST Fri, Mar 2, 2012

hour

18 “3 2”

hours-offset	*A* 0~12o 00:00o
minutes-offset	*A* 0~59o *hours-offset* 0k *minutes-offset* 0

o- -

o%X%”o- F%”

o- -

o- -

oF 1 y{%k f ABCk UTC 8:15k/ GMT+08:15o
R 2 5 1k A 01:20o A
UTC 09:35k A UTC 08:15o

```
Ruijie(config)# clock timezone ABC 8 15
Set time zone name: ABC (GMT+08:15)
Ruijie(config)#show clock
16:39:16 ABC Wed, Feb 29, 2012
Ruijie(config)#show calendar
08:24:35 GMT Wed, Feb 29, 2012

Ruijie(config)# clock summer-time TZA start Feb 1 sat 2:00 end May 3 Monday 18:30 ahead 1 20
*May 10 03:45:58: %SYS-5-CLOCKUPDATE: Set summer-time: TZA from February the 1st Saturday at 2:00
TO May the 3rd Monday at 18:30, ahead 1 hour 20 minute
Set summer-time: TZA from February the 1st Saturday at 2:00 TO May the 3rd Monday at 18:30, ahead
1 hour 20 minute

Ruijie# show clock
18:00:08 TZA Wed, Feb 29, 2012

# ABC
Ruijie#clo set 18 1 1
*Jan  1 18:00:09: %SYS-5-CLOCKUPDATE: Set system clock: 18:00:09 ABC Sun, Jan  1, 2012
Set system clock: 18:00:09 ABC Sun, Jan  1, 2012
Ruijie#show clock
18:00:12 ABC Sun, Jan  1, 2012
```

2y 1 4U. ahead C ahead e
R 4 2:00 10 2:00k 1 4

```
Ruijie(config)#clo summer-time PDT start April 1 sunday 2:00 end October last Sunday 2:00
*May 10 03:15:05: %SYS-5-CLOCKUPDATE: Set summer-time: PDT from April the 1st Sunday at 2:00 TO October
the last Sunday at 2:00, ahead 1 hour
Set summer-time: PDT from April the 1st Sunday at 2:00 TO October the last Sunday at 2:00, ahead 1
hour
```

3y{XŏŽŽ

```
Ruijie(config)#no clock summer-time
*Jan  1 18:01:09: %SYS-5-CLOCKUPDATE: Set no summer time.
Set no summer time.
```

oèo- -

oUP'ĉb- -

oəjö- -

ouVØ- -

5.5 clock timezone

åž

clock timezone [*name hours-offset* [*minutes-offset*]]

{åž

no clock timezone

oØ

@	T
name	ŏfk[A~Z][a~z] kÝÊŏx† 3~31ož
hours-offset	*ŏŽP* UTC ½ *hours-offset/ ŏl* [-12, 12]kńPAFŏ3ńPAFŏŽ UTC *hours-offset* " - "
minutes-offset	*ŏl* 0~59ož

oHFå- -

oxX%"o- F%"

oH- -

o6-o- *¥XkkyGõXõ¼Ÿ¾ož

oFåb- 1 yõ¾5Fõž

```
Ruijie# clock update-calendar
Set the hardware time from the system clock.
```

2yõ¼ãÃ GMT+5:10kXõ/FÃõ 5:10ož

```
Ruijie# show clock
09:30:21 TSZ Wed, Feb 29, 2012

Ruijie# clock update-calendar
Set the hardware time from the system clock.

Ruijie#show calendar
04:20:25 UTC Wed, Feb 29, 2012
```

8.260 Td[2

*Pyêõ CPU âkwoDož

cpu high-watermark set [[**up** *up-value*] [**down** *down-value*]]

¼ CPU ÊDož

no cpu high-watermark set

ÊFåž

default cpu high-watermark set

opê

ê@	T	
up *up-value*	å– CPU âkH8	1~99ož
down *down-value*	å– CPU âkH8	1~99ož

oHFå- CPU Jê¿ 85%kJ¿ 75%ož

oxX%”o- F%”

oHõ- -

o6-o- *å– CPU âkwoDoÿñ CPU ê8k1k

øUP’bž

oFåõ- 1 yå– CPU Jk3Dõoož

```
Ruijie(config)# default cpu high-watermark set
Reset default cpu watermark monitor
Set system cpu high-watermark up 85%, down 75%
```

2y¼ CPU JÊož

```
Ruijie(config)# no cpu high-watermark set
Close cpu watermark monitor
```

3yoDkJ¼Fåž

```
Ruijie(config)# cpu high-watermark set
Open cpu watermark monitor
Set system cpu high-watermark up 85%, down 75%
```

4yoDkwå¿ 90%oJ¿ 70%ož

```
Ruijie(config)#cpu high-watermark set up 90 down 70
```

```
Open cpu watermark monitor
Set system cpu high-watermark up 90%, down 70%
```

%'H ı ح ã˜ CPU ã¿ 90%oÿ¿ 70%ož

oèo- -

oÙP'ĵ- ò CPU ãæ©3© 85%~91%k¢ CPU ãækkeò
Ş

```
*Jan 19 16:23:01: %RG_SYSMON-4-CPU_WATERMARK_HIGH: warning! system cpu usage above high
watermark(91%),current cpu usage 100%
```

Ę CPU ä9ãækkeÙ

```
*Jan 20 07:02:52:  %RG_SYSMON-5- CPU_WATERMARK:withdraw warning! system cpu usage below high
watermark(85%), current cpu usage 36%
```

oòjö- -

oıVø- -

5.8 memory history clear

ŽÆWÍož

memory history clear [**one-forth | half | all**]

oÞ

@	T
one-forth	ÞÞž
half	ÞÞž
all	ÞÞž

oÞFå- -

oxX%"o- ß%"

oÞ- -

o6-o- -

oFåÙ- 1yŽ%ÆWÍož

```
Ruijie# show memory history
```

```
Time Thu Jan  1 00:24:45 1970
Used(k) 148516
Maxinum memory users for this period
Process Name    Holding
tcpip.elf       270028
cli-memory      60600
rg_syslogd      36640

Time Thu Jan  1 00:24:41 1970
Used(k) 148492
Maxinum memory users for this period
Process Name    Holding
tcpip.elf       270028
cli-memory      52408
rg_syslogd      36640

Time Thu Jan  1 00:24:41 1970
Used(k) 148444
Maxinum memory users for this period
Process Name    Holding
tcpip.elf       270028
cli-memory      44088
rg_syslogd      36640

Ruijie(config)#memory history clear half
2 out of 5 records in the history table to be cleared...
Clear done !
```

oèo- -

oÙP'ô- -

oèjö- -

oÙVö- -

5.9 memory low-watermark set

Fäkwo Dož

memory low-watermark set *mem-rate*

{ožÄ
no memory low-watermark set

ÊÞFåž
default memory low-watermark set

oÞ®	®@	T
	mem-rate	ÄkH8 1~100k%y %ož

oHFå- ÞÄ¿ 90%ož

oxX%”o- Þ%”

oHÕ- -

o6-o- oÞÄkwÄgž

oFåb- 1 yFÄ¿ 80%kwoyož

```
Ruijie(config)#memory low-watermark set 80
```

oèo- -

oUP’b-

oojö- -

ouVÞ- -

5.10 reload

MoÕž
reload [**at** { *hour* [:*minute* [:*second*]] } [*month* [*day* [*year*]]]]

oÞ®	®@	T
hour [:*minute* [:*second*]]	ÄoÞÕak.Bè-	
month	ÄkBl	1~12ož
day	ÄBl	1~31k3Ÿ%kÊgeP‘
year	ÄakBl	1970~2069

oHFå- -

oxX%”o- Ô”

oHÕ- -

o6-o- -

oFåÙ- 1 yMoå–

```
Ruijie# reload
Reload system?(Y/N) Y
Sending all processes the TERM signal...                    [  OK  ]
Sending all processes the KILL signal...                    [  OK  ]
Restarting system...
```

oào- -

oUP’Î- -

oÖÏö- -

oVÕ- -

5.11 show calendar

PÈÕž

show calendar

oÕ

@	T
-	-

oxX%”o- Ô”Ø%”

oHÕ- -

o6-o- -

oFåÙ- 1 yPÈÕž

```
Ruijie# show calendar
21:57:48 GMT Sun, Feb 28, 2012
```

oЧP’ȏ- -

oxX%”o- Ô”B%”

oÞÕ- -

o6-o- ¨Ø¤}0Zþ cpu ÎÈ@ show processes cpu ,¼Xož

oFåÐ- 1 yÞÈÕÞZÎÞž

```
Ruijie#show cpu
=============================================
CPU Using Rate Information
CPU utilization in five seconds:  4.80%
CPU utilization in one minute:  4.10%
CPU utilization in five minutes:  4.00%

 NO      5Sec    1Min    5Min Process
    1   0.00%   0.00%   0.00% init
    2   0.00%   0.00%   0.00% kthreadd
    3   0.00%   0.00%   0.00% ksoftirqd/0
    4   0.00%   0.00%   0.00% events/0
--More--
```

oÙP’Î- -

oÙVÞ- -

5.14 show memory

ÞÄÎž

show memory [**sorted total | history | low-watermark |** *process-id* **|** *process-name*]

oÞ

@	T
sorted total	**ÇÈÙ~**
history	**ÞÕW£**
low-watermark	**ÞÈ¤**
process-id	*Þ process-id 6Ô.*
process-name	*Þ process-name 6Ô.*

oxX%”o- Ô”B%”

oH6-	-
o6-o-	**show memory history**

Process	ď

oЧP'ô- -

oнVФ- -

5.15 show pci-bus

ÞP5¨ PCI ØÕž

show pci-bus

oØ®

@	T
-	-

oxX%"o- Ûõ"Ø%"

oнÕ- -

o6-o- -

oFåÛ- 1 yÞP5¨ PCI ØÕž

```
Ruijie# show pci-bus
NO:0
Vendor ID              : 0x1131
Ď ˙Ď ţ ˝ MÄM$MN I ł ˘ ˛ MLAA ŃÚśMMŕ ˙MŮ˙ą ž ś ă ž M
Latency                : 0x0
first 64 bytes of configuration addresp  Mbxc031   @
```

```
Class / Revision      : 0xc032030
Latency               : 0x30
First 64 bytes of configuration address space:
00: 31 11 62 15 56 01 10 02 30 20 03 0c 20 30 80 00
10: 00 10 00 f0 00 00 00 00 00 00 00 00 00 00 00 00
20: 00 00 00 00 00 00 00 00 00 00 00 00 31 11 62 15
30: 00 00 00 00 dc 00 00 00 00 00 00 00 29 01 02 10
```

oUP'ô- -

oVÖ- -

5.16 show processes cpu

PÖž

show processes cpu [**history** [**table**] | [**5sec | 1min | 5min | 15min**] [**nonzero**]]

oÞ

@	T
5sec | 1min | 5min | 15min	**7Â** 5 aUk1 ÕUk5 ÕUk 15 ÕUžÄ CPU ä LÇ
nonzero	**P** CPU Ö
history	**Y+Ö>** 60 ao• 60 ÕUo• 72 4žÄ ÖÞ cpu ä
table	**YnÖ>** 60 ao•60 ÕUo•72 4žÄ ÖÞ cpu ä

oxX%"o- Ö"Ö%"

oÖ- -

o6-o- -

oFÅ- 1 y7Ö ID Z~LÇ

```
Ruijie# show processes cpu
System Uptime: 19:08.6
CPU utilization for five seconds:1.2%; one minute:0.8%; five minutes:0.8%
set system cpu watermark (open): high 80%(85%~75%)

Tasks Statistics: 375 total, 10 running, 365 sleeping, 0 stopped, 0 zombie
  Pid Vsd S   PRI  P       5Sec       1Min       5Min      15Min Process
```

```
  1   0 S    20  0   0.0(0.0)   0.0(0.0)   0.0(0.0)   0.0(0.0) init
  2   0 S    20  1   0.0(0.0)   0.0(0.0)   0.0(0.0)   0.0(0.0) kthreadd
  3   0 S  -100  0   0.0(0.0)   0.0(0.0)   0.0(0.0)   0.0(0.0) migration/0
  4   0 S    20  0   0.0(0.0)   0.0(0.0)   0.0(0.0)   0.0(0.0) ksoftirqd/0
  5   0 S  -100  1   0.0(0.0)   0.0(0.0)   0.0(0.0)   0.0(0.0) migration/1

--More--
```

2y7Ä ID Z~LkP 15 ÄÄ CPU ä 0 ˆbž

```
Ruijie# show processes cpu nonzero
```

- ᵘ ɲ Ĭ ˥ Ã˘ Ĭ ˥ ` ʒ Ụ ȯ ى ȗ χ

<	¢
System Uptime	ÕÈ¢Ga
CPU Utilization	Â 5 aUk 1 ÄUk 5 ÄUOÈ CPU ä
Virtual CPU usage	ZkÂ 5 aUk 1 ÄUk5 ÄUOÈ CPU ä
Tasks Statistics	ïkÈÄ
set system cpu watermark	OÈ cpu JÊÄ

ÈÄy

ÈÄ	¢
running	3ä`
sleeping	5Ü
stopped	¶ß0F/TT TT0 1 Tf-0.0023 Tc 9 0 00T TT01 T4F04F2022zombie 4F207FE06C80919>Tj/T 1

5yY+ cpu > 60 aUk 60 • 72 4
k% 300 ak cpu 5 ak 5%k
* nPa cpu 0 % 5 a cpu % ož
8 kÂ 60 cpu % ka % 1 ož
kÂ 72 4 cpu % ka % 1 ož
P

```
Ruijie#show processes cpu history


              system cpu percent usage(%) [last 300 second]

     –
  100|
   95|
   90|
   85|
   80|
   75|
   70|
   65|
   60|
   55|
   50|
   45|
   40|*********
   35||||||||||
   30||||||||||*
   25||||||||||
   20||||||||||
   15||||||||||
   10||||||||||
    5||||||||||***************
    0||||||||||||||||||||||||||
     #=========#=========#=====*==>
     0          50         100       second
         system cpu percent usage(%) per 5second (last 125 second)
--------------------------------------------------------------------------------



              system cpu percent usage(%) [last 60 minute]

     –
  100|
```

```
  95|
  90|
  85|
  80|
  75|
  70|
  65|
  60|
  55|
  50|
  45|
  40|
  35|
  30|*
  25||
  20||
  15||
  10||
   5||*
   0|||
    #==*==>
    0     minute
        system cpu percent usage(%) per 1minute (last 2 minute)
--------------------------------------------------------------------------------
```

6yYn•Pï© cpug0 þ> 60 aUk 60 ßJo• 72 4ßž
k%ñ 300 aÄ© cpu ßÃ%yÂ 5 a cpu ß%y
% k?4ÿe 5 aož
8ñkÂ 60 ßJ cpu ß%y% k?4ÿe 1 ßJož
ñkÂ 72 4ž cpu ß%y% k?4ÿe 1 4ßž
Pþ

```
Ruijie #show processes cpu history table
              system cpu percent usage(%) [last 300 second]
#-------------------------------------------------------------------------------#
|        |     1|     2|     3|     4|     5|     6|     7|     8|     9|    10|
#-------------------------------------------------------------------------------#
#-------------------------------------------------------------------------------#
|       0|   2.0|   2.4|   2.3|   2.3|   2.8|   3.0|   2.7|   3.2|   2.6|   2.4|
#-------------------------------------------------------------------------------#
|       1|   2.7|   2.5|   2.7|   2.2|   2.4|   2.6|   2.2|   2.7|   2.3|   2.5|
#-------------------------------------------------------------------------------#
```

```
|        2|   2.9|   2.0|   2.4|   2.5|   2.7|   2.4|   2.4|   2.6|   2.6|   2.5|
#-------------------------------------------------------------------------------#
|        3|   2.7|   2.8|   2.8|   3.2|   2.5|   3.2|   3.1|   4.0|   2.7|   2.7|
#-------------------------------------------------------------------------------#
|        4|   4.0|   2.3|   2.1|   2.2|   2.7|   2.4|   2.5|   2.6|   2.4|   2.6|
#-1-----------------------------------------------------------------------------#-#
|        5|   2.4|   3.2|   2.5|   2.3|   2.3|   3.6|   2.8|   2.5|   2.2|   2.4|
#-------------------------------------------------------------------------------#
```

```
Process Ppid  : 1

State         : R(running)
On CPU        : 0
Priority      : 20
Age Time      : 24:06.5
Run Time      : 00:01.0
Cpu Usage     :
    Lass  5 sec    0.3% ε 0.6% ζ
    Lass  1 min    0.3% ε 0.6% ζ
    Lass  5 min    0.3% ε 0.6% ζ
    Lass 15 min    0.3% ε 0.6% ζ
Tty           : ?
```

Code Usage : 209.6KB.

```
Ruijie# show processes cpu detailed demo
duplicate process, choose one by id not name.
name: demo, id: 1089, state: S(sleeping)
name: demo, id: 1091, state: R(running)
process name: monitor_procps, do NOT exist, or NOT only one.
```

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<	₵
Process Id	` ID Z
Process Name	ȣf
Process Ppid	Ë ID Z
State	ȣ
On CPU	ğ CPU
Priority	ĭ
Age Time	ȣ
Run Time	ȣ
Cpu Usage	> 5 aUk1 ȣk 5 ȣk15 ȣ CPU ȣ ȣZLȣY cpu ȣ demo ȣ 0 ȣ0 ȣ 0.3% g0.6%hož
Tty	Tty ZoȣZk)ȣZkȣ 0 ?
Code Usage	WA<)ȣ

2yȣ06` ID ȣž

```
Ruijie# show process cpu detailed 1715
```

oЧP'ô- -

oиV⓪- -

5.18 show reboot-reason

PÕ4o=œž

show reboot-reason

o⊕	p@	T
	-	-

o×X%"o- ¥%"oÊ"o‡%"

oЯ- 1

o6-o- -

oFå⓪- 1 yQPÕ4o=œž

```
Ruijie#show reboot-reason
time: 1970-01-01 08:03:13
reason: reload cmd
info: /sbin/rg-sysmon/3844

Ruijie#
```

oЧP'ô- -

oиV⓪- -

5.19 show version

PÕ

show version

o⊕	p@	T
	-	-

o×X%"o- Ê"‡%"

oHõ- -

o6-o- -

oFåõ- 1 yPõž

```
Ruijie# show version
System description      : Ruijie Indoor AP320-I (802.11a/n and 802.11b/g/n) By Ruijie Networks
System start time       : 2012-12-06 00:00:00
System uptime           : 0:03:20:07
System hardware version : 1.0.0
System software version : AP_RGOS11.0(1B1)
System serial number    : 1234942570018
System boot version     : 1.0.0
```

oUP'ĵb- -

ouVõ- -

6 TIME RANGE

6.1 absolute

[illegible]

absolute { [**start** *time date*] [**end** *time date*] }

[illegible]

no absolute

o[illegible]

[illegible]	T
start *time date*	[illegible]
end *time date*	[illegible]

o[illegible]- [illegible]

o×X%”o- time-range %”

o[illegible]- 14

o6-o- [illegible]kUY… **absolute** x[illegible]

[illegible] 0 v 1 Ã 1 ™ 00y 00k 9999 v 12 Ã 31 ™ 23y 59ož

oFå[illegible]- 1 y[illegible] time range wµ time range %”

```
Ruijie(config)# time-range no-http
Ruijie(config-time-range)#
```

2yF[illegible]

```
Ruijie(config-time-range)# absolute start 1:1 1 JAN 2013 end 1:1 1 JAN 2014
```

o[illegible]o- 1 y… **show time-range** [*time-range-name*] t i m e

6.2 periodic

åêž

periodic *day-of-the-week time* **to** [*day-of-the-week*] *time*

îˆ]ùêž

no periodic *day-of-the-week time* **to** [*day-of-the-week*] *time*

op

@	T
day-of-the-week	*u*
time	**u**

oFåb- 1 y%² time range

```
Ruijie(config)# time-range no-http
Ruijie(config-time-range)#
```

oèo- 1 y… **show time-range** [*time-range-name*]xXkUYð time range Kož

oUP'ô- -

oejö- -

ouVÖ- -

7 HTTP

7.1 enable service web-server

ø HTTP øÊž

enable service web-server [**http** | **https** | **all**]

¼ HTTP øÊž

{ no | **default } enable service web-server** [**http** | **https** | **all**]

oÞ

@	T
http | **https** | **all**	øÊ**http** ø HTTP ¼Ê**https** ø HTTPS ¼Ê **all** cø HTTP y HTTPS øÊžø HTTP y HTTPS øÊž

oÞFå- HTTP yÊ HTTPS ¼Êž

o×X%”o- ß%”

oÞõ- 14

o6-o- ¡¥Xžè¼ÊÊ **allkáPcø** HTTP yÊ HTTPS ÆÊe **http** ¼káPQ HTTP ÆÊe **https** ¼káPQ HTTPS øÊž

… **no enable service web-server** ñ **default enable service web-server** 9¼ HTTP øÊž

è **no xÞ** **default** xXeè¼káPc¼ HTTP yÊ HTTPS øÊž

oFåÞ- 1 ycø HTTP y HTTPS øÊž

```
Ruijie(config)# enable service web-server
```

oèo- 1 y… **show service xXÞ** øÊž

2y… **show web-server status**

ÊÞpW•

oÞ®

@	T
port-number	å– HTTPS ØÞkH8 443 C 1025-65535ož

oHFå- ÓMZ 443ož

o×X%”o- ß%”

oHÕ- 14

o6-o- ¥Xå– HTTPS ØÞož

oFåÞ- 1 yå– HTTPS ØÞ© 4443ož

```
Ruijie(config)# http secure-port 4443
```

oèo- … **show web-server status xKÕ** Web ÞÕž

oÙP’Ôb- -

oÞjÖ- -

oÙVÕ- -

7.4 show web-server status

Õ Web ÞÕÕÕž

show web-server status

oÞ®

@	T
-	-

o×X%”o- Ôb”

oHÕ- 14

o6-o- ¥XUYÕ Web ÞÕÕÕž

oFåÞ- 1 yÕ Web ÞÕÕÕž

```
Ruijie# show web-server status
http server status : enabled
http server port : 80
```

```
https server status: enabled
https server port: 443
```

Ê ɹ ٪... ۃ χ

<	₵
http server status	HTTP [illegible]
http server port	HTTP [illegible]
https server status	HTTPS [illegible]
https server port	HTTPS [illegible]

```
Web package format invalid.
```

4yò WEB Î-kŽUPož

```
Web package version uncompatible.
```

5yÅ-xÂŽUPož

```
Web package install fail for have no enough memory.
```

6yòkŽUPož

```
Web package upgrade successfully.
```

oòjö- -

oÞVÖ- -

7.6 upgrade web download

ŭxk´ tftp ÆE WEB

upgrade web download tftp:*path*

oÞ@

@	T
tftp:*path*	*path* tftp ÆE WEB ¥XnP*ÒMRÆ ũ WEB kw´

-

o¬ ÖúÀfð§ð¶à• ²,” ð Ç@p Ð

4yò WEB Î-kŽUPož

```
Web package version uncompatible.
```

5yÅ-xÂŽUPož

```
Web package install fail for have no enough memory.
```

6yòeŽUPož

```
Web package upgrade successfully.
```

oòÿò- -

ouVò- -

7.7 webmaster level

å– Web ãy%Aož

webmaster level *privilege-level* **username** *name* **password** { *password* | [e1(rver)]TJ/C2_0 1 Tf0 Tc 0 Tw1

level 2 web admin level 0
web
level 1

oFåÚ- Få Web ÚÇ 0kd ruijiek%A adminož

```
Ruijie(config)# webmaster level 0 username ruijie password admin
```

oèo- -

oÚP´ô- 1 yÇåå admin ê guest ÚkŽUPož

```
%notice: Cannot cancel the default user configure!
```

2yÇÚFåÝ 10 kŽUPož

```
%notice: configure webmaster level %d server reached max 10, add failed.
```

3yÇåÉ 32 kŽUPož

```
%notice: Username too long. Please enter less than 32 characters.
```

oÇjö- -

oÚVÚ- -

8

8.1 clear logging

Ž™

clear logging

o®

@	T
-	-

o×X%”o-

Ô”

o-

1

o6-o-

¥XQŽ™Ž™ž

oFå-1

yÞŽ™ž

```
Ruijie# clear logging
```

oUP’ô-

-

oVÔ-

-

8.2 logging

1™ Syslog Serverož

logging { *ip-address* | **ipv6** *ipv6-address* } [**udp-prot** *port*]

ï Syslog Server ç6ª Syslog Serverož

no logging { *ip-address* | **ipv6** *ipv6-address* }

Ô™ Syslog Server ™Zg514bž

no logging { *ip-address* | **ipv6** *ipv6-address* } **udp-prot**

o®

@	T
ip-address	™ IP ª

ipv6-address	*6*ÑÑ IPV6 ª
udp-port *port*	6ÑZgÑZ 514h

oHFå- g~ Syslog Server G¶

o×X%”o- ßFå%”

oHõ- 14

o6-o- ¥X6%² Syslog server ÛvÑÑUYFÉÛ 5 Syslog Serverozc
ÑÑEÑ Syslog Serverož

oFåÛ- 1 yÞ6%ª 202.101.11.1 syslog servery

```
Ruijie(config)# logging 202.101.11.1
```

2yÞ6%ª 10.1.1.100kÑZ 8099 syslog servery

```
Ruijie(config)# logging 202.101.11.1 udp-port 8099
```

3yÞ6%² IPV6 ª AAAA:BBBB::FFFF

```
Ruijie(config)# logging ipv6 AAAA:BBBB::FFFF
```

oèo- 1 y… **show logging xKVÑÑ**

oUP’Ô- 1 yÑÑå Syslog Server Ý 5 kÉUPjož

```
%%Warning: Can not configure more than 5 syslog servers!
```

oöjö- -

oVÑ- -

8.3 logging buffered

ÑÑMÑÑÑož

logging buffered [*buffer-size*] [*level*]

W2ÑÑž

no logging buffered

1ÑÑÑož

default logging buffered

op@	@	T
	buffer-size	

à 1 y… **show logging xM0®ž**

oUP'ô- -

oojö- -

ouVÎ- -

8.4 logging console

®ÙVP®'

logging console [*level*]

W2ÒÙ'ÙÙ®ž

no logging console

o®®	@	T
	level	®® 0 ñ 7oŽJYÃf-k-UY+N*f*.. o2®M®®-**o**ž

oHFå- 7 gDebugging k®)

o×X%"o- ®FÅ%"

oH®- 14

o6-o- ®®MXekp®2®9¥®®P'Ù'ož

* **show logging xM0®®ž**

®®' 8 ®

®4	ˆ	T
Emergencies	0	®®ogož

[illegible] 1 y[illegible] 6y

```
Ruijie(config)# logging console informational
```

o[illegible]o- 1 y.. **show logging x[illegible]**

[illegible]

o[illegible]P'[illegible]-

o[illegible]-

o[illegible]-

o[illegible]-

8.5 logging count

[illegible]

logging count

[illegible]

no logging count

o[illegible]

oHV®- -

8.6 logging delay-send file

F®®ž

logging delay-send file flash:*filename*

®®ž

no logging delay-send file

o®®

@	T
flash:*filename*	®™

oFå- 6®®y¼_ Õ- IP ª_ txt k3w¶
dkÊ®®yFd_Ù ¼_ Õ- IP ª_ txtzò
‘¨-® Flash ¶d éy F å¶d ù_Ù «txt o ž¶d ùÙy
syslog_ftp_serverož

oxX%”o- ®®Få”

o®®- 14

o6-o- *4xXUYF®®ž
Fåd®g. hk®®¶kÍ¼eÖ
g.txt k®¼wJk-® PC ¶dW2k®W y* <>| ož
®Fd log_serverk® 5k¼ 1000BkG¶™
Õ- IP ª 10.2.3.5k®®y log_server_1000_10.2.3.5_5.txtkx©
®™ log_server_5.txtož
3G®™ IP ª IPv6 ¼kœ IPv6 ®®g: k®g: hA© PC
¶dW2k®}g-h®Wož
®Fd log_serverkN® 6k¶ ¼ 1000BkG¶™
Õ- IPv6 ª 2001::1k®®y log_server_1000_2001-1_6.txtkx©
®™ log_server_6.txtož

oFåd- 1yF®™ log_servery

```
Ruijie(config)# logging delay-send file flash:log_server
```

oèo- 1y… **show logging xkW0®®ož**

oЧP'Ĉ- -

oеjö- -

oнV[illegible]- -

8.7 logging delay-send interval

F[illegible]

logging delay-send interval *seconds*

[illegible]

no logging delay-send interval

o[illegible]		
	@	T
	seconds	*[illegible]yah*

oнFå- [illegible] 3600 ag 1 4[illegible]ž

oxX%"o- [illegible]Få"

oн[illegible]- 14

o6-o- *4xX[illegible]JYå– 600 ~ 65535k%yyaož

oFåb- 1yF[illegible] 600 ag 1 [illegible]

```
Ruijie(config)# logging delay-send interval 600
```

oèo- 1y… **show logging x[illegible]**

oЧP'Ĉ- -

oеjö- -

oнV[illegible]- -

8.8 logging delay-send server

FjLož

[illegible] -

8.9 logging delay-send terminal

[illegible]
logging delay-segment terminal

[illegible]
no logging delay-send terminal

[illegible]	@	T
	-	-

[illegible] [illegible]

[illegible] [illegible]

[illegible] 14

[illegible] UY4xX[illegible]

[illegible] 1y[illegible]

```
Ruijie(config)# logging delay-send terminal
```

[illegible] 1y… **show logging x[illegible]**

[illegible] -

[illegible] -

[illegible] -

8.10 logging facility

[illegible]
logging facility *facility-type*

[illegible] (2-3) [illegible]

no logging facility

op@	@	T
	facility-type	Syslog [illegible]j/C

22 (local6)	Local use
23 (local7)	Local use

(local7)23 ož

oFåÛ- 1 yå– Syslog Ó– kernely

```
Ruijie(config)# logging facility kern
```

oèo- -

oÙP'Ô- -

oÖjÖ- -

oÙVÛ- -

8.11 logging file

1 FLASH %²_ož

logging file { **flash:***filename* } [*max-file-size*] [*level*]

Hÿ FLASH ož

no logging file

oÞ

@	T
flash	FLASH ¢
filename	txt ož
max-file-size	128K ñ 6M bytesk 128Kož
level	FLASH 6ož

oHFå- 1 FLASH ož

oxX%"o- FÅ%"

oHÕ- 14

o6-o- Syslog Serverk Y#+1 N'

FLASH ož

txtkFåÖ1tóž

FLASH FLASH FLASH logging file flash

8 ÕÖ

ÞÓ4	ˆ	T
Emergencies	0	ÑÕogož
Alerts	1	}y/JHRw3|Ê
Critical	2	M}ÕÖ
Errors	3	j'Î
Warnings	4	ŠÎ
Notifications	5	*k}HM}'ôž
Informational	6	ÑÅ
Debugging	7	ÞÎ

oFåÖ- 1 yÞ1Ö FLASH kÖ syslog.txtkÝ 128KkÖ 6ož

```
Ruijie(config)# logging file flash:syslog
```

oèÖo- 1 y… **show logging xKÖÖ** FLASH ,Ö

oÜPÖ- 1 yÖxÝ 20 kÖx† 21kÜPjož

```
%Error: The file length must not be longer then 20, Current file length 21.
```

oÖjÖ- -

oÜVÖ- -

8.12 logging file numbers

FÖ FLASH Öž

logging file numbers *numbers*

HFÖž

no logging file numbers

oÖ

Ö@	T
numbers	ÞÖ2~32k%yy

oHFå- Ö 16 ož

ⅿ ⅿF⅜”

oH⅜-

o@ @

@	T
exact-match	[illegible]
single-match	[illegible]
module *module-name*	[illegible]
mnemonic *mnemonic-name*	[illegible]
level *level*	[illegible]

oHFå- [illegible]

oxX%”o- [illegible]

oH- 14

o6-o- 4. [illegible]

6[illegible]

5. [illegible]

6[illegible]

oFåb- 1 yF[illegible]Fk%[illegible] LOGINo™ 5o[illegible] LOGOUTy

Ruij[illegible]

®ž

no logging filter type

o®

@	T
contains-only	[illegible]
filter-only	[illegible]

oFå-

oxX%”o-

o®-

14

o-o- 6.

?[illegible]

4[illegible]

7. ?[illegible]

[illegible]

“ ” “ ”

	T
-	-

oHFå- -

o×X%”o- ฿Få%”

oHõ- 14

o6-o- ¨ö™ FLASH ¢kÕÔ¥ÕQÔ

ÊkÕ1™ FLASH ¢kUY*¥XåÊÔ

ÿ™Ê FLASH ¢ž

⚠	**logging flash flush**	ق ک ق ۰ ۱	ٹ ٹ

[illegible] 1 y[illegible]

```
Ruijie(config)# no logging on
```

o[illegible]o- 1 y… **show logging x[illegible]**

o[illegible]P'[illegible]o- -

o[illegible]jo- -

o[illegible]V[illegible]- -

8.21 logging policy

F[illegible]

logging policy module *module-name* [**not-lesser-than**] *level* **direction** { **all** | **server** | **file** | **console** | **monitor** | **buffer** }

[illegible]%[illegible]

no logging policy module *module-name* [**not-lesser-than**] *level* **direction** { **all** | **server** | **file** | **console** | **monitor** | **buffer** }

[illegible]

no logging policy

o[illegible]

[illegible]@	T
module-name	[illegible]
not-lesser-than	*6[illegible]* *[illegible]* Z[illegible]Wn499[illegible]Á F[illegible]
level	[illegible]
all	[illegible]
server	[illegible]
file	[illegible]
console	[illegible]
monitor	[illegible]
buffer	[illegible]

o[illegible]F[illegible]- [illegible]

oxX%”o- [illegible]

oH[illegible]- 14

o6-o- 4xX9F[illegible]

oFa[illegible]- 1yFa SYS %[illegible]9 5 [illegible]499 3 [illegible]

[illegible]

```
Ruijie(config)# logging policy module SYS not-lesser-than 5 direction console
Ruijie(config)# logging policy module SYS 3 direction buffer
```

o[illegible]o- -

oUP’[illegible]- -

o[illegible]o- -

oV[illegible]- -

8.22 logging rate-limit

[illegible]

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

[illegible]

no logging rate-limit

o[illegible]

[illegible]	T
number	[illegible] 1~10000o[illegible]
all	[illegible] 0~7 [illegible]
console	[illegible]
except	**4994M[illegible]** error(3)k +499 error [illegible]
severity	[illegible] 0~7o[illegible]

oH[illegible]- [illegible]

oxX%”o- [illegible]

oÙP'ð- -

oëjö- -

oùVô- -

8.24 logging rd rate-limit

¨ VSU ∃þMg,ã'ðaRÑMgÿ™

ðž

logging rd rate-limit *number* [**except** [*severity*]]

{Mg,ãðž

no logging rd rate-limit

oþ@

@	T
number	?aUÑMg'k8 1~10000
except	ÑMg,ãð error(3)k +499 error ‡ý,Dò
severity	ÎTÑÑkMÑ8 0~7

oÌFå- ¶Mg'ðaÑMg 200 ‡ýž

oxX%"o- ‡BFå‰"

oÌð- 14

oõ-o- 4xXOÏMg‡ý4xXkUY2RÑMgÝ‡Ýž

oFåÌ- 1 yåaUÑMg‡ý, debugh 10 ḱk€ warning CM´ ğOỳ

```
Ruijie(config)#logging rd rate-limit 10 except warnings
```

oèo- -

oÙP'ð- -

oëjö- -

® -

8.25 logging server

1® Syslog Serverož

logging server { *ip-address* | **ipv6** *ipv6-address* } [**udp-prot** *port*]

ï Syslog Server ç6ª Syslog Serverož

no logging server { *ip-address* | **ipv6** *ipv6-address* }

Ø Syslog Server ßMZg514bž

no logging server { *ip-address* | **ipv6** *ipv6-address* } **udp-prot**

o® ®

@	T
ip-address	®Ñ IP ª
ipv6-address	*6*®Ñ IPV6 ª
udp-port *port*	6ßMZg®MZ 514h

oÞFå- ®~ Syslog Server G®

o×X%”o- ßFå%”

oÞ- 14

o6-o- ¥X6%² Syslog server ÛvßÞUYFÅ 5 Syslog Serverozl®c

ÞGËÅ Syslog Serverož

oFåÞ- 1 yÞ6%ª 202.101.11.1 syslog servery

```
Ruijie(config)# logging server 202.101.11.1
```

2yÞ6%ª 10.1.1.100kßMZ 8099 syslog servery

```
Ruijie(config)# logging server 202.101.11.1 udp-port 8099
```

3yÞ6%² IPV6 ª AAAA:BBBB::FFFF

```
Ruijie(config)# logging server ipv6 AAAA:BBBB::FFFF
```

oòo- 1 y… **show logging xKV0®**

oÞP’Îb- 1 y®Ñå Syslog Server Ý 5 kÞPjöž

```
%%Warning: Can not configure more than 5 syslog servers!
```

ooÿö- -

ouV① - -

8.26 logging source interface

§Možž

logging source [**interface**] *interface-type interface-number*

Hþ¶NMåž

no logging source [**interface**]

o@

@	T
interface-type	*ÑM*
interface-number	*ÝM*

oF- ž§™

o×X%”o- ßF‰”

o@- 14

o6-o- ÕGË Syslog Server ¶™ IP GNM IP º4Ž U

YX1¶™ IP ¹NM IP k¦ô<*Š% e,V

Õ§Õ%]Pþ@™ IP ¹N}ykqPx‰ 6-tROT8GNTiF@2_0 1 Tf7.96 1.1930 379D504DBB5DF07D95B<0

8.27 logging source ip | ipv6

[illegible] IP [illegible]

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

H[illegible] IP [illegible]

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

o[illegible]

[illegible]	T		
ip-address	*6g*	IPV4 [illegible]	IPV4 [illegible]
ipv6-address	*6g*	IPV6 [illegible]	IPV6 [illegible]

o[illegible]

o[illegible]

o[illegible]

o[illegible] Syslog Server [illegible] IP [illegible] IP [illegible]

Y[illegible] IP [illegible] IP [illegible]

[illegible] IP [illegible] IP [illegible] IP [illegible]

o[illegible] 1 [illegible] 192.168.1.1 Syslog [illegible]

```
Ruijie(config)# logging source ip 192.168.1.1
```

o[illegible] -

o[illegible] -

o[illegible] -

o[illegible] -

8.28 logging statistic enable

[illegible]

logging statistic enable

[illegible]

no logging statistic enable

o[illegible]

[illegible]@	T
-	-

o[illegible]Få- [illegible]

o[illegible]xX%”o- [illegible]Få%”

o[illegible]- 14

o[illegible]-o- UY4xX[illegible]kÏ7%[illegible]©
[illegible]kÏ[illegible]

oFåÏ- 1y[illegible]

```
Ruijie(config)# logging statistic enable
```

o[illegible]o- 1y… **show logging x[illegible]**

oÜP’Ì- -

o[illegible]ÏÖ- -

o[illegible]V[illegible]- -

8.29 logging statistic interval

F[illegible]

logging statistic mnemonic *mnemonic* **interval** *minutes*

[illegible]

no logging statistic mnemonic *mnemonic*

o[illegible]

[illegible]@	T
mnemonic	[illegible]
minutes	[illegible]

o[illegible]Få- [illegible] 15 [illegible]ož

o×X%”o-	₿F%”
oÞ-	14
o6-o-	UY4.xXFÑžUYže 0o•15o•30o• 60o•120 ǚk¿ 0 nP{4ÏÞž
oFåþ-	1yPÅ» TUNNEL_STAT že 30 ǚy

```
Ruijie(config)# logging statistic mnemonic TUNNEL_STAT interval 30
```

oèo-	-
oUP'ô-	-
oejö-	-
ouVÞ-	-

8.30 logging statistic terminal

ÿÞÐ`yiÉž

logging statistic terminal

{Ð`yiÉž

no logging statistic terminal

oÞ@

@	T
-	-

oHFå-	ĦÐ`yiÉž
o×X%”o-	₿F%”
oÞ-	14
o6-o-	UY4.xXÐ`yiÉž
oFåþ-	1yPÐ`yiÅ

```
Ruijie(config)# logging statistic terminal
```

® -

oeÿ- -

ou¥V®- -

8.32 logging trap

®Ë Syslog Server ®ž

logging trap [*level*]

W21®Ë Syslog Serverož

no logging trap

o® ®

®@	T
level	*®k- ®* *®- ož*

o®Få- 6 gInformational k®

o¥X%”o- ®Få”

o®- 14

o6-o- }1®Ë Syslog ServerkÙ®FåX **logging Få** Syslog Serverož¥k…

logging trap 6G®®ž

* **show logging x®®®ž**

®® 8 ®

®4	ˆ	T
Emergencies	0	®®ogož
Alerts	1	}y/JHR‹w3|Ê
Critical	2	M}Ñ
Errors	3	j'Î
Warnings	4	šÎ
Notifications	5	*k}H‹M}'Îbž
Informational	6	®
Debugging	7	®Î

oFå®- 1 y®®aõ 6 ®Ë 202.101.11.22 Syslog Servery

```
Ruijie(config)# logging server 202.101.11.22
Ruijie(config)# logging trap informational
```

oàò- 1 y… **show logging xKVôÊÊ** Syslog Server ®bž

oÜP'Îb- -

oəjö- -

oÜVÔ- -

8.33 logging userinfo

oÉ£ ß Log 'Îbž

logging userinfo

{£ ß Log 'Îbž

no logging userinfo

o®®	@	T
	-	-

oÉFå- £ ®yf6ÞyÊ¼ Log 'Îbž

o×X%"o- ®FÅ"

oÉ®- 14

o6-o- oÉ£ ®• Log 'ÊkÄÑ®yÊcÀoÉMÀ• Log 'ÎUIP™

tk™Ý

```
Mar 22 14:05:45 %LOGIN-5-LOGIN_SUCCESS: User login from vty0 (192.168.23.68) OK.
```

oFåb- 1 y®Ê ®• Log 'Îý

```
Ruijie(config)# logging user-info
```

oàò- -

oÜP'Îb- -

oəjö- -

o@	@	T
	-	-

oHFå- ŽugPož

oxX%”o- ßFå%”

oHõ- 14

o6-o- ÕÕ”ù

*timestamp: %facility-severity-mnemonic: description

%@* ž %%ëÃÎ ÃÎ

ù

```
*May 31 23:25:21: %SYS-5-CONFIG_I: Configured from console by console
```

3ÜÃ*kÕ”ù

timestamp facility-severity-mnemonic: description

%@ž %ëÃÎ ÃÎ

ù

```
May 31 23:31:28 SYS-5-CONFIG_I: Configured from console by console
```

k^ÜÜžkÜ4%² o•

eß4%ß%

oFåù- 1 yßFåÜÜ

```
Ruijie(config)# service private-syslog
```

oèo- 1 y… **show logging xKÜÔPÜÜž**

oUP’ô- -

oeÜö- -

ouVÔ- -

8.37 service sequence-numbers

ÔÜZ

service sequence-numbers

oHõ- 14

o6-o- ÕÕ"ò
*timestamp: %facility-severity-mnemonic: description
%@* ž %%ëÂÎ Ê
ÿ
*May 31 23:25:21: %SYS-5-CONFIG_I: Configured from console by console

3ÕPkÕ"ò
timestamp %facility-severity-mnemonic: description
%@Ž% %ëÂÎ Ê
ÿ
May 31 23:31:28 %SYS-5-CONFIG_I: Configured from console by console
kÕÕÕkÕ4%² ŏeÕ
4%².

oFåb- 1 yÕFåÕ
Ruijie(config)# service standard-syslog

oèo- 1 y… **show logging xKVÔPÕž**

oUP'b- -

oəjö- -

ouVÕ- -

8.39 service sysname

ÕÕž
service sysname

H/Ôž
no service sysname

oÕ

@	T
-	-

oHFå- KÕž

datetime	**ÿÃ** Ê¾ ÿãakÿJul 27 16:53:07
msec	**4DaPkÿÃ** Ê¾ ž :ã :a .Da ÿJul 27 16:53:07.299
year	**4vaPkÿv** Ã Ê¾ ÿa ÿ 2007 Jul 27 16:53:07

®	1
o6-o-	-
oFå0- 1	yPZÄ RFC5424 ¤Ñg **show logging ¥**

```
Ruijie# show logging
Syslog logging: enabled
  Console logging: level debugging, 15495 messages logged
  Monitor logging: level debugging, 0 messages logged
  Buffer logging: level debugging, 15496 messages logged
  Standard format: false
```

Trap logging	GË Syslog Server ®¥YCï
Log Buffer	®¥

2yÞ® RFC5424 ®Ñg **show logging ®**

```
Ruijie# show logging
Syslog logging: enabled
  Console logging: level debugging, 4740 messages logged
  Monitor logging: level debugging, 0 messages logged
  Buffer logging: level debugging, 4745 messages logged
  Statistic log messages: disable
  Statistic log messages to terminal: disable
  Delay-send file name:syslog_ftp_server, Current write index:3, Current send index:3, Cycle:10 seconds
  Count log messages: enable
  Trap logging: level informational, 2641 message lines logged,4155 fail
    logging to  192.168.23.89
    logging to  2000::1
  Delay-send logging: 2641 message lines logged
    logging to  192.168.23.89  by tftp
Log Buffer (Total 4096 Bytes): have written 4096, Overwritten 3292
<135>1 2013-07-24T12:19:33.130290Z ruijie - 7 - - Please config the IP address for capwap.
<132>1 2013-07-24T12:20:02.80313Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address for capwap.
<135>1 2013-07-24T12:20:02.80343Z ruijie - 7 - - Please config the IP address for capwap.
<132>1 2013-07-24T12:20:32.250265Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address for capwap.
<134>1 2013-07-24T12:29:33.410123Z ruijie SYS 6 SHELL_LOGIN [USER@4881 name="" type="" from="console"] user login success.
<134>1 2013-07-24T12:29:34.343763Z ruijie SYS 6 SHELL_CMD [USER@4881 name=""][CMD@4881 task="rl_con" cmd="enable"]
```

È ¤ ¼... ¤ χ

<	¢
Syslog logging	¥® enabled,¥® disabled
Console logging	øÒÙ®¥YCï
Monitor logging	ø VTY vM®¥YCï
Buffer logging	®¥YCï

Count log messages	®™
Statistic log messages	®™
Statistic log messages to terminal	®™
Delay-send file name	®™ ¥Cže
Trap logging	GË Syslog Server ®™YCÏ
Delay-send logging	®™kYCÏ
Log Buffer	®™

oÜP’ô- **-**

oÜV®- -

8.42 show logging config

®™®™®™ž
show logging config

o®®	®@	T
	-	-

o×X%”o- ®”

o®®- 1

o6-o- -

oFå®- 1 yÞ®™ RFC5424 ®™ **show logging config ®™**

```
Ruijie# show logging config
Syslog logging: enabled
  Console logging: level debugging, 15495 messages logged
  Monitor logging: level debugging, 0 messages logged
  Buffer logging: level debugging, 15496 messages logged
  Standard format: false
  Timestamp debug messages: datetime
  Timestamp log messages: datetime
  Sequence-number log messages: enable
  Sysname log messages: enable
  Count log messages: enable
```

Console logging	[illegible]
Monitor logging	[illegible] VTY vM[illegible]
Buffer logging	[illegible]
Count log messages	[illegible]
Statistic log messages	[illegible]
Statistic log messages to terminal	[illegible]
Delay-send file name	[illegible]
Trap logging	GË Syslog Server [illegible]
Delay-send logging	[illegible]

oUP'b- **-**

ouV[illegible]- -

8.43 show logging count

[illegible]
show logging count

o[illegible]

[illegible]	T
-	-

o×X%"o- [illegible]

o[illegible]- 1

o6-o- 4[illegible] **logging count x[illegible]**
1+[illegible]xX **show logging count g[illegible]**

oFa[illegible]- 1 y[illegible] **show logging count [illegible]**

```
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
```

È [illegible]

<	[illegible]
Module Name	[illegible]

Message Name	[illegible]
Sev	[illegible]
Occur	[illegible] logging count Y[illegible]
Last Time	[illegible]

oЧP’b- **-**

oиV[illegible]- -

8.44 show logging reverse

[illegible]kYC[illegible]Pož

show logging reverse

o[illegible]

[illegible]	T
-	-

o×X%”o- [illegible]”

o[illegible]- 1

o[illegible]o- -

oF[illegible]- 1 y[illegible] RFC5424 [illegible] **show logging reverse** [illegible]

```
Ruijie# show logging reverse
Syslog logging: enabled
  Console logging: level debugging, 15495 messages logged
  Monitor logging: level debugging, 0 messages logged
  Buffer logging: level debugging, 15496 messages logged
  Standard format: false
  Timestamp debug messages: datetime
  Timestamp log messages: datetime
  Sequence-number log messages: enable
  Sysname log messages: enable
  Count log messages: enable
  Trap logging: level informational, 15242 message lines logged,0 fail
    logging to  202.101.11.22
    logging to  192.168.200.112
```

```
015492: *Sep 19 02:46:28: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet 0/24,
changed state to up.
015491: *Sep 19 02:46:28: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24, changed state to up.
015490: *Sep 19 02:46:26: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet 0/24,
changed state to down.
015489: *Sep 19 02:46:26: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24, changed state to down.
015488: *Sep 19 02:46:13: Ruijie %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet 0/24,
changed state to up.
015487: *Sep 19 02:46:13: Ruijie %LINK-3-UPDOWN: Interface FastEthernet 0/24, changed state to up.
```

È ª ½... ¨ χ qÈ%S&

Syslog logging	[illegible] enabled, [illegible] disabled
Console logging	[illegible]
Monitor logging	[illegible] VTY vM[illegible]
Buffer logging	[illegible]
Standard format	[illegible]
Timestamp debug messages	Debug [illegible]
Timestamp log messages	Log [illegible]
Sequence-number log messages	~Z¼
Sysname log messages	[illegible]
Count log messages	[illegible]
Trap logging	GË Syslog Server [illegible]
Log Buffer	[illegible]

2y[illegible] RFC5424 [illegible] **show logging reverse** [illegible]

```
 3 C BpH Xô?@A Q V H  Jp  H"? T H C A J@@ H ]  \ V O R J  H"0t20  F H  PY H U SðC B`R  PYPH  Ep  J  PHÀ@t8 S
Ruijie# show logging reverse
```

```
    logging to  2000::1
  Delay-send logging: 2641 message lines logged
    logging to  192.168.23.89  by tftp
Log Buffer (Total 4096 Bytes): have written 4096, Overwritten 3292
<134>1 2013-07-24T12:29:34.343763Z ruijie SYS 6 SHELL_CMD [USER@4881 name=""][CMD@4881
task="rl_con" cmd="enable"]
<134>1 2013-07-24T12:29:33.410123Z ruijie SYS 6 SHELL_LOGIN [USER@4881 name="" type=""
from="console"] user login success.
<132>1 2013-07-24T12:20:32.250265Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address for capwap.
<135>1 2013-07-24T12:20:02.80343Z ruijie - 7 - - Please config the IP address for capwap.
<132>1 2013-07-24T12:20:02.80313Z ruijie CAPWAP 4 NO_IP_ADDR - No ip address for capwap.
<135>1 2013-07-24T12:19:33.130290Z ruijie - 7 - - Please config the IP address for capwap.
```

È ‡ ½...ö χ

<	[illegible]
Syslog logging	[illegible] enabled,[illegible] disabled
Console logging	[illegible]
Monitor logging	[illegible] VTY vM[illegible]
Buffer logging	[illegible]
Count log messages	[illegible]
Statistic log messages	[illegible]
Statistic log messages to terminal	[illegible]
Delay-send file name	[illegible] ¥C[illegible]e
Trap logging	GË Syslog Server [illegible]
Delay-send logging	[illegible]kY[illegible]
Log Buffer	[illegible]

oЧP’b- -

oиV[illegible]- -

8.45 terminal monitor

[illegible] VTY vM[illegible]

terminal monitor

9 CWMP

9.1 acs password

Få CPE N ACS %Aož

acs password {*password* | *encryption-type encrypted-password*}

Få

no acs password

	@	T
	password	CPE N ACS %Aož
	encryption-type	0 ê 7k 0 nP%k 7 nP%%ož
	encrypted-password	ož

Få- encryption-type ó 0kencrypted-password qož

X%”o- cwmp F%”

1

Få CPE N ACS %Ak* %%ÕQ Ze

X%A ”}Lù

- %A ž
- %A Bž

1yFå CPE N ACS %A123ož

```
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs password 123
Ruijie(config-cwmp)#
```

*¨ CPE Õ- **show cwmp configuration** Fož

1: %A%k%Axý 254 UPj¨

```
%%Error: Invalid Encrypted Password
```

2: %A%k%Axý 100, UPj¨

```
%%Error: The Length of ACS's Password is Too Long
```

3:%A%wm,... UPj¨

```
%%Error: Password String Include Invalid Characters!
```

oojo- %A%%%AxY 254 ož

%A%%%AxY 100ož

%A%wmcož

ouVo- -

9.2 acs url

Få CPE N ACS URLož

acs url *url*

Ož

no acs url

op	@	T

```
Ruijie(config)#cwmp
Ruijie(config-cwmp)#acs url http://www.test.com/service/tr069servlet
Ruijie(config-cwmp)#
```

5 شÁ | *¨ CPE Ô **show cwmp configuration x**

oЧP'ô- 1 yò ACS URL ª NULLkéPjòž

```
input acs attribute parameter is null
```

oэjö-

- ACS URL Z7}L"ÿž
- ACS URL xÝ 256 αž

oиVØ- -

9.3 acs username

Få CPE N ACS ÿž

acs username *username*

Ÿ

no acs username

oÞ	p@	T
- *username*	CPE N ACS ÿž	a1Tj/3 15.6 refQQ0.84>]T/3 15.6 re8 369.8.84>]T/3 15.6 re7 369

ou-V0- -

9.5 cpe inform

Få CPE uÊ INFORM *sož

cpe inform [**interval** *seconds*] [**start-time** *time*]

Ê Få

no cpe inform

ou@	@	T
	seconds	Ê CPE uÊ INFORM *sož%yakH8 30½ 3600ož
	time	uÊ INFORM Ê yyyy-mm-ddThh:mm:ss

ou-Få-	ó	600 aož

ou-X%”o- cwmp F%”

ou-ó- 1

ou-o- Få CPE uÊ INFORM *sož

- ZÄFå INFORM ¾ÄÂ"Ê u234RoEso2M cwmpaož

4FÊINFORMyyÊRGUAOBBTPZÄ_ŽÄÂhqFÄÊINFORMy%d+8INFORM

oèo- *¨ CPE Ó **show cwmp configuration xxKFåž**

oÙP'ô- -

oejö- ožž

oÙVÖ- -

9.6 cpe password

Få ACS N CPE %A, ¥X no ¥Fåž

cpe password {*password* **|** *encryption-type encrypted-password***}**

Få

no cpe password

	@	T
	password	ACS N CPE %Aož
	encryption-type	0 ê 7k 0 nP%k 7 nP%%ož
	encrypted-password	ož

oFå- encryption-type ó 0kencrypted-password qož

o×X%"o- cwmp F%"

oFó- 1

o6-o- Få ACS N CPE %Ak* o%%²Ó e

¥X%A Ó%A"}Lò

- 6÷Cž
- %A JYÄqkxto CÈq%A%Bãž

oFåò- 1 yFå ACS N CPE %A123ož

```
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe password 123
Ruijie(config-cwmp)#
```

oèo- *¨ CPE Ó **show cwmp configuration xxKFåž**

oFåb- 1 yFå ACS }N CPE URL http://10.10.10.1:7547/ ož

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe url http://10.10.10.1:7547/
Ruijie(config-cwmp)#
```

oào- *¨ CPE Ó- **show cwmp configuration xbxKFaž**

oUP'b- 1 yò CPE URL ª NULLkUPjož

```
input CPE attribute parameter is null
```

oejö-

- CPE URL Z7}L"ÿž
- CPE URL xÝ 256 ož

ouVb- -

9.8 cpe username

Få ACS N CPE 9ž ož

cpe username *username*

Ÿ Fåž

no cpe username

ofe

@	T
username	ÊÈ ACS N CPE 9È

oxX%"o- cwmp Fæ%"

oHFa- qož

oHb- 1

o6-o- Få ACS N CPE 9ž ož

oFab- 1 yFå ACS N CPE 9ž admin

```
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#cpe username admin
```

9.10 disable download

F€R ACS ï-yFžž

disable download

Ð-å

no disable download

o€	@	T

o×X%”o- cwmp F‰”

o€- 1 @ O E 9 Þ

Ð Få

no disable upload

o@	@	T

oxX%”o- cwmp F%”

oH Få- CPE ñog **no disable upload** **bž**

oH ð- 1

o6-o- F%g ACS nFÿ™

oFåb- 1 yF%g ACS nFÿ™ž

```
Ruijie#config
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#cwmp
Ruijie(config-cwmp)#disable upload
Ruijie(config-cwmp)#
```

oào- *¨ CPE Ô- **show cwmp configuration xxKFaž**

oUP’Îb- -

oÿjö- ožž

oVÐ- -

9.12 show cwmp configuration

P CWMP **Ð Få**

show cwmp configuration

o@	@	T

oxX%”o- Ÿ%”

oH ð- 1

o6-o-

oFåb- 1 yP CWMP ©åž

```
Ruijie(config-cwmp)#show cwmp configuration
CWMP Status                    : enable
ACS URL                        : http://www.ruijie.com.cn/acs
ACS username                   : admin
ACS password                   : ******
CPE URL                        : http://10.10.10.2:7547/
CPE username                   : ruijie
CPE password                   : ******
CPE inform status              : disable
CPE inform interval            : 60s
CPE inform start time          : 0:0:0 0 0 0
CPE wait timeout               : 50s
CPE download status            : enable
CPE upload status              : enable
CPE back up status             : enable
CPE back up delay time         : 60s
```

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<	¢
CWMP Status	CWMP ©Ž
ACS URL	CPE N ACS URLož
ACS username	CPE N ACS ïdož
ACS password	CPE N ACS %Aož
CPE URL	ACS N CPE URLož
CPE username	ACS N CPE ïdož
CPE password	ACS N CPE %Aož
CPE inform status	CPE uÊ INFORM *s©Ž
CPE inform interval	CPE uÊ INFORM *sžž
CPE wait timeout	CPE k¥
CPE inform start time	CPE uÊ INFORM *sÊž
CPE download status	¢NIR ACS ú-yF©ž
CPE upload status	¢g ACS nF©™
CPE back up status	¢oi~/ F©
CPE back up delay time	i~/ F©

oUP'ô-

ouV0- -

9.13 show cwmp status

P CWMP gÁ

show cwmp status

o@	@	T

oxX%”o- Ô”

oÕ- 1

o6-o-

oFåÐ- 1 yP CWMP gÁž

```
Ruijie(config-cwmp)#show cwmp status
CWMP Status                    : enable
Session status                 : Close
Last success session           : Unknown
Last success session time      : Thu Jan  1 00:00:00 1970
Last fail session              : Unknown
Last fail session time         : Thu Jan  1 00:00:00 1970
Session retry times            : 0
```

È ‡ ¼... ¨ χ

<	¢
CWMP Status	CWMP Áž
Session status	CPE ACS ÁÁž
Last success session	Â%ÞÞ0ž
Last success session time	Â%ÞÞÁ
Last fail session	Â%ÞÂ
Last fail session time	Â%ÞÂÁ
Session retry times	ÁM)ƒž

oUP´Î-

ouV0- -

10 MONITOR

10.1 show power

P^k,ÑyZoÅF-bÇož

show power

	@	T
	-	-

oxX%”o- Ô”

oÑ- 14

o6-o- 4xX9PÑ-

oFå- -

oUP´ò- N/A nPcÑ

ouVÔ- -

10.2 show fan

PÑk,?Ñ•ÇoWÅYCÑ%”oÑ%Ž

´ò ž

show fan [**speed**]

	@	T
	-	-

oxX%”o- Ô”

oÑ- 14

o6-o- 4xX9PÑUÔWÅCÑò ž

oFå- 1. S29XS PÑ

```
Ruijie#show fan
Fan-id Fan-type  Status
------ --------- ----------
1      RG_FAN    ok
Ruijie#show fan speed
Fan-id Fan-type  Status     Speed(R/m) Speed-level
------ --------- ---------- ---------- -----------
1      RG_FAN    ok         5040       N/A
```

2. S29XS POE PÊÃÕ

```
Ruijie#show fan
Fan-id Fan-type  Status
------ --------- ----------
1      RG_FAN    ok
2      RG_FAN    ok
Ruijie#show fan speed
Fan-id Fan-type  Status     Speed(R/m) Speed-level
------ --------- ---------- ---------- -----------
1      RG_FAN    ok         N/A        1
2      RG_FAN    ok         N/A        1
Ruijie#
```

ώ ٧ ʒ Ụ -

oнVõ- S29XS yshow fan speed u4 Speed(R/m)ÕBHož

S29XS POEy show fan speed Qu4 Speed-level-ÕBHkõ 0-2k 1yz,k2 yäož

cÕ“kU[‘

10.3 show temperature

“ÕXk9ÕÕ¥CÕÕž

show temperature

oÕ	@	T
	-	-

oxX%”o- Ô”

oнÕ- 14

o6-o- ¥XUYÕÕ¥CÕÕoož

S2910-24GT4XS-Ey 2 ÕÕ%ÕOkÕ 65-kÕÕ-

sÕÕ 78-kÕÕoož

S2910-48GT4XS-Ey 2 [illegible] 74-[illegible]
s[illegible] 84-k[illegible]oož
S29XS POEy 1 [illegible] 53-k[illegible] 58-k[illegible]
k[illegible] 68-k[illegible]oož

oFa[illegible]- 1 oS29XS [illegible]y'F[illegible]

```
Ruijie#show temperature
Slot    Card_type                        Current(C) Status
------- -------------------------------- ---------- ---------
1/0     S2910-48GT4XS-E                  43         ok
        S2910-48GT4XS-E                  42         ok
Ruijie#
```

2oS29XS POE [illegible]y'F[illegible]

```
Ruijie#show temperature
Slot    Card_type                        Current(C) Status
------- -------------------------------- ---------- ---------
0       S2910C-24GT2XS-HP-E              28         ok
Ruijie#
```

oUP'b- -

oVo- S29XS Ä 2 [illegible]S29XS POE Ä 1 [illegible]
c[illegible]kU['

11 ZAM

11.1 show zam

P ZAMgZero Automatic Manager k

show zam

o	@	T
	-	-

o×X%”o- Ô”oB%”oNM%”

oHõ- 1

o6-o- ¥XUYÔP ZAM

oFåõ- 1 yô ZAM

```
Ruijie#
Ruijie#show zam
ZAM state          : disable
ZAM status         : Now is idle

Ruijie#
```

È ɜ ½... ö χ

<	¢
ZAM stste	ZAM
ZAM manage interface	ZAM 2

12

12.1 remove configuration device device-id

ŽV VSU ¤ÕÅgN¨ VSU %”UkMoeÙ›ž

remove configuration device *device-id*

o¤Ø

@	T
device-id	Ÿ

oÞFå-

-

o×X%”o-

ÞFå%”

oÞõ-

14

o6-o-

ÿŽ VSU ¤ÕÅUYîxXoŽxXMoeÙ›ž

oFåÙ-

```
ŽÕ 1 ` ف ق
Ruijie(config)# remove configuration device 1
```

oèo-

ü¥XwFåekÙMoÕ show run xXõÕÅÙ›ž

oÙP’ô-

-

oÞÿö-

-

oÙVØ-

- **show manuinfo**

ôÞBÐ’k9Ð’è¸CB¶Ñõõ•å•

*¿k?BÞ’ÎÍo•V$Zo•fo•¿oÞFÎo• MAC ¤k?_Ø-

u4BH’Ø%¥NØÍ4’ôž

show manuinfo

	@	T
	-	

oxX%”o- Ô”

oÑ- 14

o6-o- ÿkXUYÔÑBÐ’ož

oFåÐ- -

oUP’ò- † 1y%Ñ”Ð’ÊÞÿ

```
Ruijie#show manuinfo
Device 1
    Location:                    Chassis
```

```
Device 5
    Location:                   Power 1
    Device name:                RG PD1200I
    Device Serial Number:       42150129A8B0DAF0F0321
    Hardware Version:           V1.0

Device 6
    Location:                   Power 2
    Device name:                RG PD1200I
    Device Serial Number:       42150129A8B0DAF0F0322
    Hardware Version:           V1.0

Device 7
    Location:                   FAN
    Device name:                M12000 FAN
    Device Serial Number:       52150129A8B0DAF0F0321
    Hardware Version:           V1.0
```

† 2yVSU %"Ď'ÊÞý

```
Ruijie#show manuinfo
Device 1
    Location:                   Chassis 1
    Device name:                RG S12006
    Device Serial Number:       62150129A8B0DAF0F0321
    Hardware Version:           V1.0
    Mac Address:                00.D0.F8.00.11.22

Device 2
    Location:                   Slot-1/M1
    Device name:                M12000 CM
    Device Serial Number:       32150129A8B0DAF0F0321
    Hardware Version:           V1.0
    Software Version:           RGOS 10.4(3b17) Release 129646
    Mac Address:                00.D0.F8.00.11.56

Device 3
    Location:                   Slot-1/1
    Device name:                M12000-04XFP-EA
    Device Serial Number:       32150129A8B0DAF0F0322
    Hardware Version:           V1.0
    Software Version:           RGOS 10.4(3b17) Release 129646
```

```
Device 4
    Location:                   Slot-1/2
    Device name:                M12000-04XFP-EA
    Device Serial Number:       32150129A8B0DAF0F0323
    Hardware Version:           V1.0
    Software Version:           RGOS 10.4(3b17) Release 129646

Device 5
    Location:                   Power 1/1
    Device name:                RG PD1200I
    Device Serial Number:       42150129A8B0DAF0F0321
    Hardware Version:           V1.0

Device 6
    Location:                   Power 1/2
    Device name:                RG PD1200I
    Device Serial Number:       42150129A8B0DAF0F0322
    Hardware Version:           V1.0

Device 7
    Location:                   FAN 1
    Device name:                M12000 FAN
    Device Serial Number:       52150129A8B0DAF0F0322
    Hardware Version:           V1.0

Device 8
    Location:                   Chassis 2
    Device name:                RG S12006
    Device Serial Number:       62150129A8B0DAF0F0322
    Hardware Version:           V1.0
    Software Version:           RGOS 10.4(3b17) Release 129646
    Mac Address:                00.D0.F8.00.11.33

Device 9
    Location:                   Slot-2/M1
    Device name:                M12000 CM
    Device Serial Number:       32150129A8B0DAF0F0324
    Hardware Version:           V1.0
    Software Version:           RGOS 10.4(3b17) Release 129646
    Mac Address:                00.D0.F8.00.11.22
```

[illegible]	[illegible]	T
	-	

oxX%”o- [illegible]”

oH[illegible]- 14

o6-o- ÿkXUY[illegible] mac [illegible]ž

oF[illegible]- -

oUP’[illegible]-

```
[illegible] mac ş x ş ʒ Ụ
Ruijie# show sysmac
00d0.f822.33e2
```

ouV[illegible]- -

12.4 show version module detail

[illegible]%[illegible]ž

show version module detail [*slot-num*]

show version module detail [*device-id* / *slot-num*]

o[illegible] [illegible]

[illegible]	T
device-id	[illegible]VSU %”k[illegible]$Zk[illegible]ñ [illegible]Zh
slot-num	[illegible]

oxX%”o- [illegible]”

oH[illegible]- 14

o6-o- ÿkXUY[illegible]%[illegible]ž

oF[illegible]- -

oUP’[illegible]-

```
[illegible]VV$ 2 i ` ₩ ę ` ف ʒ Ụ
Ruijie# show version module detail 2
Device  : 1
Slot    : 2
```

```
User Status :     none
Software Status:  none
Online Module :
Type    :
Ports   : 0
Version :
Configured Module :
Type    :
Ports   :
Version :
```

oHVÔ- -

12.5 show version slots

ÔÕ%ÕÕž

show version slots [*slot-num*]

show version slots [*device-id / slot-num*]

oÕ®

®@	T
device-id	ÕÕVSU %”kÕÕV$ZkÕÕoñ ñÕZh
slot-num	ÕÕ#

oxX%”o- Ô”

oÕÕ- 14

oÕ-o- ÿÕkXUYÔ%ÕÕž

oFÕÕ- -

oÕP’Ô- ÔÕ%ÕÕ

```
Ruijie# show version slots
Dev  Slot  Port Configured Module   Online Module     Software Status
---  ----  ---- -----------------   -----             --------------
1    1     0      none               none                 none
1    2     24     M8606-24SFP/12GT   M8606-24SFP/12GT     none
1    3     2      M8606-2XFP         M8606-2XFP           cannot startup
1    4     24     M8606-24GT/12SFP   M8606-24GT/12SFP     ok
```

```
1     M1     0     N/A                M8606-CM            master
1     M2     0     N/A               none                 none
```

oиVØ- -

12.6 sysmac

Ö MAC ðž

sysmac *mac-address*

ïFå MAC ´Îbž

no sysmac

oþ®

@	T
mac-address	å– MAC ª

o×X%”o- ßFå%”

oHõ- 14

o6-o- 1 o%²Ë©. MAC ßÅ FLASH kx¨ VSU %”k9² MAC ª-¥kÈ1… MAC ïFåMoekÇÅ

| MAC ¢ïÒž **no sysmac xMFå** MAC ´ïMÊ.

FLASH MAC ðž

2o%”g6ÈÈå **auth-mode gateway xK%uÈÅÇ** MAC ¢ò

ÇÅUY… **sysmac xÈÅ** MAC ¢ÉÅ MAC ¢

RÈFåžXNÈ%”ÿbž

3oÖ MAC ¢Få MAC ¢ÈåMoeÿbž

oFåb- † 1yïFå MAC ¢y

```
Ruijie#no sysmac
```

æ 2yÖ MAC ¢y

```
Ruijie#sysmac 00d0.f822.33e2
```

oèo- ÿ¥XYekÙ* show run xÈ© mac FÅ]Æž

oÙP’Îb- -

oÇÿö- -

-

[illegible]	-
oeÿjÖ-	-
ouVÛ-	-

13.2 redundancy

[illegible]ž

redundancy

[illegible]		
	@	T
	-	-

oHFå-	-
oxX%”o-	[illegible]F%”
oHÖ-	14
oG-o-	-
oFåÛ- 1	y[illegible]ž

```
Ruijie# config terminal
Ruijie(config)# redundancy
Ruijie(config-red)# exit
```

oèo-	-
oUP’Ô-	-
oeÿjÖ-	-
ouVÛ-	-

13.3 redundancy forceswitch

[illegible]ž

redundancy forceswitch

		T
o	-	-

o×X%”o- Ô”

o- 14

o6-o- ”ÃX¥XkÎÅtÜkR’Ãž
ÜÃ¾cÃÚ
”Ã VSD ÕÔÃ

VSU **redundancy reload shelf**

é

oFåb- 1 yôÕÕz

```
Ruijie> enable
Ruijie# show redundancy states
Redundancy role: master
Redundancy state: active
Auto-sync time-period: 3600 s
```

2yôÕÕz

```
Ruijie> enable
Ruijie# show redundancy states
```

	Áfož
	4ÍÕ°ÊÁ_Â
component _name	*Îbž*

Install time	[illegible]
Description	[illegible]T

oG-o- ¥UX}'b

oFå0- 1 λ Ĭ ٧ Ḡ p γ ă ţ ʒ Ụ

```
Ruijie# show upgrade file flash://bridge_eg1000m_2.3.1.1252ea-1.mips.rpm
Name : bridge
Version:1.0.1.23cd34aa
Package type      : common component
Support target    : eg1000m
Size              : 26945
Build time        : Wed Dec  7 00:54:56 2013
Install date      : (not installed)
Description       : this is a bridge package
Package files :
    Package files:
        /lib64
        /lib64/libbridge.so
        /sbin
        /sbin/bridge
```

Æ ɔ - ᵘ ɲ ᵎ Ɑ Ɔ п γ ɹ ʒ Ụ

<	₵
Name	df
Version	Gb
Package type	ᵊ
Support target	u4D}₵
Size	m
Build time	
Install date	x
Description	T'Î
Package files	

oUP'b- ÿ x'b

```
Name : bridge
Version:1.0.1.23cd34aa
```

xk@ož

upgrade *url* [**force**]

op@

oəjö- l

oнVФ- -

14.7 upgrade auto-sync package

ÏÕЁЭоž

upgrade auto-sync package *url*

oрЭ

@	T
url	ÏÕ.

coordinate	*[illegible]*

oHFå- **coordinate**

oxX%”o- [illegible]”

oHõ- 2

o6-o- [illegible]

oFåõ- 1 me[illegible]

```
Ruijie# upgrade auto-sync policy coordinate
```

oèo- 1. … **show upgrade auto-sync** [illegible]

oUP’ò- 1 me[illegible]y

```
Upgrade auto-sync policy is set as coordinate.
```

oöjö- l

ouVõ- -

14.9 upgrade auto-sync range

[illegible]58ož

upgrade auto-sync range [**chassis** | **vsu**]

oõ

@	T
chassis	*[illegible]5´*
vsu	vsu [illegible]5´

oHFå- **vsu**

oxX%”o- [illegible]”

oHõ- 2

o6-o- [illegible] vsukY[illegible]%òž

1

1.1 bandwidth

NMFâ‰”â—Mkkpž

bandwidth *kilobits*

kpž

no bandwidth

	@	T
	kilobits	**aUkkb** K Aâ•y

	NMÄâ—	**bandwidth xpâ•**	**show interface xâ•pž**
	NMFâ‰”		
	14		
	bandwidth xâ•Mkk Qâ•Mk6kâ•		
	NMkpâ•	Link ,â•UY\6k	Bandwidth Qâ•
	â•M13kbž		
	1 χ Ο ï ` æ Ḍ ℳ Ḥυف ᾶ ì Æ Ṿ Ḳ v ̈Ρнϰ 64Kbpsy		

```
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# bandwidth 64
```

	-
	-
	-
	-

1.2 carrier-delay

NMFå%”xX **carrier-delay NMfõž**

carrier-delay {[**milliseconds**] *num* | **up** [**milliseconds**] *num* **down** [**milliseconds**] *num*}

fõž

no carrier-delay

o¥ø

¥@	T
num	¥ø%yk8 0¥ø aož
milliseconds	¥ø¥knum ¥YDa%yk8 0~60000 Da
up	¥ø¥Z DCD R Down ¥ø Up ¥ø
down	¥ø¥Z DCD R Up ¥ø Down ¥ø

oHFå- fõ© 2 aož

o×X%”o- NM%”ož

oHõ- 14

o6-o- f6NMefõyZ DCD R Down ¥ø Up ¥ø Up ñ Down ¥ø

ç DCD ¥ø¥JkÌ¿¥ø¥CçeÈCM#GÈ

ò DCD f¥ûk1¥ø¥x?kUY¥ø¥kYÈUY¥ø¥ož

çFk DCD f¥9¥M¥ø¥¥ø¥-ÝkY²¥ø¥

}ÈÒž

oFåõ- 1 yFåMfõž 5 aož

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# carrier-delay 5
```

2yFåMfõž 100 Daož

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)#carrier-delay milliseconds 100
```

3yFåMefõyZ DCD R Down ¥ø Up ¥ø 100 DakR Up ¥ø Down ¥ø 200 Da

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# carrier-delay up milliseconds 100 down milliseconds 200
```

oèo- 1 y… **show interfaces xKUõNMfõž**

[illegible]	-
oeÿö-	-
ouVÐ-	-

1.3 clear counters

ŽNMÞž

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

oÞ	@	T	[illegible]

1.7 eee enable

F M-Ž

eee enable

op	@	T

oxX%”o- ßFå%”

oHõ- 14

o6-o- Dy **show interfaces status err-disable** ÔHL{64xÕ
Mož

oFåb- 1 y1fMRjÕž

```
Ruijie(config)# errdisable recovery
Ruijie(config)# end
```

oèo- 1 y… **show interfaces status err-disable** xKUfMÎbž

oUPÎb- -

oəjö- -

ouVõ- -

1.9 fiber antifake enable

Få%ąy¹%oož

fiber antifake {ignore | enable}

¹%ąy

no fiber antifake enable

oßõ

oFåb- 1 yø–Ÿ%ÊÇy

```
Ruijie(config)# fiber antifake enable
```

oèao- -

oUPÎb-

```
*Aug  6 10:11:51: %OPTICAL_MODULE-4-WARNING: The Optical Module(Serial Number: G1GD3B900102B)
inserted into interface GigabitEthernet 0/50 is not original  Optical Module.
```

oejÖ- -

ouVÊ- -

1.10 flowcontrol

{¼OOòž

flowcontrol { **auto** | **off** | **on** }

ÊÐž

no flowcontrol

oÞ

@	T
auto	#ÆOOòž
off	{¼OOòž
on	øOOòž

oHFåa- {¼OOòž

o×X%”o- NM%”

oHÖ- 14

o6-o- BÐ}u4³fvOku4 send y receive ÞÓž. **show interfaces ÔNMvÐÞ**

vÒž

oFåb- 1 yø GigabitEthernet 1/1 vOOò

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# flowcontrol on
```

[illegible]	-
oəjö-	-
ouVö-	-

1.12 interface range

BFå¼”… **interface xpMBž**

Interface range { *port-range* | **macro** *macro_name* }

YxXd… **define interface-range Bž**

define interface-range *macro_name*

o[illegible]	@	T
	port-range	**QNM?yNMÁkUÙMo•** Loopback MkÛ *interface-type slot-number/interface-numberož*
	macro *macro_name*	#+ÛbÔPNM8kmacro_name dož

oFå- HÕ¼.

oeÿjÖ- -

ouVÖ- -

1.13 line-detect

9yNÖ
line-detect

	@	T
	-	-

oÖ- -

oxX%”o- NM%”

oÖ- 14

o-o- line-detect xX}9 9y{

oÖ- 1 y y GigabitEthernet 0/1

```
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
This operation may force the port down and up once, continue?[Y/N]:y
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs, length +/- 10 meters
pair state      length(meters)
---- ---------- --------------
A    OK         4
B    OK         9
C    Short      4
D    Short      4
```

pairs	
	OK g3oh k

state

length	ØÄ%yoœ	state	OK ¿xÕ	
	ÿ		Short ñ	Oen
	+• length			

oèo- -

oÙPÎo- -

oïjÖo- -

oÙVÎo- -

1.14 load-interval

NMFå‰”6%ÑNMÕž

load-interval *seconds*

ÕFåž

no load-interval

o®®	®@	T
	seconds	%yakH8 5 ñ 600

oÙFåo- 10 aož

oxX%”o- NMFå‰”

oÙÕo- 14

oÙ-o- 1 yÑNM4xXUY6?ÕÕ%®oe 10 a%}?a

ÕAÊÕÕÑM GigabitEthernet 0/1 14®è 180 ak show interface gigabitEthernet 0/1 UY0ÿ

```
3 minutes input rate 15 bits/sec, 0 packets/sec
3 minutes output rate 14 bits/sec, 0 packets/sec
```

oFåÙo- 1 yYÕ8YÕM GigabitEthernet 0/1 —ÕÕe 180 a

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# load-interval 180
```

oèo- -

oUPÎ- -

oöjö- -

ouVÖ- -

1.15 logging

FåNM,ÎÞž

logging [link-updown | error-frame | link-dither]

oÞ@	@	T
	link-updown	[illegible]

è 1 y… **show interfaces xKU3NMPåž**

oUPÎb- -

oejö- -

ouVt- -

1.17 mtu

—åIM MTU

mtu *num*

o@	@	T
	num	64l?(cD}åk/Þ

oFå- Þ 1500ož

oxX%”o- NM%”

oFõ- 14

o6-o- —åIMõ4 MTUk/eÇ6BÅbžQu4—6M MTUož

oFåt- 1 yM GigabitEthernet 1/1 MTU —å 9000ož

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet)# mtu 9000
```

oèo- 1 y… **show interfaces xKU3NM** MTUož

oUPÎb- -

oejö- -

ouVt- -

1.18 negotiation mode

{#Ğ”ož

negotiation mode { **on** | **off** }

ÊÕž

no negotiation mode

oÞ®

p@	T
on	#Ğ”ož
off	{#Ğ”ož

oÞFå- {#Ğ”ož

o×X%”o- NM%”

oÞõ- 14

o6-o- NM#ÿNM#ÿ”wÞkNM#ÿNM,äEWo×vO
y#ÿ”oÕž

oFåb- 1 yø GigabitEthernet 1/1 vOOò

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# negotiation mode on
```

oòo- 1 y… **show interfaces xKUÕNMÿž**

oUPÎb- -

oÞjö- -

ouVÞ- -

1.19 physical-port dither protect

FåMTòž

physical-port dither protect

oÞ®

p@	T
-	-

oÞFå- ¥ož

[illegible] 14

o6-o-

Gi0/26	No	-	-	-	-
Gi0/27	No	-	-	-	-
Gi0/28	No	-	-	-	-

ώ ٧ ʒ Ụ -

oнVΘ- -

1.22 show interfaces

ΘNM—ЂŽ

show interfaces [*interface-type interface-number*] [²UbJF5bE(ĮQ1¸V0v¹K6ldDЂRX6lЌB'UbEbEbKUbDBebKF5bEbEbKIebN

```
Priority is 0
```

```
    Medium-type is Copper
    Admin duplex mode is AUTO, oper duplex is Unknown
    Admin speed is AUTO, oper speed is Unknown
    Flow receive control admin status is OFF,flow send control admin status is OFF
    Flow receive control oper status is Unknown,flow send control oper status is Unknown
    Storm Control: Broadcast is OFF, Multicast is OFF, Unicast is OFF
  Bridge attributes:
    Port-type: access
    Vlan id : 2                          //Access Æ` ˜A R VLAN ID
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Rxload is 1/255, Txload is 1/255
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
    0 output errors, 0 collisions, 0 interface resets
```

3y¢ GigabitEthernet 0/1 Hybrid ÊÝ0NM8Cbž

```
SwitchA#show interfaces GigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
  Hardware is Broadcom 5464 GigabitEthernet
  Interface address is: no ip address
  Interface IPv6 address is:
```

ó. Ï _ _ Ì

```
    Flow receive control admin status is OFF,flow send control admin status is OFF
    Flow receive control oper status is Unknown,flow send control oper status is Unknown
    Storm Control: Broadcast is OFF, Multicast is OFF, Unicast is OFF
  Bridge attributes:
    Port-type: hybrid
    Tagged vlan id:2                          //ě‰ö` VLAN ID
    Untagged vlan id:none                     //j ě‰ö` VLAN ID
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Rxload is 1/255 ,Txload is 1/255
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
    0 output errors, 0 collisions, 0 interface resets
```

4yð GigabitEthernet 0/1 8CÎbž

```
Ruijie# show interfaces GigabitEthernet 0/1 switchport
Interface                Switchport Mode      Access Native Protected VLAN lists
------------------------ ---------- --------- ------ ------ --------- ----------
GigabitEthernet 0/1      enabled    ACCESS    2      1      Disabled  ALL
```

oÜPÎb- -

oÜVð- -

1.23 show interfaces counters

ðNMÝGÎbž

show interfaces [*interface-type interface-number*] **counters** [**increment** | **error** | **rate** | **summary**] [*up* | *down*]

oÞ

@	T
interface-type interface-number	U#ÎNMÝNMÚ#ÞÄM
increment	**ðÞ**
error	**ðjÎbž**
rate	**ðNMÝGÞž**

```
  512-1023: 18016
  1024-1518: 125
Packet increment in last sampling interval(5 seconds):
  InOctets            : 10000
  InPkts              : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
  InUcastPkts         : 100
  InMulticastPkts     : 100
  InBroadcastPkts     : 800
```

```
UnderSize ĩ† Å* ¨ ǰ ỷ ŋ̂ 64 È Ᵽ` ĭ ă Ą ψ
OverSize ĩ† Å* ¨ ǰ ỷ ̂ 1518 È Ᵽ` ĭ ă Ą
Collisions ĩ ʌ ١ Ḥ ʌ ʔ ١` ĭ ă Ą ψ
Fragments ĩ ŋ̂ 64 È Ᵽ ı Ẋ ħ ũ CRC ک ك ã ỉ Ḿ غ ک ك` ĭ ă Ą ψ
Jabbers ĩ ̂ 1518 È Ᵽ ı Ẋ ħ ũ CRC ک ك ã ỉ Ḿ غ ک ك` ĭ ă Ą ψ
CRC-Align-Err ĩ ẓ ũ CRC ک ك` ĭ ă Ą ψ
Align_Err ĩ ẓ ỵ Ḿ غ ک ك` ĭ ă Ą ψ
FCS-Err ĩ ẓ ũ FCS ک ك` ĭ ă Ą

4. Ĭ ١ ì Æ GigabitEthernet 0/1 i` ĭ ă ẓ ʌ ปใน ว Ụ
Ruijie#show interface gigabitEthernet 0/1 counters rate
Interface    Sampling Time         Input Rate          Input Rate          Output Rate
Output Rate
                                   (bits/sec)          (packets/sec)       (bits/sec)
(packets/sec)
------------ --------------------- ------------------- ------------------- -------------------
-------------------
Gi0/1        5 seconds             23391               23                  124
0

م ˘ X
Sampling Time ĩ ì Æ ĭ ă ق ¯ Ḥ ه ı Input Rate ĩ ì Æ ĭ ă ì ẓ ปใน ı Output Rate ĩ ì Æ ĭ ă ʌ ١ ปใน

5. Ĭ ١ ì Æ GigabitEthernet 0/1 i` ĭ ă ١ ๐ ٨ ء ว Ụ
Ruijie#show interface gigabitEthernet 0/1 counters summary
Interface     InOctets            InUcastPkts         InMulticastPkts     InBroadcastPkts
------------- ------------------- ------------------- ------------------- -------------------
Gi0/1         1475788005          1389                45880503            11886621
Interface     OutOctets           OutUcastPkts        OutMulticastPkts    OutBroadcastPkts
------------- ------------------- ------------------- ------------------- -------------------
Gi0/1         6667915             6382                31629               13410
```

م ˘ X

InOctets ⊠MNvȇ⁄InUcastPkts ⊠MNv%n⁄InMulticastPkts ⊠MNvÁ⁄InBroadcastPkts ⊠MNvznƒ

OutOctets ⊠MGȇ⁄ OutUcastPkts ⊠MG%n⁄ OutMulticastPkts ⊠MGÁ⁄nOutBroadcastPkts ⊠MGznƒž

oЧPĉ- -

oчVĝ- -

1.24 show interfaces link-state-change statistics

show interfaces [*interface-type interface-number*] **link-state-change statistics**

oHõ- 14

o6-o- ÔNMdfkÞÄMÕž

oFåb- 1 yÞNM GigabitEthernet 0/1 Õž

```
Ruijie#show interfaces GigabitEthernet 0/1 status
Interface              Status       Vlan     Duplex  Speed   Type
--------------------   ----------   ------   ------  ------  ------
GigabitEthernet 0/1    up           1        Full    1000M   copper
```

oUPÎb- -

ouVõ- -

1.26 show interfaces status err-disable

ÔNMÕž

show interfaces [*interface-type interface-number*] **status err-disable**

o®

@	T
interface-type interface-number	U#@NMyNMÚ#ÞÄMož

o×X%”o- Ä CLI ¹%”

oHõ- 14

o6-o- ÔNMdfkÞÄMÕž

oFåb- 1 yÞNM GigabitEthernet 0/1 Õž

```
Ruijie#show interface gigabitEthernet 0/1 status err-disabled
Interface                        Status          Reason
-------------------------------- --------------- ----------------
GigabitEthernet 0/1              err-disabled    BPDU Guard
```

ˆ ˜ χ Status err-disable Reason

oUPÎb- -

ouVõ- -

oUPÎ- -

ouVÎ- -

1.28 show interfaces usage

ÔNMkÊž

show interfaces [*interface-type interface-number*] **usage** [*up* | *down*]

o@ @

@	T	
interface-type interface-number	U#@NMyNMÓ#ÊÄMož	
up		up kÊ
down		down kÊ

oxX%”o- ÄÄ CLI ?%”

oÔ- 14

o6-o- ÔNMdfkÊÄMkÊžk6ÊkÔM

bandwidth FÊž

oFÊ- 1 yÊNM GigabitEthernet 0/1 ÔMkÊž

```
Interface                    Bandwidth     Average Usage      Output Usage     Input Usage
---------------------------- ------------- ------------------ ---------------- -----------------
GigabitEthernet 0/0          1000 Mbit     0.002822759%       0.001183280%     0.004462237%
```

ˆ ˜ χ Bandwidth ÔMeÊ-1Ô}qÊÔDB6ndwB6nsag(B6nern)-4(e)3(t 0/1)]TJ/C2_0 14.8931 Tf0 Tc 4.96.764F>13<074E054Td[<

MMož

no shutdown

	@	T
	-	-

NMů UPož

NM%”

14

no snmp trap link-status

op@

@	T
-	-

[illegible]	[illegible]%”
o[illegible]-	14
o6-o-	ğxX**snmp-server if-index persist** [illegible]**MoeNM** [illegible]
oFåb- 1	yoNM«Kbž `Ruijie(config)# snmp-server if-index persist`
oèao-	-
oUPÎb-	-
oəjö-	-
ouVî-	-

1.32 speed

—åIM,äž

speed [**10 | 100 | 1000 | auto**] t o . 1 2 c

774E054D6EAD>TjC08E46F9E>TjTT0 10415 dwN Mn-

-

-

-

1.34 switchport access

1%¥—å Access ¥lkw16u%² VLAN ¥ož

switchport access vlan *vlan-id*

1¥l6uÞ VLAN ož

no switchport access vlan

@	T
vlan-id	¥}µ VLAN IDož

¥l%” AccesskÞ VLAN VLAN 1ož

NMF‰”

14

%² VLAN IDo¥‰³ VLAN IDké–Ã%² VLANkw1¥—å VLAN VLAN IDké VLAN ¥o¥%² trunkportk¥ 1Žož

1 y¥ GigabitEthernet 1/1 —å VLAN 2 ¥ož

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

1 y… **show interfaces switchport xKU¥8Cîž**

-

-

-

1.35 switchport mode

6%8CÊM%”kUY6ÊM Access ÊMñ Trunk ÊMož

switchport mode {**access | trunk**}

1ÊM%”ÊÊož

no switchport mode

o®®

@	T
access	—åCÊM Access ÊMož
trunk	—åCÊM Ttrunk ÊMož

oÊF-å- 8CÊMI%” Access

o×X%”o- NMFå%”

oÊÊ- 14

o6-o- ÊM%”© Accesskê®IQ%² VLAN èožY… **switchport access vlan xÊ**

ÊMÊ% VLAN èož

%ÊM%”© Trunkkê®MUYÓ VLAN èoÊMUYK9„ VLAN ÊM•

U VLAN çÊO Trunk ÊMÓ VLAN çÄ VLAN èožY… **switchport trunk xÊ**

ÊMU VLAN çož

oFåb- 1 yÊM GigabitEthernet 1/1 Få Trunk ÊMož

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# switchport mode trunk
```

oèo- 1 y… **show interfaces switchport xÊUÊM8Cîž**

oÜPî- -

oèjö- -

oÜVÊ- -

1.36 switchport protected

1ŠMFŠMož

switchport protected

o@	@	T
	-	-

oHFå- ŠM—‘

o×X%”o- NM%”

oHõ- 14

o6-o- ¢È–ÕŠM$ŠU1?ŠM—ŠMožŠNŠC*kCè

ÀY*kÇ-eÈkUYÇ$xX protected-ports route-denyož

oFåb- 1 y 1ŠM GigabitEthernet 0/1 FŠMož

```
Ruijie(config)#interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# switchport protected
```

oèo- -

oUPÎb- -

oəjö- -

oVõ- -

1.37 switchport trunk

%² Trunk ŠM6%² native VLAN yFŠU VLAN ço ž

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

1ŠNM Trunk KŠž

no switchport trunk { **allowed vlan | native vlan** }

o@	@	T
	allowed vlan *vlan-list*	Få Trunk ŠMU VLAN çož@ vlan-list UY%² VLANk-U Y%ç VLANkY4 VLAN ID ŠYÝ VLAN ID È•k g-lX ož 10-20 ŠY g, lÿe 1-10,20-25,30,33 all m#O VLAN çmÄ4 VLANz

add nP16

default mac-address-learning

o®

@	T
-	-

oHFå-

ª:o

o×X%”o-

NM%”

oHõ-

14

o6-o-

ö¶¶¼ MAC ª¼¼¶Fõž

oFåb- 1

y¼¼NMªy

```
Ruijie(config-if-interface-id)# no mac-address-learning
```

oèo-

-

oUPÎb-

-

oöjö-

-

ouVõ-

-

2.3 mac-address-learning ( )

¶ MAC ªož

mac-address-learning enable

¼¶ MAC ªož

mac-address-learning disable

¶ MAC ªož

default mac-address-learning

o®

@	T
enable	o¶ MAC ªož
disable	¶ MAC ªož

oHFå-

¶ª:o

oxX%”o- %”

oH- 14

o6-o- MAC —cg MAC MAC
MAC ož

oFå- 1 y y

```
Ruijie(config)# mac-address-learning disable
```

oo- -

oUPÎ- -

oj- -

oVo- -

2.4 mac-address-table aging-time

—Ž

mac-address-table aging-time *seconds*

Ž

no mac-address-table aging-time

Ž

default mac-address-table aging-time

o

@	T
seconds	Ya%ož—Ò nPož

oHFå- 300 aož

oxX%”o- F%”

oH- 14

o6-o- … **show mac-address-table aging-time xÅž**

oFåb- 1 o•—å MAC ž 500 a

```
Ruijie(config)#mac-address-table aging-time 500
```

oèao- -

oUPÎb- -

oejö- -

ouVÎ- -

2.5 mac-address-table filtering

6 VLAN Ä–žž

mac-address-table filtering *mac-address* **vlan** *vlan-id*

ïžž

no mac-address-table filtering *mac-address* **vlan** *vlan-id*

ïžž

default mac-address-table filtering *mac-address* **vlan** *vlan-id*

oÞ

@	T
mac-address	*žž*
vlan-id	VLAN IDk8¨ 1-4094ož

oHFå- HÄ–ãžž

oxX%”o- ÞFÅ%”

oHÞ- 14

o6-o- ÞÄžž

oFåb- 6 MAC ª 0000.0202.0303 MAC

oUPÎb- 1 yUP—

```
Can not set this filter address.
```

oöjö- -

ouVÎ- -

2.6 mac-address-table notification

ø MAC ªso•—ªs MIB ÿªs7W“ñ“ÎÞž

mac-address-table notification [**interval** *value* | **history-size** *value*]

ÎÞž

no mac-address-table notification [**interval** | **history-size**]

ÎÞž

default mac-address-table notification [**interval** | **history-size**]

oÞ

@	T		
interval *value*	—ê MAC ª Trap ¼ÞÞ	1 ak8¨	1-3600ož
history-size *value*	MAC *=7W“ñnÞÞ	50k8¨	1-200ož

oÞFå- ¼e 1 aknÞ%ÞÞs*f* 50ož

o×X%”o- ¶ÞFÞ%”

oÞÞ- 14

o6-o- MAC ª=NS+ÿÞÞà9Ñ1kDÿ Trap *=oŽYÞF Þ%”*xX **snmp-server enable traps mac-notification** ÞÞ- MAC ª Trap ož

oFåb- 1 y—å MAC ªsÿÞ?)ÞÞs MAC ª*f*

```
Ruijie(config)# mac-address-table notification
Ruijie(config)# mac-address-table notification interval 40
Ruijie(config)# mac-address-table notification history-size 100
```

oào- -

oUPÎb- -

2.8 max-dynamic-mac-count

—å VLAN ßUMÁ MAC ªbž

max-dynamic-mac-count *num*

ßbaž

no max-dynamic-mac-count

ßbaž

default max-dynamic-mac-count

op

p@	T
num	*b¾* MAC ªbž

oЧPÎb- -

oeÿjö- -

oиVØ- -

2.9 show mac-address-learning

ÔÉM:ª

show mac-address-learning

oÞ®	p@	T
	-	-

oxX%”o- ¥%”

oHÕ- 2

oG-o- -

oFåb- 1 yPÉM:y

```
Ruijie(config)#show mac-address-learning
GigabitEthernet 0/0      learning ability: disable
GigabitEthernet 0/1      learning ability: enable
GigabitEthernet 0/2      learning ability: enable
GigabitEthernet 0/3      learning ability: enable
```

oЧPÎb- -

oиVØ- -

2.10 show mac-address-table

ÞÿÄ MAC ê g,ÄÄÄÄbož

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

oÞ®	p@	T

address *mac-addr*	6 MAC ª
interface *interface-id*	**NM**
vlan *vlan-id*	VLAN Z8¨ 1-4094

oxX%”o- %”

oH- 2

o6-o- Type ç STATIC nP DYNAMIC nP FILTER nP OTHER nP
, 1x mab web

oFd- 1 y MAC

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

È ¼ ... χ

<	
Vlan	NMª
MAC Address	MAC ª
Type	MAC
Interface	MAC NM

oUPb- -

oVo- -

2.11 show mac-address-table aging-time

P Z

show mac-address-table aging-time

o®®

@	T
-	-

o×X%”o- %”

o®®- 2

o6-o- -

oFåb- 1 yÔ MAC ž

```
Ruijie# show mac-address-table aging-time
Aging time    : 300
```

oUPÎb- -

ouVÔ- -

2.12 show mac-address-table count

ÞªªÕž

show mac-address-table count [**interface** *interface-id* **|** **vlan** *vlan-id*]

o®®

@	T
interface *interface-id*	NMZ
vlan *vlan-id*	VLAN Z8¨ 1-4094ož

o×X%”o- Ô”

o®®- 2

o6-o- **show mac-address-table count xKG** MAC ªÏÞz
show mac-address-table count interface xKG MAC ª¾NMÏÞz
show mac-address-table count vlan xKG MAC ª¾ VLAN ÏÞož

oFåb- 1 yÞ MAC ª_ÞÞy

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

o6-o- -

oFåÿ- 1 oÕÃ MAC ê

```
Ruijie# show mac-address-table dynamic
Vlan     MAC Address       Type        Interface
----    ------------     ------    -----------------
1     0000.0000.0001      DYNAMIC  GigabitEthernet 1/1
1     0001.960c.a740      DYNAMIC  GigabitEthernet 1/1
1     0007.95c7.dff9      DYNAMIC  GigabitEthernet 1/1
1     0007.95cf.eee0      DYNAMIC  GigabitEthernet 1/1
1     0007.95cf.f41f      DYNAMIC  GigabitEthernet 1/1
1     0009.b715.d400      DYNAMIC  GigabitEthernet 1/1
1     0050.bade.63c4      DYNAMIC  GigabitEthernet 1/1
```

È ¤ ½... ¨ χ

<	¢
Vlan	MAC ¶ VLAN
MAC Address	MAC ª
Type	MAC ®
Interface	MAC ¶ IM

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

È ª ¼... ¨ χ

<	¢
Vlan	MAC ñ VLAN
MAC Address	MAC ª
Type	MAC ®
Interface	MAC ñ NM

oÜPÎ- -

oÜV0- -

2.15 show mac-address-table interface

P6NMÑ¸ÁÁož

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

o®®

@	T
interface-id	ÑÙYÈê AggregatePort)ož
vlan-id	¼ VLANk8¨ 1-4094ož

o×X%”o- Ô”

oÑ- 2

o6-o- -

oFå- 1oÑ06NM MAC ª

```
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
```

È ª ¼... ¨ χ

<	¢
Vlan	MAC ñ VLAN
MAC Address	MAC ª
Type	MAC ®
Interface	MAC ñNM

oÙPÔ- -

oÙVÔ- -

2.16 show mac-address-table max-dynamic-mac-count

ÞÁ MAC ªbž

show mac-address-table max-dynamic-mac-count { **vlan** [*vlan-id*] | **interface** [*interface-id*] }

oÞ

@	T
vlan	Á MAC ª VLAN Ä MAC ªÕž
vlan-id	ô VLAN Ä MAC ª.Ò¨ 1-4094ož
interface	Á MAC ªNM MAC ªÕž
interface-id	Á MAC ª.Õž

oxX%”o- Ô”

oÞ- 2

o6-o- -

oFåÔ- 1oÔÄ4Á MAC ª VLAN Ä MAC ªÕ

```
Ruijie#show mac-address-table max-dynamic-mac-count vlan
Vlan Limit   MAC count Learning
---- ------- --------- --------
1    160         6          YES
```

2oÔ6 VLAN Ä MAC ªÕ

```
Ruijie#show mac-address-text max-dynamic-mac-count vlan 1
Vlan Limit   MAC count Learning
---- ------- --------- --------
1    160         6          YES
```

È ¤ ¼... ¤ χ

o®

@	T
mac-addr	*6¾* MAC ªž
vlan-id	*6¾* VLANk8¨ 1-4094ož
interface-id	*1(WYÈê* AggregatePort)

o»X%”o-

Ô”

oÑ-

2

o6-o-

-

oFåÐ- 1

yÞÃ

```
Ruijie# show mac-address-table static
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
```

È ª ½... ¨ χ

<	¢
Vlan	MAC ñ VLAN
MAC Address	MAC ª
Type	MAC ®
Interface	MAC ñM

oÜPÎÐ-

-

oÜVÐ-

-

2.19 show mac-address-table vlan

Þ6 VLAN ÔÃž

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

o®

@	T
vlan-id	*6* VLAN IDk8¨ 1-4094ož

o»X%”o-

Ô”

oÞ- 2

o6-o- -

oFåÞ- 1 yÞ VLAN 1 MAC ª

```
Ruijie# show mac-address-table vlan 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
```

È ª ½... ª χ

<	¢
Vlan	MAC ñ VLAN
MAC Address	MAC ª
Type	MAC ®
Interface	MAC ñNM

oÜPÎÞ- -

oÜVÞ- -

2.20 snmp trap mac-notification

ÞNM MAC ®=ož

snmp trap mac-notification { **added** | **removed** }

{Þž

no snmp trap mac-notification { **added** | **removed** }

{Þž

default snmp trap mac-notification { **added** | **removed** }

oÞ®

@	T
added	**ÞÞž**
removed	**ÞÞž**

o×X%”o- NMFÞ%”

oÈ- 14

o6-o- … **show mac-address-table notification** *interface xÈz*

oFåÛ- 1 oÈ MAC È trap ¼

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

2oÈ MAC ÈÈ trap ¼

```
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# snmp trap mac-notification removed
```

oÙPÎb- -

oÙVÈ- -

3 Aggregate Port

3.1 aggregateport load-balance

Få AP ฿vOukt๊ะFå AP MvOukt๊ož

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

1 AP ฿vOuk—ฉ6 AP MvOuktฺ๊฿vOukt๊ož

no aggregateport load-balance

o฿ฺ	@	T
	dst-mac	ฺฺ๊ MAC ฺgvOFöž AP _ek MAC ฺctฺฺ๊Mk MAC ctฺ๊€ Mož
	src-mac	ฺฺ๊ MAC ฺgvOFöž AP _ek๊c MAC ฺฺฺ๊Mk,c MAC ฺฺ๊Mož
	src-dst-ip	ฺ› IP) IP gvOFöž› IP+) IP vO*c ฺMฺkc%ฺ IP+) IP *,ceฺoฺฺ๊› ฺJ4vOukฺož
	dst-ip	ฺฺ๊ IP ฺgvOFöž AP _ek IP ฺ ,ctฺฺ๊Mk) IP ctฺฺ๊Mož
	src-ip	ฺฺ๊ IP ฺgvOFöž AP _ek๊c IP ฺ ฺฺฺ๊Mk,c IP ฺฺ๊Mož
	src-dst-mac	ฺ› MAC) MAC gvOFöž› MAC+) MAC v O*ctฺMฺkc%ฺ MAC+) MAC *,ceฺoฺ๊ž

oHFå- ^ AP ¡ ö , ษ ษ AP ¡ ร ฮ ő Ş ฺ ฺ ร MAC ต ฺ ฺ ร MAC ต ® Ρ ˘ ∫ ـ Š

^ AP ¡ ö , ษ AP ¡ ร ฮ ő Ş ฺ ฺ ร IP ต ฺ ฺ ร IP ต ® Ρ ˘ ∫ ـ

o×X%”o- ฿%”ฺMFฺ%”

oHฺ- 14

o6-o- ?u4ฺ6 AP MFฺOukD}kฺ AP MNM%”gvOukt๊FฺF ฺek¥ AP M<kYFฺOukt๊gWoฺD}kฺUY¨ AP MNM% ”… **no aggregateport load-balance xX.** AP MFฺOuktฺ๊kฺ–Õ ฺ AP ฿vOukt๊ož

3.4 lacp port-priority

Få LACP AP èMÉ¾liõž

lacp port-priority *port-priority*

Ê LACP AP èMÉ¾liõž

no lacp port-priority

o@	@	T
	port-priority	LACP Ч Ж л ι 32768 Ĥυ þ ĩ 0-65535ož

oÉFå- Ĥ© 32768ož

o×X%”o- NM%”ož

oÉõ- 14

o6-o- -

oFåÙ- 1yÙ Gi0/1 LACP 4096y

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# lacp port-priority 4096
```

oèo- … **show lacp summary** ¶ ~ ` ` ` ف ّ α

oÙPÊb- -

oÊÏö- -

oÙVÊ- -

3.5 lacp short-timeout

Få LACP AP èMÉ½o”?½o”ož

lacp short-timeout

Ê LACP AP èMÉ½o”x½o”ož

no lacp short-timeout

	@	T
	-	

oHFå- HX%”ož

oxX%”o- NM%”ož

oHõ- 14

o6-o- x%”kM 30 aG%² LACP k90 aì/ñž
?%”kM 1 aG%² LACP k3 aì/ñž

oFåb- 1yµ Gi0/1 LACP χ

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# lacp short-timeout
```

oèo- … **show lacp summary** **show run** ñž

```
Ruijie(config)# show lacp summary 3
System Id:32768, 00d0.f8fb.0002
Flags:  S - Device is requesting Slow LACPDUs
F - Device is requesting Fast LACPDUs.
A - Device is in active mode.        P - Device is in passive mode.
Aggregate port 3:
Local information:
                          LACP port       Oper    Port     Port
Port     Flags     State     Priority        Key     Number  State
--------------------------------------------------------------------
Gi0/1     FA        bndl        4096         0x3     0x1      0x3d
Gi0/2     SA        bndl        4096         0x3     0x2      0x3d
Partner information:
                 LACP port                  Oper    Port     Port
Port     Flags     Priority      Dev ID       Key     Number   State
--------------------------------------------------------------------
Gi0/1     SA        61440     00d0.f800.0002   0x3     0x1      0x3d
Gi0/2     SA        61440     00d0.f800.0002   0x3     0x2      0x3d
```

ñyµ Flags <k F nPuÊ-<%”kS nPãÊ-<%”ož

oUPÎb- -

oejö- -

oиVØ- -

3.6 lacp system-priority

Få LACP Ч Ж Л

lacp system-priority *system-priority*

Ê LACP Ч Ж Л

no lacp system-priority

o@	@	T
	system-priority	ÆM LACP Ч Ж Л ı˜ ˜ Ö ĩ 32768k8© 0-65535ož

oHFå- Ю© 32768ož

oxX%”o- ß%”ož

oHÕ- 14

oG-o- -

oFåÙ- 1 yßFå LACP Ч Ж Л нж 4096y

```
Ruijie(config)# lacp system-priority 4096
```

oèo- … **show lacp summary xØÊž**

oUPÎb- -

oeÿo- -

oиVØ- -

3.7 port-group

1%ˆYÈM—å AP ÈMož

port-group *port-group-number*

1%ÈÌ—å LACP ÈÈMož

port-group *key-number* **modeber**

oHFå- -

oxX%”o- _%”Ogož

oHõ- 14

o6-o- key-numberkA LACP AP eõtPOž

oFåt- 1 yõ LACP AP 3 eõ

```
Ruijie(config)# show lacp summary 3
System Id:32768, 00d0.f8fb.0002
Flags:  S - Device is requesting Slow LACPDUs
F - Device is requesting Fast LACPDUs.
A - Device is in active mode.       P - Device is in passive mode.

Local information:
```

4 VLAN

4.1 add

gÚ VLAN %ß%Á Access NMož

add interface { *interface-id* | **range** *interface-range* }

RÚ VLAN ï%ß%Á Access NMož

no add interface { *interface-id* | **range** *interface-range* }

RÚ VLAN ï%ß%Á Access NMož

default add interface { *interface-id* | **range** *interface-range* }

oÞ®

@	T
interface-id	ß AP M
range *interface-range*	ß AP M8

oÞFå- ßÄCYßÄMCK9 VLAN1ož

o×X%”o- VLAN F%”

oÞõ- 14

o6-o- ¥XQ+ Access MÄož

¥XFçNM%”6¥MÞ VLAN xXg/ **switchport access vlan** *vlan-idh*|ç

ÄÄ VLAN xXkFåÞ-CFåX~ßåXož

¥X18C AP MÚ VLAN ÞÞÞQ+8C AP MÄk+98C AP MÞM—|ož

oFåÚ- 1 yg VLAN20 µ GigabitEthernet 0/10 NMož

```
Ruijie# configure terminal
Ruijie (config)#vlan 20
Ruijie (config-vlan)#add interface GigabitEthernet 0/10
Ruijie (config-vlan)#show int g 0/10 sw
Interface                      Switchport Mode      Access Native Protected VLAN lists
------------------------------ ---------- --------- ------ ------ --------- ----------
GigabitEthernet 0/10           enabled    ACCESS    20     1      Disabled  ALL
```

2yg VLAN200 µ GigabitEthernet 0/1~ GigabitEthernet 0/10 NMož

```
Ruijie# configure terminal
Ruijie (config)#vlan 200
Ruijie (config-vlan)#add interface range GigabitEthernet 0/1-10
Ruijie# show vlan
Ruijie #show vlan
VLAN Name         Status                        Ports
---- -------    ------------    ----------------------------
1    VLAN0001    STATIC         Gi0/11,Gi0/12,Gi0/13,Gi0/14
                                Gi0/15,Gi0/16,Gi0/17,Gi0/18
                                Gi0/19,Gi0/20,Gi0/21,Gi0/22
                                Gi0/23,Gi0/24
200 VLAN0200     STATIC         Gi0/1,Gi0/2,Gi0/3,Gi0/4
                                Gi0/5,Gi0/6,Gi0/7,Gi0/8
                                Gi0/9,Gi0/10
```

3yg VLAN20 µ AggregatePort 10 Mož

```
Ruijie# configure terminal
SwitchA(config)#vlan 20
SwitchA(config-vlan)#add interface aggregateport 10
Ruijie# show interface aggregateport 10 switchport
Interface  Switchport   Mode  Access  Native Protected  VLAN lists
----------  --------       -----  -----  ---- ---------- -------
AggregatePort 10 enabled  ACCESS  20   1   Disabled  ALL
```

oèo- **show vlan UMKQ µ** VLAN Äž

oÙPÎb- -

oèjö- 1 yµM®CAEMož

2oµM© Access Mož

3oµM© AP èMož

oÙVÎb- -

4.2 name

—å VLAN dož

name *vlan-name*

Êž

no name

ê½ž

default name

o¶®

¶@	T
vlan-name	VLAN d

oÞFå- VLAN ¼d VLANjVLAN ID kò VLAN 2 ¼d”VLAN0002” ož

o×X%”o- VLAN Fæ%”

oÞ¾- 14

o6-o- -

oFåb- 1 y—å VLAN 10 dy

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)# name vlan10
```

oèo- … **show vlan xæ** vlan Fåž

oÙPÎb- -

oÞjö- -

oÙVÞ- -

4.3 show vlan

ÞP VLAN ¼ÊÎbž

show vlan [**id** *vlan-id*]

o¶®

¶@	T
vlan-id	VLAN ID ¾ž

o×X%”o- ¾%”

oÞ¾- 2

默认

default switchport access vlan

o参数

@	T
vlan-id	指定 VLAN ID。

o缺省情况- Access 模式下的端口属于 VLAN 1。

o使用指南- NM默认。

o权限- 14

o配置举例- 以 VLAN 表示主机所属的 VLAN。VLAN 表示主机所属的 VLAN。VLAN 表示主机所属的 VLAN。

默认情况下，trunk port允许所有 VLAN。

o配置步骤- 1 进入接口模式，配置 access VLAN。

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# switchport access vlan 2
```

o检验方法- -

o显示信息- -

o日志信息- -

o错误信息- -

4.5 switchport hybrid allowed

1、MY Tag 和 UNTag 端口。VLAN 表示 MR6。VLAN 表示。

switchport **hybrid allowed vlan** { { [**add** | **only**] **tagged** *vlist* | [**add**] **untagged** *vlist* } | **remove** *vlist* }

1、hybrid 模式。

no switchport hybrid allowed vlan

1、hybrid 模式。

no switchport hybrid allowed vlan

o参数

@	T

add	1~6Ïµ	VLANk6		
only	**1~6Ïµ**	VLAN, cÈ	VLAN ¤	VLANk6

oUPÎb- -

oöjö- -

ouVÎ- -

4.6 switchport hybrid native

6 hybrid Mó VLANož

switchport hybrid native vlan *vlan-id*

ÕÕž

no switchport hybrid native vlan

ÕÕž

default switchport hybrid native vlan

o@ ®

@	T
vlan-id	6 hybrid Mó VLANkó VLAN ®XMßk Tag.

oFå- Þ Native VLAN © VLAN 1ož

o×X%”o- NMFß%”

oFÕ- 14

o6-o- 6 native vlan eknative vlan ®R hybrid MßÇk Tagoß Tag ®R hybrid MßÚ © native vlan ¤ž

oFåb- 1 y1 hybrid M GigabitEthernet 0/1 M native vlan —å VLAN 20y

```
Ruijie(config-if-GigabitEthernet 0/1)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Ruijie(config-if-GigabitEthernet 0/1)#switchport hybrid native vlan 20
```

oèo- * **show running-config ÔNMßž**

oUPÎb- -

oeÿjÖ- -

ou¬V¶- -

4.7 switchport mode

6%²8CNMgswitch port h%”kUY6¥¾M access porto•trunk porto•hybrid porto•uplink portk ê– 802.1Q ŸÖož

switchport mode { **access** | **trunk** | **hybrid** | **uplink** }

1¾M%”Êož

no switchport mode

1¾M%”Êož

default switchport mode

o¶®

¶@	T
access	‰ switch port access portož
trunk	‰ switch port trunk portož
hybrid	‰ switch port hybrid portož
uplink	‰ switch port uplink portož

oH¬å- switch port h%” accessož

o×X%”o- NMF‰”

oH¶- 14

o6-o- ¶%² switch port %”© accessk¾MQ%² VLAN ÈožY… **switchport access vlan xÈ¾M¶%** VLAN Èož

¶%² switch port %”© trunkkÄ VLANk-UY*xX **switchport trunk allowed 1€ Mµ** ß VLANož

¶%² switch port %”© uplinkkÄ VLANož Trunk Mck uplink M¶

k Tagk/kÈY VLAN ÄÄ TagožUY*xX **switchport trunk allowed 1€Mµ** ß VLANož

¶%² switch port %”© hybridkÄ VLANk Trunk Mck UY*xX **switchport hybrid allowed 6€M¶** Tag ê UNTag ¥¶ož

oF¬å- 1 y1¶M 1 —å access M

vlan-list	*VLAN*

oHFå- HÕtrunk My uplink MK9ÄÁ VLANož

o×X%”o- NMFß%”

oHõ- 14

o6-o- %² trunk/uplink MHUYnŷ—Õ4 ÄÁ VLANg 1l 4094h vOožß-UY*—å
trunk/uplink MHU VLAN ÇÕl VLAN vO* trunk/uplink Mož
… **show interfaces xßož**

oFåb- 1 y%² VLAN 2 R trunk M GigabitEthernet 0/10 gß

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode trunk
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan remove 2
```

2y@ trunk M G 0/10 MÏ4 VLAN 10 YÙ VLANy

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan except 10
```

3y@ trunk M G 0/10 Mµ VLAN 10 wg”¿ VLANy

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan only 10
```

4y@ uplink M GigabitEthernet 0/10 MR VLAN 10 g”y

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport mode uplink
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan remove 10
```

5y@ uplink M GigabitEthernet 0/10 MÏ4 VLAN 10 YÙ VLANy

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan except 10
```

6y@ uplink M G 0/10 Mµ VLAN 10 wg”¿ VLANy

```
Ruijie(config)# interface gigabitEthernet 0/10
Ruijie(config-if-GigabitEthernet 0/10)# switchport trunk allowed vlan only 10
```

oèo- -

oUPÕ- -

oöjö- -

ouVö- -

4.9 switchport trunk native vlan

6 trunk/uplink Mó VLANož

switchport trunk native vlan *vlan-id*

Ê-åž

no switchport trunk native vlan

Ê-åž

default switchport trunk native vlan

op@

oUPÎb- -

oejö- -

ouVÎ0- -

4.10 vlan

ë VLAN ã VLAN %”ož

vlan { *vlan-id* | **range** *vlan-range* }

Í]¨ VLANož

no vlan { *vlan-id* | **range** *vlan-range* }

16]Æ VLAN ÊÁ VLANož

default vlan { *vlan-id* | **range** *vlan-range* }

oÊ

@	T
vlan-id	VLAN ID ãž hÿP VLANgVLAN 1 hÿož
vlan-range	VLAN ID 8ož

oÍFå- ÁÁ VLAN

oxX%”o- ÊFÅ%”

oÍÊ- 14

o6-o-

oFÅb- 1 oë VLAN 10 wµ VLAN 10 %”

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)#
```

oèo- -

oUPÎb- -

oejö- -

oнV⓪- -

5.2 mac-vlan mac-address

FÁ MAC VLAN nðz

mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]

ïÁ MAC VLAN nðz

no mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]

ïÁ MAC VLAN nðz

default mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]

op@ p@

5.3 show mac-vlan

ð MAC VLAN nðz

show mac-vlan { **all** | **dynamic** | **static** | **vlan** *vlan-id* | **mac-address** *mac-address* [**mask** *mac-mask*] }

op

p@	T
all	P MAC-VLAN nÃðz

5.4 show mac-vlan interface

ÔÒ MAC VLAN ¥Ïçož

show mac-vlan interface

ob® p@

p@	T
-	-

oxX%”o- ¥%”

oH¥Ò- 2

o6-o- ¥Ïo MAC VLAN ek4xXGÞFêèž

oFåÒ- 1 yÔ MAC ¥n

```
Ruijie# show mac-vlan interface
MAC VLAN is enabled on following interface:
----------------------------------------
FastEthernet 0/3
FastEthernet 0/10
```

oÙPÒ- -

oÙVÒ- -

6 Protocol VLAN

6.1 protocol-vlan ipv4( )

NMŷ. VLANož

protocol-vlan ipv4

NMHŷ. VLANož

no

6.3 protocol-vlan profile( )

ĵ profile ¾NMož

protocol-vlan profile *num* **vlan** *id*

ŽNMî profileož

no protocol-vlan profile *id*

ŽNMÄ profileož

no protocol-vlan profile

	@	T
	num	profile «
	id	VLAN IDk1- D}u4Ä VLAN

¾

NM%”

14

1 yNMÀ Trunk ñ Hybrid %”ož

2y]Fåžk U+N%n¾Tn¾Cåž¾

1 y¾M#‘ VLAN

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

… **show protocol-vlan profile x** protocol-vlan F

1 y‘ VLAN +«ßFåÀFåž

```
%Protocol vlan profile 12 hasn't been created, please create it before you configure this
```

2y‘ VLAN +«ßFåNMk}™¼ož

```
%Protocol vlan profile 1 has been applied on the port, please detach it before you configure this
```

-

-

6.4 protocol-vlan profile( )

Fåą VLAN profileož

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

protocol-vlan profile *num* **frame-type LLC DSAP** *value* **SSAP** *value*

îî profile Fåž

no protocol-vlan profile *num*

ŽÄ profile Fåž

no protocol-vlan profile

o@ @ T

num	profile «
type	ÿYŠ
value	ÍÆ

oÍFå- ¼

oxX%”o- ßFą”

oÍõ- 14

oG-o-]FåŽ¼U+Nw¼ÿn¾ÿÎn¾ÇFåž¼

ÌĮ **DUNE** ı VLAN ő ç ĩ Ą ţ ő Ķ ψ ج Ĉ ث π ĩ Š ψ

oeÿö- -

ouVÔ- -

6.5 show protocol-vlan

ÞP Protocol VLAN Fåž

show protocol-vlan [**profile** [*id*] | **ipv4**]

op@

p@	T
id	profile «

ox%”o- Ô”

oÞ- 2

o6-o- … **show protocol-vlan xÞ** protocol-vlan Fõ

oFåÿ- 1 yÔ Protocol VLAN Fîž

```
Ruijie#show protocol-vlan

ip              mask            vlan
--------------- --------------- ----
1.2.1.0         255.255.255.0   5

interface            ipv4 status
-------------------- -----------



profile frame-type       ether-type/DSAP+SSAP   interface       vlan
```

profile	#‘ VLAN «
frame-type	¶
ether-type/DSAP+SSAP	Y

oUPĉ- -

ouV- -

```
Ruijie(config-vlan)#vlan 91
Ruijie(config-vlan)#no private-vlan isolated
Ruijie(config-vlan)#vlan 92
Ruijie(config-vlan)#no private-vlan community
```

3y… default xXHƒ Private VLANož

```
Ruijie(config)#vlan 90
Ruijie(config-vlan)#default private-vlan primary
Ruijie(config-vlan)#vlan 91
Ruijie(config-vlan)#default private-vlan isolated
Ruijie(config-vlan)#vlan 92
Ruijie(config-vlan)#default private-vlan community
```

oèo- 1 y.. **show vlan private-vlan** { **community** | **isolated** | **primary** }xXkUYõcº Private VLAN Fõ

oUPî- 1yçlƒ Private VLAN %”Ž VLAN %”%kéUPjöž

```
Types of private VLANs do not match
```

oöjö- 1 y1Á VLAN Få Private VLANož

oVõ- -

7.3 private-vlan association

8C¼ VLAN(secondary VLAN) VLAN(primary VLAN)ož

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

H¼ VLANož

no private-vlan association

H¼ VLANož

default private-vlan association

oõ

@	T
svlist	¼ secondary vlangü VLANh
add *svlist*	¼

oxX%”o- VLAN %”

oH-o- 14

o6-o- À VLAN(primary VLAN)Fåž
¼ VLAN À Private VLAN ¼ VLANož

oFåb- 1y¼ VLANož

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

2y VLAN yü VLAN ¼ž

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

oUPb- -

ouV- -

7.4 private-vlan mapping

VLAN yü VLAN C¼ž

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

C¼ VLANož

no private-vlan mapping

C¼ VLANož

default private-vlan mapping

o® p

@	T
svlist	¼ VLAN
Add *svlist*	¼/LAN
remove *svlist*	¼/LAN

oHFå- Þ VLAN yü VLAN ¼

oxX%”o- Nw=Ÿ

oHõ- 14

o6-o- ùÞ¼ VLAN ïgC*bž

oFåb- 1yü VLAN Cõ¼ VLANož

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

oèxo- 1 y… **show vlan private-vlan xKUõ** Private VLAN Fõž

oejö- 1 yFêõ¼ VLAN yü VLAN ÄCõž

ouVõ- -

7.5 show vlan private-vlan

ô Private VLAN FåUYô6º VLAN Fõž

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

ôÄ Private VLAN Få

show vlan private-vlan

oÞ

@	T
primary	Þ primary VLAN Î
community	Þ community VLAN Î
isolated	Þ isolated VLAN Î

o×X%”o- %”

oHõ- 2

o6-o- -

oFåb- 1yô Private VLAN Fõž

```
Ruijie#show vlan private-vlan

VLAN  Type       Status   Routed   Ports                          Associated VLANs
----- ---------- -------- -------- ------------------------------ ------------------
30    primary    inactive Enabled
31    isolated   inactive Disabled                                 No Association
```

```
90    primary    active   Disabled                          91-92
91    isolated   active   Disabled                          90
92    community  active   Disabled Gi0/1                    90
```

È ɜ ٪... ڤ χ

```
<
```

oxX%”o- NM%”

oH- 14

o6-o- NMÀ Private VLAN host M%”ož
ú¼ Private VLAN ÀCõž

oFåb- 1 yhost Mú¼ VLAN yü VLANož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan host
Ruijie(config-if)# switchport private-vlan host-association 22 23
Ruijie(config-if)# default switchport private-vlan host-asscioation
Ruijie(config-if)# switchport private-vlan host-association 22 25
```

oào- -

oUPÎb- 1 yõ VLAN © VLANkÉUPjož

```
Operation is not supported on interface GigabitEthernet 0/1: the primary vlan doesn't exist!
```

2yõ¼ VLAN VLAN ÀCÉUPjož

```
Operation is not supported on interface GigabitEthernet 0/1: the VLAN pair(22-23) is invalid!
```

oõjö- 1 yú¼ VLAN yü VLAN ÀCõž
2yú¼ VLAN yü VLAN Ã Private VLAN KÅjož

oUVõ- -

7.8 switchport private-vlan mapping

private VLAN ÒMFÅÒ secondary VLANož

switchport private-vlan mapping *p_vi d* { *svlist*

show voice vlan oui

@	T
-	-

oxX%”o- %”

o-o- 2

o6-o- *4xXkU0u–Ô4§ OUI ož

oFåb- 1 yô—Õ Voice VLAN OUI ª

```
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
```

È ¤ ¾ ... ¤ χ

<	¢
OUI	OUI k§ MAC ož
Mask	OUI ¢QAkOUI ¤xkQAnPož
Description	OUI ¤T

oUPb- -

ouVo- -

8.3 voice vlan

¤… Voice VLANk—%² VLAN Voice VLANož

voice vlan *vlan-id*

ŬY¥X **no ¤** Voice VLAN ož

no voice vlan

o@

@	T
minutes	*nP* Voice VLAN k8<5 k10000> k%yyo

oF å-

minutes @ 1440 o

oxX%”o-

F%”o

o 14

o6-o-

U— Õ å Voice VLAN k— lvñ
1 IR Voice VLAN o

y— å Voice VLAN 10 o

oè o-

… **show voice vlan** Voice VLAN F

oUPÎ-

-

oo-

-

oV-

-

8.5 voice vlan cos

— å Voice VLAN CoS o

voice vlan cos *cos-value*

UY¥X **no** o

no voice vlan cos

o@

@	T
cos-value	**nP** Voice VLAN CoS k8<0 k7> o

oF å-

cos-value @ 6o

oxX%”o-

F%”

oЧPÎ- -

oэjö- -

oиVÛ-

8.7 voice vlan enable

NMFå‰”4xXÈM Voice VLAN ož

voice vlan enable

ÙY¥X **no** ÈM Voice VLAN ož

no voice vlan enable

oÈ®

@	T
-	-

oHFå- HÕM Voice VLAN {ož

o×X%”o- NMFå‰”

oHõ- 14

o6-o- *¥XÈM Voice VLAN kVoice VLAN QÈMoož HD}u4¨ Access PortoTrunk Port oHybrid Port oPrivate VLAN ÑloPrivate VLAN ÙÈ Uplink Mo Voice VLAN ož

ℹ ╗ Voice LAN Ã ↑ ↑ ↑ ×̣ ő Ľ ε ⁱ ↑ Voice LAN ụ Ľ ő ¨ в ¢

oFåÛ- 1 yÈM FastEthernet 0/1 Voice VLAN ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# voice vlan enable
```

oèo- … **show voice vlan ô** Voice VLAN FÕž

oЧPÎ- -

oэjö- -

oиVÛ- -

ŀUY¥X **no** Voice VLAN W%”%”ož

no voice vlan mode auto

-	-

Voice VLAN W%”%”ož

NMF%”

14

Voice VLAN W%”%”%”Voice VLAN W%”,

cUY—%”ožW%”µ Voice VLAN ckU

IP Voice VLAN W%”ož

Voice VLAN Voice VLAN native VLAN Voice VLAN

Trunk Port/Hybrid Port VLAN Voice VLAN VLAN Voice VLAN Voice VLAN

Voice VLAN Voice LAN Voice VLAN

Voice LAN Voice VLAN

1 y— FastEthernet 0/1 Voice VLAN %”%”ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-vlan)# voice vlan mode auto
```

… **show voice vlan** Voice VLAN F

-

-

-

8.10 voice vlan security enable

ßø Voice VLAN ¶‰”ož

voice vlan security enable

ŬY¥X **no ¶‰ž**

no voice vlan security enable

o®

@	T
-	-

oÅ- Voice VLAN ¶‰”øž

o×X%”o- ßFå%”

oõ- 14

o6-o- 4ÿ®ÇvšnÿUYø Voice VLAN ¶‰”o¶‰”e—Õ

k+† MAC ßù¢ MAC Ŭœ Voice VLAN OUI ¶¥

Voice VLAN Äÿkkéÿž

⚠ , ˝I ⅔ ˘ в Voice VLAN З ȧ ⅃ ¢ ɪ ж ő Voice VLAN ɪ ‿ ⁄ Ấ ↑ ¢

untagged π ˜Ω ˛ Voice VLAN tag ɪ π ℗ MAC л ` ω ő ˆ ˛ ˈ Voice VLAN tag ɪ π ő ϑ¯ VLAN Ặ ˆ π ℗ þ ȧ ψ ɪ ə ŭ ő в Voice VLAN ‿ / ⁄ ɪ ¢

oÅ- 1 oø Voice VLAN ¶‰”ož

```
Ruijie(config)# voice vlan security enable
```

oò- … **show voice vlan ô** Voice VLAN Fõž

oÜPÎ- -

oöÿ- -

oÜVõ- -

9 MSTP

9.1 bpdu src-mac-check

NM bpdu › mac òž

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

NM bpdu › mac òž

no bpdu src-mac-check

	@	T
	H.H.H	nPQNv› mac ¥ bpdu lož

oFå- ¤ž

oXX%”o- NM%”ož

o- 15

o- … BPDU › MAC 02.KG BPDU AEÑ. MSTP W oož
G4 Mu è AEÑU.Få BPDU › MAC QNv+
EÑ BPDU lk BPDU lkR ¤ž
UY¨ interface %”Få BPDU › MAC ò MAC %MQª
F%¿ MAC ¾ž

oFåt- 1yFå NM Gi 1/1 QNv› mac 00d0.f800.1e2f bpdu lož

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

oò- 1y… show running-config xXkUY XX—ož

oUPÒ- -

oöj- —å BPDU › MAC QNv¥ MAC G BPDU lk ¥ MAC ª
G BPDU lož

oVÒ- -

9.2 bridge-frame forwarding protocol bpdu

ø BPDU %nož

bridge-frame forwarding protocol bpdu

¼ BPDU %nož

no bridge-frame forwarding protocol bpdu

	@	T
	-	-

oÞFå- Ÿ%ož

oxX%"o- ÞFå%"ož

oÞõ- 15

o6-o- ¨ IEEE 802.1Q õBPDU) MAC ª 01-80-C2-00-00-00 ¢/8²
IEEE 802.1Q ò-Ò+9Nvñ BPDU lÒoÞÞkeU}-
—Ò4%n BPDU loÞ—Ò STP #¢}%n BPDU lk$-
ÞÞoož
BPDU %nQ¨ STP #{ÞÞoož STP #Þ—Ò%n BPDU lož

oFåÞ- 1yø BPDU %nož

```
Ruijie(config)# bridge-frame forwarding protocol bpdu
```

oèo- 1y… show running-config xXkUYÞ¥XÞ—åž

oÞPÞ- -

oöÞö- -

oÞVÞ- -

9.3 clear spanning-tree counters

Ž STP vGÎ

clear spanning-tree counters [**interface** *interface-id*]

oHV0- -

9.5 clear spanning-tree mst topochange record

Ž STP ‰JÎ

clear spanning-tree mst *instance-id* **topochange record**

o@	@	T
	instance-id	6 IDo‡9 STP y RSTP #kQÄ 0 ‰ž

oxX%”o- Ô”

oH0- 15

o6-o- ¥XUYŽ‰JÎ

oFå0- 1yŽ† 0 ‰JÎ

```
Ruijie# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time                Interface           Old status   New status   Type
 ------------------- ------------------- ------------ ------------ ----------------
 2013.5.1 4:18:46    GI0/6               Learning     Forwarding   Normal
Ruijie# clear spanning-tree mst 0 topochange record
Ruijie# show spanning-tree mst 0 topochange record
%There's no topology change information has been record on mst 0.
```

oUPÎ0- -

oHV0- -

9.6 instance instance-id vlan vlan-range

MST F‰”—Ô vlan ¥Ž

instance *instance-id* **vlan** *vlan-range*

¨ MST F‰”Ä0ž

no instance *instance-id* {**vlan** *vlan-range*}

o@

@	T
instance-id	Instance Ž8 0l64
vlan-range	Vlan ȩk8 1 - 4094

oÞ-å- Þ instance y vlan +Ö Vlan C¨ Instance 0 ož

o×X%"o- MST Få‰".

oÞ- 15

o6-o- µ MST Få‰"ekY.xXgF@

instance *instance-id* **vlan** *vlan-range* y1 Vlan Á MST Instance ož instance-id 8 0 l64ožvlan 8 1l4094 ožvlan-range UY%? vlan kVLAN ID }ÈÒ VLAN ID UYl.NÃ VLAN ID Nkþinstance 10 vlan 2,3,6-9 #41 VLAN 2k 3k 6k 7k 8k 9 ñ Instance 10 oÞ-Å VLAN ® Instance 0 ož VLAN R Instance îc©. no xXyno instance instance-id [vlan vlan-range] oȝhÞ no xX Instance 8 1l64)

iH—Õ4gÃò 64M Ä ÀÕ 64 instance k-Å ÕÃÕê instance ‚ž

oFåþ- 1yµÕµ MST %"k1 VLAN 3, 5-10 Ÿñ MST Instance 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3 ι 5-10
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name      :
Revision : 0
Instance  Vlans Mapped
----------  ---------------------
0         1-2,4,11-4094
1         3,5-10
-----------------------------------
Ruijie(config-mst)# exit
Ruijie(config)#
```

2yȝ1 VLAN 3 R Instance 1 îkµ MST Få‰"ekȝò

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

3yȝ1… Instance 1 îkcȝ

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

oè¤o- 1y… show running-config xXkUYÔ¥XÚ—åž

oÜPÎb- -

oöjö- -

oÜVÚ- -

9.7 l2protocol-tunnel stp

oÞ BPDU TUNNEL ož
l2protocol-tunnel stp

{Þ BPDU TUNNEL ož
no l2protocol-tunnel stp

oÞ

@	T
-	-

oxX%”o- %”

oÞ- 15

o6-o- oÞ BPDU TUNNEL kNM… BPDU TUNNEL ož

oFåÞ- 1yoÞ BPDU TUNNEL ož

```
Ruijie(config)# l2protocol-tunnel stp
Ruijie(config)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
```

oÜPÎb- -

oÜVÚ- -

9.8 l2protocol-tunnel stp enable

oNM BPDU TUNNEL

l2protocol-tunnel stp enable

ì Æ BPDU TUNNEL

no l2protocol-tunnel stp enable

o	@	T
	-	-

oxX%”o- NMF‰”

oÑ- 15

o6-o- o BPDU TUNNEL k NM… BPDU TUNNEL ož

oFåÞ- 1yoNM BPDU TUNNEL ož

```
Ruijie(config-if-interface-id)# l2protocol-tunnel stp enable
Ruijie(config-if-interface-id)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
GigabitEthernet 0/1 l2protocol-tunnel stp enable
```

oÜPÎb- -

oÜVÞ- -

9.9 l2protocol-tunnel stp tunnel-dmac

—å BPDU TUNNEL %n STP #ož

l2protocol-tunnel stp tunnel-dmac *mac-address*

—å BPDU TUNNEL %n STP #ož

no l2protocol-tunnel stp tunnel-dmac

o	@	T
	mac-address	% STP #

oxX%”o- F‰”

```
Multi spanning tree protocol : Enable
Name     : region1
Revision : 0
Instance  Vlans Mapped
-------- -------------------------------------------
0        : ALL
Ruijie(config-mst)# exit
Ruijie(config)#
```

oè¤o- 1y… show running-config xXkUYÔ¥XkÇ—åž

oÜPÎb- -

oöjö- -

oÜVÔ- -

9.11 revision

MST F‰”—å MSTP ¿ revision k

revision *version*

¨ MST F‰”ÑÊž

no revision

o®®

®@	T
version	6 MST revision numberk8 0l65535

oÞF‰å- Þ revision 0ož

o×X%”o- MST F‰”.

oÞÕ- 15

o6¬o- µ MST F‰”ekUYY.xXgFÞ®

revision versiony—å MST Ïk8 0l65535oÉY no revision 1®ž

show spanning-tree mst configurationyÞÚ MST region Îbž

oFåt- µ®µ MST %”k1 revision Få 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     :
Revision : 1
Instance  Vlans Mapped
-------- -------------------------------------------
0        : ALL
```

```
Ruijie(config-mst)# exit
Ruijie(config)#
```

oèo- 1y… show running-config xXkUYÔ¥XÇ—åž

oUPÎb- -

oöjö- -

oHVÔ- -

9.12 show l2protocol-tunnel stp

ÞP BPDU TUNNEL Fß

show l2protocol-tunnel stp

o®®

@	T
-	-

oxX%”o- Ô”kß%”oÞNM%”

oßÕ- 15

o6-o- -

oFåt- 1y4xXÔ BPDU TUNNEL Fß

```
Ruijie# show l2protocol-tunnel stp
```

oHV0- -

9.5 clear spanning-tree mst topochange record

Ž STP ‰JÎ

clear spanning-tree mst *instance-id* **topochange record**

o@	@	T
	instance-id	6 IDo‡9 STP y RSTP #kQÄ 0 ‰ž

oxX%”o- Ô”

oH0- 15

o6-o- ¥XUYŽ‰JÎ

oFå0- 1yŽ† 0 ‰JÎ

```
Ruijie# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time                Interface           Old status   New status   Type
 ------------------- ------------------- ------------ ------------ ----------------
 2013.5.1 4:18:46    GI0/6               Learning     Forwarding   Normal
Ruijie# clear spanning-tree mst 0 topochange record
Ruijie# show spanning-tree mst 0 topochange record
%There's no topology change information has been record on mst 0.
```

oUPÎ0- -

oHV0- -

9.6 instance instance-id vlan vlan-range

MST F‰”—Ô vlan ¥Ž

instance *instance-id* **vlan** *vlan-range*

¨ MST F‰”Ä0ž

no instance *instance-id* {**vlan** *vlan-range*}

o@

@	T
instance-id	Instance Ž8 0l64
vlan-range	Vlan ųk8 1 - 4094

oÞ-å- Þ instance y vlan +Ö Vlan C¨ Instance 0 ož

o×X%”o- MST F%”.

oÞ- 15

o6-o- µ MST F%”ekY.xXgF@

instance *instance-id* **vlan** *vlan-range*y1 Vlan Á MST Instance ož instance-id 8 0 l64ožvlan 8 1l4094 ožvlan-range UY%? vlan kVLAN ID)ÈÒ VLAN ID UYl.NÃ VLAN ID Nkþinstance 10 vlan 2,3,6-9 #41 VLAN 2k 3k 6k 7k 8k 9 ñ Instance 10 oÞ-Ö VLAN ® Instance 0 ož VLAN R Instance ľc©. no xXyno instance instance-id [vlan vlan-range] oč-hÞ no xX Instance 8 1l64)

iH—Ö4gÃò 64M Ä ÄÕ 64 instance k-Ä ÕÉÕê instance ož

oFåþ- 1yµþµ MST %”k1 VLAN 3, 5-10 ¥ñ MST Instance 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3 ι 5-10
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name      :
Revision : 0
Instance  Vlans Mapped
----------  ---------------------
0         1-2,4,11-4094
1         3,5-10
-----------------------------------
Ruijie(config-mst)# exit
Ruijie(config)#
```

2yþ1 VLAN 3 R Instance 1 ľkµ MST F%”ekġò

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

3yþ1… Instance 1 ľkeò

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

oè¤o- 1y… show running-config xXkUYÔ¥XÚ—åž

oÜPÎb- -

oöjö- -

oÜVÚ- -

9.7 l2protocol-tunnel stp

oÞ BPDU TUNNEL ož
l2protocol-tunnel stp

{Þ BPDU TUNNEL ož
no l2protocol-tunnel stp

oÞ

@	T
-	-

oxX%”o- %”

oÞ- 15

o6-o- oÞ BPDU TUNNEL kNM… BPDU TUNNEL ož

oFåÞ- 1yoÞ BPDU TUNNEL ož

```
Ruijie(config)# l2protocol-tunnel stp
Ruijie(config)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
```

oÜPÎb- -

oÜVÚ- -

9.8 l2protocol-tunnel stp enable

oNM BPDU TUNNEL

l2protocol-tunnel stp enable

ì Æ BPDU TUNNEL

no l2protocol-tunnel stp enable

o	@	T
	-	-

oxX%”o- NMF‰”

oÑ- 15

o6-o- o BPDU TUNNEL k NM… BPDU TUNNEL ož

oFåÞ- 1yoNM BPDU TUNNEL ož

```
Ruijie(config-if-interface-id)# l2protocol-tunnel stp enable
Ruijie(config-if-interface-id)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
GigabitEthernet 0/1 l2protocol-tunnel stp enable
```

oÜPÎb- -

oÜVÞ- -

9.9 l2protocol-tunnel stp tunnel-dmac

—å BPDU TUNNEL %n STP #ož

l2protocol-tunnel stp tunnel-dmac *mac-address*

—å BPDU TUNNEL %n STP #ož

no l2protocol-tunnel stp tunnel-dmac

o	@	T
	mac-address	% STP #

oxX%”o- F‰”

```
Multi spanning tree protocol : Enable
Name     : region1
Revision : 0
Instance  Vlans Mapped
-------- -------------------------------------------
0        : ALL
Ruijie(config-mst)# exit
Ruijie(config)#
```

oè¤o- 1y… show running-config xXkUYÔ¥XkÇ—åž

oÜPÎb- -

oöjö- -

oÜVÔ- -

9.11 revision

MST F‰”—å MSTP ¿ revision k

revision *version*

¨ MST F‰”ÑÊž

no revision

o®®

®@	T
version	6 MST revision numberk8 0l65535

oÞF‰å- Þ revision 0ož

o×X%”o- MST F‰”.

oÞÕ- 15

o6¬o- µ MST F‰”ekUYY.xXgFÞ®

revision versiony—å MST Ïk8 0l65535oÉY no revision 1®ž

show spanning-tree mst configurationyÞÚ MST region Îbž

oFåt- µ®µ MST %”k1 revision Få 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     :
Revision : 1
Instance  Vlans Mapped
-------- -------------------------------------------
0        : ALL
```

```
Ruijie(config-mst)# exit
Ruijie(config)#
```

oèo- 1y… show running-config xXkUYÔ¥XÇ—åž

oUPÎb- -

oöjö- -

oHVÔ- -

9.12 show l2protocol-tunnel stp

ÞP BPDU TUNNEL Fß

show l2protocol-tunnel stp

o®®

@	T
-	-

oxX%”o- Ô”kß%”oÞNM%”

oßÕ- 15

o6-o- -

oFåt- 1y4xXÔ BPDU TUNNEL Fß

```
Ruijie# show l2protocol-tunnel stp
```

	6Få Voice VLAN OUI ¤ož ● QOS %"Fåœ LP QOS os-z Voice VLAN Fåœ Voice VLANos-z ¶3Fåœ ACL os-ož

oFåb- 1	yFå lldp network-policy profile-num 1hÇE voice ¥ïœ untaggedz voice-signaling ¥vlan id © 3kcos © 4k dscp © 6ož Ruijie#config Ruijie(config)#lldp network-policy profile 1 Ruijie(config-lldp-network-policy)# voice vlan untagged Ruijie(config-lldp-network-policy)# voice-signaling vlan 3 cos 4 Ruijie(config-lldp-network-policy)# voice-signaling vlan 3 dscp 6

oUPÎb-	-

oœjö-	-

ouVÎ-	-

11.2 civic-location

Få LLDP ¥Îož

{ **country | state | county | city | division | neighborhood | street-group | leading-street-dir | trailing-street-suffix | street-suffix | number | street-number-suffix | landmark | additional-location-information | name | postal-code | building | unit | floor | room | type-of-place | postal-community-name | post-office-box | additional-code** } *ca-word*

ÏUY… no #¥Îož

no { **country | state | county | city | division | neighborhood | street-group | leading-street-dir | trailing-street-suffix | street-suffix | number | street-number-suffix | landmark | additional-location-information | name | postal-code | building | unit | floor | room | type-of-place | postal-community-name | post-office-box | additional-code** }

op®	

p@	T
country	¥Ak2 ¤hinay CH
state	Î CA ¹ 1
county	CA ¹ 2
city	CA ¹ 3
division	CA ¹ 4
neighborhood	CA ¹ 5

11.3 clear lldp statistics

Ž LLDP Îbž

clear lldp statistics [**interface** *interface-name*]

o@ß

@	T
interface-name	NMdf

o×X%”o- Ô”

oÞ- 2

o6-o- 6 **interface** ¡ÞÞNM LLDP Îbž

oFåÞ- 1 yžNM 1 LLDP Îbž

```
Ruijie# clear lldp statistics interface GigabitEthernet 0/1
Ruijie# show lldp statistics interface GigabitEthernet 0/1
Lldp statistics information of port [GigabitEthernet 0/1]
-----------------------------------------------------------
The number of lldp frames transmitted       : 0
The number of frames discarded              : 0
The number of error frames                  : 0
The number of lldp frames received          : 0
The number of TLVs discarded                : 0
The number of TLVs unrecognized             : 0
The number of neighbor information aged out : 0
```

oÙPÎb- -

oÙVÞ- -

11.4 clear lldp table

Ž LLDP >DÎ

clear lldp table [**interface** *interface-name*]

o@ß

@	T
interface-name	NMdf

o6-o- µ LLDP Civic Address Få‰”ekFå LLDP ¾¹—ÕÕz

oFåÕ- 1ÕF lldp Civic Addressid 1hÕÕÕÕÕ

```
Ruijie#config
Ruijie(config)# lldp location civic-location identifier 1
Ruijie(config-lldp-civic)# device-type 1
```

oÜPÎb- -

oeÕÕ- -

oÜVÕ- -

11.6 lldp compliance vendor

dor_5( )Tj_0 i_0 a_5(nr_5(e_5( )-13(v)18 e_5 0 1 f)Tj ET 0.902 g 0 10.5 56.2 0.1 1 Tf 29.767 -1.693 Td 0.09Tj /C2_ 1 Tf 0

TjTT2 1 Tf 7.453 8 61188 43464 1515041B0199 g 21 1 Tf 0 0 9 12378 61644 Tm 0350155175TT2 1 T004C00480000004

oHVØ- -

11.7 lldp enable

ø LLDP ož

lldp enable

¼ LLDP ož

no lldp enable

oØ®	@	T
	-	-
oHFå-	Ø®ž	

oxX%”o- ßgêMhFß%”

oHÕ- 14

o6-o- }Bø LLDP kNM LLDP ož

oFåØ- 1 LLDP ¼

```
Ruijie#configure terminal
Ruijie(config)#no lldp enable
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# no lldp enable
```

oHPÎ- -

oøjö-

- NM]o LLDP kx LLDP k4 NM LLDP ož
- M.ñDÞ 5 k/MÑ.ñ 5 >Dož
- ÈD—Ö4 LLDPkx®D—Ö4 LLDPk9>D—ÖkG LLDP kjMUk.ñ—Öž

oHVØ- -

oFåb- 1ÿF TTL f 5ø

```
Ruijie# configure terminal
Ruijie(config)#lldp hold-multiplier 5
```

oUPÎb- -

oəjö- -

ouVØ- -

11.12 lldp location civic-location identifier

µ LLDP Civic Address Få%”kàU—Ïb ž

Få LLDP MED-TLV Civic Address Îb ž

lldp location civic-location identifier *id*

ï LLDP MED-TLV Civic Address Îb ž

no lldp location civic-location identifier *id*

o@	@	T
	id	1-1024

oHFå- -

oxX%”o- BFå%”

oHø- 14

o6-o- 4xXUµ LLDP Civic Address %

oFåb- 1 yë LLDP MED-TLV Civic Address Îkid 1ož

```
Ruijie#config
Ruijie(config)#lldp location civic-location identifier 1
Ruijie(config-lldp-civic)#
```

oUPÎb- -

oəjö- -

… no #¼YH¶Gbož

no lldp management-address-tlv

o¶®	p@	T
	ip-address	LLDP ¶Gbè

oHFå- -

oxX%”o- NMFß%”

oHõ- 14

o6-o- HÕLLDP ¶GbèZbõ®Â VLAN IPv4 ®¶ VLAN Ìå IPv4 ®¶®Â VLANk+ñ IPv4 ²ož ¶ IPv4 ®¶®Â VLAN IPv6 ²ž ÇÌñ IPv6 ®¶ÑÑ 127.0.0.1 ¶Gbož

oFåÞ- 1 yFå LLDP ¶Gbè 192.168.1.1ož

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp management-address-tlv 192.168.1.1
```

oUPÎb- -

oæjö- -

oVÞ- -

11.15 lldp mode

Få LLDP W%”ož

lldp mode { **rx | tx | txrx** }

ÌUY… no #¼ LLDP W%”ož

no lldp mode

o¶®	p@	T
	rx	**nPQNvG** LLDPDU
	tx	**nPQGNv** LLDPDU

txrx	**nP/GANv** LLDPDU

oHFå- **txrx**

oxX%”o- NMFß%”

oHß- 14

o6-o- {ÑM LLDP W%”k4ÑMÇyNv LLDP ¢ž
NM LLDP ÿÛ¤4. LLDP NM LLDP W%”Ô txorx ê txrxož

oFå¢- 1 yFßM LLDP W%”QGNv LLDPDUož

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#lldp mode tx
```

oUPÎ¢- -

oeÿo- -

ouVß- -

11.16 lldp network-policy profile

ë LLDP network-policy ÆÇvµ LLDP network-policy Fß%”ož

lldp network-policy profile *profile-num*

… no #¾ LLDP network-policy ÆÇž

no lldp network-policy profile *profile-num*

o¢	@	T
	profile-num	LLDP network-policy ÆÇy1-1024

oHFå- -

oxX%”o- ßFß%”

oHß- 14

oЧPÎb- -

oəjö- -

oнVØ- -

11.18 lldp timer notification-interval

FÊG LLDP Trap ğž

lldp timer notification-interval *seconds*

… no #ЧYÊğž

no lldp timer notification-interval

o®®	@	T
	seconds	FÊG LLDP Trap ğğe 5 akUFå 8© 5-3600

oнFå- Þ 5 a

oxX%”o- ßFå%”

oнØ- 14

oG-o- 42. LLDP Trap ÊkUYFÊG LLDP Trap ğğğñ LLDP ÎÜk1G Trap ğž

oFåÜ- 1 yFå LLDP Trap Gğe 10 aož

```
Ruijie# configure terminal
Ruijie(config)#lldp timer notification-interval 10
```

oЧPÎb- -

oəjö- -

oнVØ- -

11.19 lldp timer reinit-delay

Fåšlež

lldp timer reinit-delay *seconds*

… no #ÚYÊšlež

no lldp timer reinit-delay

seconds	šlkFå	1-10 a

oHFå- 2 a

oxX%”o- ßFå%”

oHõ- 14

o6-o- 49šlW%”È–ÚYFåšlež

oFåõ- 1 yFå LLDP šlk 3 aož

```
Ruijie# configure terminal
Ruijie(config)#lldp timer reinit-delay 3
```

oUPÎb- -

oojö- -

ouVõ- -

11.20 lldp timer tx-delay

Få LLDP šlež

lldp timer tx-delay *seconds*

… no #ÚYÊšlež

no lldp timer tx-delay

seconds	LLDP ĆkUFå	1-8192

oHFå- 2	a

oxX%”o-	ßFå”

oHõ-	14

o6-o-	ÊÇÿkky/g>D—Ğ LLDP ĸUYFå LLDLDP	LLDP ťŽ9Ê–Ğ

oFåÛ- 1	yFå LLDP ©ž 10 aož Ruijie# configure terminal Ruijie(config)#lldp timer tx-interval 10
oÜPÎb-	-
oèjö-	-
oÜVÞ-	-

11.22 lldp tlv-enable

Fêb TLV ©ž

lldp tlv-enable { **basic-tlv** { **all** | **port-description** | **system-capability** | **system-description** | **system-name** } |**dot1-tlv** { **all** | **port-vlan-id** | **protocol-vlan-id** [*vlan-id*] | **vlan-name** [*vlan-id*] } |**dot3-tlv** { **all** | **link-aggregation** | **mac-physic** | **max-frame-size** | **power** } | **med-tlv** { **all** | **capability** | **inventory** | **location** { **civic-location** | **elin** } **identifier** *id*

- 6 **interface ¡@1PG6NM** LLDP ÎbŽ
- 6~¡@1PÄ LLDP Î‹,ÞyNM LLDP ÎbŽ

```
Protocol Identity                :



802.3 organizationally information
Auto-negotiation supported       : YES
Auto-negotiation enabled         : YES
PMD auto-negotiation advertised  : 100BASE-TX full duplex mode, 100BASE-TX half duplex mode
Operational MAU type             : speed(100)/duplex(Half)
PoE support                      : NO
Link aggregation supported       : YES
Link aggregation enabled         : NO
Aggregation port ID              : 0
Maximum frame Size               : 1500

LLDP-MED organizationally information
Power-via-MDI device type        : PD
Power-via-MDI power source       : Local
Power-via-MDI power priority     :
Power-via-MDI power value        :
Model name                       : Model name
```

show lldp local-information xRÎTny

<	¢
Chassis ID type	Chassis ID ®9œ Chassis ID <
Chassis ID	9œeÕ*ª - n P
System name	T—Ãf
System description	—ÕÕk,F^ êeqÊ©
System capabilities supported	¨04
System capabilities enabled	¨©..
LLDP-MED capabilities	¨04

Auto-negotiation supported	ku4#Œ
Auto-negotiation enabled	k#Œ
PMD auto-negotiation advertised	M#Œ
Operational MAU type	M#EWÅ
PoE support	ku4 POE
Link aggregation supported	ku4eè
Link aggregation enabled	keè
Aggregation port ID	eM ID
Maxmum frame Size	Mu4Ïx†
Power-via-MDI device type	—Ïy PSEgˆ—Ï PDgl—Ï
Power-via-MDI power source	¹
Power-via-MDI power priority	¡¯
Power-via-MDI power value	Mã
Model name	%ïf

oÜPÎb- -

oÜVÏ- -

11.24 show lldp location

PÎ—Ï LLDP ™ÏÅÎbž

show lldp location { **civic-location | elin-location** } { **identifier** *id* **| interface** *interface-name* **| static** }

oÏ

@	T
civic-location	**nP/xÅÏ-**
elin-location	**nP/xÅÎ**
identifier	**PÏ**

id	*E ID
interface	**PMÎ**
interface-name	*N*
static	**PÎ**

oxX%”o- Ô”

oÕ- 2

o6-o-

- 6 PÎbž
- 6NMdfk1PMFÎ
- 6~ PÎ

oFÅ- 1yÎ

```
Ruijie# show lldp location civic-location static
LLDP Civic location information
-------------------------
Identifier                : testt
County                     : china
City Division             : 22
Leading street direction: 44
Street number            : 68
Landmark                  : 233
Name                       : liuy
Building                  : 19bui
Floor                      : 1
Room                      : 33
City                      : fuzhou
Country                   : 86
Additional location     : aaa
Ports                     : Gi0/1
-------------------------
Identifier               : tee
-------------------------
```

2yPÎbž

```
Ruijie# show lldp location elin-location static
Elin location information
-------------------------
Identifier : t
Elin       : iiiiiiiiii
```

```
Ports      : Gi1/0/3
--------------------------
```

oUPÎb- -

ouV0- -

11.25 show lldp neighbors

P>D—Õ LLDP ÎbŽ

show lldp neighbors [**interface** *interface-name*] [**detail**]

@	T
interface [illegible]	[illegible]

```
  Management address                : 00d0.f822.33cd
  Interface numbering subtype       :
  Interface number                  : 0
  Object identifier                 :



  LLDP-MED capabilities             :
  Device class                      :
  HardwareRev                       :
  FirmwareRev                       :
  SoftwareRev                       :
  SerialNum                         :
  Manufacturer name                 :
  Asset tracking identifier         :

  Port ID type                      : Interface name
  Port id                           : GigabitEthernet 0/1
  Port description                  :

  802.1 organizationally information
  Port VLAN ID                      : 1
  Port and protocol VLAN ID(PPVID)  : 1
      PPVID Supported               : YES
      PPVID Enabled                 : NO
  VLAN name of VLAN 1               : VLAN0001
  Protocol Identity                 :
  802.3 organizationally information
  Auto-negotiation supported        : YES
  Auto-negotiation enabled          : YES
  PMD auto-negotiation advertised   : 1000BASE-T full duplex mode, 100BASE-TX full duplex mode,
100BASE-TX half duplex mode, 10BASE-T full duplex mode, 10BASE-T half duplex mode
  Operational MAU type              : speed(1000)/duplex(Full)
  PoE support                       : NO
  Link aggregation supported        : YES
  Link aggregation enabled          : NO
  Aggregation port ID               : 0
  Maximum frame Size                : 1500
  LLDP-MED organizationally information
  Power-via-MDI device type         :
  Power-via-MDI power source        :
  Power-via-MDI power priority      :
```

Port ID	ID	
Port VLAN ID	VLAN ID	
Port and protocol VLAN ID	VLAN ID	

o@ß

@	T
profile-num	network-policy ßÞy1-1024
interface-name	Nf

o×X%”o-

Ô”

oÞ-

2

o6-o-

- 6ÞÞÔ network-policy ÔÞ
- 6~@1ÞÄ network-policy ÔÞ

oFåÞ- 1

yÞÄ network-policy ÔÞ

```
Ruijie# show lldp network-policy profile
network-policy information:
-------------------------
Network Policy Profile 1
   voice vlan 2 cos 4 dscp 6
   voice-signaling vlan 2000 cos 4 dscp 6
```

oÞPÞ-

-

oÞVÞ-

-

11.27 show lldp statistics

Þ LLDP Þž

show lldp statistics [**global | interface** *interface-name*]

o@ß

@	T
interface-name	NMdf

o×X%”o-

Ô”

oÞ-

2

o6-o-

- 6 **global @1ÞÞ** LLDP Þž
- 6 **interface @1Þ6NM** LLDP Þž

oFåÞ- 1

yÞÄ LLDP Þž

```
Ruijie# show lldp statistics
lldp statistics global Information:
Neighbor information last changed time      : 1hour 52minute 22second
The number of neighbor information inserted : 2
The number of neighbor information deleted  : 0
The number of neighbor information dropped  : 0
The number of neighbor information age out  : 1

-------------------------------------------------------------
Lldp statistics information of port [GigabitEthernet 0/1]
-------------------------------------------------------------
The number of lldp frames transmitted       : 26
The number of frames discarded              : 0
The number of error frames                  : 0
The number of lldp frames received          : 12
The number of TLVs discarded                : 0
The number of TLVs unrecognized             : 0
The number of neighbor information aged out : 0
```

show lldp statistics xRÎny

<	¢
Neighbor information last change time	>DÊÊ¼
The number of neighbor information inserted	>DÎ)ƒ
The number of neighbor information deleted	>DÎ)ƒ
The number of neighbor information dropped	>DÎ)ƒ
The number of neighbor information aged out	>DÊƒ
The number of lldp frames transmitted	G LLDP Iƒ
The number of frames discarded	' LLDP Iƒ
The number of error frames	j¨ LLDP Iƒ
The number of lldp frames received	Nv LLDP Iƒ
The number of TLVs discarded	' LLDP TLV ƒ
The number of TLVs unrecognized	Uœe LLDP TLV ƒ
The number of neighbor information aged out	>DÊƒ

oUPÎ- -

ouV0- -

11.28 show lldp status

P LLDP ÃÜ

show lldp status [**interface** *interface-name*]

op@

@	T
interface-name	NMdf

oxX%"o- Ô"

oÃ- 2

o6-o- 6 **interface** @1P6NM LLDP ÃÜ

oFÅ- 1 yPÃ LLDP ÃÜ

```
Ruijie# show lldp status
Global status of LLDP                  : Enable
Neighbor information last changed time : 1hour 52minute 22second
Transmit interval                      : 30s
Hold multiplier                        : 4
Reinit delay                           : 2s
Transmit delay                         : 2s
Notification interval                  : 5s
Fast start counts                      : 3
------------------------------------------------------------
Port [GigabitEthernet 0/1]
------------------------------------------------------------
Port status of LLDP             : Enable
Port state                      : UP
Port encapsulation              : Ethernet II
Operational mode                : RxAndTx
Notification enable             : NO
Error detect enable             : YES
Number of neighbors             : 1
Number of MED neighbors         : 0
```

o@	@	T
interface-name	NMdf

oxX%”o- ”

oH- 2

o6-o- 6 **interface** **1P6NM** LLDP TLV F

oFa- 1 yPNM 1 TLV

```
Ruijie# show lldp tlv-config interface GigabitEthernet 0/1
LLDP tlv-config of port [GigabitEthernet 0/1]
-----------------------------------------------------
              NAME              STATUS DEFAULT
--------------------------------- ------ -----------
Basic optional TLV:
Port Description TLV            YES    YES
System Name TLV                 YES    YES
System Description TLV          YES    YES
System Capabilities TLV         YES    YES
Management Address TLV          YES    YES

IEEE 802.1 extend TLV:
Port VLAN ID TLV                YES    YES
Port And Protocol VLAN ID TLV   YES    YES
VLAN Name TLV                   YES    YES

IEEE 802.3 extend TLV:
MAC-Physic TLV                  YES    YES
Power via MDI TLV               YES    YES
Link Aggregation TLV            YES    YES
Maximum Frame Size TLV          YES    YES

LLDP-MED extend TLV:
Capabilities TLV                YES    YES
Network Policy TLV              YES    YES
Location Identification TLV     NO     NO
Extended Power via MDI TLV      YES    YES
Inventory TLV                   YES    YES
```

oUP- -

oнV0- -

oUPÎb- -

oöjö- -

ouVÎ- -

12.2 dot1q outer-vid vid register inner-vid v-list

¨ tunnel ßVlk—ÂÇ VID ÈÙ VID ÈE

dot1q outer-vid *vid* **register inner-vid** *v-list*

HÞÙ VID ÈE

no dot1q outer-vid *vid* **register inner-vid** *v-list*

HÞÙ VID ÈÕ

default dot1q outer-vid *vid* **register inner-vid** *v-list*

oÞ®

@	T
v_list	Ä vlan id çož
vid	Ù vlan idož

oHFå- ÈE

oxX%”o- NM%”

oHÕ- 14

oÈ-o- -

oFåb- 1 yÞ—Ù tag VID 4-22 ÈÙ VLAN Tag 3ož

```
ruijie#configure terminal
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
```

oèo- 1 y… **show registration-table** [**interface** *intf-id*]xXkÔFÕž

oUPÎb- -

ouVÐ- -

12.4 dot1q relay-vid vid translate local-vid v-list

¨ accessktrunk khybrid kuplink ¥Mk—ÂÙ VID “wÙ VID ÐE

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

HÞ VID “wŒ

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

HÞ VID “wŒ

default dot1q relay-vid *vid* **translate local-vid** *v-list*

ÞÞ	@	T
v_list	Ù	VLAN id ¿ož k

12.5 dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value

—Ã tag ¡Ÿ Ò tag

dot1q-Tunnel cos *inner-cos-value* **remark-cos** *outer-cos-value*

Hj Ÿ Œ

no dot1q-Tunnel cos *inner-cos-value* **remark-cos** *outer-cos-value*

Hj Ÿ Œ

default dot1q-Tunnel cos *inner-cos-value* **remark-cos** *outer-cos-value*

o Ê

@	T
inner-cos-value	Ã Tag ¡ož
outer-cos-value	Ã Tag ¡ož
no	**NMi Ÿ ož**

o Få- Œ

o X%”o- NM%”

o Ê- 14

o -o- Ã cos QOS Tag

cos —åk M}¡ Ò ož

oFåt- 1 yÊ Tag cos 3 Ò Tag cos Ÿ 5ož

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

oÒo- 1 y… **show interface** [*intf-id*] **remark** Ò ož

oUPÎb- -

oj¨ö- -

oVÊ- -

12.7 inner-priority-trust enable

[illegible] Tag [illegible] Tag [illegible]

inner-priority-trust enable

[illegible]

no inner-priority-trust enable

[illegible]

default inner-priority-trust enable

[illegible]

[illegible]	T
-	-

[illegible]

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

12.8 l2protocol-tunnel

Tunnel MG8C#‘

l2protocol-tunnel { **stp** | **gvrp** }

¼ Tunnel MG8C#¼

no l2protocol-tunnel { **stp** | **gvrp** }

¼ Tunnel MG8C#¼

default l2protocol-tunnel { **stp** | **gvrp** }

	@	T
	stp	G stp ž
	gvrp	G gvrp ž

-

%”

14

%n STP y GVRP #k

1 yC#‘ gvrp y stp Nvož

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

1 y… **show l2protocol-tunnel** { *gvrp* | *stp*}xXk0F

-

-

-

12.9 l2protocol-tunnel enable

12.10 l2protocol-tunnel tunnel-dmac

F#%n
l2protocol-tunnel { **stp** | **gvrp** } **tunnel-dmac** *mac-address*

H#%n
no l2protocol-tunnel { **stp** | **gvrp** } **tunnel-dmac** *mac-address*

H#%n
default l2protocol-tunnel { **stp** | **gvrp** } **tunnel-dmac** *mac-address*

@	T
stp	stp %n
gvrp	gvrp %n

o- F- 9%n 01d0f8ke 3 -(stp y000005kgvrpy000006) ož

o- X%”o- %”

o- 14

o- o- -

o- 1 y M8C#%nož

```
ruijie# configure terminal
ruijie(config-if)#l2protocol-tunnel gvrp tunnel-dmac 011AA9 000005
ruijie(config-if)#end
```

o- 1 y… **show l2protocol-tunnel** { **gvrp** | **stp** }xXk0F

o- P -

o- -

o- V -

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

1› vlan .Á mac ð vlan ož

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

Hƒ MAC ³ÕÕž

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

Hƒ MAC ³ÕÕž

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

oÞ

Ø@	T
x	MAC ØÕž
src-vlan-list	MAC ØÕE VLAN çož
dst-vlan-id	MAC ØÕE VLAN IDož

oÞFå- MAC ØÕož

o×X%”o- NM%”

oÞÕ- 14

o6-o- -

oFåÕ- 1 yÞFå MAC ØÕE 1k› VLAN 1-3 MAC ð VLAN 5 ož

```
ruijie# configure terminal
ruijie(config)# interface gigabitEthernet 0/2
ruijie(config-if)# mac-address-mapping 1 source-vlan  1-3 destination-vlan  5
ruijie(config-if)#end
```

oèo- 1 y… **show interface mac-address-mapping x xXØÕž**

oÙPÎb- -

oeÞÖ- -

ouVØ- -

12.12 show dot1q-tunnel

PNM dot1q-tunnel tunnel Mož

show dot1q-tunnel [**interfaces**

oHõ- 2

o6-o- -

oFåõ- 1 yôNM TPID ož

```
ruijie# show frame-tag tpid
Ports    tpid
-----    ---------
Gi0/1    0x9100
```

È ª ½... ö χ

<	¢
Ports	ÊMdfož
tpid	tpid ož

oÙPÎb- -

oÙVõ- -

12.14 show inner-priority-trust

ÊÊM1Ä Tag iõ Tag iõ ož

show inner-priority-trust

oÞ

@	T
-	-

oxX%”o- %”

oHõ- 2

o6-o- -

oFåõ- 1 yôNMiõ ož

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

È ª ½... ö χ

<	¢
Ports	ÊMdfož

inner-priority-trust	NMi

oUPÎ- -

oVÎ- -

12.15 show interfaces dot1q-tunnel

P dot1q-tunnel MU VLAN yó VLAN Fåž

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

o

@	T
intf-id	6NM

oXX%”o- %”

o- 2

o6-o- -

oFåÎ- 1 yô tunnel MÎÃåž

```
ruijie# show interfaces dot1q-tunnel
Interface: Gi0/3
Native vlan: 10
Allowed vlan list: 4-6 ı 10 ı 30-60
Tagged vlan list: 4 ı 6 ı 30-60
```

È ı ¼... ö χ · ' B ˆ ´ ˋ ¶ tÃY8U@8U

12.16 show interfaces mac-address-mapping

ONM MAC

show interfaces mac-address-mapping

Destination mac	%n) mac ®ož
L2protocol-tunnel	8C#%nÕÙž

oÙPÎb- -

oÙVÐ- -

12.20 show registration-table

ÞÂ C-Tag dot1q-tunnel ¥M vid ¢E

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

oÞ®

®@	T
intf-id	ÕM

o×X%”o- ¥%”

oÞÕ- 2

o6-o- -

oFåÐ- 1 yÒÂ C-Tag Ù Tag ¢Ž

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

<¥Ky

<	¢
Ports	¥Mdfož
Type	Â#ˆ 7/47 ®ož
Outer-VID	ÙE</*ož
Inner-VID-list	ÕE\OJROYØž

oÙPÎb- -

oÙVÐ- -

12.21 show traffic-redirect

PÔ ACL vid J ž

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

op

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

o@ @ T

intf-id	ÔM

o×X%”o- %”

o-Ô- 2

o6-o- -

oFåÞ- 1 yÔÕ Tag “wÕ

```
ruijie# show translation-table
Ports        Type       Relay-VID  Old-local  Local\inner-VID-list
------------ ---------- ---------- ---------- ------------------
Gi0/7        Inner-CVID 8          N/A        10-20
Gi0/7        Local-SVID 1001       N/A        30-60
Gi0/7        In+Out     8          20         50
```

È ‚ ½... ¨ χ

<	¢
Ports	¥ldfož
Type	Ô#ť QINQ Ö
Relay-VID	Ø/ Ä Tag “we VIDož
Old-local	ØwÈ Tag VIDož
Local\inner-VID-list	ØwÈ/ Ä VID list ož

oÞPÔ- -

oÞVÕ- -

12.23 switchport dot1q-tunnel allowed vlan

—å dot1q-tunnel Ù VLANkw6Y UNTag ¥€ Tag ¥µ

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

Ñå

no switchport dot1q-tunnel allowed vlan

Ñå

default switchport dot1q-tunnel allowed vlan

o@	@	T
add	í tagoÙuntag ¸ož
tagged	**1ÓMY** Tag ¥Ó VLANk¥ VLAN ÍÓ¥Ó Tagož
untagged	**1ÓMY** VLANk¥ VLAN ÍÓ¥Ó
remove	VLAN Í
vlist	VLAN ¸

oÍFå- ÓMY UNTa LAN 1k¿ VLAN ¸ž

o×X%”o- NM%”

oÍÓ- 14

o6-o- -

oFåÙ- 1 yÙ–å l M vlan 3-6 Ù VLANkÙ T zFÙ¥Ò
Tagož

```
ruijie(config)#i abitEthernet 0/1
ruijie(config-if)# ot1q-tunnel allowed vlan tagge
ruijie(config)#end
```

oò- 1 y…

y µ † y – y@ÞÞÞÞBc (1)Tj/C2_0 1tTf0 Tc 7.96 0 Tq<037904080BB5

ÊÕå

default switchport dot1q-tunnel native vlan

oÊ®

®@	T
vid	—å vlan idož

oÈFå- ó VLAN 1

o×XÕ%”o- NM%”

oÈõ- 14

oÕ-o- -

oFåÕ- 1 yÈ—å dot1q-tunnel Mó vid 8ož

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport dot1q-tunnel native vlan 8
ruijie(config)#end
```

oàÕo- 1 y… **show interface dot1q-tunnel xxÕõž**

oÙPÎÕ- -

oÈÕÖ- -

oÙVõ- -

12.25 switchport mode dot1q-tunnel

—åÙM dot1q-tunnel M

switchport mode dot1q-tunnel

Ê Access M

no switchport mode

Ê Access M

default switchport mode

oÊ®

®@	T

oHFå-	tc©	tunnel M
o×X%”o-	NM%”	
oHõ-	14	
o6-o-	-	
oFåb- 1	yjt-ôM	dot1q-tunnel Mož

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode dot1q-tunnel
```

oxX%”o- NM%”

oH- 14

o6-o- -

oFa- 1 y–aNM 1.1.1.2 vid “w 6ož

```
ruijie# configure terminal
ruijie(config)#ip access-list standard to_6
[redacted]
ruijie(config-acl-std)#exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode trunk
ruijie(config-if)#tr= D +                    ȯ l M ę p D ę M m ȳ þ ® x k '
```

oxX%”o- NM%”

oH- 14

o6-o- -

oFa- 1 y—aNM 1.1.1.3 vid 10ož

```
ruijie# configure terminal
ruijie(config)# ip access-list standard 20
ruijie(config-acl-std)# permit host 1.1.1.3
ruijie(config-acl-std)# exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode dot1q-tunnel
ruijie(config-if)# traffic-redirect access-group 20 nested-vlan 10 in
ruijie(config-if)# end
```

oo- 1 y… **show traffic-redirect xKOž**

oUPb- -

oj- -

oVo- -

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

+ access,trunk,hybrid, uplink vid “wŒ

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

¼ SSMož

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

Ðaž

default traffic-redirect access-group *acl* **outer-vlan**

o

@	T	
acl	9Fv	aclož
vd	“weÐ	vidož

13 ERPS

13.1 associate sub-ring

¥X9ŤŸ%Cĝž

associate sub-ring raps-vlan *vlan-list*

¥X9HŤŸ%Cĝž

no associate sub-ring raps-vlan *vlan-list*

oþ@

@	T
vlan-list	ĝ R-APS VLAN

oFå- ĔŸþþ%

o×X%"o- ERPS R-APS VLAN Få%"

oĦ- 14

oб-o- }YåŁåXkĝ. ERPS #ŰY¥ßnož FĝĝŰY¥ßnk÷UYJ VLAN %ŰˆFåXkFå VLAN CŒ VLAN ŀYĝŰY¥ßnk kħž

oFåŀ- ĝŸĝ¥ß

ßFå%"ož

```
Ruijie# configure terminal
```

FåŸßle%"ož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-gigabitEthernet 0/1)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/1)# exit
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if-gigabitEthernet 0/2)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/2)# exit
```

µ erps Få%"ož

```
Ruijie(config)# erps raps-vlan 4093
```

Få%ß@ ERPS #ßož

```
Ruijie(config-erps 4093)# ring-port west gigabitEthernet 0/1 east gigabitEthernet 0/2
```

```
Enter configuration commands, one per line.  End with CNTL/Z.
# ฿.        ERPS ož
Ruijie(config)# erps enable
# wµ      ERPS F‰”ož
Ruijie(config)# erps raps-vlan 4093
# 6ê              ERPS ož
Ruijie(config-erps4093)# state enable
```

oƱPƀ- -

oɵjö- -

oɨVƱ- -

13.3 erps monitor link-state by oam

¥X9Få ERPS eƱož

erps monitor link-state by oam vlan *vlan-id*

```
Ruijie(config)# erps monitor link-state by oam vlan 100
```

oЧPÎb- -

oeÿö- -

oHVØ- -

13.4 erps raps-vlan

¥X9Fåß R-APS VLANož

erps raps-vlan *vlan-id*

¥X9ÎYß R-APS VLANož

no erps raps-vlan *vlan-id*

oÞ

@	T
vlan-id	R-APS VLAN ID

oÞFå- Åå R-APS VLANož

oxX%”o- ßF%”ož

oÞ- 14

o6-o- R-APS VLAN À–Ð.. VLANkVLAN 1 t—åR-APS VLAN ož
c—Ð%³Yßac R-APS VLANož
ß%³VÌFå ERPS —Ð%n ERPS #Ÿ–ÐÄµ ERPS ê
ÑÄ¥ ERPS ñ• R-APS VLAN ¹ßMC¹ÿxß VLAN
Ù*%nµ R-APS VLANkRò ERPS Ðÿž

oFåÙ- # ßF%”ož

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

Fß R-APS VLANož

```
Ruijie(config)# erps raps-vlan 4093
```

oЧPÎb- -

oeÿö- -

oHV0- -

13.5 protected-instance

¥X9F¥B VLANkY@ož

protected-instance *instance-id-list*

¥X9Ê¥ÅÄ VLANož

no protected-instance

o@	@	T
	instance-id-list	¥ VLAN /¥B VLANbž

oÊFå- ÊÑ VLANož

oxX%”o- ERPS F%”ož

oÊ- 14

o6-o- ‘ VLAN ¥B R-APS VLAN + ¥ VLAN ož

oFåb- •—4kAEÑ ERP1 y ERP2oÊERP1 R-APS VLAN 100kG VLAN 1-99k101-2000z ERP2 R-APS VLAN 4093kG VLAN 2001-4092k4094ož

µ BFå %”ož

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

Få ERP1 ‘ VLANož

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 100, 1-99, 101-2000
Ruijie(config-mst)# exit
Ruijie(config)# erps raps-vlan 100
Ruijie(config-erps 100)# protected-instance 1
```

Få ERP2 ‘ VLANož

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 2 vlan 4093, 2001-4092, 4094
Ruijie(config-mst)# exit
```

```
Ruijie(config)# erps raps-vlan 4093
Ruijie(config-erps 4093)# protected-instance 2
```

oUPÎb- -

oöjö- -

ouVö- -

13.6 ring-port

¥X9Få ERPS êž

ring-port west {*interface-name1* | **virtual-channel**} **east** {*interface-name2* | **virtual-channel**}

¥X9ï ERPS êž

no ring-port

o **@** **T**

@	T
interface-name1	West port d
interface-name2	East port d
virtual-channel	*1 4094*

oÈFå- Åå ERP êž

oxX%”o- ERPS F%”

oõ- 14

o6-o- ¥Mµ ERP ¥kQwÈM trunk Kåž

ÌÈMFå **virtual-channel** ¥ÈtÈž

g ERPS ¥M@ STP ¥ERPS y RERPoREUP ¥Mož

oFåb- µ ERPS ¥

µFå%”ož

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

FåÈMe%”ož

```
Ruijie(config)# interface fastEthernet 0/1
```

```
Ruijie(config-if-gigabitEthernet 0/1)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/1)# exit
Ruijie(config)# interface fastEthernet 0/2
Ruijie(config-if-gigabitEthernet 0/2)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/2)# exit
```

µ erps Få‰”ož

```
Ruijie(config)# erps raps-vlan 4093
```

Fåk@ ERPS #¥Mož

```
Ruijie(config-erps 4093)# ring-port west gigabitEthernet 0/1 east gigabitEthernet 0/2
```

oÜPÔ- -

oÖÿö- -

oÜVÔ- -

13.7 rpl-port

¥X9Få RPL owner ¥Mož

rpl-port {**west** | **east**} **rpl-owner**

¥X9Ï RPL owner ¥Mož

no rpl-port

o@	@	T
	west	6 west +¥M rpl-owner
	east	6 east +¥M rpl-owner

oÞFå- Ïå RPL owner ¥M

oÞÕ- 14

o×X%”o- ERPS Få‰”

o6-o- ?ÞNFå‰Ú RPL eÿ%² RPL owner -µž

+9³ RPL owner -µ RPL port ³Fåÿ Få RPL eÞNMgFåž

oFåÞ- ¢å RPL ¥My RPL owner ÿ

µFå‰”ož

```
Ruijie# configure terminal
```

```
Enter configuration commands, one per line.  End with CNTL/Z.
# Fåß®le%”ož
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-gigabitEthernet 0/1)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/1)# exit
Ruijie(config)# interface fastEthernet 0/2
Ruijie(config-if-gigabitEthernet 0/2)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/2)# exit
# µ    erps F‰”ož
Ruijie(config)# erps raps-vlan 4093
# Fåß®@                    ERPS #ßMož
Ruijie(config-erps 4093)# ring-port west gigabitEthernet 0/1 east gigabitEthernet 0/2
# 6¢   RPL eßMy                RPL ownerož
Ruijie(config-erps 4093)# rpl-port west rpl-owner
```

oЧPÎb- -

oеjö- -

oнVß- -

13.8 show erps

ß ERPS @Åž

show erps [{ **global | raps_vlan** *vlan-id* [**sub-ring]** }]

o®®	@	T	
	global	ßß	ERPS Î
	raps_vlan *vlan-id*	ß6	ERPS RAPS-VLAN Î
	sub-ring]	ß6ß	

oßFå- -

oxX%”o- ß%”

oßß- 14

o6-o- -

oFåß- ï | ` ℵ æ ◗ ℵ _ ᵘ пЪ ` Æ ℳ χ

```
Ruijie# show erps
ERPS Information
Global Status                    : Enabled
Link monitored by                : Not Oam
-------------------------------------------
R-APS VLAN                       : 4092
Ring Status                      : Enabled
West Port                        : Gi 0/5 (Blocking)
East Port                        : Gi 0/7 (Forwarding)
RPL Port                         : West Port
Protected VLANs                  : ALL
RPL Owner                        : Enabled
Holdoff Time                     : 0 milliseconds
Guard Time                       : 500 milliseconds
WTR Time                         : 5 minutes
Current Ring State               : Idle
Associate R-APS VLAN             :
-------------------------------------------
R-APS VLAN                       : 4093
Ring Status                      : Enabled
West Port                        : Virtual Channel
East Port                        : Gi 0/10 (Forwarding)
RPL Port                         : None
Protected VLANs                  : ALL
RPL Owner                        : Disabled
Holdoff Time                     : 0 milliseconds
Guard Time                       : 500 milliseconds
WTR Time                         : 5 minutes
Current Ring State               : Idle
Associate R-APS VLAN             :
-------------------------------------------
R-APS VLAN                       : 4094
Ring Status                      : Enabled
West Port                        : Virtual Channel
East Port                        : Gi 0/12 (Forwarding)
RPL Port                         : None
Protected VLANs                  : ALL
RPL Owner                        : Disabled
Holdoff Time                     : 0 milliseconds
Guard Time                       : 500 milliseconds
WTR Time                         : 5 minutes
```

```
Current Ring State              : Idle
Associate R-APS VLAN            :
Ruijie# show erps raps_vlan 4093 sub-ring
R-APS VLAN: 4093
Sub-Ring R-APS VLANs    TC Propagation State
-------------------     ---------------------
100                        Enable
```

```
Ruijie(config-if-gigabitEthernet 0/1)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/1)# exit
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if-gigabitEthernet 0/2)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/2)# exit
# µ erps F‰”ož
Ruijie(config)# erps raps-vlan 4093
# F‰ERPS #Ÿož
Ruijie(config-erps 4093)# ring-port west gigabitEthernet 0/1 east gigabitEthernet 0/2
# 6ê ERPS ož
Ruijie(config-erps 4093)# state enable
# ß. ERPS ož
Ruijie(config-erps 4093)# exit
Ruijie(config)# erps enable
```

µ FÅ‰”ož

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

FÅ‰le‰”ož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-gigabitEthernet 0/1)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/1)# exit
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if-gigabitEthernet 0/2)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/2)# exit
```

µ erps FÅ‰”ož

```
Ruijie(config)# erps raps-vlan 4093
```

FÅ‰@ ERPS #Ÿož

```
Ruijie(config-erps4093)# ring-port west fastEthernet 0/1 east fastEthernet 0/2
```

FÅ‰ož

```
Ruijie(config)# erps raps-vlan 100
Ruijie(config)# interface gigabitEthernet 0/3
Ruijie(config-if-gigabitEthernet 0/3)# switchport mode trunk
Ruijie(config-if-gigabitEthernet 0/3)# exit
Ruijie(config)# erps raps-vlan 100
Ruijie(config-erps 100)# ring-port west gigabitEthernet 0/3 east virtual-channel
```

‰Ÿož

```
Ruijie(config-erps 100)# sub-ring associate raps-vlan 4093
```

*.sož

```
Ruijie(config-erps 100)# sub-ring tc-propagation enable
```

oƱPÎb- -

oƱÿö- -

oƱVÐ- -

13.11 timer

¥X9Få ERPS #ÐÐž

timer { **holdoff-time** *interval1* | **guard-time** *interval2* | **wtr-time** *interval3* }

¥X9Ê ERPS #ÐÐž

no timer { **holdoff-time** | **guard-time** | **wtr-time** }

o@	@	T

holdoff-time *interval1*

1 IP /

1.1 ip address

FåNM IP ªž

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

ÍÎ6NM IP ªž

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

o@ÕÞ-

@ƒ	T
ip-address	32 AÔ IP ¹8 y%ÁY¹nPkÞž
network-mask	32 AÔÞQAk“1” nPQAyk“0” nPÕÞ² 8 y%ÁY ¹nPkÞž
secondary	**nPFÞ** IP ¹ÞFå ip ªž

oÞFå- NMÄå IP ª

o×X%”o- NM%”

oÞÕ- 2

o¬.6-o- %²—ÕÄå IP ¹5ÙYNvyG IP ÞkNMFå IP ¹ÞNMÞ IP #
‘ož
ÞQA-%² 32 yAÕÞ IP ÞÞÞQAk1
AÔ IP ªÔ<ÞÞÞ AÔ IP ªÔ<ÞÞž A
ÞQA255.0.0.0 ožÙYÞQA+%ÞÞÞ%²
Ñ%?AÔÞÞ4ÍÕkÞÞkÞQA<fÞ
Aož
RGOS ¹UYu4%¹NMFÞÙ IP ¹%² IP ¹Þ) IP ¹ož IP ª
FÞÞUYÞÞxQÄå IP ¹ÞÞå IP ¹ož IP ª IP
YC) IP

- %ðPÙ¾ÈkUY%ºÙ*Få IP ª
  ¨k1ÈÛÕ%ª–ÕNMªž

telnet **ip default-gateway**

IP **ip address** **ip default-gateway**

ip address **gateway** IP

gateway **show running config** **ip default-gateway**

oFåÙ-

```
1 χ ف ã˜ ì Æ ž IP ş x ห x 10.10.10.1 ı ˚ ห ó ห x 255.255.255.0
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 10.10.10.1 255.255.255.0

2 χ Й ώ ˜ ˚ ห ห x 10.10.10.254
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip address 10.10.10.1 255.255.255.0 gateway 10.10.10.254
```

oèo- 1 y**show ip interface** **NMªž**

oÙP'Ô- 1. Få mask ¶ 1 0 QAgNMUYu4 32 ห ó ζ ı þ ' ف ã˜ ı ¨ ¸ ¬ Ω ï ώ ٧ χ

```
Invalid IP mask.
```

2. Få ip ª Å ip ª k k ª UPy

```
Cannot add IP address.
```

oÙÖ- 1. Få ip ª Å ip ªž

2. ¨ ห ž ş x ö ˙ ≡ ã¨ ห Ä ã ห ş x

3. ª Ä ì Æ i j ª IP ş x ` ˚ ห ž ª

oÙVª- -

1.2 ip broadcast-address

F%ÙNMªžª

ip broadcast-address *ip-address*

HÙFªž

no ip broadcast-address

o@ª-	@ƒ	T

ip-address	IP ½ž

oÞFå- Þ IP ª 255.255.255.255

o×X%”o- NM%”

oÞõ- 2

o¬.6-o-)ù IP)%¶ knP 255.255.255.255ožRGOS ÚY*Ðÿ IP ½kÙYcÙv¶ YC½ož

oFåÙ- 1 yFÅM IP)õ 0.0.0.0ož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip broadcast-address  0.0.0.0
```

oèo- -

oÚP’Ù- 1. Ïå ip ÕÅMªFåkÃUPy

```
Cannot set broadcast address. No primary address exist.
```

oªÙö- -

oÚVõ- -

1.3 ip directed-broadcast

o IP gªÕÈož

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

HgªÕÈož

no ip directed-broadcast

o@¶-

oHõ- 2

o¬.6-o- IP gæ6)ñ IP µª IP kÿõ 172.16.16.255 ¢f
gæ†žO¥A¶µž
µª—Õvñ IP gæ¼6%n¶%µÊgæ†µæ†
ñ¥—Ck—Ugæ6A!Ž¶%6)ö IP ¶ æ
Hkè¼Yeè¬"G¶µÊž
UY6NMkogæ6kÿM<UY6ñ¼gz
n4o¥XQ¶µÊgæÊnk¶µ3o6ož
NMkUY*¶µÊ6„?gæo¶µkQÄ.¶µ
¶µÊgæ6ož
µNMFå **no ip directed-broadcast** kRGOS 1'Nvñ¼gæ†ž

oFåb- 1 y¨—Õ gigabitEthernet 0/1 ¶Mo4gæ6ož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip directed-broadcast
```

oèo- -

oUP'b- -

oÿjö- -

oVb- -

1.4 ip icmp error-interval

Få IP ÈUÿ¶C ICMP)U¶C,äž

ip icmp error-interval DF *milliseconds* [*bucket-size*]

å ICMP [j¶C,äž

ip icmp error-interval *milliseconds* [*bucket-size*]

IP ÈUÿ¶C ICMP)U¶C,êž

no ip icmp error-interval DF *milliseconds* [*bucket-size*]

¿ ICMP [j¶C,êž

no ip icmp error-interval *milliseconds* [*bucket-size*]

o@ƒ-

@ƒ	T
milliseconds	*Xî*ÕÊ*B* 0~2147483647kÞ 100k%yDaož H› 0 ÈnP'ò ICMP [jÈ,ëž
bucket-size	*XÎ*×*X*ÎÈ*B* 1~200kÞ 10ož

oÞFå- 100 DaG 10 ož

o×X%"o- ß%"

oÞõ- 14

o¬.6-o- 4…2!ÍÈ+ ICMP [jÈ,ë'ò×Îcož
ò IP ÞÈk© IP ÈUÈÿt—åk—Ãg› IP ÈGÍ 4 ICMP)
UÞk_ ICMP [jÞ(È MTU Gëž…2¿ ICMP [jÞGß
Í 4 ICMP)UÞkRèè MTU GÞk+Í 4 ICMP)U†
y¿ ICMP [jÞož
Ê 10 DakÞXÈÊå 10 Da…ÞÈÊ
Ý,0 49 10kÞÈÊ 10 DakÞå 5 Da 1 kÞÇ 10 Da 2 ÞÎ
ÞÈ 10 Da…kÞÈÊ'è 10 Da…kÞå 15 Da 3
kÞÇ 10 Da 2 ož

oFåÞ- 1 yFå IP ÈUÈÿt ICMP)UÈ,ä 1 a 100 ož

```
Ruijie(config)# ip icmp error-interval DF 1000 100
```

2yFåÞ ICMP [jÈ,ä 1 a 10 ož

```
Ruijie(config)# ip icmp error-interval 1000 10
```

oèo- … **show running-config ÞFåž**

oÞP'Þ- -

oÞjÞ- -

oÞVÞ- -

1.5 ip mask-reply

o ICMP QAÞž
ip mask-reply

¼ ICMP QAÞž

no ip mask-reply

o@ƒ-

@ƒ	T
-	-

oHFå- ÞoG ICMP QA€

o×X%”o- NM%”

oHõ- 2

o¬.6-o- à ƒ3;ÞQAk4BH¥kà ÕYG ICMP QAЬƒ
îkNvñ ICMP QAЬà ÕkGQAÞž

oFåÞ- 1 y—Õ gigabitEthernet 0/1 NM1k€ ICMP QAЬÞž

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip mask-reply
```

oèo- -

oЬP’Îb- -

oэjö- -

oнVõ- -

1.6 ip mtu

Få IP ÃÇ%gMTU hož **hož**

oHð- 2

RGOS ÞÞ ICMP Mgož

oFåÞ- 1 ygigabitEthernet 0/1 NM¼4 ICMP Mgož

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# no ip redirects
```

oèÞo- -

oÙP'Ô- -

oÞjÖ- -

oÙVÞ- -

1.8 ip source-route

o IP ÞÕž

ip source-route

¼ IP ÞÕž

no ip source-route

o@Þ-

@ƒ	T
-	-

oHFå- ÞÞ

oxX%"o- Þ%"

oHÞ- 2

o¬.6-o- RGOS u4 IP èž–Ñvñ IP ¢Ñk+ IP è¼"Ñ
¾Ñ?¾ RFC 791 ÞÞ¢o4%¾kü€
ÞÞñ–¾kÞ¢G%² ICMP @ÞÞÀ¾¢ož
RGOS ÞÞ4 IP ÞÕž

oFåÞ- 1 y¼4 IP ÞÕž

```
Ruijie(config)# no ip source-route
```

oèÞo- -

oЪP´ƀ- -

oөjö- -

oъV⓪- -

1.9 ip ttl

1.10 ip unreachables

o ICMP #ÚÎÞž

ip unreachables

¶G ICMP #ÚÎÞž

no ip unreachables

o@Ñ-

@ƒ	T
-	-

oÑ-å-

ÞÞ

o×X%”o-

NM%”

oÑÕ-

2

o¬.6-o-

ò RGOS ÑNvÞ%ÞÞ%nÞÞAÞÞÞ#k<kG%² ICMP)ÚÎÞž

ò RGOS 9ÞÞG%ÞGk<kgÞGG ICMP ÑÚÎÞž

¥XÞÞ ICMP)ÚÎÞž

oÑ-ãÚ- 1 y¶¼ gigabitEthernet 0/1 NMG ICMP)ÚÎÞž

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# no ip unreachables
```

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oÚP’Ô-

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oÚVÞ-

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1.11 show ip interface

ÞNM IP ÚÞž

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

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@f	T
Interface-type	*6M*
Interface-number	*6Ø*
brief	ƒPCNM IP ÃÃg,NM primary ipo•secondary ip yNMØ

o×X%”o- Ô”

oƒõ- 1

o¬.6-o- %ƒNMÔUØRGOS 1kòe%ÚòžNM6 RGOS ƒ¾
MUYvGƒGoõNMRUØØRGOS 1kRòî,•òž
ÔNMÔUØÚEg*'ØØƒPUP ÔNÔUØ
NMØƒPUP ož
cNMkƒPÔ%ÚØƒNMÔž

oFØ- 1 yƒPÃM IP Øž

```
Ruijie#show ip interface brief
Interface            IP-Address(Pri)  IP-Address(Sec) Status Protocol
GigabitEthernet 0/10  2.2.2.2/24     3.3.3.3/24     down     down
GigabitEthernet 0/11  no address     no address     down     down
VLAN 1                  1.1.1.1/24     no address     down     down
```

Status up down administratively down shutdown

Protocol IPv4

2yƒ VLAN 1 NM IP Øž

```
Ruijie#show ip interface vlan 1
VLAN 1
  IP interface state is: DOWN
  IP interface type is: BROADCAST
  IP interface MTU is: 1500
  IP address is:
    1.1.1.1/24 (primary)
  IP address negotiate is: OFF
  Forward direct-broadcast is: OFF
  ICMP mask reply is: ON
  Send ICMP redirect is: ON
  Send ICMP unreachabled is: ON
```

```
  Proxy ARP is: OFF
ARP packet input number:          0
     Request packet:                0
     Reply packet:                  0
     Unknown packet:               0
TTL invalid packet number:          0
ICMP packet input number:          0
     Echo request:                  0
Echo reply:                    0
     Unreachable:                   0
     Source quench:                 0
     Routing redirect:                0
```

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<	¢
IP interface state is:	ÀNMÔUÏÀNMFÀÀÀ “UP”ož
IP interface type is:	ÞNMÞòkµµpž
IP interface MTU is:	ÞNM—å MTU ož
IP address is:	ÞNM IP ÿQA’Ôbž
IP address negotiate is:	ÞNM IP ÞÞož
Forward direct-boardcast is:	ÞÞGgnož
ICMP mask reply is:	ÞÞG ICMP QAbž
Send ICMP redirect is:	ÞÞG ICMP Mgbž
Send ICMP unreachabled is:	ÞÞG ICMP Ubž
Proxy ARP is:	ÞÞoWò ARP ož
ARP packet input number: 0 Request packet: 0 Reply packet: 0 Unknown packet: 0	ÞNMvñ ARP È,y ARP Ь† ARP ¶ È¶
TTL invalid packet number:	ÞNMvñ TTL —|ƒ

ICMP packet input number: 0
Echo request: 0
Echo reply: 0
Unreachable: 0
Source quench: 0

oиVØ- -

1.12 show ip packet queue

℘#- IP ψGÌÎ

show ip packet queue

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oHØ- 2

o¬.6-o- -

oFåÐ-

```
Ruijie#show ip packet queue
Receive 31925 packets(fragment=0):
  IP packet receive queue: length 0, max 1542, overflow 0.
  Receive 13 ICMP echo packets, 25 ICMP reply packets .
  Discards:
    Failed to alloc skb: 0.
    Receive queue overflow: 0.
    Unknow protocol drops: 0.
    ICMP rcv drops: 0. for skb check fail.
    ICMP rcv drops: 0. for skb is broadcast.
Sent packets:
  Success: 15644
  Generate 13 and send 8 ICMP reply packets, send 26 ICMP echo packets.
  It records 187 us as max time in ICMP reply process.
  Failed to alloc efbuf: 0
  Dropped by EFMP: 0
  NoRoutes: 887
  Get vrf fails: 0
  Cannot assigned address drops: 0
  Failed to encapsulate ethernet head: 0
ICMP error queue: length 0, max 1542, overflow 0.
```

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<	¢
IP packet receive queue	¾ IP Nv@ƒ
Discards	Nvi'†
Sent packets	G IP ¨
ICMP error queue	ICMP j Nv@ƒ

57L vrf

```
GigabitEthernet 0/1
  Received 6715 packets, 416587 bytes
    Unicast:2482,Multicast:4233,Broadcast:0
    Discards:0
      HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 6720 packets, 417096 bytes
    Unicast:2481,Multicast:4239,Broadcast:0
Loopback 0
  Received 0 packets, 0 bytes
    Unicast:0,Multicast:0,Broadcast:0
    Discards:0
      HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 0 packets, 0 bytes
    Unicast:0,Multicast:0,Broadcast:0
Tunnel 1
  Received 0 packets, 0 bytes
    Unicast:0,Multicast:0,Broadcast:0
    Discards:0
      HdrErrors:0(BadChecksum:0,TTLExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 21584 packets, 1122848 bytes
    Unicast:21584,Multicast:0,Broadcast:0
```

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<	¢
Total	nPNÊÄMÈ
GigabitEthernet 0/1	nPNÊS+%ÀNMÈ
Received	Nvjk-)ozYC%n/ Á/ ¤k,)kYC+œ
Sent	Gjk-)k%n/ Á/ ¤)

oÊP'ô- -

oÊVÊ- -

1.14 show ip raw-socket

ƒPÄ IPv4 =Ñož

show ip raw-socket [*num*]

num	ƒZ

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oFåÙ- 1 yÔÄ IPv4 =Ñož

```
Ruijie# show ip raw-socket
ù ‚
```

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o»X%”o- Ôº”

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o¬.6-o- -

oFåÐ- 1 yðÄ IPv4 Nož

```
Ruijie# show ip sockets
Number Process name     Type     Protocol LocalIP:Port  ForeignIP:Port          State
1      dhcp.elf         RAW      ICMP     0.0.0.0:1     0.0.0.0:0               *
2      vrrp.elf         RAW      ICMP     0.0.0.0:1     0.0.0.0:0               *
3      igmp.elf         RAW      IGMP     0.0.0.0:2     0.0.0.0:0               *
4      vrrp.elf         RAW      VRRP     0.0.0.0:112   0.0.0.0:0               *
5      dhcpc.elf        DGRAM    UDP      0.0.0.0:68    0.0.0.0:0               *
6      rg-snmpd         DGRAM    UDP      0.0.0.0:161   0.0.0.0:0               *
7      wbav2            DGRAM    UDP      0.0.0.0:2000  0.0.0.0:0               *
8      vrrp_plus.elf    DGRAM    UDP      0.0.0.0:3333  0.0.0.0:0               *
9      mpls.elf         DGRAM    UDP      0.0.0.0:3503  0.0.0.0:0               *
10     rds_other_th     DGRAM    UDP      0.0.0.0:3799  0.0.0.0:0               *
11     rg-snmpd         DGRAM    UDP      0.0.0.0:14800 0.0.0.0:0               *
12     rg-sshd          STREAM   TCP      0.0.0.0:22    0.0.0.0:0               LISTEN
13     rg-telnetd       STREAM   TCP      0.0.0.0:23    0.0.0.0:0               LISTEN
14     wbard            STREAM   TCP      0.0.0.0:4389  0.0.0.0:0               LISTEN
15     wbard            STREAM   TCP      0.0.0.0:7165  0.0.0.0:0               LISTEN
Total: 15
```

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<	¢
Number	~Z
Process name	idf
Type	NÞ RAW nP=Ñk DGRAM nPÇÞ STREAM nPvÐž
Protocol	ÞZ
LocalIP:Port	ª IP ÿÈ
ForeignIP:Port	+€ IP ÿÈ
State	ÈÏQ+ TCP NÐž

Total	NÈ

oÙP'ô- -

oÙVÕ- -

1.16 show ip udp

ªPÄ IPv4 UDP NkUY=3¸? UDP ÊÌ+ÙÕÊ

show ip udp [**local-port** *num*]

ª IPv4 UDP Nïõž

show ip udp statistics

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@*f*	T
local-port *num*	ÊÌZ

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o¬.6-o- -

oFåõ- 1 yõÄ IPv4 UDP Nož

```
Ruijie# show ip udp
Number Local Address        Peer Address        Process name
1      0.0.0.0:68           0.0.0.0:0           dhcpc.elf
2      0.0.0.0:161          0.0.0.0:0           rg-snmpd
3      0.0.0.0:2000         0.0.0.0:0           wbav2
4      0.0.0.0:3333         0.0.0.0:0           vrrp_plus.elf
5      0.0.0.0:3503         0.0.0.0:0           mpls.elf
6      0.0.0.0:3799         0.0.0.0:0           rds_other_th
7      0.0.0.0:14800        0.0.0.0:0           rg-snmpd
```

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<	Ê
Number	~Z
Local Address	ª IP ÿÊÌ

Peer Address	+€ IP ªÆM
Process name	idf

oÞP’ô- -

oÞVô- -

2 ARP

2.1 arp

0B4.49E50BB206C1>

oиVØ- -

2.2 arp anti-ip-attack

Få ARP … IP xòž

arp anti-ip-attack *num*

ÊÐž

no arp anti-ip-attack

o@Ø-

@ƒ	T
num	ÊÕ- ARP ’n¾ IP ÷H8<0-100> oÐ nP¼ ARP … IP xòž 3ož

oÑFå- ÊÕ 3 È-d%n† CPU e—ånÐž

oxX%”o- ß%”

oÑÕ- 2

o¬.6-o- +9x+È÷ IP +• ARP ÈAEÑÕ¼ CPU g÷/ ARP .hoÐÕ CPU k+ CPU -È÷AEÑÕož 4…24• IP ‡ CPU -È÷—å‰nÐÕ IP Ck CPUÈ÷ÊÕ…ÈAEÑÕ¼ IP ÷F ÊÕož

*oÊÕ ARP ÈÊÈAEÑ CPU vñ 3) IP x¥ ARP nÈÕà CPU Ukde—ånÐÕ.2È-d%n‡ CPU È÷ÊÕc%² ARP n¾ IP † ÈÕÕà CPUkÕYS+È÷Ê.@È÷-UY¼ž ARP … IP xòÈÕ-d%n IP xòÈÕAEÑÕ.xòÈÕ

È÷ÊÕarp anti-ip-attack *num* ÈÕÕ

È÷ÊÕoè.kÕ **arp anti-ip-attack** *num* ÈÕÕž

oFåÐ- 1 yFÊÕ ARP ’n¾ IP ÷ 5ož

```
Ruijie(config)# arp anti-ip-attack 5
```

2y¼ ARP … IP xòž

```
Ruijie(config)# arp anti-ip-attack 0
```

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oЪP’ô- -

oəjö- -

oъVØ- -

2.3 arp cache interface-limit

FåÑM ARP .ƒož

arp cache interface-limit *limit*

ÊÞ-åž

no arp cache interface-limit

o@ƒ-

@*f*	T
limit	6NMñ ARP ƒÔÅÊÅÁ ARPk H8<0- —Ø4 ARP n³Ø> k0 nP’ÑM ARP .*f* Oož

oÞFå- ÊÑM ARP .ƒož

o×X%”o- NMFÅ‰”

oÞÊÖ- 2

o¬.6-o- ’ÑM ARP .ƒkU…2Ð ARP xÅ•—ÊÖ ARP nÅ)ÚÖž

o¬ Þ YS= F ï

oəjö- -

oнVФ- -

2.4 arp gratuitous-send interval

FâЁ ARP Ьož

arp gratuitous-send interval *seconds* [*number*]

{ЁЁ ARP Ьož

no arp gratuitous-send

o@ƒ-

@ƒ	T				
seconds	Ё	ARP Ьž%yakH8<1-3600>	ož		seconds

2.5 arp retry interval

FåMn ARP ŁMnž

arp retry interval *seconds*

ÊÞ-åž

no arp retry interval

o@Ðþ-

@*f*	T		
seconds	ARP ŁMnžUY—å	1~3600 akó	1 aož

oÞ-å- ARP ŁMnže 1 aož

oxX%”o- ß%”

oÞÐ- 2

o@ƒ-

@ƒ	T
number	c%² ARP ЬG)ƙ8<1-100> ož–å 1 ƙnPMn ARP ЬkQG 1) ARP Ьƙž

oЬƒ-å- ARP ƙARP ЬƙG 5)kèƙž

o×X%”o- %”ož

oЬƒ- 2

o¬.6-o- ARP ЬkƙUY1 ARP ЬMn)ƒ–å %ƙ%”1Mn)ƒ–ƙž

oƒ-å- 1 yƒå ARP ЬMnož

```
Ruijie(config)# arp retry times 1
```

2yƒå ARP ЬMn 1)ož

```
Ruijie(config)# arp retry times 2
```

oèo- -

oЬP’b- -

oэjö- -

oнVƙ- -

2.7 arp timeout

Få ARP ƙ ARP nƙž

arp timeout *seconds*

ƙƒåž

no arp timeout

o@ƒ-

@ƒ	T
seconds	ƙYa%yk8 0-2147483ož

oЬƒ-å- ƙ 3600 aož

oxX%”o- NM%”

oHõ- 2

o¬.6-o- ARP ¥–ÕÚ+Ãñ IP ÿ MAC ¥ÜÚ¥–ÕkARP ÏÛ
¥ñ<Ïkx© ARP ¯ÕÚ-ÚÚ¥ÚÚ+oÚÕkÚ%¯¬
Få ARP ¥ž

oFåÕ- 1 χ Ñ κ

kÚU-Á ARP nØ%7¬å}—ÕÕž

oFåÙ- 1 yFÕÙY—å 1000 U'` ARPož

```
Ruijie(config)# arp trusted 1000
```

oèo- -

oÙP'Ô- -

oÞÖ- -

oÙVÕ- -

2.9 arp trusted aging

FÕÙ'` ARP ÖÖž

arp trusted aging

ÕÕž

no arp trusted aging

o@Ø- | @ƒ | T |
|---|---|
| - | - |

oÙFå- GSN U'` ARP ÕÕž

oxX%"o- Ø%"

oÙÕÕ- 2

o¬.6-o- …¥XeU'` ARP kÕÕÁ ARP ÕcoÕÕY*NM%" **arp timeout xÕÕž**

oFåÙ- 1 yFÕÙ'` arp ÖÖž

```
Ruijie(config)# arp trusted aging
```

oèo- -

oÙP'Ô- -

oəjö- -

oıVÖ- -

2.10 arp trusted user-vlan

FåU'` ARP nžÿ VLAN ÊÊož

arp trusted user-vlan *vid1* **translated-vlan** *vid2*

ÎU'` ARP nžÿ

no arp trusted user-vlan *vid1* **translated-vlan** *vid2*

o@ÖÞ-

@f	T
vid1	ÊÊ VID
vid2	Ê VID

oÞFå- Þg VLAN Ê

oxX%"o- ß%"

oÞÖ- 2

o¬.6-o- }…4xXÿÒU'` ARP ÇÖÊ VLAN yU'` ARP ÿ VLAN cÊ
ÞFåxXož

oFåÞ- 1 yÖÊ VLAN 3kxU'` ARP ÿ VLAN 5 ÊFåXy

```
Ruijie(config)# arp trusted user-vlan 3 translated-vlan 5
```

oèo- -

oÞP'Ô- -

oəjö- -

oıVÖ- -

2.11 arp trust-monitor enable

o ARP U'yož

arp trust-monitor enable

¼ ARP U'yož

no arp trust-monitor enable

o@ð-

@ƒ	T
-	-

oÞFå-

¼

o×X%"o-

NM%"

oÞð-

2

o¬.6-o-

¥X9…2 arp -á— arp nÿ¼ ïõÇNMo arp U'yekR¥

NMvñ arp Ły

1. ò¬nÞÁ arp nÞwÆ 1 ñ 5 a%ÞÁµ NUDg>DUM

   yhk/1• arp n¾ÞÁ%n arp ŁkÞÁñ€ arp Þ¼é

   nÞ¼kéNÞ¼ož

2. ò• arp nÞ¼E mac Þ¼g NUD My.þž

3. ÞÁ arp n¾ MAC Þ¼Ú NUD My.þž

ÞÁ ARP .iÁ%ÞÁ¼kñoÞ¼ ARP .Åž

Þ¼karp n¾Þ¼ NUD iož

oFåÞ- 1 yo ARP U'yož

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

2y¼ ARP U'yož

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# no arp trust-monitor enable
```

oèo-

-

oŁP'Îò-

-

oèÿò-

-

oŁVÞ-

-

2.12 arp unresolve

Få ARP nèÈÊz

arp unresolve *number*

ÊÕž

no arp unresolve

o@Êf-

@f	T
number	è ARP nÊÈH8Â 1kÊÈ ARP nÈ¼ Ooð ARP nÈÊoož

oÈFå- ARP ÈÚUY è¾ ARP nÈÊoož

oxX%”o- ¶%”

oÈÊõ- 2

o¬.6-o- Cë ARP ÈÊÈ¼w%²ÈÊUY4xX’è¾ ¢ž

oFåÈ- 1 yFÈÊ¼ 500ož

```
Ruijie(config)# arp unresolve 500
```

oèo- -

oÈP’È- -

oèÈö- -

oèVÊ- -

2.13 clear arp-cache

Î ARP ÈÚÁ ARP ¥“ÈÊ”kkÎš VLAN Á ARP nèÊz

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

no ip proxy-arp

o@Ïõ-

@ƒ	T
-	-

oÞFåõ-

Þ-å

oxX%”o- NM%”

oÞõ- 2

o¬.6-o- —ÕWò ARP UYnÕÕBÕ IP ª MAC ªžÀò—Ò v%² ARP ŁkARP ŁGñ IP ñ IP ªK9c%ÀÒ—Ò=3ñ IP ª—ÕkG ARP k€ MAC ª—ÕÕ MAC ªžÀi<ÕWò ARP ož

oFåõ- 1 y¨ gigabitEthernet 0/1 oWò ARP y

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip proxy-arp
```

oÀo- 1 yÞWÕ **show ip interface** **NM** 1 U• Proxy ARP ©ÕNož

oÞP´Ò- -

oÞjÒ- -

oÞVõ- -

2.15 local-proxy-arp

¨ SVI NMoÞWò ARP ož

local-proxy-arp

¨ SVI NMÞÞWò ARP ož

no local-proxy-arp

o@Ïõ-

@ƒ	T

-	-

oHFå- -

oxX%”o- NM%”

oHõ- 2

o¬.6-o- —õÕWò ARP ekUYnÕÑ MAC ªÃò–ÕÕ‘
ÕÕ5Ï8Cœkoî ARP Wòk—Õv%² ARP Ьk<kWò
G ARP k€ MAC ª—ÕÕ MAC kýÕÕCÊ
ëž<ÕWò ARP ož

oFåõ- 1 y¨ VLAN 1 oÕWò ARP ož

```
Ruijie(config)# interface vlan 1
Ruijie(config-if-VLAN 1)# local-proxy-arp
```

oòo- 1 yÕWò ARP Õ **show run interface** [*name*] UÞNM¨ local-proxy-arp xXož

oUPˆõ- -

oojö- -

ouVõ- -

2.16 service trustedarp

oU’` ARP ož
service trustedarp

{Ù’` ARP ož
no service trustedarp

o@ƒõ-	@ƒ	T
	-	-

oHFå- ÞÙ’` ARP

oxX%”o- ß%”

oÞõ- 2

o¬.6-o- —Õ'` ARP ®%²_…2 ARP -ó• GSN ®%ÞÃ}y GSN ®%Ü.ož

oFåÞ- 1 yÞFÅ%”ko **service trustedarp ož**

```
Ruijie(config)# service trustedarp
```

oèo- -

oÞP'Ô- -

oÞjö- -

oÞVÞ- -

2.17 show arp

ÞÃgARP hÜbož

show arp [*interface-type interface-number* | **trusted** [*ip* [*mask*]] | [*ip* [*mask*] | *mac-address* | **static** | **complete** | **incomplete**]]

o@Þ-

@f	T
interface-type interface-number	ÞP6CÃÞÃCÃÞ ARP
trusted	**ÞU** ARP nÞQÞ VRF u4U`` ARPož
ip	IP ÞP6 IP ª ARP nÞ¾ **trusted** ÞÞ **ÞU** ARP nÞÞU`` ARP nÞž
mask	**Þ** IP Þ ARP n¾ Ç trusted ÞÞÞU`` ARP nÞÞU`` ARP nÞž
static	**ÞÁ** arp n¾ YCÞÁ arp Ûž
complete	**ÞÉ** arp nÞž
incomplete	**ÞÃ** arp nÞž
mac-address	**Þ6** mac ª ARP nÞž

o×X%”o- Ûb”

oÞõ- 1

o¬.6-o- Þ ARP Ük¿ **complete / incomplete ÞÁ** ARP]ÞÞnÞž

oFåÐ- 1 yÞ **show arp è**

```
Ruijie# show arp
Total Numbers of Arp: 7
```

Address	IPv4 ª
Age(min)	n ³¼ ½ ¼ + 9 ÎÑ IP, ªP'-' k + 9 ²Á ¼ ¼ ª P <static>, +9 ÁÈ n ¾ ÉÈ ¼ %y ÕÙož
Hardware	FÈ/ 48 bit MAC È? 16 bit %È Á.' ož ÕPož
Type	ÕÄ arpa ›
Interface	ARP n ¾ 3 CNMož9Á ARP nÈÄ ª—'È=È ARP IP ÄÄ–Ö+à <ož
Origin	Á ARP ù ت ` ⌈ ◊ ı Configure ÕVFå Authentication nP*ÕÕž

oÙP'Ô- -

oÙVÕ- -

2.18 show arp counter

ÈP ARP ÕÙ arp nÕÕož

show arp counter

o@Õ-

@ƒ	T
-	-

o×X%"o- ÕÕ"

oÈÕ- 1

o¬.6-o- -

oFåÙ- 1 yÈP ARP ÕÙ arp nÕÕož

```
Ruijie#sho arp counter
ARP Limit:                75000
Count of static entries:  0
Count of dynamic entries: 1 (complete: 1  incomplete: 0)
Total:                    1
```

ώ ℵ ʒ Ụ -

oиVØ- -

2.19 show arp detail

Ÿ ARP bÀÔž

show arp detail [*interface-type interface-number* | trusted [*ip* [*mask*]] | [*ip* [*mask*] | *mac-address* | **static** | **complete** | **incomplete**]

o@Ø-

@f	T
interface-type interface-number	Ÿ6CÊMÊCÊM ARP
trusted	**ŸU** ARP nkQÊ VRF u4U'` ARPož
ip	ip ÊŸ6 ip ª ARP n¾
ip mask	Ÿ ip mask ÊÊ ARP n¾
mac-address	Ÿ6 mac ª ARP n¾
static	ŸÊÊ arp n¾
complete	ŸÊÊE arp n¾
incomplete	ŸÊÊ arp n¾

oxX%"o- Ô"

oÊÊ- 1

o¬.6-o- Ê ARP ÊkAò ARP gÊÊÊU'hoÊCÊMÊUY

…4xXož

⚠	*min_value*	*max_value*	subvlan	ARP

| Ψ Ě 1yŸ ARP bÀÔž

```
Ruijie# show arp detail
IP Address       MAC Address       Type      Age(min)   Interface  Port     SubVlan


1.1.1.2          00d0.Ω822.33bb    Lo  mic    1          Vl2        Te2/1    4
```

2.:+9u4 QINQ 000@Ê00ÊXE9ODQ

```
1.1.1.1          00d0.f822.33bb    Local      --         Vl2        --        --
```

ARP Ûõ_<m#ÿù

<	T
IP Address	F• IP ž
MAC Address	IP +F ž
Type	ARP k,ÓÁU’ò_ž
Age	ARP .ÓÁ%yÜož
Interface	IP NMož
Port	ARP CEMož
SubVlan	ARP subvlanož
InnerVlan	ARP vlank/ CE-VLAN
Location	LocalynP ARP n RemoteynP ARP n5Û

oÜP’ô- -

oÜVô- - ; 78 071 g/TT2 e n

```
Interface              Received  Received Received  Sent      Sent
Name                   R
equests  Replies  Other[redacted]  Replies [redacted]
--------------------   --------  -------- --------  --------  -------
GigabitEthernet 0/0    0         0        0         0         0
GigabitEthernet 0/1    143649    232      0         2         0
GigabitEthernet 0/2    0         0        0         0         0
GigabitEthernet 0/3    0         0        0         0         0
GigabitEthernet 0/4    0         0        0         0         0
GigabitEthernet 0/5    0         0        0         0         0
GigabitEthernet 0/6    0         0        0         0         0
Loopback 1             0         0        0         0         0
```

È ع ٪... ۋ χ

[redacted]

o¬.6-o- -

oFåb- 1 yÞÁ ARP nžž

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

oЧP'ĉ- -

oиVØ- -

2.22 show ip arp

ÞØgARP hÛbž

show ip arp

o@Ø-

<	¢
Protocol	¥® Internetož
Address	F• IP ož
Age (min)	ARP ÜŒYÜJoÜ F¥<?“¿”nPož
Hardware	IP F ož
Type	FRY ARPAož
Interface	IP Mož

oЧP’ĵb- -

oнVθ- -

3 IPv6

3.1 clear ipv6 neighbors

ŽÁñDož

clear ipv6 neighbors [*interface-id*]

o@ÕÞ-

@f	T
interface-id	**NWfknPÕNÉ**

oxX%”o- Ô”

oÞÕ- 14

o¬.6-o-

vlan

oFåÞ- 1 yŽÁñDož

```
Ruijie# clear ipv6 neighbors
```

2yŽ gigabitEthernet 0/1 MÅÞDož

```
Ruijie# clear ipv6 neighbors gigabitEthernet 0/1
```

ώ ℵ ʒ Ụ -

oнVÞ- -

3.2 ipv6 address

Få IPv6 ÞÞk…*ÕŽ

ipv6 address *ipv6-address* | *prefix-length*

Ì6 IPv6 ÞŽ

no ipv6 address *ipv6-address* | *prefix-length*

Få eui-64 ” IPv6 ÞŽ

ipv6 address *ipv6-prefix* | *prefix-length* **eui-64**

ÎÎ6 eui-64 ” IPv6 ªðž

no ipv6 address *ipv6-prefix* | *prefix-length* **eui-64**

…*ÕÕå IPv6 ®k, eui-64 ”ªðž

ipv6 address *prefix-name sub-bits* | *prefix-length* [**eui-64**]

Î6…*ÕÕå IPv6 ®k, eui-64 ”ªðž

no ipv6 address *prefix-name sub-bits*| *prefix-length* [**eui-64**]

ÎNMÄÄ IPv6 ª

no ipv6 address

o@ÏÏ-

@ƒ	T
ipv6-address	IPV6 ®kÀ² RFC4291 ¥k?È¿e k?¿ 16 AÕÕÕP.
ipv6-prefix	IPV6 ®kÀ² RFC4291 ¥k?È¿ k?¿ 16 AÕÕÕP.
prefix-length	IPV6 ®kÀ IPV6 ®WnÈÈaž
prefix-name	*ÕÕž.6*ÕÕž
sub-bits	ÕÕÕÕÕÕÕÕÕÕÕÕÕÕÕÕ *nPcÈ²* RFC4291 TÈÈPcož
eui-64	nPÈ IPV6 ®kÀ 64 AÕÕM ID ÕÕÕž

oÏFÕÕ- —ª

o×X%”o- NM%”

oÏÕÕ- 14

o¬.6-o- ¥%² IPV6 NMtÕÕveÕÕ UP ÕÕÕÕMÕÕÕž

NM IPv6 ªUY…*ÕÕÕ© IPv6 ª= *ÕÕ

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 address 2002:1::/64 eui-64
Ruijie(config-if-GigabitEthernet 0/1)# no ipv6 address 2002:1::/64 eui-64
```

2y® GigabitEthernet 0/1 M…*ÖÅž

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 address my-prefix 0:0:0:7272::72/64
```

•— * ùÖ my-prefix F å ùÖ© 2001:1111:2222::/48 k ; "ÿè N M IPv6 ª-© 2001:1111:2222:7272::72/64

oèo- … **show ipv6 address y**

oFåð- 1 y¨

oЫP’ô- -

oэjö- -

oиVф- -

3.5 ipv6 general-prefix

Få IPv6 *ôž

ipv6 general-prefix *prefix-name ipv6-prefix* | *prefix-length*

ĭ IPv6 *ôž

no ipv6 general-prefix *prefix-name ipv6-prefix* | *prefix-length*

prefix-name	*ôož	
ipv6-prefix	*ôžPc}8² což	RFC4291 TÈP
prefix-length	*ôlž	

oнFå- ÈFå

oxX%”o- ฿Få%”

oнõ- 14

o¬.6-o- …*ôYŏ%ôôYэžù
ô?±ôkaôQ}“w%²ôJož
%²ôYmôž
?%ôNM IPv6 Fåž

oèVÐ- -

3.6 ipv6 hop-limit

FÊ%nÞž

ipv6 hop-limit *value*

ÊÞåž

no ipv6 hop-limit

o@Þ-

@*f*	T
value	*68©* 1 --- 255ož

oÞFå- 64ož

oXX%”o- ß%”

oÞÊ- 14

o¬.6-o- ¥XQ+%nÞk+ÚÞ—|ož

oFåÞ- 1 yFÊ%nÞ 100ož

```
Ruijie(config)# ipv6 hop-limit 100
```

oèo- -

oÞP’Ò- -

oèÞÖ- -

oèVÐ- -

3.7 ipv6 icmp error-interval

Få ICMPv6 ÞÊ,äž

ipv6 icmp error-interval too-big *milliseconds* [*bucket-size*]

Få ICMPv6 [jĆ,äž

ipv6 icmp error-interval *milliseconds* [*bucket-size*]

ICMPv6 ĘĆ,ÊŽ

no ipv6 icmp error-interval too-big *milliseconds* [*bucket-size*]

¿ ICMPv6 [jĆ,ÊŽ

no ipv6 icmp error-interval *milliseconds* [*bucket-size*]

o@ĘĆ-

@ƒ	T
milliseconds	XÎÊĆH8 0~2147483647kÞ 100k%yDaož H› 0 ĘnP'ò ICMPv6 [jĆ,äž
bucket-size	XÎ×ÎĘĆH8 1~200kÞ 10ož

oÞFå- 100 DaG 10 ož

o×X%"o- ĘĆ%"

oÞÊĆ- 14

A5175 7Tc 0 p7Ti7-BT52,-7.832072109CDF306065B07TD<E0813 062B1 Tf-0.0028 M7 CT0 1 TC3.24P7 0[Td(ICMPv6)TjM22_0 1 T

oиVØ- -

3.8 ipv6 mtu

Få IPv6 ÎÝ%gMTU hož

ipv6 mtu *bytes*

ÐFåž

no ipv6 mtu

o@ÞÞ-

@f	T
bytes	IPv6 ÎÝ%kY-%yk8 1280~1500(ÎNM mtu ’ÈcNMÎÝož

oÞFå- ÞNMxX mtu Fåcož

o×X%”o- NM%”

oÞÞ- 14

o¬.6-o- ¢%² IPv6 Ý IPv6 MTU ¼k RGOS ¾k+ÞgãÞ%Ð—kÕ
;ÐNM IPv6 MTU %}%ðž

oFåÞ- 1 y1 GigabitEthernet 0/1 NM IPv6 MTU ›— 1400 -ož

```
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 mtu 1400
```

oèo- * **show ipv6 interface ÐNMFå** mtu ož

oÞP’Î- -

oæjö- -

oиVØ- -

3.9 ipv6 nd cache interface-limit

FðIM.>DƒDož

ipv6 nd cache interface-limit *value*

ÊÞŕåž

no ipv6 nd cache interface-limit

o@Ðƒ-

	DHCP(NS)	Ipoež–å	0 žPŽM	Ipv6
value	ošyožy0-600ožp		1	

oxX%”o- %”

oÞ- 14

o¬.6-o- NMFå‰ IPV6 ykÖ4k;"—ÕNv)
¥ ipv6 XFk+]Ïg%2ykÇ
MyÖk¥UY3o…ož

oFåÞ- 1 y“wMÖÞœ 10sož

```
Ruijie(config)# ipv6 nd dad retry 10
```

oÈo- * **show run**

oÙP’Ò- -

oÖÖ- -

oÙVÞ- -

3.12 ipv6 nd managed-config-flag

FåÞ **managed address configuration** **ož**
ipv6 nd managed-config-flag

ÞÞož
no ipv6 nd managed-config-flag

o@Þ-

@ƒ	T
-	-

oÞFå- Þ—Fåž

oxX%”o- NM%”

oÞ- 14

o¬.6-o- —ÅvÖ…ÞÖHÇÅk
1…ÞÖkké.ož

oFåb- 1 y¨ GigabitEthernet 0/1 NMFåî **managed address configuration** ÿ**ož**

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd managed-config-flag
```

oèo- * **show ipv6 interface** ÔNMÊÕ**ž**

oÙP'Ô- -

oêjö- -

oÙVÔ- -

3.13 ipv6 nd max-opt

Fåõ ND ÿ'òž

ipv6 nd max-opt *value*

ÊÕFåž

no ipv6 nd max-opt

o@ÿ-

@ƒ	T
value	*u*ÿ*8y* 1-100ož

oÙFå- ÿÊ 10ož

o×X%"o- ÿFå%"

oÙÊ- 14

o¬.6-o- Fåõ ND ÿ'òAèÈ¼MTU ¼Mg¼ž

oFåb- 1 yFåõ ND ¾ 20ož

```
Ruijie(config)# ipv6 nd max-opt 20
```

oèo- * **show run** ÔFÊÕ**ž**

oÙP'Ô- -

oêjö- -

oÙVÔ- -

3.14 ipv6 nd ns-interval

FåM>DЬ(NS)Množž

ipv6 nd ns-interval *milliseconds*

Ê-åž

no ipv6 nd ns-interval

o@ß-

@ƒ	T
milliseconds	*DMD%8y* 1000-4294967295 ož

oЬF-å-

9ê—Ĝ(RA)ž> 0gnPÈhz

9Oò—Ĝ>DЬMnž> 1000 Daož

o×X%”o-

NM%”

oЬê-

14

o¬.6-o-

Fåĝ(RA)tGb8kcž—Ĝ.ož1¥—åož

oFåß- 1

o@ß-

@ƒ	T
-	-

oÞFå-

Þ—Få

o×X%”o-

NM%”

oÞß-

14

o¬.6-o-

—å4ßek—Õ¡ßtyoßek1… dhcpv6 ÛH” IPv6 ¾Ù’ÛFåž managed address configuration t—åó other stateful configuration -t—åž

oFåt- 1 y¨ GigabitEthernet 0/1 NMFåt **other stateful configuration** **ßož**

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd other-config-flag
```

oèo- * **show ipv6 interface ÕÑ NMFåßgèož**

oÛP’Îb-

-

oæÏö-

-

oÞVß-

-

3.16 ipv6 nd prefix

Fåt(RA)ñßž

ipv6 nd prefix { *ipv6-prefix*/*prefix-length*

preferred-lifetime	Ñv ñè ˜¸s ùÖe • Ù#Ä| ž•k H ›8 0-4294967295kÞ 7 bž

at *valid-date preferred-date*

oèo- * **show ipv6 interface** [*interface-id*] **ra-info** ôçõ

oÜP'ô- -

oèjö- -

oèVõ- -

3.17 ipv6 nd ra-hoplimit

FåMGçõ(RA)ôž

ipv6 nd ra-hoplimit *value*

ôFåž

no ipv6 nd ra-hoplimit

o@ô-

@f	T
value	çõ(RA)ôH8 0-255ož ôõ 64 ôž

oHFå- ôõ 64ož

oxX%"o- NM%"

oHõ- 14

o¬.6-o- -

oFåõ- 1 y¨ GigabitEthernet 0/1 NMFõçõf 110ož

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd ra-hoplimit 110
```

oèo- * **show ipv6 interface** [*interface-id*] **ra-info** ôçõž

oÜP'ô- -

oèjö- -

oнVθ- -

3.18 ipv6 nd ra-interval

FåIMGõ(RA)ðž

ipv6 nd ra-interval { *seconds* | **min-max** *min_value max_value* }

θ-åž

no ipv6 nd ra-interval

3.19 ipv6 nd ra-lifetime

FåMGõ(RA)
ipv6 nd ra-lifetime *seconds*

ž

no ipv6 nd ra-lifetime

o@-

@*f*	T
seconds	*B* 0-9000ož 1800 aož

o- 1800 a

o×X%”o- NM%”

o- 14

o¬.6-o- 9?(RA) 64NMY1¥–Õ
–å 0 nP –å 0 9
—Õ(RA) (ra-interval) ož

oFå- 1 y¨ GigabitEthernet 0/1 NMF 2000 aož

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd ra-lifetime 2000
```

oo- * **show ipv6 interface** [*interface-id*] **ra-info** ž

oP’o- -

oo- -

oV- -

3.20 ipv6 nd ra-mtu

FåMGõ(RA)† MTUož
ipv6 nd ra-mtu *value*

êÞFåž

no ipv6 nd ra-mtu

o@ÞÞ-

@ƒ	T
value	ê(RA)† MTU <kH8 0-4294967295oÞ IPv6 MTU ‘4%ðž

oÞFå- ÈNM IPv6 MTU ¤ž

o¤X%”o- NM%”

oÞð- 14

o¬.6-o- ê 0kê<kk MTU ¤ž

oFåÞ- 1 yNMFêê† MTU 1400 -ož

```
Ruijie(config -if)# ipv6 nd ra-mtu 1400
```

oèo- * **show ipv6 interface** [*interface-id*] **ra-info** êê† mtu ’Îbž

oUP’Îb- -

oÞjö- -

oÞVÞ- -

3.21 ipv6 nd reachable-time

FåDtUÞž

ipv6 nd reachable-time *milliseconds*

êÞFå

no ipv6 nd reachable-time

o@ÞÞ-

@ƒ	T
milliseconds	>DtUÞYDa%yk8y 0-3600000 ož Þ 30 aož

oÞFå- ê(RA)Þ 0gnPÈhk—ÕDGë>DtUÞÞ

- 30000ms(30 a)ož

oxX%”o- NM%”

oHõ- 14

o¬.6-o- —ÕFõU>Dkñ–ÊÞ5UY¾ÿñDÞkxÐ~
ÕÊoþ–ÕÊ1Fåož
FåÞ(fRA)tGbßkcÊ—Ñ.oÞ–å 0 nP—Ñ
6Ê/…Þož

oFåÞ- 1 y¨ GigabitEthernet 0/1 NMFåDtÚÞñ 1000 ož

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd reachable-time 1000000
```

oèo- * **show ipv6 interface ÕÞÚ**

oÚP’Îb- -

oÞjö- -

oÞVõ- -

3.22 ipv6 nd stale-time

FåD‘4 stale ÊÞž
ipv6 nd stale-time *seconds*

ÕÞå
no ipv6 nd stale-time

o@ÕÞ-

@ƒ	T
seconds	>D stale ÊÞkYa%yk8y 0-86400 ož Þ 3600 ož

oHFå- >DÊÞñ stale ÊÞÕ 1hož

oxX%”o- Þ%”

oHõ- 14

o¬.6-o- FÊÞ“w stale ÊÞÕÞg>DUyoFÊÞ5UY¾

yñDßkxC~ßoó–ÕÕ1Fåož

oFåb- 1 yFå–ÕD stale ÿž 600sož

```
Ruijie(config)# ipv6 nd stale-time 600
```

oàao- * **show run ÕFÊÿ**

oÙP'Îb- -

oæjö- -

oÙVÕb- -

3.23 ipv6 nd suppress-ra

ÕNMGõ(RA)ÞÞž

ipv6 nd suppress-ra

ÕNMG RA ÞÞž

no ipv6 nd suppress-ra

o@Ïb-

@ƒ	T
-	-

oHFåb- ¨ IPv6 NM1kGõÞÞž

o×X%"o- NM%"

oHÕb- 14

o¬.6-o- -

oFåb- 1 y¨ GigabitEthernet 0/1 NMõõÞÞž

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 nd suppress-ra
```

oàao- * **show ipv6 interface** ô RA ÕÕÞÞž

oÙP'Îb- -

oæjö- -

oиVß- -

3.24 ipv6 nd unresolved

FÈåDnßßož

ipv6 nd unresolved *number*

ßFåž

no ipv6 nd unresolved

o@ß-

@ƒ	T
number	*ßnßß* 1kß›—Õ4>Dn¾Qož

oßFå- ó 0knP’ò/I’9—Õ4>Dn¾Qož

o×X%”o- ß%”

oßß- 14

o¬.6-o- 4…2ßxàßßà ND nß¾nßßUY*Fßà ND n¾ ßž

oFåß- 1 yFßåDn¾ß 200ož

```
Ruijie(config)# ipv6 nd unresolved 200
```

oßßo- *s **show run** ßFß%²

oUP’ß- -

oßjß- -

oиVß- -

3.25 ipv6 neighbor

Fß%²ÁDož

ipv6 neighbor *ipv6-address interface-id hardware-address*

ï%ÁDož

no ipv6 neighbor *ipv6-address interface-id*

o@ï-

@ƒ	T
ipv6-address	>D IPV6 RFC4291
interface-id	6¥DMg, Routed Port,L3 AP My SVI NMhož
hardware-address	>De/Y XXXX.XXXX.XXXX nP 48 y MAC 'X' nPož

oFå-

ÁDož

o×X%"o-

Fa"

o-

14

o¬.6-o-

¥Xw ARP xXkÁDQFå IPv6 NMk

FaD]Æ NDP ¥Dnk; D16 Fa

ÁDk1 Reachable –|ÁDk FÁD IPV6 N

MF%² IPV6 Mshk4 k7

ÁD6 mac oož–|ÁDk inactive UY* **show ipv6 neighbor static**

x

… **clear ipv6 neighbors x** *

NDP)>Dož

oFa- 1 y¨ SVI 1 FÁDož

```
Ruijie(config)# ipv6 neighbor 2001::1 vlan 1 00d0.f811.1111
```

o-

… **show ipv6 neighbors x** **bž**

oP'b-

-

o-

-

oV-

-

3.26 ipv6 ns-linklocal-src

G>DLž.eož

ipv6 ns-linklocal-src

G>DЬž.eðÿ) IPv6 ¾ RFC3484 #…eê
¶%onðž

no ipv6 ns-linklocal-src

o@ð-

@ƒ	T
-	-

oÞFå- G>DЬžÈeðž

o×X%”o- ¶FÅ%”

oÞð- 14

o¬.6-o- -

oFåð- 1 yG>DЬž.eðž

```
Ruijie(config)# no ipv6 ns-linklocal-src
```

oèo- -

oЬP’ˆb- -

oÞjö- -

oнVð- -

3.27 ipv6 redirects

• ICMPv6 Mgož

ipv6 redirects

¼ ICMPv6 Mgož

no ipv6 redirects

o@ð-

@ƒ	T
-	-

oÞFå- Þ ICMPv6 Mgož

o×X%”o- NM%”

oHõ- 14

o¬.6-o- -

oFåb- 1 y¨ GigabitEthernet 0/1 NMo ICMPv6 Mgož

```
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 redirects
```

oèo- * **show ipv6 interface** ÔNMØG ICMPv6 Mgož

oUP'Ôb- -

oojö- -

ouVØ- -

3.28 ipv6 source-route

Få-ÕkØ IPv6 ¢ž

ipv6 source-route

W2ÕkØ IPv6 ¢ž

oЫP’ô- -

oэjö- -

oиVф- -

3.29 show ipv6 address

ÞP IPv6 ªôž

show ipv6 address [*interface-name*]

o@ÞÞ-

@f	T
interface-name	NfkÞPÄ IPv6 ôž

o×X%”o- Ôb”

oÞÞ- 14

o¬.6-o- -

oFåô- 1 yôÎ—ÕÄ IPv6 ôž

```
 Ruijie#show ipv6 addr
Global unicast address limit: 1024, Global unicast address count: 2
Tentative address count: 3,Duplicate address count: 0
Preferred address count: 0,Deprecated address count: 0
  GigabitEthernet 0/5
    2003:1::23/64                              Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
    fe80::2d0:f8ff:fefb:deb2/64                  Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
    2005:1::1111/64                            Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
Ruijie#
```

2yôÎ—ÕM GigabitEthernet 0/1 Få IPv6 ôž

```
 Ruijie#show ipv6 addr gi 0/5
Global unicast address count: 2
Tentative address count: 3,Duplicate address count: 0
Preferred address count: 0,Deprecated address count: 0
```

```
    2003:1::23/64                              Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
    fe80::2d0:f8ff:fefb:deb2/64                  Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
    2005:1::1111/64                            Tentative
  Preferred lifetime: INFINITE, Valid lifetime: INFINITE
Ruijie#
```

<Ky

<	¢
Global unicast address count	4NMF%n IPv6
Tentative address count	
Duplicate address count	G
Preferred address count	
Deprecated address count	
Preferred lifetime	
Valid lifetime	

oUP'ô- -

oVØ- -

3.30 show ipv6 general-prefix

P*Ôž

show ipv6 general-prefix

o@Ø- | @ƒ | T |
|---|---|
| - | - |

oxX%"o- Ô"

oØ- 14

o¬.6-o- ØVFåØ DHCPv6 ØCkPÔž

oFåØ- 1 yP*Ôž

```
Ruijie# show ipv6 general-prefix
There is 1 general prefix.
IPv6 general prefix my-prefix, acquired via Manual configuration
        2001:1111:2222::/48
        2001:1111:3333::/48
```

<Ky

<	¢
There is	
IPv6 general prefix	*
acquired via	H
Prefix/len	

oUP'ô- -

oVo- -

3.31 show ipv6 interface

IPV6 NM'ôž

show ipv6 interface [[*interface-id*] [**ra-info**]] [brief [*interface-id*]]

o@-

@f	T
interface-id	NMg,Y NMo• aggregateport NMo• SVI NMhk NMož
ra-info	NMY RA @ôž
brief	

oxX%"o-

oo- 14

o¬.6-o- *¥XUYo IPV6 NM ND FC,ôž

oFo- 1 y IPV6 NM'ôž

```
Ruijie# show ipv6 interface vlan 1
Interface vlan 1 is Up, ifindex: 2001
address(es):
```

```
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)
```

ra-info

<	¢
RA timer is stopped (on)	nP
waits	nP
initcount	nP RA
RA(out/in/inconsistent)	OutynPG inynPv inconsistentynPv @
RS(input)	nPv
Link-layer address	Me
Physical MTU	Me è MTU
!M | M	!M nP managed-config-flag M:
!O | O	!O nP other-config-flag Oy

ra-info (Prefix)_<P

<	¢
total	nP
fec0:1:1:1::/64	
Def	P.NM @
Auto | CFG	Auto nP NMF, • IPV6 CFG nP F

!Adv

vltime	nPÿa)ož
pltime	nPÿa)ož
L | !L	L ðPÿ on-link yåž !L ÃFož
A | !A	A ðPÿ auto-config yå!A ÃFož

```
fe80::200:ff:fe00:2  00d0.0000.0002  vlan 1
```

2yP>DÎÂ

```
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
```

È ª ½... ð χ

<	¢
IPv6 Address	>D IPV6 ª
Linklayer Addr	e¢ Mac ¾ÈÞ incomplete
Interface	¥DÑM
State	>DÝÅ state/H(R) STATE ý INCMP(Incomplete)—¥D¾¨gk>DЬ(NS)]Ex© ÄÑD¢(NA)ož REACH(Reachable) —nPR—ÕD©¾Ý>DG¾ÞÕ ÙÞSTALE — nP>DtÙÞÞÞÞ-Ó ¬} ÌÙ •+ ñÄ¬G ñ¥> D k 4 ž/ 1 o NUD (Neighbor Unreachability Detection) ož DELAY—nPÄÞÞ STALEÄÞDGÄÞÞ STALE Ñ DELAY ÄÞ DELAY_FIRST_PROBE_TIME seconds(5 a)ÄÞÑDUÅ ='Î;ÄÞ DELAY Ñ PROBEkcÞ¥DG>DЬ(NS) k 3”o NUDož PROBE—nP NUD]ÄÞky>DUÅ?œ RetransTimer milliseconds g>DG>DЬ(NS)+ñ¾>DÑ>DЬÞ] ñ MAX_UNICAST_SOLICIT(3)

```
2001:1::1          00d0.f822.33ab   GigabitEthernet 0/14   ACTIVE
2001:2::2          00d0.f822.33ac   VLAN 1                    INACTIVE
```

<Ky

<	¢
IPv6 Address	ÁD IPV6 ª
Linklayer Addr	Fåæ Mac ª
Interface	¥DÑM
State	ÁDÿ STATE ù ACTIVE—t INACTIVE—tk#ÁD IPV6 ÑNMFg %ÑMÄÄMÎhkÁDFk/G k7ÁD6 mac Gož

oUP'Î-

-

oVÐ-

-

3.33 show ipv6 neighbors statistics

P IPv6 >DnÏÎ

show ipv6 neighbors statistics [**all**]

o@Ð-

@f	T
all	**PÁ** IPv6 >DnÏÎ

o×X%"o-

Ø"

oÐ-

14

o¬.6-o-

-

oFåÐ- 1 yÐ>DnÏÎž

```
Ruijie#show ipv6 neighbor statistics

Memory: 0 bytes
Entries: 0
```

```
  Static: 0,Dynamic: 0,Local: 0
  Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0
Ruijie#
```

2yðÄDnïî

```
 Ruijie#show ipv6 neighbor statistics all

IPv6 neighbor table count: 1
Static neighbor count: 0(0 active, 0 inactive)
Total
Memory: 0 bytes
Entries: 0
  Static: 0,Dynamic: 0,Local: 0
  Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0;

Global
Memory: 0 bytes
Entries: 0
  Static: 0,Dynamic: 0,Local: 0
  Incomplete:0, Reachable:0, Stale:0, Delay:0, Probe:0;
Ruijie#
```

È ‡ ½... ¤ χ

<	¢
IPv6 neighbor table count	>Dnƒ
Static neighbor count	ÁÄDn¾
active	t>Dn¾
inactive	t>Dn¾
Memory	ÿÏO
Entries	>Dn¾
Static	ÁÄ¾
Dynamic	ÁÄ¾
Local	ê IPv6 ª¬n¾
Incomplete	È¤¾
Reachable	U>Dn¾
Stale	Stale ÄÄ¾
Delay	Delay ÄÄ¾

Probe	Probe ÊÝ¼

oÜÞ´ô- -

oÜÞ- -

3.34 show ipv6 packet statistics

Ïß IPv6 ¨ÍÕž

show ipv6 packet statistics [**total |** *interface-name*]

o@ß-

@ƒ	T
total	ÊÝ¼ ÏßÊÝ¼MÕ¨k-Ïß?%ÏMÕž
interface-name	ÊÝ

oxX%”o- Ô¼”

oÏß- 14

o¬.6-o- -

oFåÕ- 1 yô IPv6 ¨ÍÕy?NMÕÍ

```
Ruijie#show ipv6 pack statistics
Total
  Received 0 packets, 0 bytes
    Unicast:0,Multicast:0
    Discards:0
      HdrErrors:0(HoplimitExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 0 packets, 0 bytes
    Unicast:0,Multicast:0
  GigabitEthernet 0/5
  Received 0 packets, 0 bytes
    Unicast:0,Multicast:0
    Discards:0
      HdrErrors:0(HoplimitExceeded:0,Others:0)
      NoRoutes:0
```

```
      Others:0
  Sent 0 packets, 0 bytes
    Unicast:0,Multicast:0
Ruijie#
```

2yð IPv6 ¥ÊÉ

```
 Ruijie#show ipv6 pack statistics total
Total
  Received 0 packets, 0 bytes
    Unicast:0,Multicast:0
    Discards:0
      HdrErrors:0(HoplimitExceeded:0,Others:0)
      NoRoutes:0
      Others:0
  Sent 0 packets, 0 bytes
    Unicast:0,Multicast:0
Ruijie#
```

È ‹ ½... ¨ χ

<	¢
Total	ùnPÄM IPv6 ¥ GigabitEthernet 0/5 ùnP¢NMÏ
Received	Nvñ IPv6 ¥k-¥
Unicast	IPv6 %n¥
Multicast	IPv6 Á¥
Discards	' IPv6 ¥
HdrErrors	IPv6 Ùj'¥
HoplimitExceeded	¢ik¥¥
Others	¿U IPv6 Ùjk-'¥
NoRoutes	9¥ IPv6 ¥
Others	¿œ IPv6 ¥

oÙP'ô- -

oÙVÐ- -

3.35 show ipv6 raw-socket

ÞÄ IPv6 =Ñož

show ipv6 raw-socket [*num*]

o@Ð-

@f	T
num	Z

oxX%”o- Ô”

oÐ- 14

o¬.6-o- -

oFåÐ- 1 yÔÄ IPv6 =Ñož

```
Ruijie# show ipv6 raw-socket
Number Protocol Process name
1      ICMPv6   vrrp.elf
2      ICMPv6   tcpip.elf
3      VRRP     vrrp.elf
Total: 3
```

È ¤ ¼... ¤ χ

<	¢
Number	~Z
Protocol	Z
Process name	idf
Total	È

oÞP’Ô- -

oÞVÐ- -

3.36

o@ð-

@f	T
interface-type interface-number	U@pP6NMvõ'Îbž HPÄMvõož

oxX%”o-

Ôb”

oHõ-

14

o¬.6-o-

ÄNMkPÎ—ÕÄÎbž

oFåb- 1

yP>Dõè'Îbž

```
Ruijie# show ipv6 routers
Router FE80::2D0:F8FF:FEC1:C6E1 on VLAN 2, last update 62 sec
  Hops 64, Lifetime 1800 sec, ManagedFlag=0, OtherFlag=0, MTU=1500
  Preference=MEDIUM
  Reachable time 0 msec, Retransmit time 0 msec
  Prefix 6001:3::/64 onlink autoconfig
    Valid lifetime 2592000 sec, preferred lifetime 604800 sec
  Prefix 6001:2::/64 onlink autoconfig
    Valid lifetime 2592000 sec, preferred lifetime 604800 sec
```

È ‡ ¼... ö χ

<	¢

oЪP'ô- -

oъVØ- -

3.37 show ipv6 sockets

PÄ IPv6 NkUY=3¸? UDP ¢My TCP ¢M+Ù2Ê

show ipv6 sockets

o@Ø-	@ƒ	T

ForeignIP:Port +€ IPv6

Process name	idf

oЧP’ȏ- -

oчVȏ- -

4 DHCP

4.1 address range

}¨ DHCP ¾Ïõ¼ CLASS 6 CLASS ÈÃ8ÍÊ class Få‰”

address range xX

address range *low-ip-address high-ip-address*

¥¥X **no** [redacted]**ož**

no address range

o[redacted]	@*f*	T
	low-ip-address	[redacted]*ž*
	high-ip-address	[redacted]*ož*

oÈFå- È¾ CLASS ÌFå8kÈà8ož

o×X%”o- ¾ CLASS Få‰”

o¬.6-o- ¥XK9 Server Få CLASS +%à8kà8ÌÈUY[redacted]

Ú CLASS à8MÖÕ4¾Ïõ¼ CLASSkx+à8[redacted]é

¥ CLASS ¢à8y CLASS [redacted]à8,což

oFåb- 1yFÈ mypool0 ¾Ïõ¼ class1 à8 172.16.1.1—172.16.1.8ož

```
Ruijie(config)# ip dhcp pool mypool0
Ruijie(dhcp-config)# class class1
Ruijie(config-dhcp-pool-class)# address range 172.16.1.1  172.16.1.8
```

oà0- * **show run** UFå

oÜP’Ô- -

oÖjÖ- -

oÜV[redacted]- -

4.2 bootfile

}# DHCP DHCP PFåX **bootfile**

bootfile *file-name*

no

no bootfile

default bootfile

o@-

@f	T
file-name	*9ooT*

oFå-

oxX%”o- DHCP PF%”

o-

14

o¬.6-o- ¥XK9 Server F DHCP DHCP 7E

DHCP TFTPh 7E

* **next-server x**

oFa- 1 y— 4 DHCP

```
Ruijie(dhcp-config)# bootfile router.conf
```

oo- * **show run**

oP’o-

-

oo-

-

o-

-

4.3 class

}¨ DHCP PF 4 CLASSk DHCP PF%” class xX

class *class-name*

no class *class-name*

o@ƒ-

@ƒ	T
class-name	µ CLASS dfkUY©.ƒò myclass ã 1ož

oÞFå-

ÞPÙ¼ CLASSož

o×X%”o- DHCP ÞPFå‰”ož

oÞõ- 14

o¬.6-o-

¥XK9 Server Fâ DHCP ÞPUYÇ Option82 F’ÛFkÊ Option82 ’
ÛFk¨ DHCP Þ?ÞUYÈà8oÊ CLASSk%²
DHCP ÞPUYÚ¼ CLASSk? CLASS UY6cà8ož
ÞiÇÊGUYÈÞkÇ¿ Option82 ’Ì%5Gõ
K CLASSkR CLASS +à8È IP ÞÞ%ÞFÞÚ CLASS È
7Á CLASS ÞPFã¿R+• CLASS à8È CLASS È
ÞÈ%Þ CLASS gÈk‰Poº CLASS +%à8kà8·
ÞÞUYÚ CLASS à8MÇ¼ÞÚ¼ CLASSkwÌ
Få CLASS àkÉ CLASS È8y CLASS Êà8,což

oFåÚ- 1 yFÞ mypool0 Ú¼ class1ož

```
Ruijie(config)# ip dhcp pool mypool0
Ruijie(dhcp-config)# class class1
```

oà¤o- * **show run Ïå**

oÞP’Ì- -

oÞÏÖ- -

oÞVÚ- -

4.4 clear ip dhcp binding

}Ž DHCP ÇkÚ” **clear ip dhcp binding xX**

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

o@ßÞ-

@*f*	T
*	ÁÁ DCHP Ç
ip-address	ßß IP ªÉ£

o¤X%”o- ßÞ”

oÞß- 14

o¬.6-o- ¥XK9 Server ÞÞXQŽ DHCP ÇÇ DHCP ßßVÇÇJY* **no ip dhcp pool xX**

oÞåß- 1 yŽ4 IP ª 192.168.12.100 DHCP Ç

```
Ruijie# clear ip dhcp binding 192.168.12.100
```

oÞP’ß- -

oÞVß- -

4.5 clear ip dhcp conflict

}Ž DHCP ÷“ßß” **clear ip dhcp conflict xX**

clear ip dhcp conflict { *

oнV0- -

4.6 clear ip dhcp history

}Ž DHCP 7W“ÊÔ”

o¬.6-o- ¥XK9 Relay Få DHCP DHCP NvyG_ 4 **clear ip dhcp relay statistics x**

oFåð- 1 yŽ DHCP

```
Ruijie# clear ip dhcp relay statistics
```

oЫP'ô- -

oиVÐ- -

4.8 clear ip dhcp server rate

}Ø DHCP

clear ip dhcp server rate

-	-

oxX%”o- [illegible]”

oH[illegible]- 14

o¬.6-o- ¥XK9 Server Få DHCP [illegible] DHCP [illegible]
)kw+ DHCP [illegible]vyG_[illegible]4[illegible] **clear ip dhcp server statistics** **x[illegible]**
[illegible]

oFå[illegible]- 1 yŽ DHCP [illegible]

```
Ruijie# clear ip dhcp server statistics
```

oUP’[illegible]- -

ouV[illegible]- -

4.10 client-identifier

}# DHCP [illegible]Phk DHCP [illegible]FåX **client-identifier**
client-identifier *unique-identifier*

no [illegible]
no client-identifier

[illegible]
default client-identifier

o@[illegible]- @*f*	T

df GigabitEthernet 0/1 +ïÊe
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31k¿ 01 WnY®ÞK
67.6967.6162.6974.4574.6865.726e.6574.302f.31 GigabitEthernet0/1 ÀÓÞWA¼
UY@• RFC1700 † Address Resolution Protocol Parameters~-ož
Qïß DHCP ÎWÞÕUY…¥Xož

oFåÞ- 1 y¼ MAC ª 00d0.f822.33b4 YÞ DHCP ïez

```
Ruijie(dhcp-config)# client-identifier
0100.d0f8.2233.b467.6967.6162.6974.4574.6865.726e.6574.302f.31
```

oèÞo- * **show run** UFå

oÙP'Îb- -

oïjö- -

oÙVÞ- -

4.11 client-name

}# DHCP ïÊk DHCP ÞPFåX **client-name**
client-name *client-name*

no ¼ DHCP ïÊ
no client-name

ÞÕ
default client-name

o@Þ-

@ƒ	T
client-name	# DHCP ïÊdžY~ÕÞ ASCII …ož• e Ö¿d k A ò # river DHCP ï €d k # river.i-net.com.cn

oÙFå- ¼Ä

o×X%”o- DHCP ÞPFå%”

oÙÕ- 14

o¬.6-o- ¥XK9 Server Fåg DHCP ¥X# DHCP ¢ož

oFåb- 1 y#%².. river ¢ož

```
Ruijie(dhcp-config)# client-name river
```

oèo- * **show run**

oUP'ò- -

oêjö- -

ouVØ- -

4.12 default-router

DHCP DHCP PFåX **default-router**

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

no

no default-router

defaut default-router

o@ò- | @f | T |
|---|---|
| *ip-address* | # WINS Æ IP ¾L5F%² |
| *ip-address2…ip-address8* | *g* 8 ¾Q% IP ª |

oHFå- ¼

oxX%"o- DHCP PF%"

oHò- 14

o¬.6-o- ¥XK9 Server F%Ò DHCP DHCP DHCP Æ

5¾6%¾ IP ¢ož

oFåb- 1 y# 192.168.12.1 ¼

```
Ruijie(dhcp-config)# default-router 192.168.12.1
```

oèo- * **show run** UFå

oÜP'ô- 1 yFåª

```
Ruijie(dhcp-config)# default-router 225.2.2.2
% Error: ip address (225.2.2.2) is not valid!
```

oÞjö- 1. Få%nª
2.Fá 8 µ

oÜVÕ- -

4.13 dns-server

}# DHCP € DNS Æ DHCP ÞPFåX **dns-server**

dns-server { *ip-address* [*ip-address2…ip-address8*] }

no DNS Æ

no dns-server

defaut dns-server

o@ÞÞ-

@ƒ	T
ip-address	# DNS Æ IP ÞÞL5F%²
ip-address2…ip-address8	*g* 8 DNS Æ

oÞFå- DNS Æ

o×X%"o- DHCP ÞPF%"

oÞÕ- 14

o¬.6-o- ¥XK9 Server Fá DNS DHCP ÇÜ
DNS #%² DNS Æ

oFåÞ- 1 yDHCP 64 DNS Æ 192.168.12.3

```
Ruijie(dhcp-config)# dns-server 192.168.12.3
```

oèo- * **show run** Få

oÙP'Î-ò- 1 yFåª

```
Ruijie(dhcp-config)# dns-server 225.2.2.2
% Error: ip address (225.2.2.2) is not valid!
```

oèjö- 1. Fâ%nª

2.Fâ 8 ¡Ä

4.14 domain-name

}# DHCP ëÇk DHCP ÞxX **domain-name**

domain-name *domain-name*

no ëÇ

no domain-name

ê

defaut domain-name

o@ÞÞ-

@ƒ	T
domain-name	# DHCP ëÇ...

oÞFå- ëÇ

o×X%"o- DHCP ÞFâ%"

oÞê- 14

o¬.6-o- ¥XK9 Server FâDHCP Ò46eÇekÞÕÇ+N*

ÕÑ<UY4

oFâò- 1 yË DHCP ëÇ i-net.com.cn

```
Ruijie(dhcp-config)# domain-name i-net.com.cn
```

oèo- * **show run** UFå

oÙP'Î-ò- 1 yFëÇ

```
Ruijie(dhcp-config)#domain-name ruijie.com.cn
```

oèjö- -

4.15 hardware-address

}# DHCP [illegible] DHCP [illegible]PFåX **hardware-address**

hardware-address *hardware-address* [*type*]

no [illegible]

no hardware-address

[illegible]

defaut hardware-address

o@[illegible]-

@f	T
hardware-address	# DHCP [illegible] MAC [illegible]
type	œ DHCP [illegible]UY…[illegible]¼ ethernet ieee802 [illegible]¼ 1g10M ethernet h 6gIEEE 802 h

oH[illegible]å- [illegible]

[illegible] ethernet

o×X%”o- DHCP [illegible]PFå‰”

oH[illegible]- 14

o¬.6-o- ¥XK9 Server F[illegible] DHCP [illegible]UY…¥X

oFå[illegible]- 1 y#[illegible] ethernet MAC [illegible] 00d0.f838.bf3d

```
Ruijie(dhcp-config)# hardware-address 00d0.f838.bf3d
```

oè[illegible]o- * **show run** [illegible]

oUP’[illegible]- -

oe[illegible]- -

4.16 host

}# DHCP ÑÌ IP ÿÈQAk DHCP ÞPFåX **host**

host *ip-address* [*netmask*]

no ¥ DHCP € IP ÿÈQA#

no host

ÑÒ

defaut host

o@ÞÞ-

@*f*	T
ip-address	# DHCP ÑÌ IP ª
netmask	# DHCP ÑÈQA

oÞFå- ÑÌ IP ÿÈQA

o×XÞ%”o- DHCP ÞPFå‰”

oÞÒ- 14

o¬.6-o- ¥XK9 Server FÈQAÏÏ¼DHCP ÞÞ IP ÈQAoÞ •

ÈQA 255.0.0.0z B ÈQA 255.255.0Z ÈQA 255.255.255.0ož

QÏ DHCP ÞWÈÏÏY…¥Xož

oFåÞ- 1 y1€ IP ª— 192.168.12.91kQA 255.255.255.240

```
Ruijie(dhcp-config)# host 192.168.12.91 255.255.255.240
```

oÈo- * **show run** UFå

oÞP’Ò- 1 yFåª

```
Ruijie(dhcp-config)# host 225.2.2.2 255.0.0.0
% Error: ip address 225.2.2.2 is not valid!
```

oÞÏÒ- 1. Fåª

4.17 ip address dhcp

}…¥ß PPPoHDLCoFR /xNMŬ DHCP B± IP ßNMFåX **ip address dhcp**

ip address dhcp

no ¥Ffå

no ip address dhcp

ß

defaut ip address dhcp

o@ß-	@ƒ	T

high-ip-address	ßĐ̀ IP ªðĄÕ low-ip-address

ołFå- Þ DHCP ÄE..ŀP IP ª

o×X%"o- ßFå‰"

oł∂- 14

o‐.6-o- ¥XK9 Server FĀĶå‹ IP ŀDHCP ŦĚ DHCP ŀPÄ IP ª ¢ȤUYÕ‰? IP ŀO?†ĒË DHCP ŀÕŧ‹ IP ŀ -UYŏ DHCP ÄĚyž

oFåł- 1 yDHCP ŦĚk 192.168.12.100~150 8Ä IP ª

default ip dhcp force-send-nak

o@¶-

@ƒ	T
-	-

oÞFå- ÞFåÕ NAK †

o×X%”o- ßFå%”

oÞõ- 14

o¬.6-o- ¥XK9 Server FåDHCP ïÉ?)—Õ ÷ZCk Ø.. IP ªkG
DHCPREQUEST ÷gÈÑ..¥DHCPREQUES14 Md†}… ’ ¬ „ÊteÖ.• % ”o-

oxX%”o- CNMFå‰”

oHõ- 14

oHFå- HFåNM VRRP ÿUO

o¬.6-o- ¥XK9 Server FåNMFå VRRP kDHCP ÆÕ—ÕMaster hÙ
NMLk ÕMaster hÙMLb ž9Få VRRP NMk DHCP ÆE
ÇÕ VRRP ÙÄ DHCP LC1tÕ

oFåb- 1 yDHCP ÆCNM VRRP ÿUO

```
Ruijie(config-if)# ip dhcp monitor-vrrp-state
```

5 ش Ä | -

oLP’b- 1 y8CNMFå VRRP ÙÄ

```
Ruijie(config-if-GigabitEthernet 0/2)#ip dhcp monitor-vrrp-state
% Invalid input detected at '^' marker.
```

oœjö- 1 y8CNMFå VRRP ÙÄ

oLVõ- -

4.22 ip dhcp ping packets

}Få DHCP ÿÈkping ¥f

ip dhcp ping packets [*number*]

no Få

no ip dhcp ping packets

Få

default ip dhcp ping packets

o@f- | @f | T |
|---|---|
| *number* | *gH8R* 0 ñ 10k 0 nP¼ ping qoÞ ping |

oHFå- Þ ping _f 2

oxX%”o- ÞFå‰”

oHõ- 14

o¬.6-o- ¥XK9 Server Fâ DHCP 7E DHCP PFâ IP k ping qy¥
k]tÕkò<“ÊÕ<ÊÈ DHCP ò2Ping qHG
ÇGkÊUYG 10

oFåò- 1 y1 ping qÇÇƒ— 3

```
Ruijie(config)# ip dhcp ping packets 3
```

oèo- * **show run** ÕFå

oUP’ò- -

oeÿò- -

ouVõ- -

4.23 ip dhcp ping timeout

}Få DHCP 7E ping qyÈkÈ

ip dhcp ping timeout *milli-seconds*

no ÕFå

no ip dhcp ping timeout

ÕFå

default ip dhcp ping timeout

o@ÕÕ-

@ƒ	T
milli-seconds	DHCP 7E ping gYDakò18 100 ñ 10000

oHFå- H 500 Da

oxX%”o- ÕFå%”

oHõ- 14

o¬.6-o- ¥XK9 Server Fâ%² ping

oFåò- 1 y ping — 600ms

```
Ruijie(config)# ip dhcp ping timeout 600
```

oèo- * **show run** [illegible]

oÙP'ô- -

oÞjö- -

oÙVÞ- -

4.24 ip dhcp pool

}%² DHCP Pdwµ DHCP PF‰"

ip dhcp pool *pool-name*

no [illegible] DHCP P

no ip dhcp pool *pool-name*

[illegible]P

default ip dhcp pool *pool-name*

[illegible]	@f	T
	pool-name	*Pdf*

oHFå- [illegible] DHCP P

o×X%"o- PF‰"

oH[illegible]- 14

o¬.6-o- ¥XK9 Server Fa

1yg¥Xk<kµ DHCP PF‰"kP

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

p ن A ف ة ¥ Ã ء ا ا ا ف ة IP PoDNS [illegible]@f

oFab- 1 y#%d mypool0 DHCP Pož

```
Ruijie(config)#ip dhcp pool mypool0
Ruijie(dhcp-config)#
```

oèo- * **show ip dhcp pool** *mypool0* [illegible]

oЧP'Î-

-

oэjö-

-

oиVÐ-

-

4.25 ip dhcp relay check server-id

o DHCP relay check server-di ož

ip dhcp relay check server-id

¼ DHCP relay check server-id ož

no ip dhcp relay check server-id

o@ß-

@ƒ	T
-	-

oЧFå-

¼ DHCP relay check server-id ož

o¥X%"o-

ß%"

oЧÐ-

14

o¬.6-o-

¥XK9 Server FßåX **ip dhcp relay check server-id ek**DHCP Relay N1 DHCP Ь†

6ñ option server-id 6ßåXkgÑå DHCP ßE DHCP ¬

Lтž

oFåт-

1ø DHCP relay check server-di ož

```
Ruijie(config)# ip dhcp relay check server-id
```

2y¼ DHCP relay check server-id ož

```
Ruijie(config)# no ip dhcp relay check server-id
```

oèo- 1 y… **show running-config xKßkFåž**

oЧP'Î-

-

oэjö-

-

oиVÐ-

-

4.26 ip dhcp relay information circuit-id format

Få DHCP option82 ¾ circuit-id ž

ip dhcp relay information circuit-id format {hex | ascii} *[string]*

¼ DHCP option82 ¾ circuit-id ž

no ip dhcp relay information circuit-id format {hex | ascii}

o@ð-

@*f*	T
hex	ð
ascii	A ascii A
string	Circuit-id ¾

oÞFå- ¼ DHCP option82 ¾ circuit-id ž

o×X%”o- %”

oÞ- 14

o¬.6-o- ¥XK9 Relay FåX **ip dhcp relay information circuit-id format x** DHCP

DHCP ÞÞ DHCP option

oFåð- 1yFå DHCP option82 ¾ circuit-id ž

```
Ruijie(config)# ip dhcp relay information circuit-id format hex abc111
Ruijie(config)# ip dhcp relay information circuit-id format ascii device-test
```

2y¼ DHCP option82 ¾ circuit-id ž

```
Ruijie(config)# no ip dhcp relay information circuit-id format hex
Ruijie(config)# no ip dhcp relay information circuit-id format ascii
```

oèo- 1 y… **show running-config x Fž**

oÞP’ò- -

oèjö- -

oÞVð- -

4.27 ip dhcp relay information circuit-id string

oHFå- ¼ DHCP option82 ož

o×X%”o- ฿%”

oHð- 14

o¬.6-o- ¥XK9 Relay FåX **ip dhcp relay information option82 xKÕ-** DHCP Ð
6 DHCP ÞHk¨ DHCP ÞH option ’Îbž

oFåb- 1yo DHCP option82 ož

```
Ruijie(config)# ip dhcp relay information option82
```

2y¼ DHCP option82 ož

```
Ruijie(config)# no ip dhcp relay information option82
```

oèo- 1 y… **show running-config xKÕkFåž**

oUP’Îb- -

oeÿö- -

oHVð- -

4.29 ip dhcp relay information remote-id format

Få DHCP option82 ¾ remote-id ž
ip dhcp relay information remote-id format {hex | ascii} *[string]*

¼ DHCP option82 ¾ remote-id ž
no ip dhcp relay information remote-id format {hex | ascii}

o@Ïþ-

@ƒ	T
hex	
ascii	ascii A
string	Remote-id ¾

oHFå- ¼ DHCP option82 ¾ remote-id ž

o×X%”o- ฿%”

oHð- 14

o¬.6-o- ¥XK9 Relay F[illegible]X

```
Ruijie(config)# no ip dhcp relay information remote-id string
```

oèo- 1 y… **show running-config xkÖkFož**

oÜP'ô- -

oəjö- -

oÜVÖ- -

4.31 ip dhcp relay suppression

o DHCP relay suppression ož

ip dhcp relay suppression

¼ DHCP relay suppresson ož

no ip dhcp relay suppression

4.33 ip dhcp relay-information remote-id string

FåÙM DHCP option82 ¾ remote-id ßMdfož

ip dhcp relay-information remote-id string *[portname]*

{ÙM DHCP option82 ¾ remote-id ßMdfož

no ip dhcp-relay information remote-id string

o@ß-

@f	T
portname	ßf

oÞFå- {ÙM DHCP option82 ¾ remote-id ßMdfož

o×X%”o- NM%”

oÞß- 14

o¬.6-o- ¥XK9 Relay FßåX **ip dhcp relay-information remote-id string xßß-** DHCP

ßG DHCP Ьik¨ DHCP Ь+ option ’ÎÙž

oFåÙ- 1yFåÙM DHCP option82 ¾ remote-id ßMdfož

```
Ruijie(config-if-GigabitEthernet 0/2)# ip dhcp relay-information remote-id string if-port-name
```

2y{ÙM DHCP option82 ¾ remote-id ßMdfož

```
Ruijie(config-if-GigabitEthernet 0/2)# no ip dhcp relay-information remote-id string
```

oèo- 1 y… **show running-config xßßFåž**

oЬP’Îò- -

oèjö- -

oèVß- -

4.34 ip dhcp server arp-detect

o DHCP ¿ož

ip dhcp server arp-detect

{¼ DHCP ¿ož

oxX%”o- ฿Få%”ož

o¬.6-o- ¥XK9 Server Fåa

oFaÐ- 1 yFå CLASS gÈož

```
Ruijie(config)# ip dhcp use class
```

oèo- * **show run** OFå

oÙP’Ô- -

oeÿö- -

oÙVÐ- -

4.36 ip helper-address

%฿êNM DHCP ÐÈz

ip helper-address { cycle-mode | *A.B.C.D* }

ï%฿êNM DHCP ÐÈz

no ip helper-address { cycle-mode | *A.B.C.D* }

o@Ð-

@ƒ	T
cycle-mode	¤ dhcp ÙÕÄ dhcp ÆE
A.B.C.D	DHCP ÆE

oÙFå- DHCP Èqož

oxX%”o- ฿%”oNM%”

oÙÐ- 14

o¬.6-o- ¥XK9 Relay Fåa DHCP ÆE IP êk—Ñvñ DHCP Ù1ÕÈz

1vñ DHCP ÈÈ DHCP ÈÈz

DHCP ÆEY฿Få-UYÍCNMFå฿êCNMÑYFå 20

DHCP ÈÈNMvñ DHCP ÙÈÙ.NM DHCP ÈÈNMµ

Æå DHCP ÈÈké.฿Få DHCP ÈÈož

฿Få%”U+ dhcp relay cycle-mode @ÍFÐ cycle-mode ÈP dhcp relay ê

Nvñ dhcp client ÙÕÄ dhcp serverÐz cycle-mode ÈP dhcp

relay QNvñ dhcp client ŁĆñ%² dhcp server ožcycle-mode QŒFå
%"Fåą9ąyNMkóoož

oFåò- 1 y¨ intterface vlan 1 Fåą² DHCP ÆE IP ª 192.168.11.1

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# interface vlan 1
Ruijie(config-if)# ip helper-address 192.168.11.1
```

2ÿ intterface vlan 1]Fåą DHCP ÆE IP ª 192.168.11.1

```
Ruijie(config-if)# no ip helper-address 192.168.11.1
```

3ÿ DHCP ÆE IP ª 192.168.100.1ož

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# ip helper-address 192.168.100.1
```

4yÿ DHCP ÆE IP ª 192.168.100.1ož

```
Ruijie(config)# no ip helper-address 192.168.100.1
```

5yo dhcp ŁĆÄ dhcp ÆŽ

```
Ruijie(config)# ip helper-address cycle-mode
```

6y¼ dhcp ŁĆÄ dhcp ÆŽ

```
Ruijie(config)# no ip helper-address cycle-mode
```

oèo- 1 y… **show running-config xKĆkFåž**

oŁP'ô- -

oęjö- 1 y**ip helper-address FåĄĆNMå8CNMå**
2yo **ip helper-address ĄG** DHCP Relay]ęE
3y1ÞŁÄY* DHCP Relay BHłAUY* DHCP Server +NBHłk-ï
€Ó—cBH3Gª

oęVÔ- -

4.37 lease

}# DHCP ÆÊÊ DHCP ÞPFåX **leaseoŽX no Ê**
ÞFåÊÊR 1 ÊÓñ 365 Þ 23 4ž 59 ÊÓ
lease {*days* [*hours*] [*minutes*] | **infinite**}

no ÊFå
no lease

defaut lease

o@-

@ƒ	T
days	[illegible]
hours	[illegible] . 0
minutes	[illegible] ƒ, Þ 0
infinite	[illegible]

ê
defaut lease-threshold

o@¶-

@ƒ	T
percentage	#sŠkØl 60 ñ 100

oÞFå- Þ 90%

o»X%”o- DHCP ÞFâ‰”

oÞõ- 14

o¬.6-o- ¥XK9 Server Fõ¤X IP ¤'k DHCP ÆDÿ SYSLOG sŠž
IP ¤P¶ÞUÞ¤¶¤%¾ÔsŠ
¥Yk;? 5 ¤J1D%¾sŠ

oFåÞ- 1 y1ÞsŠ›— 80%y

```
Ruijie(dhcp-config)# lease-threshold 80
```

2y{ÞsŠ

```
Ruijie(dhcp-config)# no lease-threshold
```

oèo- * **show run Øå**

oÜP’Îb- -

oÞÿö- -

4.39 netbios-name-server

}Fåà DHCP ‘€ NETBIOS WINS dÆE
netbios-name-server *ip-address* [*ip-address2…ip-address8*]

ï WINS ÆE
no netbios-name-server

ê
defaut netbios-name-server

o@¶-

@ƒ	T
ip-address	# WINS ÆE IP ¤ÞL5Fâ‰²

ip-address2…ip-address8	*gb*	8	WINS Æ

	8kWn h-node …¥ b-nodekøºµ p-nodek+ºµ m-nodekºÊ h-nodekºµ

oÞFå- ÞÆ NetBIOS -µ

o×X%”o- DHCP ÞFå%”

oÞõ- 14

o¬.6-o- ¥XK9 Server Få DHCP € NetBIOS -µy 1h Broadcastkøºµ*z
n¥g NetBIOS dæ 2h Peer-to-peerk+ºµ*+NÞ WINS ºÊ NetBIOS d
æ hMixed kºµ*n¥Þdæe* WINS ºÊgdæ
4hHybrid kºµÙNÞ WINS ºÊ NetBIOS dæ<*z
n¥g NetBIOS dæž
hÕ¥ºµÕÅå WINS ºÊøºµ
ÕÅ WINS ºÊºµ1 NetBIOS -µ– Hybrid

oFåb- 1 y1÷ DHCP € NetBIOS -µ–ºµ

```
Ruijie(dhcp-config)# netbios-node-type h-node
```

oèo- * **show run** UFå

oÞP’b- -

oèjö- -

4.41 network

}#

o@¶-

@f	T
network-number	DHCP IP
net-mask	DHCP IP A
low-ip-address	IP
high-ip-address	IP

oHFå-

oxX%”o- DHCP PF‰”

oHõ- 14

o¬.6-o- ¥XK9 Server F DHCP

DHCP

DHCP

show ip dhcp binding x **show ip dhcp conflict x**

0ož

oFåb- 1 y# DHCP 192.168.12.0kQA 255.255.255.240

```
Ruijie(dhcp-config)# network 192.168.12.0 255.255.255.240
```

oèo- * **show run**

oUP’Îb- 1 yFåª

```
Ruijie(dhcp-config)#network 238.5.5.5 255.0.0.0
238.5.5.5 / 255.0.0.0 is an invalid network
```

oəjö- 1. F‰nª

4.42 next-server

}# DHCP DHCP PFåX **next-server**

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

no

no next-server

defaut next-server

o@¶-

@ƒ	T
ip-address	*ÚÆ* IP ®*o TFTP ¾¶L5F‰²
ip-address2…ip-address8	*gÚ¶* 8 oÆ

oÚF‰-

—ÚF‰

o×X%”o- DHCP ®PF‰”

o®-

14

o¬.6-o-

¥XK9 Server F‰¶DHCP ¢QÄ‰

oFÂb- 1 y DHCP ®64oÆ 192.168.12.4

```
Ruijie(dhcp-config)# next-server 192.168.12.4
```

oèo-

* **show run ®‰**

oÚP’b- 1 yF‰ª

```
Ruijie(dhcp-config)# next-server 238.5.5.5
```

ï € |@@ Æ ˜ Â XÃ c Às Ú

code	# DHCP ¥¼A
ascii *string*	¾% ASCII …
hex *string*	¢ä.
ip *ip-address*	# IP ¢ç

oÞFå- —ÞFå

o¤X%”o- DHCP ÞPF¾%”

oÞõ- 14

o¬.6-o- ¥XK9 Server Få DHCP U4%¾ TCP/IP ¢FåÞ DHCP † yÄ option

¥XUˆ no ¥

DH2P

5ÀÀ€ÀÀ(config-dhcp-class)# redundancy info)# € ð @ À À • T À ` 0

DH2Pshow run

oèo- * **show run Eå**

oÜP'Îb- -

oöjö- -

4.47 remark

}B CLASS Fâ¥ CLASS ûe

remark *class-remark*

no Ûe

no remark

o@ß-

@f	T
class-remark	¥e CLASS 'ÎkUY©.kÜYkq

oÞFå- -

o×X%"o- B CLASS F%"ož

oÞõ- 14

o¬.6-o- ¥XK9 Server Fâ

oFâb- 1 y F%B CLASS ûež

```
Ruijie(config)# ip dhcp class myclass
Ruijie(config-dhcp-class)# remark used in #1 build
```

oèo- * **show run** UFâ

oÜP'Îb- -

oöjö- -

4.48 service dhcp

}¨—Õ DHCP ÿÆÐÊB FåX **service dhcp**

service dhcp

no ¶¼ DHCP ÿÐÊ

no service dhcp

ñ

defaut service dhcp

o@¶-

@ƒ	T
-	-

oÞFå- ¥XK9 Server F¾¼ DHCP ÿÐÊ

o×X%”o- ¶FÅ”

oÞõ- 14

o×X%”o-

oÞ- 14

o¬.6-o- Client Fâ• ip ¼

oFåÞ- 1 DHCP

```
Ruijie# show dhcp lease
Temp IP addr: 192.168.5.71  for peer on Interface: FastEthernet0/0
Temp  sub net mask: 255.255.255.0
DHCP Lease server: 192.168.5.70, state: 7 Bound
DHCP transaction id: 337beed
Lease: 600 secs,  Renewal: 300 secs,  Rebind: 525 secs
Temp default-gateway addr: 192.168.5.1
Next timer fires after: 00:04:29
Retry count: 0   Client-ID: 0100d0f82233e3476967616269744574686572 6E6574302F31
```

oèo- -

oUP’Î- -

oÞjÞ -

4.50 show ip dhcp binding

Þ DHCP @mPM

show ip dhcp binding [*ip-address*]

o@Þ

@ƒ	T
ip-address	*gHP6a@* IP @mPMmPM|@

oÞFå- —g

o×X%”o- ”

oÞ- 14

o¬.6bÞ ¥XK9 Server F IP 1P @mPM IP 1QP

¥ IP

oFåÐ- 1 yÞ DHCP ÕÇ

```
Ruijie# show ip dhcp binding
Total number of clients   : 4
Expired clients           : 3
Running clients           : 1

IP address        Hardware address       Lease expiration            Type
20.1.1.1          2000.0000.2011         000 days 23 hours 59 mins   Automatic ÞÈ
```

ç<mfÁÙ

IP address	ãÈË DHCP ÈÈ IP ÊÒž
Hardware address	DHCP ÈÊ
Lease expiration	YcÊÒžnfinite nPÊÒDLE nPÙ ~ÈÙÈÊÒÈ DHCP È yož
Type	ÕÇž Automatic nPÈz Manual nPÊÒVÈož

oèÐo- -

oÙP'Îb- -

oÊÙÖ- -

4.51 show ip dhcp conflict

ÞÞ DHCP ÊÈÈ

show ip dhcp conflict

o@Ðþ– 612

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

Ĭ ٧ ٨ ‘ ` ʳ È ᵊ ᵍ Θ ى þ ï χ

IP address	UÈÊ DHCP € IP ðž
Detection Method	ïyecož

oèao- -

oUP’ô- -

oəjö- -

4.52 show ip dhcp history

ÞÞ DHCP 7Wcª£

show ip dhcp history

o@ÞÞ-

@ƒ	T
-	-

oÞFå- —Þg

o×X%”o- Ø”

oÞÞ- 14

o¬.6-o- ¥XK9 Server FÅXUYÞÞ DHCP]ÈcªÎ

oFåÞ- 1 yÞÞ DHCP]ÈcªÎ

```
Ruijie#show ip dhcp history
Expired clients          : 3
IP address       Hardware address      Lease expiration          Vlan/Relay
10.1.1.5         2222.abcd.47ac        IDLE                      4097
10.1.1.4         2222.abcd.47ae        IDLE                      4097
10.1.1.3         2222.abcd.47ad        IDLE                      4097
Running clients          : 0
```

Ĭ ٧ ٨ ‘ ` ʳ È ᵊ ᵍ Θ ى þ ï χ

IP address	]ÈÊ DHCP € IP ðž

Total	ÞUÈÞÞž
Distributed	]ÈÞož
Remained	,ÈyUÞÞž

oèo- -

oÞP'Îo- -

oèÞÞo- -

4.54 show ip dhcp pool

Þ DHCP ÞE..ÕÞÞ

show ip dhcp pool [*poolname*]

o@Þo-

@f	T
poolname	*gÞQ6dfÞÎÞÞÞÞ*

oÞFåo- —Þg

oxX%"o- Ÿ"

oÞÞo- 14

o¬.6-o- ¥XK9 Server FÞXUYÞ DHCP ÞE..ÕÞÞ

oFÞo- 1 yÞ DHCP ÞE..ÕÞÞ

```
Ruijie# show ip dhcp pool
Ruijie#sh ip dh pool
Pool  name       Total     Distributed  Remained   Percentage
------------  -----------  -----------  --------   -----------
net20          253          11           242        4.34782
test           0            0            0          0.00000
```

ÞÈ<mÞÞÀò

Remained	,ÈyUÏÐž
Percentage	®Ïã

oèo- -

oÙP'Ô- -

oöÏö- -

4.55 show ip dhcp relay-statistics

ÞÞ DHCP ÆÈÏG

show ip dhcp relay-statistics

o@ÏÐ-

@f	T
-	-

oÞFå- —Þg

o×X%"o- Ïõ"

oÞõ- 14

o¬.6-o- ¥XK9 Relay Få

oFåõ- 1. ÞÞ DHCP -Relay __ÏG

```
Ruijie#show ip dhcp relay-statistics
Cycle mode                0

Message                   Count
Discover                  0
Offer                     0
Request                   0
Ack                       0
Nak                       0
Decline                   0
Release                   0
Info                      0
Bad                       0
```

```
Direction                Count
Rx client                0
Rx client uni            0
Rx client bro            0
Tx client                0
Tx client uni            0
Tx client bro            0
Rx server                0
```

oèao- -

oUP'îb- -

oæjö- -

4.56 show ip dhcp server statistics

ÞÞ DHCP ÆÈÏG

show ip dhcp server statistics

o@Øþ-

@ƒ	T
-	-

oÞFåa- —Þg

o×X%"o- Øî"

oÞõ- 14

o¬.6-o- ¥XK9 Server FåXUYÞÞ DHCP ÆÈÏG

oFåb- 1. ÞÞ DHCP ÆÈÏG

```
Ruijie# show ip dhcp server statistics
Address pools            2
Lease counter            4
Active  Lease Counter    0
Expired Lease Counter    4
Malformed messages       0
Dropped messages         0
```

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

Message                     Sent
BOOTREPLY                 16
DHCPOFFER                 9
DHCPACK                    7
DHCPNAK                    0
DHCPREQTIMES              0
DHCPREQSUCTIMES          0
DISCOVER-PROCESS-ERROR 0
LEASE-IN-PINGSTATE         0
NO-LEASE-RESOURCE        0
SERVERID-NO-MATCH         0
-------------------------------------------
recv                            0
send                           0
```

PÈ<mfAò

Address pools	Pƒ
Automatic bindings	ož
Manual bindings	ož
Expired bindings	ož
Malformed messages	DHCP NIBoj ož
Message Received or Sent	DHCP AEvyG?_j ož
DHCPREQTIMES	DHCP vñ E
DHCPREQSUCTIMES	DHCP vñ
DISCOVER-v6OCESS-ERROR	DHCP vñ DISCOVER
LEASE-IN-PINGSTATE	PING y
NO-LEASE-RESOURCE	—UaP
recv	vñ DISCOVERkREQUEST k INFORM E

send	ÊÞ

oèo- -

oÜP'Ô- -

oÞÿö- -

4.57 show ip dhcp socket

Ÿ DHCP Æ«

show ip dhcp socket

o@Ÿ-

@f	T
-	-

o×X%"o- Ô"

oÐ- 14

o¬.6-o- -

oFåÙ- 1 yŸ DHCP Æ«

```
ruijie#show ip dhcp socket
dhcp socket = 47.
```

oÜP'Ô- -

oÜVÙ- -

5 DHCPv6

5.1 clear ipv6 dhcp client

NMMo DHCPv6 ïšž

clear ipv6 dhcp client *interface-type interface-number*

o@ð-

@*f*	T
interface-type	ÑŽ
interface-number	ÑŽ

o¬.6-o- *¥XUYŽ—Ð DHCPv6 Relay ,½ÿGÕž

oFåÐ- 1 yŽ DHCPv6 Relay Agent ÜkX Ðž

```
Ruijie# clear ipv6 dhcp relay statistics
```

oÞP'Ô- -

oÞVÐ- -

5.3 ipv6 dhcp client ia

ÑMo DHCPv6 client wÞ IANA ÊÐž

ipv6 dhcp client ia [**rapid-commit**]

ÑM¼ DHCPv6 client ÊÞož

no ipv6 dhcp client ia

o@Ð-

@ƒ	T
rapid-commit	*ª…Aiož*

oÞFåÐ- IANA ÊÞÄož

o×X%"o- NMFÅ%"

oÞÐ- 14

o¬.6-o- ò DHCPv6 ¾%"Ä¥XkÑMo DHCPv6 ¾%"ož

ipv6 dhcp client ia xÄ¥kg DHCPv6 Server Gß IANA ÊÞož

rapid-commit ÞÄ¥E two-message A;ikòÅÞkÊß

solicit ÎÍm rapid-commit ¾ÿž

oFåÐ- 1 yÑMoÊÞož

```
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 dhcp client ia
```

oèo- 1 y… **show ipv6 dhcp interface xÄ¥NÐ** DHCPv6 Clientož

oÞP'Ô- 1 yò DHCPv6 Client ÄÉÞPož

```
Failed to configure DHCPv6 interface, please try again.
```

oəjö- -

oıVõ- -

5.4 ipv6 dhcp client pd

ÑMo DHCPv6 client wŁõž

ipv6 dhcp client pd *prefix-name* [**rapid-commit**]

ÑM¼ DHCPv6 client {õož

no ipv6 dhcp client pd

o@ð-

@f	T
prefix-name	IPv6 *Ôož
rapid-commit	*ª…Aiož*

oÅ-

ÔÄož

o×X%”o- NMFå%”

oõ- 14

o¬.6-o- ò DHCPv6 %”ÄXkÑMo DHCPv6 %”ož

ipv6 dhcp client pd xkg DHCPv6 Server GÔõ client k1Ô

'Î DHCPv6 *ÔkŲxXYCı~<UY…Ôož

rapid-commit two-message A;ikõ¼kEß

solicit Îm rapid-commit ¾ž

oFåõ- 1 yÑMoõož

```
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ipv6 dhcp client pd pd_name
```

oòo- 1 y… **show ipv6 dhcp interface** DHCPv6 Clientož

oŲP'Îb- 1 yò DHCPv6 Client ÅŲPož

```
Failed to configure DHCPv6 interface, please try again.
```

oəjö- -

oHVÐ- -

5.5 ipv6 dhcp relay destination

ÞÀM DHCPv6 Relay Agent w6)€ÇÑNMož

ipv6 dhcp relay destination *ipv6-address* [*interface-type interface-number*]

{ÀM Relay Agent ÐÞ*ož

no ipv6 dhcp relay destination *ipv6-address* [*interface-type interface-number*]

o@Ðþ-

@f	T
ipv6-address	*6* Relay Agent)€ž
interface-type	*6ÞÞž*
interface-number	*6ÞÞž*

oÞFå- ÄÀM DHCPv6 Relay Agent kÄ)€ÇÑNMož

2yÞNMYCÔÚ%”kÉPjöž

```
Interface is in DHCP xxx mode.
```

3yÞÔÉPjöž

```
Failed to configure DHCPv6 relay, please try again.
```

oÞjö- -

oÞVÔ- -

5.6 show ipv6 dhcp

ÔÕ DUID ´Îbž

show ipv6 dhcp

o@Ôp-

@f	T
-	-

oxX%”o- Ôb”oÞ%”oÞNM%”

oÞÔ- 14

o¬.6-o- c%²—ÔÕ%² DUIDož

oFÅÔ- 1 yÞÚÕ DUIDož

```
Ruijie# show ipv6 dhcp
This device's DHCPv6 unique identifier(DUID): 00:03:00:01:00:d0:f8:22:33:b0
```

oÞP´Îb- -

oÞVÔ- -

5.7 show ipv6 dhcp interface

Ô DHCPv6 NM´Îbž

show ipv6 dhcp interface [*interface-name*]

o@Ïþ-

@ƒ	T
interface-name	*Nfož*

oxX%”o-

Ôb”

oHõ-

14

o¬.6-o-

Ëá@ƒ interface-namekÞÄ DHCPv6 NM’Îbõ4@ƒ interface-namekÇª P6NM’Îbž

oFåb- 1

yÞNM’ÎS+ DHCPv6-SERVER)y

```
Ruijie# show ipv6 dhcp interface
VLAN 1 is in server mode
  Server pool: dhcp-pool
  Rapid-Commit: disable
```

È ‡ ½... ¨ χ

<	¢
xxx is in yyy mode	NM xxx Ô yyy %”oz%”yÄClient kRelay k Serverož
Server pool xxx	NM%” x0786]TJTT63/C2_0 1 Tf5f5fA08>7< Tf0Td[073606140

o@ð-

6 DNS

6.1 clear host

ŽÃÛož

clear host [* | *host-name*]

o@ÞÞ-

@f	T
host-name	*ÞÞÛož*
*	*nPÞÛ*

o×X%”o- ÞÛ”

oÞÞ- 14

o¬.6-o- ÑÛÞ“ÞÛ

- * **ip host ê ipv6 host ÞÅ**
- * DNS ÁoÞ¥XkkîÛ DNS ÁÑÛ“6ž

oFåÛ- 1 yYFåkîÑÛ-IP ÞÛÞ“£

```
Ruijie(config)#clear host *
```

oÞPˆÛ- -

oÞVÞ- -

6.2 ip domain-lookup

o DNS gØÞž

ip domain-lookup

¼ DNS ØÞž

no ip domain-lookup

o@ÞÞ-

@f	T
-	-

oFåð- 1 yÁå www .test.com ¢ 192.168.5.243

```
Ruijie(config)# ip host www.test.com 192.168.5.243
```

oèo- **show run ðFåÃX**

show hosts ðÞy IP +¢Fåy IP +n¾

oÜP'ò- -

oæjö- -

oÜVÐ- -

6.4 ip name-server

FåÆE IP/IPv6 ðž

ip name-server { *ip-address* | *ipv6-address* }

ÎFåÆž

no ip name-server { *ip-address* | *ipv6-address*

0 x • à , ¬ o

oЪP'ĵ- -

oəjö- -

oиVØ- -

6.5 ipv6 host

ØVFõy IPv6 ®ož

ipv6 host *host-name ipv6-address*

ĺçbož

no ipv6 host *host-name ipv6-addres*

o@ØÞ-

@f	T
host-name	ØÕ
Ipv6-address	Ó IPV6 ª

oHFå- -

o×X%"o- ßFå%"

oHõ- 14

o¬.6-o- -

oFåØ- 1 yÉÅ+• ipv6 ª

```
Ruijie(config)# ipv6 host www.test6.com 2001:0DB8:700:20:1::12
```

oèo- **show run ØFåFåX**

show hosts Øy IP +ØFåy ip +n¾

oЪP'ĵ- -

oəjö- -

oиVØ- -

6.6 show hosts

₱ DNS Fâbž

show hosts [*hostname*]

o@₱-

@ƒ	T
hostname	06gobÖÄÎ

o×X%”o- ฿%”

oĦð- 14

Få FTP k

ftp-server login timeout *time*

…¥X no 2 h

no ftp-server login timeout

Få

default ftp-server login timeout

o-

@f	T
time	*y* 1-30h

oFå-

2

o%”o-

oo-

14

o.6-o-

eNek?) %A

gt2k R

oFå- 1 yYP8oFå~ 5 y

```
Ruijie(config)#  ftp-server login timeout 5
```

2yYP8o~ 10 hy

```
Ruijie(config)# no ftp-server login timeout
```

oo-

oP’o-

-

oo-

-

oV-

-

7.3 ftp-server login times

Få FTP k *f*

ftp-server login times *time*

…¥X no 3)h

no ftp-server login times

ê¾å

default ftp-server timeout

o@¶-

@ƒ	T
time	*qž8y*1-10h

oÞFå-

ÿƒ 3)

o»X%”o-

ÞFå%”

oÞ¶-

14

o¬.6-o-

kÞ¶%² FTP kÞÛYgÞ%AÿƒÞ–å 3

)k/ÿÞ¶%Aÿkt2kRÞ¶ž

oFåÞ- 1 yYP8èFå~ž 5 ÞÛy

```
Ruijie(config)# ftp-server login times 5
```

2yYP8èê~ž3)hy

```
Ruijie(config)# no ftp-server login times
```

oèo-

oÞP’Î-

-

oÞÿö-

-

oÞV¶-

-

7.4 ftp-server timeout

Få FTP kq~žgSession idle timeouth

ftp-server timeout *time*

…¥X no ¥ê~ž10 ÞÛh

no ftp-server timeout

ê¾å

default ftp-server timeout

o@¶-

@f	T
time	*qğ%ğ8y* 1-3600 h

oHFå-

ğ 10 ğU

o×X%”o-

¶FÅ%”

oHõ-

14

o¬.6-o-

Få FTP kq~ž¶6ğ~qgkq~hkFTP ÆE

N]¶¶

kq~ğ%² FTP kR) FTP qèñ FTP q¶¶²

FTP xXğ%¶nÿehR 0 ¶kq~žXõU

2¶kq~ğ¶kq~ŽFåk+?¶ÿkÛS

oFåb- 1 yYP8èFå~ž 5 ğUy

```
Ruijie(config)# ftp-server timeout 5
```

2yYP8èõ~ğ10 ğUhy

```
Ruijie(config)# no ftp-server timeout
```

oèo- 1. **show ftp-server** ÕFå

oUP’ò- -

oèjö- -

oVõ- -

7.5 ftp-server topdir

’ò FTP ¶¶¶8

ftp-server topdir *directory*

…¥X no ¥W2Ê FTP ÆE

no ftp-server topdir

ÊFå

default ftp-server topdir

o@¶-

@f	T
directory	FTP ¶ÿqÇ)£

oÈFå-

é–Ç)£–gÇ)£

o×X%”o-

¶ÞFå%”

oÈõ-

14

o¬.6-o- FTP

Ÿ)24ÇUY¶ÞoÞÀG6Ç)£ FTP ï

£ FTP ÇÈ

3ÞÀXkFTP £—c¶ÇÈ£

oFåÞ- 1

yYP8èo FTP ÇÈ¶ syslog ÿÞž

```
Ruijie(config)# ftp-server topdir /syslog
Ruijie(config)# ftp-server enable
```

2yYP8èHÿÞFåž

```
Ruijie(config)# no ftp-server topdir
```

oèo- 1

y**show ftp-server** ÞFå

oÞP’Îb- 1

yÈ¶)£

```
%FTPSRV-4-USER: Haven't config topdir!
```

2yF¶£

```
Ruijie(config)#ftp-server topdir ab
folder /ab don't exist!
```

oÞÿö- 1.

Få)£

2.È¶£

oÞVÞ-

-

7.6 ftp-server username password

Få FTP ÞÞy%A

ftp-server username *username* **password** [*type*] *password*

…¥X no ¥Hÿ¶Få

no ftp-server username *username*

Ê¾Få

default ftp-server username *username*

o@¶-

@ƒ	T
username	*ï*
password	*Ø‰*

oÈFå-

é–ïk—%A

o×X%”o-

¶ÞFå‰”

oÈõ-

14

o¬.6-o-

Fê FTP ¾ÈÎ¯oÞ¢ÚÞ3Gïy%AÈõž

ïÙX† 64 …kÞ¡ožUY6¾o¼…ý!……ÁÈFTP

ÞÞFå‰ïd

%AÌm>¢%AèUYÁkx1t¢%Aq%A%ÞÃõž

%AÂx† 1 …oX† 25 …‰%AÂx† 4 …oX† 52

…

FTP ÞÈÁyÞ%AYžÈlgïÈ%Ayl%%F+ož FTP Æ

ü4dÈÞ¢4ïdFê—c*ÞÈ

oFåb-

† 1yYP8èFå usery

```
Ruijie(config)# ftp-server username user password pass
```

æ 2yYP8èHÞdFå

```
Ruijie(config)# no ftp-server username user
```

oèo- 1: **show ftp-server ÈÈå**

oÈP’ïb- 1: ÈFåkï¦N

```
%FTPSRV-4-USER: Haven't config username!
```

2.Fåx

```
Ruijie(config)#$ssssssssssssssssssssssssssssssssssssssdddddddddddddddd
Username abcdefghjijklnn,sssssssssssssssssssssssssssssssssssssdddddddddddddddd
```

is NULL or too long, max length is 64.

3yServer ÈÈ‰Akï¦N

```
%FTPSRV-4-PASS: Haven't config password!
```

4yFê‰%AxÞ

```
Ruijie(config)#ftp-server username user password 7 2
Invalid encrypted password, min length is 4, max length is 52.
```

5yFê‰AÞ

```
Ruijie(config)#ftp-server username user password abcdefghijklmnopqrstuvwxyz
% Password is too long, max length is 25
```

oøjö- 1. Fåmĉ…ê

2.Ìfå<:¦N

3.Ìfå‰A

4.Få‰Axfßß

5.ÿ‰A

oиVõ- -

7.7 show ftp-server

ÞP FTP ¦ÂÊ¼

show ftp-server

o@ÿ-

@ƒ	T
-	-

oÞFå- -

o×X%”o- Ûõ”

oÞõ- 14

o¬.6-o- ÞP FTP ¦ÂÊ¼y

- ¦Ê¼
- ¦Ê¼£
- ¦ÂÊ¼do%AoÞN¦ƒ3ÄÞN,¼ IP,Portknÿ%”ê t%”ĉž

oFåò- 1: YP8èô FTP ¦ÂÊ¼

```
Ruijie#show ftp-server
    ftp-server information
=================================
enable : Y
topdir : tmp:/
timeout: 10min
username:aaaa         password:(PLAINT)bbbb         connect num[2]
    [0]trans-type:BINARY (ctrl)server IP:192.168.21.100[21]
                               client IP:192.168.21.26[3927]
```

8 FTP Client

8.1 copy flash

… FTP Client ÎÑÕÊ

copy flash:[*local-directory/*] *local-file* **ftp:**//*username:password@dest-address* [*/remote-directory*] */ remote-file*

o@ƒ-	@ƒ	T
	username	£ FTP Server

oөjö- -

oиVØ- -

8.2 copy ftp

… FTP Client RÆEõž

copy ftp://*username:password@dest-address*te-file c 0.26 T Tw -7.22 -15(me:5(y)570B07(flash:c 0.0051 Tw 505(00

oèo- … **dir Ðõ-** local-file ¢k¢ÕÅž

oÜP'ô- ¢ø **debug ftp-client kÐ,jk¢Ð** successož

oöjö- -

oÜVÐ- -

8.3 ftp-client ascii

…ûÿASCIIh¨g FTP nÿž
ftp-client ascii

Hîñÿk…8ùÿož
no ftp-client ascii

ÐÕå ož
default ftp-client

o@ÐÕ-

@ƒ	T
-	-

oÜFå- ÕÕ FTP nÿ%"8ûBINARY h¨

o×X%"o- ¶ÞFÅ%"

oÜÕ- 14

o¬.6-o-

> default FTP Client PASV
> BINARY IP

oFåÕ- 1 yFå.ûÿASCIIh¨g FTP nÿž

```
Ruijie(config)# ftp-client ascii
```

2yFå.ûÿBINARY h¨g FTP nÿž

```
Ruijie(config)# no ftp-client ascii
```

3yFTP Client ÐÕåž

```
Ruijie(config)# default ftp-client
```

oèo- 1 y… **show run xK ftp-client ascii Fåž**

oUP'ò- 1 y%FåkBUPož
2y%FåkBUPož

oöjò- -

ouVò- -

8.4 ftp-client port

Få FTP …gPORT h¨gƒGNož

o **ftp-client port**

ƒož
no ftp-client port

ƒå ož
default ftp-client

o@ƒ-	@ƒ	T

3yFTP Client Ðåž

```
Ruijie(config)# default ftp-client
```

oèo- 1 y… **show run xXÐ** **ftp-client port Fåž**

oÙP'ò- 1 y%FåkÈUPož

2y%FåkÈUPož

oëjö- -

oÙVÐ- -

8.5 ftp-client source-address

FTP Client UY€ IP k…¥ IP E IP g*'ož

ftp-client source-address {*ip-address* **|** *ipv6-address*}

Hƒ€ IP ož

no ftp-client source-address

Ðå ož

default ftp-client

o@Ð- @ƒ

```
Ruijie(config)# ftp-client source-address 192.168.23.236
```

2yFå FTP Client €ç IP 4 2003:0:0:0::2 ®ž

```
Ruijie(config)# ftp-client source-address 2003:0:0:0::2
```

3yno xXHƒ€ IP ©ž

```
Ruijie(config)# no ftp-client source-address
```

4yFTP Client ÊÐ¯ž

```
Ruijie(config)# default ftp-client
```

à 1 y… **show run xK** **ftp-client source-address**192.168.23.236 Fåž

2y… **show run xK**

9 TFTP-Server

9.1 tftp-server enable

o TFTP [illegible]

tftp-server enable

2 TFTP [illegible]

no tftp-server enable

o@[illegible]-

@ƒ	T
-	-

o[illegible]-

o×X%”o-

o[illegible]-

14

o¬.6-o-

¢ TFTP [illegible]* TFTP [illegible] UY[illegible]kwgm[illegible]x

Xy tftp-server topdir xXõ. TFTP [illegible] TFTP [illegible]

oFåb- 1 yo TFTP [illegible] syslog [illegible]

Ruijie(config)# tm µ /n ª Ðn ª ş ’ ı / Ţ ȳ ᵐ ? Ï ώ `

’ò TFTP [illegible]ož

tftp-server topdir *directory*

…¥X no ¥ŋW2₹ TFTP [illegible]ož

no tftp-server topdir

[illegible]ož

default tftp-server topdir

o@[illegible]-	@ƒ	T
	directory	TFTP

10

10.1 clear rping table all

Ž Rping ñòž

clear rping table [**all |** [**ping-object** *owner test-name*] | [**trace-object** *owner test-name*]]

o@ð- @*f*

ffffkw—å IP ª 192.168.21.99ož

```
o•  ping
Ruijie# ping 192.168.21.26 length 1500 ntimes 100 data ffff source 192.168.21.99 timeout 3
Sending 100, 1500-byte ICMP Echoes to 192.168.21.26, 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
Ĭ ٦ detail ` ping
ping 192.168.21.26 length 1500 ntimes 20 data ffff source 192.168.21.99 timeout 3 detail
Sending 20, 1500-byte ICMP Echoes to 192.168.21.26, timeout is 3 seconds:
  < press Ctrl+C to break >
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=2ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=3ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64
Reply from 192.168.21.26: bytes=1500 time=1ms TTL=64

Success rate is 100 percent (20/20), round-trip min/avg/max = 1/1/3 ms.
```

57L vrf

oào- -

oɄP'ȍ- -

ÿ	-
oиVÐ-	-

10.3 ping ipv6

y6	IPv6 kUV[illegible]eSàPaAA[illegible]@Ð Ð?0Á"eÒ@I0Ð?6_P?0[illegible]29[illegible]P"f>[illegible]U0[illegible]2gP?AAm[illegible]Gh|#[illegible]PU[illegible]Ap[illegible]PB9[illegible]2U6~

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms


Ĭ ٧ detail ` ping
Ruijie#ping 2001::1 detail
Sending 5, 100-byte ICMP Echoes to 2001::1, timeout is 2 seconds:
  < press Ctrl+C to break >
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms
Reply from 2001::1: bytes=100 time=1ms

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms.
```

2yÿ **ping ipv6 ȶ)** IP ª 2001::5kGƒGx† 1500kGƒGƒ 20k

ý 3 akD2HyȶbG3H|C$$VÀ…ˆGW308S4qÀ2H2Hò¼…8ÈM@ÀP00ÀÀ300@È@0ÀÀ0È@ 0000pÀ@0000pÈPPPP

[illegible]	-
oeïö-	-
oèVð-	-

10.4 show rping detail

ð Rping ’Îbž

show rping detail

o@ð-

@ƒ	T
-	-

oxX%”o- Ôb”oB%”oNM%”

oHð- 14

o¬.6-o- …¥XUYð—Õ Rping ’èÈÎbž

oFåb- 1 yð Rping ÎÂ

```
Ruijie#show rping detail
Total owner number: 2
Total test number: 4
owner: user1
   test name: taget_1        storage type: volatile
   test name: taget_2        storage type: nonVolatile
owner: user2
   test name: taget_1        storage type: permanent
   test name: taget_2        storage type: readOnly
```

È ‡ ½... ä χ

<	¢
Total owner number	È

-

10.5 traceroute

IPv4

traceroute [**ip**] [*adress* [**probe** *number*] [**source** *source*] [**timeout** *seconds*] [**ttl** *minimum maximum*]]

@ƒ	T
address	6) IPv4
number	6GMy k8y1~255ož
source	6 IPv4 127.0.0.1h
seconds	6 8y1~10gahož
minimum maximum	6 TTL k8y1~255ož

3 akGMy 3k TTL 1 y 255ož

traceroute **traceroute**

ož

0

1~10

```
< 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
```

ĸ i l` ʌ ʿ ˡ ©˜ ˙ ı ĸ ◊ ş ẋ o ح ن IPª 202.108.37.42 ÑÕ6C4Ÿ6¼
l17hkwß¼ 4 ®{ož
3yç..¢ÿž

```
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
```

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oчVö- -

10.6 traceroute ipv6

ÞP IPv6 ÞGRÞÞÞ

traceroute [**ipv6**] [*address* [**probe** *number*] [**timeout** *seconds*] [**ttl** *minimum maximum*]]

o@ÞÞ-

@f	T
address	*6)* IPv6 Þož
number	*6)Þ8y*1~255ož

OŽ

```
3       3002::1         8 msec  8 msec  4 msec
4       3004::1         4 msec  28 msec  12 msec
```

ĸ i l` / ʿ ˡ Ꞷ˜ ˙ ι ĸ ◊ ş χ o خ ٹ IPª 3004::1 ĸ̃ĜCȺ,ğ1 l4 hk

cȺĤĥž

2yçĥȺ **traceroute ipv6 ŷž**

```
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
```

ĸ i l` / ʿ ˡ Ꞷ˜ ˙ ι ĸ ◊ ş χ o خ ٹ IPª 3004::1 ĸ̃ĜCȺ,ğ1 l5 hk

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oɵȷö- -

oʉVȶ- -

11 TCP

11.1 ip tcp keepalive

¥Xõ TCP ‘tož

ip tcp keepalive [**interval** *num1*] [**times** *num2*] [**idle-period** *num3*]

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@*f*	T
interval *num1*	**tky@kH8©** 1 ñ 120kH© 75 aož
times *num2*	**tkH8©** 1 ñ 10kH© 6ož
idle-period *num3*	**qk/ÏÊkY@kH8** © 60 ñ 1800kH© 15 ÕJož

oHFå- ¢ož

o×X%”o- ß%”

oHõ- 2

o¬.6-o- ò TCP eÈ3+Ê3oWkUYo‘tož

•—o‘tkÈyfq~È…HkTCP ¨ 15 ÕJÄ€

Hk€‘tk?œ 75 aG%ÿkÒ 6)kÄ€˜ TCP Hk<

• TCP N—|kKy TCP Nož

¥XÄ+Ä TCP NCÿož

oFåõ- 1 y¨—Ö TCP ‘tkq~È 3 ÕJkG‘tœ 60 akÒ 4)

‘tkÄ€˜ TCP Hk<• TCP N—|ož

```
Ruijie(config)# ip tcp keepalive interval 60 times 4 idle-period 180
```

oèo- -

oÜP’ò- -

oèÿò- -

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11.2 ip tcp mss

—å TCP N MSS Ãž

ip tcp mss *max-segment-size*

Ð-åž

no ip tcp mss

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@*f*	T
max-segment-size	MSS ’ož%y-kH8 68-10000ož á.Ÿ MTU ‘ñ MSSož

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o×X%”o- ß%”

oÞð- 14

o¬.6-o- **ip tcp mss ßy** TCP N MSS Ãž¥yNŒE MSS Ý
Fåæ¼NÃX MSS kUYFåXk%ÃÐ-åž.Ÿ MTU
‘ñ MSSkÐy
IPv4 TCPy MSS = +€ IP ª+Ñ IP MTU - 20 - IP Ð - 20 - TCP Ðož
IPv6 TCPy MSS = +€ IPv6 ª+è MTU - 40 - IPv6 Ð - 20 - TCP Ðož
ÑÑu4Ì¾¼ MSS }×¾¼ 4 -+exÐž MD5 ¾¼ 20 -k MD5
¾¼ 18 -k+e 20 -ož
ÐÅ MSSkŸ MSS ®Ÿ MTU ‘ñ MSS yÞFå MSS Hå ož

oÞFåÐ- 1 y—å TCP N MSS ’› 1300 -ož

```
Ruijie(config)# ip tcp mss 1300
```

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oÞP’Î- -

oÞjö- -

oÞVÐ- -

11.3 ip tcp path-mtu-discovery

ø TCP è MTU Gëž

ip tcp path-mtu-discovery [**age-timer** *minutes* **| age-timer infinite**]

¼ TCP è MTU Gëž

no ip tcp path-mtu-discovery

o@ý-

@ƒ	T
age-timer *minutes*	TCP Gë PMTU ekMgMyž 10-30ož Þ 10ož
age-timer infinite	TCP Gë PTMU ekMMyož

oÞFå-

¼ž

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ß%”

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o¬.6-o- TCP RFC1191 RUYÙ TCP ÔnÝ RUY…nÝ

7 RFC1191 Tk TCP Gë PMTU ekõ RUY…Ý¼ MSS ÛMy• PMTUož

ee©.@ƒ **age-timer** PMTU A TCP NÞE MSS 4k—Ck

7Fåe:Gë¼ PMTUožñ PMTU ñ MSS kõk

Myiõ2ož… **age-timer infinite** ož

oFåõ- 1 yo PMTU Gëž

```
Ruijie(config)# ip tcp path-mtu-discovery
```

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oeÞö-

-

oÞVõ-

-

no ip tcp synwait-time

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@ƒ	T
seconds	SYN ý ž %yakH8 5-300kÞ 20ož

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Hý 20 a

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o¬.6-o-

ò SYN xÞ5 SYN ýY…2%?Þx+Ò SYN xÞž
¨—ÕyNÞ5 SYN ýY5Þò telnetòÞ[+
UY ý ž

oFÞb- 1 y—ÞN SYN ý 10 aož

```
Ruijie(config)# ip tcp synwait-time 10
```

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-

oÞP’Îb-

-

oÞj¨ö-

-

oÞVÞ-

-

11.6 ip tcp window-size

—å TCP vMý4ož

ip tcp window-size *size*

Ê ž

no ip tcp window-size

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@ƒ	T
size	vMý4ož %y¤xH8 128-(65535 << 14)kÞ© 65535ož

oÞFå-

Þ© 65535 -

oxX%”o- ß%”

oHõ- 14

o¬.6-o- TCP NvÊ+ÊvÊk?ÇeÈÒ~Ho%Ê TCP vM
FÊNvÊ~q¥ož9k!AÊÊÊÇNkÝMUY¥KUä TCP
nÿž
ÒÿMÝ 65535 -koovMÝž

oFåÒ- 1 y—åM¥ 16386 -ož

```
Ruijie(config)# ip tcp window-size 16386
```

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oeÿÒ- -

ouVÊ- -

11.7 service tcp-keepalives-in

o TCP ¥Ež

service tcp-keepalives-in [*interval*] [**garbage**]

¼ TCP ¥E

no service tcp-keepalives-in

o@Ò-

@ƒ	T
interval	G‘tÊ%yÊkH8© 1 ñ 65535kÊ© 60 a
garbage	**tk¥Êž**

oHFå- ¼ TCP ¥E

oxX%”o- ß%”

oHõ- 14

o¬.6-o- ŽÁ TCP ŒÈ3ÈC3oWk<}¬.. TCP ‘tož
Ò 4)‘tkŽÁ¬G˜ TCP k<• TCP N—|kKy TCP
Nož

oFåb- 1 yo TCP ÈkG‘tÈe 10 ak‘tk%²—|ÇGož

```
Ruijie(config)# service tcp-keepalives-in 10 garbage
```

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oUP’Ô- -

oojÖ- -

ouVÈ- -

11.8 service tcp-keepalives-out

o TCP ÈÈtož

service tcp-keepalives-out [*interval*] [**garbage**]

o@Ôf-

@f	T
interval	G‘tÈ%ykkH8© 1 ñ 65535kÈ© 60 a
garbage	**tk%ÈÈoož**

oHFåb- ¼ TCP ÈÈ

oxX%”o- È%”

oHÈ- 14

o¬.6-o- TCP ÈUY…‘tMykÈBoWo ož
Ò 4)‘tkŽÁ¬G˜ TCP k<• TCP N—|kKy TCP
Nož

oFåb- 1 yo TCP ÈkG‘tÈe 10 ak‘tk%²—|ÇGož

```
Ruijie(config)# service tcp-keepalives-out 10 garbage
```

oÞP'ô- -

oÞjö- -

oÞVÐ- -

11.9 show ipv6 tcp connect

PÐ IPv6 TCP NÑbž

show ipv6 tcp connect [local-ipv6 *X:X:X:X::X*] **[local-port** *num*] **[peer-ipv6** *X:X:X:X::X*] **[peer-port** *num*]

PÐ IPv6 TCP NÑbž

show ipv6 tcp connect statistics

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@f	T
local-ipv6 *X:X:X:X::X*	IPv6 ª
local-port *num*	
peer-ipv6 *X:X:X:X::X*	IPv6 ª
peer-port *num*	
statistics	IPv6 TCP NÑ

o×X%"o- Ð"

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o¬.6-o- -

oFåÐ- 1 yÐ IPv6 TCP NÑbž

```
Ruijie#show ipv6 tcp connect
Number Local Address     Foreign Address          State        Process name
1      :::22             :::0                     LISTEN       rg-sshd
2      :::23             :::0                     LISTEN       rg-telnetd
3      1000::1:23        1000::2:64201            ESTABLISHED  rg-telnetd
```

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Number	~Ðž
Local Address	ÊMZÊ%È¶Ðž
Foreign Address	ÊMZÊ%È¶Ðž

State	TCP N[illegible]Ä 11 _U[illegible]
	CLOSED χ [illegible] ì [illegible] Ă Ã
	LISTENy!n[illegible]
	SYNSENTySYN]GR)W[illegible]
	SYNRCVDySYN]Nvñ)W[illegible]
	ESTABLISHEDyN]y
	FINWAIT1y[illegible] FIN †
	FINWAIT2y[illegible] FIN]4G•
	CLOSEWAITy[illegible]+€ FIN †
	LASTACKy[illegible]+€ FIN k[illegible]@b[illegible]pp[illegible]Pxè[illegible]s=[illegible]Gy[illegible]

 Þ IPv6 TCP Nè MTUož

show ipv6 tcp pmtu [local-ipv6 *X:X:X:X::X*] **[local-port** *num*] **[peer-ipv6** *X:X:X:X::X*] **[peer-port** *num*]

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o¬.6-o- -

oFåõ- 1 yõÖ IPv6 TCP ÞM…ÕÞ

```
Ruijie#show ipv6 tcp port
TCP connections on port 23:
Number  Local Address Foreign Address    State
1       1000::1:23    1000::2:64571      ESTABLISHED
Total: 1

TCP connections on port 2650:
Number  Local Address Foreign Address    State
Total: 0
```

<ÞKy

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Number	~Z
Local Address	ÞMžž
Foreign Address	ÞMžž
State	TCP NÖÄ 11 _UÖ CLOSED: N]• LISTENy!nÖ SYNSENTySYN]GÞ)W‰ SYNRCVDySYN]NvÞ)W‰ ESTABLISHEDyN]y FINWAIT1yÞ4ß FIN † FINWAIT2yÞß FIN]4• CLOSEWAITyÞ7+€ FIN † LASTACKyÞ7+€ FIN ÞÀÞß\ ÞFIN ¨ ‘•FI

oиVØ- -

11.12 show tcp connect

ÞÙ IPv4 TCP NÑbž

show tcp connect [local-ip *a.b.c.d***] [local-port** *num***] [peer-ip** *a.b.c.d***] [peer-port** *num***]**

ÞÙ IPv4 TCP NÏbž

show tcp connect statistics

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@f	T
local-ip *a.b.c.d*	ÎÀ IP ª
local-port *num*	ÎÀ
peer-ip *a.b.c.d*	€ IP ª
peer-port *num*	€
statistics	ô IPv4 TCP NÏ

o×X%”o- Ô”

oÑÕ- 2

o¬.6-o- -

oFåÙ- 1 yÙ IPv4 TCP NÑbž

```
Ruijie#show tcp connect
Number Local Address     Foreign Address          State       Process name
1      0.0.0.0:22        0.0.0.0:0                LISTEN      rg-sshd
2      0.0.0.0:23        0.0.0.0:0                LISTEN      rg-telnetd
3      1.1.1.1:23        1.1.1.2:64201            ESTABLISHED rg-telnetd
```

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<	¢
Number	~Ø
Local Address	ÎÀ È ÎÀ Aò “1.1.1.1:23”“23” Ø
Foreign Address	ÎÀ È ÎÀ Aò “1.1.1.1:23”“23” Ø

State	TCP N 11 _U CLOSED χ ÷ ¢ ì Ţ Ă Ã LISTENy!n SYNSENTySYN]GR)W‰ SYNRCVDySYN]Nvñ)W‰ ESTABLISHEDyN]y FINWAIT1y FIN † FINWAIT2y FIN] CLOSEWAITy FIN † LASTACKy FIN \ FIN † CLOSINGy FIN FIN † ACK FIN † TIMEWAITy FIN 4Nvñ FIN †
Process name	idf

2y IPv4 TCP N

```
Ruijie#show tcp connect statistics
State        Count
-----        -----
ESTABLISHED 1
SYN_SENT    0
SYN_RECV    0
FIN_WAIT1   0
FIN_WAIT2   0
TIME_WAIT   0
CLOSED      0
CLOSE_WAIT  0
LAST_ACK    0
LISTEN      1
CLOSING     0
Total: 2
```

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oVô- -

11.13 show tcp parameter

P® TCP @ƒî

show tcp parameter

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2

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-

oFåð- 1

y®® tcp @ƒî

```
Ruijie#show tcp parameter
Hash table information:
  Established hash bucket size: 16384
  Bind hash bucket size: 16384
Mem ' em Ò η Ž ˆ Ž Ţ M
```

```
Orphan socket information:
  Max orphans: 16384
  Max orphan retries: 0
  Current orphans: 0
```

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Hash table information	TCP Nen@ƒî
Memory information	TCP NvGÈ@ƒî
SYN specific information	TCP ÆÉ,½@ƒî
Timewait specific information	TIMEWAIT ÆÑ TCP N@ƒî
Keepalive information	TCP ‘tÉ@ƒî
MTU probing	MTU My,½@ƒî
FIN specific information	TCP N½@ƒî
Orphan socket information	ÆÑ TCP N@ƒî

oÜP’ô- -

11.14 show tcp pmtu

ÞP IPv4 TCP Nè MTUož

show tcp pmtu [local-ip *a.b.c.d***] [local-port** *num***] [peer-ip** *a.b.c.d***] [peer-port** *num***]**

o@ÞÞ-

@ƒ	T
local-ip *a.b.c.d*	ƒ IP ª
local-port *num*	ƒ
peer-ip *a.b.c.d*	¢ IP ª
peer-port *num*	¢

o×X%”o- Ø”

oÞÞ- 2

o¬.6-o- -

oFåÞ- 1 yÞ IPv4 TCP Nè MTUož

```
Ruijie# show tcp pmtu
Number  Local Address          Foreign Address        PMTU
```

<ky

<	¢
Number	~Z
Local Address	¥Mžž
Foreign Address	¥Mžž
State	TCP N11 _U CLOSED: N]• LISTENy!n SYNSENTySYN]G)W‰ SYNRCVDySYN]Nv)W‰ ESTABLISHEDyN]y FINWAIT1y FIN † FINWAIT2y FIN • CLOSEWAITy+€ FIN † LASTACKy+€ FIN \ FIN † CLOSINGy FIN + FIN † ACK +€ FIN † TIMEWAITy FIN 4kw 4Nv ñ FIN †

oUP'b- -

oVo- -

11.16 show tcp statistics

Po TCP kmNv'k)Wk time-wait N'Î **show tcp statistics**

o@p-

@ƒ	T
-	-

oxX%"o- %"

oo- 2

o¬.6-o- -

oFåÐ- 1 yðÖ tcp ÏÎ

```
Ruijie#show tcp statistics
TCP Packets
  Received: 1103
  Errors  : 0(checksum: 0)
Three way handshake
  Request queue overflow: 0
  Accept backlog full: 0
  Web authentication limit per user: 0
  Failed to alloc memory for request sock: 0
  Failed to create open request child: 0
  SYN ACK retransmits: 0
  Timeouted requests: 0
Time-wait
  Time-wait bucket table overflow: 0
```

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TCP Packets	TCP Nvõokj†
Three way handshake	)Wõkmvñ‡)ÿE yN)ÿ9 WEB ¢)Wõ¢Ä ó–cë TCP N)ÿ—cÿN)ÿ‡Mn)ÿ‡CÏMnõÑÿ)ÿž
Time-wait	TIMEWAIT ÑÏ

oÜP’ô- -

12 IPv4/v6

12.1 clear ip ref packet statistics

Ž IPv4 ßž

clear ip ref packet statistics

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o¬.6-o- -

oFåß- 1 yŽ IPv4 ßž

```
Ruijie #clear ip ref packet statistics
```

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ouVß-

12.2 clear ipv6 ref packet statistics

Ž IPv6 ßž

clear ipv6 ref packet statistics

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o×X%”o- ß”

oßß- 14

o¬.6-o- -

oFåÞ- 1 yŽ IPv6 ®½ž

```
Ruijie #clear ipv6 ref packet statistics
```

oÜP'Ô- -

oÜVÞ-

12.3 show ip ref adjacency

ÞÊN-µÄN-µÔž

show ip ref adjacency [glean | local | *ip-address* | **interface** *interface_type interface_number* | **discard** | **statistics**]

o@Þ-

@*f*	T
glean	**N-µ**
local	**N-µ**
ip-address	® IP
interface_type	*6*
interface_number	*6*
discard	**ÞN-µ**
statistics	*Ì*

o×X%"o- Ô"

oÞ- 14

o¬.6-o- ¥XUYÞÙ IPv4 ®½Nn'ÎkUY6Þ>NoÞNo6 IP +>No6N MÄNCÄN-µÔž

oFåÞ- 1 yÞÑNnÄN'Ôž

```
Ruijie#show ip ref adjacency
id state      type    rfct chg  ip            interface         linklayer(header data)
1  unresolved mcast   1    0   224.0.0.0
9  resolved   forward 1    0   192.168.50.78   GigabitEthernet 0/0  00 25 64 C5 9D 6A 00 D0 F8 98
76 54 08 00
7  resolved   forward 1    0   192.168.50.200  GigabitEthernet 0/0  00 04 5F 87 69 66 00 D0 F8 98
76 54 08 00
6  unresolved  glean  1    0   0.0.0.0         GigabitEthernet 0/0
4  unresolved  local  3    0   0.0.0.0         Local 1
```

PÊ<Ty

<	
id	>Nœe
state	>NÅl unresolveyÈ resolvedy]È
type	>N localyÊ>N forwardyÈ>N discardy'>N gleanyÈ>N mcastyÁ>N
rfct	>Nt
chg	>N
ip	>N+• IP
interface	M
linklayer	8Cã

oUP'Ô-

-

oVÐ-

12.4 show ip ref exact-route

P IP

show ip ref exact-route *source_ipaddress dest_ipaddress*

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@	T
source_ipaddress	IP
dest_ipaddress	IP

oXX%"o-

Ø"

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o¬.6-o-

*¥Xk6 IP IP IP kUYÐ

oFåÐ- 1 yðR 192.168.217.74 ñ 192.168.13.1 ©è

```
Ruijie# show ip ref exact-route 192.168.217.74 192.168.13.1
192.168.217.74  --> 192.168.13.1:
id state    type    rfct chg  ip            interface          linklayer(header data)
9  resolved forward 1     0   192.168.17.1  GigabitEthernet 0/0 00 25 64 C5 9D 6A 00 D0 F8 98 76
54 08 00
```

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<	¢
id	>Nœ
state	>NÌ unresolveyÈ resolvedy]ª
type	>N localyÊ>N forwardyÇ>N discardy'>N gleanyÈ>N mcastyÁ>N
rfct	>Nt
chg	>NÇ
ip	>N+• IP ª
interface	ÑM
linklayer	8Cã

oÙP'Ô- -

oÙV¢-

12.5 show ip ref packet statistics

P IPv4 ©ž

show ip ref packet statistics

o@¢-

oÑõ- 14

o¬.6-o- -

oFåõ- 1 yÞ IPv4 ©½ž

```
Ruijie #show ip ref packet statistic
ref packet statistic:
    bad head        : 0
    lookup fib fail : 0
    local adj       : 0
    glean adj       : 0
    forward         : 0
    redirect        : 0
    ttl expiration  : 0
    no ip routing   : 0
```

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<	¢
bad head	ÑÞ
lookup fib fail	©½
local adj	FñNÞ
glean adj	FÑŭNÞ
forar	FG>NÞ

F ñ ô G > N5‡ † ƒ)

-	-

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oÞ©- 14

o¬.6-o- -

oFåÐ- 1 yÞ IPv4 ©ž

```
Ruijie#show ip ref resolve-list
IP                res_state flags interface
1.1.1.1           unres     1     GigabitEthernet 0/0
```

<	¢
IP	IP ª
res_state	unresyÈres yª
flags	0y>N—¼1 y>N,¼
interfae	NMdf

oÞP´Ò- -

oÞV©-

12.7 show ip ref route

ÞÙ IPv4 ©ž

show ip ref route [**default** | *ip mask* | **statistics**]

o@©-

@*f*	T
default	**6©**
ip	*6È* IP
mask	*6Ê*
statistics	***Î***

oxX%”o- ©”

oÞ©- 14

o¬.6-o- UYÞÙ IPv4 ©¼UY6ÞÈ6 IP/MASK FÈ©ž

oFåÐ- 1 yÞ¶¶ÞÞž

```
Ruijie#show ip ref route
Codes: * - default route
       # - zero route
 ip/mask            weight  path-id      next-hop        interface
 255.255.255.255/32 1       4            0.0.0.0         Local 1
 224.0.0.0/24       1       4            0.0.0.0         Local 1
 192.168.50.0/24    1       6            0.0.0.0         GigabitEthernet 0/0
 192.168.50.200/32  1       7            192.168.50.200  GigabitEthernet 0/0
 192.168.50.122/32  1       4            0.0.0.0         Local 1
 192.168.50.78/32   1       9            192.168.50.78   GigabitEthernet 0/0
```

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ip/mask	) IP ÿQAx†
path-id	>Nœe
weight	Ø
next_hop	%ě
interface	ÿM

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oÜVÐ-

12.8 show ipv6 ref adjacency

Þ IPv6 ©½N,¹ÔÞž

show ipv6 ref adjacency [**glean | local |** *ipv6-address* **| interface** *interface_type interface_number* | **discard | statistics**]

o@Ð-

@*f*	T
glean	**ÞÞN-µ**
local	**ÞÔN-µ**
ipv6-address	*ÞÔ*(x:x:x::x) >N'Î
interface_type	*6M*
interface_number	*6Ø*
discard	**ÞÞN-µ**

statistics	**PÄÎ**

show ipv6 ref exact-route *source-ipv6-address destination-ipv6-address*

o@Ïþ-

@ƒ	T
source-ipv6-address	› IPv6 ª
destination-ipv6-address	) IPv6 ª

o¤X%”o-

Ôb”

oÞõ-

14

o¬.6-o-

-

oFåb- 1

yÞª 2001:db8:1::1k)ª 3001:db8:2::2 ÕèÕ

```
Ruijie#show ipv6 exact-route 2001:db8:1::1 3001:db8:2::2
2001:db8:1::1 --> 3001:db8:2::2:
ID  state      type    rfct chg ip interface            linklayer(header data)
3   unresolve  glean   1    0   :: GigabitEthernet 0/0
```

<	¢
id	>N-œ
state	>N-µ
type	>N-µ localyÞN forwardyÕ>N discardy’>N gleanyÈN mcastyÁ>N
rfct	>N-µ
chg	0y>N-µNª 1y>N-µª
ip	>N IPv6 ª
interface	>N-ÕM
linklayer(header data)	8CÊ

12.10 show ipv6 ref packet statistics

IPv6

show ipv6 ref packet statistics

	@f	T
	-	-

14

>DE092E09B404F06FAD>Tw 736062DTf( )Tj-0.0028 Tc 7.452 Tw 9 0 0 9

-IP

IP

1. RIP
2. OSPFv2
3. OSPFv3
4. RIPNG
5. NSM
6.

1 RIP

1.1 auto-summary

o RIP ßMèž

auto-summary

{ßMèž

no auto-summary

o¡ß®

¡@	T
-	-

oHÞFå- ÞoMèž

oxX%”o- ÈFß%”ož

oHõ- 14

o¬.6-o- RIP ßMÈ<ÿ1Mèž RIPv1 y RIPv2 Þ

ÕÙgßMèž

RIP ßMÈUàaÿ¡ßMèe10m¨

MÿßÿUYÝ¡e%ož

*sMèA*s%Pßÿ¡ÿ¡ÿe

ì RIP ¢ÈMèõ

ì RIP ¢È`~ÿ¡tk54ê

ÿeÿßÿMèÿ¡ßMèž

xÿÈå RIPv2 ÈõUY{ßMÈRIPv1 ßMèž

ßÁßÿ¥X+ß–|ož

oFåÙ- 1 y¼ RIPv2 ßMèž

```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

oèo- … show ip rip database UYÙFåè

oЧP'ô- -

oэjö- -

oиVф- -

1.2 default-information originate

¨ RIP iLD%ê

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

Hjž

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

oj®

@	T
always	¼.. RIP —ÚDjè'ÊÌ¹ž
metric *metric-value*	**Dk** *metric-value* ¼1-15ož
route-map *map-name*	¼ route-map dkH¼ route-map

oнFå- HÄDjèDjè metric Ì 1ož

oxX%"o- ÈF%"

oHö- 14

o¬.ÂÜ

oЧP'Î-

-

oeÿö-

-

oиVØ-

-

1.4 distance

—å RIP ßÁož

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

Ê—åž

no distance [*distance ip-address wildcard*]

oÞ®

@	T
distance	å— RIP ßÁk1-255 $•..*f*
ip-address	Ê IP Ø
wildcard	# IP ª¹ÂÛk0 nPÈFk1 nÜXôž

oÈFå-

'ßÁÞ 120ož

oxX%"o-

ÈF‰"ož

oÈÕ-

14

o¬.6-o-

…¥X—å RIP ßÁož

UY…4xXÈßÁk¢ RIP ÈÕÈÕÈò

ßÁkkß RIP —ßÁož

oFåÞ- 1 yFå RIP ßÁ 160k6R 192.168.12.1 .ßÁ 123ož

```
Ruijie(config)# router rip
Ruijie(config-router)# distance 160
Ruijie(config-router)# distance 123 192.168.12.1 0.0.0.0
```

oèo-

… show ip rip UYÕÈßÁ

oЧP'Î- 1 yFÊÿöž

```
% Invalid mask value
```

oёjö- 1 y¥XFåjQ

oыVŧ- -

1.5 distribute-list in

OßŶrẻž

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

ľOßŶrẻž

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

oþ@

‚@	T
access-list-number | *name*	*6[ņoþÈ¥Wož*
prefix *prefix-list-name*	*…ộpž*
gateway *prefix-list-name*	**ộpž**
interface-type *interface-number*	*ÆņkQMož*

oĦFå- ĦÆņož

oжX%"o- èFå‰"ož

oĦŏ- 14

o¬.6-o- 4ŃvľP6èUY*FåOņk+ÄlvģŵÔž

ŹNMk<+ÄMNvģŵÔž

oFåŧ- 1 yRIP +R Fastethernet 0/0 ¢MNvèOßQv 172.16 ŏž

oЧP’ô-

oэjö- -

oчVф- -

1.6 distribute-list out

Oœ%kYęž

distribute-list { [*access-list-number* | *name*] | **prefix** *prefix-list-name* } **out** [*interface* **|** [**connected | ospf** *process-id* **| rip | static**]]

îOœ%kYęž

no distribute-list { [*access-list-number* | *name*] | **prefix** *prefix-list-name* } **out** [*interface* **|** [**connected | ospf** *process-id* **| rip | static**]]

oęę

@	T
access-list-number | *name*	*6ïçoęęęęž*
prefix *prefix-list-name*	ęęęž
Interface	*ęęęęMož*
connected	ęęęž
ospf *process-id*	ęęę ospf ęęęprocess-id 6ÀÀ ospf ęž
rip	ęęę rip èž
static	ęęęž

oнFå- ęęęsož

oxX%”o- ęęęęž

oнõ- 14

o¬.6-o- ęęXæU#ęęęęsOęęMęęęęęM#ęęęsOęę
+6NMęęęęsOęę6ęž

oFåę- 1 yRIP ęęęęs 192.168.12.0/24 èž

```
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)# access-list 10 permit 192.168.12.0 0.0.0.255
```

oèo- +€ Õ. show ip route rip 0ÿ¡ÿ¡ž

oÙP'ò- 1 ygateway ¢

1.8 graceful-restart

Få Õ RIP iÞMo(Graceful Restart kGR)ož

graceful-restart [**grace-period** *grace-period*]

Ôa ž

no graceful-restart [**grace-period**]

op

@	T
graceful-restart	*oiÞMo*(Graceful Restart kGR).
grace-period	**Få** grace-period

oəjö- -

oнVÎ- -

1.9 ip rip authentication key-chain

o RIP ğw6 RIP ğ.%Wož

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

Î6%Wož

no ip rip authentication key-chain

oÞ®

@	T
name-of-keychain	*W6* RIP ğ.%Wož

oнFå- H%Wož

o×X%”o- NMFâ%”ož

oнõ- 14

o¬.6-o- %WÎNMFâ4k¬. **key chain** ÞFåžÙ**W**k4U RIP ÇGâž

RIPv1 u4 RIP ÇšÇ RIPv2 u4ož

oFåÞ- 1 yfastEthernet 0/1 NMo RIP šÇ%W ripchainy

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip rip authentication key-chain ripchain
```

2y… **key chain** ÞW

```
Ruijie(config)# key chain ripchain
Ruijie(config-keychain)# key 1
Ruijie(config-keychain-key)# key-string Hello
```

oèo- show ip rip interface Ô,FåÞž

oUP’Î- -

oəjö- 1 yFå md5 šÇFå key-chainož

oиVØ- -

1.10 ip rip authentication mode

RIP ‰”ož

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

Ê RIP ‰”ož

no ip rip authentication mode

oÞ

@	T
text	RIP ‰”ðž
md5	RIP ‰” MD5 ðž

oÞFå- ‰”ož

o×X%”o- NMFå‰”ož

oÞÕ- 14

o¬.6-o- Få RIP ‰”NAE RIP ê—ÕFå RIP ‰”Ò‰kké RIP ƒ GAE1êž

xFå.kÈ‰Wk4žwkÕGÿžk

ò MD5 ‰xFÈ‰Wk-kÕGÿž

RIPv1 u4 RIP ƒ‰ÕÕ RIPv2 u4ož

oFåÞ- 1 yfastEthernet 0/1 NM RIP ‰”— MD5ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip rip authentication mode md5
```

oèo- show ip rip interface ô,Få

oÞP’ò- -

oÞjÿ- -

oиVØ- -

1.11

o@	@	T
	-	-

oHFå- HNMNv RIP G

oxX%”o- NMFå%”ož

oHõ- 14

o¬.6-o- ÒW2NMNv RIP GkXMNM%”…¥X **no FážM9Fá**
4xXMoX **default ÔMNv** RIP Gož

oFåò- 1 yfastEthernet 0/1 NMW2Nv RIP Gož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# no ip rip receive enable
```

oòo- … show ip rip interface ÔMNvFÁ

oUP’Ôb- -

oojö- -

ouVõ- -

1.14 ip rip receive version

RIP %NM1NvÎ RIP G.
ip rip receive version [**1**] [**2**]

ÔFáž
no ip rip receive version

o@	@	T
	1	Ò RIPv1 Gož
	2	Ò**v** RIPv2 Gož

oHFå- HgHÔ **version xFáž**

oxX%”o- NMFå%”ož

oHõ- 14

o¬.6-o- ¥XFõUY~$ **vesion xHFåžõMNv** RIP ¢kUYª
¥MczNv RIPv1 y RIPv2 ¢Gož xXFåõvgHD version Fåž

oFåõ- 1 y… fastEthernet 0/1 NMUYNv RIPv1 y RIPv2 ¢Gož

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

oèao- … show ip rip interface ê show ip rip ÔNMNv RIP Ñ

oUP'ò- -

oejö- -

ouVõ- -

1.15 ip rip send enable

ª RIP %6NMG RIP ¢G.
ip rip send enable

W2 RIP %6NMG RIP ¢Gož
no ip rip send enable

o¢®	¢@	T
	-	-

oHFå- HNMG RIP ¢G

oxX%"o- NMFõ%"

oHõ- 14

o¬.6-o- ÞW2NMG RIP ¢kNMNM%"…¥X **no FåžN9Få**
4xNMoõX **default ÔMG** RIP ¢Gož

oFåõ- 1 y… fastEthernet 0/0 NMW2G RIP ¢Gož

```
Ruijie(config)# interface fastEthernet 0/1
```

```
Ruijie(config-if-FastEthernet 0/1)# no ip rip send enable
```

oèo- … show ip rip interface ÔMGFÁ

oUP'ô- -

oöjö- -

ouVÔ- -

1.16 ip rip send supernet-routes

RIP %6NMG RIP áz

ip rip send supernet-routes

W2 RIP %6NMG RIP áz

no ip rip send supernet-routes

op

@	T
-	-

oFå-

`Wå-

mPå-

1.18 ip rip split-horizon

o RIP

ip rip split-horizon [**poisoned-reverse**]

¼ RIP

no ip rip split-horizon [**poisoned-reverse**]

	@	T
	poisoned-reverse	*ok*

ok

NMF%”o-

14

IP znA ggOek<J 9e

Y…2— R. NM*s k_gi4Ú

—AEož

X.25

IP

poisoned-reverse

NM*s

RIP K9gOekJ %NM 4

show ip rip x **neighbor x klñ** RIP

1 yfastEthernet 0/1 NM¼ RIP

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# no ip rip split-horizon
```

… show ip rip interface 0

-

-

-

1.19 ip rip summary-address

NMFå RIP NMMüž

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

6Müž

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

ip-address	*Mü* IP a
ip-network-mask	**6** IP a

oeÿö- -

ouVÐ- -

1.20 ip rip triggered

o7eè RIP Ïÿž

ip rip triggered

¼ RIP Ïÿž

no ip rip triggered

Fåeè RIP ÏÿMnž

ip rip triggered retransmit-timer *timer*

Ïeè RIP ÏÿMnž

no ip rip triggered retransmit-timer

Fåeè RIP ÏÿMn)ƒ

ip rip triggered retransmit-count *count*

Ïeè RIP ÏÿMn)ƒ

no ip rip triggered retransmit-count

oÞ

@	T	
retransmit-timer *timer*	ƒMn Update Requestoˆ Update Response ÏÞ akH8y1-3600	5
retransmit-count *count*	**Få** Update Requestoˆ Update Response ÏMn)ƒÞ)kH8y1-3600	36

oÞFå- Ïb RIP Ïÿ

o×X%”o- NMFå%”ož

oÞ- 14

o¬.6-o- RIP Ïÿ TRIP k Triggered RIPh© RIP #žÏWAN kWide Area Network hÏ

}97eèž

Ï04 RIP Ïÿ RIP #ÏÏ7^Gž RIP ÏgzÏ

MGÿ¼

Nvéõž

RIP êGÿž

NMÊÊž

è–Õõž

9H¼ RIP ¼¼ÊyMGÊÊyNvoÊÝY

… **retransmit-timer y retransmit-count 6ŁyÊ¼nyÊÊnÿž**

Ý_Ê¥ A.NMN%>DzB. ÝDxÝ%n•A;ož

PPPoÊX.25 êÊ#o¥

FÊMokÊÊÊkéÊkê–|êÊ

Ê%êÊ–Õo4¼kké-¼k—c3GA;êž

oÊÊê RIP Fê%kÊRIP ÊNMu4 RIP #Êž

ÊNMo4¼ké–¼kêÊ **validate-update-sourcehkÊMÊ**

gêž

oFÊÊ- 1 yo RIP ÊÊw6 Update Requesto•Update Response ÊÊnce 10skÊÊn)

ƒ 18ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip rip triggered
Ruijie(config-if-FastEthernet 0/1)# ip rip triggered retransmit-timer 10
Ruijie(config-if-FastEthernet 0/1)# ip rip triggered retransmit-count 18
```

oèo- Show running-config ÊkFê

oŁP'Ê- 1 yUPo triggered ÊÊkê

```
% Warning: The configurations for Triggered RIP peer shall be same, or it would affect the route learning.
```

oeÊÖ- -

oÊVÊ- -

1.21 ip rip v2-broadcast

ª RIP version 2 ÝznÊÊ•NMGÊž

ip rip v2-broadcast

ÊÊêž

no ip rip v2-broadcast

		T
	-	-

version xKaž

NMFa%”ož

14

vesion xKaž MG RIP gkUYª

RIPv1 y RIPv2 fGoz xXFa vgHD version Fa ž

1 y… fastEthernet 0/1 NMYznG RIPv2 ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip rip v2-broadcast
```

… show ip rip interface

-

-

-

1.22 neighbor

RIP >D IP ož

neighbor *ip-address*

ï>D#ož

no neighbor *ip-address*

		T
	ip-address	D IP

>Dož

%”

oHõ- 14

o¬.6-o- RIPv1 Þ.. IP znõ255.255.255.255h*sõk RIPv2 Þ..ÁÕ224.0.0.9h*s

êõÿÈnâ¶ÕÕ—kÕÕNvõkUYõFå

xX **passive-interface 1,ÑMõÑMkõÑvõžK**

§ RIP 'ÎNvož—å passive KÑMkMoe-kGÞtž

oFåt- 1 y# RIP ÕÕ>D 192.168.1.2 *sõbž

```
Ruijie(config)# router rip
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# neighbor 192.168.1.2
```

oèo- Show running-config ÕkFå

oÞP'Îb- 1 y,cFõõž

```
% Static neighbor configuration exists
```

oõÿö- -

oÞVõ- -

1.23 network

RIP ÕÕ*sõõož

network *network-number* [*wildcard*]

Î]#èž

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

oõõ

@	T
network-number	IP ÕK9ÕÕ ÑMCUGyNv RIP ÕGož
wildcard	# IP ÕÕÕk0 nPÕGFk1 nÕÕÕž

oHFå- -

oxX%"o- ÕFå%"ož

oHõ- 14

o¬.6-o- ÌUYcÈå *network-number* y *wildcard* ¡@..ÄÄ@ RIP gož
È¢å *wildcard* ¡@ RGOS 10ÄÄÔ..ÄÄNM@
RIP gož
ÄÄMÄ RIP #¢¡ÄMÄÄUY+È RIP ÄÄwNv RIP ¾
ÄÄž

oFåÄ- 1 yÄ 192.168.12.0/24 y 172.16.0.0/24 8ÄÄM@ RIP gy

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

oè¤o- Show running-config ÄÄFå-UY… show ip rip interface ÄNMÄÄ RIP i
ož

oÄP'Ä-

oÄjÄ- -

oÄVÄ- -

1.24 offset-list

ÍvÄ RIP è metric ož

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

Ä6 offset ¢ož

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

oÄ

¡@	T
access-list-number | *name*	Ä
In	• acl +Nvè metric g“w
Out	• acl +Gè metric g“w
Offset	Ä metric ÄH8y0-16
interface-type	• acl ÄNM
interface-number	*6MÍ*

oFå- offset

oHõ- 14

o¬.6-o- 3Ú RIP èõNM offset-list YCÈNMß offset-listÜé RIP ìkó
NM offset-list metric ož

oFåb- 1 y¨ acl 7 68Ä RIP ß+ metric Í 7ož

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

2y* fastethernet0/1 .¨ acl 8 68Ä RIP ß+ metric Í 7ož

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

oèo- … show ip rip database ÔNMßÜX+•—å

oUP'Ôb- 1 yNMõNMÈož

```
% Interface is invalid.
```

oeÿö- -

ouVõ- -

1.25 output-delay

wJ RIP ßÈž
output-delay *delay*

Hƒ ßÈ—åž
no output-delay

opõ

```
@
```

oFåÛ- 1 y—ÊÑM passive %”kÒ—å ethernet0/1 ³ passive %”

```
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# no passive-interface ethernet 0/1
```

oÒo- … show ip rip ñ show ip rip interface ÔÛyNMtMFå

oÛPˆÎb- 1 yNMÊNMˆcož

```
% Interface is invalid.
```

oÒjÖ- -

oÛVÛ- -

1.27 redistribute

FÊMÊÒÊÔÊcož

redistribute { **connected** | **ospf** *process-id* | **static** } [**match** { **internal | external** [**1 | 2**] **| nssa-external** [**1 | 2**] }] [**metric** *metric-value*] [**route-map** *route-map-name*]

HÊMÊÒÊcož

no redistribute { **connected** | **ospf** *process-id* | **static** } [**match** { **internal | external** [**1 | 2**] **| nssa-external** [**1 | 2**] }] [**metric** *metric-value*] [**route-map** *route-map-name*]

oÊ®

oH6-	14
o¬.6-o-	…¥X1Ò¾ÎMÕñ RIP ož ÑMÕž1%ê¾OÕÕP%²_ê¾OÕÕkoê¾Ñ OtÕ¢oRIP OÕÕ¢OSPF ÕÕkkê¢Ò¢ ÜIAÕžÕMÕžAÕÕ—%ÕÕkkÕMÕ1ÕÕž FÕMÕ **ospf ÕÕk** match ÕÕMÕÕÕ ospf è

oxX%”o- ßFå‰”ož

oHõ- 14

o¬.6-o- %² RIP ãx5}#%ãgãk}5NMFå **async**
default routingož

oFåb- 1 yë RIP ãkßFå‰”ož

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

oèao- … show ip rip ÕÈÈÄÜÕ

oUP’b- -

oæjö- -

ouVõ- -

1.29 show ip rip

ÍP RIP ëÍÕož
show ip rip

obÈ

@	T
-	-

oxX%”o- Ôb”oßFå‰”oë-å‰”ož

oHõ- 14

o¬.6-o- U9½P RIP ëÍžÕoMÈÄNM rip Õb• rip NMà
8o•metric distance ôž

oFåb- 1 yÍP RIP ëÍÕkÄÕ‰”ož

```
Ruijie# show ip rip
Routing Protocol is "rip"
Sending updates every 10 seconds
Invalid after 20 seconds, flushed after 10 seconds
Outgoing update filter list for all interface is: not set
```

```
Incoming update filter list for all interface is: not set
Default redistribution metric is 2
Redistributing: connected
Default version control: send version 2, receive version 2
Interface              Send  Recv
FastEthernet 0/1       2     2
FastEthernet 0/2       2     2
Routing for Networks:
192.168.26.0 255.255.255.0
192.168.64.0 255.255.255.0
Distance: (default is 50)
Graceful-restart enabled
  Restart grace period 60 secs
  Current Restart remaining time 16 secs
```

È ‚ ½... ¨ χ

<	¢
Sending updates	¥4
Invalid	¦¥
flushed	¥
Outgoing update filter list for all interface	+¦¥¡
Incoming update filter list for all interface	+Nv¦¥¡
Default redistribution metric	¥¦¥¦¥¦
Redistributing	M¦¥#‘
Default version control	¥ RIP #Ï
Routing for Networks:	RIP g¥¥
Distance	¥
Graceful-restart	GR ¥
Restart grace period	GR ¥
Current Restart remaining time	¥ GR ¥

oÞP’Ô- -

oÞV¥- -

1.30 show ip rip database

¥ RIP ¦¥¦¥¦¥

show ip rip database [*network-number network-mask*] [**count**]

o

@	T €F €žP‰ Ï o ÄhM‰å ,fB qqfóy '@ R X QT H&ŠPiFóy €žP‰áp»
network-number	*ž*
network-mask	
count	RIP

o X%”o- %”o F‰”o F‰”ož

o 14

f118.26 674.04 0.24 15 6 ref271.742.68 0.24 re g/ 1 2 9 4 c 7 93 7 d f1 ,08924 0 T 0 9 E > T g 1 4 6 0 9 E 5 0 8 A 7 4 0 8 4 D / T T 8 0 7 C 0 0 4 1 0 > 1 0 0 < 0 8 4

auto-summary	MÈè
directly connected	+è
redistributed	MÊÛ
database	Rip €€
All	
Valid	
Invalid	—|

oÙP'ô-

oÙVô- -

1.31 show ip rip external

ÞÞ RIP MÈÙÊž

show ip rip external [**connected** | **ospf** *process-id* | **static**]

oÞ

@	T
connected	*MÈè*
ospf *process-id*	*M* OSPF *process-id* OSPF iZH8 1-65535
static	*MÊž*

oXX%"o- Ô"oÞF%"oÞF%"ož

oÞ- 14

o¬.6-o-

oF- 1 yÞ RIP MÈ+Êž

```
Ruijie# show ip rip external
```

```
 [static] 10.1.1.1/32 metric=0
     nhop=0.0.0.0, if=4096
 [static] 10.1.2.1/32 metric=0
     nhop=0.0.0.0, if=4096
Protocol ospf 1 route:
 [ospf] 1.1.1.1/32 metric=2
     nhop=192.100.3.2, if=2
 [ospf] 90.1.1.1/32 metric=2
     nhop=192.100.3.2, if=2
```

È ª ½... ¨ ¼

<	¢
Protocol connected route	Mê
connected	Mè
metric	Mê
nhop	Mê‰é

```
FastEthernet 0/1 is up, line protocol is up
Routing Protocol: RIP
```

Authentication mode	%”
Authentication key-chain	š. key-chain
Authentication text-password	š.
Default-information	0kõ
IP interface address	NM ip ª

oЧP’ô- -

oнVõ- -

1.33 show ip rip peer

ºP RIP >D’ôž

show ip rip peer [*ip-address*]

o¤ |@| T |
|---|---|
| *ip-address* | *6* RIP >Dª |

o×X%”o- Ô”o¤F%”oõ-%”ož

oõ- 14

o¬.6-o- RIP .ñ RIP ¢RIP ¥4d}’ÎkYŽk?è

’Îf RIP >D’ôž

¥X9ºP RIP >D’Îk3¨ RIP >Dkº`~’ôž

oFåõ- 1 yºP RIP >D’ôž

```
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
```

È ª ¼... ª χ

<	¢
Peer	>D ip ª
Local address	ª

Input interface	,NM
Peer version	>D RIP Ĭ
Received bad packets	R>Dvj
Received bad routes	vj
BFD session state	BFD k

57L BFD ¢

X **validate-update-sourceož**

oFåb- 1 y{ÎÊž

```
Ruijie(config)# router rip
Ruijie(config-router)# no validate-update-source
```

oèao- … show running-config ÎFêè

oÙP'ÎÒ- -

oeÿÖ- -

oÙVÎÒ- -

1.36 version

#…—Õ RIP ÎÊž

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

ÎÊFåž

no version

oÎÊ

¢@	T
1	# RIP ÎÊ 1ož
2	# RIP ÎÊ 2ož

oÙFå- ÙUYNv RIPv1 y RIPv2 ÎÊxQ RIPv1 ÎÊž

oxX%"o- ÎÊFå‰"ož

oÙÊÒ- 14

o¬.6-o- 9#…—Õ RIP gÎÊÙY **ip rip receive versionoip rip send version xXÙÙ**

MÎÊ RIP ÙM#ož

oFåb- 1 y1 RIP ÎÊ–å 2ož

o{ÎÊ+o- … sÎÊpip

oЧP’ô- -

oəjö- 1 y1Ê RIP ‡–å version 1kò€ÊÔ version 2 k-Å

oиVØ- -

2 OSPFv2

2.1 area

Fåǫž

area *area-id*

î6 OSPF ǫž

no area *area-id*

o@

@	T
area-id	OSPF ǿǮY‰â.ĶUY‰² IP ǒž

oFå- Ǟå OSPF ǫž

oX%"o- iFå‰"ož

o- 14

o.6-o- UY…kX no ¥kž6 OSPF Ƒåľ¥,Ž **area authentication**• **area default-cost**• **area filter-list** • **area nssa** ĄƑåXž

Ŏ—cŽ OSPF Ƒå

› ! p ¨ }ŽĄåxƶƑåžÁ.oÂ` ¥Ŷp-opo}Uù

2.2 area authentication

o OSPF

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

¼ OSPF

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

o

@	T
area-id	*6* OSPF YO.k-UY ² IP
message-digest	**J** MD5gmessage digest 5 h”o

oF- OSPF

oX%”o- F%”o

o- 14

o¬.6-o- RGOS ^UYu4_

1. k}L Xo OSPF OSPF z
2. k%”kF XZ. message-digest #¼
3. k MD5 %”kF XZ… message-digest #o

%² OSPF -Z %²_ 4 >DNM

FMXoZMFX **ip ospf authentication-key** MXNMFX **ip ospf message-digest-key** MD5 MXo

oF- 1 yOSPF 0g J MD5 MX backboneo

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 192.168.12.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf message-digest-key 1 md5 backbone
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# area 0 authentication message-digest
```

o- 1 y… show ip ospf xXUYO F o

oUP’b- -

o- -

ou¬V0- -

2.3 area default-cost

#*sË Stub ê NSSA ÞÕOSPF Ohož

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

ê¬åž

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

o¬	
@	T
area-id	Stub ê NSSA ž
cost	*h µ* Stub ê NSSA Þ M ü 0 Ë k H ›8 y 0-16777215ož

oÞ¬å- Þ 1ož

o×X%”o- ¬å%”ož

oÞ- 14

o¬.6-o- ¥XÖ Stub ¿ABR êNSSA ¿ABR/ASBR Fõž

Stub ¿ABR êNSSA ¿ABR/ASBR —Ö Stub ê NSSA ¿s%ÞPè

LSAkÙY* **area default-cost x¥*s** LSA 0ê ž

oFåÙ- 1 y1ÞMÞÕË–å 50ož

```
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
```

o¬ÂMÞ=åP ê1ÞÕnŽstub

oeÿò- 1 y³ Stub ñ NSSA ÈÅXož
2yÈÇÅXož

oèVò- -

2.4 area filter-list

ABR —åc$Å.ož
area *area-id* **filter-list** { **access** *acl-name*| **prefix** *prefix-name*} { **in** | **out** }

HÇå
no area *area-id* **filter-list** { **access** *acl-name* | **prefix** *prefix-name*} { **in** | **out** }

oÈ®

@	T
area-id	*ž*
access *acl-name*	ACL
prefix *prefix-name*	prefix list
in | **out**	—µ |G

oÈFå- ò ABR ¡

o×X%”o- ÈFå%”ož

oÈ- 14

o¬.6-o- ¥XQ ABRgè–ÕgFåž
ÿ ABR Få$ÈÍ…ÎXož

oFåò- 1 y1Få area 1 Ã9 172.22.0.0/8 8ÈÅž

```
Ruijie# configure terminal
Ruijie(config)# access-list 1 permit 172.22.0.0 0.255.255.255
Ruijie(config)# router ospf 100
Ruijie(config-router)# area 1 filter-list access 1 in
```

oèo- -

oÈP’ò- -

oöjÖ- -

ouVÖ- -

2.5 area nssa

1%² OSPF ¿å NSSAož

area *area-id* **nssa** [**no-redistribution**] [**default-information-originate** [**metric** *value*] [**metric-type** *type*]] [**no-summary**] [**translator** [**stability-interval** *seconds* | **always**]]

ï NSSA ê NSSA Ïåž

no area *area-id* **nssa** [**no-redistribution**] [**default-information-originate** [**metric** *value*] [**metric-type** *type*]] [**no-summary**] [**translator** [**stability-interval** | **always**]]

oÖ

@	T
area-id	NSSA ož
no-redistribution	NSSA ABR xX1è NSSA UY#¥ož
default-information-originate	7 LSA µ NSSA NSSA ABR ê ASBR Ïož
metric *value*	LSA metric H8 0-16777214kÞ 1ož
metric-type *type*	LSA ož type H› 1 ê 2ož1 nP N-1z2 nP N-2ož Þ 2
no-summary	NSSA è–ÕABR) G summary LSAsgType-3 LSA hož
translator	NSSA è–ÕABR) ñož
stability-interval *seconds*	NSSA è–ÕABR) 4l• %yyaoÞ 40oÞH8y0- 2147483647 ož
always	NSSA è–ÕABR) ñ.)oÕ ñož

oÞFå- NSSA ož

oxX%”o- ”ož

oÖ- 14

o¬.6-o- @ **default-information-originate** Type-7 LSA¥¾ NSSA ABR y ASBR
ABR — CkDÿ Type-7 LSA ASBR (cž©
ABR) CkDÿ Type-7 LSA ož
@ **no-redistribution** ASBR …± OSPF * redistribute xX ñ NSSA ož

¥ª‰9 NSSA è—Õ ASBR A© ABR ž UYŠBÌû NSSAož
4%‡5šGñ NSSA ¿eÅh gLSA hÔkUY¨ ABR Få **no-summary K**
Å2V ABR g NSSA ©Ë summary LSAsgType-3 LSA hož
PÙ **area default-cost N¥** NSSA ¿ABR/ASBR dŽXFå ABR/ASBR Gñ NSSA
þ0ëÃkÕGñ NSSA hÞË 1ož
Ç‰² NSSA gÅh ABRkÕ è—Õe ABR —Õ Type-7
ô Type-5 ÊnžèÊ—Õ Type-7 ô Type-5 Êñ ABRk… **translator always**
pž
Ì—Õñ.)t¿ ABR HWk¨ **stability-interval ÅÀ5kè**
ÀÔ5k **stability-interval Ê** Type-7 Ê Type-5 LSA 1R^tžož
…2Ê Type-7 Mû Type-5 LSA 1Ì—Õ5ñ.)ey/tžè—¬
stability-interval Êž
c‰² NSSA ¿N%ªV ABR Få **translator always pž**
¨ Type-7 ô Type-5 žèê Type-5 LSA Ð Type-7 LSA G(FA)ož

oFåÞ- 1 y1¿ 1 —å NSSA ¿Ä9ë—ÕÀåž

```
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
```

oèo- … show ip ospf xXUY06ÊÈLtSÄ K 9 ¥ lð¼ ÿÂ ðÀ s&1ö-TÏ}Ä¥)xòL``ÀåB/eÑpBèE8BSÈE

area-id	*6hMõ* OSPF ZZY%à.k- UY%² IP ož
ip-address net-mask	*Mõž*
advertise | **not-advertise**	#k}bMõ
cost *cost*	**MOkH8y** 0-16777215 ož

oHFå- HÄÅMõž
HpFÅ8ož
MõÕkÃ RFC1583 ÄÇåÃ RFC1583 %"kÕÕMü
è cost ÂÄkkÕÕMõ cost ÄÇž

o×X%"o- ïFÅ%"ož

oHÕ- 14

o¬.6-o- ¥XQ ABR ÿ¦ÄkÛ%ÕÅvÕMÕ%ÕÄ*sõož
êwgQ¦ÄÕè–ÕÕ¦ÄkX¿–Õ
Q%ÚMõžvUY*—å advertise y not-advertise #ÕÕ¦ÄMÕkÜ
ñUy¦kÕÕ¦ÄoŽUY* cost #Ä-ÅMÕož
UY#ÅMÕÄXký.. OSPF ÄÕÕÄkUå
ÕÕÅž
FÅÚMõ¾wy¼NÄÄÕÕÄÂF=ÕtMÈ area range ož

oFÅÕ- 1 y1¿ 1 ÅMÕÕÄ 172.16.16.0/20ož

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.15.255 area 0
Ruijie(config-router)# network 172.16.17.0 0.0.15.255 area 1
Ruijie(config-router)# area 1 range 172.16.16.0 255.255.240.0
```

oèo- -

oÜP'Ò- 1 y]ÄÇÅ¥ area rangeož

```
% OSPF: This range in different area 1
```

oÜÕ- 1 y]ÄÇÅ¥ area range

oÜVÕ- -

2.7 area stub

1%² OSPF ¿—åÐž

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

ï;¢Fåž

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

o¢ÐÞ

¢@	T
area-id	Stub ¢ž
no-summary	Ž ABR ¤Ÿ¢ÈÈ}eèsk4ž;Jf¶¢ž ABR ÐF¢ž

oÞF¢å- ÐÄ¢ž

o×X%”o- ÐF¢%”ož

oÞÐ- 14

o¬.6-o- OSPF ;¢ÕÐ area stub xXož ABR ¢¢_eÐ(LSA)y 1h•

º 1kè—Õ LSAz2 hº 2kà LSAz3 hº 3kÐ} LSAoÞè…¶k;è—

Ÿ¢ OSPF ¢È¢ ABR ABR9020 Tc 297052036B>373<0515072C01267>Tj /TT9D>TwT

2y1 NSSA Ęå Stub ęUPjož

```
% The area is configured as NSSA area already
```

Ŵևـک 1yā—å Stub ǫž

2y1 NSSA Ęå Stub ęUPjož

оъV⓪- -

2.8 area virtual-link

OSPF Żeòž

area *area-id* **virtual-link** *router-id* [**authentication** [**message-digest** | **null**]] [**dead-interval** { *seconds* | **minimal** **hello-multiplier** *multiplier* sa/TT3T0.|

oFåb- 1 yY¿ 1 ¼>D 2.2.2.2 ¥Ze½ž

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.15.255 area 0
Ruijie(config-router)# network 172.16.17.0 0.0.15.255 area 1
Ruijie(config-router)# area 1 virtual-link 2.2.2.2
```

2yY¿ 1 ¼>D 1.1.1.1 ¥Ze½ÈÑ4¿ 10 ¥ÈÈ½Ze½è
J OSPF ÈÈ MD5ož

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.17.0 0.0.15.255 area 1
Ruijie(config-router)# network 172.16.252.0 0.0.0.255 area 10
Ruijie(config-router)# area 0 authentication message-digest
Ruijie(config-router)# area 1 virtual-link 1.1.1.1 message-digest-key 1 md5 hello
```

3yY¿ 1 ¼>D 1.1.1.1 ¥Ze½wZe½ Fast Hello k—åƒ 3ož

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.17.0 0.0.15.255 area 1
Ruijie(config-router)# network 172.16.252.0 0.0.0.255 area 10
Ruijie(config-router)# area 1 virtual-link 1.1.1.1 dead-interval minimal hello-multiplier 3
```

oè½o- 1 y… **show ip ospf virtual-links xÈÈÈÈž**

oÜP´Ìo- 1 yÈÈÈÈUPjož

```
% You can't configure virtual-link transit to backbone
```

2yª Stub ê NSSA ÈÈÈÈUPjož

```
% Area is a stub or nssa so virtual links are not allowed
```

oèjÖo- 1 yÈÈÈÈUPjož

2yª Stub ê NSSA ÈÈÈÈUPjož

oÜVÈo- -

2.9 auto-cost

—ÿÜMW_®ÈNM cost ½ž

auto-cost reference-bandwidth *ref-bw*

ÈÈž

no auto-cost reference-bandwidth

o@	@	T
ref-bw	@z Mbps %yk 8: 1-4294967

oHFå- Þ 100Mbpsož

o×X%”o- ÈF%”ož

oHõ- 14

o¬.6-o- HõOSPF NM cost ¹9W_ß@ NMkbž

… **auto-cost x** 100Mbpsož

… **bandwidth x** Mkbž

Ù OSPF NM cost ½y

64K g cost 1562z

E1 cost 48z

10M Y cost 10z

100M Y cost 1ož

ÿX **ip ospf cost NM** costk¹~$W_ß costož

oFåÙ- 1 y1 @–å 10Mož

```
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
```

oèo- 1 y… show ip ospf interface xXUY ÔFÅ@AÇjož

oUP’Ô- 1 ywÔNMW_ÿUPož

```
% OSPF: Reference bandwidth is changed.
        Please ensure reference bandwidth is consistent across all routers
```

oejÖ- -

oUVÔ- -

2.10 capability opaque

o Opaque LSA ôž

capability opaque

W Opaque LSA ôž

no capability opaque

o@ß

@	T
-	-

oHFå- Þ¤4 Opaque LSA ôž

o×X%”o- ìFå‰”ož

oHõ- 14

o¬.6-o- -

oFåÞ- 1 yW Opaque LSA ôž

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no capability opaque
```

oèo- 1 y… show ip ospf xXUYôFå Opaque LSA ôž

oÞP’Ô- -

oëjö- -

oÞVÞ- -

2.11 clear ip ospf process

ŽwMo OSPF ÞŽ

clear ip ospf [*process-id*] **process**

o@ß

@	T
process-id	OSPF iZ OSPF ÞŽ OSPF ÞŽ

oxX%”o- Ô”ož

oHõ- 14

o¬.6-o- ÿ.. OSPF ikÄDMyk+…#ó ž
ÿ4xXk}LÜeož

oFåb- 1 yžwMo OSPF † 1

```
Ruijie# clear ip ospf 1 process
```

oUP’ò- 1 yMoØž

```
%OSPF: No router process 1
```

ouVõ- -

2.12 compatible rfc1583

ó%² AS Ò)ÈÇÂÊ¥XÇJ RFC1583 …i
ó ž

compatible rfc1583

HÞ RFC1583 é

no compatible rfc1583

oÞ

@	T
-	-

oHFå- Hõ RFC1583 éž

oxX%”o- ÈFå”ož

oHõ- 14

o¬.6-o- -

oFåb- 1 y… rfc 2328 ÊÂž

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no compatible rfc1583
```

oè¤o-	1	y…	show ip ospf xXUY0K]	RFC1583 é ž
oÙP´ô-		-		
oèjö-		-		
oÙVÞ-		-		

2.13 default-information originate

D¥ôÞµ OSPF è ž

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

{¤è ž

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

oÞ@ @

default-metric åž

OSPF Ä_Ÿ 1 ÈÕÌ 2 ÈÕ

)ÿ 1 kA° 2 **show ip route Ÿ**

° 1 ;

¥XD 5 • LSA NSSA NSSA

… **area nssa default-information-originate xž**

Stub

route-map set metric H8 0-16777214 1—

oFåt- 1 yOSPF OSPF 1kO—å 50ož

```
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
```

oèo- 1 y… show ip ospf database xXUY

oUP'b- -

oÿö- -

ouVt- -

2.14 default-metric

—å OSPF Mž

default-metric *metric*

ž

no default-metric

		T
	metric	# OSPF M H8y1-16777214 ož

oHFå- ž

oxX%"o- %"

oHõ- 14

o¬.6-o- **default-metric xÀ redistribute ÈFåKkWÏ5Ð†**
ož
default-metric xÅ– default-information originate hµ OSPF ÈÜÏž

oFåÐ- 1 y1 OSPF MåÐ›— 50ož

```
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# router  ospf 1
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# default-metric 50
Ruijie(config-router)# redistribute rip subnets
```

oèo- 1 y… show ip ospf database xXUYÔMåÐož

oÜP'Ô- -

oÜjö- -

oÜVÔ- -

2.15 discard-route

ª discard ßož
discard-route { **internal** | **external** }

W2 discard ßož
no discard-route { **internal** | **external** }

oßÔ

ß@	T
internal	**ÈMüX** area range ÔÈ discard èž
external	**ÈÈMüX** summary-address ÔÈ discard èž

oHFå- ßÕ discard èž

o×X%"o- ÈFß%"ož

oHõ- 14

o¬.6-o- ¾MŽMë8ÄÜŽÃkÇGM8Ã
1ÄGÿlè—ÕŽ_Ùy¡¨ ABR ê ASBR %ÚÚ
discard ëoÿHÈÈÈÈæ

oFåÞ- 1 yW2• area range ÿ discard èž

```
Ruijie(config Î }M D A φ m l D M A T ɔ ä M ž M
Ruijie(config-router }M ɪ A M ę ʊ T γ p D ę l' D A φ m l M ʊ ɪ m l D ɪ p. M
```

oèo- 1 y… show ip route xXUYÔK discard èž

oÜP'Ôb- -

oÞÿö- -

oÞVÕ- -

2.16 distance ospf

—å• OSPF è•åož

distance { *distance* | **ospf** { [**intra-area** *distance*] [**inter-area** *distance*] [**external** *distance*] } }

Ê•åž

no distance [**ospf**]

oÞ

@	T	
distance	åÿ1-255ož	
intra-area *distance*	**H8y**1-255	ož
inter-area *distance*	—åkH8y1-255	ož
external *distance*	—ÊåkH8y1-255	ož

oHFå- Þ 110z
åyÞ 110z
åyÞ 110z
ÈåyÞ 110ož

o×X%"o- OSPF Ê%"ož

oHõ- 14

o¬.6-o-

oFåõ- 1 yFå OSPF ÈÈ 160

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# distance ospf external 160
```

oàõo- 1 y… show ip route xXUYõ ospf ãõož

oUP’îb- -

oəjö- -

ouVõ- -

2.17 distribute-list in

Fåvñ LSA ãpž

distribute-list { [*access-list-number* | *name*] | **prefix** *prefix-list-name* [**gateway** *prefix-list-name*] | **route-map** *route-map-name* | [**]TJ/T-T0 1 Tf0.0012 Tc 0.308 Tw 6..267 0 Td107|**

⚠	o	ð	LSA	ð	¢	ABR	±	o	Ty
						ABR	area filter-list	area rang

```
Ruijie(config)# access-list 3 permit 172.16.0.0 0.0.127.255
Ruijie(config)# router ospf 25
Ruijie(config-router)# distribute-list 3 in ethernet 0/1
```

oèo- 1 y… show ip route xXUYÔ3Gpž

oÙP'ô- 1 yFå—|NMož

```
% Interface is invalid.
```

2yFå—| ACL dož

```
% ACL name abc-acl is invalid
```

3yÊpž

```
% Distribute-list of "ospf 1" via "ospf 1" not allowed
```

oÊjö- -

oÙVÔ- - **2fÈÊPy™tMFåMÈÈw redistribute xÈž**

distribute-list { [*access-list-number* | *name*] | **prefix** *prefix-list-name* } **out** [**connected | ospf** *process-id* **| rip | static**]

HÞMÕèž

no distribute-list { [*access-list-number* | *name*] | **prefix** *prefix-list-name* } **out** [**connected** | **ospf** *process-id* | **rip | static**]

oÞ®

@	T
access-list-number | *name*	… acl é
prefix *prefix-list-name*	**…** prefix-list é
connected	è
ospf *process-id*	¡ OSPF è
rip	¡ RIP è
static	á

oÞFå- Þ—Få/¶ož

o×X%”o- ïFå‰”ož

oÞõ- 14

o¬.6-o- **distribute-list out** **redistribute route-map xÞkÞÞÕñ** OSPF è¡k xÛÞMÕk%² **redistribute xÞož** ACL é prefix-list é ¥Få/3+%ÊU. ACL ÉÇå prefix-list gož

oFåb- 1 y+MÕÊ¡

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# distribute-list 22 out static
Ruijie(config-router)# distribute-list prefix jjj out static
% Access-list filter exists ı please de-config first
```

oèo- 1 y… show ip ospf database xXUYÒMÕÊt3Gož

oÞP’b- 1 yMÕ¹ **gateway** ož

```
% Gateway not allowed with OUT in distribute-list cmd
```

oÞÏö- -

oÞVõ- -

2.19 enable mib-binding

1 MIB ÕÇ OSPFv2 iož

enable mib-binding

ÊÕž

no enable mib-binding

oÕ

@	T
-	-

oÊ å- MIB ÊÇ OSPFv2 iož

oxX%”o- ÈÊ å%”

oÊÕ- 14

retransmit [**IfTxRetransmit** **|** **VirtIfTxRetransmit**] | **state-change** [

	NssaTranslatorStatusChange NSSA [illegible] **RestartStatusChange** [illegible] GR [illegible] **VirtIfStateChange** [illegible] **VirtNbrRestartHelperStatusChange** [illegible] GR i[illegible] **VirtNbrStateChange** [illegible]

oHFå- [illegible] traps [illegible]

oxX%”o- [illegible]

oH[illegible]- 14

o¬.6-o- OSPFv2 i)ù4G 16 _ TRAP ’ïkã 4 _[illegible]ž

ÎkX+[illegible] **snmp-server x[illegible]** **snmp-server enable traps ospf[illegible]å**

enable traps [illegible]k+ ospf trap [illegible]GGož

ÎkXIiÇ MIB ’[illegible]icž TRAP [illegible]ž

oFå[illegible]- 1 y[illegible] OSPFv2 i 100 [illegible] TRAP [illegible]

```
Ruijie(config)# router ospf 100
Ruijie(config-router)# enable traps
```

o[illegible]o- -

oUP’Îo- -

o[illegible]o- -

o[illegible]V[illegible]- -

2.21 graceful-restart

o OSPF Restarter k—[illegible]ouÊž

graceful-restart [**grace-period** *grace-period* | **inconsistent-lsa**[illegible] **checking**

`oPMo

2.22 graceful-restart helper

o OSPF GR helper k—ãõž

graceful-restart helper disable

OSPF GR helper ož

no graceful-restart helper disable

Få OSPF GR helper "ÿ"ož

graceful-restart helper { **strict-lsa-checking | internal-lsa-checking** }

HÞFå OSPF GR helper "ÿ"ož

no graceful-restart helper { **strict-lsa-checking | internal-lsa-checking** }

o®

@	T
disable	**ÞÕ—Moož**
strict-lsa-checking	GR Helper ê o types 1-5k 7 LSA ÈGÿ kèÿ1ß GR Helperož
internal-lsa-checking	GR Helper ê o types 1-3 LSA ÈGÿ èÿ1ß GR Helperož

oHFå-

o GR Help ož

—Ó GR Helper ekò LSA ož

o×X%”o-

ÞF%”

oHõ-

14

o¬.6-o-

¥X9Få–Ó GR Help k¢D—ÕMok1G Grace-LSA *sÕD—

Ó–Ó. GR Help kñ Grace-LSA kè GR HelperkDÞMoož **disable**

GR Helpere``ð

```
Ruijie(config-router)# no graceful-restart helper disable
Ruijie(config-router)# graceful-restart helper strict-lsa-checking
```

oè¤o- 1 y… show ip ospf xXUYÔFå GR Helper ygÛž

oÙP'Îb- -

oÞjö- -

oÛVÔ- -

2.23 ip ospf authentication

FåÙMšož

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

1ÊÔž

no ip ospf authentication

`

o¤®	(@	T
	message-digest	**KPKMg** MD5 %šž
	null	**KPgšž**

oHFå- HNMÄ–ãk4ÙMÔž

o×X%"o- NMFã%"ož

oHÔ- 14

o¬.6-o- ¤XeÞe#ÔPg¢ hFšz. **no** **nullkã–**

ÙMÔ¤å–

ÙNMÔNMÔ¤ÙMÔž

oFåÙ- 1 y—å fastEthernet 0/1 ÙM OSPF Ù MD5 šž

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.1.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf authentication message-digest
```

oè¤o- -

oÙP'ïo- -

oêjÖo- -

oÙVÎo- -

2.24 ip ospf authentication-key

Få OSPF %Wož

ip ospf authentication-key [**0** | **7**] *key*

ï%Wož

no ip ospf authentication-key

oÞ

@	T
0	*6*
7	*6*
key	8 …

oÞFå- %Wož

o×X%"o- NMF%"ož

oÞÕ- 14

o¬.6-o- **ip ospf authentication-key x** OSPF %W%kV+NN

—Ø OSPF >D gÅEož

cNM%WUYF%xÄc%è–CÃ%Wož

%² OSPF FÅX **area authentication gF**

NM-UY%…NM%"FÅX **ip ospf authentication gF**

NM FÅNMož

oFÅÞ- 1 y—å fastEthernet 0/1 OSPF %W ospfauthož

```
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.1.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf authentication-key ospfauth
```

oèo- -

oUP'ô- -

oöjö- -

ouVö- -

2.25 ip ospf cost

—å OSPF NMG%ß0ëOSPF NM costhož

ip ospf cost *cost*

ëž

no ip ospf cost

oß

@	T
cost	OSPF NM0ëH8y0-65535 ož

oFå- OSPF NM cost 2ß%CeT -

oèo- … show ip ospf interface xXUYð,ÞNM cost Få

oÜP'Îb- -

oèjö- -

oÜVð- -

2.26 ip ospf database-filter all out

—åÙMgÿÙ LSA k/ÞMG LSA ¾

ip ospf database-filter all out

ñ

no ip ospf database-filter

oÞ

@	T
-	-

oÞFå- ÞÞ¼ UYÞMG`~ LSA ½

oxX%"o- NMFå‰"ož

oÞð- 14

o¬.6-o- }ŠNMG LSA ÞUYÞMGÞÞ—Îg>D

*s LSA ÞxÊ>Dy>NÊNv>DGÛ LSA 'îb ž

oFåb- 1: Š LSA ¾ 1 † fastEthernet 0/1 NMGož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.10.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf database-filter all out
```

oèo- Få… show ip ospf interface xXUYð,ÞNM(Ä Database-filter all out KÅ

oÜP'Îb- -

oèjö- -

oÜVð- -

2.27 ip ospf dead-interval

—å OSPF ť̂NM>D8ž̌@

ip ospf dead-interval { *seconds* **| minimal hello-multiplier** *multiplier* }

Ð̂Fåž

no ip ospf dead-interval

oþ̌@

@	T
seconds	ÞŔ@%y9 0-2147483647 ož
minimal	o Fast Hello k18ž̌@å 1sož
hello-multiplier *multiplier*	Fast Hello k?aUG Hello)ŕ|£8y3-20ož

oÞFå- dead-interval Þ hello-interval 4 ož

Þ̀ Fast Hello ož

o×X%"o- NMFå‰"ož

oÞ̌- 14

o¬.6-o- OSPF 8ž̌@¨ Hello ŏž̧ OSPF 8ž̌@ŸDG Hello k<s

>D—|wR>Dn|'¥D"ž̌@ hello ře 4 kŏw4 hello ž̌

kk"w8ž̌@

¥XUYW"w OSPF >D8ž̌@ßáÂÞ

%j8ž̌@9 hello ře

t 0 Tw 4.747 0 Td(8ŏ@ŏ-@E-àU4-D%4Pij)Tj

```
Ruijie(config-if-FastEthernet 0/1)# ip ospf dead-interval 30
```

2yo fastEthernet 0/1 NM Fast Hello kFå hello-multiplier 3ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.10.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf dead-interval minimal hello-multiplier 3
```

oèo- 1 yg show ip ospf interface xXUYÔ,ÈMFåD8ÈÈ

oÜP'Ô- -

oÜjÖ- 1 yc%ÇÈMFåD8ÈÈ

oÜVÔ- -

2.28 ip ospf disable all

6NMÐÿ ospf ÔÞž

ip ospf disable all

no ip ospf disable all

oÞÞ

@	T
-	-

oÞFå- NMÐÿ ospf †

oxX%"o- NMFå%"ož

oÞÞ- 14

o¬.6-o- FåXNM14 network area ÇFkFåXek/…NMK9¥ networkk-1Ð
ÿ ospf ÇGoåkNvyG`~ OSPF k-@ OSPF ož

oFåÔ- 1: —åM FastEthernet 0/1 Dÿ OSPF †

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.10.1 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf disable all
```

oèo- -

oÙP'ô- 1 y… show ip ospf interface xXUYõNMQ µ ospf gož

oèjö- -

oÙVõ- -

2.29 ip ospf hello-interval

—å OSPF G Hello ÿe

ip ospf hello-interval *seconds*

Ê-åž

no ip ospf hello-interval

oÊ [illegible] 0.0022 Tc (.)Tj03 Tc05069610411 T26B0 Tc3

oЧP'ô- -

oэjö- 1 yc%ž£MFå Hello ÷ož

oчVÞ- -

2.30 ip ospf message-digest-key

Få OSPF † MD5 %W.

ip ospf message-digest-key *key-id* **md5** [**0** | **7**] *key*

ĩ]Få OSPF † MD5 %Wož

no ip ospf message-digest-key *key-id*

oÞ

@	T
key	16 …ož
0	*6*
7	*6*
key-id	*kR* 1 ñ 255ož

oÞFå- MD5 %Wož

oxX%"o- NMFå%"ož

oÞõ- 14

o¬.6-o- **ip ospf message-digest-key** OSPF ãÞ%W%ÞV+NN

OSPF >D

cNM%WUYFå%xÄc%ÕÈ–KÃå%%WožDè

%² OSPF area authentication gFåNM-

NMFåX ip ospf authentication gFåNMFå

NMož

RGOS u4uÞ MD5 %W"wk"wk%ĩ=ó%è–Õ

OSPF MD5 %W–Õè–Õ%Wk4kã%WG

OSPF k+G>D]Få%Wož–Õå%Wek<UYĩ›

%W4ož

oFåb- 1 yfastEthernet 0/1 ÞÍ4%² OSPF %Wk%WZ 5k%W hello5ož

```
Ruijie(config)# interface fastEthernet 0/1
```

```
Ruijie(config-if-FastEthernet 0/1)# ip address 172.16.24.2 255.255.255.0
Ruijie(config-if-FastEthernet 0/1)# ip ospf authentication message-digest
Ruijie(config-if-FastEthernet 0/1)# ip ospf message-digest-key 10 md5 hello10
Ruijie(config-if-FastEthernet 0/1)# ip ospf message-digest-key 5 md5 hello5
```

2:ÄDCí%Wekß è Õ¡%Wož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# no ip ospf message-digest-key 10 md5 hello10
```

oèo- -

oUP'ò- 1 yÌFå%Wož

```
OSPF: Key 1 does not exist
```

2yMËÖFå%Wož

```
OSPF: Key 1 already exists
```

3y%xk1tì 16 …ož

```
%OSPF: Warning: The password/key will be truncated to 16 characters
```

oöjö- -

oVö- -

2.31 ip ospf mtu-ignore

ÿMvÖ+ mtu ã

ip ospf mtu-ignore

ÊFåž

no ip ospf mtu-ignore

o@	@	T
-	-

oFå- mtu gãž

oX%"o- NMFå%"ož

oö- 14

o¬.6-o- OSPF vÖ kã DNM MTU yNM MTU k ckvÖ

6PNM MTU ýNvNM MTUk;">N¤tyk4ÉUY*¢¼ MTU
ßÕž

oFåÕ- 1 y1 fastEthernet 0/1 MTU ßÕž

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip ospf mtu-ignore
```

oèÕo- -

oÙP'Ô- -

oæjÖ- -

oÙVÕ- -

2.32 ip ospf network

—NM OSPF ßÕž

ip ospf network { **broadcast** | **non-broadcast** | **point-to-multipoint** [**non-broadcast**] | **point-to-point** }

ßÕåž

no ip ospf network

oßÕ

ß@	T
broadcast	**1NMzn0ž**
non-broadcast	**1NM—** NBMA ßÕž
point-to-multipoint [**non-broadcast**]	**1NM—** P2MP ßÕž ÇNMÕnk¯k non-broadcast ßÕž
point-to-point	**1NM—** P2P ßÕž

oHFåÕ- znÿYßkz

P2P ÿPPPoSLIP oßNMo×X.25 ßNM/xz

NBMA ÿlgßNM"ßo×X.25 /xgßNM"ßz

HÖNM P2MP

P2P ÿLNM 1 + 1 ;ûž

NBMA ÿLÙkÊ–ÕN*'ož

P2MP º—}Lož

oFåb- 1 y1lÕM— P2P ` 1 + 1 ;ûž

```
Ruijie(config)# interface Serial 1/0
Ruijie(config-Serial 1/0)#ip address 172.16.24.4 255.255.255.0
Ruijie(config-Serial 1/0)# encapsulation frame-relay
Ruijie(config-Serial 1/0)# ip ospf network point-to-point
```

2y1lÕM— NBMA ` Ùož

```
Ruijie(config)# interface Serial 1/0
Ruijie(config-Serial 1/0)# ip address 172.16.24.4 255.255.255.0
Ruijie(config-Serial 1/0)# encapsulation frame-relay
Ruijie(config-Serial 1/0)# ip ospf network non-broadcast
Ruijie(config-Serial 1/0)#exit
Ruijie(config)# router ospf 20
Ruijie(config-router)# neighbor 172.16.24.2 priority 1 poll-interval 150
```

oèo- 1 y… show ip ospf interface xXUYÕFÅž

oUP'Îb- -

oəjö- -

ouVÕ- -

2.33 ip ospf priority

FåÙM OSPF iÓ

ip ospf priority *priority*

ÊÕFåž

no ip ospf priority

oÊ

@	T
priority	ÅÙ OSPF iÓH8y0-255 ož

oHFå- iÓ 1ož

oxX%”o- NMF‰”ož

oH-

xX#ÄÄDGk1M€G LSUož

49}Mnk g€kUY1Mnž–Ä%ÄÄ LSU ÍMn

ž area virtual-link xXŽe retransmit-interval ½g#ož

oFåÄ- 1 y1 fastEthernet 0/1 NM LSU ÍMnž– 10 aož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip ospf retransmit-interval 10
```

oÈo- 1 y… show ip ospf interface xXUY0FÅMnžž

oÜP'Ô- -

oÖÖ- -

oÜVÄ- -

2.35 ip ospf source-check-ignore

FÅµÈvÄÄž

ip ospf source-check-ignore

¥ÄÄÅž

no ip ospf source-check-ignore

oÄÄ

@	T
-	-

oÍFÅ- hµµÈÄž

oxX%"o- NMFÅ%"ož

oÍÄ- 14

o¬.6-o- *oÄÄOSPF vÄNvNMkč%ÅoÄµÈeÄ

y—ÅUY}Lč%Åk¨k9µµÈÄÄs=+Ä

4e OSPF kÄ<ÄÄÄs3Ä w"ÄÄ

k+9 unnumbered NMk OSPF ÄÄž

xÄkUkÄ- OSPF ÄAÈµÄ#Ä

€–cBHožk}{ÄYš OSPF >D3oy

oFåb- 1 yYFÿ1¼µpÊž

```
Ruijie(config)# interface serial 1/0
Ruijie(config-if-FastEthernet 0/1)# ip ospf source-check-ignore
```

oèo- -

oUP'Ô- -

oeÿo- -

ouVÊ- -

2.36 ip ospf transmit-delay

OSPF NMnÿ LSU ÿ

ip ospf transmit-delay *seconds*

ÊÞ½ž

no ip ospf transmit-delay

ÞÊ	Ê@	T
	seconds	# OSPF NMnÿ LSU ÿYa%ykH8y1-65535ož

oÞFåa- Þ 1 aož

oxX%"o- NMFå%"ož

oÞÊo- 14

o¬.6-o- ÿnÿ LSU $ÊÊ LSAsgeÊh Age <1ÍÓÇ¾NMFåX

ip ospf transmit-delay ÞÊMGyèÞÊ9z,ÊNM

nÊÊè LSU ÿnÿ **area virtual-link xÊè** transmit-delay ¼

pg#ož

RGOS ÊÞ+ Age ñ 3600 LSAk1gMnÊMnkÊÊÊÝ LSA 1Re

ÊÞÊÊž

oFåb- 1 y1 fastEthernet 0/1 nÊÊ– 10ož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# ip ospf transmit-delay 10
```

oèo- 1 y… show ip ospf interface xXUYôFÊbž

oÜP'Î- -

oêjö- -

oèVÔ- -

2.37 log-adj-changes

—Ê“£NÅ™

log-adj-changes [**detail**]

{“£NÅ™

no log-adj-changes [**detail**]

o¤ÊÊ

@	T
detail	**ÊÃ**

oÅFå- Ìk detail ¤@Z 4 ^ÔÿÌ

>NÅ Full Å

>NÅ• Full Å

>NÅ Down Å

>NÅ• Down ÅÅž

o×X%”o- è-Å%”ož

oÅÔ- 14

o¬.6-o- -

oFÅÔ- 1 yÊDÅÅž

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# log-adj-changes detail
```

oèo- 1 y… show ip ospf xXUYôFÅÅž

oÜP'Î- -

oêjö- -

oиVØ- -

2.38 max-concurrent-dd

Få—å OSPF čžwGA;gGÜlh>DÅkož

max-concurrent-dd *number*

ÕÅž

no max-concurrent-dd

oÞ@	@	T
	number	6wGA;>DÅK 8 1-65535

oHFå- Þ 5ož

o×X%”o- ÈFÅ%”ož

oHÕ- 14

o¬.6-o- ¤—ÕDcžAEÇkÅÕFÅXkU’Ø OSPF čžwGA;gGÜlh>DÅkož

oFÅÞ- 1 y1wGA;gGÜlh>DÅK—å 4kÅÕ>DA;ikÎ—Ø ÈžGÜ 4 >DA;kwÅXI 4 >DGÜ;k/Î—ØYcž 8 >DgA;ož

```
Ruijie(config)# router ospf 10
Ruijie(config-router)# max-concurrent-dd 4
```

oèo- 1 yg show ip ospf xXUY0ÕÅK;ož

oHP’Î- -

oÞjö- -

oиVØ- -

2.39 max-metric

Fg OSPF #è Ã3kY…è Ã SPF ÌY ñy

µ

max-metric router-lsa [**external-lsa** [*max-metric-value*]] [**include-stub**] [**on-startup** [*seconds*]] [**summary-lsa** [*max-metric-value*]]

Hƒs ož

no max-metric router-lsa [**external-lsa** [*max-metric-value*]] [**include-stub**] [**on-startup** [*seconds*]] [**summary-lsa** [*max-metric-value*]]

op

è–Õ+ûèÿOož

î OSPF ëRFC 1247 ÊÅk LSA Ê0g0xFFFF h links @ SPF k

/ÄOGÊ LSAs è–Õž

oFåÊ- 1 yFÉÅ*sÊ 100 ay

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# max-metric router-lsa on-startup 100
```

oèo- 1 y… show ip ospf xXUYÊFå max-metric ož

oÙP'Ê- -

oeÿö- -

oèVÊ- -

2.40 neighbor

OSPF >D.

neighbor *ip-address* [**poll-interval** *seconds*] [**priority** *priority*] [**cost** *cost*]

î6>Dož

no neighbor *ip-address* [**poll-interval**] [**priority**] | [**cost**]

oÊ

@	T
ip-address	ÊM IP ž
poll-interval *seconds*	>DÊYa%ykH8y0-2147483647 ož Ä NBMA ¤4Ê
priority *priority*	>DiÉH8y0-255oÄ NBMA ¤4Ê
cost *cost*	**ÊkH8y**0-65535 oÄ P2MP ¤ u4¥ž

oÊFå- ÊÄ>Dz

>DÊÊ 120 az

ž‰èDiÉÊ 0ož

oxX%"o- ÊFå"ož

oÊ- 14

oHõ- 14

o¬.6-o- *ip-address y wildcard* [illegible] OSPF [illegible]
NMg OSPFkÀNM IP network area # IP network area
IP kQNM) IP kNM1kg OSPFož
NMeÉU OSPF i network xX# IP ,Fk7Ã kGNM
@ OSPF ož

oFåb- 1 y# 3 y 0k 1k 172.16.16.0ož IP 192.168.12.0/24 8ÄNM#ð 1k1 IP ª
J 172.16.16.0/20 8ÄNM#ð 172.16.16.0k1NM#ð 0ož

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# network 172.16.16.0 0.0.15.255 area 172.16.16.0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 1
Ruijie(config-router)# network 0.0.0.0 255.255.255.255 area 0
```

oào- 1 y… show ip ospf interface xXUYÔFå network àñNMµ ospf #gz
2y… show ip ospf database xXUYÔ LSA ÊNM+ÊÊož

oUP'Ô- 1 y—| IP QÁož

```
OSPF: Invalid address/mask combination
```

oõjö-

ouVÔ- -

2.42 overflow database

Fåa OSPF ñ4 LSA Êkož
overflow database *number* [**hard | soft**]

ÊÊFåž
no overflow database

oÊ

@	T
number	LSA ÊkH8< *1-4294967294>*
hard	LSA ÊÊ¼ OSPF †
soft	LSA ÊÊGÊ

oHFå- ÊÔ OSPF ñ4 LSA Êkož

o×X%”o-	ïF‰”ož
oHõ-	14
o¬.6-o-	3ÝÝ¼ OSPF ž hard ¼ OSPFkŠž soft @
oFåb- 1	yFå LSA Ý 10 ¼ OSPF 10 bž

```
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database 10 hard
```

oèo-	-
oUP’b-	-
oïjö-	-
oVõ-	-

2.43 overflow database external

Få

w1 external-LSAo *wait-time* external-LSAož
OSPF *max-dbsize*
Full
AS-External-LSA Množ

oFåb- 1 yFå external lsa 10k overflow overflow 3
aož

```
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database external 10 3
```

oèo- -

oUP'b- -

oeJö- -

ouVb- -

2.44 overflow memory-lack

OSPF µ OVERFLOW
overflow memory-lack

OSPF µ OVERFLOW
no overflow memory-lack

oB

@	T
-	-

oFå- OSPF µ OVERFLOW

oX%"o- %"

oB- 14

o¬.6-o- OSPF µ OVERFLOW
OSPF µ OVERFLOW
OSPF NULL

ž OVERFLOW Ľ%ª·ož

ŤY… **clear ip ospf process** xXMÿÖ OSPF gkŽ OSPF OVERFLOW ůž

…

tNMêÌM IP ®ož

oFåt- 1 y1NM fastEthernet 0/1 —ÊNMk6¥M IP 1.1.1.1 t IP ®ož

```
Ruijie(config)# router ospf 30
Ruijie(config-router)# passive-interface fastEthernet 0/1
Ruijie(config-router)# passive-interface fastEthernet 0/1 1.1.1.1
```

oèo- 1 yshow ip ospf interface ÔÓ+ÊÊž

oÜP'Ô- 1 y64—|NMož

```
% Interface is invalid.
```

oæjÖ-

oÜVÔ- -

2.46 redistribute

MÊÌÊÔž

redistribute { **connected** | **ospf** *process-id* | **rip** | **static** } [**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 { **connected** | **ospf** *process-id* | **rip** | **static** } [**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*]

oÔ®

®@	T
connected	**R** MÊ
ospf *process-id*	R ospf MÊk *process-id 6* ÀÀ ospf ¥Ì8y 1-65535
rip	**R** rip MÊ
static	**R** ÉMÊ
match	**Q** FÉMÊ OSPF ž.k9ÊMÊko ÉÊ OSPF ÈMÊz
metric *metric-value*	å— OSPF external LSA metrick metric-value 6 metric ÉÍkH 8y0-16777214
metric-type { **1**	**2** }	—ÊÔ E-1 ê E-2
route-map *route-map-name*	—ÊMÊ®
subnets	**M** ÊÔ

tag *tag-value*	**ñ** OSPF tag kH8y0-4294967295

oHFå- HÕ4MõFåž
3FMõ OSPFkMõ
UKÕMõ
metric-type Þ E-2
H¼ route-mapož

o×X%”o- È%”

oHõ- 14

o¬.6-o- FXekÕ ASBRk1,µ OSPF wY type-5 LSA znõ
U OSPF è–Õž
FMõ **ospf k** match MõÝ ospf è è%}Få
match @ match @ MõMõz. no xXÊ match
Ôž
FMõkFå route-map k route-map match +Mõ=Fz+9
Mõ OSPF MõFå match ê level k route-map ož
¼ route-map set metric H8¢0-16777214> k k1—cž
redistribute xX no ¥Få
1. ò **no x**
2. ò **no x x**

oFåÛ- -

oèo- 1 y… show ip ospf database xXUY4Fåž

oUP’ò- 1 yMõòž

```
% Redistribution of "ospf 1" via "ospf 1" not allowed
```

2yNMõÅož

```
% Only classful networks will be redistributed
```

oèjò- c%² ospf gMõ

oVò- -

2.47 router ospf

ë OSPF è wµ OSPF È å‰”ož

router ospf

Ì]# OSPF è ož

no router ospf *process-id*

o þ

@	T
process-id	OSPF i Ì È ž nPFå 1ož

o Ì F å- Þ OSPF è ož

o X%”o- Ì F å‰”ož

o Ì ö- 14

o ¬.6-o- RGOS10.1 ¨ = Ê Ì i ÿ OSPF ož OSPF ¦ ÿ kUYw

ÿ g ë ož

o F å ò-

o è o- ÿ show ip ospf UY0 ñ ¦ Z ospf È è ož

o U P’ ò- 1 y—c È ñ router-id é ê ospf i—co

```
%OSPF-4-NORTRID: OSPF process 1 failed to allocate unique router-id and cannot start.
```

o ¬ j ö- -

o ¬ V Ì ö- -

2.48 router ospf max-concurrent-dd

F å—Ê OSPF è ž wGA;gGÊ Ì lh>D Ê ož

router ospf max-concurrent-dd *number*

Ê Ì å ž

no router ospf max-concurrent-dd

o þ

@	T
number	wGA;>D Ê 8 1-65535

oHFå- Þ 10ož

o×X%”o- ßFå‰”ož

oHõ- 14

o¬.6-o- ò–ÕDcžAEçkkßFåXkU’åA OSPF ¢žwG
A;gGÜIh>DÅož

oFåò- 1 y1Å OSPF ¢wGA;gGÜIh>DÅ—å 4k¥Fåõ>DA;
ikÎ—ÕÜGÜ 4 >DA;kwÕÜI 4 >DGÜ;k/Î—ÕÜ
Ycž 8 >DgA;ož

```
Ruijie(config)# router ospf max-concurrent-dd 4
```

oòo- -

oÜP’Îb- -

oÞjö- -

oÜVõ- -

2.49 router-id

å–Õ IDož
router-id *router-id*

ÎÑ–å Router IDkÊ.Þ Router IDož
no router-id

oÞõ	@	T
	router-id	Ê– IDkY IP ¥hP

oHFå- OSPF ¤# ßloopback hNM IP ßÅ–Êõ
ßå IP ßloopback hNMk;" OSPF 1#HÜM IP ßÅ
—Êõ

o×X%”o- ¤FÅ‰”ož

oHõ- 14

o¬.6-o- UYFå-%² IP ¥ Ô Ôæ?Vè Ô Ôæ?ž
9wè1k#ÄkÖÔ¥¥Ô Ôæwè Ôæ UPkG
}“wo¥ LSA $ù ê router-idož

oFåb- 1 y“wè Õ router-id 0.0.0.36ož

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# router-id 0.0.0.36
```

oèo- ÿ show ip ospf xXUY0ñ• ospf † Router-IDož

oUP’b- 1 yFå Router-ID 0.0.0.0 UP¥k- OSPF i2gož

```
% OSPF: router-id set to 0.0.0.0, process will not run.
```

2yFå router-id

```
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
iSPF algorithm executed 0 timesNumber 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
iSPF algorithm executed 0 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State is disabled ı Stability Interval expired in 00:00:03
```

<Ky

External LSA database limit	external-LSA ƒD’òž
Exit database overflow state interval	¥• overflow ÅÅž
Database overflow state	ù OSPF ikÔ overflow ÅÅž
Number of LSA originated	ÿ LSA ƒDož
Number of LSA received	Nvñ LSA ƒDož
Log Neighbor Adjency Changes	>DÅÅož
Number of areas attached to this router	¥ ÕÕž
Area type	¥Ä Defaultk Stub kNSSAož
Number of interfaces in this area	K9¥MYož
Number of fully adjacent neighbors in this area	K9¥ FuÅD•
Number	¥Hož

show ip route Pèk OSPF Ëè)ð OSPF è–Õ¾ž

oFåÞ- 1 yÞñ ABR/ASBR OSPF Ëèož

```
Ruijie# show ip ospf border-routers
OSPF internal Routing Table
Codes: i - Intra-area route, I - Inter-area route
i 1.1.1.1 [2] via 10.0.0.1, FastEthernet 0/1, ABR, ASBR, Area 0.0.0.1 select
```

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<	¢
Codes	¢VA#ož i nPÄk I nP¿ $ëž
I	nPÄëž
1.1.1.1	Pè–Õ OSPF œeož
[2]	Pè–Õ¾cost hož
via 10.0.0.1	Pè–Õ¾ž
FastEthernet 0/1	Pè–ÕMož
ABR, ASBR	Pè–ÕÄ ABR y ASBR _k UYcž® ABR y ASBRož
Area 0.0.0.1	P.¾ž
select	¾ ASBR ¼ select nP¾+ ¾ž

self-originate	₱ỹ̃ŏâĥbž
max-age	₱]ž	LSA
router	₱ OSPF è–ẽẴ̂bž
network	₱ OSPF àẴ̂bž
summary	₱ OSPF d}eẴ̂bž
asbr-summary	₱9⁄4 ASBR d}eẴ̂bž
external	₱ OSPF ÐeẴ̂bž
nssa-external	₱ OSPF ÞeẴ̂bž
opaque-area	₱ƚ LSA
opaque-as	₱% LSA
opaque-link	₱; LSA
database-summary	₱ OSPF eẴ€_ LSA îbž
detail	₱ OSPF Ä LSA ẵbž
brief	₱6º LSA d}̂bž

oӿX%”o- Ǿ”

oĦ- 14

o¬.6-o- ¢ OSPF eẴẾbz̃G:..?xXkÄ OSPF {Ł”ož

oFå- 1 y**show ip ospf database** xẸ

```
Ruijie# show ip ospf database
OSPF Router with ID (1.1.1.1) (Process ID 1)
Router Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum  Link count
1.1.1.1         1.1.1.1         2    0x80000011 0x6f39 2
3.3.3.3         3.3.3.3         120  0x80000002 0x26ac 1
Network Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum
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
```

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OSPF Router with ID	¶ OSPF e ÊÊè Õ Î OSPF +ÿZ
Router Link States	nPYÄè ÕÊÎbž
Net Link States	nPYÄèÊÎbž
Summary Net Link States	nPYÄl}èÊÎbž
NSSA-external Link States	nPYÄ+^ÈeÊ 'Î
AS External Link States	nPYÄ‡•^ÈeÊ 'ÎÊbž
Link ID	eÊž
ADV Router	*s¥ÊÊè Õž
Age	¶¥ÊÊž
Seq#	¶¥Ê~ÈÊyÊMÖ LSAož
Cksum	¶¥ÊÊÊož
Link-Count	¶è ÕÊÎeÊÊ
Route	¶4 LSA mÊ
Tag	¶¥ÊÊož

2y**show ip ospf database asbr-summary xÊÈ**

```
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
```

<Ky

<	¢
OSPF Router with ID	PY'Ì+è–Õ¤Î OSPF + ¥Z
AS Summary Link States	nPYP© AS d}eÈ'òž
LS age	P¥Ëòž
Options	#ôž
LS Type	P¥Ëòž
Link State ID	P¥Ëeõž
Advertising Router	P¥Ë*sè–Õž
LS Seq Number	P¥Ë~ôž
Checksum	P¥Ëgòž
Length	P¥ËxkY-%yož
Network Mask	P¥Ë+Ò0ož
TOS	TOS k)Ò 0ož
Metric	P¥Ë+Ò0ož

3y **show ip ospf database external xÈÈ**

```
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
```

<Ky

<	¢
OSPF Router with ID	¥PY'Ì+è–Õ¤Î OSPF + ¥Ã¤ž
Type-5 AS External Link States	nPY'Ì¤ÈeÈÎbž
LS age	¥Ÿ¥Ÿ¥Ÿž
Options	#¤ž
LS Type	¥Ÿ¥Ÿ¥Ÿ0ž
Link State ID	¥Ÿ¥Ÿ¥Ÿeõž
Advertising Router	¥Ÿ¥Ÿ¥Ÿ*sè–Õž
LS Seq Number	¥Ÿ¥Ÿ¥Ÿ~¤ž
Checksum	¥Ÿ¥Ÿ¥Ÿ¤ž
Length	¥Ÿ¥Ÿ¥Ÿ¤xkY-%yož
Network Mask	¥Ÿ¥Ÿ¥Ÿ+¤ž
Metric Type	nPÈeÈž
TOS	TOS k)¤ 0ož
Metric	¥Ÿ¥Ÿ¥Ÿ+¤ž
Forward Address	¤vOk1t¤ IP ¤ž ¤ 0.0.0.0k¤vOkt¤ ¤ž ¥Ÿ¥Ÿ¥Ÿ–Õž
External Route Tag	¤k?¤ 32 A¤ “ž OSPF ¤ OSPF ¤ž

4y**show ip ospf database network** xÈ

```
Ruijie# show ip ospf database network
OSPF Router with ID (1.1.1.1) (Process ID 1)
Network Link States (Area 0.0.0.0)
LS age: 572
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: network-LSA
Link State ID: 192.88.88.27 (address of Designated Router)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x5366
Length: 32
Network Mask: /24 ƒ ƒÀ¨`±±w=ÐW€E€“ &’ @ 0 a"é P v Cv
```

OSPF Router with ID	PY'Ĩ+è–Õ¤Î OSPF + ¡Ø¿ž
Network Link States	nPYÈ¼Ÿ¹ÎÒž
LS age	P¥Ê¼Ò¿ž
Options	#Ø¿ž
LS Type	P¥Ê¼Ò¿ž
Link State ID	P¥Ê¼Ò¿ž
Advertising Router	P¥Ê¼Ò*sè–Õ¿ž
LS Seq Number	P¥Ê¼Ò~Ø¿ž
Checksum	P¥Ê¼Ò¿ž
	P¥Ê¼ÒxkY-%yož
	P¥Ê¼Ò+Ò¿ž
	PÈ¼è–Õ¿ž

F

Flag	router ¤
LS Type	¤¥Ñ¤
Link State ID	¤¥Ñ¤eõ
Advertising Router	¤¥Ñ¤*sè–Õ
LS Seq Number	¤¥Ñ¤~Ø
Checksum	¤¥Ñ¤ÛÛ
Length	¤¥Ñ¤xkY-%y
Number of Links	¤¥–Ø¤
Link connected to	¤eÑ¤kYCè
(Link ID)	eõ
(Link Data)	eÉ
Number of TOS metrics	TOS kQ4 TOS0
TOS 0 Metrics	TOSoOè

6y**show ip ospf database summary xÈÈ**

```
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
```

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<	¢
OSPF Router with ID	PY'Ì–è–Õ¢Ì OSPF + ¤Ø
Summary Net Link States	nPYdÞèÑÎ
LS age	¤¥Ñ¤
Options	#¤
LS Type	¤¥Ñ¤
Link State ID	¤¥Ñ¤eõ
Advertising Router	¤¥Ñ¤*sè–Õ
LS Seq Number	¤¥Ñ¤~Ø
Checksum	¤¥Ñ¤ÛÛ

Length	[illegible]
Network Mask	[illegible]
TOS	TOS k)Q 0ož
Metric	[illegible]

7y**show ip ospf database nssa-external xRÈ**

```
Ruijie# show ip ospf database nssa-external
OSPF Router with ID (1.1.1.1) (Process ID 1)
NSSA-external Link States (Area 0.0.0.1 [NSSA])
LS age: 1
Options: 0x0 (*|-|-|-|-|-|-|-)
LS Type: AS-NSSA-LSA
Link State ID: 20.0.0.0 (External Network Number For NSSA)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x033c
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
NSSA: Forward Address: 100.0.2.1
External Route Tag: 0
```

<Ky

<	¢
OSPF Routesith ID	[illegible] OSPF + [illegible]
NSSA-extesnal Link States	[illegible]
LS age	[illegible]
Options	[illegible]
LS Type	[illegible]
Link State ID	[illegible]
Advertising Routes	[illegible]
LS Seq Number	[illegible]
Checksum	[illegible]
Length	[illegible]
Network Mask	[illegible]
Metric Type	[illegible]
TOS	TOS k)Q 0ož

Network Mask	[illegible]

o@ |

@	T
process-id	OSPF iZ
interface-type	*6NMÔž*
interface-number	*6NMÔž*
brief	*Ñldž*

oxX%”o- Ô”

oÔ- 14

o¬.6-o- 4xXUYÞ„?NMg OSPFkYC?NMæ OSPF ,¼ÔÔž

oFÔ- 1 yÞ OSPF ÔMM’Ôž

```
Ruijie# show ip ospf interface fastEthernet 0/1
FastEthernet 0/1 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
```

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<	¢
FastEthernet 0/1 State	ÔMÔUP ÔoWÔDown ¢ ÞÔž

Cost	OSPF NM0Ëž
Transmit Delay is	OSPF NMnÿž
State	DR/BDR Ëž
Priority	¥NMi¯
Designated Router(ID)	¥NM DR è–Õœ
DR's Interface address	¥NM DR NMª
Backup designated router(ID)	¥NM BDR è–Õœ
BDR's Interface address	¥NM BDR NMª
Time intervals configured	NM+• HellokDeadkWait kRetransmit ž
Hello due in	) HELLO Gž
Neighbor count	>DÈ
Adjacent neighbor count	Full >DÐ
Crypt Sequence Number	ÎNM+• md5 šZ
Hello received send	vGß HELLO ÿž
DD received send	vGß DD ÿž
LS-Req received send	vGß LS Lÿÿž
LS-Upd received send	vGß LS ÿÿž
LS-Ack received send	vGß LS ÿÿž
Discard	t' OSPF ÿž

oÙP'Î-

-

oÙVÿ-

-

2.54 show ip ospf neighbor

ÞP OSPF >Dn

show ip ospf [*process-id*] **neighbor** [**statistics** | { [*interface-type interface-number*] | [*neighbor-id*] | [**detail**] }]

oÞ

Ø	T
process-id	OSPF iZ
detail	**PÞÎž**
interface-type interface-number	*ÞMÐÎž*
neighbor-id	*ÞÐÎž*
statistics	**PÞÎž**

oxX%"o-

Ø"

o-- 14

o¬.6-o- ¥XUYP>D'ÎkœXÛ• OSPF ¢]Zogož

oFåb- -

oUP'Îb- -

oVb- -

2.55 show ip ospf route

P OSPF èž

show ip ospf [*process-id*] **route** [**count |** *ip-address mask*]

o--

@	T
process-id	OSPF iZ
count	P OSPF ê
ip-address mask	**P6ÜQÊ**

o×X%"o- Ô"

o-- 14

o¬.6-o- ¥X9P OSPF êkcount #9P OSPF êž

oFåb- 1 yP OSPF èž

```
Ruijie# show ip ospf route
OSPF process 1:
Codes: C - connected, D - Discard, B – Backup, O - OSPF,
IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
E2 100.0.0.0/24 [1/20] via 192.88.88.126, FastEthernet 0/1
B                       via 192.88.89.126, FastEthernet 0/2
C  192.88.88.0/24 [1] is directly connected,FastEthernet 0/1,Area 0.0.0.1
```

<Ky

<	

100.0.0.0/24	[illegible]
[1]	[illegible] cost
via	[illegible]

oUP'ô- -

ouVO- -

2.56 show ip ospf spf

P OSPF [illegible]

show ip ospf [*process-id*] **spf**

o[illegible]

[illegible]	T
process-id	OSPF iZ

o¤X%"o- [illegible]

o[illegible]- 14

o¬.6-o- ¥X[illegible] OSPF ¿ 30 [illegible]

oFa[illegible]- 1 yP OSPF [illegible]

```
Ruijie# show ip ospf 1 spf

OSPF process 1:
Area_id        30min_counts    Total_counts
0              32              1235
1              6               356
```

[illegible]

<	[illegible]
Area_id	OSPF ¿ ID
30min_counts	Â 30 [illegible] OSPF [illegible]
Total_counts	[illegible] OSPF [illegible]

oUP'ô- -

ouVO- -

2.57 show ip ospf summary-address

ÞP OSPF ÄÜ5ÊMê

show ip ospf [*process-id*] **summary-address**

o@ÞÞ

p@	T
process-id	OSPF iZ

o»X%”o-

Ôø”

oÞÕ-

14

o¬.6-o-

)¥XÓQ NSSA ABR ÿÞÕÊQÎÜqè ž

oFåÞ- 1 yÞ OSPF ÄÜ5ÊMêž

```
Ruijie# show ip ospf summary-address
OSPF Process 1, Summary-address:
172.16.0.0/16, Metric 20, Type 2, Tag 0, Match count 3, advertise
```

<ÞKy

<	¢
Summary Address	MÞ
Summary Mask	MÞož
Advertise	ÇÞMê
Status	¥ÞÇÿ
Aggregated subnets	ÊÈÊMÞLµ

oÜP´Ô-

-

oÜVÞ-

-

2.58 show ip ospf virtual-links

Få OSPF ßÑÕž

summary-address *ip-address net-mask* [**not-advertise** | **tag** *value* | **cost** *cost*]

ÎÙØož

no summary-address *ip-address net-mask* [**not-advertise** | **tag** | **cost**]

op@

Ê Fåž

no timers pacing lsa-group

o@	@	T
	seconds	LSA ÁÁ%kH8: 10-1800 k%yyaož

oHFå- 30 a

o×X%”o- ïFå%”

oHõ- 14

o¬.6-o- ? LSA CÞLSA age) kÞ 1800 až}gMÝ…23o LSA *
sÞõž? LSA CÞg LSA ÿk1Þ CPU Ï
oÄÄ CPU k1—Ó LSA ÁÁ¡ož f%ÁÁe
kÁ1%ÁÁe LSA ÁÁ%ž
¨ LSA Þ%ÁÁÁÁÁ LSA ÞÁÁ4 CPU lk
?)Ê LSA ÞÁÁÞ LSA ÞÁÁ5ÁÁÁÁ 10000
Ú LSAkUYz5ÁÁ 40½ 100 kÉUY²…ñ 10~20 ÁÁ

oFåÞ- 1 y15ž–å 120 aož

```
Ruijie(config)#router ospf 20
Ruijie(config-router)#timers pacing lsa-group 120
```

oÀo- 1 y… show ip ospf xXUYÞFå LSA ÁÁ%ž

oÞP’Þ- -

oÞÿÞ- -

oÞVÞ- -

2.62 timers pacing lsa-transmit

Få LSA ^ \ ‘ ^ ˜ ‘A

timers pacing lsa-transmit *transmit-time transmit-count*

Ê Fåž

no timers pacing lsa-transmit

oHFå- ¨ RGOS 10.4 Î§ku4 **timers throttle spf x** **timers spf** 5 10ož
RGOS 10.4 Î§ku4 **timers throttle spf x** **timers spf x** SPF
ž **timers throttle spf x** **timers throttle spf x**

o×X%”o- ïFå%”ož

oHõ- 14

o¬.6-o- *spf-delay y spf-holdtime* OSPF k-<k
xk)è–Ø CPU ož
timers spf Få **timers throttle spf Få;ž**

oFåb- 1 y1 OSPF ÿ4– 3 y 9 aož

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 3 9
```

oèo- 1 y… show ip ospf xXUYÔFå SPF ož

oUP’Îb- -

oÞÿö- -

oHVÔ- -

2.64 timers throttle lsa all

Få LSA ÿ¶což
timers throttle lsa all *delay-time hold-time max-wait-time*

Ôåž
no timers throttle lsa all

oÞ

@	T
delay-time	LSA ÿ%à LSA ÿ› 8y0-600000 k%yyDa
hold-time	2)ó LSA 8y1-600000 k %yyDa
max-wait-time	LSA k)ó LSA -© LSA 8y1-600000 k%yyDa

oHFå- hÕ)

delay-time y 0 Daz

hold-time y5000 Daz

max-wait-time y5000 Daož

o×X%”o- ïFå‰”ož

oHõ- 14

o¬.6-o- +eÂÅLÈ delay-time UYFåozeÈ CPU ßUYÌ

äž

FåXÈhold-time ¾49 delay-timekmax-wait-time -¾49 hold-timeož

oFåb- 1 yFÕ 10mskhold-time 1skÂÈ 5sož

```
Ruijie(config)# router ospf 1
```

[redacted]

oèo- 1 y… show ip ospf xXUYÕFå LSA ÂÈ-wait-time

	Nvñ LSA ¨ ia-delay	
ase		
ase-delay	0-600000ožOSPF Nv LSA ¨ ase-delay	

oHFå- Hõ)
ia-delayy 0 Daz
ase-delayy 0 Daož

o×X%”o- ïFå%”ož

oHõ- 14

o¬.6-o- ÈÈÈÈk…áUož
è9ÝoÈÈÈÈU²…,ÈÈÈÈÕ
ož

oFåb- 1 y1 OSPF è 1 akFåž

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# timers throttle route inter-area 1000
```

oèo- 1 y… show running-config ÕFåž

oUP’Îb- -

oÈÈÈÈ- -

oUVõ- -

2.66 timers throttle spf

Få OSPF Nvñkg SPF ÈÈ SPF ÂÈÈÈ
ož
timers throttle spf *spf-delay spf-holdtime spf-max-waittime*

ÕFåž
no timers throttle spf

oõ

@	T
spf-delay	# SPF ÈYDa%ykH8y 1-600000ožOSPF

	èNvrÃ¶G SPF 5}¨ spf-delay ¤e ¤gož
spf-holdtime	#) SPF ‘$•Â ¤eY D a %y k H ¤8 y 1-600000ož
spf-max-waittime	#) SPF ‘$•Ã¤eY D a %y k H ¤8 y 1-600000ož

oÞFå- *spf-delayy*1000 Daz
spf-holdtimey 5000 Daz
spf-max-waittimey 10000 Daož

o×X%”o- è-Å%”ož

oÞõ- 14

o¬.6-o- *spf-delay n*ÿ SPF k5}ÿ%¾G SPF ¶)¢G
SPF ÂÿÈ *spf-holdtimek* 4ekÈ SPF ÿ%¾È
kÿÈ *spf-max-waittime* ¶k1ÿ SPF ¶¶¶LÂ
4k;" SPF ¶¶MR *spf-holdtime* ¶ž
spf-delay y *spf-holdtime* ¶¶¶ *spf-max-waittime* ¶¶ SPF k
UYÿ¶¶¶¶—åž
timers spf x¶Ak¶¶¶¶¶ SPF ¶v;¶kAUY"È
¶¶4 SPF ¶¶¶P<… **timers throttle spf x¶Fåž**
1. spf-holdtime ¶49 spf-delaykké spf-holdtime ¶1t—å spf-delay ,ž
2. spf-max-waittime ¶49 spf-holdtimeké spf-max-waittime ¶1t—å spf-holdtime ,ož
3. timers throttle spf Få timers spf Få;,~$ož
4. ¢ timers spf timers throttle spf CÈFå ¶k¶@ timers throttle spf Få .›

oFåÞ- 1 y1 OSPF SPF ¶¶¶¶¶ 5 Dao¶1000 Dao¶90000 Daoš
"¶¶é SPF ¶¶
5msk1s k3s k7s k15s k 31sk63s k89s k 179sk 179+90

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# timers spf 5 1000 90000
```

oèo- 1 y… show ip ospf xXUYÞFå SPF ¶ož

oÞP´Þ- 1 yÞFå max-wait-time A hold-time 4¶ož

```
% Warning: max-wait-time should be no less than hold-time, set to (5).
```

2yÞFå hold-time A delay-time 4¶ož

```
% Warning: hold-time should be no less than delay-time, set to (5).
```

oeÿö- 1 yFå hold-time A delay-time 4ß max-wait-time A hold-time 4ož

ouVÖ- -

2.67 two-way-maintain

o OSPF Eg¢Ó
two-way-maintain

W OSPF Eg¢Ó ož
no two-way-maintain

o®®	@	T
	-	-

oÞFå- Ìo OSPF Eg¢Ó ož

oxX%”o- ÌFå%”ož

oÞÖ- 14

o¬.6-o- ÖUkÖ¥VGk)â CPU yÄ-ÈÈÄ
’kò Hello ÖÈkÖ-+►NÖžEg¢Ókò
ÓÌk”4 Hello kÖD DDo•LSUo•LSRo•LSAck ÞÓ¢D
Egk®9 Hello ®>Dâož

oFåÞ- 1 yW OSPF Eg¢Ó ož

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# no two-way-maintain
```

oòo- 1 y… show ip ospf xXUYÖFÈg¢Ókoož

oÞP’Ìb- -

oeÿö- -

ouVÖ- -

3 OSPFv3

3.1 area authentication

o OSPFv3 š

area *area-id* **authentication ipsec spi** *spi* [**md5 | sha1**] [**0 | 7**] *key*

¼ OSPFv3 ž

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

o

@	T
area-id	ž ¿UY6%²..%² IPv4 ž
spi	8 256-4294967295ož
md5	**J** MD5gmessage digest 5 h%”ož
sha1	**J** SHA1gSecure Hash Algorithm 1 h%”
0	*6*
7	*6*
key	%W

o- ž

o X%”o- %”

o- 14

o¬.6-o- RGOS ^UYu4_%

}L

MD5 %”z

SHA1 %”ož

OSPFv3 F MjgZ kxS MF ož

oF 1 yOSPFv3 1 J MD5 MX aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaož

```
Ruijie(config-router)# area 1 authentication ipsec spi 300 md5 aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
```

o o- -

oUP’ 1 y E4¥ spiož

```
% OSPFv3: SPI is already in use.
```

2y%}ÆE4¥ spiož

```
% OSPFv3: SPI is already in use by others.
```

3y[illegible]¥ spiož

```
% OSPFv3: Area is already configured with the same SPI.
```

4y[illegible]%Fåž

```
% OSPFv3: Area is already configured with encryption so cannot configure authentication.
```

oöjö- -

oVö- -

3.2 area default-cost

¨ Stub ¿ ABR —XkÛ Stub V_ož

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

ž

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

@	T
area-id	Stub **8526FA6EA09F125BBF01-Tf0.0024 Tc 1.247 0 0 134Stub**

oUP'ô- 1 yEXkUPjož

```
% You can't configure default-cost to backbone
```

2y³ Stub EXkUPjož

```
% The area is neither stub
```

oojö- 1 yEXkUPjož

2y³ Stub EXkUPjož

ouVô- -

3.3 area encryption

o OSPFv3 %ož

area *area-id* **encryption ipsec spi** *spi* **esp [null |** [**des** | **3des | aes-cbc [128 | 192 | 256]**] [**0 | 7**] *des-key* **]** [**md5 | sha1**] [**0 | 7**] *key*

¼ OSPFv3 %ož

no area *area-id* **encryption**

oÞ

@	T
area-id	*ž* UY6%²..%² IPv4 ož
spi	256-4294967295ož
null	**J** null %%"ož
des	**J** DES(Data Encryption Standardk %%%"ož
3des	**J** 3DES(M DES)%%"ož
aes-cbc[128 | 192 | 256]	**J** AES-CBC(Advanced Encryption Standard-Cipher Block Chainingkä %%%AèN)%%"k6%%Wx† 128,192,256 Aož
des-key	ož
md5	**J** MD5gmessage digest 5 h%"ož
sha1	**J** SHA1gSecure Hash Algorithm 1 h%"
0	**6**
7	**6**
Key	

oFå- %ož

oxX%"o- E%"

oHõ- 14

o¬.6-o- RGOS ÂUYu4y

- _%ÿDES %%”z3DES %%”zAES-CBC %%”ož
- 8_$MD5 %”zSHA1 %”ož

OSPFv3 F%ÈÈ¥MÏ¡gZÈÙkxÙMF%È¯ož

oFåÙ- 1 yOSPFv3 è¿ 1 J null %y MD5 ÈÈMX aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaož

```
Ruijie(config-router)# area 1 encryption ipsec spi 300 esp null md5 aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
```

oèo- -

oÙP’Ìb- 1 yÎ%¾Æ4¥ spiož

	÷sož

oÈFå- È#MÈ

o×X%”o- È-%”

oÈõ- 14

o¬.6-o- ¥XQ ABR ¡kÛ%ÈÈ%É*sÈÛgÂ
wgQ¿ÈÈè—ÕÕ¿ÈÂx¿—Ó¿%ÉÚ
MÈõwUY*—å advertise y not-advertise #ÈÂpMÈkÈÛy¡
kÈgÈpoÈUY* cost #È4åMÈož
UY#ÈÈÚxXký.. OSPF ÈÈÈÈkUã
ÈÈåž
FåÚÈw¾NÈÈÈÈÈÂF=ÈtMÈ area range ož

oFåÈ- 1 y+¿ 1 ÈMÚ

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# area 1 range 2001:DB8:1:2::/64
```

oÈo- -

oÈP’È- 1 yÈMÚÚž

```
% Can't find specified area range.
```

oÈÚÚo- -

oÈVÈ- -

3.5 area stub

%² stub È—å stub È—åž
area *area-id* **stub** [**no-summary**]

È—È stub È—åž
no area *area-id* **stub** [**no-summary**]

oÈ

È@	T
area-id	stub È—ž È—Y6%²...È%² IPv4 È—ž

	no-summary	stub ¿ ABR ABR 3 LSA şñ stub 3 LSAož

oHFå- È# stub ¿

oxX%”o- ÈFå%”

oHõ- 14

o¬.6-o- %ÊÊ…ÈHBÈUY1¥ stub stub ÃÕÀ
ü **area stub xÈ** stub 1.ñ AS È(type 5 LSAs) È
È(È) È MÈ stub È ÕÊÈ
Rò4g OSPFv3 #È
¨ stub ¿ ABR È 3 LSA şñ stub È stub È
—ÕUYñ AS È
È Få totally stubg¶ stubhÈ ABR È **area stub xÈ** **no-summary** È
ož

oFåò- 1 ystub ¿ 10 ABR È stub È

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# area 10 stub
Ruijie(config-router)# area 10 stub no-summary
```

oòo- … show ipv6 ospf xXUY0FåÄ stub KÅ

oUP’ò- 1 yFåXÈUPjož

```
% You can't configure stub to backbone
```

2yStub FåÈUP}ïzòFåòž

```
% First deconfigure all virtual link through this area
```

Ŵ ﻟﻜ 1yFåXÈUPjož
2yStub FåÈUP}ïzòFåòž

oVò- -

3.6 area virtual-link

%ZNõ—ÅNòÈ
area *area-id* **virtual-link** *router-id* [**hello-interval** *seconds*] [**dead-interval** *seconds*] [**retransmit-interval** *seconds*] [**transmit-delay** *seconds*] [**instance** *instance-id*] [**authentication ipsec spi** *spi* [**md5 | sha1**] [**0 | 7**] *key*] [**encryption ipsec spi** *spi* **esp null** [**md5 | sha1**] [**0 | 7**] *key*]

	des-key %%W **md5** 6 md5 %” **sha1** 6 sha1 %” **0** 6%WY% **7** 6%WY% *key* %W

oF-å- #Z Nož

hello-interval 10 aož

dead-interval hello-interval ož

retransmit-interval 5 aož

transmit-delay 1 aož

authentication ož

encryption ož

3.7 auto-cost

oÇkgNMÎÊwkk@ž

auto-cost reference-bandwidth *ref-bw*

ÇkgNMÎÊwkk@ž

no auto-cost reference-bandwidth

o@	@	T		
	reference-bandwidth *ref-bw*	*k@Y*	Mbps %yož	1-4294967ož

oÇkg@NMÎkk@ 100Mbps

oxX%”o- ÈF‰”

oÈ- 14

o¬.6-o- … **no auto-cost reference-bandwidth 1ÊÊ@ž**

ÌUY*ÌNMF‰”ğxX **ipv6 ospf cost 6NMÊÊÇkk@**

Êož

oF‰- 1 y“wkk@ 10My

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# auto-cost reference-bandwidth 10
```

oè- 1 y… show ipv6 ospf interface xXUYÎÊ@AKjož

oUP’Ò- 1 ywÌNMW_ÉUPož

```
% OSPFv3: Reference bandwidth is changed.
Please ensure reference bandwidth  is consistent across all routers
```

oejÖ- -

ouVÎ- -

3.8 clear ipv6 ospf process

…¥XŽwMo OSPFv3 ‡ž

clear ipv6 ospf [*process-id*] **process**

op@ p@

2ož

oxX%”o- ÈF%”ož

oH- 14

o¬.6-o- **redistribute default-information** OSPFv3 è–Õ ASBRg^è —Õož

x© **redistribute w*sË** OSPFv3 ASBR

À **default-information originate gFož**

always OSPFv3 D*s JÈož

al [<0AE

o[illegible]	[illegible]	T
	metric-value	*M[illegible]Dož* 8 1-16777214k[illegible] 20

o[illegible]å- [illegible] 20

o×X%”o- [illegible]%”

o[illegible]- 14

o¬.6-o- ¥Xc **redistribute x[illegible]Dož¥[illegible]**
default-information originate x[illegible]
M[illegible]+[illegible]M[illegible]+[illegible]. 20 [illegible]Dož

oFå[illegible]- 1 yF[illegible] metric 10y

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# default-metric 10
```

o[illegible]o- -

oUP’[illegible]- -

o[illegible]- -

o[illegible]V[illegible]- -

3.11 distance

—å[illegible] OSPFv3 [illegible]ož

distance { *distance* | **ospf** { [**intra-area** *distance*] [**inter-area** *distance*] [**external** *distance*] } }

[illegible]ž

no distance [**ospf**]

o[illegible]

oHFå- Þ 110z

yÞ 110ož

yÞ 110ož

yÞ 110ož

oxX%”o- F%”

oHõ- 14

o¬.6-o- 3}6 OSPFv3 c 4xXož

OSPFv3 i gAûž

• f ú À H P • q

Úè P öÎo¬ … 6 - c ð Œt M q(Œt 3Ö ÿ j ¨o¬ … 6 - c ð Œt M q(Œt 3ÖuU`Š0z&úÀHP• s`bÐ•V0 (q% - f q† qŒ)F,• - d=•V0Ÿ ÛàbÐ% r>“Ù V p\ &I‘É Q

oHFå- Ìå.è

oxX%”o- ÈF%”

oHõ- 14

o¬.6-o- +vñ LSA ÚkÉÓÓ6ožkÊÊÊk+

>Dò-kDÿ~ÊÊACL ý prefix-list Få/3+6N

M… ACL ÉÇXMFå prefix-list gpž

ÊÊkÊ LSA ÒÒÒkÇ}¨ ABR FÊÊ LSA Q

ÀYÊÊÊÊ LSA ÚÚsk1-ÒÒÒY¨ ABR

… **area range k not-advertise ÊÊÊÊž**

oFåÚ- 1 yFÊÊ 2001::/64 Êpož

o@ |

@	T
name	… ACL é
prefix-list *prefix-list-name*	**…** prefix-list é
connected	**è**
ospf *process-id*	**¡** OSPF è
rip	**¡** RIP è
static	**á**

oH-å- Få ospf è ž

o×X%”o- F%”

oH- 14

o¬.6-o- **distribute-list out** **redistribute route-map x** **OSPFv3** è
x M k%² **redistribute x** ACL é prefix-list é
/3+%U. ACL é å prefix-list g ž

oFa- 1 y+M é¡

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# distribute-list prefix-list jjj out static
```

oo- -

oUP’b- -

oj- -

oV- -

3.14 enable mib-binding

1 MIB OSPFv3 iož

enable mib-binding

ž

no enable mib-binding

[redacted]

	IfConfigError	**NMEpa**
	IfRxBadPacket	**NMNvjt**
	VirtIfConfigError	**NMEpa**
	VirtIfRxBadPacket	**NMNvjt**

state-change x0GA`

graceful-restart [**grace-period** *grace-period* | **inconsistent-lsa-checking**]

¼ OSPFv3 GR Ê Mou Ê ož

no graceful-restart [*grace-period*]

op

@	T
grace-period *grace-period*	**Få** GR Mou Ê Mou Ê OSPFv3 ã OSPFv3 Mow ã Mo Ê ož *grace-period* 1-1800 akt 120 sož
inconsistent-lsa-checking	**Ÿ ož ÿ 10** GR è ož o GR ekt yož p ` Ÿ Ÿ Wa xF'D Ê x0 w:

oöjö- -

ouVö- -

3.17 graceful-restart helper

o OSPFv3 GR helper k—ažž
graceful-restart helper disable

OSPFv3 GR helper ož
no graceful-restart helper disable

Få OSPFv3 GR helper "ÿ"ož
graceful-restart helper { **strict-lsa-checking | internal-lsa-checking** }

HFå OSPFv3 GR helper "ÿ"ož
no graceful-restart helper { **strict-lsa-checking | internal-lsa-checking** }

oö@ @ T
disable

oFåb- 1 yW2 OSPFv3 † 1 GR ÿCè“wyè E

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# graceful-restart helper disable
Ruijie(config-router)# no graceful-restart helper disable
Ruijie(config-router)# graceful-restart helper strict-lsa-checking
```

oèo- 1 y… show ipv6 ospf xXUYÔFå GR Helper ygÅž

oUP’ò- -

oÞjö- -

oÞVÔ- -

3.18 ipv6 ospf area

—åNM@ OSPFv3 è ž

ipv6 ospf *process-id* **area** *area-id* [**instance** *instance-id*]

HÞFåž

no ipv6 ospf *process-id* **area** [**instance** *instance-id*]

oÞ

@	T
process-id	ospf iZ 8 1-65535ož
area *area-id*	**NM** OSPFv3 ¿ž ¿UY6%²…¶%² IPv4 ÕÞž
instance *instance-id*	ÞÔ OSPFv3 }gFå 8 0-255ož

oÞFå- NMò OSPFv3 è

o×X%”o- NMFå%”

oÞÔ- 14

o¬.6-o- UYNMFå%”k¯…îkXoNM@ OSPFv3kÇ **ipv6 router ospf Få** OSPFv3 ik Få OSPFv3 iekNM1@ž

… **no ipv6 ospf area xKNM1@** OSPFv3 ož

… **no ipv6 router ospf xÄMC@** OSPFv3 ož

Ä *instance-id cÕyOž*

FÅXekNMÕC1@ OSPFv3 gož

oFÅ- 1 yNM fastethernet 0/0

oHõ- 14

o¬.6-o- RGOS ÂUYu4_$
}LkÄÄ
MD5 %”z
SHA1 %”ož

OSPFv3 ¢

oFåÙ- 1 yOSPFv3 NM%”J MD5 ÄÄX aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaož

```
Ruijie(config-if)# ipv6 ospf authentication ipsec spi 300 md5 aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
```

oèo- -

oÙP’ò- 1 yÎ%¾Æ4¥ spi ož

```
% OSPFv3: SPI is already in use.
```

2y%¾Æ4¥ spi ož

```
% OSPFv3: SPI is already in use by others.
```

3yÑNM]Æ¾¥ spiož

```
% OSPFv3: Interface is already configured with the same SPI.
```

4yNM]Æ¾%Fåž

```
% OSPFv3: Interface is already configured with encryption so cannot configure authentication.
```

oêjÖ- -

oÙVÕ- -

3.20 ipv6 ospf cost

—åMW_ož

ipv6 ospf cost *cost* [**instance** *instance-id*]

Ñž

no ipv6 ospf cost [**instance** *instance-id*]

oÑ

@	T
cost	*MWož* 8 1-65535ož
instance *instance-id*	**NMÔ** OSPFv3 }gFå8 0-255ož

oHFå-	HNM0ÊBandwidth gÊ 100Mbpshož
o×X%”o-	NMFå%”ož
oHÕ-	14
o¬.6-o-	HÕOSPFv3 NM0Ë 100Mbps/Bandwidthk¿ Bandwidth NMkk*NMFå X bandwidth g—åž Ù OSPFv3 HNM0Ë 64K gÊcost 1562z E1 Êcost 48z 10M YÊcos 64KcoYÊco_0 1 Tf0 Tc 2.23.5<09DE092Ebandwidth

instance *instance-id*	MÔ OSPFv3 }gFå8	0-255ož

oHFå- ò Fast Hello k>D8@ hello Ge 4 ož

i ¬ hello ¶ ¢

oxX%”o- NMFå‰”

oHõ- 14

o¬.6-o- >D8@>DG hello ož

o OSPFv3 Fast Hello 1, OSPFv3 Gè>Dkw½y>Dåož 6 **minimal y**

hello-multiplier ½y *multiplier* k@ OSPFv3 Fast Hello ož **minimal** ½18@

1sk**hello-multiplier** 6ãG Hello]ký Hello Ge 1s YÄož

NMo Fast Hello kRMM*s Hello † hello-interval <kt—å 0kRMMNv

Hello † hello-interval <ktož

i Fast Hello L dead-interval minimal hello-multiplier hello-interval ¢

η ŭ Ĭ ㎡ Fast Hello k>DNM$k>D8@%ôž **hello-multiplier** ‰

k 5 1 Hello /Uož

… **show ipv6 ospf interface** xX**NMFå** Fast Hello ož

oFåù- 1 y—åM>D8@ 60sy

```
Ruijie(config)# int fastethernet 0/0
Ruijie(config-if)# ipv6 ospf dead-interval 60
```

oèo- 1 yg show ip ospf interface xXUYÔ,MFåD8@

oUP'ò- 1 yFå dead 49 hello ŽJPož

```
% Warning: OSPFv3 dead interval should be higher than hello interval
```

1y Få hello Çå fasthelloož

```
% OSPFv3: Hello interval configured with hello-interval.
```

oojò- 1 yc%ÇMFåD8@

oVù- -

3.22 ipv6 ospf encryption

o OSPFv3 NM%ôž

ipv6 ospf encryption [**null | ipsec spi** *spi* **esp [null |** [**des** | **3des | aes-cbc [128 | 192 | 256]**] [**0 | 7**] *des-key* **]** [**md5 | sha1**] [**0 | 7**] *key*] [**instance** *instance-id*]

ɫ¼ OSPFv3 NM%ǒž

no ipv6 ospf encryption [**instance** *instance-id*]

oþ@

@	T
null	*g%*
spi	ɓB 256-4294967295ož
null	ǿž
des	**J** DES(Data Encryption Standardk Ǥ%Ǒ%”ož
3des	**J** 3DES(M DES)%%”ož
aes-cbc[128 | 192 | 256]	**J** AES-CBC(Advanced Encryption Standard-Cipher Block Chainingkä %Ǒ%AêN)%%”k6%%Wx† 128,192,256 AǑž
des-key	ǜž
md5	**J** MD5%Ǒ%Ab%Ě{y)Ǐ%8H_(0 1 Tf0.0067 Tc 2.9 0 Td(Ǩ)Tj/TT4 1 Tf0060B4D>Tj/TT0 1 Tf-0.0008 Tc

```
% OSPFv3: SPI is already in use by others.
```

3yNM]Fa¥ spi ož

```
% OSPFv3: Interface is already configured with the same SPI.
```

4yNM]Fa%ož

```
% OSPFv3: Interface is already configured with authentication so cannot configure encryption.
```

oöjö- -

oVö- -

3.23 ipv6 ospf hello-interval

—ůMG Hello ož

ipv6 ospf hello-interval *seconds* [**instance** *instance-id*]

Ôž

no ipv6 ospf hello-interval [**instance** *instance-id*]

op

@	T
seconds	*G* Hello ož 8 1-65535(a)ož
instance *instance-id*	**NMÔ** OSPFv3 }gFå 8 0-255ož

oÙP'Î- 1 yÙ¶ÙP

```
% OSPFv3: Hello interval configured with hello-multiplier.
```

oÞÏ- -

oÙV¶- -

3.24 ipv6 ospf mtu-ignore

ÑMvÞ¶ÙY¿ MTU ¤ž

ipv6 ospf mtu-ignore [**instance** *instance-id*]

ÊÞ¶¤ž

no ipv6 ospf mtu-ignore [**instance** *instance-id*]

oÞ®

®@	T
instance *instance-id*	ÑÔ OSPFv3 }gFå 8 0-255ož

oÞFå- ÞÞ MTU g¤ž

o×X%"o- NMFå%"ož

oÞÊ- 14

o¬.6-o- OSPFv3 vÞ¶ÙÙDNM MTU yÑNM MTU ¤¿ckÞ¶Ù

6P>DNM MTU ÝÑNvNM MTUk;">NÊÞyozÙY*¿¼

MTU ¤ž

oFå¤- 1 yYFÞ1 ethernet 1/0 MTU ¤ž

```
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ipv6 ospf mtu-ignore
```

o¤o- -

oÙP'Î- -

oÞÏ- -

oÙV¶- -

3.25 ipv6 ospf neighbor

ŒWFå OSPFv3 >Dož

ipv6 ospf neighbor *ipv6-address* [**cost** *cost* | [**poll-interval** *seconds*] [**priority** *value*]] [**instance** *instance-id*]

Ê½ž

no ipv6 ospf neighbor *ipv6-address* [**cost** *cost* | [**poll-interval** *seconds*] [**priority** *value*]] [**instance** *instance-id*]

o½®

¢@	T
cost *cost*	¥Ÿ¼…Mñ costk8 1-65535ož ¥(point-to-multipoint) õ4¥¾
poll-interval *seconds*	ÐÐ¥¼k8 1-2147483647ožznà (NBMA)õ4¥³ž
priority *value*	¼¼8 0-255ožznà(NBMA)õ 4¥³ž
instance *instance-id*	MÔ OSPFv3 }gFå8 0-255ož

oÊFå- ¼Ÿ>Dz

>Dy½P 120 az

³znàDiÝP 0ož

o×X%”o- NMFå‰”ož

oÊõ- 14

o¬.6-o- -

oFåõ- 1 yYF¼—å OSPFv3 >Dk IPv6 ª 2001:DB8:4::1kiÓ 1kœe 150 aož

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ipv6 ospf neighbor 2001:DB8:4::1 priority 1 poll-interval 150
```

oào- -

oÙP’ò- 1 y³ NBMA and point-to-multipoint ÈåDož

```
% Neighbor command is allowed only on NBMA and point-to-multipoint networks.
```

2y6>D© ipv6 eêž

```
% OSPFv3: Neighbor address needs to be a link-local address.
```

oeÿö-	FÅÀM³+NM	IPV6 eèž
ouVÐ-	-	

3.26 ipv6 ospf network

—ÅÀMèž

ipv6 ospf network { **broadcast | non-broadcast** | **point-to-point | point-to-multipoint** [**non-broadcast**] }
[**instance** *instance-id*]

[illegible]

oèo- 1 y… show ipv6 ospf interface xXUY0Fåž

oUP'ô- -

oejö- -

ouVô- -

3.27 ipv6 ospf priority

—åMiõž

ipv6 ospf priority *number-value* [**instance** *instance-id*]

Êž

no ipv6 ospf priority [**instance** *instance-id*]

oÞ

@	T
number-value	*Miõ* 0-255ož
instance *instance-id*	**NMÔ** OSPFv3 }gFå8 0-255ož

oHFå- iÕ 1ož

oxX%"o- NMFá"

oHõ- 14

o¬.6-o- ¢nè# DR/BDR(6è–Õ ê6è–Õož DR/BDR # ki¯
ä–Ûe DR ê BDRkçckRouter-ID ä–Ûiē DR ê BDRož
iõ—Ûl@ DR/BDR # ož

oFåb- 1 yÞ…NM¨ DR/BDR # kÇ DR ê BDRy

```
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ipv6 ospf priority 0
```

oèo- 1 y… show ipv6 ospf interface xXUY0FåMiõž

oUP'ô- -

oejö- -

ouVÎ- -

3.28 ipv6 ospf retransmit-interval

—åMG LSA Množ

ipv6 ospf retransmit-interval *seconds* [**instance** *instance-id*]

Êož

no ipv6 ospf retransmit-interval [**instance** *instance-id*]

o@ê

@	T
seconds	G LSA Množ 8 1-65535(a)ož
instance *instance-id*	+NMÔ OSPFv3 }gFå 8 0-255ož

oHFå- 5 a

o×X%”o- NMFå%”

oHõ- 14

o¬.6-o- 4ŝnUKÉDG LSA ÈC}åDGožYÇ¿ÈÈ
ÎkX—åDGkÈÈÈA-cÈk1Mn LSA ’Îož

oFåÎ- 1 yÈ9—åMn LSA že 10sy

```
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ipv6 ospf retransmit-interval 10
```

oèo- 1 y… show ipv6 ospf interface xXUYÎFåMnže

oUP’Î- -

oejÖ- -

ouVÎ- -

3.29 ipv6 ospf transmit-delay

—åMn LSA ž

ipv6 ospf transmit-delay *seconds* [**instance** *instance-id*]

ž

no ipv6 ospf transmit-delay [**instance** *instance-id*]

o

@	T
seconds	*G* LSA ž 8 1-65535(a)ož
instance *instance-id*	**NMÔ** OSPFv3 }gFå 8 0-255ož

o- 1 a

o X%”o- NMFå%”

o- 14

o¬.6-o- -

o- 1 y 9—åMnÿ LSA ÿ

```
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ipv6 ospf transmit-delay 2
```

o- 1 y… show ipv6 ospf interface xXUY ž

o P’ò- -

o ò- -

o V- -

3.30 ipv6 router ospf

ø OSPFv3 ž

ipv6 router ospf [*process-id*]

	8 1-65535

oHFå- Þ 10 ož

oxX%”o- ßFå%”ož

oHõ- 14

o¬.6-o- ò—ÕDcžAEçGkßFåXkU’åA OSPFv3 è
žwGA;gGÑIlh>DÿKož

oFåò- 1 yßÄ OSPFv3 èžwGA;gGÑIlh>DÿK—å 4kFå
|ÿ>DA;ikî—ÕGÜ 4 >DA;kwÕXI 4 >DGÜ
A;k/î—ÕYcž 8 >DgA;y

```
Ruijie(config)#ipv6 router ospf max-concurrent-dd 4
```

oèo- -

oUP’ò- -

oeÿö- -

ouVõ- -

3.32 log-adj-changes

—ÕÕ’£NÕÕ
log-adj-changes [**detail**]

¼—ÕÕ’£NÕÕ
no log-adj-changes [**detail**]

oõ

@	T
detail	ßÕÕ

oHFå- Hk detail kÕÕ 4 7^ÿ
>NÕI Full ÕI
>NÕ• Full ÕI
>NÕI Down ÕI
>NÕ• Down ÕÕ

oxX%”o- è-Fâ‰”ož

oHõ- 14

o¬.6-o- -

oFåb- 1 yYFÿ1ÿÊDÊÊž

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# log-adj-changes detail
```

oèo- 1 y… show ipv6 ospf xXUYÔFÊÊž

oUP’Îb- -

oeÿö- -

ouVÔ- -

3.33 max-concurrent-dd

—å OSPFv3 è¤vGA;gGÊÊlh>DÊÊož

max-concurrent-dd *number*

ÊÊFå

no max-concurrent-dd

opÊ

@	T
number	*wÊÊÊ* 1-65535

oHFå- Þ 5ož

oxX%”o- è-Fâ‰”ož

oHõ- 14

o¬.6-o- è—ÕDczÀEçGkÊÊFâXkU’Ô OSPFv3 è¤v GA;gGÊÊlh>DÊÊož

oFåb- 1 yÊÊ OSPFv3 è¤vGAgGÊÊlh;>DÊÊ—å 4kFå

|ÿ>DA;ikî—ÕGÜ 4 >DA;kwÕXI 4 >DGÜ

A;k/î—ÕYcž 8 >DgA;y

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# max-concurrent-dd 4
```

oèo- 1 yg show ipv6 ospf

oè¤o- 1 yshow ipv6 ospf interface 0+Ù½ž

oÙP'ô- 1 y64—|NM

```
% Interface is invalid.
```

oÞÿö- -

oÙVÕ- -

3.35 redistribute

oÙMÕk1ÿÜèêñ OSPFv3 è¤ž

redistribute { **connected** | **ospf** *process-id* | **rip** | **static** } [**match** { **internal | external** [**1 | 2**] **} | metric** *metric-value* **| metric-type** { **1** | **2** } | **route-map** *route-map-name* | **tag** *tag-value*]

HÞwMÕ¤ž

no redistribute { **connected** | **ospf** *process-id* | **rip** | **static**} [**match** { **internal | external** [**1 | 2**] **} | metric | metric-type** } | **route-map** *route-map-name* | **tag** *tag-value*]

oÞ®

®	T
connected	*ÙÕ*
ospf *process-id*	*R* ospf MÕk *process-id 6* À ospf kH8y 1-65535
rip	*R* rip MÕ
static	*ÙÕ*
match	*ÙÕ* OSPFv3 è.k9ÿMÕy internalyÀ external [1|2]yE1 oE2 Ùè
metric *metric-value*	å— OSPFv3 external 2 LSA metrick metric-value 6 metric ¼k H8y0-16777214
metric-type {*1* | *2* }	*Ù* E-1 ê E-2
route-map *route-map-name*	**MÕ¤ž** map-tag dÝ 32 …ož
tag *tag-value*	*ÙÕñ* OSPFv3 è tag kH8y0-4294967295

oÞFå- ¤

metric-type Þ 2

MÕ OSPFv3 kÞMÕÿ OSPFv3 è

Þ¼ route-mapož

oxX%"o- è-%"ož

oHõ- 14

o¬.6-o- ¢–Õ44ÉÉk_#$;,`%ºM}Äož–Õ%ÿgÚ
ÿkÀ%#'ÎMÈÈP%#bžÈÈC©ož
M6 OSPFv3 #ÈÈeÈå *match* kÒ@M6 OSPFv3 kÀ+ÿ
ÕM6ÈÄ OSPFv3 ož
ÈÄ route-map set metric H8¢0-16777214> kÈÈk1—cÀž
redistribute xX no ¥Fÿ
4. ò no xX6?ÈÈ?ÈÈå
5. ò no xX6`~ÈÈ…xXÎož

oFåb- 1 yM6+kwÈÄ route-map testy

oõõ®

¢@	T
router-id	ÕÕõ … IPv4 ªnPož

oHFå- OSPFv3 ë# ëloopback hNM IPv4 ÕÕõ
ÕÕå IPv4 ëloopback hNMk¸" OSPFv3 i1#HÏÏÕM IPv4 ÕÕ
è-Ôõ

o×X%"o- ëFÕ%"ož

oHõ- 14

o¬.6-o- ?Vg OSPFv3 i—ÕÀ.%² Router ID ÕõUYFå-%² IPv4 ÕÕ—
Ô-Ôx©Ô®Vè-Ô-Ôk¸%³V—ÕÚ
OSPFv3 ik-Ôiè-Ôož
hè-Ôõ3k#ÏkÕÕÕÕÕÕÕÕÕÕwè-Ôõ
kUP®G}"wož OSPFv3 iekõñ Router IDkFå OSPFv3 iÏUõõ

oFåõ- 1 yõ9—å-Ô OSPFv3 gœ 1.1.1.1y

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# router-id 1.1.1.1
```

oèo- ë show ipv6 ospf xXUY0ñ• ospf i Router-IDož

oUP'Îb- 1 yFå Router-ID 0.0.0.0 UPÕk- ospfv3 i2gož

```
% OSPFv3: router-id set to 0.0.0.0, process will not run.
```

2yFå router-id y¿ router-id MÕž

```
% OSPFv3: router-id %r is in use by process %s
```

oõjö- -

oUVõ- -

3.37 show ipv6 ospf

ïP OSPFv3 i'Îbž

show ipv6 ospf [*process-id*]

oõõ®

¢@	T
process- id	ospf iZ

oxX%”o- Ee%”

oHõ- 14

o¬.6-o- -

oFåõ- 1 yP OSPFv3 i'Î

```
Ruijie# show ipv6 ospf
Routing Process "OSPFv3 (1)" with ID 1.1.1.1
Process uptime is 24 minutes
Enable two-way-maintain
SPF schedule delay 5 secs, Hold time between SPFs 10 secs
Initial LSA throttle delay 0 msecs
Minimum hold time for LSA throttle 5000 msecs
Maximum wait time for LSA throttle 5000 msecs
Lsa Transmit Pacing timer 40 msecs, 1 LS-Upd
Minimum LSA arrival 1000 msecs
Pacing lsa-group: 30 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
BFD 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
```

È ‡ ¼... ¨ χ

<	¢
Routing Process "OSPFv3 (x)" with ID A.B.C.D	OSPF iÿZ OSPF Router ID
Process uptime	Î OSPF iÿrouter-id 0.0.0.0 ž iÿnož
Enable two-way-maintain	o OSPFv3 EgÓ
SPF schedule delay	vm SPF ÿz
SPF Hold time	) SPF $5}Ó

Initial LSA throttle delay	ÿ LSA Âž
Minimum hold time for LSA throttle	) SPF $Âže
Maximum wait time for LSA throttle	) SPF $Âže

	Type-4 LSA—Inter-Area-Router-LSA Type-5 LSA—AS-External-LSA Type-8 LSA—Link-LSA Type-9 LSA—Intra-Area-Prefix-LSA
Link State ID	LSA eÖ ID
ADV Router	LSA *sè
Age	LSA ž
Seq#	LSA ~Ç
CkSum	LSA ù
Prefix	Type-8 LSA `k ipv6 ÞÐ

```
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, 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
```

È ‡ ½... ¾ χ

<	₫

oЧP’ĵ-

oчV0- -

3.40 show ipv6 ospf neighbor

P OSPFv3 i>D’ĵž

show ipv6 ospf [*process- id*] **neighbor** [*interface-type interface-number* [**detail**] | *neighbor-id* | **detail** | **statistics**]

o@ @

@	T
process-id	OSPFv3 iZ
detail	*Dž*
interface-type interface-number	*6Nž*
neighbor-id	**6D** Router IDož
statistics	*Dĵž*

o×X%”o- Ô”

oĦ- 14

o¬.6-o-

oFåt- 1 yô OSPFv3 >Dd}’Î

```
Ruijie# show ipv6 ospf neighbor
OSPFv3 Process (1) , 1 Neighbors, 1 is Full:
Neighbor ID  Pri  State     Dead Time   Interface         Instance ID
2.2.2.2      1    Full/DR   00:00:33    FastEthernet 1/0  0
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
```

È ɹ ٪... ǥ χ

<	₵
OSPFv3 Process (1) , 1 Neighbors, 1 is Full:	iK>Dkfull

DR	>Dè–Ñ DR NMÞ/ Hello † DR <)
BDR	>Dè–Ñ BDR NMÞ/ Hello † BDR <)
Options	Hello ŧÜ#Ä¼
Dead Time due in	ÞÞb¥D—|ž
Database Summary List	>D DD ¨ŧ
Link State Request List	>D LS Ьŧ
Link State Retransmission List	>DMnŧ

oЬPˆÎb- **-**

oнVÞ- -

3.41 show ipv6 ospf restart

Þ OSPFv3 GR ,ŷÎbž

show ipv6 ospf [

o»X%”o- Ô”

oÑõ- 14

o¬.6-o-

oFåò- 1 yô OSPFv3 ê

```
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 2Destination          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
```

È ‡ ¼.. ö χ

oHõ- 14

o¬.6-o- -

oFåb- 1 yP OSPFv3 ?"¬ŷ

```
Ruijie# show ipv6 ospf topology
OSPFv3 Process (1)
OSPFv3 paths to Area (0.0.0.0) routers
Router ID        Bits  Metric     Interface            Next-Hop(router/address)
1.1.1.1            B   --
2.2.2.2           EB   1          GigabitEthernet 0/6   2.2.2.2/fe80::21a:a9ff:fe41:5b06

OSPFv3 paths to Area (0.0.0.1) routers
Router ID        Bits  Metric     Interface            Next-Hop(router/address)
1.1.1.1          V B   --
2.2.2.2          VEB   1          GigabitEthernet 0/6   2.2.2.2/fe80::21a:a9ff:fe41:5b06
```

È ‚ ¼... ¨ χ

<	¢
OSPFv3 paths to Area	+¥¬ŷ
Router ID	-µ–Ôæ
Bits	-µ#¾¼
Metric	¥¶Ð
Interface	¶ÑM
Next-Hop(router/address)	¶%é

oUP'ĵb- -

oHVÐ- -

3.45 show ipv6 ospf virtual-links

P OSPFv3 iZêbž

show ipv6 ospf [*process- id*] **virtual-links**

oÞ®	@	T
	process- id	OSPFv3 iZ

o×X%"o- Ô"

oHõ- 14

o¬.6-o-

oFåò- 1 yP OSPFv3 ZêÊ

```
Ruijie# show ipv6 ospf virtual-links
Virtual Link VLINK1 to router 1.1.1.1 is up
  Transit area 0.0.0.1 via interface FastEthernet 0/1, instance ID 0
  Local address 2001::2/128
  Remote address 2001::1/128
  Transmit Delay is 1 sec, State Point-To-Point,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
        Hello due in 00:00:08
        Adajcency state Full
```

È ‡ ½... ¨ χ

<	¢
Virtual Link VLINK1 to router	PZèDYCÊ
Transit area	PZèÿ
via interface	PZèM
Local address	ZêMª
Remote address	ZèêMª
Transmit Delay	PZèÿ
State	ZNè
Timer intervals configured	ZNÈ, Helloo•Deado•Retransmit
Hello due in	¾(%)G Hello È
Adjacency state	ZN>DÊ

oÙP'Ô- -

oÙVÕ- -

3.46 summary-prefix

Få OSPFv3 ÈÙMõž

summary-prefix *ipv6-prefix/prefix-length* [**not-advertise** | [**tag** *number*] [**cost** *cost*]]

ÊÕ-åž

[redacted]

[redacted]

[redacted]

no timers lsa arrival

		T		
arrival-time		LSA	0-600000	1000

	14 s U R V

oH-	14
o¬.6-o-	? LSA C LSA age) k 1800 a gM …23o LSA * s ? LSA C g LSA CPU Ï ož 4 CPU k1— LSA f% LSA

o¬.6-o- Ë LSA ÇÓ— ÕÓF-å¢ **transimit-time y transimit-count Ù**
rd LS-UPD ÇÒož
CPU >ãÙ>Ý4 **transimit-time Í transimit-count Ù ož**

oFåÙ- 1 yFåÙM? 50ms G%ÿ LS-UPD Ì?)€G 20 Ùž

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# timers pacing lsa-transmit 50 20
```

oèo- 1 y… show ipv6 ospf xXUYÔFÊÓÉž

oÙP'Ô- -

oeÇÖ- -

oÙVÔ- -

3.50 timers spf

Få OSPFv3 ÌvÙÔkg SPF ÉYC) SPF ÉÓž
timers spf *spf-delay spf-holdtime*

ÕÓFåž

oHõ- 14

o¬.6-o- [illegible]

oFåb- 1 y1 OSPFv3 è 1 akFåž

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# timers throttle route inter-area 1000
```

oèo- 1 y… show running-config ôFåž

oUP'Îb- -

oÈjö- -

oVõ- -

3.53 timers throttle spf

Få OSPFv3 Nvñîkg SPF ÿ) SPF ÂÿÿX

oz

timers throttle spf *spf-delay spf-holdtime spf-max-waittime*

ÊFåž

no timers throttle spf

o®	@	T
		pr[illegible]

spf-delay

oH6-	14			
o¬.6-o-	*spf-delay nB*	SPF k5}ž%}G		SPF 8)G
	SPF Ave	*spf-holdtimek*	4ekG	SPF 59%}ze

o@	@	T
-	-

oHFå- o OSPF Eg

o×X%”o- F%”

oH- 14

o¬.6-o- UkVGk) CPU y

Hello 8 -+ N Eg k

Hk”4 Hello D DDo•LSUo•LSRo•LSAck DE

gk 9 Hello D>D ž

oFå- 1 yW OSPF Eg ož

```
Ruijie(config)# ipv6 router ospf 1
Ruijie(config-router)# no two-way-maintain
```

oà- 1 y… show ipv6 ospf xXUY F Eg k ož

oUP’b- -

oj- -

oV- -

4 RIPNG

4.1 clear ipv6 rip

Ž RIPng ěž

clear ipv6 rip

op	@	T

oHFå-	MEÐÞ	1	
o×X%”o-	ïF‰”		
oHõ-	14		
o¬.6-o-	¥X}ëFåX iž9cëÐÕÕÕÐ›—cÈoœÕÕ}#M ãè	**redistribute FòXPÕÕMãñ** RIP ëpoÿMã%ëiž#ÕkRIPng	RIP è 1…

o¬.6-o- RIPng è–ãk4xXož

oFåb- 1 yFå RIPng è 160

```
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# distance 160
```

oèo- … show ipv6 rip UYÔ

oUP'ô- -

oejö- -

ouVÔ- -

4.4 distribute-list

… prefix-list n+/

oè¤o- … debug ipv6 rip interface 0¦¢Ä

oÞP'ô- -

oÞjö- -

oÞVô- -

4.5 graceful-restart

Få–Õ RIPng iÊMo(Graceful Restart kGR)ož

graceful-restart [**grace-period** *grace-period*]

ÊÅaž

no graceful-restart [**grace-period**]

oÞ®

@	T
graceful-restart	*oiÊMo*(Graceful Restart kGR).
grace-period	**Få** grace-period
grace-period	å– GR MouÊÊ8 1-1800 aož Ê¼ 2 y 60s ¤ož

oÞFå- Þ.. GR Restart ož

o×X%"o- è¯Få‰"ož

oÞô- 14

o¬.6-o- iÊMoÂ RIPng Fåc RIPng ÞÊÊ¢Ê¢ž
iÊMouÊ RIPng Moñ RIPng ÞÊMoÂÊ<ÊnÓMoô
Gnkwg RIPng ÊÊk… RIPng ÊÊMoÊÊMouÊkRIPng 1ß
GR ÊÊg¯ RIPng qoož
graceful-restart grace-period ÞwMouÊÊkÊÊ RIPng è–|ÊÄ
è GR MokwÊÊ RIPng ÊÊ–ÊU—cÊMoiÊ6
kÊÊMouÊ>Dè–|kè–|Ê GRkÄ
Mg>D*sè>Dè–|Ê<26k-Ê6oÊ"Ê
Ìkkè.iÊMouÊÊ..kÊ **timers xÊÊGMouÊè**
Ê49Êž
¨ RIPng iÊMogik4Êž

oFåb- 1 y… RIPng GR YCFå GR Mouj@

```
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# graceful-restart grace-period 90
```

… show ipv6 rip ou gr ky,F grace-period

-

-

-

rip default-information

Dy%ó IPv6 ñ RIPngož

ipv6 rip default-information { **only** | **originate** } [**metric** *metric-value*]

fěž

no ipv6 rip default-information

oèo- … show ipv6 rip interface ÔNM default-information FÁ

oUP'Î-

oïÿ-

oVÐ-

4.7 ipv6 rip enable

…NMµ RIPng gož

ipv6 rip enable

HÎNMg RIPngož

no ipv6 rip enable

o@

@	T
-	-

oFå- ÁNMg RIPng

o×X%"o-

NMFÅ"ož

oÐ-

14

o¬.6-o- ¥X9—@ RIPng #gNMoÈÅX$kÁg RIPng #kÈÅX kg RIPng #ož

oFÅ- 1 y1NM ethenet 0/0 µ RIPng gož

```
Ruijie(config)# interface ethernet 0/0
Ruijie(config-if)# ipv6 rip enable
```

oèo- ÿ show ipv6 rip interface UY0ñ RIPng NM

oUP'Î-

oïÿ-

oVÐ-

4.8 ipv6 rip metric-offset

—åNMÎ›ož

ipv6 rip metric-offset *value*

Hƒ•—åž

no ipv6 rip metric-offset

o@ê

@	T
value	*NMÎ›kÿ*1-16 ož

oHÎ-å- NMÎ›ó 1

o×X%”o- NMFå‰”

oHõ- 14

o¬.6-o- ìÌè metric }NM—ÎÛožUY*—åNMÎ›ê
…ož

oFåÎ- 1 y1NM ethernet 0/1 NMÎ›—å 5ož

```
Ruijie(config)# interface ethernet 0/1
Ruijie(config-if)# ipv6 rip metric-offset 5
```

oèo- … show ipv6 rip database UYÎNMêÏX+•—å

oÙP’Î-

oêjÏ-

oÙVÎ-

4.9 ipv6 router rip

ë RIPng ìwÎFå‰”ož

ipv6 router rip

í RIPng êož

no ipv6 router rip

o®

@	T
-	-

oHFå- Ž RIPng ëg

o×X%”o- ßFå%”

oHõ- 14

o¬.6-o- ¥X9ë RIPng ìvßFå%”ož

oFåb- 1 yë RIPng ìxßFå%”ož

```
Ruijie(config)# ipv6 router rip
```

oèo- … show ipv6 rip 0ßy

oUP’b- 1 y¢ ipv6 %nbğFå

```
IPv6 unicast-routing not enabled, RIPng process can't configure
```

oeÿo- -

ouVõ- -

4.10 passive-interface

H¥%NMGbž

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

MoGbž

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

o®

@	T
default	ßM passive %”
interface-type interface-num	*MZ*

oHFå- ÄM—å passive %”ož

o×X%”o- ëFå%”ož

oHõ- 14

o¬.6-o- **passive-interface default** xX ïÑM å- passive %”k žU Y… **no passive-interface** *intface-type interface-num* xÑ³ passive %”ož

oFåd- 1 y—å ethernet0/0 YÑM passive %”ož

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

oèao- … show running-config ÔKFå

oUP’ò- 1 yFÑMcõ¨

```
% Interface is invalid.
```

oöjö- -

ouVõ- -

4.11 redistribute

1ÑMñ RIPng Ä

redistribute { **connected | ospf** *process-id* **| static** } [**metric** *metric-value* | **route-map** *route-map-name*]

H,ÑMFåž

no redistribute { **connected | ospf** *process-id* **| static** } [**metric** *metric-value* | **route-map** *route-map-name*]

opõ

@	T
connected	**RÑM**
ospf *process-id*	**R** OSPF Mk*process-id* *nP* OSPF iZH8 1-65535
static	**RÑM**
metric *metric-value*	—åMñ RIPng ®
route-map *route-map-name*	—åMè

oHFå- ÑMè
ÄÑ—å **default-metric** **metric ó** 1ož
ó—å **route-map**ož
ÑM6ÄÑž

oxX%”o- ïFå%”

oHõ- 14

o¬.6-o- …¥X1ÈÊMÈñ RIPng ož
ÑMÈk1%ªÈÊÈP%²_ªÈÊÈkªÈÑ
ÈÊÈoÈRIP ÈÊÈOSPF ÈkkªÈÊÈ
ÈÊÈAÈž
FÈÑÈÈk}ÈRIPÈñ RIPngož

oFÈb- 1 yRÈÑÈk…È *mymap gkÈÈ–* 8ož

```
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# redistribute static route-map mymap metric 8
```

oèo- … show ipv6 rip database ÈMÈFÈÈÈ rip ÈÈž

oÈP'Îb- -

oèjö-

oèVõ- -

4.12 show ipv6 rip

ÈÈixÈP%RÈÈ

```
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
Distance: 120 (default 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
```

È ‡ ½... ¨ χ

<	¢
Sending update	G¾¢
Sending update	¾
garbage	¥
Outgoing update filter list	¾ê¡
Incoming update filter	¾Å¡
Default redistribution metric	¼¾¢
distance	’¾
Redistribution	M¾è‘
Default version control	¼GÎ
Interface	µ RIPng NM
Routing Information Sources:	ê

oЧP’ô- -

oиV¾- -

4.13 show ipv6 rip database

¾ RIPng è_¾ôž

4.14 split-horizon

o RIPng ůõž
split-horizon

okůõž
split-horizon poisoned-reverse

Hĺkůõž
no split-horizon poisoned-reverse

o@	@	T
	poisoned-reverse	**okůõž**

oH-å- HNMokůõž

o×X%”o- ě-%”

oHõ- 14

o¬.6-o- ¤ůõUY…2—ÕPěR.ňěNM*sßzkůõ
ůõPěR.ňěNM*sßkxÕ• *metric* å– 16ož
RIPng ěK9ůgOěkÿnůõÕ RIPng ©o4
ůõUY **show ipv6 rip xgÕož**

RIPng RIPng J uUU è î G

14

14

V56-o-

4.15 timers

²·· RIPng ŽJož

timers *update invalid flush*

Ê-åž

no timers

o@	@	T
	ŽÃož	update #4—Ã¾Ê?N
update	vÃ¼ invalid y flush ŽJ<ÿoŽ?œ 30 aG%¾¾	
	ož	

oЧP'ô- -

oœjö- 1 yc—Ôå timer %ý-òož

oиVÖ- -

5 NSM

5.1 clear ip route

}ž¶èkÙYÔ”ï **clear ip route xxž**

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

oÞ

p@	T
*	ž¶Ù
network	ž¶Ù
netmask	*gÙ*ÞÞ*P.* network ÂFè èž¶Ù

o×X%”o-

Ô”

oÑ-

14

o¬.6-o-

ž¶Ù+èÀÇèM•oÞ…èk1-è

…à¶•ož

oFåÞ-

ž¶ 192.168.12.0 ÂFèÙž

```
clear ip route 192.168.12.0
```

oÙP’Ô-

-

oÙVÞ-

-

5.2 ip default-gateway

o×X%”o- ßFå%”ož

oÞõ- 14

o¬.6-o- Fêÿ¢Dÿ* **default-network** ÿÿÿÿ
ÿÿMÿxÿÿÿ
Hÿ“*” ÿnPÿÿÿÿÿ connected ÿÿ%ê
kÿÿÿÿ

oFåÿ- 1 ÿ1 192.168.100.0 ÿ–ÿÿFÿÿÿ—ÿÿDÿ%ÿÿž

```
Ruijie(config)# ip route 192.168.100.0 255.255.255.0 serial  0/1
Ruijie(config)# ip default-network 192.168.100.0
```

2ÿ1 200.200.200.0 ÿ–ÿÿÿ 200.200.200.0 ÿkÿÿž

```
Ruijie(config)# ip default-network 200.200.200.0
```

oÿo- U… show ip route ÿHÿž

oÿP’ÿ- -

oÿÿÿ- -

oÿVÿ- -

5.4 ip route

Fêÿž

ip route *network net-mask* { *ip-address* | *interface* [*ip-address*] } [*distance*] [**tag** *tag*] [**permanent**] [**weight** *number*] [**description** *description-text*] [**disabled** | **enabled**]

ÿ]Fêÿž

no ip route *network net-mask* { *ip-address* | *interface* [*ip-address*] } [*distance*]

êÿå

default ip route *network net-mask* { *ip-address* | *interface* [*ip-address*] } [*distance*]

oÿÿ

ÿ@	T
network	ÿÿ
net-mask	ÿÿ
ip-address	*gÿÿÿÿ*p-address y interface 5}6%ÿk

	6ož ip-address knPFÅòž
interface	*gu* ož ip-address y interface 5}6%k 6ož interface knPFÅ M %ě#Ěož
distance	*gu* 1ož
tag	*gu* Tag kÞ 0ož
permanent	*gu* *ž
weight *number*	*gu* kÞ 1ož
description *description-text*	**gu** **k** *description-text* 16%0 ……ož
disabled/enabled	*gu* *k* enabledož

oFå- —ž

o×X%”o- ¤Fž”ož

oõ- 14

o¬.6-o- 1k*—kUY$

.ž—UYk4%²

Afò OSPF 110kUY1—å 125k

OSPF GvOÀUY

1kUY… **show ip route weight x** @ weight

9ë WCMP k Gv

Ok weight 1 WCMP ’%²

32k EÕ_./ 4 ckÑ¿ WCMP ’ è

$y ož

.ò–|k9G k Ê nk”³à

’ k %¹ ož

}*Y MFÅ@9%ÈNNMgò ip route 0.0.0.0 0.0.0.0 GigabitEthernet

0/0hoÿ• ÕÈC€ GigabitEthernet 0/0 NMk ?)Ñ

G%² ARP Ł kk)ÉCPU yÏ %²¹ÈN6gY Mož

UY6Å track track + track +

track + ož

track 9ï track + ož Track permanent

;ož

UY6Å arp arp +•ÈM arp

%ÈM+• arp

arp permanent ;ož

track arp …kQ.%²_ož

oFåb- 1 y¼%ÉÜ 172.16.100.0/24)Ã%é 192.168.12.1k'å 115ož

```
ip route 172.16.100.0 255.255.255.0 192.168.12.1 115
```

2yÃNMkÃoGNM{ÉUk…ÇvORÇNMGoÇ9Ã
ÕÇ}6NMÇÇFÃ 172.16.100.0/24 ÇvORÇ GigabitEthernet 0/0
NMÃGož

```
Ruijie(config)# ip route 172.16.100.0 255.255.255.0 GigabitEthernet 0/0 192.168.12.1
```

oèo- U… show ip route ÕèoÇž

oÜP'Ô- -

oÇÜ- -

oÇVÃ- -

5.5 ip routing

o RGOS ÷ IP èž

ip routing

¼ IP èž

no ip routing

ÃFå

default ip routing

oÃ

@	T
-	-

oFå- o IP èž

oX%"o- ÃFå%"ož

oÃ- 14

o¬.6-o- ¢ÕÇ VOIP ¼ÕÇUY¬ RGOS ÷ IP ÕoÇÜ
Y¼ RGOS IP èž
¼ IP èk ÕÃ%ÉUYÃGkxÃoÃ6tí
"oÃÃÃFÃÃï Få no ip routing U-Ó

```
Ruijie(config)#ip static route-limit ?
  <1-10000>  Value(default value: 1024)
Ruijie(config)# ip static route-limit 900
Ruijie(config)# no ip static route-limit
```

oЧP’ĉ- -

oөjö- -

oчVϑ- -

5.8 ipv6 route

Få ipv6 ź

ipv6 route *ipv6-prefix* / *prefix-length* { *ipv6-address* | *interface*

oHõ- 14

o¬.6-o- -

oFåõ- 1 yí4%ÕÜ 2001::/64

o¬.6-o- F[illegible] **ipv6 static route-limit** F[illegible]
kD[illegible] **show running config** [illegible]
[illegible]

oFåt- —å ipv6 [illegible] 900 k[illegible]

```
Ruijie(config)#ipv6 static route-limit ?
  o¥-10000  o¥Value(default value: 1000)
Ruijie(config)# ipv6 static route-limit 900
Ruijie(config)# no ipv6 static route-limit
```

oèo- -

oUP'b- -

oöjö- -

oVö- -

5.10 ipv6 unicast-routing

o RGOS IPv6 è

ipv6 unicast-routing

¼ IPv6 è

no ipv6 unicast-routing

9 T 1 i . 3

UY¼ RGOS IPv6 è ž

oFåb- ¼ RGOS ≙ IPv6 è ž

```
Ruijie(config)# no ipv6 unicast-routing
```

oèo- -

oUP'ô- -

oeÿö- -

ouV¶- -

5.11 maximum-paths

Fåé ž

maximum-paths *number*

Fé é ž

no maximum-paths

é Få

default maximum-paths

o é

@	T
number	^ é 8 1-64k ž 48 À— ž

oFå- À— ž

oxX%"o- ¶ Få%"

oé- 14

o¬.6-o- Få é O ô é **maximum-paths F é k é**

| é é F ž **show running config é**

0 F ž

¥XFå ipv41ť`Fé TX%N

ð ˝ 8 ن ð ﻳ ð ð ¢ ð
¢ S8600/ S5750/S7600 ﻳ ﻳ 64 ð
ں ﻳ ð ð 64 ﻳ
¢

oFåÙ- —âÊÙ 10 kÙÊÊž

```
Ruijie(config)# maximum-paths 10
Ruijie(config)# no maximum-paths
```

oèo- * show ip route ÔÀ ecmp ÊÊž

oÙP’ô- -

oêjö- -

oÙVÔ- -

5.12 show ip redirects

ÊÊž

show ip redirects

@	T
-	-

oXX%”o- Ô”

oÊ$3e”VDDÊNÔ@nÊl“ÔÙ=o`ÊÊÔ”

oнVθ- -

5.13 show ip route

θ IP è'Îbž

```
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        IA - Inter area, * - candidate default
Gateway of last resort is no set
S    20.0.0.0/8 is directly connected, VLAN 1
S    22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN 1
R    40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN 1
B    50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C    192.1.1.0/24 is directly connected, VLAN 1
C    192.1.1.254/32 is local host.
```

2yY **show ip route** *network x*

```
Ruijie# show ip route 30.0.0.0
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
```

3yY **show ip route count x**

```
Ruijie# show ip route count
--------- route info ----------
the num of active route: 5(include ecmp: 9)
```

4yY **show ip route weight x**

```
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
```

5y**show ip route normal x**

```
Ruijie#show ip route normal

Codes:  C - Connected, L - Local, S - Static
        R - RIP, O - OSPF, B - BGP, I - IS-IS, V - Overflow route
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        SU - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        IA - Inter area, * - candidate default
Gateway of last resort is no set
S    20.0.0.0/8 is directly connected, VLAN 1
```

```
S     22.0.0.0/8 [1/0] via 20.0.0.1
```

```
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
[m] 192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
[ba]192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
```

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O	¥bo¥UHy Cy+è LyêSyÁ RyRIP è ByBGP è OyOSPF è l yIS-IS è ž
E2	¥UHy E1yOSPF Bp z E2yOSPF Bq z N1yOSPF NSSA Bè 1z N2yOSPF NSSA Bè 2z SUyIS-IS Mè L1yIS-IS 1 è L2yIS-IS 2 è IAyè è ž
20.0.0.0/8	)Q x†
[1/0]	’nT›
Via 20.0.0.1	%é IP ª
00:00:06	#tz
VLAN 1	%GNM
Routing Descriptor Blocks	P%é IP ¼ Mo#b• BGP } Kž
57L ISIS,BGP ± ¹ ± ± ¢	

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ouVt- -

5.14 show ip route summary

ô%ïbž

show ip route summary

ôÅÜÎbž

show ip route summary all

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oÈ- 14

o¬.6-o- *¥XUYôèÜÎbž

oFåb- 1 yôÞèÜÎbž

```
Ruijie# show ip route summary
Codes:  NORMAL – Normal route  ECMP – ECMP route  FRR – Fast-Reroute route

    Memory: 2000 bytes
Entries: 22 ι based on route prefixes
Entries: 29 ι based on route nexthops

                    NORMAL  ECMP    FRR     TOTAL
         Connected   3       0       0       3
         Static      2       1       1       4
         RIP         1       2       1       4
         OSPF        2       1       1       4
         ISIS        1       2       0       3
         BGP         2       1       1       4
         TOTAL       11      7       4       22
```

2yôÅÜÎbž

```
 Ruijie# show ip route summary all
Codes:  NORMAL – Normal route  ECMP – ECMP route  FRR – Fast-Reroute route

IP routing table count:2
Total
     Memory: 4000 bytes
     Entries: 44 ι based on route prefixes
    Entries: 44 ι  based on route nexthops
```

```
                    NORMAL  ECMP    FRR     TOTAL
        Connected   6       0       0       6
        Static      4       2       2       8
        RIP         2       4       2       8
        OSPF        4       2       2       8
        ISIS        2       4       0       6
        BGP         4       2       2       8
        TOTAL       22      14      8       44

Global
    Memory: 2000 bytes
    Entries: 22 based on route prefixes
    Entries: 29 based on route nexthops

                    NORMAL  ECMP    FRR     TOTAL
        Connected   3       0       0       3
        Static      2       1       1       4
        RIP         1       2       1       4
        OSPF        2       1       1       4
        ISIS        1       2       0       3
        BGP         2       1       1       4
        TOTAL       11      7       4       22

VRF1
    Memory: 2000 bytes
    Entries: 22 based on route prefixes
    Entries: 29 based on route nexthops

                    NORMAL  ECMP    FRR     TOTAL
        Connected   3       0       0       3
        Static      2       1       1       4
        RIP         1       2       1       4
        OSPF        2       1       1       4
        ISIS        1       2       0       3
        BGP         2       1       1       4
        TOTAL       11      7       4       22
```

<Ky

<	
NORMAL	UHy NORMALy ECMP ê FRR

	ECMPy^_ÉÊ¾ FRRy½Mè¾ TOTALyÄÅÎož
Memory	è)Äož
Entries: xk based on route prefixes	èmnÿÉnÊÊ %ÉÊhož
Entries: xk based on route nexthops	èmnÿÉn%ÉÊhož
Connected	ÿn¾ÊUHy Connectedy+è¾ StaticyÄ¾ RIPyRIP è¾ OSPFyOSPF è¾ ISISyISIS è¾ BGPyBGP è¾ TOTALyÄnÿÎx
IP routing table count	èƒ
Global	ÊdfoÿUHy GlobalyÞg/Þ VRFh VRF1yVRF df TOTALyÄ VRF è`ÎÎ

57L ISIS,BGP

oFåb- µ **show ipv6 redirects ßž**

```
Ruijie# show ipv6 redirects
Default Gateway: 10::1
```

È ª ¼... ª χ

<	¢
Default Gatewa	¼ IPv6 ª

oÙP'ß- **-**

oªVß- -

5.16 show ipv6 route

ÞÞ IPv6 ßÔž

show ipv6 route [[*ipv6-prefix* / *prefix-length* [**longer-prefixes**] | *protocol* [*process-id*] | **weight**]]

oßÞ

@	T
ipv6-prefix/prefix-length	*gÙÞÕ* v6 ßÙÞÄ
longer-prefixes	*gÙÔÕ* v6 ßÙÞÄ
protocol	*gÙÞÝ* **connected**, **local, static**zÞÔ *ÙÞÝ* **ospf**, **ripk**ÞÄ
process-id	*gÙÞ*
weight	**gÙÞÕ**ßÙÞÄè

oxX%"o- ßÔ"

oßß- 14

o¬.6-o- *¥XUYß IPv6 è'ßž

oFåb- -

oÙP'ß- **-**

oªVß- -

5.17 show ipv6 route summary

ô%™ IPv6 è¼Îbž

show ipv6 route summary

ôÄ IPv6 è¼Îbž

show ipv6 route summary all

o®

@	T
-	-

o×X%”o- Ô”

oÑô- 14

o¬.6-o- *¥XUYô IPv6 è¼Îbž

oFåô- 1 yôÞè¼Îbž

```
Ruijie#show ipv6 route summary
IPv6 routing table name is -  Default(0) global scope - 5 entries
IPv6 routing table default maximum-paths is 32
Local           2
Connected       3
Static          0
PIP             0
OSPF            0
BGP             0
```

```
Global
  Memory: 1000 bytes
  Entries: 10
    Local:1,Connected:1,Static:4,RIP:1,OSPF:1,ISIS:1,BGP:1

VRF1
  Memory: 1000 bytes
  Entries: 10
    Local:1,Connected:1,Static:4,RIP:1,OSPF:1,ISIS:1,BGP:1
```

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<	¢
Memory	è)Ãož
Entries	èmnÿ¼ôn¼ò %ðhož
Connected	ÿn¾ôÿUHy Connectedy+è¾ StaticyÃ¾ RIPyRIP è¾ OSPFyOSPF è¾ ISISyISIS è¾ BGPyBGP è¾ TOTALyÄnÿ¼
IPv6 routing table count	è*f*
Global	ôdfoÿUHy GlobalyÞg/Þ VRFh VRF1yVRF df TOTALyÄ VRF è`ïî

57L BGP,VRF ± ¹ ± ± ¢

oÞP'ô- -

oÞVô- -

6

6.1 accept-lifetime

F%WeNvgÊž

accept-lifetime *start-time* { **infinite |** *end-time* **| duration** *seconds* }

Ì%WeNvgÊž

no accept-lifetime

o¤ |

¤	T
start-time	*6¤*
infinite	¤
end-time	start-time
duration *seconds*	*6¤* start-time 4 8y1-2147483646

o¤F-å- %WeNv¤

o×X%”o- %We%WF%”

o¤ 14

o¬.6-o- -

oF-ò- 1 y F%We kck¤%WeF%”kF%W 1k¤%W 1 F%”kw#%WeNv¤

```
Ruijie(config)#key chain kc
Ruijie(config-keychain)#key 1
Ruijie(config-keychain-key)#key-string Hello
Ruijie(config-keychain-key)#accept-lifetime 16:30:00 Oct 1 2010 duration 43200
```

oò- 1 y… **show running-config xF-ž**

oÐ- -

oÞ- -

6.2 ip as-path access-list

#Ô3é” AS ěž

ip as-path access-list *path-list-num* { **permit** | **deny** } *regular-expression*

ïÔ3é” AS ěž

no ip as-path access-list *path-list-num* [{ **permit** | **deny** } *regular-expression*]

oÞ

@	T
path-list-num	Ôé” AS ò ò dk AS ò ö e k y 1---500ož
permit	¶
deny	¶
regular-expression	é” ß 1..255 …ož

oÞFå- Ãò

o×X%”o- ßFé%”

oÞõ- 14

o¬.6-o- 9 3é”Pé@'ož

oFåõ- 1 y ë AS ÞFõ AS Z 123 ôž

```
Ruijie(config)# ip as-path access-list 105 deny ^123$
```

oèo- 1 y… **show running-config xÿ… 4wÞõ1 y…**

6.3 ip community-list

#}Kå

#ÕKåkwOè]ož

ip community-list { *community-list-number* **|** **standard** *community-list-name* } { **permit** **|** **deny** } [{ *community-list-number* | **internet** | **local-AS** }]

#ÿKåkwOè]ož

ip community-list { *community-list-number* | **expanded** *community-list-name* } { **permit** **|** **deny** } [*regular-expression*]

ï}Kåož

no ip community-list { { **standard** | **expanded** } *community-list-name* | *community-list-number* }

o@

@	T
standard	Õ
expanded	ÿ
community-list-name	*d* dÝ 80 …
community-list-number	*Z* yÓ 1-99 yÓ 100-199
permit	ï
deny	í
community-number	*ož* " AA:NN(^ Ïy 2 - *f*) k ÕÕ% ² *f*k 8 0-4294967295ož
internet	*nP* Internet }kåK9}ož
local-AS	**nPÕbñ** AS ÒkÕ{ÕbÏ ^ÿoož

```
Ruijie(config)# ip community-list standard test deny 100:20 200:20
```

2y#ÕXçkÿKÅ internetož

```
Ruijie(config)# ip community-list standard test2 permit internet
```

oèo- 1 y… **show running-config xØFåž**

oÜP'ò- 1 yçÿKçdÕÉUPj'ÎòŽ

```
% Community-list name cannot have all digits
```

2yçÿKçdxÝ 80 …kÉUPj'ÎòŽ

```
% Community-list name lengths should be less than 80 chars
```

3yÏÕÉUPj'ÎòŽ

```
% This object doesn't exist
```

4yçÕMÿXÉUPj'ÎòŽ

```
% Insertion failed with duplicate policy
```

5yçÕZMÿXÉUPj'ÎòŽ

```
% Community-list entry with this sequence already exist
```

6yçÕm,cdÕÿKçkÉUPj'ÎòŽ

```
% Community-list name conflict with previous defined
```

oèÿò- -

oÜVØ- -

6.4 ip extcommunity-list

Route Map ÿKçk4 Route Map 1¨ BGP/MPLS VPN Ô

ò VPN òž

ip extcommunity-list {*expanded-list* | **expanded** *list-name* } { **permit | deny** } [*regular-expression*]

#ÕXçož

ip extcommunity-list {*standard-list* **| standard** *list-name* } { **permit | deny** } [**rt** *value*] [**soo** *value*]

ÏÿKçož

no ip extcommunity-list {*expanded-list* **| expanded** *list-name* **|** *standard-list* **| standard** *list-name* }

ÿKåkUYµ **ip extcommunity-list F%**

ip extcommunity-list {*expanded-list* | **expanded** *list-name*| *standard-list* | **standard** *list-name* }

ÿKåož

no ip extcommunity-list {*expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name*}

@	T
expand-list	*H8* [100~199] k ÛòóJ extcommunity çn k % ² extcommunity çUmèž
standard-list	óÊ

{ie0609.-tco985 443.}

2yip extcommunity …cy

```
Ruijie(config)# route-map rt_in_filter
Ruijie(config-route-map)# match extcommunity 1
Ruijie(config-route-map)# match extcommunity ext1
Ruijie(config)# router bgp 100
Ruijie(config-router)# address-family vpn
Ruijie(config-router-af)#neighbor 3.3.3.3 send-community extended
Ruijie(config-router-af)#neighbor 3.3.3.3 route-map rt_in_filter in
```

show running-config

prefix-list-name	*[illegible]*
seq-number	[illegible] 1 ñ 2147483647o[illegible]X [illegible] [illegible] 5ke[illegible] [illegible] 5 [illegible]ž
deny	**[illegible]**
permit	**[illegible]**
ip-prefix	[illegible] 0 ñ 32ož
minimum-prefix-length	*[illegible]* **ge** ¢ **ge ¡ le** ش ¢
maximum-prefix-length	*[illegible]* **le** ¢ **ge ¡ le** ش ¢

o[illegible]Få- [illegible]

o[illegible]X%”o- [illegible]

o[illegible]- 14

o¬.6-o- **ip prefix-list x[illegible]Få** IP [illegible]ž [illegible] permit [illegible] deny [illegible]
yNI[illegible]ož
[illegible] [illegible] le [illegible]
8kU[illegible]A%[illegible] ip-prefix [illegible] ge [illegible] le [illegible] ip-prefix U
[illegible] gek[illegible]8© minimum-prefix-length ñ 32o[illegible] leké
F 8 © ip-prefix [illegible] maximum-prefix-length o [illegible] 8 [illegible] é F 8 < [illegible]
minimum-prefix-length ñ maximum-prefix-length o ž / ip-prefix Q A o • minimum-prefix-length y
maximum-prefix-length [illegible]p-prefix [illegible]< minimum-prefix- length < maximum-prefix-length <=
32ož

oFå[illegible]- 1 y+ OSPF #M[illegible] RIP [illegible] IP g[illegible] IP [illegible]
#([illegible] IP ¨201.1.1.0/24 8[illegible])ož

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre1 permit 201.1.1.0/24
Ruijie(config)# router ospf
Ruijie(config-router)# distribute-list prefix pre1 out rip
Ruijie(config-router)# end
```

è 1 y… **show running-config xßFåž**

oÜP'Î- -1 yçßÅÍÕnÄÜPj'Îbž

```
% Insertion failed with duplicate policy
```

oæjö- -

oÜVÎ- -

6.6 ip prefix-list description

%ÕÜTož

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

Î%ÕÜTož

no ip prefix-list *prefix-list-name* **description**

oÞ

@	T
prefix-list-name	*Ôd*
descripton-text	*ÕÜT*

oÜFå- ÕÜT

oxX%"o- ßFå%"

oÜß- 14

o¬.6-o- -

oFåÞ- 1 y IP ÕÜT Deny routes from Net-Aož

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre description Deny routes from Net-A
```

oèo- 1 y… **show running-config xßFåž**

oÜP'Î- -

oæjö- -

[illegible] -

6.7 ip prefix-list sequence-number

[illegible]oL~ož

ip prefix-list sequence-number

H[illegible]L~ož

no ip prefix-list sequence-number

o[illegible]

[illegible]@	T
-	-

o[illegible]å- [illegible]L~

o×X%”o- [illegible]F[illegible]%”

o[illegible]- 14

o¬.6-o- -

oFå[illegible]- 1 y[illegible]oL~ož

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list sequence-number
```

oè[illegible]o- 1 **[illegible]vp**

[illegible]

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

[illegible]

oЧP'ĵ- -

oэjö- -

oиV⓪- -

6.10 ipv6 prefix-list sequence-number

IPv6 ĵoL~ož

ipv6 prefix-list sequence-number

HĵL~ož

no ipv6 prefix-list sequence-number

oⓟ®

@	T
-	-

oнFå- ÄĵL~

oxX%"o- ₿Fæ%"

oнⓞ- 14

o¬.6-o- -

oFåⓞ- 1 yYⓞ IPv6 ĵoL~y

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list sequence-number
```

oèo- 1 y… **show running-config xⓞFåž**

oЧP'ĵ- -

oэjö- -

oиV⓪- -

6.11 key

%We#%%Wož

key *key-id*

ť%We%Wož

no key *key-id*

o[illegible]

@	T
key-id	[illegible] IDkH8y0-2147483647

o[illegible]-å-

-

o×X%”o-

%WeF%”

o[illegible]-

14

o¬.6-o-

-

oFåb- 1

yF%We ripkeyskw%WeF%”kF%W 1

```
Ruijie(config)# key chain ripkeys
Ruijie(config-keychain)# key 1
```

oèo- 1

y… **show running-config xF%až**

oUP’ô-

-

oöjö-

-

oVô-

-

6.12 key chain

#%Wekw%WeF%”ož

key chain *key-chain-name*

%WeFå@PµFà

o[illegible]

[illegible]@	T
key-chain-name	*[illegible]ož*

o[illegible]-

-

o[illegible]X%”o-

[illegible]F[illegible]%”

o[illegible]-

14

o¬.6-o-

}…%We[illegible]%%Wož

oF[illegible]- 1

yF[illegible]%We ripkeyskw[illegible]%WeF[illegible]%”ož

```
Ruijie(config)# key chain ripkeys
```

o[illegible]o- 1

y… **show running-config x[illegible]F[illegible]ž**

o[illegible]P’[illegible]-

-

o[illegible]-

-

o[illegible]V[illegible]-

-

6.13 key-string

%We%W%”6[illegible]ž

key-string [**0**|**7**] *text*

[illegible]%W[illegible]

no key-string

o[illegible]

[illegible]@	T
0	*6[illegible]*
7	*6[illegible]*
text	*6[illegible].*

o[illegible]-

-

o[illegible]X%”o-

%We%WF[illegible]%”

14	
o¬.6-o-	-
oFåb- 1	yFâ‰We ripkeyskp‰WeFâ‰”kFâ‰W 1kp‰W 1 Fâ‰”kw#%W abcož

```
Ruijie(config)# key chain ripkeys
Ruijie(config-keychain)# key 1
Ruijie(config-keychain-key)# key-string abc
```

oèo- 1	y… **show running-config xâFâž**
oÙP'ò- 1	yÇâ‰Axÿ 80 â‰%Axÿ 162kéÙPj'ÎòŽ

```
%Error: key string too long
```

	2yÇâ‰%A…`%kéò key-string 7 123 éÙPj'ÎòŽ

```
% Invalid encrypted password: 123
```

oèjö-	-
oèVâ-	-

6.14 match community

MÅÎÇª COMMUNITY KåŽ

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

ÎÇÄåž

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

oÇª	‰@	T
	community-list-number	*pZ* ÕÇyÓ 1-99 ÖÇyÓ 100-199
	communitys-list-name	*pd* ÇdÝ 80 …
	exact-match	ÇÇ

ê	-
oxX%”o-	E%”
oHõ-	14
o¬.6-o-	**match community xÀÚ¿ÞdkxÞÝ** 6ož ? **exact-match ÞÀNÝkêoož** %EÅUYg 1 é **match xÝX** 1 é **set xÀÞ** **match xK** **EÀÞ** **set xKÞoož**
oFåb- 1	yFÅS+ÞKÅ 1 Fè—ÅKÅ 20ož

```
Ruijie(config)# ip community-list 1 permit 100:2 100:30
Ruijie(config)# route-map set_lopref
Ruijie(config-route-map)# match community 1 exact-match
Ruijie(config-route-map)# set local-preference 20
```

oèo- 1	y… **show running-config xÀFåž**
oUP’b- -1	yõ name º Community-list dÞéUPj¨bž

```
% Community-list name cannot have all digits
```

2yõ Community-list ¿dxÞ 80 …kéUPj¨bž

```
% Community-list name lengths should be less than 80 chars
```

ÎF%ÈM6NMFåž

no match interface [*interface-type interface-number* [*…interface-type interface-number*]]

oÞ®

@	T
interface-type	*M°*
interface-number	*MÍØ*

oÞFå- -

o×X%”o- È%”

oÞõ- 14

o¬.6-o- **match interface xÞÍMož**

êUYR%ÈMãñ%ÈzÙ OSPF ÈMÈe

*sñ RIP È-UY1 RIP ÈMÈe*sñ OSPF È

ÈMÈkÈÈroute maps hk+È¢È¡ÈgÈÈO

ò%ÈÈUYg 1 È **match xX** 1 È **set xÞÈ** **match xÞÈ** **set xÞÈ**

ÈÈkUYÈMÈyÈÈzÈÈÈÈ²

ÿ@Xoò…cÈÈMÈkcÈÈÈ.

xX-@ož

ℹ ¡ ¢

oFåÞ- 1 yFå OSPF ÈMÈ RIP È}LÈÈ%È GigabitEthernet 0/0 RIP È

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match interface GigabitEthernet 0/0
```

oÈo- 1 y… **show running-config xÞFåž**

oÞP’Î- -1 yÎ interface Ý 4 kÞPj’Îž

```
% Match interface can't exceed 4!
```

2yÎ interface 8CMgÞ8CM GigabitEthernet 0/0kÞPj’Îž

```
% Invalid parameter: GigabitEthernet 0/0, only support layer 3 interface.
```

oөjÖ-

22 Tc 9 03.7737.407 c 94Tj/C- 22 Tc -51.413 -7.407 D<63

22 Tc 9 03.7737.407 c 94Tj/C- 22 T0.3711 Tf72Tc 0 -1 9 06.77313.986.7 713.986.38 T622.269

6.17 match ip next-hop

MÈ5%ê IP ª:..`ÎçÕÊÂž

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...*] }

ï]ÄÅž

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...*]]

op@

```
Ruijie(config)# access-list 20 permit host 172.16.20.1
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip next-hop 10 20
```

oèo- 1 y… **show running-config xØFåž**

oÙP'Ô- -1 yÇ ACL d`cgÞ match ip next-hop 12345kÉÙPj'Ôž

```
% ACL name 12345 is invalid
```

2yÇ]ÅÅF 0024 049 3(1.1C)8(efix-)-9(list Tf0 Tc 0 Tw 11.007 4>500<036B04<09C7 1 TfAA80446>TT0 1

access-list-name [*access-list-number...* | *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]]

o@

@	T
access-list-number	*ZŒ*
access-list-name	*Œd*
prefix-list *prefix-list-name*	*Œd*

o-

-

o%”o-

%”

o-

14

o¬.6-o-

match ip route-source xxpz

UYR%MUPÙ3ÙUY1 OSPF

*sñ RIP -UY1 RIP *sñ OSPF MU

YÄ IP gož

MkÊg

3y[illegible]F ACLkÇÊ prefix-list éÜPj'Îbž

```
% Can't set prefix-list match with access-list exists!
```

4y[illegible]X6 ACL Ý 6 kéÜPj'Îbž

```
% Match ip route-source command only support six IP access-list
```

5y[illegible]å ACL Ý 6 kéÜPj'Îbž

```
% ACL can't exceed 6!
```

6y[illegible]X6 prefix-list Ý 6 kéÜPj'Îbž

```
% Match ip route-source command only support six IP prefix-list
```

7y[illegible]å prefix-list Ý 6 kéÜPj'Îbž

```
% Prefix-list can't exceed 6!
```

oÞÏö- -

oÞVö- -

6.19 match ipv6 address

#}Mã[illegible]ö IPv6 ÈÈž

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

no match ipv6 address

oÞ	@	T

Route map sequence Þ-Z 10z

êUYR%èMãnPÙ3ãžòU1 OSPF ßMãe

*sñ RIP ß-UY1 RIP ßMãe*sñ OSPF ßžMãU

YÄ IP è$gož

MãkcÉg route maps hk+ßèãgÄO

òž%ÉãUYg 1 éÙ **match xÿX** 1 éÙ **set xßÄ** **match**

xKÉÄ set xKÉ¡ož

ÉãkUYMãyÉãzÉÉãÉF å%²

ÿQXojož…cÿMãkcÉÄU.

xX-@ož

oFåb- 1 yFå OSPF èMãa RIP ßLÇÃ…`ÏÇ v6acl RIP ßè OSPF ßè

ÈÔ† 30ož

```
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)# permit ipv6 2620::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 address v6acl
Ruijie(config-route-map)# set metric 30
```

oèo- 1 y… **show running-config xßFåž**

oUP'ò- -1 yô ACL d`cgò match ipv6 address 123456kéUPj'òž

```
% ACL name 123456 is invalid
```

2yßÏFåF prefix-listkÇÃ ACL éUPj'òž

```

```

```

```

6.20 match ipv6 next-hop

MÈ%é IPv6 ª.. `Ïçõ)ÈÊž

match ipv6 next-hop { *access-list-name* | **prefix-list** *prefix-list-name* }

ïJÄåž

no match ipv6 next-hop

oÞ

@	T
access-list-name	Ïçd
prefix-list *prefix-list-name*	*F* IPv6 ÕÕd

oÞFå- -

oxX%”o- È%”

oÞõ- 14

o¬.6-o- êUYR%èMÈÈÞÙ½ÈžÙY1 OSPF ÈMÈe

*sñ RIP È-UY1 RIP ÈMÈe*sñ OSPF È¡MÈU

YÄ IP È$gož

ÈMÈkÈÊgroute maps hk+È¡È¡ÈgÄO

ò%ÈÊkUYg 1 É **match xX** 1 É **set xÄ** **match**

xKÈÄ **set xKÄ**ož

ÈÊkUYÈMÈyÈÈzÈÈÈÈÈ%²

ÿ@Xoïž…cÿÈMÈkcÈÈÈÜ.

xX-@ož

oFÅ- 1 ÿÈ OSPF È¡MÈ RIP È¡LÈMÈ…`Ïçõ v6acl RIP È OSPF È

ÈÞ† 40ož

```
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
```

è 1 y… **show running-config xØFåž**

oÜP´ò- -1 yõ ACL d`cgò match ipv6 next-hop 123456kéÜPj´ò ž

6.21 match ipv6 route-source

MÕ%ě IPv6 ª.. `ĮõÕÕÕž

match ipv6 route-source { *access-list-name* | **prefix-list** *prefix-list-name* }

ĺ]ÄÅž

no match ipv6 route-source

oÕ

access-list-name	Ĺõd

oÞFå- -

@	@	T
metric	*e*	*D* 0-4294967295 ož

oH-å- -

o×X%”o- E%”

oH- 14

<780458082.98 -0.03536062D0 1 Tf( )Tj/C2_0 1 Tf7.407 0 Td<0AE8090205[A30B4609E549206CE01.046F946F225BE5417F0686049B012

	@	T
	static	á
	connect	è
	rip	RIP è
	local	ê
	Internal	OSPF Ä è
	external	OSPF è
	type-1 | type-2	OSPF 1 è 2 è

oÈFå- -

o×X%”o- È%”

oÈõ- 14

o¬.6-o- êUYR%ÈMÈÈP½ÈÈÈUY1 OSPF ÈMÈe
*sñ RIP è-UY1 RIP ÈMÈe*sñ OSPF èÈMÈU
YÄ IP È$gož
ÈMÈkÈÈgroute maps hk+ÈèÈgÄO
òÈ%ÈÈUYg 1 É **match xÄ** 1 É **set xÄ** **match**
xÄ **set xÄ**

oFåÈ- 1 yFå RIP ÈMÈ OSPF òÈRIP ÈMÈ OSPF Èòž

```
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
```

oòo- 1 y… **show running-config xÄFåž**

oÈP’È- -

oÈÈ- -

oÈVÈ- -

6.24 match tag

Fšož

match tag *tag* [*…tag*]

ÎFšož

no match tag [*tag* [*…tag*]]

oÞ®

¢@	T
tag	*šž* hÑÎFÞ#¢@ÎÑšož

oHFå- -

o×X%”o- Eå%”

oHõ- 14

o¬.6-o- **match tag xÞÉ** tagož

êUYR%êMÅñ%êxÙ OSPF ÞMÅe*sñ

RIP êUY1 RIP ÞMÅe*sñ OSPF êžMÅUYÄ

IP êÞgož

ÞMÅkÉÊroute maps hk+êèÅgÄO

ò%EåUYg 1 É **match xÞX** 1 É **set xÞÄ** **match**

xKÉÄ **set xKÉož**

oFåÞ- 1 yFå RIP êMÅ OSPF êRIP ÞMÅ OSPF Þ 50 y 80 êž

```
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
```

oèo- 1 y… **show running-config xÞFåž**

oÜP'Îò- -1 yÊå tag Ý 4 kÉPj'Îòž

```
% Match tag can't exceed 4!
```

oèjÖ- -

oèVÞ- -

6.25 memory-lack exit-policy

Ä lower ¢k6Ce¥Ğ

memory-lack exit-policy { **ospf** | **rip** }

ÕÈ
6Ğ

no memory-lack exit-policy

o®

@	T	
ospf	**6Å**	OSPF #IÎß
rip	**6Å**	RIP #IÎß

oÅ-å-

oxX%”o-

oÕ-

14

o¬.6-o-

Ä lower ¢gk1{%¥kKyÅž

¥3?¥u8ÜÈ¢kÕ%ÊM}#kYŽ

¨Ñgož

+9È¥k6iÈkwnÈÅž

64ÈN%ÈÅM}È3%¥5ÈÅC1

Ñ2gož

oÅ-

-

oÈo- 1

#[illegible]

route-map *route-map-name* [**permit** | **deny**] [*sequence-number*]

[illegible]

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

[illegible]

[illegible]	T
route-map-name	[illegible]
permit	[illegible] permit [illegible] match [illegible] set xX+M [illegible] xX1+[illegible] [illegible] permit [illegible] match [illegible] set xX [illegible]
deny	[illegible] deny [illegible] match [illegible] [illegible] deny [illegible] match [illegible] set xXož [illegible]
sequence-number	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

)ù RGOS [illegible]

[illegible] OSPF [illegible]

[illegible] RIP [illegible] RIP [illegible] OSPF [illegible]

[illegible] IP [illegible]

[illegible] route maps [illegible]

[illegible] 1 [illegible] **match** [illegible] 1 [illegible] **set** [illegible] **match** [illegible] **set** [illegible]

[illegible]

- [illegible] *sequence-number* [illegible] 10z
- [illegible] *sequence-number* [illegible]
- [illegible]

oFåb- 1 yFå OSPF è¤Mß RIP è¾LÚ5é 4 RIP è¨ OSPF è¾è

Øè type-1kÐ† 40kõ— 40ož

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match metric 4
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
Ruijie(config-route-map)# set tag 40
```

oèo- 1 y… **show running-config xØFåž**

oÙP'Îb- -1 yÇ route-map dxÝ 32 kÉÙPj'Îbž

```
% Route-map name string length can not exceed 32.
```

oÊjÖ- -

oÙVØ- -

6.27 send-lifetime

F%WeGgÊž

send-lifetime *start-time* { **infinite |** *end-time* **| duration** *seconds* }

Ì%WeNvgÊž

oHõ- 14

o¬.6-o- -

oFåb- 1 y Fâ‰We kckp‰WeFâ‰”kFâ‰W 1kp‰W 1 Fâ‰”kw#%WeNvÊ

```
Ruijie(config)#key chain kc
Ruijie(config-keychain)#key 1
Ruijie(config-keychain-key)#key-string World
Ruijie(config-keychain-key)#sendÅ ‚ ‘ n-@kc ƶ Ə l Ŷ Ŷ m ظم Ä β
```

next-hop weight set ج ﮔ ج WCMP
ج ¢ WCMP ج ـُ ث ـﯿ weight nexthop weight
1 ¢

set ip next-hop y **set ip default next-hop x**Ëy Få **set ip next-hop x**Ë
iEå **set ip default next-hop** ËGi.ož
…ŨXÔ̂—å%ĎĚ—cGĖ
Ĕ§ ñXFå%(nexthop)ož
ĚÀèEw}ĎE%ĚP
ŒE#4 1 Ěý+qož%ANMĚE1+ĦMNvĂ
ẁ…`È~ĦE17ÁoGgÔ…`ĦE<7
ÁEgÔž
%ĦEYĂ set qož

oFåþ- 1 yĉ5NM 1 NvR 1.1.1.1 GRĚGĔ<tGñ–Õ 6.6.6.6 >z
ÑvR 2.2.2.2 GRĚGĔ<tGñ–Õ

+F match ¢–å DSCP ož

set ip dscp *dscp_value*

ï—å DSCP ož

no set ip dscp

oÞ®

¢@	T
dscp_value	å– IP † IP ã DSCP ›

oÞFå- -

o×X%”o- £%”

oÞõ- 14

o¬.6-o- -

oFåb- -

oèo- 1 y… **show running-config xõFåž**

oÞP’ô- -1 yõ]Få set ip tos/precedenceÉÞPj’ôž

```
% Route-map: can not set ip dscp.
% Remove set ip tos/precedence clause before set ip dscp.
```

oêjö- -

oÞVõ- -

6.30 set ip next-hop

+F match ¢6%é IP ®ž

set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

ï—å%é IPož

no set ip next-hop [*ip-address* [*weight*] [*…ip-address* [*weight*]]]

oÞ®

¢@	T
ip-address	%é IP ª

weight	[illegible]

oHFå- -

oxX%”o- E8%”

oHõ- 14

o¬.6-o- ÎkXN9Eåž

Ü **set xÿ%** WCMP ®g%”k³ WCMP ®g%”oÿ%²_g%”

kÏÇ¡µ weight ƒvOg WCMP ®ož

set ip next-hop xÿ% IP ®kÿ 32 ož

ò ip address eÍ weight ®ÿYFÿ 4 nexthop ®ož

⚠️ next-hop weight **set** WCMP

¢ WCMP weight nexthop weight

1 ¢

[illegible]

[illegible]

[illegible]

[illegible]#4 1 [illegible]

[illegible]

[illegible]

[illegible] **set qož**

oFåÿ- 1 y¨ serial 1/0 o [illegible] M N v [illegible] 10.0.0.0/8 8 ÄÇG k 1 G ñ

192.168.100.1zà 172.16.0.0/16 8[illegible]vOk1Gñ 172.16.100.1z[illegible]vO1

®’ož

```
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
```

è 1 y… **show running-config xØFåž**

oÜP'ô- -

oeÿö- -

oÜVØ- -

6.31 set ip precedence

+F match é–å IP ãõž

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

ï—å IP ãFåž

no set ip precedence

oÞ

@	T
number	*ñP* IP ãõÉ8 0-7ož 7ycritical 6yflash 5yflash-override 4yimmediate 3yinternet 2ynetwork 1ypriority 0yroutine
critical | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine**	IP ãõž

oÞFå- -

oxX%"o- Eå%"

oÞÕ- 14

o¬.6-o- ÆE–å IP ãÛ.ÆÊ IP ÿciñož

EåUYFåÛ **set ip precedence xKxÊÊwÿÊE**

E† IP Ãk—åiõž

oFåÛ- 1 y+RNM GigabitEthernet 0/0 ÊÛ 192.168.217.68 ‡–å precedence 4ož

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip precedence 4
```

oHõ- 14

o¬.6-o- ¢E—å IP ã TOS ÷…ãe IP ¡cÅmož
¡¢ IP ¢kt—ê TOS ož

oFåb- 1 y+RNM GigabitEthernet 0/0 Ù 192.168.217.68 ±—å tos 4ož

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip tos 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map name
```

oèo- 1 y… **show running-config xÕFåž**

oUP'Ô- -1 y¢ÎÅ set ip dscpkÉUPj'Ôbž

```
% Route-map: can not set ip tos.
% Remove set ip dscp clause before set ip tos.
```

oõjö- -

oUVõ- -

6.33 set ipv6 default next-hop

+F match é IPv6 ¢%ê IPv6 ¤ž

set ipv6 default next-hop *global-ipv6-address* [*weight*] [*global-ipv6-address* [*weight*] ...]

ïu4%ê IPv6 ±Fåž

no set ipv6 default next-hop global-ipv6-address [*weight*] [*global-ipv6-address* [*weight*] ...]

oÕ

¢@	T
global-ipv6-address	¢%ê IPv6 ¤%ÈNõž
weight	¢k1 ¤½

oHFå- -

o×X%"o- £%"

oĦ- 14

o.6-o- k̂XN9Ėåž
ŇMĖek+9F,é IPv6 ḧ¥è
g/ĦĈñ **set ipv6 default nexthop 6Ħk⁷Ĝož**
Þ match ĕ IPv6 ,ĕž
Ũ set xXÄg%"yWCMP ĝg%"k³ WCMP ĝg%"oŽ‰²_g%"
kĈŷµ weight ƒvOg WCMP ĝož
set ipv6 default next-hop xXé IP kŴ 32 ož
ǫ4Få‰Ókk̂YFå 4 %ĕž
Ħ+Mk7ĝy
set ipv6 next-hop > *g/ĕ > **set ipv6 default next-hop** > ĕ

ش 64 ٱ ¢

ڃ Ѷ set ipv6 next-hop verify-availability ـ set ipv6 next-hop verify-availability ڃ Ѷ
¢

weight set ڃ Ѷ ڠ WCMP
ڠ ¢ WCMP ڠ ´ ث ـ weight nexthop weight
1 ¢

oFå- **-**

oèo- 1 y… **show running-config xĕFåž**

oUP'ĝ- -

oĵö- -

oVĝ- -

6.34 set ipv6 next-hop

+F match é IPv6 ĝ%ĕ IPv6 ĕž
set ipv6 next-hop *global-ipv6-address* [*weight*] [*global-ipv6-address* [*weight*] ...]

ĩ6%ĕ IPv6 Fåž
no set ipv6 next-hop global-ipv6-address [*weight*] [*global-ipv6-address* [*weight*] ...]

@	T
global-ipv6-address weight	6%ē IPv6 ¾%ÈNõž

op@

no set level

o¶®

¶@	T	
stub-area	6MÈsñ	OSPF Stub Area
backbone	6MÈsñ	OSPF ñ

oÈFå- -

o×X%”o- È%”

oÈõ- 14

o¬.6-o- -

oFåb- 1 yOSPF èMõ RIP ñ backbone øž

```
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
```

oèo- 1 y… **show running-config xõFåž**

oÙP’ô- -

oÊjö- -

oÊVõ- -

6.37 set metric

+F match è–ÊDož

set metric [+ *metric-value* | **-** *metric-value* | *metric-value*]

ï]ÄFåž

no set metric

o¶®

¶@	T	
+	ýè	metric ý

-	metric 5h
metric-value	0-4294967295

oHFå- -

o×X%”o- E%”

oHõ- 14

o¬.6-o- set metricoYC

+ êmetric RIP #Mõ#metric

1-16ož

OSPF

*sñ RIP -UY1 RIP *sñ OSPF

IP

route maps

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

set

oFåb- 1 yFå OSPF RIP

ï—ê½ž

no set metric-type

o½®	¢@	T
	type	*ê½ž* OSPF Mõ½ type-2ož

oÞFå-	-
o×X%”o-	Ê%”
oÞõ-	14
o¬.6-o-	ÊUYR%êMõ½P½3ž½UY1 OSPF ê½ê *sñ RIP ê-UY1 RIP ê½ê*sñ OSPF ê½,MõU YÄ IP ê$gož MõkêEgroute maps hk+ê½,õgbTXõ@

ĭ—ăăoŏž

no set next-hop

op@

+F match ě–ů ž

set tag *tag*

ť—ů ž

no set tag

o@	@	T
	tag	*4294967295* 0-4294967295

o+F å-

o×X%”o- ě%”

o+ů- 14

o×X%”o- Ô”oBF‰”oNMF‰”oÈF‰”oEF‰”ò ž

oÈõ- 14

o¬.6-o- …¥XÔ as-path-access-list ’ò ž

oFåò- 1 yÞ AS è¸o ž

```
Ruijie# show ip as-path-access-list
```

```
Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

È ª ¼... ª χ

<	¢
Community-list standard local	÷Kåydož
permit	¢%”ož
local-AS	÷Kåž
0:10	÷Kåž

oЧP’ô- -

oиVÐ- -

6.43 show ip extcommunity-list

ÞÿKåFâož

show ip extcommunity-list [*extcommunity-list-num* | *extcommunity-list-name*]

oÞ

@	T
extcommunity-list-num	H8[1~199] kƒ idkõ extcommunity ¤ož
extcommunity-list-name	extcommunity ¤df

o×X%”o- Ô”oÞF%”oNMF%”oÞF%”oÞE%”ôž

oÐ- 14

o¬.6-o- -

oFâ- 1 y ÞÿKåož

```
Ruijie # show ip extcommunity-list
Standard extended community-list 1
     10 permit RT:1:200
     20 permit RT:1:100
Standard extended community-list 2
     10 permit RT:1:200
```

```
Expanded extended community-list rt_filter
    13 permit 1:100
```

È ɹ ٪... ǵ χ

<	¢
Standard extended community-list 1	ÿKęÿdož
10	ęęž
permit	ę%”ož
RT:1:200	ÿKęž

oЧP’ô- **-**

oнVę- -

6.44 show ip prefix-list

ôęęęnÿôž

show ip prefix-list [*prefix-name*]

oęę

ę@	T
prefix-name	*ęęd*

o×X%”o- ęę”oęBF%”oNMF%”oęF%”oęE%”ôž

oęę- 14

o¬.6-o- ęęędk<kęęęF%kkęę6ęęF%ôž

oFęę- 1 yęę IPv4 ęęôž

```
Ruijie# show ip prefix-list
ip prefix-list pre: 2 entries
seq 5 permit 192.168.64.0/24
seq 10 permit 192.2.2.0/24
```

È ɹ ٪... ǵ χ

<	¢
ip prefix-list pre	IPv4 ęędož
2 entries	ęęmęož
seq 5	ęęž
permit	ę%”ož
192.168.64.0/24	IPv4 ęęž

o¬.6-o- 指令dk<kP指令F åkkP6指令F ož

oFåb- 1 yP IPv6 指令ož

```
Ruijie# show ipv6 prefix-list
ipv6 prefix-list p6: 2 entries
```

s^я к

```
metric 10
Ruijie(config)#show key chain
key chain kc
    key 1 -- text "ruijie"
        accept-lifetime (12:11:00 May  2 2001) - (infinite)
        send-lifetime (always valid) - (always valid) [valid now]
```

<Ky

<	¢
key chain	%Wed
key	%W id YC%W…
accept-lifetime	%WeNvgÊ
send-lifetime	%WeGgÊ

oUP’ô- -

ouVÔ- -

6.48 show route-map

ÞÈÅž

show route-map [*route-map-name*]

oÞ

@	T
route-map-name	ÞÈ

oxX%”o- ÔÞ”oÞF%”oNMF%”ouF%”oÈ%”òž

oÔ- 14

o¬.6-o- ÞÈk<kÞÈkkÞ6ÈÅž

oFÅÞ- 1 yÞÈž

```
Ruijie# show route-map
route-map AAA, permit, sequence 10
Match clauses:
ip address 2
Set clauses:
metric 10
```

-

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1. IPv4
2. IGMP Snooping

1 IPv4

1.1 ip multicast static

FÁv8CvgOòž

ip multicast static *source-address group-address interface-type interface-number*

HÁv8CvgOòž

no ip multicast static *source-address group-address interface-type interface-number*

ÊÅ

default ip multicast static *source-address group-address interface-type interface-number*

oÁ

Á	T
source -address	Á
group-address	Á
interface-type *interface-number*	Á

oÁ- ÁÁv8CvgOòž

oÁ- ‰

oÁ- 14

oÁ- 9ÁvUYFÁ Á vFÁvgOò
ÁvQU FÁ ÁvOž
ÁvOÁ ÁvgÁ
PIM-DM ê PIM-SMÁ ÁgQÁtž

oÁ- 1 yFÁv (192.168.43.4 225.1.1.5) QÁ GigabitEthernet 2/6 y FastEthernet 3/2 Ò ož

```
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
```

oÁ- 1 y… **show running-config** xÁ YÁÁv8CvgOòž

oÁ- -

oÁ- -

ouVÖ- -

1.2 msf ipmc-overflow override

FÁÅF^8ÁÑž

msf ipmc-overflow override

ÁÅF^8ÁÑž

no msf ipmc-overflow override

ÑÅ

default msf ipmc-overflow override

o®	@	T
-	-

oFÅ- 4¢ž

oxÁ‰ ‰

oÑ- 14

o6-o- -

oFÅ- 1 yFÁÅF^8ÁÑž

```
Ruijie(config)# msf ipmc-overflow override
```

oÈo- 1 y… **show running-config xKÁÅF^8ÁÑž**

oUPÎ- -

oÏÞ- -

ouVÖ- -

1.3 msf nsf

FÁÅ6ÁÑž

msf nsf { **convergence-time** *time* | **leak** *interval* }

F ž

no msf nsf {**convergence-time** | **leak**}

å

default msf nsf {**convergence-time** | **leak**}

o

@	T		
convergence-time *time*		0~3600 a	20 a
leak *interval*		0~3600 a	30 a

oF å-

ž

o

o-

14

o-o-

-

oF å- 1

yF 300s 200sož

	n¶¶où

oxÊ% ÊÊNM%

oHõ- 14

o6-o- 3 µÇUHž

Q6³ s1 ¼PÄ s1 msc nØž

Q6³ s1oÄ g1 ¼PÄ s1 Á g1 msc nØž

6³ s1oÄ g1o•VLAN ID v1 ¼PÄ s1oÄ g1 nµÌñ

VLAN ID v1 msc nØž

µÇ7~µÇ¶ÊÊ¶UYåµÇž

oFåb- 1yPÄ 192.168.195.25 Ipv4 CÁÇn¾

```
Ruijie# show msf msc 192.168.195.25
Multicast Switching Cache Table
(192.168.195.23, 233.3.3.3, 1), SYNC, MTU:0, 1 OIFs
  VLAN 1(0): 1 OPORTs, REQ: DONE
OPORT 6, IGMP-SNP, REQ: DONE
```

È ¬ ¾ ... ¨ ¼

<	¢
192.168.195.23	n¾
233.3.3.3	nÄ
1	nµÌñ VLAN ID

1.5 show msf nsf

PÁ6Fåž

show msf nsf

o®

@	T
-	-

o%

ÊNM%

o-

14

o-o-

-

o-

```
Ruijie# show msf nsf
Multicast HA Parameters
-------------------------------------------------------------
protocol convergence timeout                120 secs
flow leak interval                          20 secs
```

oPÊ-

-

oV-

-

14

show ip igmp snooping statistics

```
Ruijie# clear ip igmp snooping statistics
```

-

-

2.3 deny

profile

deny

-	-

profile **denyž**

profile %

14

profile

1. **ip igmp profile** profile profile
2. **range** ož
3. **permit** **deny** **denyž**

1 profile 224.2.2.2 224.2.2.244 ož

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

* show ip igmp profile

-

oeÿp- -

ouVÞ- -

2.4 ip igmp profile

‰ profilekµ profile ÞÞz

ip igmp profile *profile-number*

ª profileož

no ip igmp profile *profile-number*

Ê profile ÞFå

default ip igmp profile *profile-number*

oÞ

@	T
profile-number	profile Ó 1-1024

oÞFå- è profile

oxX‰ ‰

oÞÕ- 14

o6-o- profile ÊÁÊFÊâ

1o•.. **ip igmp profile xX‰** profilekwµ profile ÞÞz

2o•.. **range xÓož**

3o•.. **permit xX8Ä...** **deny xX48ÄÄ** **denyož**

4oò kÈâšÁÄŽ deny ¯Ìç permit Ä

5oò permitkÈâšÁÄŽ permit ¯Ìç deny Ä

oFåÞ- 1 yFå profile 1Á 224.2.2.222 224.2.2.244 ožogÄÞ

ož ÈÈq(ÞÄ ÞÞ@Apß0FÞ1

oeÿp- -

ouVÐ- -

2.5 ip igmp snooping

ß IGMP Snooping wå– IVGL gÞž
ip igmp snooping ivgl

ß IGMP Snooping wå– SVGL gÞž
ip igmp snooping svgl

ß IGMP Snooping wå– IVGL-SVGL gÞž
ip igmp snooping ivgl-svgl

¼ IGMP Snoopingož
no ip igmp snooping

Ê IGMP Snooping HFå
default ip igmp snooping

oÞ®

@	T
-	-

oHFå- ¼ IGMP Snooping

oxÞ® ®

oHÞ- 14 IVGL

PIM Snooping ϱ ´ IGMP Snooping ϯ IVGL ϋ IVGL-SVGL ϵ ¢ **no ip igmp snooping** ϵ Ϛ Ấ ϯ IGMP Snooping ố ị PIM Snooping ţ ố ự Ấ ϯ в Ϭ ụ ố Ϋ ϱ Ấ ϯ PIM Snooping ¢

oFa-ÿoPXGCB ioà

oHVÐ- -

2.6 ip igmp snooping dyn-mr-aging-time

FÁÍž

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

ÁÍFåž

no ip igmp snooping dyn-mr-aging-time

ÁÍFåž

default ip igmp snooping dyn-mr-aging-time

o@	@	T	
	seconds	ÁÍÝáK8	1-3600

oHFå- 300 a

oxÝ‰ ‰

oHÕ- 14

o6-o- ÁÍMÕn IGMP 2ÁÍ PIM Hello ÕÝ
MRÈÍMçÛž
öÁÈÍMÕÝ4xÁÍžÕ—
2ÍÈÍMÝÕž

oFåÛ- 1 yFÁÍž 100sož

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

oèo- * show ip igmp snooping xßÕFå@

oHPÎÐ- -

oeÝp- -

oHVÐ- -

2.7 ip igmp snooping fast-leave enable

ip igmp snooping fast-leave enable

no ip igmp snooping fast-leave enable

2.8 ip igmp snooping filter

[illegible]

ip igmp snooping filter *profile-number*

ò VLAN [illegible]

ip igmp snooping vlan *vlan-id* **filter** *profile-number*

[illegible]

no ip igmp snooping filter

[illegible] VLAN [illegible]

no ip igmp snooping vlan *vlan-id* **filter**

[illegible]

default ip igmp snooping filter

[illegible] VLAN [illegible]

default ip igmp snooping vlan *vlan-id* **filter**

[illegible]

[illegible]	[illegible]	T
profile-number	profile [illegible]	1-1024

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] **ip igmp snooping filter** [illegible] profile[illegible]

[illegible] Report [illegible] profile [illegible]

[illegible]

[illegible] 1 y– profile 1 [illegible]

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

[illegible]

* show ip igmp snooping [illegible] show ip igmp snooping vlan [illegible]

```
Ruijie#show ip igmp snooping vl(]M ž ž ž ž ž ž ž ž ž ž ž M
```

```
IGMP Fast-Leave: Disable
IGMP Report suppress: Disable
IGMP Globle Querier: Disable
IGMP Preview: Disable
IGMP Tunnel: Disable
IGMP Preview group aging time : 60(Seconds)
Dynamic Mroute Aging Time : 300(Seconds)
Dynamic Host Aging Time : 260(Seconds)

vlan 1

IGMP Snooping state: Enable
Multicast router learning mode: pim-dvmrp
IGMP Fast-Leave: Disabled pim-dăm ک                    ۂ
```

	@	T
	seconds	ðÿ¾kl8 1-65535ož

260 a

14

IP ÁÁ IGMPÁ¶

host-aging-timeoÿ

IGMP Snooping è

IGMP µ¶ÅÅ¶M ï ž›

host-aging-timeo

1 yFå IGMP ÁÁ 30s ož

```
Ruijie(config)# ip igmp snooping host-aging-time 30
```

* show ip igmp snooping ôFå@

-

-

-

2.10 ip igmp snooping l2-entry-limit

F

ip igmp snooping l2-entry-limit *number*

no ip igmp snooping l2-entry-limit

default ip igmp snooping l2-entry-limit

	@	T

number	ÁÑÊÈI8	0 – 65536ož

oHFå- 65536

oxÑ% %

oHõ- 14

o6-o- ÁÑ VLAN ÄIMÑÑmÁÑÁ
ÁÑÑÑÁÑMFåž

oFåÐ- 1 yFÑÑÁ 2000ož

```
Ruijie(config)# ip igmp snooping l2-entry-limit 2000
```

oèo- * show ip igmp snooping xÑFÑ@

```
B#show ip igmp snooping
IGMP Snooping running mode: IVGL
IGMP Snooping L2-entry-limit: 2000
Source port check: Disable
Source ip check: Disable
IGMP Fast-Leave: Disable
IGMP Report suppress: Disable
IGMP Globle Querier: Disable
IGMP Preview: Disable
IGMP Tunnel: Disable
IGMP Preview group aging time : 60(Seconds)
Dynamic Mroute Aging Time : 300(Seconds)
Dynamic Host Aging Time : 260(Seconds)
```

oUPÎb- -

oèÏp- -

oèVÎ- -

2.11 ip igmp snooping max-groups

FåIMÑÑž

ip igmp snooping max-groups *number*

HFå
no ip igmp snooping max-groups

ÐFåž
default ip igmp snooping max-groups

o@

@	T
number	ĵ8 0 – 1024

oFå- NMò–

o% NM%

o- 14

o-o- ĵåxMĵÇ IGMP Report
Gnž
NMĵNM VLAN gMc 3 VLAN VLAN C
NvÁ 224.1.1.1 cž 3 VLAN CNvÁ 224.1.1.1 M
ĵ 3 © 1 ož

oFå- 1 yFå E0/1 QÁ 100 ž

```
Ruijie(config)# interface Ethernet 0/1
Ruijie(config-if)# ip igmp snooping max-group 100
```

oo- * show ip igmp snooping interfaces xFĵ@

```
Ruijie#show ip igmp snooping interfaces gigabitEthernet 0/1
       Interface               Filter profile number       max-group
------------------------      ---------------------       ---------
GigabitEthernet 0/1                                        300
```

oUP-

oj- -

oV- -

2.12 ip igmp snooping mrouter learn pim-dvmrp

oÁÑNMož

ip igmp snooping [**vlan** *vid*] **mrouter learn pim-dvmrp**

{ÁÑNMož

no ip igmp snooping [**vlan** *vid*] **mrouter learn pim-dvmrp**

ÁÑNMHFåž

default ip igmp snooping [**vlan** *vid*] **mrouter learn pim-dvmrp**

oÞ

Þ@	T
vlan *vid*	6 vlanoÞÄ vlanož

oHFå-

o4

oxØ‰

‰

oHÕ-

14

o6-o-

ÑNMo IGMP Snooping ÁÕÁÁÐÕÞMož

ÕÁÑNMÕ- IGMP Query/DVMRP/PIM Hello Ãe

NMož

- oÁÑNMgbokUYÁÑNMož
- Få **ip igmp snooping vlan mrouter interface xKÁmož**
- Få **no ip igmp snooping mrouter learn pim-dvmrp xKÄ** VLAN {ÁÑNMož
- Få **no ip igmp snooping vlan** *vid* **mrouter learn pim-dvmrp xKØ** VLAN {Ãe NMož

ε i ` ω µ L ő ʒ ð ˘ 5 i ® ɪ M Γ м ä ɱ ɪ ő M ϑ Ɛ ╝ Γ ɧ j ɪ ε i Š н ʒ ı ð ˘ 5 i ® ɪ M Γ Ÿ ı ɱ ɪ ő ″ Ÿ ψ ¢

oFåÞ- 1 yN¨ VLAN1 oÁÑNMož

```
Ruijie(config)# no ip igmp snooping mrouter learn pim-dvmrp
Ruijie(config)# ip igmp snooping vlan 1 mrouter learn pim-dvmrp
```

oèo- * show ip igmp snooping xØÞ@

oUPÎÞ- -

oÞÞ- -

oHVØ- -

2.13 ip igmp snooping preview

ontápž

ip igmp snooping preview *profile-number*

tá¥pž

no ip igmp snooping preview

Ðå

default ip igmp snooping preview

ope T0 1739f Q Q 0.9057801AD>Tj/123224.057 T0 1739f 8 Tm 7.407 07A26FAD>Tj-0.04 Td1

2.14 ip igmp snooping preview interval

F åÁÄž

ip igmp snooping preview interval *seconds*

HÍF å

no ip igmp snooping preview interval

Êž

default ip igmp snooping preview interval

o@ @

@	T	
seconds	ÄÄ8	1-300ož

oHF å- 60 a

oxÄ% ÄÄ%

oHÊ- 14

o6-o- -

oFåÄ- 1 yoÁÄ 100 aož

```
Ruijie(config)# ip igmp snooping preview 1
Ruijie(config)# ip igmp snooping preview interval 100
```

oèo- * show running-config ÔFê

oÜPÔ- -

oÄ- -

oÜVÔ- -

2.15 ip igmp snooping querier

o IGMP Snooping ÔÜž

ip igmp snooping [**vlan** *vid*] **querier**

¼ IGMP Snooping õž

no ip igmp snooping [**vlan** *vid*] **querier**

ê Få

default ip igmp snooping [**vlan** *vid*] **querier**

oÞ@

p@	T
vlan *vid*	6 vlanoÆ9Ä vlanož

oÞFå- ¼

oxÞ‰ ‰

oÞõ- 14

o6-o- ÞõÇ VLAN oÞVLAN Þõž
Þ4Ä VLAN ÞÞõž

oFåÞ- 1 y¨ VLAN2 oõž

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

oèo- * show ip igmp snooping querier ê show ip igmp snooping querier detail xÞÞ@
Î

oÞPÎb- 1 yFÞå VLAN ÞPÎ

```
% Command did not take effect due to reason: IGMP switch querier is globally disabled
```

oõÞ 1 yÞõ VLAN ÞžFå VLAN õž

oÞVÞ- -

2.16 ip igmp snooping querier address

Få IGMP Snooping õ IP ÞÞž

ip igmp snooping [**vlan** *vid*] **querier address** *a.b.c.d*

Fåž

no ip igmp snooping [**vlan** *vid*] **querier address**

Ð¾Å¾

default ip igmp snooping [**vlan** *vid*] **querier address**

oÞ®

®@	T
vlan *vid*	6 vlanoÅ¾ÓÄ vlanož
a.b.c.d	› IP ª

oÞÅ¾-

-

oxÅ¾

ÞÅ¾

oÞ-

14

o6-o-

oÞÅ¾ IP ¾ož

ò VLAN 64Þ IP ¾.. VLAN Fåž

oFåÞ- 1

yFå IGMP Snooping Þ IP ª 1.1.1.1ož

```
Ruijie(config)# ip igmp snooping querier address 1.1.1.1
```

2yFå VLAN3 IGMP Snooping Þ IP ª 1.1.1.1ož

```
Ruijie(config)# ip igmp snooping vlan 3 querier address 1.1.1.1
```

oèo-

*

ê½ž

default ip igmp snooping [**vlan** *vid*] **querier max-response-time**

o½@	¡@	T
vlan *vid*	6 vlanoÄ	vlanož
seconds	*½%ÃÌ*	1-25ož

oÄFå- 10 a

oxÃ% ¶Å%

oÄõ- 14

o6-o- ò VLAN 64Ã. VLAN Fåž

oFåõ- 1 yFÃ 15 aož

```
Ruijie(config)# ip igmp snooping querier max-response-time 15
```

2yFå VLAN3Ã 15 aož

```
Ruijie(config)# ip igmp snooping vlan 3 querier max-response-time 15
```

oèo- * show ip igmp snooping querier ê show ip igmp snooping querier detail xßÃ¼@ Î

oÜPÎb- -

oõÃp- -

oÜVõ- -

2.18 ip igmp snooping querier query-interval

Få IGMP Snooping ½ž

ip igmp snooping [**vlan** *vid*] **querier query-interval** *seconds*

Få

no ip igmp snooping [**vlan** *vid*] **querier query-interval**

ê½ž

default ip igmp snooping [**vlan** *vid*] **querier query-interval**

	@	T
	vlan *vid*	6 vlanoÄ vlanož
	seconds	1-18000ož

oF-å- 60 a

oxÄ‰ ‰

oFÕ- 14

o6-o- ò VLAN 64Ÿe. VLAN Fåž

oFåÕ- 1 yFåž

```
Ruijie(config)# ip igmp snooping querier query-interval 100
```

2y% VLAN Fåž

```
Ruijie(config)# ip igmp snooping vlan 3 querier query-interval 100
```

oòo- * show ip igmp snooping querier ê show i(mp sn)-6noopg qpalr

ž

opUP ÉÕ

oÕ-

oPbø-

o@	@	T
	vlan *vid*	6 vlanoÄ vlanož
	seconds	8 60-300ož

oFå- 125 a

oxx

oÕ- 14

o6-o- o4ÕkU#ßG
ž
VLAN VLAN Fåž

oFåÕ- 1 yFå 60 aož

```
Ruijie(config)# ip igmp snooping querier timer expiry 60
```

2yFå VLAN3 60 aož

```
Ruijie(config)# ip igmp snooping vlan 3 querier timer expiry 60
```

oò- * show ip igmp snooping querier ê show ip igmp snooping querier detail x@
Î

oUPÕ- -

oõ- -

ouVÕ- -

2.20 ip igmp snooping querier version

Få IGMP Snooping IGMPv1ož

ip igmp snooping [**vlan** *vid*] **querier version 1**

ê IGMP Snooping IGMPv2ož

ip igmp snooping [**vlan** *vid*] **querier version 2**

no ip igmp snooping [**vlan** *vid*] **querier version**

Få

default ip igmp snooping [**vlan** *vid*] **querier version**

o@@

@	T
vlan *vid*	6 vlanoÄ vlanož

oÅ- IGMP Snooping IGMPv2ož

oxx

14

o- ò4 IGMPv1oIGMPv2 ož
ò VLAN]Fåg IGMP k.. VLAN Fåž

oFå- 1 yg IGMPv1ož

```
Ruijie(config)# ip igmp snooping querier version 1
```

2yå VLAN3 g IGMPv1ož

```
Ruijie(config)# ip igmp snooping vlan 3 querier version 1
```

oo- * show ip igmp snooping querier ê show ip igmp snooping querier detail x@
Î

oUPb- -

oo- -

ouVo- -

2.21 ip igmp snooping query-max-response-time

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

Få
no ip igmp snooping query-max-response-time

ž
default ip igmp snooping query-max-response-time

o@ p@

@	T
-	-

oH-å- {4

oxx% %

oH- 14

o6-o- 0 Report

oHFå- ò SVGL Á

oxÊ‰ ¶‰

oHõ- 14

o6-o- ò IGMP Snooping g% SVGL ê IVGL-SVGLÈåxòž
% profile ¥g¨ SVGL ÊÊxX4 profileož

oFåb- 1 yFg¨ SVGL Ê‰ profile 2ož

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

oèo- * show ip igmp snooping ôFß@

oUPb- -

oeÿ- -

ouVõ- -

2.24 ip igmp snooping svgl subvlan

6g¨ SVGL ÿ% VLANož

ip igmp snooping svgl subvlan [*vid-range*]

HFåž

no ip igmp snooping svgl subvlan [*vid-range*]

ÊFåž

default ip igmp snooping svgl subvlan [*vid-range*]

oß®

ß@	T
vid-range	VLAN ID ê VLAN ID 8ož H Shared VLAN Ê VLAN C¥® VLANož

oHFå- Á VLAN C© SVGL ÿ VLAN

oxÊ‰ ¶‰

oHõ- 14

```
Ruijie(config)# ip igmp snooping svgl subvlan 2,5-7
```

oèo- * show ip igmp snooping ÔFå®

oÙPÎb- -

oïj- -

oÙVÔ- -

2.26 ip igmp snooping tunnel

o QinQ ‰ IGMP ¢ž

ip igmp snooping tunnel

¼ QinQ ‰ IGMP ¢ž

no ip igmp snooping tunnel

ÊFå

default ip igmp snooping tunnel

o®

®	T
-	-

oÈFå- ¼ož

oÈÕ- 14

o×‰ ‰

o6-o- Ê4 IGMP Snooping wFå dot1q-tunnel ¾ÍÈR dot1q-tunnel ¾Ívñ IGMP k IGMP Snooping UYÄÏ®

- ¾QinQ ‰ IGMP ¢Ãny¼ IGMP ñ VLAN w¨ IGMP ñ VLAN G IGMP ¢Ãyè- IGMP Snooping¼- A dot1q-tunnel ¾Ík M A Þ VLAN

- VLAN 1 y VLAN 10 tgÉM A G VLAN 10 IGMP report ¥ IGMP Snooping 1y VLAN 1 ÁnÄ¼ IGMP report ¥‰ VLAN 1 VLAN Tag ¤ÇÇ ñ VLAN 1 ÊMož

HÕBož

oFåb- 1 yo QinQ ‰ IGMP tž

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

oèo- * show ip igmp snooping ÔFå@

oUPÎb- -

oeÿp- -

ouVÔ- -

2.27 ip igmp snooping vlan

¨ VLAN o IGMP SnoopinggIVGL ‰ ož

ip igmp snooping vlan *vid*

¨ VLAN ¼ IGMP SnoopinggIVGL ‰ ož

no ip igmp snooping vlan *vid*

ÊFå

default ip igmp snooping vlan *vid*

o@	@	T
	vid	VLAN ¥Á8 1-4094

oHFåa- ß IGMP SnoopinggIVGL ¥‰ VLAN ® IGMP SnoopinggIVGL ¥ž ß IGMP SnoopinggIVGL ‰ ¥Á VLAN è IGMP SnoopinggIVGL ¥ž

oxÄ‰ ¥‰

oHÕ- 14

gIVGL ¥ž

©n%YmßMgUßMßMbßMk
ož
©n%YmßMgUßMßMbßMk ož. **clear ip igmp snooping gda-table xßMož**

oFåt- 1 yFå GigabitEthernet 0/1 vlan 1 Á 224.1.1.1 ßMož

```
Ruijie(config)# ip igmp snooping vlan 1 static 224.1.1.1 interface GigabitEthernet 0/1
```

oèo- * show ip igmp snooping ôFß@

oUPÎb- 1 yFßMßPÎ

```
% Error: Configure static multicast group in this port fail
```

oeÿp- -

ouVß- -

2.30 permit

¨ profile ©8Áž
permit

opß@

```
ß@
```

oèo- * show ip igmp profile ôFê®

oÙPÎb- -

oêjp- -

oÙVÔ- -

2.31 range

¨ profile Ïkož

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

ÏÁkož

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

oÞ®

@	T
low-ip-address	68ëÙ
high-ip-address	68ÈÄ16ÈÄ

oÏFå- Ïk

oxÏ‰ profile Fß‰

oÏÕ- 14

oÏ-o- profile ÏÁÏFêâ

1k. **ip igmp profile xÏ‰** profilekwµ profile ÏÁz

2k. **range xÏkož**

3k. **permit xÏ8Ïk..** **deny xÏ48ÏÄÏ** **denyož**

oFåb- 1 yFå profile 1Ïk 224.2.2.2 224.2.2.244 ož

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

oèo- * show ip igmp profile ôFê®

oÙPÎb- -

oœÿ- -

oÙVÐ- -

2.32 show ip igmp profile

ÞÞ profile FÊa

show ip igmp profile [*profile-number*]

oÞÞ

¢@	T
profile-number	profile Ó8 1-1024ož ÞÞÄ profile FÊaž

oxÞÞ Ôb

oÞÕ- 14

o6-o- ¥XÔ]Få profile Î

oFåÙ- 1 yÔ]Få profile Î

```
Ruijie#show ip igmp profile
PROFILE     1
        DENY
        RANGE 224.1.1.1,   225.1.1.1
```

oÙPÔ- -

oÙVÐ- -

2.33 show ip igmp snooping

ÞÞ IGMP Snooping ÊÞž

show ip igmp snooping [**vlan** *vid*]

ÞÞ IGMP Snooping 6nož

show ip igmp snooping gda-table

- IGMP Snooping ÊMÎFåž

show ip igmp snooping interfaces [*interface-type interface-number*]

- IGMP Snooping ÊMož

show ip igmp snooping mrouter

- IGMP Snooping ÎbŽ

show ip igmp snooping statistics

```
Global IGMPv2 Fast-Leave :Disable
Global multicast router learning mode :Enable
Query Max Respone Time: 10 (Seconds)
Dynamic Mroute Aging Time : 300(Seconds)
Dynamic Host Aging Time : 260(Seconds)

vlan 1
-------------
IGMP Snooping state: Enable
Multicast router learning mode: pim-dvmrp
IGMP Fast-Leave: Disable
IGMP VLAN querier: Disable
IGMP VLAN Mode: STATIC
```

oЧPĵb- -

oчVØ- -

-

1 AAA

1.1 aaa accounting commands

```
The accounting does not support this type of group
```

1.2 aaa accounting exec

aaa accounting exec default

```
%Group XXX is not existed
```

```
The accounting does not support this type of group
```

1.3

show aaa method-list xMYô]FÃçîbž

```
%Group XXX is not existed
```

```
The accounting does not support this type of group
```

1.4 aaa accounting update

aaa accounting update

no aaa accounting update

-	

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
```

show aaa accounting update xMYôÃpož

1.5 aaa accounting update periodic

1.6 aaa authentication dot1x

1.7 aaa authentication enable

aaa authentication enable Få

aaa authentication enable default *method1 method2*

no aaa authentication enable default

default	
method	**À**
local	**ÎÇ**
none	**gš**
group	**ÿ4**
enable	**…**

aaa authentication enable xÈ9

```
Ruijie(config)# aaa authentication enable default group radius local
```

show aaa method-list xÒ]Få

```
%Group XXX is not existed
```

aaa authentication web-auth xKÔ#ę9ÕW

RliÔ ť Ś ž = ś ɹ m on Ꝁ ś k è s_Ꝁ ś k = þ φ

show aaa method-list xꝺYÔ]Få

% Ꝿ Ɛ upŁ Ź Ź Ź Ł Ø T M A m Ţ M

Tǯ = ś ɹ m on Ţ A = = = s hɥyƑ ś M =

1.10 aaa authorization commands

aaa authorization commandsož

aaa authorization commands *level* **default** *list-name* *method1* *method2*

no aaa authorization commands *level* **default** *list-name*

level	

default	
list-name	
method	**À**
none	**glÓ**
group	**ÓÊÓ4**

```
Ruijie(config)# aaa authorization commands 15 default group tacacs+
```

show aaa method-list xÒYÔ]FåÓÇÎbž

```
%Group XXX is not existed
```

```
The authorization does not support this type of group
```

1.11 aaa authorization config-commands

aaa authorization config-commands

aaa authorization config-commands

no aaa authorization config-commands

no [illegible]

[illegible]

```
Ruijie(config)# aaa authorization config-commands
```

1.12 aaa authorization console

```
Ruijie(config)# aaa authorization console
```

1.13 aaa authorization exec

aaa authorization execož

aaa authorization exec **default** *list-name* *method1* *method2*

no aaa authorization exec **default** *list-name*

default	
list-name	
method	**À**
local	**ÎÜ€glÓ**
none	**glÓ**
group	**ÉÉÓ4**

```
Ruijie(config)# aaa authorization exec default group radius
```

show aaa method-list xMYô]Få

```
%Group XXX is not existed
```

```
The authorization does not support this type of group
```

1.14 aaa authorization network

aaa authorization networkož

aaa authorization network **default** *list-name* *method1* *method2*

no aaa authorization network **default** *list-name*

default	
method	**Ò**
none	**gèÓ**
group	**ÓÓ4**

domain-name	*6df*

domain-name 6df

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)#
```

show aaa domain xml

1.16 aaa domain enable

aaa domain enable

no aaa domain enable

-	

```
Ruijie(config)# aaa domain enable
```

show aaa domain xØÉÊž

1.17 aaa local authentication attempts

aaa local authentication attempts *max-attempts*

*max-attempts*ý	*ÊÉH8*

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication attempts 6
```

show aaa lockout xØgFÊž

```
Ruijie(config)# aaa log rate-limit 10
```

show running-config xx

1.21 aaa new-model

show running-config xx

1.22 access-limit

access-limit *num*

no access-limit

num	[illegible]

```
Ruijie(config)# aaa domain ruijie.con
Ruijie(config-aaa-domain)# access-limit 20
```

show aaa domain xx [illegible]

1.23 accounting network

accounting network default | *list-name*

no accounting network

default	
list-name	*6ϵϱdf*

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# accounting network defaul  ̈Ω
```

ЛJ ΆA ΜΙ

1.24 authentication dot1x

authentication dot1x default *list-name*

no authentication dot1x

default	
list-name	*6*çpdf

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authentication dot1x default
```

show aaa domain xMY06

```
Method list name is too long
```

```
%WARNING: method list named XXX for this type is not existed
```

1.25 authorization network

authorization network default *list-name*

no authorization network

default	
list-name	*6cpdf*

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authorization network default
```

show aaa domain xMY06

1.26 clear aaa local user lockout

clear aaa local user lockout all user-name *word*

all	*nPÄgï*
user-name *word*	

```
Ruijie# clear aaa local user lockout all
```

```
User XXX unlocked
```

1.27 show aaa accounting update

show aaa accounting update

-	

```
Ruijie# show aaa accounting update
```

1.28 show aaa domain

show aaa domain **default** *domain-name*

default	
domain-name	*P6dÎ*

```
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
```

1.29 show aaa group

show aaa group

-	

```
Ruijie# show aaa group
Type       Reference  Name
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          dot1x_group
radius     1          login_group
radius     1          enable_group
```

1.30 show aaa lockout

```
Ruijie# show aaa lockout
Lock tries:    3
Lock timeout:  15 minutes
```

1.31 show aaa method-list

show aaa method-list

-	

```
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
```

1.32 show aaa user

show aaa user **all | lockout | by-id** *session-id* **| by-name** *user-name*

```
Name                            Tries      Lock       Timeout(min)
------------------------------- ---------- ---------- ------------
Ruijie#
```

1.33 state

state block active

no state

block	
active	[illegible]

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# state block
```

show aaa domain xxx [illegible]

2 RADIUS

2.1 aaa group server radius

aaa group server radius *name*

no aaa group server radius *name*

name	

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Type       Reference  Name
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          ss
```

show running-config UYð

2.2 ip radius source-interface

ip radius source-interface *interface-name*

no radius source-interface *interface-name*

interface-name	

no radius attribute *id* **down-rate-limit dscp mac-limit up-rate-limit vendor-type**

id	
type	

id		type

id		type

```
Ruijie(config)# radius attribute 16 vendor-type 211
```

show radius vendor-specific 0

```
no application for the id
```

```
the vendor type had allocated by XXXX
```

2.4 radius set qos cos

radius set qos cos

no radius set qos cos


```
Ruijie(config)# radius set qos cos
```

show running-config 0

2.5 radius support cui

radius support cui

no radius support cui

-	

```
Ruijie(config)# radius support cui
```

show running-config

2.6 radius vendor-specific extend

radius vendor-specific extend

no radius vendor-specific extend


```
Ruijie(config)# radius vendor-specific extend
```

show running-config [| **begin** *keyword*]

2.7 radius-server account attribute

radius-server account attribute *type* **package**

radius-server account attribute *type* **unpackage**

no radius-server account attribute *type* **package**
default radius-server account attribute *type* **package**
no radius-server account attribute *type* **unpackage**
default radius-server account attribute *type* **unpackage**

type	

```
Ruijie(config)# radius- se"    l' D ẓ î γ ⌠ A   l' D       ɜ̈       1    %    "    "
```

```
Ruijie(config)#radius-server account update retransmit
```

show running-config ÔFåž

2.9 radius-server account vendor

radius-server account vendor [cmcc | microsoft | cisco] package

no radius-server account vendor *vendor_name* **package**
default radius-server account vendor *vendor_name* **package**

cmcc | microsoft | cisco	

```
Ruijie(config)# radius-server account vendor cmcc package
```

2.10 radius-server attribute class

radius-server attribute class

no radius-server attribute class

-	

show r[illegible]ty

ietf	
normal	*6onP*
unformatted	*6k[illegible]*

```
Ruijie(config)# radius-server attribute 31 mac format ietf
```

show running-config

2.12 radius-server authentication attribute

radius-server authentication attribute *type* **package**

radius-server authentication attribute *type* **unpackage**

no radius-server authentication attribute *type* **package**
default radius-server authentication attribute *type* **package**
no radius-server authentication attribute *type* **unpackage**
default radius-server authentication attribute *type* **unpackage**

type	

```
Ruijie(config)# radius-server authentication vendor cmcc package
```

2.14 radius-server dead-criteria

radius-server dead-criteria **time** *seconds* **tries** *number* **tries** *number*

no radius-server dead-criteria **time** *seconds* **tries** *number* **tries** *number*

time *seconds*	
tries *number*	

time *seconds* ó

tries *number* ó

```
Ruijie(config)# radius-server dead-criteria time 120 tries 20
```

show radius parameter UYÕÕ-

2.15 radius-server deadtime

radius-server deadtime *minutes*

no radius-server deadtime

radius-server host *ipv4-address*

show radius server UYð

2.17 radius-server key

radius-server key 0 7 *text-string*

no radius-server key

text-string	
0 7	

```
Ruijie(config)# radius-server key aaa
```

show radius server UYð

2.18 radius-server retransmit

radius-server retransmit *retries*

port	

```
Ruijie(config)# radius-server source-port 10000
```

show running-config UYÕÕ

2.20 radius-server timeout

radius-server timeout *seconds*

no radius-server timeout

seconds	

```
Ruijie(config)# radius-server timeout  10
```

show radius parameter UYÕÑG

2.21 server auth-port acct-port

no **ž**

server *ipv4-addr* *ipv6-addr* **auth-port** *port1* **acct-port** *port2*

no server *ipv4-addr* *ipv6-addr* **auth-port** *port1* **acct-port** *port2*

o

ip-addr	
Ipv6-addr	Æ
port1	
port2	

ï | ¼æ½Ó¬ª ¼

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12 acct-port 5 auth-port 6
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Type        Reference  Name
```

```
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          ss
```

wE)&A

```
Retry Requests..................................... 1
Accounting Responses............................... 0
Malformed Msgs..................................... 0
Bad Authenticator Msgs............................. 0
Pending Requests................................... 1
```

2.23 show radius attribute

show radius attribute

-	

```
Ruijie#sh radius attribute
type          implicate
----          ---------
   1..........User-Name
   2..........User-Password
   3..........Chap-Password
   4..........NAS-Ip-Addr
   5..........Nas-Ip-Port
   6..........Service-Type
   7..........Framed-Protocol
   8..........Frame-Ip-Address
   9..........Framed-Ip-M     9.                                    Ŭ              Mă Ŏ Ŏ Ŏ Ŏ Ŏ Ŏ Ŏ Ŏ Ŏ
```

```
12..........Framed-Mtu
13..........Framed-Compress
14..........Login-Ip-Host
15..........Login-Service
16..........Login-Tcp-Port
18..........Reply-Message
19..........Callback-Num
20..........Callback-Id
22..........Framed-Route
23..........Framed-IPX-Network
24..........State
25..........Class
26..........Vendor-Specific
27..........Session-Timeout
28..........Idle-Timeout
29..........Termination-Action
30..........Called-Station-Id
31..........Calling-Station-Id
32..........Nas-Id
33..........Proxy-State
34..........Login-LAT-Service
35..........Login-LAT-Node
36..........Login-LAT-Group
37..........Framed-AppleTalk-Link
38..........Framed-AppleTalk-Net
39..........Framed-AppleTalk-Zone
40..........Acct-Status-Type
41..........Acct-Delay-Time
42..........Acct-Input-Octets
43..........Acct-Output-Octets
44..........Acct-Session-Id
45..........Acct-Authentic
46..........Acct-Session-Time
47..........Acct-Input-Packet
48..........Acct-Output-Packet
49..........Acct-Terminate-Cause
50..........Acct-Multi-Session-ID
51..........Acct-Link-Count
52..........Acct-Input-Gigawords
53..........Acct-Output-Gigawords
60..........Chap-Challenge
```

```
 61..........Nas-Port-Type
 62..........Port-Limit
 63..........Login-Lat-Port
 64..........Tunnel-Type
 65..........Tunnel-Medium-Type
 66..........Tunnel-Client-EndPoint
 67..........Tunnel-Service-EndPoint
 79..........eap msg
 80..........Message-Authenticator
 81..........group id
 85..........Acct-Interim-Interval
 87..........Nas-Port-Id
 89..........cui
 95..........Nas-Ipv6-Addr
 96..........Framed-Interface-Id
 97..........Framed-Ipv6-Prefix
 98..........Login-Ipv6-Host
 99..........Framed-Ipv6-Route
100..........Framed-Ipv6-Pool
168..........Framed-Ipv6-Addr
```

2.24 show radius auth statistics

show radius auth statistics

-	

```
Ruijie#show radius auth statistics
Authentication Servers:

Server Index..................................... 1
Server Address................................... 192.168.1.1
Server Port...................................... 1812
Msg Round Trip Time.............................. 0 (msec)
First Requests................................... 0
Retry Requests................................... 0
Accept Responses................................. 0
Reject Responses................................. 0
Challenge Responses.............................. 0
Malformed Msgs................................... 0
Bad Authenticator Msgs........................... 0
Pending Requests................................. 0
Timeout Requests................................. 0
Unknowntype Msgs................................. 0
Other Drops...................................... 0
```

2.25 show radius group

show radius group

-	

```
Ruijie#show radius group
```

```
==========Radius group radius==========
Vrf:not-set
Server:192.168.1.1
  Server key:ruijie
  Authentication port:1812
  Accounting port:1813
```

2.26 show radius parameter

show radius parameter

-	

2.27 show radius server

show radius server

-	

```
Ruijie# show radius server
Server IP:    192.168.4.12
Accounting  Port:  23
Authen  Port:     77
Test Username:    test
Test Idle Time:   10 Minutes
Test Ports:        Authen
Server State:     Active
    Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
Authen: request 15, timeouts 1
Author: request 0, timeouts 0
Account: request 0, timeouts 0

Server IP:    192.168.4.13
Accounting Port:  45
Authen  Port:     74
Test Username:    <Not Configured>
Test Idle Time:   60 Minutes
Test Ports:        Authen and Accounting
Server State:     Active
Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
```

```
Authen: request 0, timeouts 0
Author: request 0, timeouts 0
Account: request 20, timeouts 0
```

2.28 show radius vendor-specific

show radius vendor-specific

-	

```
Ruijie#show radius vendor-specific
id    vendor-specific      type-value
----- -------------------- ----------
1     max-down-rate        1
2     port-priority        2
3     user-ip              3
4     vlan-id              4
5     last-supplicant-vers 5
      ion
6     net-ip               6
7     user-name            7
8     password             8
9     file-directory       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	current-supplicant-v	17
18	flux-max-high32	18
19	flux-max-low32	19
20 [illegible]		

3 TACACS+

3.1 aaa group server tacacs+

aaa group server tacacs+ *group-name*

no aaa group server tacacs+ *group-name*

group-name	

```
Ruijie(config)# aaa group server tacacs+ tac1
Ruijie(config-gs-tacacs+)#server 1.1.1.1
```

show running-config xÞ¥Ÿ0]Få

3.2 ip tacacs source-interface

ip tacacs source-interface *interface-name*

```
Ruijie#
```

tacacs-server host xX

Ruijie(config)# ع O)K̲ ΌΆ⊓ " ύ ' ΘΘŴ Ú N φ τ0

!ΉĤ æ 0 ΌΩ ʒ ⊼ ή ę ⊥

show running-config UYð

4 802.1x

4.1 aaa authorization ip-auth-mode

aaa authorization ip-auth-mode disable | supplicant | radius-server | dhcp-server | mixed

disable	*[illegible]*
supplicant	*Supplicant [illegible] ip [illegible]*
mixed	*[illegible]*

o[illegible]-

```
Ruijie(config)# aaa authorization ip-auth-mode supplicant
```

-

o[illegible]-

-

4.2 clear dot1x user all

clear dot1x user all


```
Ruijie#clear dot1x user all
```

name-str	

```
Ruijie#clear dot1x user name dot1x-user
```

-

4.6 dot1x accounting

dot1x accounting *list-name*

list-name	*Ño*

4.7 dot1x auth-address-table address

dot1x auth address table address *mac-addr* **interface** *interface*

mac-addr	[illegible]
interface	[illegible]

```
Ruijie(config)# dot1x auth-address-table 00d0.f800.0cb2 interface fastethernet 0/1
```

4.8 dot1x authentication

dot1x authentication *list-name*

list-name	[illegible]

```
Ruijie(config)# dot1x authentication dot1x-authen
```

4.9 dot1x auth-fail max-attempt

dot1x auth-fail max-attemp *value*

no dot1x auth-fail vlan

o

value	

```
Ruijie(config)# dot1x auth-fail max-attempt 2
```

4.10 dot1x auth-fail vlan

dot1x auth-fail vlan *vlan-id*

no dot1x auth-fail vlan

vlan-id	[illegible]

```
Ruijie(config-if)# dot1x auth-fail vlan 30
```

4.11 dot1x auth-mode

dot1x auth-mode eap | chap | pap

	[illegible]

dot1x auto-req

no dot1x auto-req

-	

```
Ruijie(config)# dot1x auto-req
```

4.14 dot1x auto-req packet-num

dot1x auto-req packet-num *num*

o

```
Ruijie(config)# dot1x auto-req packet-num 100
```

4.15 dot1x auto-req req-interval

dot1x auto-req req-interval *time*

op

time


```
ruijie(config)# dot1x auto-req user-detect
```

4.17 dot1x client-probe enable

dot1x client-probe enable

no dot1x client-probe enable

4.18 dot1x critical

dot1x critical

no dot1x critical


```
Ruijie(config-if-GigabitEthernet 0/5)#dot1x critical
```

4.19 dot1x critical recovery action reinitialize

dot1x critical recovery action reinitialize

no dot1x critical recovery action reinitialize


```
Ruijie(config-if)# dot1x default-user-limit 10
```

4.24 dot1x dynamic-vlan enable

dot1x dynamic-vlan enable

no dot1x dynamic-vlan enable

op

	64

```
Ruijie(config-if)# dot1x dynamic-vlan enable
```

4.25 dot1x guest-vlan

dot1x guest-vlan *vlan-id*

no dot1x guest-vlan

o

vlan-id	*{1-4094}*

```
Ruijie(config-if)# dot1x guest-vlan 20
```

4.26 dot1x mac-auth-bypass

dot1x mac-auth-bypass

no dot1x mac-auth-bypass


```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x mac-auth-bypass
```

4.27 dot1x mac-auth-bypass multi-user

dot1x mac-auth-bypass multi-user

no dot1x mac-auth-bypass multi-user

	64

```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x mac-auth-bypass multi-user
```

4.28 dot1x mac-auth-bypass timeout-activity

dot1x mac-auth-bypass timeout-activity *time*

op

time	

```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x mac-auth-bypass violation
```

4.30 dot1x mac-auth-bypass vlan

dot1x mac-auth-bypass vlan *vlan-list*

no dot1x mac-auth-bypass vlan *vlan-list*

op

vlan-list	*g*

```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x mac-auth-bypass vlan 5 ı 8-20
```

4.31 dot1x max-req

dot1x max-req *num*

num	

```
Ruijie(config)# dot1x max-req 2
```

4.32 dot1x multi-account enable

dot1x multi-account enable

no dot1x multi-account enable

op


```
Ruijie(config)# dot1x multi-account enable
```

4.33 dot1x multi-mab quiet-period

dot1x multi-mab quiet-period *time*

op

time	*Ú*

```
Ruijie(config)# dot1x multi-mab quiet-period 2
```

4.34 dot1x port-control auto

dot1x port-control auto

no dot1x port-control auto

op


```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x port-control auto
```

4.35 dot1x port-control-mode

dot1x port-control-mode { mac-based | port-based | port-based single-host}

no dot1x port-control-mode

o


```
Ruijie(config-if-GigabitEthernet 0/0)# dot1x port-control-mode port-based
```

4.36 dot1x private-supplicant-only

dot1x private-supplicant-only

no dot1x private-supplicant-only

op


```
Ruijie(config)# dot1x private-supplicant-only
```

4.37 dot1x probe-timer alive

dot1x probe-timer alive *time*

op

time	*jzkyako*

¶ B % ”

4.39 dot1x pseudo source-mac

dot1x pseudo source-mac

no dot1x pseudo source-mac

op


```
Ruijie(config)# dot1x pseudo source-mac
```

4.40 dot1x re-authentication

dot1x re-authentication

no dot1x re-authentication

op


```
Ruijie(config)# dot1x re-authentication
```

4.41 dot1x reauth-max

dot1x reauth-max *num*

op

4.45

```
Ruijie(config)# dot1x timeout server-timeout 10
```

4.47 dot1x timeout supp-timeout

dot1x timeout supp-timeout *time*

op

time	

time	

```
Ruijie(config)# dot1x timeout tx-period 5
```

4.49 dot1x user-name compatible

dot1x user-name compatible

no dot1x user-name compatible

op

time	*无*

```
Ruijie(config)# dot1x valid-ip-acct timeout 10
```

4.52 dot1x system disable

4.53 show dot1x

show dot1x


```
Ruijie#show dot1x

802.1X basic information:
```

```
Client Online Probe ................... disable
Eapol Tag ............................ enable
802.1x redirect ...................... disable
Private supplicant only ............... disable
```

È ‹ ¼... ¨ ¼

-

4.54 show dot1x auth-address-table

show dot1x auth-address-table **address** *addr* **interface** *interface*

addr	*6Æ*
Interface	*6ÈÍÞ*

```
Ruijie# show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num  : 0
Req-Interval: 30 Seconds
```

È ‹ ½... ğ χ

-

4.56 show dot1x max-req

show dot1x max-req


```
Ruijie#show dot1x max-req


Max-Req: 3 Times
```

È ‹ ½... ğ χ

-

4.57 show dot1x port-control

show dot1x port-control interface *interface-type interface-numbe*

4.58 show dot1x private-supplicant-only

show dot1x private-supplicant-only


```
Ruijie#show dot1x probe-timer
Hello Interval    : 20
Hello Alive       : 60
```

È ª ½... ¢ ¼

-

4.60 show dot1x re-authentication

show dot1x re-authentication


```
Ruijie#show dot1x re-authentication


Reauth-Enabled: Disabled
```

È ª ½... ¢ ¼

-

4.61 show dot1x reauth-max

show dot1x reauth-max


```
Ruijie#show dot1x reauth-max


Reauth-Max: 3 Times
```

È ª ½... ¤ ¼

-

4.62 show dot1x summary

show dot1x summary

-

È ɜ ٪... ğ χ

-

4.63 show dot1x timeout quiet-period

show dot1x timeout quiet-period


```
Ruijie#show dot1x timeout quiet-period


Quiet-Period: 10 Seconds
```

È ª ¼... ¨ χ

4.65 show dot1x timeout server-timeout

```
Ruijie#show dot1x timeout supp-timeout


Supp-Timeout: 3 Seconds
```

È ª ½... ¨ χ

-

4.67 show dot1x timeout tx-period

show dot1x timeout tx-period


```
Ruijie#show dot1x timeout tx-period


Tx-Period: 30 Seconds
```

È ª ½... ¨ χ

-

4.68 show dot1x user id

show dot1x user id *id*

id	[illegible]

```
Ruijie#show dot1x user id 16777225
```

```
User#1ş q Ã î $ 7 ŭ ȯ ώ ᵀ l Ó l }ī 7 ת ṗ ľ ˇ V
```

show dot1x user name *name*

name	指…

```
Ruijie#show dot1x user name ts-user

User name: ts-user
User id: 16777225
Type: static
Mac address is 0023.aeaa.4286
Vlan id is 2
Inner-VLAN id 5Access from port Gi0/5
```


-

5 Web

5.1 accounting

accounting *method-list*

no accounting

method-list	[illegible]

[illegible]

```
Ruijie(config.tmplt.eportalv2)# accounting mlist1
```

show web-auth template [illegible]

5.2

authentication *method-list*

no authentication

method-list	*epdož*

```
Ruijie(config.tmplt.eportalv2)#authentication mlist1
```

show web-auth template

5.3 bindmode

bindmode ip-mac-mode ip-only-mode

no bindmode

ip-mac-mode	

ip-only-mode	**N**

ip-mac-modeož

```
Ruijie(config.tmplt.eportalv2)# bindmode ip-only-mode
```

show web-auth template [illegible]

5.5 clear web-auth direct-site

```
Ruijie# clear web-auth user all
```

5.7 fmt

fmt { cmcc-ext1 | cmcc-ext2 | cmcc-normal }

cmcc-ext1	*gy*
cmcc-ext2	*kg*
cmcc-ext2	*f*
cmcc-normal	*gõ*

```
Ruijie(config.tmplt.eportalv2)#fmt cmcc-ext1
```

show web-auth template

```
```

5.8 http redirect direct-arp

http redirect direct-arp *ip-address ip-mask*

No http redirect direct- arp *ip-address ip-mask*

ip-address	
Ip-mask	*gÞÜ*

```
Ruijie(config)# http redirect direct-arp 172.16.0.1
```

show web-auth direct-arp ÕFå*

```
%Error: Invalid IP address.
```

5.9 http redirect direct-site

http redirect direct-site *ipv6-address ipv4-address ip-mask* **arp** *mac-address starip-address endip-address description-str group-name*

no http redirect direct-site *ipv6-address* | *ipv4-address ip-mask mac-address* | *startip-address endip-address*

Ipv6-address	[illegible]
Ipv4-address	[illegible]
Ip-mask	[illegible]
Arp	[illegible] **arp** [illegible]
Mac-address	[illegible]
Startip-address	[illegible]
Endip-address	[illegible]
Group-name	[illegible]
Description-str	[illegible]

```
Ruijie(config)# http redirect direct-site 172.16.0.1
```

```
Ruijie(config)# http redirect direct-site 0000:5e00:0101
```

```
Ruijie(config)# http redirect direct-site range 10.0.0.1 12.0.0.1
```

show web-auth direct-site [range] [illegible]

```
%Error: Invalid IP address.
```

5.10 http redirect port

http redirect port *port-num*

no http redirect port *port-num*

port-num	

```
Ruijie(config)# http redirect port 8080
```

```
Ruijie(config)# no http redirect port 80
```

show web-auth rdpor

```
%Error: Can't set local reserved port(23) as redirection port.
```

5.11 http redirect session-limit

http redirect session-limit *session-num* **port** *port-session-num*

no http redirect session-limit

session-num	[illegible]
port-session-num	[illegible]

```
Ruijie(config)# http redirect session-limit 4
```

show web-auth parameter [illegible]

5.12 http redirect timeout

http redirect timeout *seconds*

no http redirect timeout

seconds	**MgN** *seconds*

ip *ip-address*

no ip

ip-address	

http redirect *ip-address*

```
Ruijie(config.tmplt.eportalv1)#ip 172.16.0.1
Ruijie(config.tmplt.eportalv1)#
```

show web-auth template

```
%Error: Modify portal ip is unsupportted.
```

```
%Error: Invalid portal ip        .
```

5.14 ip portal source-interface

interface-type	**NM[illegible]**
interface-num	***M[illegible]***

-

```
Ruijie (config)# ip portal source-interface Aggregateport 1
```

show running-config [illegible]å

5.15 port

port *port-num*

no port

port	

```
Ruijie(config.tmplt.eportalv2)#port 10000
```

show web-auth template [illegible]

5.16 show web-auth control

show web-auth control

-	

```
Ruijie(config)#show web-auth control
 Port                      Control  Server Name          Online User Count Vlan Control List
 ------------------------- -------- --------------------- ----------------- -----------------
 GigabitEthernet 0/1       On       <not configured>      0                 2-17,19
Ruijie(config)#
```


5.17 show web-auth direct-arp

show web-auth direct-arp

-	

```
Ruijie(config)#show web-auth direct-arp
Direct arps:
  Address         Mask
  --------------- ---------------
  1.1.1.1         255.255.255.255
  2.2.2.2         255.255.255.255
Ruijie(config)#
```


5.18 show web-auth direct-host

show web-auth direct-host [range]

-	

```
Ruijie# show web-auth direct-host
Direct hosts:
  Address          Mask             Port       ARP Binding  Group      Description
  ---------------- ---------------- ---------- ------------ ---------- -------------
  192.168.0.1      255.255.255.255  Gi0/2      On           N/A        N/A
  192.168.4.11     255.255.255.255  Gi0/10     On           N/A        N/A
  192.168.5.0      255.255.255.0    Gi0/16     Off          N/A        N/A
```



```
Ruijie(config)#show web-auth direct-site range
Direct site Ranges: 1
  Start Address   End Address     Group          Description
  --------------- --------------- -------------- -------------
  1.1.1.1         5.5.5.5         N/A            N/A
Ruijie(config)#
```


5.20 show web-auth ip-mapping

show web-auth ip-mapping

-	

```
Ruijie# show web-auth parameter
  session-limit: 10
  timeout:         5
```


5.22 show web-auth portal-check

portal-check

show web-auth portal-check


```
```

5.23 show web-auth rdport

show web-auth rdport

-	

```
Ruijie#show web-auth  rdport
Rd-Port:
80 443
Ruijie#
```

5.24 show web-auth syslog ip

show web-auth syslog ip *ip-address*

Ip-address	*Ÿ‚ï*

```
Ruijie#show web-auth syslog ip 192.168.197.3-‘
```

```

```

```

```

```

```

Θ eha Ñ i ow đ O‾ ˘

```
ϖ 1 Ϟ ж л ϑ ℓ’ ‘
```

```

```


5.25 show web-auth template

show web-auth template

-	

```
192.168.0.11    On       0d 01:00:00   0d 00:15:10    Active
192.168.0.13    On       0d 01:00:00   0d 00:00:59    Active   111
192.168.0.25    Off      0d 01:00:00   0d 00:00:59    Create
192.168.0.46    Off      0d 01:00:00   0d 01:00:00    Destroy  222

Ruijie# show web-auth user ip 192.168.0.11
Address       :   192.168.0.11
 Mac            :   00d0.f800.2233
 Port           :   Gi0/2
 Online        :   On
 Time Limit    :   0d 01:00:00
 Time Used     :   0d 00:15:10
 Time Start    :   2009-02-22 20:05:10
 Status        :   Active
```


no url

url-string	[illegible]

-

```
Ruijie (config)# web-auth dhcp-check
```

show running-config [illegible]

5.29 web-auth direct-host

web-auth direct-host *ipv4-address* *p-mask* **arp** *ipv6-address* *mac-address* *earip* (*mac-address*) [illegible]

Description-str	[illegible]

```
Ruijie(config)# web-auth direct-host 172.16.0.1
                FF02::/64 [illegible]
Ruijie(config)# web-auth direct-host FF02::/64
```

```
Ruijie(config)# web-auth direct-host 0000:5e00:0101
```

```
Ruijie(config)# web-auth direct-host range 10.0.0.1 12.0.0.1
```

show web-auth direct-host [range]t[illegible]

eportalv1 ‰

```
Ruijie(config)# interface GigabitEthernet 0/14
Ruijie(config-if-GigabitEthernet 0/14)# web-auth enable
```

show web-auth control 0IOMFa

5.31 web-auth linkdown-timeout

down

web-auth linkdown-timeout {timeout}

no web-auth linkdown-timeout

timeout	ž

```
Ruijie (config)# web-auth linkdown-timeout {timeout}
```

show running-config [illegible]

5.32 web-auth logging enable

web-auth logging enable *num*

no web-auth logging enable

num	

```
Ruijie(config)# web-auth logging enable 0
```

show running-config [illegible]

5.33 web-auth portal key

web-auth portal key *key-string*

no web-auth portal key

key-string	[illegible]

web-authož

```
Ruijie(config)# web-Á  ƨ  õ ح ۃ ِ ۂ
```

5.34 web-auth portal-check

web-auth portal-check **interval** *intsec* **timeout**

web-auth template *template-name* **v2**

no web-auth template *template-name*

eportalv1	[illegible]
eportalv2	[illegible]
template-name	[illegible]

[illegible] **http redirect** **http redirect homepage** **http redirect** **http redirect homepage** [illegible]

[illegible] **portal-server**

[illegible]

5.37 web-auth update-interval

web-auth update-interval

no web-auth update-interval

[redacted]

```
Ruijie (config)# no web-auth station-move arp-detect
```

show running-config

5.40 web-auth station-move auto

mapping-list

web-auth station-move auto apply-mapping *mapping-list*

no web-auth station-move auto

-	

show running-config

6 SCC

6.1

6.2 direct-vlan

direct-vlan *vlanlist*

no direct-vlan *vlanlist*

vlanlist	

```
Ruijie(config)# direct-vlan 2
```

show direct-vlan

6.3 nac-author-user maximum

nac-author-user maximum *max-user-num*

no nac-author-user maximum

max-user-num	

```
Ruijie(config)#int gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#nac-author-user maximum 100
```

show nac-author-user xMY0AMd

show nac-author-user interface *interface-name xB6Md*

6.4 offline-detect interval threshold

offline-detect interval *interval* **threshold** *thredshold*

default offline-detect

no offline-detect

interval	
threshold	*vk0%kHHÐ}/bÈ)u*

```
Ruijie(config)#offline-detect interval 5 threshold 5120
```

show running

6.5 show direct-vlan

show direct-vlan interface *interface-name*

interface-name	

```
Ruijie #show direct-vlan
direct-vlan 5,7,100
```

```
Ruijie#show direct-vlan interface gi 0/1
 Port      direct-vlan
 --------  ------------------
Gi0/1      5,7,100
```

ώ ٧ ʒ Ụ

6.6 show nac-author-user interface

show nac-author-user interface *interface-name*

interface-name	

1-1.693 Td ( )Tj /C281 Tc 0 1 Tf 3B4F7-7<90F0 -0.033E054D04070919>Tj /17.6

7 IP+MAC

7.1 address-bind

address-bind *ip-address* *ipv6-address* *mac-address*

no address-bind *ip-address* *ipv6-address* *mac-address*

ip-address	
ipv6-address	Ç
mac-address	Ç

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind 192.168.5.1 00d0.f800.0001
```

show run ñ **show address-bind xÐ**

7.2 address-bind binding-filter logging

address-bind binding-filter logging **rate-limit** *rate* **address-bind binding-filter logging**

rate-limit *rate*

address-bind install

no address-bind install

-	

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind 192.168.5.1 00d0.f800.0001
Ruijie(config)# address-bind install
```

show run xbož

7.4 address-bind ipv6-mode

address-bind ipv6-mode compatible loose strict

no address-bind ipv6-mode

compatible	
loose	
strict	%

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind ipv6-mode compatible
```

show run xMYÔož

7.5 address-bind uplink

address-bind uplink *interface-id*

no address-bind uplink *interface-id*

interface-id	

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# address-bind uplink GigabitEthernet 0/1
```

show run è ñ show address-bind uplink xÑYÔož

7.6 show address-bind

show address-bind

-	

```
Ruijie#show address-bind
Total Bind Addresses in System : 1
IP Address          Binding MAC Addr
---------------     ----------------
192.168.5.1         00d0.f800.0001
```

È ‡ ½... ¤ χ

7.7 show address-bind uplink

show address-bind uplink

-	

```
Ruijie#show address-bind uplink
Port       State
---------- ---------
Gi0/1      Enabled
Default    Disabled
```

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8 PASSWORD-POLICY

8.1 password policy life-cycle

password policy life-cycle *days*

no password policy life-cycle

days	*Mi[illegible]*

enable password **enable secret**

username *name* **password** *password*

```
Ruijie(config)# password policy life-cycle 90
```

show password policy x[illegible]

8.2 password policy min-size

password policy min-size *length*

no password policy min-size

length	*6MÃxk8*

show running-config ê write ¼x

[illegible]

```
Ruijie(config)# service password-encryption
```

show password policy xKUYÔoMÞz

8.6 show password policy

show password policy

-	

```
Ruijie#show password policy
Global password policy configurations:
 Password encryption:                Enabled
 Password strong-check:              Enabled
 Password secret-dictionary-check:   Enabled
```

Password min-size:	Enabled (6 characters)
Password life-cycle:	Enabled (90 days)
Password no-repeat-times:	Enabled (max history record: 5)

È ª ¼... ¨ ¼

9

9.1 show port-security

show port-security address interface *interface-id* **binding interface** *interface-id* **interface** *interface-id* **all**

address	
binding	[illegible]
interface *interface-id*	[illegible]
all	[illegible]

```
Ruijie#show port-security
NO.  SecurePort MaxSecureAddr CurrentAddr CurrentIpBind CurrentIpMacBind SecurityAction
                   (Count)      (Count)      (Count)         (Count)
---- ---------- ------------- ----------- ------------- ---------------- --------------
1    Gi0/1      128           2           2             1                protect
-----------------------------------------------------------------------------------------
Total secure addresses in System : 2
Total secure bindings  in System : 3
```

[illegible]


```
Ruijie#show port-security interface gigabitEthernet 0/1
Interface                    : GigabitEthernet 0/1
Port status                  : down
Port Security                : enabled
SecureStatic address aging   : disabled
Sticky dynamic address       : disabled
Violation mode               : protect
Maximum MAC Addresses        : 128
Total MAC Addresses          : 2
Configured MAC Addresses     : 2
Dynamic MAC Addresses        : 0
Sticky MAC Addresses         : 0
Total security binding       : 3
IPv4-ONLY Binding Addresses  : 1
IPv6-ONLY Binding Addresses  : 1
IPv4-MAC Binding Addresses   : 1
IPv6-MAC Binding Addresses   : 0
Aging time(min)              : 0
```

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9.2 switchport port-security

switchport port-security violation protect restrict shutdown

no switchport port-security violation

protect	
restrict	**GE/XG**
shutdown	**GE/XG**

9.3 switchport port-security aging

switchport port-security aging static time *time*

no switchport port-security aging static time

static	
time *time*	**nPS[illegible]8©**

```
Ruijie# configure terminal
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport port-security aging time 8
Ruijie(config-if)# switchport port-security aging static
Ruijie(config-if)# end
```

show port-security x[illegible]

9.4 switchport port-security binding

switchport port-security binding *mac-address* **vlan** *vlan_id* *ipv4-address* *ipv6-address*

no switchport port-security binding *mac-address* **vlan** *vlan_id* *ipv4-address* *ipv6-address*

switchport port-security binding *ipv4-address* *ipv6-address*

no switchport port-security binding *ipv4-address* *ipv6-address*

mac-address	
vlan_id	Ç
ipv4-address	Ç
ipv6-address	Ç

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/10
Ruijie(config-if)# switchport port-security binding 192.168.1.100
```

```
Ruijie(config-if)# end
```

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/10
Ruijie(config-if)# switchport port-security binding 00d0.f800.5555 vlan 1 192.168.1.100
Ruijie(config-if)# end
```

show port-security x[illegible]

9.5 switchport port-security binding-filter logging

switchport port-security binding-filter logging **rate-limit** *rate*

no switchport port-security binding-filter logging

rate-limit *rate*	[illegible]

```
Ruijie# configure terminal
Ruijie(config)# switchport port-security binding-filter logging
```

```
Ruijie(config)# end
```

```
Ruijie# configure terminal
Ruijie(config)# switchport port-security interface g0/10 binding 192.168.1.100
Ruijie(config)# end
```

```
Ruijie# configure terminal
Ruijie(config)# switchport port-security interface g0/10 binding 00d0.f800.5555 vlan 1 192.168.1.100
Ruijie(config)# end
```

show port-security xKUYOMjez

9.7 switchport port-security interface mac-address

switchport port-security interface *interface-id* **mac-address** *mac-address* **vlan** *vlan-id*

-

```
Ruijie# configure terminal
Ruijie(config)# switchport port-security interface g0/10 mac-address 00d0.f800.5555 vlan 2
Ruijie(config)# end
```

show port-security xKUYOMjEz

9.8 switchport port-security mac-address

switchport port-security mac-address *mac-address* **vlan** *vlan-id*

no switchport port-security mac-address *mac-address* **vlan** *vlan-id*

mac-address	
vlan-id	

配置

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/10
Ruijie(config-if)# switchport port-security mac-address 00d0.f800.5555 vlan 2
Ruijie(config-if)# end
```

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/10
Ruijie(config-if)# switchport port-security mac-address 00d0.f800.5555 vlan 2
Ruijie(config-if)# end
```

```
Ruijie# configure terminal
Ruijie(config)#interface gigabitethernet 0/10
Ruijie(config-if)# switchport port-security sticky mac-address
Ruijie(config-if)# end
```

show port-security x[illegible]

9.10 switchport port-security maximum

switchport port-security maximum *value*

no switchport port-security maximum

value	[illegible]

no storm-control unicast

no storm-control multicast

no storm-control broadcast

default storm-control unicast

default storm-control multicast

default storm-control broadcast

o

level *percent*	
pps *packets*	
rate-bps	

```
Ruijie(config)# int fastEthernet 0/1
Ruijie(config-if-FastEthernet 0/1)# storm-control multicast 4096
```

show storm-control x

```
Ruijie# show storm-control fastEthernet 0/1
```

```
Interface                 Broadcast Control Multicast Control Unicast Control Action
------------------------- ----------------- ----------------- --------------- ---------
FastEthernet 0/1           1%                4%                1%             none
```

11 SSH

11.1 crypto key generate

crypto key generate rsa | dsa

rsa	
dsa	**ÿ**

enable service ssh-server xKø

no crypto key generate **crypto key zeroize**

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

show crypto key mypubkey rsa xKø

```
Ruijie(config)#crypto key generate rsa
Choose the size of the rsa key modulus in the range of 512 to 2048
and the size of the dsa key modulus in the range of 360 to 2048 for your
Signature Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]:
// rsa Ī ج ل ă ă ı ώ ٧ ȝ Ụ
% Generating 512 bit RSA1 keys ...[ok]
% Generating 512 bit RSA keys ...[ok]
// rsa Ī ج ل ă¸ ٥ ώ ٧ ȝ Ụ
% Generating 512 bit RSA1 keys ...[fail]
% Generating 512 bit RSA keys ...[fail]
```

11.2 crypto key zeroize

crypto key zeroize rsa | dsa

rsa	f'
dsa	f'

no enable service ssh-server xkž

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

show crypto key mypubkey rsa xkŽ

```
Ruijie(config)#crypto key zeroize rsa
% Keys to be removed
% All router certs issued using these keys will also be removed.
Do you really want to remove these keys? [yes/no]:yes
*Jan 16 06:52:57: %P17050-7-DEBUG: sshd: delete key file /rsa_private.bin
*Jan 16 06:52:57: %P17050-7-DEBUG: sshd: delete key file /rsa1_private.bin
```

```
Ruijie(config)#crypto key zeroize rsa
% The specified RSA keypair does not exist.
```

ip scp server enable

no ip scp server enable

-	

```
Ruijie# configure terminal
Ruijie(config)# ip scp server enable
```

show ip ssh xKUYð

11.5 ip ssh authentication-retries

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries


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

show ip ssh xKUYÕ

11.6 ip ssh cipher-mode

ip ssh cipher-mode cbc ctr others

no ip ssh cipher-mode

cbc	ÊÕ
ctr	ÊÕ
others	ÊÕ

```
Ruijie# configure terminal
Ruijie(config)# ip ssh cipher-mode ctr
```

11.7 ip ssh hmac-algorithm

ip ssh hmac-algorithm md5

test 64

```
Ruijie# configure terminal
Ruijie(config)# ip ssh peer test public-key rsa flash:rsa.pub
Ruijie(config)# ip ssh peer test public-key dsa flash:dsa.pub
```

```
Ruijie(config)# ip ssh peer test public-key rsa flash:rsa.pub
%% Too many public-keys, system support max public key 1024
```

```
Ruijie(config)#ip ssh peer test public-key rsa flash:
% Invalid file name
```

11.9 ip ssh time-out

ip ssh time-out *time*

no ip ssh time-out

time	*1-8*

```
Ruijie# configure terminal
Ruijie(config)# ip ssh time-out 100
```

show ip ssh xKUYô

11.10 ip ssh version

ip ssh version 1 | 2

no ip ssh version

1	**ÊÃ**
2	**Få**

```
Ruijie# configure terminal
Ruijie(config)# ip ssh version 2
```

show ip ssh xKUYô

11.11 show crypto key mypubkey

show crypto key mypubkey rsa | dsa

rsa	**₽**
dsa	**₽**

```
Ruijie(config)#show crypto key mypubkey rsa
% Key pair was generated at: 7:1:25 UTC Jan 16 2013
 Key name: RSA1 private
 Usage: SSH Purpose Key
 Key is not exportable.
 Key Data:
         AAAAAwEA AQAAAEEA 2m6H/J+2 xOMLW5MR 8tOmpW1I XU1QItVN mLdR+G7O Q10kz+4/
         /IgYR0ge 1sZNg32u dFEifZ6D zfLySPqC MTWLfw==

% Key pair was generated at: 7:1:25 UTC Jan 16 2013
 Key name: RSA private
 Usage: SSH Purpose Key
```

```
Key is not exportable.
Key Data:
        AAAAAwEA AQAAAEEA 0E5w2H0k v744uTIR yZBd/7AM 8pLItnW3 XH3LhEEi BbZGZvn3
        LEYYfQ9s pgYL0ZQf S0s/GY0X gJOMsc6z i8OAkQ==
```

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11.12 show ip ssh

show ip ssh

-	

```
// Ĭ ৲ SSH Server ৷১ ৩ SCP ৷১ ʒ ' ɛ̆ Ã` ڤ ۾ ʒ Ụ
Ruijie(config)#show ip ssh
SSH Disable - version 1.99
please generate rsa and dsa key to enable SSH
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: disabled
```

```
// Ĭ ৲ SSH Server ৷৷ ᵐ SCP ৷৷ ȝ Ţ ĕ Ã` ڤ ȝ Ụ
Ruijie(config)#show ip ssh
SSH Enable - version 1.99
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: enabled
```

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11.13 show ssh

show ssh

-	

```
Ruijie#show ssh
Connection Version Encryption      Hmac        Compress   State          Username
         0     1.5 blowfish                     zlib       Session started test
         1     2.0 aes256-cbc      hmac-sha1    zlib       Session started test
```

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12 GSN

12.1 security address-bind enable

security address-bind enable

no security address-bind enable

-	

```
Ruijie# configure terminal
Ruijie(config)# interface gigabitEthernet 0/3
Ruijie(config-if-GigabitEthernet 0/3)# security address-bind enable
Ruijie(config)# exit
```

```
Failed to enable security address binding.
```

12.2 security community

security v1 v2 community *community* **v3 user** *username*

no security v1 v2 community *community* **v3 user** *username*

community	*c*字E
username	…

```
Ruijie(config)# security v1 community public
```

```
Ruijie(config)# security v3 user start
```

12.3 security event inteval

security event inteval *interval*

no security event inteval

interval	*1-8*

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```
Ruijie(config)# security event interval 10
```

```
Ruijie(config)# no security event interval
```

```
Ruijie# show security event interval
   Event sending interval(Seconds):10
```

12.4 security gsn enable

security gsn enable

no security gsn enable

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```
Ruijie(config)# security gsn enable
```

```
Ruijie(config)# no security gsn enable
```

12.5 show security event interval

show security event interval

-	

```
Ruijie# show security event interval
   Event sending interval(Seconds):10
```

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12.6 show smp-server

show smp-server

-	

```
Ruijie# show smp-server
   SMP-Server IP:192.168.30.9
```

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12.7 smp-server host

smp-server host *ip-address*

no smp-server host

ip-address	

-	

```
Ruijie# configure terminal
Ruijie(config)# cpu-protect cpu bandwidth 32000
Ruijie#show cpu-protect cpu
%cpu port bandwidth: 32000(pps)
```

show cpu-protect cpu

13.4 cpu-protect traffic-class traffic-class-num bandwidth

cpu-protect traffic-class *traffic-class-num* **bandwidth** *bandwidth_value*

no cpu-protect traffic-class *traffic-class-num* **bandwidth**

traffic-class-num	*[illegible]*
bandwidth_value	*[illegible]*

```
Ruijie# configure terminal
Ruijie(config)# cpu-protect traffic-class 5 bandwidth 3500
Ruijie#show cpu-protect traffic-class 5
Traffic-class   Bandwidth(pps)  Rate(pps)       Drop(pps)
-------------   --------------  ---------       ---------
 5              3500            0               0
```

show cpu-protect traffic-class *traffic-class-num* [illegible]

13.5 cpu-proctect type packet-type bandwidth

cpu-protect type *packet-type* **bandwidth** *bandwidth value*

no cpu-protect type *packet-type* **bandwidth**

o[illegible]

packet-type	[illegible]
bandwidth_value	[illegible]

```
Ruijie# configure terminal
Ruijie(config)# cpu-protect type bpdu bandwitdth 200
Ruijie(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total     Total Drop
------------------  -------------  --------------  ---------  ---------  --------  ----------
```

bpdu	6	200	0	0	0	0

show cpu-protect type *packet-type* [illegible]

13.6 cpu-protect type packet-type traffic-class

cpu-protect type *packet-type* **traffic-class** *traffic-class-num*

no cpu-protect type *packet-type* **traffic-class**

pcket-type	[illegible]
traffic-class-num	[illegible]

```
Ruijie# configure terminal
```

show cpu-protect type *packet-type x*[illegible]

13.7 show cpu-protect

show cpu-protect [device *device_num***]**

device_num	[illegible] **device** [illegible] **device** [illegible]

```
Ruijie#show cpu-protect slot 3/2
%cpu port bandwidth: 100000(pps)
Traffic-class   Bandwidth(pps)  Rate(pps)  Drop(pps)
-------------   --------------  ---------  ---------
 0              6000            0          0
 1              6000            0          0
 2              6000            0          0
 3              6000            0          0
 4              6000            0          0
 5              6000            0          0
 6              6000            0          0
 7              6000            0          0
Packet Type          Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total          Total Drop
------------------  -------------  --------------  ---------  ---------  ---------
----------
bpdu                 6              128             0          0          0              0
arp                  1              3000            0          0          0              0
tpp                  6              128             0          0          0              0
```

dot1x	2	1500	0	0	0	0
gvrp	5	128	0	0	0	0
rldp	5	128	0	0	0	0
lacp	5	256	0	0	0	0
rerp	5	128	0	0	0	0
reup	5	128	0	0	0	0
lldp	5	768	0	0	0	0
cdp	5	768	0	0	0	0
dhcps	2	1500	0	0	0	0
dhcps6	2	1500	0	0	0	0
dhcp6-client	2	1500	0	0	0	0
dhcp6-server	2	1500	0	0	0	0
dhcp-relay-c	2	1500	0	0	0	0
dhcp-relay-s	2	1500	0	0	0	0
option82	2	1500	0	0	0	0
tunnel-bpdu	2	128	0	0	0	0
tunnel-gvrp	2	128	0	0	0	0
unknown-v6mc	1	128	0	0	0	0
xgv6-ipmc	1	128	0	0	0	0
stargv6-ipmc	1	128	0	0	0	0
unknown-v4mc	1	128	0	0	0	0
xgv-ipmc	2	128	0	0	0	0
stargv-ipmc	2	128	0	0	0	0
udp-helper	1	128	0	0	0	0
dvmrp	4	128	0	0	0	0
igmp	2	1000	0	0	0	0
icmp	3	1600	0	0	0	0
ospf	4	2000	0	0	0	0
ospf3	4	2000	0	0	0	0
pim	4	1000	0	0	0	0
pimv6	4	1000	0	0	0	0
rip	4	128	0	0	0	0
ripng	4	128	0	0	0	0
vrrp	6	256	0	0	0	0
vrrpv6	6	256	0	0	0	0
ttl0	0	128	0	0	0	0
ttl1	0	2000	0	0	0	0
hop-limit	0	800	0	0	0	0
local-ipv4	3	4000	0	0	0	0
local-ipv6	3	4000	0	0	0	0
v4uc-route	1	800	0	0	0	0

v6uc-route	1	800	0	0	0	0
rt-host	4	3000	0	0	0	0
mld	2	1000	0	0	0	0
nd-snp-ns-na	1	3000	0	0	0	0
nd-snp-rs	1	1000	0	0	0	0
nd-snp-ra-redirect	1	1000	0	0	0	0
erps	5	128	0	0	0	0
mpls-ttl0	4	128	0	0	0	0
mpls-ttl1	4	128	0	0	0	0
mpls-ctrl	4	128	0	0	0	0
isis	4	2000	0	0	0	0
bgp	4	2000	0	0	0	0
cfm	5	512	0	0	0	0
web-auth	2	2000	0	0	0	0
fcoe-fip	4	1000	0	0	0	0
fcoe-local	4	1000	0	0	0	0
bfd	6	5120	0	0	0	0
micro-bfd	6	5120	0	0	0	0
micro-bfd-v6	6	5120	0	0	0	0
dldp	6	3200	0	0	0	0
other	0	4096	0	0	0	0
trill	4	1000	0	0	0	0
efm	5	1000	0	0	0	0
ipv6-all	0	2000	0	0	0	0
ip-option	0	800	0	0	0	0
mgmt	-	4000	4	0	4639	0
dns	2	200	0	0	0	0
sdn	0	5000	0	0	0	0
sdn_of_fetch	0	5000	0	0	0	0
sdn_of_copy	0	5000	0	0	0	0
sdn_of_trap	0	5000	0	0	0	0
vxlan-non-uc	1	512	0	0	0	0
local-telnet	3	1000	0	0	0	0
local-snmp	3	1000	0	0	0	0
local-ssh	3	1000	0	0	0	0

13.8 show cpu-protect cpu

show cpu-protect cpu


```
Ruijie#show cpu-protect cpu
%cpu port bandwidth: 32000(pps)
```

13.9 show cpu-protect mboard

show cpu-protect mboard


```
Ruijie#show cpu-protect mboard
%cpu port bandwidth: 80000(pps)
Traffic-class   Bandwidth(pps)  Rate(pps)       Drop(pps)
-------------   --------------  ---------       ---------
```

```
 0              8000            0               0
 1              8000            0               0
 2              8000            0               0
 3              8000            0               0
 4              8000            0               0
 5              8000            0               0
 6              8000            0               0
 7              8000            0               0
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total     Total Drop
------------------  -------------  --------------  ---------  ---------  --------  ----------
bpdu                6              128             0          0          0         0
arp                 3              10000           0          0          0         0
arp-dai             3              10000           0          0          0         0
arp-proxy           3              10000           0          0          0         0
tpp                 7              128             0          0          0         0
dot1x               4              128             0          0          0         0
gvrp                5              128             0          0          0         0
rldp                6              128             0          0          0         0
lacp                6              128             0          0          0         0
rerp                6              128             0          0          0         0
reup                6              128             0          0          0         0
lldp                5              128             0          0          0         0
cdp                 5              128             0          0          0         0
dhcps               4              128             0          0          0         0
dhcps6              4              128             0          0          0         0
dhcp6-client        4              128             0          0          0         0
dhcp6-server        4              128             0          0          0         0
dhcp-relay-c        4              128             0          0          0         0
dhcp-relay-s        4              128             0          0          0         0
option82            4              128             0          0          0         0
tunnel-bpdu         5              128             0          0          0         0
tunnel-gvrp         5              128             0          0          0         0
unknown-v6mc        3              128             0          0          0         0
known-v6mc          3              128             0          0          0         0
xgv6-ipmc           3              128             0          0          0         0
stargv6-ipmc        3              128             0          0          0         0
unknown-v4mc        3              128             0          0          0         0
known-v4mc          3              128             0          0          0         0
xgv-ipmc            3              128             0          0          0         0
sgv-ipmc            3              128             0          0          0         0
udp-helper          4              128             0          0          0         0
```

dvmrp	5	128	0	0	0	0
igmp	4	128	0	0	0	0
icmp	4	128	0	0	0	0
ospf	5	128	0	0	0	0
ospf3	5	128	0	0	0	0
pim	6	128	0	0	0	0
pimv6	6	128	0	0	0	0
rip	6	128	0	0	0	0
ripng	6	128	0	0	0	0
vrrp	6	128	0	0	0	0
vrrp6	6	128	0	0	0	0
ttl0	6	128	0	0	0	0
ttl1	6	128	0	0	0	0
err_hop_limit	1	800	0	0	0	0
local-ipv4	6	128	0	0	0	0
local-ipv6	6	128	0	0	0	0
route-host-v4	0	4096	0	0	0	0
route-host-v6	0	4096	0	0	0	0
mld	0	1000	0	0	0	0
nd-snp-ns-na	6	128	0	0	0	0
nd-snp-rs	6	128	0	0	0	0
nd-snp-ra-redirect	6	128	0	0	0	0
nd-non-snp	6	128	0	0	0	0
erps	4	128	0	0	0	0
mpls-ttl0	6	128	0	0	0	0
mpls-ttl1	6	128	0	0	0	0
mpls-ctrl	6	128	0	0	0	0
isis	5	2000	0	0	0	0
bgp	1	128	0	0	0	0
cfm	0	128	0	0	0	0
fcoe-fip	6	128	0	0	0	0
fcoe-local	6	128	0	0	0	0
bfd-echo	6	5120	0	0	0	0
bfd-ctrl	6	5120	0	0	0	0
madp	7	1000	0	0	0	0
ip4-other	6	128	0	0	0	0
ip6-other	6	128	0	0	0	0
non-ip-other	6	20000	0	0	0	0
trill	2	1000	0	0	0	0
trill-oam	2	1000	0	0	0	0
efm	2	1000	0	0	0	

13.10 show cpu-protect summary

show cpu-protect summary


```
Ruijie#show cpu-protect summary
%cpu port bandwidth: 100000(pps)
Traffic-class   Bandwidth(pps)  Rate(pps)  Drop(pps)
-------------   --------------  ---------  ---------
 0              6000            0          0
 1              6000            0          0
 2              6000            0          0
 3              6000            0          0
 4              6000            0          0
 5              6000            0          0
 6              6000            0          0
 7              6000            0          0
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total         Total Drop
------------------  -------------  --------------  ---------  ---------  ---------
----------
bpdu                6              128             0          0          0             0
arp                 1              3000            0          0          0             0
tpp                 6              128             0          0          0             0
dot1x               2              1500            0          0          0             0
gvrp                5              128             0          0          0             0
rldp                5              128             0          0          0             0
```

lacp	5	256	0	0	0	0
rerp	5	128	0	0	0	0
reup	5	128	0	0	0	0
lldp	5	768	0	0	0	0
cdp	5	768	0	0	0	0
dhcps	2	1500	0	0	0	0
dhcps6	2	1500	0	0	0	0
dhcp6-client	2	1500	0	0	0	0
dhcp6-server	2	1500	0	0	0	0
dhcp-relay-c	2	1500	0	0	0	0
dhcp-relay-s	2	1500	0	0	0	0
option82	2	1500	0	0	0	0
tunnel-bpdu	2	128	0	0	0	0
tunnel-gvrp	2	128	0	0	0	0
unknown-v6mc	1	128	0	0	0	0
xgv6-ipmc	1	128	0	0	0	0
stargv6-ipmc	1	128	0	0	0	0
unknown-v4mc	1	128	0	0	0	0
xgv-ipmc	2	128	0	0	0	0
stargv-ipmc	2	128	0	0	0	0
udp-helper	1	128	0	0	0	0
dvmrp	4	128	0	0	0	0
igmp	2	1000	0	0	0	0
icmp	3	1600	0	0	0	0
ospf	4	2000	0	0	0	0
ospf3	4	2000	0	0	0	0
pim	4	1000	0	0	0	0
pimv6	4	1000	0	0	0	0
rip	4	128	0	0	0	0
ripng	4	128	0	0	0	0
vrrp	6	256	0	0	0	0
vrrpv6	6	256	0	0	0	0
ttl0	0	128	0	0	0	0
ttl1	0	2000	0	0	0	0
hop-limit	0	800	0	0	0	0
local-ipv4	3	4000	0	0	0	0
local-ipv6	3	4000	0	0	0	0
v4uc-route	1	800	0	0	0	0
v6uc-route	1	800	0	0	0	0
rt-host	4	3000	0	0	0	0
mld	2	1000	0	0	0	0

nd-snp-ns-na	1	3000	0	0	0	0
nd-snp-rs	1	1000	0	0	0	0
nd-snp-ra-redirect	1	1000	0	0	0	0
erps	5	128	0	0	0	0
mpls-ttl0	4	128	0	0	0	0
mpls-ttl1	4	128	0	0	0	0
mpls-ctrl	4	128	0	0	0	0
isis	4	2000	0	0	0	0
bgp	4	2000	0	0	0	0
cfm	5	512	0	0	0	0
web-auth	2	2000	0	0	0	0
fcoe-fip	4	1000	0	0	0	0
fcoe-local	4	1000	0	0	0	0
bfd	6	5120	0	0	0	0
micro-bfd	6	5120	0	0	0	0
micro-bfd-v6	6	5120	0	0	0	0
dldp	6	3200	0	0	0	0
other	0	4096	0	0	0	0
trill	4	1000	0	0	0	0
efm	5	1000	0	0	0	0
ipv6-all	0	2000	0	0	0	0
ip-option	0	800	0	0	0	0
mgmt	-	4000	4	0	4639	0
dns	2	200	0	0	0	0
sdn	0	5000	0	0	0	0
sdn_of_fetch	0	5000	0	0	0	0
sdn_of_copy	0	5000	0	0	0	0
sdn_of_trap	0	5000	0	0	0	0
vxlan-non-uc	1	512	0	0	0	0
local-telnet	3	1000	0	0	0	0
local-snmp	3	1000	0	0	0	0

13.11 show cpu-protect traffic-class

show cpu-protect traffic-class {*traffic-class-num* **| all} [device** *device_num***]**

traffic-class-num	[illegible]
all	[illegible]
device_num	[illegible] **device** [illegible] **device** [illegible]

```
Ruijie#show cpu-protect traffic-class all
Traffic-class   Bandwidth(pps)  Rate(pps)       Drop(pps)
-------------   --------------  ---------       ---------
 0              8000            0               0
 1              8000            0               0
 2              8000            0               0
 3              8000            0               0
 4              8000            0               0
 5              3200            0               0
 6              8000            0               0
 7              8000            0               0
```

13.12 show cpu-protect type

show cpu-protect type *packet-type* **[device** *device_num***]**

packt-type	[illegible]
all	[illegible]
device_num	[illegible] **device** [illegible]

	device jxknPÕz

```
Ruijie(config)#show cpu-protect type icmp
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)  Total     Total Drop
------------------  -------------  --------------  ---------  ---------  --------  ----------
icmp                5              1500             50        0          10000     100
```

ip dhcp snooping

no ip dhcp snooping


```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping
Ruijie(config)# end
```

show ip dhcp snooping xKUYð

```
% Failed to execute command, because of "Conflict with DHCP snooping monitor".
```

14.3 ip dhcp snooping bootp-bind

ip dhcp snooping bootp-bind

no ip dhcp snooping bootp-bind


```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping bootp-bind
Ruijie(config)# end
```

show ip dhcp snooping xKUYÔ

14.4 ip dhcp snooping check-giaddr

ip dhcp snooping check-giaddr

no ip dhcp snooping check-giaddr


```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping check-giaddr
Ruijie(config)# end
```

show run xKUYð

14.5 ip dhcp snooping database write-delay

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-delay 3600
Ruijie(config)# end
```

show ip dhcp snooping xKUYÔ

14.7 ip dhcp snooping information option

ip dhcp snooping information option standard-format | dot1x-format

no ip dhcp snooping information option standard-format | dot1x-format

standard-format	
dot1x-format	

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping information option
Ruijie(config)# end
```

show ip dhcp snooping xKUYô

14.8 ip dhcp snooping information option format remote-id

ip dhcp snooping information option format remote-id string *ascii-string* **| hostname**

no ip dhcp snooping information option format remote-id string *ascii-string* **| hostname**

14.9 ip dhcp snooping information option strategy

ip dhcp snooping information option strategy {keep | drop | replace}

no ip dhcp snooping information option strategy

keep	

14.10 ip dhcp snooping loose-forward

ip dhcp snooping loose-forward

no ip dhcp snooping loose-forward


```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping loose-forward
Ruijie(config)# end
```

show run xKUYô

14.11 ip dhcp snooping suppression

ip dhcp snooping suppression

no ip dhcp snooping suppression


```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/2
Ruijie(                        )# ip dhcp snooping suppression
Ruijie(                        )# end
```

show run xKÔ+NMFÕž

```
% Failed to execute command, because of "Security config conflict".
```

no ip dhcp snooping trust


```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(                        )# ip dhcp snooping trust
Ruijie(                        )# end
```

show ip dhcp snooping xKUYÔNMÐÞ

```
% Failed to execute command, because of "Security config conflict".
```

no ip dhcp snooping verify mac-address

vlan-max	

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping vlan 1000
Ruijie(config)# end
```

vlan-word	*ÿ*
user-number	*ÿ*

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip dhcp snooping vlan 1-10,20 max-user 30
Ruijie(config-if-GigabitEthernet 0/1)# end
```

show run xKUYOkoož

```
% Failed to execute command, because of "Security configuration conflict in interface GigabitEthernet 0/1".
```

```
% Failed to execute command, because of "New max address number little more than the current".
```

14.16 ip dhcp snooping vlan vlan-id information option change-vlan-to vlan

ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

no ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

vlan-id	*6gÉÄ*

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(                        )# ip dhcp snooping vlan 4094 information option change-vlan-to vlan
4093
Ruijie(                        )# end
```

show run xKUYÖkoož

```
% Failed to execute command, because of "VLAN not exist".
```

14.17 ip dhcp snooping vlan vlan-id information option format-type circuit-id string

ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*

no ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*

vlan-id	
ascii-string	

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip dhcp snooping vlan 4094 information option format-type
circuit-id string port-name
Ruijie(config-if-GigabitEthernet 0/1)# end
```

show run xKUYOkoož

```
% Failed to execute command, because of "VLAN not exist".
```

```
% Failed to execute command, because of "Circuit-ID string must be 3 to 63 characters".
```

14.18 renew ip dhcp snooping database

renew ip dhcp snooping database


```
Ruijie# renew ip dhcp snooping database
```

show ip dhcp snooping bindingkUYOE-pž

14.19 show ip dhcp snooping

```
Ruijie# show ip dhcp snooping
Switch DHCP snooping  status                    :   ENABLE
DHCP snooping  Verification of hwaddr status    :   DISABLE
DHCP snooping database write-delay time         :   0 seconds
DHCP snooping option 82 status                  :   DISABLE
DHCP snooping Support bootp bind status         :   DISABLE

Interface                                           Trusted            Rate limit(pps)
------------------------                            ----------------   ----------------
GigabitEthernet 0/4                                 YES                unlimited
Default                                             No
```

È ª ½... ¾ χ


```
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1
NO.   MACADDRESS         IPADDRESS       LEASE(SEC)   TYPE          VLAN  INTERFACE
----- ----------------- --------------- ------------ ------------- ----- --------------------
1     0000.0000.0001     1.1.1.1         78128        DHCP-Snooping 1     GigabitEthernet 0/1
```


15.2 clear ipv6 dhcp snooping prefix

clear ipv6 dhcp snooping prefix *mac* **| vlan** *vlan-id* **|** *ipv6-prefix* **| interface** *interface-id*

mac	*6ť*
vlan-id	*6ť*
ipv6-prefix	*6ť*
interface-id	*6ť ž*

```
Ruijie# clear ipv6 dhcp snooping prefix
Ruijie# show ipv6 dhcp snooping prefix
NO.  MacAddress      IPv6 Prefix  Lease(sec)  VLAN  Interface            FilterType
FilterStatus
---  -------------   ------------  ---------   ----  --------------------  ----------
---------------------
Total number of prefixes: 0
```

15.3 clear ipv6 dhcp snooping statistics

clear ipv6 dhcp snooping statistics

-	

```
Ruijie# configure terminal
Ruijie(config)# ipv6 dhcp snooping
Ruijie(config)# end
```

show ipv6 dhcp snooping xKUYÐ

15.5 ipv6 dhcp snooping binding-delay

ipv6 dhcp snooping binding-delay *seconds*

no ¥{¥ž

no ipv6 dhcp snooping binding-delay

seconds	

```
Ruijie(config)Ď
```

show ipv6 dhcp snooping xÃož

15.6 ipv6 dhcp snooping database write-delay

ipv6 dhcp snooping database write-delay *time*

no ipv6 dhcp snooping database write-delay

time	*ÇÊÊÝakH8*

```
Ruijie# configure terminal
Ruijie(config)# ipv6 dhcp snooping database write-delay 3600
Ruijie(config)# end
```

show ipv6 dhcp snooping xKUYÃož

no ipv6 dhcp snooping filter-dhcp-pkt

no ipv6 dhcp snooping information option standard-format

15.10 ipv6 dhcp snooping information option format remote-id

ipv6 dhcp snooping information option format remote-id string *ascii-string* **| hostname**

no ipv6 dhcp snooping information option format remote-id string *ascii-string* **| hostname**

string *ascii-string*	
hostname	

```
Ruijie# configure terminal
Ruijie(config)# ipv6 dhcp snooping information option format remote-id hostname
```

show ipv6 dhcp snooping xKUYð

ascii-string Ý

```
% Failed to execute command, because of "Remote-ID string cannot exceed 63 characters".
```

15.11 ipv6 dhcp snooping link-detection

ipv6 dhcp snooping link-detection

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if)# ipv6 dhcp snooping trust
Ruijie(config-if)# end
```

show ipv6 dhcp snooping xKUYONMBZ N u F

```
% Failed to execute command, because of "Security config conflict".
```

```
% Failed to execute command, because of "Configure is not supported on current interface".
```

15.13 ipv6 dhcp snooping vlan

vlan-min	
vlan-max	

15.15 ipv6 dhcp snooping vlan vlan-id information option format-type interface-id string

ipv6 dhcp snooping vlan *vlan-id* **information option format-type interface-id string** *ascii-string*

no ipv6 dhcp snooping vlan *vlan-id* **information option format-type interface-id string** *ascii-string*

vlan-id	
ascii-string	

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if)# ipv6 dhcp snooping vlan 4094 information option format-type interface-id string
port-name
Ruijie(config-if)# end
```

show run xKUYOkoož

```
% Failed to execute command, because of "VLAN not exist".
```

```
% Failed to execute command, because of "Interface-ID string must be 3 to 63 characters".
```

15.16 renew ipv6 dhcp snooping database

renew ipv6 dhcp snooping database


```
Ruijie# renew ipv6 dhcp snooping database
```

show ipv6 dhcp snooping bindingkUYôE-pž

15.17 show ipv6 dhcp snooping

show ipv6 dhcp snooping

-	

```
Ruijie#show ipv6 dhcp snooping
DHCPv6 snooping status : ENABLE
DHCPv6 snooping database write-delay time : 0 seconds
DHCPv6 snooping binding-delay time : 0 seconds
DHCPv6 snooping option18/37 status : DISABLE
DHCPv6 snooping link detection : DISABLE
Interface                   Trusted   Filter DHCPv6
------------------------    -------    -------------
GigabitEthernet 0/1         YES        DISABLE
```

È ƒ ٪... ۋ χ

15.18 show ipv6 dhcp snooping binding

15.19 show ipv6 dhcp snooping prefix

show ipv6 dhcp snooping prefix *mac* **vlan** *vlan-id* **|** *ipv6-prefix* **interface** *interface-id*

mac	
vlan-id	
ipv6-prefix	
interface-id	

```
Ruijie# show ipv6 dhcp snooping prefix
Total number of prefixes: 1
NO.   MacAddress         IPv6 Prefix                                Lease(sec)   VLAN
Interface
----- -----------------  ------------------------------------------ ------------ -----
--------------------
1     00d0.f801.0101     2001:2002::/64                             42368        2
GigabitEthernet 0/1
```

È ª ½... ¤ χ

15.20 show ipv6 dhcp snooping statistics

show ipv6 dhcp snooping statistics

-	

```
Ruijie# show ipv6 dhcp snooping statistics
Packets processed by DHCPv6 snooping = 0
Packets dropped because
Received on untrusted ports          = 0
Relay forward                        = 0
No binding entry                     = 0
Binding fail                         = 0
Unknown packet                       = 0
Unknown output interface             = 0
No enough memory                     = 0
Admin filter DCHPv6 packet           = 0 Admin filter-dhcpv6-pkt          = 0
```

È ª ½... ¤ χ

	ipv6 dhcp snooping filter-dhcp-pkt xø† pž

16 ARP Check

16.1 arp-check

arp-check

no arp-check


```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# arp-check
Ruijie(config-if-GigabitEthernet 0/1)# end
```

show interfaces arp-check list xKUYÔNMÿ

16.2 show interface arp-check list

show interface *interface-type interface-number* **arp check list**

17 DAI

17.1 ip arp inspection trust

ip arp inspection trust

no ip arp inspection trust


```
Ruijie# configure terminal
Ruijie(config)# interface gigabitEthernet 0/19
Ruijie(config-if-GigabitEthernet 0/19)# ip arp inspection trust
Ruijie(config-if-GigabitEthernet 0/19)# end
```

show ip arp inspection interface xKUYOMKFaž

17.2 ip arp inspection vlan

ip arp inspection vlan *vlan-id* *word*

no ip arp inspection vlan *vlan-id* *word*

vlan-id	
word	

```
Ruijie# configure terminal
Ruijie(config)# ip arp inspection
Ruijie(config)# ip arp inspection vlan 1
Ruijie(config)# end
```

show ip arp inspection vlan xKUYP

17.3 show ip arp inspection interface

show ip arp inspection interface


```
Ruijie#show ip arp inspection interface
Interface          Trust State
---------------------    -----------
GigabitEthernet 0/1      Trusted
Default                  Untrusted
```

È ª ½... ¤ χ

17.4 show ip arp inspection vlan

show ip arp inspection vlan *vlan-id* *word*

vlan-id	
word	

```
Ruijie# show ip arp inspection vlan
Vlan     Configuration
----     -------------
1        Enable
```

È ‚ ٪... ۋ χ

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1 ip-mac
Ruijie(config)# end
```

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1 ip-only
Ruijie(config)# end
```



```
% Failed to execute command, because of "No such binding entry
[mac 0000.0000.0001 ip 1.1.1.1 vlan 2  GLOBAL]".
```

```
% Failed to execute command, because of "VLAN 4094 not exist".
```

```
% Failed to execute command, because of "Configure is not supported on current interface".
```

18.2 ip verify source

ip verify source port-security

no ip verify source

port-security	

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ip verify source
Ruijie(config-if)# end
```

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/2
Ruijie(config-if-GigabitEthernet 0/2)# ip verify source port-security
Ruijie(config-if)# end
```

show ip source binding xKUYô

show run xKUYôxKFåž

```
% Failed to execute command, because of “Security configuration conflict in interface name".
```

18.3 Ip verify source exclude-vlan

ip verify source exclude-vlan *vlan-id*

no ip verify source exclude-vlan *vlan-id*

vlan-id	

mac-address	₽+•
dhcp-snooping	₽Ã
static	₽Ã
vlan-id	₽+•
interface-id	₽+ÖÜNMÊÇ

```
Ruijie# show ip source binding static
Ruijie#show ip source binding static
Total number of bindings: 5
NO.   MACADDRESS         IPADDRESS       LEASE(SEC)   TYPE          VLAN  INTERFACE
----- ------------------ --------------- ------------ ------------- ----- --------------------
1     0001.0002.0001     1.2.3.2         Infinite     Static        1     Global
2     0001.0002.0002     1.2.3.3         Infinite     Static        1     GigabitEthernet 0/5
3     0001.0002.0003     1.2.3.4         Infinite     Static        1     Global
4     0001.0002.0004     1.2.3.5         Infinite     Static        1     Global
```

È ‡ ½... ¨ χ

show ip verify source interface *interface-id*

interface-id	

```
Ruijie # show ip verify source
Total number of bindings: 7
NO.   INTERFACE            FILTERTYPE  FILTERSTATUS           IPADDRESS       MACADDRESS
VLAN TYPE
----- -------------------- ----------- ---------------------  --------------- ---------------
-------- -------------
1     Global               IP+MAC      Inactive-not-apply     192.168.0.127   0001.0002.0003  1
Static
2     GigabitEthernet 0/5  IP-ONLY     Active                 1.2.3.4         0001.0002.0004  1
DHCP-Snooping
3     Global               IP-ONLY     Active                 1.2.3.7         0001.0002.0007  1
Static
4     Global               IP+MAC      Active                 1.2.3.6         0001.0002.0006  1
Static
5     GigabitEthernet 0/1  UNSET       Inactive-restrict-off  1.2.3.9         0001.0002.0009  1
DHCP-Snooping
6     GigabitEthernet 0/5  IP-ONLY     Active                 Deny-All
```

È ª ½... ¨ χ

19 IPv6 Source Guard

19.1 ipv6 source binding

ipv6 source binding *mac-address* **vlan** *vlan-id ipv6-address* **interface** *interface-id* **| ip-mac | ip-only**

no ipv6 source binding *mac-address* **vlan** *vlan-id ipv6-address* **interface** *interface-id* **| ip-mac | ip-only**

mac-address	
Vlan-id	Á
Ipv6-address	Á
Interface-id	Á*ož*
ip-mac	Á
ip-only	Á

```
Ruijie# configure terminal
Ruijie(config)# ipv6 source binding 0000.0000.0001 vlan 1 1::1 interface GigabitEthernet 0/1
Ruijie(config)# end
```

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 verify source
Ruijie(config-if)# end
```

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/2
Ruijie(config-if-GigabitEthernet 0/2)# ipv6 verify source port-security
Ruijie(config-if)# end
```

show ipv6 verify source xKUYô

show run xKUYôxKFåž

```
% Failed to execute command, because of "Security config conflict".
```

19.3 show ipv6 source binding

show ipv6 source binding *ipv6-address* *mac-address* **dhcp-snooping** **static** **vlan** *vlan-id* **interface** *interface-id*

ipv6-address	
mac-address	**₽+•**
dhcp-snooping	**₽Ã**
static	**₽Ã**
vlan-id	**₽+•**
interface-id	**₽+ÜMÎz**

20 ARP

20.2 show anti-arp-spoofing

show anti-arp-spoofing

-	

```
Ruijie#show anti-arp-spoofing
NO    PORT       IP                STATUS
----- ---------- ---------------- ----------
```


21 NFPP

21.1 arp-guard attack-threshold

arp-guard attack-threshold per-src-ip per-src-mac per-port *pps*

no arp-guard attack-threshold per-src-ip per-src-mac per-port

default arp-guard attack-threshold per-src-ip per-src-mac per-port

per-src-ip	**Fâ**
per-src-mac	**Fâ**
per-port	**Fâ1xàž**
pps	*xàÿ¢¥Hâ*

```
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
```

show nfpp arp-guard summary 0Fâ

21.2 arp-guard enable

arp-guard enable

no arp-guard enable

default arp-guard enable

op

arp-guard isolate-period *seconds* **permanent**

no arp-guard isolate-period

default arp-guard isolate-period

op

seconds	
permanent	**k**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard isolate-period 180
```

show nfpp arp-guard summary

21.4 arp-guard isolate-forwarding enable

arp-guard isolate-forwarding enable

no arp-guard isolate-forwarding enable

default arp-guard isolate-forwarding enable

op


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard isolate-forwarding enable
```

21.5 arp-guard monitored-host-limit

arp-guard monitored-host-limit *number*

no arp-guard monitored-host-limit

default arp-guard monitored-host-limit

op

number	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitored-host-limit 200
```

show nfpp arp-guard summary [illegible]

21.6 arp-guard monitor-period

arp-guard monitor-period *seconds*

no arp-guard monitor-period

default arp-guard monitor-period

o[illegible]

seconds	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# arp-guard rate-limit per-src-mac 3
Ruijie(config-nfpp)# arp-guard rate-limit per-port 50
```

show nfpp arp-guard summary

21.8 arp-guard ratelimit-forwarding enable

arp-guard ratelimit-forwarding enable

no arp-guard ratelimit-forwarding enable

default arp-guard ratelimit-forwarding enable

o


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard ratelimit-forwarding enable
```

21.9 arp-guard scan-threshold

arp-guard scan-threshold *pkt-cnt*

no arp-guard scan-threshold

default arp-guard scan-threshold

op

pkt-cnt	

21.10 clear nfpp arp-guard hosts

clear nfpp arp-guard hosts vlan *vid* **interface** *interface-id* *ip-address* *mac-address*

op

vid	
interface-id	
ip-address	
mac-address	

```
Ruijie# clear nfpp arp-guard hosts vlan 1 interface g0/1
```

21.11 clear nfpp arp-guard scan

clear nfpp arp-guard scan

op


```
Ruijie# clear nfpp arp-guard scan
```

21.12 clear nfpp define name hosts

clear nfpp define *name* **hosts** **vlan** *vid* **interface** *interface-id* *ip-address* *mac-address* *ipv6-address*

op

name	*xdfož*
vid	
interface-id	
ip-address	
mac-address	
ipv6-address	

21.13 clear nfpp dhcp-guard hosts

clear nfpp dhcp-guard hosts *vlan vid* **interface** *interface-id*


```
Ruijie# clear nfpp log
.
```

21.19 cpu-protect sub-interface {manage|protocol|route} percent

cpu-protect sub-interface *manage protocol route* **percent** *percent_vaule*

no cpu-protect sub-interface *manage protocol route* **percent**

default cpu-protect sub-interface *manage protocol route* **percent**

percent_vaule	

```
Ruijie(config)# cpu-protect sub-interface manage percent 60
```

21.20 cpu-protect sub-interface {manage|protocol|route} pps

cpu-protect sub-interface ***manage|protocol|route*** **pps** *pps_vaule*

21.21 define

define *name*

no define *name*

default define *name*

op

name	*#@fož*

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# define tcp
Ruijie(config-nfpp-define)#
```

show nfpp define summary *name* *ôž*

21.22 define name enable

define *name* **enable**

no define *name* **enable**

default define *name* **enable**

name	*#@fož*

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#define tcp enable
```

show nfpp define summary ÔFÎž

21.23 dhcp-guard attack-threshold

dhcp-guard attack-threshold per-src-mac per-port *pps*

no dhcp-guard attack-threshold per-src-mac per-port

default dhcp-guard attack-threshold per-src-mac per-port

opp

per-src-mac	
per-port	
pps	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcp-guard attack-threshold per-port 200
```

show nfpp dhcp-guard summary

21.24 dhcp-guard enable

dhcp-guard enable

no dhcp-guard enable

default dhcp-guard enable

opp


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200
```

show nfpp dhcp-guard summary [illegible]

21.27 dhcp-guard monitor-period

dhcp-guard monitor-period *seconds*

no dhcp-guard monitor-period

default dhcp-guard monitor-period

seconds	

```
Ruijie(config)# nfpp
```

```
Ruijie(config-nfpp)# dhcp-guard monitor-period 180
```

show nfpp dhcp-guard summary [illegible]

21.28 dhcp-guard rate-limit

dhcp-guard rate-limit per-src-mac per-port *pps*

no dhcp-guard rate-limit {per-src-mac | per-port}

default dhcp-guard rate-limit { per-src-mac | per-port}

[illegible]

per-src-mac	[illegible]
per-port	[illegible]
pps	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcp-guard rate-limit per-port 100
```

show nfpp dhcp-guard summary [illegible]

21.29 dhcpv6-guard attack-threshold

dhcpv6-guard attack-threshold per-src-mac per-port *pps*

no dhcpv6-guard attack-threshold per-src-mac per-port

default dhcpv6-guard attack-threshold per-src-mac per-port

per-src-mac	
per-port	
pps	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-src-mac 15
Ruijie(config-nfpp)# dhcpv6-guard attack-threshold per-port 200
```

show nfpp dhcpv6-guard summary 0Fb

21.30 dhcpv6-guard enable

dhcpv6-guard enable

no dhcpv6-guard enable

default dhcpv6-guard enable

o


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcpv6-guard enable
```

show nfpp dhcpv6-guard summary

21.31 dhcpv6-guard monitored-host-limit

dhcpv6-guard monitored-host-limit *number*

no dhcpv6-guard monitored-host-limit

default dhcpv6-guard monitored-host-limit

o

op

per-src-mac	**+ʔ**
per-port	**+Ɐlgþž**
pps	

per-src-ip	[illegible]
per-src-mac	[illegible]
per-port	[illegible]
rate-limit-pps	[illegible]
attack-threshold-pps	[illegible]

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nfpp define tcp
Ruijie(config-nfpp-define)# global-policy per-src-ip 10  20
Ruijie(config-nfpp-define)# global-policy per-port 100  200
```

show nfpp define summary *name* [illegible]

21.35 icmp-guard attack-threshold

icmp-guard attack-threshold per-src-ip per-port *pps*

no icmp-guard attack-threshold per-src-ip per-port

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard isolate-period 180
```

show nfpp icmp-guard summary 0Fž

21.38 icmp-guard monitored-host-limit

icmp-guard monitored-host-limit *number*

no icmp-guard monitored-host-limit

default icmp-guard monitored-host-limit

op

number	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard monitor-period 180
```

show nfpp icmp-guard summary [illegible]

21.40 icmp-guard rate-limit

icmp-guard rate-limit per-src-ip per-port *pps*

no icmp-guard rate-limit {per-src-ip | per-port}

default icmp-guard rate-limit { per-src-ip | per-port}

[illegible]

per-src-ip	[illegible]
per-port	[illegible]
pps	

```
Ruijie(config)# nfpp
```

show nfpp icmp-guard summary [illegible]

21.41 icmp-guard trusted-host

icmp-guard trusted-host *ip mask*

no icmp-guard trusted-host all | *ip mask*

default icmp-guard trusted-host

ip	
mask	
all	**y no** [illegible]

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard trusted-host 1.1.1.0 255.255.255.0
```

show nfpp icmp-guard summary [illegible]

21.43 ip-guard enable

ip-guard enable

no ip-guard enable

default ip-guard enable

op


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard enable
```

show nfpp ip-guard summary

21.44 ip-guard isolate-period

ip-guard isolate-period *seconds* **permanent**

no ip-guard isolate-period

default ip-guard isolate-period

op

seconds	
permanent	**ke**

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard isolate-period 180
```

show nfpp ip-guard summary

21.45 ip-guard monitor-period

ip-guard monitor-period *seconds*

no ip-guard monitor-period

default ip-guard monitor-period

seconds	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard monitor-period 180
```

show nfpp ip-guard summary

21.46 ip-guard monitored-host-limit

ip-guard monitored-host-limit *number*

no ip-guard monitored-host-limit

per-src-ip	**+?**
per-port	**+Ø1gþž**
pps	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# ip-guard rate-limit per-port 50
```

show nfpp ip-guard summary ÔFÎž

21.48 ip-guard scan-threshold

ip-guard scan-threshold *pkt-cnt*

no ip-guard scan-threshold

default ip-guard scan-threshold

op

pkt-cnt	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)#ip-guard trusted-host 1.1.1.0 255.255.255.0
```

show nfpp ip-guard trusted-host [0|1]

21.50 log-buffer enable

log-buffer enable

no log-buffer enable

default log-buffer enable


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# log-buffer enable
```

21.51 log-buffer entries

log-buffer entries *number*

no log-buffer entries

default log-buffer entries

op

number	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# log-buffer entries 50
```

show nfpp log summary

21.52 log-buffer logs

log-buffer logs *number_of_message* **interval** *length_in_seconds*

21.53 logging

logging vlan *vlan-range*
logging interface *interface-id*

no logging vlan *vlan-range*
no logging interface *interface-id*

default logging

op

vlan-range	
interface-id	*}ÊÊÛ* *jÊÊÛ*

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging vlan 1-3,5
```

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging interface G 0/1
```

show nfpp log summary 0F6ž

21.54 match

match [etype *type***] [src-mac** *smac* **[src-mac-mask** *smac_mask***]] [dst-mac** *dmac* **[dst-mac-mask** *dst_mask***]] [protocol** *protocol***] [src-ip** *sip* **[src-ip-mask** *sip-mask***]] [src-ipv6** *sipv6* **[src-ipv6-masklen** *sipv6-masklen***]] [dst-ip** *dip* **[dst-ip-mask** *dip-mask***]] [dst-ipv6** *dipv6* **[dst-ipv6-masklen** *dipv6-masklen***]][src-port** *sport***] [dst-port** *dport***]**

o[illegible]

type	[illegible]
smac	›
smac_mask	›
dmac	)
dmac_mask	)
protocol	
sip	›
sip_mask	›
sipv6	›
sipv6_masklen	›
dip	)
dip_mask	)
dipv6	)
dipv6_masklen	)
sport	[illegible]
dport	[illegible]

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nfpp define tcp
Ruijie(config-nfpp-define)#match etype 0x0800 protocol 0x06
```

show nfpp define summary *name* [*|*]

21.55

show nfpp define summary *name* [illegible]

21.56 monitor-period

monitor-period *seconds*

no monitor-period

default monitor-period

op

seconds	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# define tcp
Ruijie(config-nfpp-define)#monitor-period 180
```

show nfpp define summary *name*	**P** [illegible]

21.57 nd-guard attack-threshold

nd-guard attack-threshold per-port ns-na rs ra-redirect *pps*

no nd-guard attack-threshold per-port ns-na rs ra-redirect

default nd-guard attack-threshold per-port ns-na rs ra-redirect

o

ns-na	**ЭЫЭşož**
rs	**ŝož**
ra-redirect	**ŝyMgłž**
pps	*xŝyłkH8*

```
Ruijie(config)# nfpp
```

21.58 nd-guard enable

nd-guard enable

no nd-guard enable

default nd-guard enable

op


```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# nd-guard enable
```

show nfpp nd-guard summary

21.59 nd-guard rate-limit

nd-guard rate-limit per-port ns-na rs ra-redirect *pps*

no

```
Ruijie(config)# nfpp
```

21.62 nfpp arp-guard enable

nfpp arp-guard enable

no nfpp arp-guard enable

default nfpp arp-guard enable

ope


```
Ruijie(config)# interface G0/1
```

```
Ruijie(config-if)# nfpp arp-guard enable
```

show nfpp arp-guard summary 0Fb

21.63 nfpp arp-guard isolate-period

nfpp arp-guard isolate-period *seconds* **permanent**

no nfpp arp-guard isolate-period

default nfpp arp-guard isolate-period

op

seconds	
permanent	Ko

21.64 nfpp arp-guard policy

nfpp arp-guard policy per-src-ip per-src-mac per-port *rate-limit-pps attack-threshold-pps*

no nfpp arp-guard policy per-src-ip per-src-mac per-port

default nfpp arp-guard policy per-src-ip per-src-mac per-port

op

per-src-ip	**Fa**
per-src-mac	**Fa**
per-port	**Fa**
rate-limit-pps	*[illegible]*
attack-threshold-pps	*[illegible]*

```
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
```

show nfpp arp-guard summary 0Fa

21.65 nfpp arp-guard scan-threshold

nfpp arp-guard scan-threshold *pkt-cnt*

no nfpp arp-guard scan-threshold

default nfpp arp-guard scan-threshold

p arp-q12-526 9 7.67.1. Tf-15.67501118.759 7.67mh2128 0 9 7.67.1. Tf-15.67501W*nq(0 792.)T655.-7927501W n(0.9fB118.7593(34.34 15

21.66 nfpp define name enable

nfpp define *name* **enable**

no nfpp define *name* **enable**

default nfpp define *name* **enable**

op

name	*#ž#fož*

```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp define tcp enable
```

show nfpp define summary *name* *ž*

21.67 nfpp define name policy

nfpp define *name* **policy** **per-src-ip | per-src-mac** **per-port** *rate-limit-pps attack-threshold-pps*

no nfpp define *name* **policy per-src-ip | per-src-mac per-port**

no nfpp dhcp-guard enable

default nfpp dhcp-guard enable

op

per-src-mac	**Fâ**
per-port	**Fâ½xèž**
rate-limit-pps	*¼ÿ¾¶ÿ¾*
attack-threshold-pps	*xèÿ¾¶ÿ¾*

```
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
```

show nfpp dhcp-guard summary ÔFâž

21.70 nfpp dhcpv6-guard enable

nfpp dhcpv6-guard enable

no nfpp dhcpv6-guard enable

default nfpp dhcpv6-guard enable

op


```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp dhcpv6-guard enable
```

show nfpp dhcpv6-guard summary [illegible]

21.71 nfpp dhcpv6-guard policy

nfpp dhcpv6-guard policy **per-src-mac** **per-port** *rate-limit-pps attack-threshold-pps*

no nfpp dhcpv6-guard policy **per-src-mac** **per-port**

default nfpp dhcp [illegible] **default** [illegible] **13cppv506 783 policy**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcpv6-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp dhcpv6-guard policy per-port 50 100
```

show nfpp dhcpv6-guard summary

21.72 nfpp icmp-guard enable

nfpp icmp-guard enable

no nfpp icmp-guard enable

default nfpp icmp-guard enable

o


```
Ruijie(config)# interface G0/1
Ruijie(config-if)# nfpp icmp-guard enable
```

show nfpp icmp-guard summary 0Fž

21.73 nfpp icmp-guard isolate-period

nfpp icmp-guard isolate-period *seconds* **permanent**

no nfpp icmp-guard isolate-period

default nfpp icmp-guard isolate-period

op

seconds	
permanent	**k**žo

21.74 nfpp icmp-guard policy

nfpp icmp-guard policy per-src-ip per-port *rate-limit-pps attack-threshold-pps*

no nfpp icmp-guard policy per-src-ip per-port

default nfpp icmp-guard policy per-src-ip per-port

op

per-src-ip	**Fa**
per-port	**Fa**
rate-limit-pps	*pps*
attack-threshold-pps	*pps*

21.76 nfpp ip-guard isolate-period

nfpp ip-guard isolate-period *seconds* **permanent**

no nfpp ip-guard isolate-period

default nfpp ip-guard isolate-period

op

seconds	
permanent	**ke**

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard isolate-period 180
```

show nfpp ip-guard summary

21.77 nfpp ip-guard policy

nfpp ip-guard policy **per-src-ip** **per-port** *rate-limit-pps attack-threshold-pps*

no nfpp ip-guard policy per-src-ip per-port

default nfpp ip-guard policy per-src-ip per-port

op

per-src-ip	**Fa**
per-port	**Fa1xa**
rate-limit-pps	*[illegible]*
attack-threshold-pps	*[illegible]*

```
Ruijie(config)# interface G 0/1
```

no nfpp ip-guard scan-threshold

default nfpp ip-guard scan-threshold

op

pkt-cnt	

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard scan-threshold 20
```

show nfpp ip-guard summary

21.79 nfpp nd-guard enable

nfpp nd-guard enable

no nfpp nd-guard enable

default nfpp nd-guard enable

op


```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp nd-guard policy per-port ns-na 50 100
Ruijie(config-if)# nfpp nd-guard policy per-port rs 10 20
Ruijie(config-if)# nfpp nd-guard policy per-port ra-redirect 10 20
```

show nfpp nd-guard summary [illegible]

21.81 show nfpp arp-guard hosts

show nfpp arp-guard hosts statistics *vlan vid* **interface** *interface-id* *ip-address* *mac-address*

[illegible]

statistics	[illegible]
vid	[illegible]
interface-id	[illegible]
ip-address	
mac-address	

```
Ruijie# show nfpp arp-guard hosts statistics
success    fail    total
-------    ----    -----
100        20      120
```

```
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 χ 4 hosts
```

21.82 show nfpp arp-guard scan

```
Ruijie# show nfpp arp-guard scan statistics
arp-guard scan table has 4 record(s).
```

```
Ruijie# show nfpp arp-guard scan
VLAN    interface   IP address   MAC address      timestamp
----    --------    ----------  -----------      ----------
1        Gi0/1       -           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       -           0000.0000.0003   2008-01-23 16:25:10
4        Gi0/4       -           0000.0000.0004   2008-01-23 16:26:10
Total χ 4 record(s)
```

```
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       -            0000.0000.0001   2008-01-23 16:23:10
Total χ 1 record(s)
```

21.83 show nfpp arp-guard summary

show nfpp arp-guard summary

op


```
Ruijie# show nfpp arp-guard summary
```

```
 Format of column Rate-limit and  Attack-threshold is per-src-ip/per-src-mac/per-port. ζ
Interface  Status  Isolate-period Rate-limit Attack-threshold Scan-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 χ 300s
```

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21.84 show nfpp define hosts

show nfpp define hosts *name* **statistics** **vlan** *vid* **interface** *interface-id* *ip-address* *mac-address* *ipv6-address*

name	*xdfož*
statistics	**ÔIDÑž**
vid	
interface-id	
ip-address	
mac-address	
ipv6-address	

```
Ruijie#show nfpp define hosts abc
If col_filter 1 shows '*', it means "hardware do not isolate host".
 VLAN    interface   MAC address     remain-time(s)
 ----    ---------   -----------     --------------
*1       Gi4/2       00d0.f822.33e5  592
```

or Î Y ž •ož

21.86 show nfpp define trusted-host

show nfpp defineshow 6C20 1 Tf7.407 -0.04 Td67F209300904 0 022 127

21.87 show nfpp dhcp-guard hosts

show nfpp dhcp-guard hosts statistics **vlan** *vid* **interface** *interface-id* *mac-address*

statistics	**ðIOÑž**
vid	
interface-id	
mac-address	

Ï ,ZÀ

show nfpp dhcp-guard summary


```
Ruijie# show nfpp dhcp-guard summary
ε Format of column Rate-limit and  Attack-threshold is per-src-ip/per-src-mac/per-port. ζ
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 χ 300s
```

È ‚ ½... ğ χ

21.89 show nfpp dhcpv6-guard hosts

show nfpp dhcpv6-guard hosts statistics **vlan** *vid* **interface** *interface-id* *mac-address*

statistics	**ðIDÑ**
vid	
interface-id	
mac-address	

```
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 χ2 host(s)
```

21.90 show nfpp dhcpv6-guard summary

show nfpp dhcpv6-guard summary

o


```
Ruijie#show nfpp icmp-guard hosts statistics
success    fail    total
-------    ----    -----
100         20        120
```

```
Ruijie# show nfpp icmp-guard hosts
If column 1 shows '*', it means "hardware failed to isolate host".
VLAN  interface IP address      remain-time(s)
----    --------   ---------          -------------
1      Gi0/1       1.1.1.1      110
2      Gi0/2       1.1.2.1      61
Total χ2 host(s)
```

21.92 show nfpp icmp-guard summary

show nfpp icmp-guard summary

o


```
Ruijie# show nfpp icmp-guard summary
ε Format of column Rate-limit and  Attack-threshold is per-src-ip/per-src-mac/per-port. ζ
Interface  Status  Isolate-period Rate-limit Attack-threshold
Global      Enable  300              4/-/60     8/-/100
Gi 0/1       Enable  180              5/-/-       8/-/-
Gi 0/2       Disable 200              4/-/60     8/-/100
```

```
Maximum count of monitored hosts: 1000
Monitor period χ300s
```


21.93 show nfpp icmp-guard trusted-host

show nfpp icmp-guard trusted-host


```
Ru#ı#Ķ# show nfpp #Ĵmp-gu!r$ trustĶ$-host
CP !$dress      m!sk
---------       ------
1.1.1.0         255.255.255.0
1.1.2.0         255.255.255.0
Tot!,χ2 reĴor$(s)
```

21.94 show nfpp ip-guard hosts

show nfpp ip-guard hosts statistics **vlan** *vid* **interface** *interface-id* *ip-address*

o

statistics	**ÕIDÑ**
vid	
interface-id	
ip-address	

```
Ruijie#show nfpp ip-guard hosts statistics
success    fail    total
-------    ----    -----
100         20        120
```

```
Ruijie#show nfpp ip-guard hosts
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       1.1.2.1      SCAN         61
Total χ 2 host(s)
```

^l ŧh A È ąp

21.95 show nfpp ip-guard summary

show nfpp ip-guard summary

op


```
Ruijie# show nfpp ip-guard summary
ε Format of column Rate-limit and  Attack-threshold is per-src-ip/per-src-mac/per-port. ζ
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 χ 300s
```

È ƒ ٪... ق χ

21.96 show nfpp ip-guard trusted-host

show nfpp ip-guard trusted-host

op


```
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
```

```
Ruijie#show nfpp log buffer statistics
There are 6 logs in buffer.
```

```
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
```


21.98 show nfpp nd-guard summary

show nfpp nd-guard summary

op


```
Ruijie# show nfpp nd-guard summary
ε Format of column Rate-limit and  Attack-threshold is NS-NA/RS/RA-REDIRECT. ζ
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
```

È ƒ ٪.. ۃ χ

21.99 sho

op

- MMᵓO ä p τ̣ ᵠ ttt rd hosttttttttttttof ش uric מ ج tt/

21.100 trusted-host

trusted-host *mac mac_mask* *ip mask* | *IPv6/prefixlen*

no trusted-host **all |** *mac mac_mask* **|** *ip mask* | *IPv6/prefixlen*

default trusted-host

mac	
mac_mask	
ip	
mask	
IPv6/prefixlen	
all	**y no** [illegible]

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# define tcp
Ruijie(config-nfpp-define)#trusted-host 1.1.1.1 255.255.255.255
```

show nfpp define trusted-host *name* [illegible]

21.101 no all-guard enable

no all-guard enable

all-guard enable

```
Ruijie(config)#show running-config  | begin nfpp
nfpp
```

```
Ruijie(confen nfyg  (rdh|rp-guarb enable
```

```
 log-buffer enable
 no arp-guard enable
 arp-guard rate-limit per-port 201
 arp-guard attack-threshold per-port 210
 no icmp-guard enable
 no ip-guard enable
 no dhcp-guard enable
 no dhcpv6-guard enable
 no nd-guard enable
!
Ruijie(config-nfpp)#all-guard enable
Ruijie(config-nfpp)#show running-config  | begin nfpp
nfpp
 log-buffer enable
 arp-guard rate-limit per-port 201
 arp-guard attack-threshold per-port 210
!
no service password-encryption
!
```

show running-config 0Fbž

22 DOS

22.1 ip deny invalid-l4port

ip deny invalid-l4port

no ip deny invalid-l4port

no ip deny invalid-tcp


```
Ruijie(config)# ip deny land
```

```
Ruijie(config)# no ip deny land
```

show ip deny land xKUYÔ…

22.4 show ip deny

show ip deny


```
ruijie#show ip deny
```

[redacted]

22.5 show ip deny invalid-l4port

show ip deny invalid-l4port

-ACL&QOS

ACL&QOS

1. ACL
2. QOS

1 ACL

1.1

œ	m#
id	ACL žoŽJF8 IP õ ACLy 1-99k 1300-1999 IP ÿ ACLy 100-199k 2000-2699 MAC ÿ ACLy700–799 ÿ ACLy2700–2899
name	ACL d
sn	ACL n¾Z(u47iÊ})
start-sn	~ZŸU
inc-sn	~ZÍO
deny	ÕkÉÊ
permit	ÕkÊÊ
port	#ÍÖk+9 IPv6 ¥U ipv6k icmpk tcpk udp Cƒ 0-255k+9 IPv4k UY© eigrpk grek ipinipk igmpk nosk ospfk icmpk udpk tcpk ip ‰U YÖVn IP #‘ 0-255 ÍÖk‰}#ôicmp/tcp/udp ‰¢
interface idx	ÿNM
src	ÿÊl
src-wildcard	ÊoŽJYÈò 0.255.0.32
src-ipv6-pfix	› IPv6 È
dst-ipv6-pfix	) IPv6 È
pfix-len	ÿÜAyƒ
src-ipv6-addr	› IPv6 ª
dst-ipv6-addr	) IPv6 ª
dscp	ÖÆµ Aµ 8 0-63
flow-label	vÊvÊ 0-1048575
dst	)ÿÊl
dst-wildcard	)ÊoŽJYÈò 0.255.0.32

F	SSAP(用户<	19	T	TCP 长M	46
G	Ctrl <	20	U	TCP)长M	48
H	Org Code <	21	V	~乙	50
I	/xG°	24	W	G<	54
J	IP 长	26	XY	IP 数AÔ	58

access-list *id* { **deny** | **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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

ACL

Internet Control Message Protocol (ICMP)y

access-list *id* { **deny** | **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*] [*out*]

	UDPoTCP oIP %UYVn IP #‘ 0-255 Zo%} #ò ICMP/TCP/UDP ž
destination	
destination-wildcard	)ŠoZUYò 0.255.0.32
fragment	
precedence	
precedence	0-7 h
range	
lower	’
upper	’
time-range	
time-range-name	f
tos	
tos	-15h
icmp-type	ICMP 0-255 h
icmp-code	ICMP VAg0-255 h
icmp-message	ICMP f
operator	qgt-49keq- 9k gt-9kneq- 9krange- 8h
port [*port*]	ZMZk*range*
host *source-mac-address*	
host *destination-mac-address*	)
VID *vid*	+6 vid gF
ethernet-type	Y
match-all	F tcp flag
tcp-flag	tcp flag
established	*F* tcp flag rst ê ack kFJyož
text	hKÎ

oIFå- ZÄ ACL Få-ZÄ ACL Få

oxX%o- %

oI- 14

o6-o- 4+Sgk X **access-list**

- IP ACL g1-99k 1300-1999hQ+gOòž
- IP ACLg 100-199k 2000-2699kUYC)gÕòž
- MAC ACLg700-799 kUYC) MAC YCY F
- g2700-2899kIP ACLoIP ACL YC MAC ACL ACL cF å ACL k PI ACL UY+ VLAN ID gFpž

precedence *precedence*/**tos** *tos*/**fragments**/**range** *lower upper*/ **time-range** *time-range-name*

TCP Flag mYB$y

- urg
- ack
- psh
- rst
- syn
- fin

ify

- critical
- flash
- flash-override
- immediate
- internet
- network
- priority
- routine

ity

- max-reliability
- max-throughput
- min-delay
- min-monetary-cost
- normal

ICMP ify

- administratively-prohibited
- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable
- host-unknown
- host-unreachable
- information-reply

- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- router-advertisement
- router-solicitation
- source-quench
- source-route-failed
- time-exceeded
- timestamp-reply
- timestamp-request
- ttl-exceeded
- unreachable

@ TCP ßMdfkTCP UYßMdfßMZ6ÛÀßMy

- 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

p UDP ÊMdfkUDP UYÊMdfÊMZÊÛÊMy

- 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

Y Ethernet-type

- aarp
- arp
- appletalk
- decnet-iv
- diagnostic
- etype-6000
- etype-8042
- lat
- lavc-sca
- mop-console
- mop-dump
- mumps
- netbios
- vines-echo
- xns-idp

ACL ACL **no** {**sn** | **permit** | **deny**}

oF- 1 yIP P†

µ IP 192.168.1.64 - 192.168.1.127

```
Ruijie(config)# access-list 1 permit 192.168.1.64 0.0.0.63
```

2yIP P†

µ IP DNS ICMP

```
Ruijie(config)# access-list 102.0.63                    fig)# access-list 102.0.63
```

CPÚÉExpert Extended ACL k¥ ACL í IP ª 192.168.12.3 w› MAC ª 00d0.f800.0044 Ä TCP ¢ž

```
Ruijie(config)# access-list 2702 deny tcp host
192.168.12.3 mac 00d0.f800.0044 any any
Ruijie(config)# access-list 2702 permit any any any any
Ruijie(config)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.12.3 mac 00d0.f800.0044 any any
20 permit any any any any
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL Fß, ACL ¢ž
2y… **show access-lists** *id xÀÀ* ACL Fß, ACL ¢ž
3y… **show access-lists** *name ÀÀ* ACL Fß, ACL ¢ž

oUPÎb- ¾ÇÉ ACL LMÖ ACL ÉÉUPjÎy

```
failed, for the entry is existed or the sequence number has been allocated!
```

oèjö- -

ouVÔ- -

1.3 access-list list-remark

6 ACL hKÎbž

access-list *id* **list-remark** *text*

í ACL hKÎ

no access-list *id* **list-remark**

¢@	T
id	ACL ÍbÄF8y IP Ô ACg1-99k 1300-1999b• IP y ACg 100-199k 2000-2699b• MAC y ACLg700–799 by ACLg2700–2899 h
text	*hÎK*

oHFå- ZÄ ACL hKÎ

oxX%- ¶%

oHÔ- 14

o6-o- 4ž0Ú ACL ¼UYÎ¼X6 ACL ¼hKÎbž ACL ¼Î¼k
Xk¼ ACL¼èÇ ACL ¼KÎbž

oFåb- 1 yÉ 1 ACL w¥ ACL ¼this acl is to filter the host 192.168.4.12 hKÎy

```
Ruijie(config)# ip access-list extended 100
Ruijie(config)# access-list 100 list-remark this acl is to filter the host 192.168.4.12
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL Få, ACL hKÎbž
2y… **show access-list** *sid xÄ* ACL Få,¥ ACL hKÎbž
3y… **show access-lists** *name Ä* ACL Få,¥ ACL hKÎbž

oUPÎb- -

oejö- -

ouVÔ- -

1.4 access-list remark

NÎFå ACL ¼KÎbž
access-list *id* **remark** *text*

ï ACL ¼KÎ
no access-list *id* **remark** *text*

op®

®	T
id	ACL ÍÄ¼F8y IP Ö ACLg1-99k 1300-1999b•IP y ACLg 100-199k 2000-2699b• MAC y ACLg700–799 by ACLg2700–2899 h
text	*hK*

oHFå- ZÄ ACL ¼KÎ

oxX%- ¶%

oHÔ- 14

o6-o- 4ž0Ú ACL ¼UYÎ¼X6 ACL ¼KÎbž ACL
¼Î¼Xk¼ ACL¼èÇ ACL ¼KÎ

oFåb- 1 yÍ 102 ACL ¼ ACL ¼KÎy

```
Ruijie(config)# access-list 102 remark deny-host-10.1.1.1
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL Fß, ACL éKÎbž

2y… **show access-lists** *id* xÖ6 ACL Fß,¥ ACL éKÎbž

3y… **show access-lists** *name* Ö6 ACL Fß,¥ ACL éKÎbž

oÜPÎb- ÇÉ% ACL MÉÔ ACL éKÎkÉPjÎÿ

```
Remark is duplicate
```

oèjÖ- -

oèVÔ- -

1.5 clear access-list counters

Ž ACL deny ÿ¢ž

clear access-list counters [*id* | *name*]

oÔ®

¢@	T
id	ACL ÍÓoŽJF8yIP Ô ACLg1-99k1300-1999 bÞP ÿ ACLg100-199 k 2000-2699b• MAC ÿ ACLg700–799 bÿ ACLg2700–2899h
name	ACL d

oxX%o- Ô%

oÞÔ- 14

o6-o- ÿÍAÜnÁn=ñnÞÔpmÞ14Ô

10 Tc 0 -1.773 TD <6F8(me)]TT0 1 Tf79 d05705550B404138

```
Ruijie# clear access-list counters
Ruijie# show access-lists
ip access-list standard 1
    10 deny host 50.1.1.2 (10 matches)
    20 permit host 60.1.1.2 (15 matches)
```

oЧPÎb- -

oиVΦ- -

1.6 clear counters access-list

Ž ACL FÏÞž

clear counters access-list [*id* | *name*]

	@	T
	id	ACL ŹoŽJF8yIP Õ ACLg1-99k1300-1999 bHP ÿ ACLg100-199 k 2000-2699b• MAC ÿ ACLg700–799 bÿ ACLg2700–2899h
	name	ACL d

oxX%o- Ô

oHÕ- 14

o6-o- ÝÏ6 ACL FÎkUYg¥X1¥ ACL FÏÞž

oFåb- 1 y1Ź 2700 ACL FÏÞž

4xXù

```
Ruijie #show access-lists 2700
expert access-list extended 2700
    10 permit ip VI=                    ¡ l'  !        ء ˜Ḥ ȳ 0 و 7 l' Ů ˍ    þ ő I
```

```
10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any
20 deny tcp any any eq login any any
30 permit tcp any any host 192.168.6.9 any
```

oЧPЂ- -

oчVЂ- -

1.7 deny

ЂЄ ACL • /ІЄ% ACL єž

1. IP Єї ACL

- ª IP Єї ACL ЂЄ ACL є

[*sn*] **deny** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**]

- R IP Єї ACL ІЂЄ ACL є

no { *sn* | { **deny** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**] } }

2. IP ї ACL

- ª IP ї ACL ЂЄ ACL є

[*sn*] **deny** *protocol source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**]

- R IP ї ACL ІЂЄ ACL є

no { *sn* | { **deny** *protocol source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**] } }

IP

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*] [**fragment**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

[*sn*] **deny tcp** { *source source-wildcard* | **host** *Source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*]

[**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag* | **established**]

User Datagram Protocol (UDP)

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

3. MAC ÿ ACL

- ª MAC ÿ ACL ¶½ ACL é

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

- R MAC ÿ ACL ¶½ ACL é

no { *sn* | {**deny** { **any** | **host** *source-mac-address* } { **any** | **host** *destination-mac-address*} [*ethernet-type*] [**cos** [*out*] [**inner** *in*]] } }

4. ÿ ACL

- ÿ ACL ¶½ ACL é

[*sn*] **deny**[*protocol* | [*ethernet-type*] [**cos** [*out*] [**inner** *in*]]] [[**VID** [*out*] [**inner** *in*]]] { *source source-wildcard* | **host** *source* | **any**}{**host** *source-mac-address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

- Rÿ ACL ¶½ ACL é

no { *sn* | { **deny** [*protocol* | [*ethernet-type*] [**cos** [*out*] [**inner** *in*]]] [[**VID** [*out*] [**inner** *in*]]] { *source source-wildcard* | **host** *source* | **any** } { **host** *source-mac-address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] } }

#+<mY ethernet-type ê cos <ž

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

#+#‘ protocol <ž

[*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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

expert

Internet Control Message Protocol (ICMP)

[*sn*] **deny icmp** [[**VID** [*out*] [**inner** *in*]]] { *source source-wildcard* | **host** *source* | **any** } { **host** *source-mac-address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**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** } { **host** *destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag* | **established**]

User Datagram Protocol (UDP)

[*sn*] **deny udp** [[**VID** [*out*] [**inner** *in*]]] { *source source –wildcard* | **host** *source* | **any** } { **host** *source-mac-address* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

Address Resolution Protocol (ARP)

[*sn*] **deny arp** { **vid** *vlan-id* } [*source-mac-address source-wildcard* **|** **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 ÿ ACL

- ª IPv6 ACL Ŷ ACL é

[*sn*] **deny 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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

- R IPv6 ACL ŶŶ ACL é

no {*sn* | { **deny 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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] } }

{ *destination-ipv6-prefix* / *prefix-length* | **host** *destination-ipv6-address* | **any** } [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragment**] [**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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [u

```
Ruijie(config-exp-nacl)# deny tcp  host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# permit any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.4.12 host 0013.0049.8272 any any
20 permit any any any any
Ruijie(config-exp-nacl)#
```

2yp@ IP y1 ACL 8k)É© IP 192.168.4.12 ÑÎ^ TCP ÑM 100 kEw
ÑM

```
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-GigabitEthernet 0/1)# ip access-group ip-ext-acl in
```

3yp@ MAC y1 ACL 8kÉ© MAC 0013.0049.8272 ÑÎ° 100 YÈ
lkwÑM

```
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-GigabitEthernet 1/1)# mac access-group mac1 in
```

4yp@ IP Ñ ACL 8kÉ© IP 192.168.4.12 ÑwÑM gigabitethernet 1/1ož
Fåy

```
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-GigabitEthernet 1/1)# ip access-group 34 in
```

5y@ IPv6 y ACL 8k)© IP 192.168.4.12 ÑwÑM gigabitethernet 1/1oŽ›y

```
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-GigabitEthernet 1/1)# ipv6 traffic-filter v6-acl in
```

oèo- 1	y…	**show access-lists** xXUYÔÄ	ACL Fß,	ACL Fßž
	2y…	**show access-lists** *id xßß*	ACL Fß,¥	ACL Fßž
	3y…	**show access-lists** *name ßß*	ACL Fß,¥	ACL Fßž

oUPÎb- -

oœjö- -

ouVÔ- -

1.8 expert access-group

1ßß ACL 6NMpßož

expert access-group { *id* | *name* } { **in** | **out** }

Hƒ ACL 6NMpß•

no expert access-group { *id* | *name* } { **in**

o6-o- }´… ACL ¥k}-1 ACL ñMk4žUYÑMF%XXož

oFåÞ- 1 y1d accept_00d0f8xxxxxx_only´ ACL 9 GigaEthernet 0/1 y

```
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# expert access-group accept_00d0f8xxxxxx_only in
```

5 ش Á | 1y… **show expert access-group xMÑ•** ACLož

2y… **show expert access-group {interface** *interface-name* }xXUYÔ6NM%

ACLož

oÜPÎb- -

oeÿö- -

ouVÞ- -

1.9 expert access-list advanced

ïACL kwïACL Fåož

expert access-list advanced *name*

ïä ACL

no expert access-list advanced *name*

op®

@	T
name	ä ACL d

oHFå- ZïACL

oxX%- ß%

oHÞ- 14

o6-o- ¥ïÞ<UYä. ACLg/ ACL80bž

oFåÞ- 1 yïadv-aclä ACLy

```
Ruijie(config)# expert access-list advanced adv-acl
Ruijie(config-exp-dacl)# show access-lists
expert access-list advanced adv-acl
```

oè¤o- 1 y… **show access-lisst xM6Ñ** ACL Î k,ä ACLož

2y… **show access-lists** *name xM6d* ACL Î k,ä ACLož

oÙPÎb- -

oeÿjö- -

oÙVÑ- -

1.10 expert access-list counter

•6ÿ ACL FÏbž

expert access-list counter { *id* | *name* }

{¥ ACL FÏ

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

oÞ®

@	T
id	ÿ ACL Ó g2700-2899 h
name	ÿ ACL d

oÞFå- {Ø ACL FÏ

o×X%o- ß%

oÞÑ- 14

o6-o- ¤4ÑOÑ3IÑ?cxÑUYÑ ACL FÏ

Ñ¤ož

oFåÑ- 1 y•odexp-acl ÿ ACL FÏÿ

```
Ruijie(config)# expert access-list counter exp-acl
Ruijie(config)# show access-lists
expert access-list extended exp-acl
 10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any (16 matches)
 20 deny tcp any any eq login any any (78 matches)
```

2y{dexp-acl ÿ ACL FÏÿ

```
Ruijie(config)#no expert access-list counter exp-acl
```

```
Ruijie(config)# show access-lists
expert access-list extended 2700
 10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any
 20 deny tcp any any eq login any any
```

oòo- 1 y… **show running xM** ACL o4Fož

2y.. **show access-list xM** ACL Fõž

´ ACL

2y… **show access-list** *id xM* ACL Ä ACE F7kF4ó ož

3y… **show access-list** *name xM* ACL Ä ACE F7kF4ó ož

oUPÎb- -

oejö- -

ouVõ- -

1.11 expert access-list extended

ÿ ACL kw# ož

expert access-list extended { *id* | *name* }

ÿ ACL

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

op®

@	T
id	ÿ ACL Ó g2700-2899 h
name	ÿ ACL d

oFå- Z A ACL

oxX%- %

oõ- 14

o6-o- ACL Lcõ IP Õ ACLoP ÿ ACL YC MAC ÿ ACL UY…

ÿ ACLož

oFåb- 1 y exp-acl ÿ ACLy

```
Ruijie(config)# expert access-list extended exp-acl
```

```
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
Ruijie(config-exp-nacl)#
```

2y 2704 y ACLy

```
Ruijie(config)# expert access-list extended 2704
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2704
Ruijie(config-exp-nacl)#
```

oòo- 1 y… **show access-lists** ACL k,´ ACLož

2y… **show access-lists** *id* ACL k,´ ACLož

3y… **show access-lists** *name* ACL k,´ ACLož

oUPb- -

oojö- -

ouV- -

1.12 expert access-list new-fragment-mode

1y ACL

expert access-list new-fragment-mode { *id* **|** *name* }

no expert access-list new-fragment-mode { *id* **|** *name* }

id	y	ACL g2700-2899 h
name	y	ACL d

oF-å- ACL fragment k>F Px7 ~p

o6-o- ¢ ACL kÄ fragment ACL é

kÄ fragment ACL kÄ fragment ACL é

ACL

6 ACL

oFåb- 1 y1 ID 2700 ACL

```
Ruijie(config)#expert access-list new-fragment-mode 2700
```

oèo- … **show running** ACL

oUPÎb- -

oejö- -

ouVÐ- -

1.13 expert access-list resequence

+ÿ ACL ZgML

expert access-list resequence { *id* | *name* } *start-sn inc-sn*

no expert access-list resequence {

oFåb- 1 y+dexp-aclÿ ACL é7ÂZ 21oÉ 43 ~ZMLož

FåxXù

```
Ruijie# show access-lists
expert access-list extended exp-acl
 10 permit ip any any any any
 20 deny ip any any any any
```

ف ä % ᵘ ɲ ɵ ᵃ χ

```
Ruijie# config
Ruijie(config)# expert access-list resequence exp-acl 21 43
Ruijie(config)# exit
Ruijie# show access-lists
expert access-list extended exp-acl
 21 permit ip any any any any
 64 deny ip any any any any
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL éÂZož

2y… **show access-lists** *id xÖ* ACL éÂZož

3y… **show access-lists** *name Ö* ACL éÂZož

oЧPÎb- -

oəjö- -

oиVÔ- -

1.14 global ip access-group

FÔ IP ¶ ACL ŃMÿ

global ip access-group

HÔ IP ¶ ACL ŃMÿk/1NMFÔ¶ ACL Ù

oĦő- 14

oĜ-o- ĉNMFĦ IP ¶ ACL ÙekŶMĦ IP ¶ ACL ¥MI ỳ žUY¥dgFåž

oFåŀ- 1 yFĦ¶ ACL ¨ fastEthernet0/0 ỳ

```
Ruijie(config)# interface fastEthernet 0/0
Ruijie(config-if-GigabitEthernet 0/0)#global ip access-group
```

oèo- 1 y… **show running xĐ%ÜĦ** IP ¶ ACL Ùož

oUPŏ- -

oèjö- -

oVŏ- -

1.15 ip access-group

16 ACL ºĦåNM

ip access-group { *id* | *name* } { **in** | **out** }

Hƒ ACL yĦ%åNMť¼

no ip access-group { *id* | *name* } { **in** | **out** }

oĕ@

@	T
id	IP Õ ACL ê IP ỳ ACL Źg1-199k1300-2699 h
name	IP Õ ACL ê IP ỳ ACL d
in	+¥MMġ¡
out	+R¥MMġ¡

oĦFå- ĦoNMºŽÄACL ož

o×X%o- ĦoNM%

oĦő- 14

oĜ-o- }±. IP Õ ACL ê IP ỳ ACL ỳkUYĭkX1 ACL Ħ%åMkýUY+ ÄMoĜNMĦOòž

oFå0- 1 y¨ fastEthernet0/0 Ø 120 ACL

[illegible] IP [illegible] IP [illegible] ACL[illegible] IP ACL UF

<[illegible] **deny** [illegible] **permit** [illegible]**.** **show access-lists** [illegible] ACL [illegible]

oF[illegible] 1 [illegible]std-acl [illegible] IP ACL[illegible]

```
Ruijie(config)# ip access-list standardE a l' e ist ie(Ê تي Ę k î ˘ Ruix b cess-^D st star
```

¼ IP Õ ACL ê IP ý ACL Ï

no ip access-list counter { *id* | *name* }

o@ @ T

id	IP œ ACL ê IP ý ACL ý Õ 99 k1300-1999 ý 100-199 k 2000-2699h
name	IP Õ ACL ê IP ý ACL d

oÏ å- ¼ IP Õ ACL ê IP ý ACL Ï

o X% o- %

oÏ Ø- 14

o - o- Ø Ú IP Õ ACL ê IP ý ACL Ï Ø UY X o ož

oÏ å Ø- 1 y o IP Õ ACL ÿ

```
Ruijie(config)# ip access-list counter std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
 10 permit 195.168.6.0 0.0.0.255 (999 matches)
 20 deny host 5.5.5.5 time-range tm (2000 matches)
```

2 y ¼ IP Õ ACL ÿ

```
Ruijie(config)#no ip access-list counter std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
 10 permit 195.168.6.0 0.0.0.255
 20 deny host 5.5.5.5 time-range tm
```

oè o- … **show running x** ACL o 4 Ï

oÜ Pb- -

oè ÿ o- -

oÜ V Ø- -

1.18 ip access-list log-update interval

Få IPv4 ACL F%

ip access-list log-update interval *time*

ê

no ip access-list log-update interval

o@	@	T
	+9k¾ ACL ñ ACL logging 8
time	xÕ8 [0, 1440] k 5knP7é 5 ÕÜÿ
	ACL F Få 0 nP ACL loggingož

oF å- 5 Ù

o X%- %

o ô- 14

o6 o- +9o4 logging IP Ô IP ÿ ACL Q}6% 5 ÕhÄñ
k< JY…
îkXgåž

oF å- 1 y1 IPv4 ACL F Få 10 Ùy

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# ip access-list log-update interval 10
```

oè o- … **show running x** – IPv4 ACL F

oÙ Pî- -

oè ÿ- -

oè V- -

1.19 ip access-list new-fragment-mode

1 IP Ô ACL ê IP ÿ ACL F%

ip access-list new-fragment-mode { *id* **|** *name* }

ê IP Ô ACL ê IP ÿ ACL F%Ù

no ip access-list new-fragment-mode { *id* **|** *name* }

		T
	id	IP ACL IP ACL 99 k1300-1999 100-199 k 2000-2699h
	name	IP ACL IP ACL d

ACL fragment k>F

ACL fragment

14

¢ ACL fragment ACL fragment ACL

kÄ fragment ACL fragment ACL

ACL

6 ACL

1 y1 ID 100 ACL

```
Ruijie(config)#ip access-list new-fragment-mode 100
```

… **show running** ACL 4

-

-

-

1.20 ip access-list resequence

+ IP ACL IP ACL ZgML

ip access-list resequence { *id* | *name* } *start-sn inc-sn*

no ip access-list resequence { *id* | *name* }

		T

id	IP õ ACL ê IP ý ACL ý ÕÕ-99 k1300-1999 ý100-199 k 2000-2699h
name	IP õ ACL ê IP ý ACL ACL d
start-sn	~ý1-2147483647 h
inc-sn	~ZÍg1-2147483647 h

oHFå- start-sn y10
inc-sny 10

o×X%o- ß%

oHõ- 14

o6-o- ŽÜk¨ IP õ ACL ê IP ý ACL ý ÚÚ¶ek%ek
~ZkJ±ÚÜk4ŽUYÎkX+ ACL é¾ZgMLk~ZJ¤ož

oFåÞ- 1 y+Ý 1 ACL é7ÂZ 21oÍÐ 43 ~ZMLož
FåxXù

```
Ruijie# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
```

ف ã % ª ÞÞ ª ª χ

```
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
```

oè¤o- 1 y… **show access-lists** xXUYÔÄ ACL éÂZož
2y… **show access-lists** *id xÕÕ* ACL éÂZož
3y… **show access-lists** *name ÕÕ* ACL éÂZož

oÞPÎÞ- -

oèjÖ- -

oèVÞ- -

1.21 ipv6 access-list

ë IPv6 ACLkwÞ¥%

ipv6 access-list *name*

ï¥ ACL

no ipv6 access-list *name*

	@	T
	name	IPv6 ACL d

ZÄ IPv6 ACL

%

14

IPv6 IPv6 ACLkÕXë IPv6 ACLož

1 yëv6-acl IPv6 ACLy

```
Ruijie(config)# ipv6 access-list v6-acl
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list v6-acl
Ruijie(config-ipv6-nacl)#
```

1 y… **show access-lists** ACLg, IPv6 ACLhFžž

2y… **show access-lists** *name* ACLg, IPv6 ACLhFž

-

-

-

1.22 ipv6 access-list counter

IPv6 ACL

ipv6 access-list counter *name*

{¼ ACL ¦Ï¿

no ipv6 access-list counter*name*

o¦®

¢@	T
name	IPv6 ACL d

o¦F¯å- {¼ IPv6 ACL ¦Ï¿

o¤X%o- ¦B%

o¦Ø- 14

o6¬o- }4† IPv6 ACL gÕ¦UY¦ÎXo IPv6 ACL ¦Ï¿D IPv6 †
F¦Ñ¦Z

oFåb- 1 yo IPv6 ACL ¦Ï¿y

no ipv6 access-list resequence *name*

oÞ®

@	T
name	IPv6 ACL d
start-sn	~g1-2147483647 h
inc-sn	~ZÍOg1-2147483647 h

oÞFå- start-sn y10
inc-sny 10

oxX%o- ß%

oÞß- 14

o6-o- ŽÜk¨ IPV6 ACL gÚÚ¹ÉÉk%ÉÉk~ZkJÆÜ
2k4ÉkUYÎkX+ ACL é¾ZgMLk~ZJož

oFåÞ- 1 y+dv6-acl IPv6 ACL é¾ÂZ 21oÍÓ 43 ~ZMLož
FåxXù

```
Ruijie# show access-lists
ipv6 access-list v6-acl
 10 permit ipv6 any any
 20 deny ipv6 any any
```

ف ã % ª ÞÞ ª ª χ

```
Ruijie# config
Ruijie(config)# ipv6 access-list resequence v6-acl 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ipv6 access-list v6-acl
 21 permit ipv6 any any
 64 deny ipv6 any any
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL éÂZož
2y… **show access-lists** *name* ÔÄ ACL éÂZož

oÞPÎÞ- -

oèjÖ- -

oÞVÞ- -

1.25 ipv6 traffic-filter

1ý½ IPv6 ACL ÷NM

ipv6 traffic-filter *name* { **in** | **out** }

Hƒ IPv6 ACL •

no ipv6 traffic-filter *name* { **in** | **out** }

o½ÞÞ

½@	T
name	IPv6 ACL d
in	+ÞÞMÞ¡
out	+RÞÞMÞ¡

oÞFå- NMZÄ IPv6 ACLož

o×X%- NM%

oÞÞ- 14

o6-o- }±. IPv6 ACL ÞkUYÎX1 ACL ÞMkýUYëÞMß IPv6 ÞOòž

oFåÞ- 1 y1 access-list v6-acl 9 Gigabit NM 0/1 y

```
Ruijie(config)# interface GigaEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)# ipv6 traffic-filter v6-acl in
```

oèo- 1 y… **show ipv6 traffic-filter x½ÞÄ** IPv6 ACL Fåž

2y… **show ipv6 traffic-filter {interface } {***interface-name* | *vni}* **x½ÞÄ** IPv6 ACL Fåž

oÞPÎ- -

oejö- -

oÞVÞ- -

1.26 list-remark

6 ACL hKÎ

list-remark *text*

ï ACL hKÎ

no list-remark

o@ @ T

text	hKÎ

oHFå- ZÄ ACL hKÎ

oxX%o- ACL %

oHõ- 14

o6-o- 4ž0Ú ACL kUYÎkX6 ACL hKÎbžUYÎ BFÅ%N

… **access-list list-remark xX** ACL hKÎbž

oFåb- 1 yÓ 102 IP y ACL this acl is to filter the host 192.168.4.12 hKÎy

```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

oèo- 1 y… **show access-lists** xXUYÎÄ ACL Fß, ACL hKÎbž

2y… **show access-lists** *id xX* ACL Fß,¥ ACL hKÎbž

3y… **show access-lists** *name X* ACL Fß,¥ ACL hKÎbž

oUPÎb- -

oèjö- -

ouVÎ- -

1.27 mac access-group

1ŕb MAC ý ACL 6NMož

mac access-group { *id* | *name* } { **in** | **out** }

Hƒ MAC ý ACL •

no mac access-group { *id* | *name* } { **in** | **out** }

op@	p@	T
	id	MAC ý ACL

{¼ MAC ý ACL Fï

no mac access-list counter { *id* | *name* }

o@ @

@	T
id	MAC ý ACL Ź g700-799 h
name	MAC ý ACL d

oHFå- {¼ MAC ý ACL Fïbž

o×X%o- ß%

oHõ- 14

o6-o- }4† MAC ý ACL gÕUYîXo MAC ý ACL FïkDYß
ãCFÕž

oFåb- 1 yodmac-acl MAC ý ACL Fÿ

```
Ruijie(config)# mac access-list counter mac-acl
Ruijie(config)# show access-lists
mac access-list extended mac-acl
 10 permit host 0023.56ac.8965 any (170 matches)
 20 deny any any etype-any cos 6 (239 matches)
```

2y{dmac-acl MAC ý ACL Fÿ

```
Ruijie(config)#no mac access-list counter mac-acl
Ruijie(config)# show running xÕ
mac access-list extended mac-acl
 10 permit host 0023.56ac.8965 any
 20 deny any any etype-any cos 6
```

oèo- … **show running xÕ** MAC ý ACL o4Fïbž

oUPî- -

oöjö- -

ouVî- -

1.29 mac access-list extended

ë MAC ý ACLkwµ ACL %

mac access-list extended { *id* | *name* }

ï MAC ý ACL

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

o@ß

@	T
id	MAC ý ACL Ý g700-799 h
name	MAC ý ACL d

oHFå- ZÄ MAC ý ACLož

oxX%- ß%

oHß- 14

o6-o- ¿+ÌBC ¿ ¶k}… MAC ý ACLkÙÛxXë MAC ý ACLož

oFåb- 1 yßmac-acl MAC ý ACLy

```
Ruijie(config)# mac access-list extended mac-acl
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended mac-acl
```

2yßb 704 MAC ý ACLy

```
Ruijie(config)# mac access-list extended 704
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended 704
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL Fîž

2y… **show access-lists** *id xß* ACL Fîž

3y… **show access-lists** *name ß* ACL Fîž

oÙPÎb- -

oëjö- -

oèVß- -

1.30 mac access-list resequence

+ MAC ÿ ACL é¾ZgML

mac access-list resequence { *id* | *name* } *start-sn inc-sn*

ê

no mac access-list resequence { *id* | *name* }

o@ p@

@	T
id	MAC ÿ ACL Ó g700-799 h
name	MAC ÿ ACL d
start-sn	~ÿ1-2147483647 h
inc-sn	~ZÓg1-2147483647 h

oH-å- start-sn y10

inc-sny 10

o×X%o- B%

oHê- 14

o6-o- ŽÖk¨ MAC ÿ ACL ÿ ÿ k%k~ZkJÆ

Ök4ŽUYÎkX+ ACL é¾ZgMLk~ZJ ož

oFåÿ- 1 y+dmac-acl MAC ÿ ACL é7ÆZ 21oÓ 43 ~ZMLož

FåxXÿ

```
Ruijie# show access-lists
mac access-list extended mac-acl
 10 permit any any etype-any
 20 deny any any etype-any
```

```
Ruijie# config
Ruijie(config)# mac access-list resequence exp-acl 21 43
```

2y… **show access-lists** *id xx* ACL

3y… **show access-lists** *name xx* ACL

oЧPÎb- -

oəjö- -

oчVÎ- -

1.31 permit

ACL • /ÎÎ% ACL

6. IP ÕÕ ACL

- ª IP ÕÕ ACL ACL

[*sn*] **permit** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**]

- R IP ÕÕ ACL ÎÎ ACL

no { *sn* | { **permit** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**] } }

7. IP ÿÿ ACL

- ª IP ÿÿ ACL ACL

[*sn*] **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**]

- R IP ÿÿ ACL ÎÎ ACL

no { *sn* | { **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**] } }

IP

Internet Control Message Protocol (ICMP)y

[*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*] [**fragment**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)y

[*sn*] **permit tcp** { *source source-wildcard* | **host** *Source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag* | **established**]

User Datagram Protocol (UDP)y

[*sn*] **permit udp** { *source source –wildcard* | **host** *source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [**operator port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

8. MAC ÿ ACL

- ª MAC ÿ ACL ¼ ACL é

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

- R MAC ÿ ACL ¼ ACL é

no { *sn* | { **permit** { **any** | **host** *source-mac-address* | *source-mac-address mask*} { **any** | **host** *destination-mac-address* | *destination -mac-address mask* } [*ethernet-type*] [**cos** [*out*] [**inner** *in*]] } }

9. ÿ ACL

- ÿ ACL % Ú ACL é

[*sn*] **permit** [**protocol** | [*ethernet-type*] [**cos** [*out*] [**inner** *in*]]] [**VID** [*out*] [**inner** *in*]] { *source source-wildcard* | **host** *source* | **any** } { **host** *source*-mac-*address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

- Rÿ ACL % Ú ACL é

no { *sn* | { **permit** [**protocol** | [*ethernet-type*] [**cos** [*out*] [**inner** *in*]]] [**VID** [*out*] [**inner** *in*]] { *source source-wildcard* | **host** *source* | **any** } { **host** *source*-mac-*address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] } }

#+<mY Ethernet-type ê cos <ÿ

[*sn*] **permit** { *ethernet-type*| **cos** [*out*] [**inner** *in*] } [**VID** [*out*] [**inner** *in*]] { *source source-wildcard* | **host** *source* | **any** } { **host** *source-mac-address* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **host** *destination-mac-address* | **any** } [**time-range** *time-range-name*]

#+#‘ Protocol <ÿ

[*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**

- R IPv6 ACL ï¼ ACL é

no { *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*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] } }

IPv6

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** { *source-ipv6-prefix* / *prefix-length* | **any** *source-ipv6-address* | **host**} { *destinw-l} ol bssa|ge510.06 0 T(/]T T 0.7236 Tv 0.28 0A101 fF0.0x-length*

hex-mask	*Y* 16 ùPFQAkFå ACL ě.
offset	*yFáF* ACL ě.

oHFå- ZÄ ACL ěå

o×X%o- ACL %

oHõ- 14

o6-o- ÿMUY¥X6 ACL L% ACL ěž

oFåù- 1 yPòCP%Expert Extended ACL k¥ ACL ª IP ª 192.168.4.12 w›
MAC ª 001300498272 Ä TCP ùž

```
Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# permit tcp  host  192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# deny any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
10 permit tcp  host  192.168.4.12 host 0013.0049.8272 any any
20 deny any any any any
Ruijie(config-exp-nacl)#
```

2yù IP ù ACL 8k)Ö IP 192.168.4.12 ÑÛ^ TCP ÑM 100 kÑw
ÑM gigabitethernet 1/1oÈåy

```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# ip access-group 102 in
```

3yù MAC ù ACL 8k)Ö MAC 0013.0049.8272 ÑÛº 100 Yß
ÑkwÑM gigabitethernet 1/1oÈåy

```
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-GigabitEthernet 1/1)# mac access-group 702 in
```

4y@ ip Õ ACL 8k)€ IP 192.168.4.12 ÑwÑM 1oÈåy

```
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-GigabitEthernet 1/1)# ip access-group std-acl in
```

5y@ IPv6 y ACL 8k)€ IP 192.168.4.12 ÑwÑM gigabitethernet 1/1oÈåy

```
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-GigabitEthernet 1/1)# ipv6 traffic-filter v6-acl in
```

6y@ ACL 8k)€ IP 192.168.4.12 ÑwÑM gigabitethernet 1/1oÈåy

```
Ruijie(config)# expert access-list advanced adv-acl
Ruijie(config-exp-dacl)# permit a0c8040c ffffffff 38
Ruijie(config-exp-dacl)# show access-lists
expert access-list advanced adv-acl
 10 permit a0c8040c ffffffff 38
Ruijie(config-exp-dacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# expert access-group adv-acl in
```

oèo- 1 y… **show access-lists** xXUYÔÄ ACL Fß, ACL FßÞ

2y… **show access-lists** *id xÑ* ACL Fß,¥ ACL FßÞ

3y… **show access-lists** *name xÑ* ACL Fß,¥ ACL FßÞ

oÙPÎb- -

1.33 remark

¨ ACL Ë ACE hKÎ

remark *text*

ï ACE hKÎ

no remark *text*

op@	p@	T

1.34 security access-group

FåUM%$

security access-group { *id* | *name* }

îNM@$

no security access-group

o@ @

@	T
id	ACL ÍkUF8y IP õ ACg1-99k 1300-1999b•IP ÿ ACg 100-199k 2000-2699b• MAC ÿ ACLg700–799 bÿ ACLg2700–2899 h
name	ACL d

oH-Få- NM%Z$Få

o×X%o- NM%

oH-ô- 14

o6-o- ÕÅ%Ao 802.1x ê web k$4ko
ÍMÅUY|ÙkUYîXF$ož

oFåÙ- 1 yNM GigaEthernet 1/1 F$k+• ACL Í 1y

```
Ruijie(config)# interface GigaEthernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# security access-group 1
```

oèo- … **show running x**

oUPÎb- -

oÿjö- -

ouVô- -

1.35 security global access-group

F$$

security global access-group { *id* | *name* }

ÍÞ$

no security global access-group

oÞ@

p@	T
id	ACL ÍkJF8y IP Õ ACÞg1-99k 1300-1999b• IP y ACÞg 100-199k 2000-2699b• MAC y ACLg700–799 by ACLg2700–2899 h
name	ACL d

oÞFå- ZÞ$Få

o×X%o- Þ%

oÞÕ- 14

oH-Få-	NM$Ù
oxX%o-	NM%
oH-ô-	14
o6-o-	9$ÄMjk$NMjk<UY1ÞNMFå $Ùož

oUPÎb- -

ouVÎ0- -

1.38 show access-lists

ÞÄ ACL Fê ACL Få

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

o@ @

@	T
id	ACL Ý
name	ACL d
summary	ACL MÊ

o×X%o- B%

oÞ- 14

o6-o- Þ6 ACL Fê3ZÄ ACL Ý6kÞÄ ACL Fêž

oFåÞ- 1 yÔdn_acl ACL Fê

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
```

2yÔÄ ACL Fê

```
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
  permit icmp host 192.168.1.1 any log (1080 matches)
  permit tcp host 1.1.1.1 any established
  deny ip any any (80021 matches)
mac access-list extended mac-acl
expert access-list extended exp-acl
ipv6 access-list extended v6-acl
  petmit ipv6 ::192.168.4.12 any (100 matches)
  deny any any (9 matches)
```

oUPÎb- -

oUV0- -

1.39 show expert access-group

PNMy ACL Fåž

show expert access-group [**interface** *interface-name*]

op@	p@	T
interface *Interface-name*	6NMd

oxX%o- Ô

oH0- 14

o6-o- PNM• ACL k3ZÔNMkPÄM• ACLož

oFåt- 1 yÔNM GigabitEthernet 0/2 ©4y ACLkYCg

```
Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

oUPÔ- -

oUV0- -

1.40 show ip access-group

PNM• IP Ô IP y ACL Få

show ip access-group [**interface** *interface-name*]

op@	p@	T
interface *Interface-name*	6NMd

oxX%o- Ô

oH0- 14

o6-o- ®PNM• IP ÕÕ IP ÚÚ ACLkZÄNMPÄ®PÄM• IP ÕÕ y IP ÚÚ ACLož

oFåÚ- 1 yÔNM GigabitEthernet 0/1 ©4 IP ÕÕ IP ÚÚ ACLkYCgy

```
Ruijie# show ip access-group interface gigabitethernet 0/1
ip access-group aaa in
Applied On interface GigabitEthernet 0/1.
```

oÜPÎb- -

oÜVÕ- -

1.41 show ipv6 traffic-filter

®PNM• IPv6 ACL Få

show ipv6

o@	@	T
	interface *Interface-name*	6NMd

oxX%o- Ô

oÊ- 14

o6-o- ÊNM• MAC ÿ ACLk3ZÄNMkÊÄM• MAC ÿ ACLož

oFåb- 1 yÔNM GigabitEthernet 0/3 ©4 MAC ÿ ACLkYCg

```
Ruijie# show mac access-group interface gigabitethernet 0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

oUPÎb- -

ouVÊ- -

1.43 show redirect interface

Ê ACL MgFÎå

show redirect [**interface** *interface-name*]

o@	@	T
	interface *Interface-name*	6NMd

oxX%o- Ô

oÊ- 14

o6-o- Ê ACL MgFåçÔNMkÊÄMFå ACL MgÎ

oFåb- 1 yÔNM GigabitEthernet 0/3 Få ACL MgÎÿ

```
Ruijie #show redirect interface gigabitEthernet 0/3
acl redirect configuration on interface gigabitEthernet 0/3
redirect destination interface gigabitEthernet 0/3 acl 1 in
```

oUPÎb- -

oиVØ- -

1.44 svi router-acls enable

o SVI • ACL N+CÕÿ

svi router-acls enable

{¼

no svi router-acls enable

o@	@	T
	-	-

oHFå- {¼ SVI • ACL N+CÕÿ

oxX%o- ß%

oHõ- 14

o6-o- ¥XNkß SVI ACLkõSVI • ACL +8CÕÿõž
ý SVI • ACL N+CÕÿkUY¥Xoož

oFåõ- 1 yo SVI • ACL N+CÕÿ

```
Ruijie(config)# svi router-acls enable
```

oèo- … **show running xM** SVI ACL N+CÕÿõoož

oUPÎõ- -

oeÿõ- -

oиVØ- -

2 QOS

2.1 class

[illegible]

class *calss-map-name*

[illegible]

no class *calss-map-name*

[illegible]

[illegible]	T
calss-map-name	*}[illegible]ož*

[illegible]

[illegible]

[illegible]

14

-

[illegible] 1 [illegible] cmap1kF DSCP 5

2.2 class-map

ëwpFåž

class-map *calss-map-name*

îJèž

no class-map *calss-map-name*

îJèž

default class-map *calss-map-name*

calss-map-name	*}ëkdÝ*	31 ož

è•

ß%

14

-

1 yë MAC ACL,xd me

```
Ruijie(config)# mac access-list extended me
Ruijie(config-ext-macl)# permit host 1111.2222.3333 any
Ruijie(config-ext-macl)# exit
```

2yë cm_aclkF ACL me

```
Ruijie(config)# class-map cm_acl
Ruijie(config-cmap)# match access-group me
Ruijie(config-cmap)# exit
```

3yë cm_dscpkF DSCP 8o16 o24

```
Ruijie(config)# class-map cm_dscp
Ruijie(config-cmap)# match ip dscp 8 16 24
Ruijie(config-cmap)# exit
```

1 y… **show class-map** [*class-map-name*]xXkUYÔbž

-

oöjö- -

ouVÖ- -

2.3 drr-queue bandwidth

Få DRR ÉAož

drr-queue bandwidth *weight1...weight8*

Ê DRR ÉAbož

no drr-queue bandwidth

Ê DRR ÉAbož

default drr-queue bandwidth

@	
weight1...weight8	8 ÓIk 1:1:1:1:1:1:1:1}u4 SP E ê 0~15kké 1~15ož

oFå- BÓA 1:1:1:1:1:1:1:1

oXÖ-

2.4 match

F%éž

match { **access-group** *access_list* | **ip** { **dscp** *dscp-vlaue-list* | **precedence** *pre-vlaue-list* } }

ÎFéž

no match { **access-group** *access_list* | **ip** { **dscp** *dscp-vlaue-list* | **precedence** *pre-vlaue-list* } }

o@ @

@	T				
access-group *access_list*	**F**	ACL ¢*access_list*	*u4f*	ACLk-u4xd	ACLož
ip dscp *dscp-vlaue-list*	**F**	DSCP ¢UYcÉÚ		DSCPk*dscp-value*	0~63ož
ip precedence *pre-vlaue-list*	**F**	IP PRE ¢UYcÉÚ		IP PREk*pre-vlaue*	0~7ož

oÎFå- ZÄ~é

oxX%- F%

oÎ- 14

o6-o- -

oFå- 1 yë cmap1kF DSCP 20o22 o24o30ož

```
Ruijie(config)# class-map cmap1
Ruijie(config-cmap)# match ip dscp 20 22 24 30
```

oèo- 1 y… **show class-map** [*class-map-name*]

oÞ

@	T
dscp1...dscp8	CoS DSCP kH8 0~63kÞ CoS 0~7 ñ *dscp1...dsp8* › 0 8 16 24 32 40 48 56ož

oÞFå-

HÕCoS ›0 1 2 3 4 5 6 7 ñ *dscp1...dscp8* 0 8 16 24 32 40 48 56ož

oXX%o-

%

oÞ-

14

o6-o-

-

oFåb- 1 yFå CoS ñ DSCP 8 10 16 18 24 26 32 34ož

```
Ruijie(config)# mls qos map cos-dscp 8 10 16 18 24 26 32 34
```

oào- 1 y… **show mls qos maps cos-dscp xKP** CoS-DSCP ož

oUPb-

-

oojö-

-

ouVÞ-

-

2.7 mls qos map dscp-cos

Få DSCP ñ CoS ož

mls qos map dscp-cos *dscp-list* **to** *cos*

Ê DSCP-CoS ož

no mls qos map dscp-cos

Ê DSCP-CoS ož

default mls qos map dscp-cos

oÞ

@	T
dscp-list	ñ CoS DSCP kH8 0~63ož
cos	DSCP CoSkH8 07 ož

oÞFå-

	56~63 ¥ñ	CoS 7ož
o×X%o-	฿%	
o#ô-	14	

o6-o- -

oFåb- 1 yFå IP-PRE ñ DSCP 8 10 16 18 24 26 32 34ož

```
Ruijie(config)# mls qos map ip-precedence-dscp 8 10 16 18 24 26 32 34
```

oàao- 1 y… **show mls qos maps ip-prec-dscp** IP-PRE-DSCP ož

oUPÎb- -

oejö- -

ouVb- -

2.9 mls qos scheduler

F
mls qos scheduler { **sp** | **rr** | **wrr** | **drr** | **wfq** }

no mls qos scheduler

default mls qos scheduler

o

@	T
sp	
rr	
wrr	
drr	
wfq	

oHFå- WRR

oxX%o- %

oHb- 14

o6-o- -

oFåb- 1 yFßÊÊÊž

```
Ruijie(config)# mls qos scheduler sp
```

5 ‰ÁÁ 1y… **show mls qos scheduler xKPÊž**

oÙPÎb- -

oÊjÖ- -

oÙVÊ- -

2.10 mls qos trust

FåÙM%ž

mls qos trust { **cos** | **dscp** | **ip-precedence** }

ÊÙM%ž

no mls qos trust

ÊÙM%ž

default mls qos trust

cos	’	CoS
dscp	’	DSCP
ip-precedence	’	IP-PRE

oÊFå- ÊÙM%ž

oxX%- NM%

oÊÊ- 14

o6-o- -

oFåb- 1 yÙMFß% FåÙM% CoSož

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if-GigabitEthernet 1/1)# mls qos trust cos
```

oèo- 1 y… **show mls qos interface** *interface-id* xKÊÊž

oЧPÎb- -

oəjö- -

oнVÎ- -

2.11 police

HЕ%Ç1kéÎgož

police *rate-bps burst-byte* [**exceed-action** { **drop** | **dscp** *new-dscp* | **cos** *new-cos* [**none-tos**] }]

îÇgož

no police

oÎ

@	T
rate-bps	*akb*(KBits) kD}Н8ož
burst-byte	*kb*(KBytes)kD}Н8ož
drop	*kéž*

dscp -

oəjö- -

ouVÎ- -

2.12 policy-map

kwpB%ž

policy-map *policy-map-name*

ĺ]ÕŽ

no policy-map *policy-map-name*

ĺ]ÕŽ

default policy-map *policy-map-name*

oÞ®

@	T
policy-map-name	}ÕkdÝ 31 ¤ž

oÞFå- è€Œ

oxX%o- ß%

oÞÕ- 14

o6-o- -

oFåÞ- 1 yÕE pokÞB%¤ cmap1kwpB%ž

```
Ruijie(config)# policy-map po
Ruijie(config-pmap)# class cmap1
```

2yFåÞgÞGvk! 10MkEÕGvO 256kkÞÕž

```
Ruijie(config-pmap-c)# police 10240 256 exceed-action drop
```

oèo- 1 y… **show policy-map** [*policy-map-name* [**class** *class-map-name*]]xXkÞÕE

oUPÎb- -

oəjö- -

Få CoS ž

priority-queue cos-map *qid cos0* [*cos1* [*cos2* [*cos3* [*cos4* [*cos5* [*cos6* [*cos7*]]]]]]]]

Ê CoS ž

no priority-queue cos-map

Ê CoS ž

default priority-queue cos-map

op

@	T
qid	CoS }ž kH8 1~8ož
cos0 ~ cos7	}ž CoSkH8 0~7ož

ÎÂÉÊÊÊFåž

default qos queue *queue-id* **bandwidth** { **minimum** | **maximum** }

oÊ®

®@	T
queue-id	}ê idkH8 1~8ož
bandwidth { **minimum** | **maximum** } *bandwidth*	ÂÉÊkkBÊÊž

oHFå- HFÂÉÊ

o×X%ó- NM%

oHÊó- 14

o6-o- -

oFåÛ- **-**

oèo- 1 y… **show qos bandwidth** [**interfaces** *interface-id*]xXkPkÎbž

oÜPÎb- -

oëjö- -

oÜVÊÛ- -

2.16 rate-limit

FÊM,ãž

rate-limit { **input | output** } *bps burst-size*

ZÊM,Ûž

no rate-limit { **input | output** }

ZÊM,Ûž

default rate-limit { **input | output** }

oÊ®

®@	T
input	ji

output	β
bps	*akb*(KBits) kH8%}ò
burst-size	*E6*(Kbytes) kH8%}ò

oHFå- ÌF&M';

o×X%o- NM%

oHõ- 14

o6-o- -

oFåb- 1 yNMFåož

```
Ruijie(config)# interface gigabitethernet 1/3
```

2yFõMaUkò 10MkEGvOò 256Kož

```
Ruijie(config-if-GigabitEthernet 1/3)# rate-limit input 10240 256
```

oèo- 1 y… **show mls qos rate-limit** [**interface** *interface-I* *-1.727 ÿ-B18p1 f0 c 2057.1975489980 f0 c 0379.407 000448E*

o6-nÿMq(CBÿFo6-o-

cos *new-cos*	‰	CoS ›	new-coskH8	0~7ož
vid *new-vid*	‰	VLAN ID	new-vidkH8	1-4094ož

oHFå- ÈE-vg

o×X%o- ‰

oHõ- 14

o6-o- -

oFåb- 1 yE pmap1kwpÈ%¼ cmap1kpÈ%ož

```
Ruijie(config)# policy-map pmap1
Ruijie(config-pmap)# class cmap1
```

2yFåg“w† CoS › 3ož

```
Ruijie(config-pmap-c)# set cos 3
```

oèo- 1 y… **show policy-map**[*policy-map-name* [**class** *class-map-name*]]xXkPÎE

oUPb- -

oəjö- -

ouVõ- -

2.19 show class-map

PÎož

show class-map [*class-map-name*]

o	@	T
	class-map-name	*ož*

o×X%o- ÕÈ%oNM%

oHõ- 14

o6-o- -

oFåb- 1 yPÎA

```
Ruijie# show class-map

 Class Map cmap1
   Match ip dscp 20 40
 Class Map cmap2
   Match access-group 110
```

È ɹ ٪... ۃ χ

cos-dscp	CoS-DSCP ¥Î›ž
dscp-cos	DSCP-CoS ¥Î›ž
ip-prec-dscp	IP-PRE-DSCP ¥Î›ž

oxX%o- Ô¤B%oNM%

oH¤- 14

o6-o- -

oFåÞ- 1 yÞ CoS-DSCP ¥Î

```
Ruijie# show mls qos maps cos-dscp
cos dscp
--- ----
0   0
1   8
2   16
3   24
4   32
5   40
6   48
7   56
```

È ‚ ¼... ¨ χ

<	¢
cos	CoS ›
dscp	CoS ¥ DSCP ›

2yÞ DSCP-CoS ¥Î

```
Ruijie# show mls qos maps dscp-cos
dscp cos     dscp cos     dscp cos     dscp cos
---- ---     ---- ---     ---- ---     ---- ---
 0   0        1   0        2   0        3   0
 4   0        5   0        6   0        7   0
 8   1        9   1       10   1       11   1
12   1       13   1       14   1       15   1
16   2       17   2       18   2       19   2
20   2       21   2       22   2       23   2
24   3       25   3       26   3       27   3
28   3       29   3       30   3       31   3
32   4       33   4       34   4       35   4
```

```
36   4      37   4      38   4      39   4
40   5      41   5      42   5      43   5
44   5      45   5      46   5      47   5
48   6      49   6      50   6      51   6
52   6      53   6      54   6      55   6
56   7      57   7      58   7      59   7
60   7      61   7      62   7      63   7
```

È ɹ ٪... ۃ χ

<	₵
dscp	DSCP ›
cos	DSCP ₩ CoS ›

3yₚ IP-PRE-DSCP ₩Î

```
Ruijie# show mls qos maps ip-prec-dscp
ip-precedence dscp
------------- ----
            0  0
            1  8
            2  16
            3  24
            4  32
            5  40
            6  48
            7  56
```

È ɹ ٪... ۃ χ

<	₵
ip-precedence	IP PRE ›
dscp	IP PRE ₩ DSCP ›

oЧPĉ- -

oнV₩- -

2.22 show mls qos queueing

ₚ CoS ₪o₩AÎbž

show mls qos queueing

o₩ | @ | T

-	-

oxX%o- ÕÕ$%oNM%

oHõ- 14

o6-o- -

oFåõ- 1 yP CoS ¤oõ¶Aõž

```
Ruijie# show mls qos queueing
Cos-queue map:
cos qid
--- ---
0   1
1   2
2   3
3   4
4   5
5   6
6   7
7   8

wrr bandwidth weights:
qid weights
--- -------
1   1
2   2
3   3
4   4
5   5
6   6
7   7
8   8

drr bandwidth weights:
qid weights
--- -------
1   3
2   3
3   3
```

```
5    3
6    3
7    3
8    3

wfq bandwidth weights:
qid weights
--- -------
1    3
2    4
3    5
4    6
5    7
6    8
7    9
8    10
```

È ‡ ½... ¨ χ

<	¢
Cos-queue map	CoS ¤
wrr bandwidth weights	WRR

o×X%o-	Ôß%^NM%
oHõ-	14
o6-o-	-

Attached input policy-map	.pmpE
Attached output policy-map	.pmpE

2yPŒ pmap1 + cmap1 Qgb

```
Ruijie# show policy-map pmap1 class cmap1

    Class cmap1
      set ip dscp 16
```

oUPb- -

oVt- -

2.27 show qos bandwidth

Pkb

show qos bandwidth [**interfaces** *interface-id*]

op@ @ T

interfaces *interface-id* *fDE*

oxX%- %NM%

oH- 14

o6-o- -

oFat- 1 yYu4PkNM gigabitEthernet 0/1 k

```
Ruijie# show qos bandwidth interface gigabitEthernet 0/1

Interface: GigabitEthernet 0/1
 ---------------------------------------------------
 uc-queue-id | minimum-bandwidth | maximum-bandwidth
 -----------   -----------------   -----------------
           1                5120               10240
           2                   0                   0
           3                   0                   0
           4                   0                   0
           5                   0                   0
           6                   0                   0
```

```
          7                  0                  0
          8                  0                  0
 ---------------------------------------------------
 Total ucast-queue minimum-bandwidth:          5120
 Total ucast-queue maximum-bandwidth:         10240

Interface: GigabitEthernet 0/1
 ---------------------------------------------------
 mc-queue-id | minimum-bandwidth | maximum-bandwidth
 -----------   -----------------   -----------------
          1               1024               5120
          2                  0                  0
          3                  0                  0
          4                  0               2048
 ---------------------------------------------------
 Total mcast-queue minimum-bandwidth:          1024
 Total mcast-queue maximum-bandwidth:          5120
```

È ‹ ½... ¨ χ

<	¢
Interface	NMd
queue-id	%oÁÈ®®knPç id Q
uc-queue-id	%È®®knP%ç id
mc-queue-id	ÁÈ®®knPÁç id
minimum-bandwidth	ÂÈgKbps h
maximum-bandwidth	ÈgKbps h
Total queue minimum-bandwidth Total queue maximum-bandwidth	%oÁÈ®®knPÈå ÂÈ®
Total ucast-queue minimum-bandwidth Total ucast-queue maximum-bandwidth	%È®®knP%ÈÅ 4È®
Total mcast-queue minimum-bandwidth Total mcast-queue maximum-bandwidth	ÁÈ®®knPÁÈÅ 4È®

oÜPÎb- -

oÜVÎ- -

2.28 show virtual-group

Ÿ.ÈÁÈÎb ž

show virtual-group [*virtual-group-number* | **summary**]

o@	@		
	virtual-group-number	.@	1~128ož
	summary	@	

o×X%o- ÕB%oNM%

oHõ- 14

op@

	Fâ 0~15kké 1~15ož

oHFå- HBÓA 1:1:1:1:1:1:1:1

oxX%- B%

oHô- 14

o6-o- 3Ó› 0ké. SP ¢

oFâ- 1 yFå WFQ ÓA† 1:1:2:4:4:4:6:8ož

```
Ruijie(config)# wfq-queue bandwidth 1 1 2 4 4 4 6 8
```

5 Á | 1y… **show mls qos queueing xK** QOS ž

oUPÎ- -

oejö- -

ouVô- -

2.31 wrr-queue bandwidth

Få WRR EAož

wrr-queue bandwidth *weight1 ... weight8*

Ïož

no wrr-queue bandwidth

Ïož

default wrr-queue bandwidth

	@	T
	weight1...weight8	8 Ó› 1:1:1:1:1:1:1:1 }u4 SP E Fâ 0~15kké 1~15ož

oHFå- HBÓA 1:1:1:1:1:1:1:1

oxX%- B%

oHô- 14

oG-o- 3Ó› 0k¥. SP ¢

oFåb- 1 yFå WRR bÓA† 1:1:1:1:2:2:4:8ož

```
Ruijie(config)# wrr-queue bandwidth 1 1 1 1 2 2 4 8
```

5 ش Ä | 1y… **show mls qos queueing xKô** QOS ÎÞž

oUPÎb- -

oejö- -

ouVÐ- -

w W ? ¿ T 4ì

Ú ` Ÿ4¡ ÃM4 û Q ¸ –5×,Ì G Y • È Ù À ¹ ß0´8V Ö

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

1 REUP

1.1 link state group

1 € M µ 6 e è Ù Á æ í Á

link state group m { upstream | downstream }

¼ { € M ß 6 e è Ù Á æ í Áož

no link state group

Ê Ö Þ . F åož

default link state group

o¬ @ ƒ ª ¢o-	@ ƒ	

o¬ u V ª ¢o- -

1.2 link state track

¼ { F å ? a G Â Ý ª - ¾ • † ƒ Oož

no mac-address-table move update max-update-rate

Ê Ö Þ . F åož

default mac-address-table move update max-update-rate

o¬ @ ƒ ª ¢o-	@ ƒ	T
		? a G Â Ý ª - ¾ • † ƒ Oož

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ø • N v ož (1 0 -

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14 5 0 7 D 1 0

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X ¼ { î ? Ô ò ª - ¾ • ƒ Î ož ¼ { Ô ò ª - ¾ • ƒ Î Q À U Y * ª - ¾ • † Û Ê Ö e — Õ e n ÿ k x © e è { ž v • Å k ‘ zož

o¬ F å †o- 1 y F å Ô ò ª - ¾ • ƒ Î ož

5 X L M L H F R Q I L J P D F D G G U H V V W D E O H P R Y H X S G D W H U H F H L Y H Y O D Q

o¬ à • co- 1 y … show mac-address-table move update x X k U Y ò 0 © k ¨ + • ø • N v 0690074E776 0 0 15A5A7

o¬ u • ‰&Î - 1 M l a n 0 ”

o¬ g Ö ª z/- 1-

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 4 × 5 e è ä E ž k g ƒ G v â k ¬ } ¨ G ÿ ä E A E Ñ ø • G ª - ¾ • ƒ Î ož

o¬ F å †o- 1 y ø • ª - ¾ • ƒ Îož

5 X L M L H F R Q I L J P D F D G G U H V V W D E O H P R Y H X S G D W H W U D Q V L W

o¬ à • co- 1 y … show mac-address-table move update x X k U Y ò 0 G ª - ¾ • ƒ Î ’ Îož

o¬ U P ’ Îo- 1 y ò ç M Ö F å 4 x X k é • F å ~ $ = Ä F å k — U P ’ Îož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.7 mac-address-table move update transit vlan

— å € M G ª - ¾ • ƒ Î ož
mac-address-table move update transit vlan

¼ { € M G ª - ¾ • ƒ Î oožž
no mac-address-table move update transit vlan

Ê Ö Þ . F åož
default mac-address-table move update transit vlan

o¬ @ ƒ ª ¢o-

@ ƒ	T
	G ª - ¾ • ƒ Î ož

o¬ Þ . F åo- ó • ¨ € M ó • G ª - ¾ • ƒ Îož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- e è ä E ž k ø • G ª - ¾ • ƒ Î ž k k g e — Õ G ß ª - ¾ • ƒ Îož

o¬ F å †o-

1 y F å € M G ª - ¾ • ƒ Î

5 X L M L H F R Q I L J L I P D F D G G U H V V W D E O H P R Y H X S G D W H W U D Q V L W Y O D Q

o¬ à • co- 1 y … show mac-address-table move update x X k U Y ò 0 G ª - ¾ • ƒ Î ' Îož

o¬ U P ' Îo- 1 y ò ç M Ö F å 4 x X k é • F å ~ $ = Ä F å k — U P ' Îož

2 y ò ç ¥ € M Z Ä F å k é k U P y

3 O H D V H H Q D E O H 5 (8 3 I L U V W

o¬ o • j ¨o- 1 y ¥ € M Z Ä F å ož

o¬ u V ª ¢o- -

1.8 mac-address-table update group

— å € M µ A E Ñ ª - ¾ • Áož

mac-address-table update group [gm]

€ M ß ª - ¾ • Áož

no mac-address-table update group [gm]

l- Ö•~ ä F áož almac-dddableuldat gd

o¬ F å †o- 1 y € M µ ñ ª - ¾ • Áož

5 X L M L H F R Q I L J L I P D F D G G U H V V W D E O H X S G D W H J U R X S

o¬ à • co- 1 y … show mac-address-table update group x X k U Y ò 0 ª - ¾ • Á ' Îož

o¬ U P ' Îo- 1 y ò ç µ Á © 1-8 $ • k ò ç © é U P j ¨ož

2 y ò ç N M ³ 8 C Ò ò M k é U P j ¨ož

5 H X S S D L U R Q O \ V X S S R U W / D \ H U L Q W H U I D F H

3 y ò ç N M © 8 C M è t M k é U P j ¨ož

5 H X S S D L U F D Q Q R W F R Q I L J X U H R Q D D J J U H J D W H S R U W P H P E H U

4 y ò ç M Ö F å 4 x X, é • F å ~ $ = Ä F å k — U P ' Îož

o¬ o • j ¨o- 1 y F å N M F å Á Z ¨ 1-8 $ •ož

2 y F å N M ³ 8 C Ò ò M ê 8 C Mož

o¬ u V ª ¢o- -

1.9 show interfaces switchport backup

ò 0 € M E e è Õ a Ù Á ' Îož

show interfaces [detail]switchport backup [detail]

o¬ @ ƒ ª ¢o-

@ ƒ	T
detail	¬ } ª P E e è Õ a € M D
detail	ª P E e è Õ a ¦ Â ' Î

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò 0 — Õ E e è Õ a , ¼ ' Îož

o¬ F å †o- 1 y F å + g/1 g/2

2 y g/23 g/24

3 y ò 0 ò 0 ª P E e è Õ a ' Î

5 X L M L H F R Q

(Q W H U F R Q I L J X U D W L R Q F R P P D Q G V R Q H S H U O L Q H (Q G Z L W K &1 7 / =

5 X L M L H F R Q I L J L Q

5 X L M L H F R Q I L J L Q W H U I D F H J L

```
5XLMLH  FRQILJ LI *LJDELW(WKHUQHW    VZLWFKSRUW EDFNXS LQWHUI

XLMLH  FRQ
(QWHU FRQILJXUDWLRQ FRPPDQGV  RQH SHU OLQH  (QG ZLWK &17/ =
5XLMLH  FRQILJ  LQ
5XLMLH  FRQILJ  LQWHUIDFH JL
5XLMLH  FRQILJ LI *LJDELW(WKHUQHW    VZLWFKSRUW EDFNXS LQWHUI

5XLMLH  VKRZ LQWHUIDFHV JL    VZLWFKSRUW EDFNXS
6ZLWFK %DFNXS ,QWHUIDFH 3DLUV
$FWLYH ,QWHUIDFH  %DFNXS ,QWHUIDFH  6WDWH

*L            *L            $FWLYH 8S %DFNXS 6WDQGE\

5XLMLH  VKRZ LQWHUIDFHV JL    VZLWFKSRUW EDFNXS GHWDLO
6ZLWFK %DFNXS ,QWHUIDFH 3DLUV
$FWLYH ,QWHUIDFH  %DFNXS ,QWHUIDFH  6WDWH

*L            *L            $FWLYH 8S %DFNXS 6WDQGE\
,QWHUIDFH 3DLU  *L    *L
3UHHPSWLRQ 0RGH  2II
3UHHPSWLRQ 'HOD\    VHFRQGV
%DQGZLGWK  *L       0ELWV  *L       0ELWV
5XLMLH  VKRZ LQWHUIDFHV  VZLWFKSRUW EDFNXS GHWDLO
6ZLWFK %DFNXS ,QWHUIDFH 3DLUV
$FWLYH ,QWHUIDFH  %DFNXS ,QWHUIDFH  6WDWH

*L           *L           $FWLYH 8S %DFNXS 6WDQGE\
*L            *L            $FWLYH 8S %DFNXS 6WDQGE\

5XLMLH  VKRZ LQWHUIDFHV VZLWFKSRUW EDFNXS GHWDLO
6ZLWFK %DFNXS ,QWHUIDFH 3DLUV
$FWLYH ,QWHUIDFH  %DFNXS ,QWHUIDFH  6WDWH

*L           *L           $FWLYH 8S %DFNXS 6WDQGE\
*L            *L            $FWLYH 8S %DFNXS 6WDQGE\

,QWHUIDFH 3DLU  *L    *L
3UHHPSWLRQ 0RGH  2II
3UHHPSWLRQ 'HOD\    VHFRQGV
%DQGZLGWK  *L       0ELWV  *L       0ELWV
```

```
,QWHUIDFH 3DLU   *L      *L
3UHHPSWLRQ 0RGH   2II
3UHHPSWLRQ 'HOD\      VHFRQGV
%DQGZLGWK   *L         0ELWV   *L         0ELWV
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

1.10 show link state group

ª P e è Ù Á æ í Á ' Îož
show link state group

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % "o- Ô Ó % "o• ¶ B % "o• N M % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò 0 — Õ F å e è æ í Á ' Îož

o¬ F å †o- 1 y ª P e è Ù Á æ í Á

```
5XLMLH   VKRZ OLQN VWDWH JURXS
/LQN 6WDWH *URXS   6WDWXV (QDEOHG 83
8SVWUHDP ,QWHUIDFHV *L   8S
'RZQVWUHDP ,QWHUIDFHV *L   'ZQ   *L   'ZQ
/LQN 6WDWH *URXS   6WDWXV 'LVDEOHG 'RZQ
8SVWUHDP ,QWHUIDFHV
'RZQVWUHDP ,QWHUIDFHV
 8S ,QWHUIDFH XS 'ZQ ,QWHUIDFH 'RZQ 'LV ,QWHUIDFH GLVDEOHG
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

1.11 show mac-address-table move update

ò 0 € M G ª - ¾ • ƒ Î G Ï ‹ Õ Ñož
show mac-address-table move update

o¬ @ ƒ ª ¢o-

@ ƒ	T

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò 0 + _ € M G ª - ¾ • ƒ Î Ï ‹ Õ Ñož

o¬ F å †o- 1 y ò 0 € M G ª - ¾ • † G Õ Ñ

```
5XLMLH VKRZ PDF DGGUHVV WDEOH PRYH XSGDWH
0DF DGGUHVV WDEOH PRYH XSGDWH VWDWXV
7UDQVLW GLVDEOH
5HFHLYH GLVDEOH
0D[ XSGDWH UDWH
5HFHLYH YODQ

3DLU $J
```


? 5HFHLYH @U $J wŸ€ À P Ð T’ (6‘ i ‘#xn•

o¬ u V ª ¢o- -

1.12 show mac-address-table update group

ò 0 ª - ¾ • Á ' Îož

show mac-address-table update group [detail]

o¬ @ ƒ ª ¢o-

@ ƒ	T
detail	ª P ª - ¾ • Á ¦ Â ' Î

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y] F å ª - ¾ • Á ' Îož

o¬ F å †o-

1 y ò 0 ª - ¾ • Á ' Î

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH  FRQILJ  PDF DGGUHVV WDEOH PRYH XSGDWH UHFHLYH
5XLMLH  FRQILJ  LQWHUIDFH UDQJH JLJDELW(WKHUQHW
5XLMLH  FRQILJ LI UDQJH  PDF DGGUHVV WDEOH XSGDWH JURXS
5XLMLH  FRQILJ LI UDQJH  HQG
5XLMLH  VKRZ PDF DGGUHVV WDEOH XSGDWH JURXS
0DF DGGUHVV WDEOH 8SGDWH *URXS
0HPEHU *L    *L
5XLMLH  VKRZ PDF DGGUHVV WDEOH XSGDWH JURXS GHWDLO
0DF DGGUHVV WDEOH 8SGDWH *URXS
5HFHLYHG PDF DGGUHVV WDEOH XSGDWH PHVVDJH FRXQW
*URXS PHPEHU      5HFHLYH &RXQW    /DVW 5HFHLYH 6ZLWFK ,'      5H

*L                          2SHUDWLRQ QRW SHUPLWWHG
*L                          2SHUDWLRQ QRW SHUPLWWHG
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

1.13 switchport backup interface

o E e è Õ a ož
switchport backup interface

¼ { E e è Õ a ož
no switchport backup interface

Ê Ö Þ . F åož
default switchport backup interface

o¬ @ ƒ ª ¢o-

@ ƒ	T
	Õ a e è € M D

o¬ Þ . F åo- E e è Õ a ¼ { Ù Áož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- % ” ñ ¨ € M € M k@ ƒ ñ + • € M Õ a € Mož ¢ t e è G ÿ { ž e k½ , Ê Ö Õ a e è n ÿož

o¬ F å †o- — å%² E e è Õ a k — å 0/1 € M k 0/2 Õ a € Mož

```
5 X L M L H F R Q I L J L Q W H U I D F H I D
5 X L M L H F R Q I L J L I V Z L W F K S R U W E D F N X S L Q W H U I D F H I D
```

o¬ à • co- 1 y … show interface switchport backup [detail] x X k U Y ò 0 E e è © o © ¼ {ož

o¬ U P ’ Îo- 1 y ò ç N M 2 ³ 8 C M k é U P j ¨ož

```
5 H X S S D L U R Q O \ V X S S R U W / D \ H U L Q W H U I D F H L V Q R W O D \ H U
```

2 y ò ç N M 2 © 8 C M è t M k é U P j ¨ož

```
5 H X S S D L U F D Q Q R W F R Q I L J X U H R Q D D J J U H J D W H S R U W P H P E H U
```

3 y ò ç M Ö F å 4 x X k é • F å ~ $ = Ä F å k — U P ’ Îož

o¬ o • j ¨o- 1 y F å N M] F å ¿ U +ož
2 y F å N M ³ 8 C Ò ò M ê 8 C Mož

o¬ u V ª ¢o- -

1.14 switchport backup interface preemption delay

F å e è) • ž • ož
switchport backup interface preemption delay
¼ { e è) • ž • ož
no switchport backup interface preemption delay

Ê Ö Þ . F åož
default switchport backup interface preemption delay

o¬ @ ƒ ª ¢o-

@ ƒ	T
	Õ a e è € M D ož
	) • ž •ož

o¬ Þ . F åo-) • ó • 35 a

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-) • © 6 { ž e è Ê Ö e k ñ e è M • ä E • ž •ož

o¬ F å †o- 1 y — å%² E e è Õ a k — å € M /1 k Õ a € M /2 k) • 40 aož

```
5 X L M L H F R Q I L J L Q W H U I D F H I D
5 X L M L H F R Q I L J L I V Z L W F K S R U W E D F N X S L Q W H U I D F H I D S U H H P S W L R
```

o¬ à • co- 1 y … show interface switchport backup [detail] x X k U Y ò 0) % ” • ž •ož

o¬ U P ’ Îo- 1 y ò ç N M 2 ³ 8 C M k é U P j ¨ož

```
5 H X S S D L U R Q O \ V X S S R U W / D \ H U L Q W H U I D F H L V Q R W O D \ H U
```

2 y ò ç N M 2 © 8 C M è t M k é U P j ¨ož

```
5 H X S S D L U F D Q Q R W F R Q I L J X U H R Q D D J J U H J D W H PO \ V Xve@ ’ O Pñ Ä@ E` u Ä•d
```

o¬ U P ’ Î@ © úÀW€ eß{ … © RS ApTðÇ–æ "~0TÐ

1.15 switchport backup interface preemption mode

F å e è) ož

switchport backup interface preemption mode { forced | bandwidth | off }

¼ { e è) ož

no switchport backup interface preemption mode

Ê Ö Þ . F åož

default switchport backup interface preemption mode

o¬ @ ƒ ª ¢o-

@ ƒ	T
	Õ a e è € M D ož
forced	forced n P ò % ”
bandwidth	bandwidth n P k ! % ”
off	off n P ¼ { % ”

ò¬ Þ . F åo- }

o¬ u V ª ¢o- -

1.16 switchport backup interface prefer instance

F å e è ¿ ú ® k
switchport backup interface prefer instance

2 RLDP

2.1 rldp detect-interval

… ¥ x X F å Þ ¨ € M G † • œož

… ¥ x X F å Þ ¨ € M % g ê ñ E g e è Â Ý M y) ƒ k 9 G Â Ý M y ž • k ò ç Ý
ž • k > D € M Q À — € • k é e è t ž • { ž e èož

rldp detect-max m

Ê Ö Þ . F åož

no rldp detect-max

Ê Ö Þ . F åož

default rldp detect-max

o¬ @ ƒ ª ¢o-

@ ƒ	T
m	Â Ý M y) ƒ, H › 8 2-10 k ó • 2

o¬ Þ . F åo- 2ož

o¬ x X % ”o- ¶ B F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Â Ý M y ž • = g M y • œ ˜ Â Ý M y) ƒ h + 1 ož

o¬ F å †o- 1 y F å Â Ý M y) ƒ 5 y

5 X L M L H F R Q I L J U O G S G H W H F W P D [

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.3 rldp enable

¥ x X O ò Þ ¶ B • ¼ož

rldp enable

Ê Ö Þ . F åož

no rldp enable

Ê Ö Þ . F åož

default rldp enable

o¬ Þ . ´ ðo- 14

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 2 C A E Mo•3 C è Mo•2Þ è t M Y C 3Þ è t M U Y F å ÿ | k2Þ y 3Þ M F å ÿ |ož

o¬ F å †o- F å Þ y M y • œ ž • y

```
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW UOGS SRUW ORRS GHWHFW
```

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.6 rldp reset

ñ Ä Þ { ž € M Ê Ö w M • o yož
rldp reset

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 9 Ê Ö { ž € M Ù Á k - U Y 9 Ê Ö k À } @ ð ož

o¬ F å †o- F å Þ y M y • œ ž • y

```
5XLMLH UOGS UHVHW
```

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

2.7 show rldp

ªP Þ ¶ Bo• € M Y C > D ˆ ƒ G ’ Îož

show rldp [interface ïæm]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ïæm	Þ € M

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 6 € M d f k Y ª P Ô € M Þ Ù Á ƒ G ’ Îož

o¬ F å †o- † 1 y ª P Þ Ù Á ƒ G ’ Î y

```
5XLMLH VKRZ UOGS
UOGS VWDWH GLVDEOH
UOGS KHOOR LQWHUYDO
UOGS PD[ KHOOR
UOGS ORFDO EULGJH G I GD

*LJDELW(WKHUQHW
SRUW VWDWH QRUPDO
QHLJKERU EULGJH
QHLJKERU SRUW
XQLGLUHFWLRQ GHWHFW LQIRUPDWLRQ
    DFWLRQ VKXWGRZQ SRUW
    VWDWH QRUPDO
ELGLUHFWLRQ GHWHFW LQIRUPDWLRQ
    DFWLRQ VKXWGRZQ SRUW
    VWDWH QRUPDO
ORRS GHWHFW LQIRUPDWLRQ
    DFWLRQ VKXWGRZQ SRUW
    VWDWH QRUPDO
```

† 2 y ª P € M Þ/1 ñÄ!yµ Få’Î y

```
5XLMLH VKRZ UOGS LQWHUIDFH *LJDELW(WKHUQHW
SRUW VWDWH QRUPDO
```

3 DLDP

3.1 clear dldp

Ž ” Þ _ ! y µ ¼ 9) ƒ Ï ‹ ’ Î k w M • • ÷ g Ï ‹ož
clear dldp [interface [ ]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
	C N M d f
	+ € — Õ P ª -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ x X % ”o- Ô Ó % ”

o¬ … 6 -o- Þ Ä “ £ e è) ƒ Ï ‹ ’ Î k* ü g Î x X U Y Ž ” 6 ! y µ Ï ‹) ƒ k w M • • ÷ Ï ‹ož * 6 C N M ê — Õ P ª - k U Y Ž ” 6 C N M ñ Ä ! y µ ê ï%² ! y µ Ï ‹) ƒož ¢ Ì 6 C N M y — Õ P ª - ž k n P Ž ” ñ Ä ! y µ Ï ‹) ƒož

o¬ F å †o- 1 y Ž ” ñ Ä ! y µ Ï ‹) ƒ y

```
5XLMLH FOHDU GOGS
```

2 y Ž ” /0 N M ñ Ä ! y µ Ï ‹) ƒ y

```
5XLMLH FOHDU GOGS LQWHUIDFH *LJDELW(WKHUQHW
```

3 y Ž ” /0 N M ¼ 9 + € — Õ 10.83.132.1 Ï ‹) ƒ y

```
5XLMLH FOHDU GOGS LQWHUIDFH *LJDELW(WKHUQHW
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

3.2 dldp

• o Þ y ož ï U Y … ¥ x X o # ¾ ¼ { 6 P Þ y ož
dldp [ ] [mac-address interval | retry | resume]
no dldp

o¬ @ ƒ ª ¢o-

@ ƒ	T
	t y + € — Õ P ª -ož
	3 t y + € — Õ Ô 9 ç à < k Y 6 %² é P ª -ož
mac-address	Ç ª - k 3 ¨ %² é P ª - k é F å © %² é — Õ ª -ož
interval	M y • œ ž •ož H › 8 56000 k % y k · À 5 … ƒ •ožg1 10 h
retry	M n) ƒ k ¥ @ ƒ 8 13600 ož
resume	+ • t y + € — Õ e è Ê Ö) ƒ k ¥) ƒ — å e è R Ù Á J Þ ù k ¬ } v ñ Ò Þ y † ƒ k ¥ @ ƒ 8 1200 ož

o¬ Þ . F åo- 10 g 100 h 3) k 3 ož

o¬ x X % ”o- N M F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * F å Î x X o Þ y k U Y ë + Y ß à e è { ž ½ , yož
%² C N M kÞ U Y F å Ú P y k ¢ ñ Ä P C Z Ä € • ž k õ • N M z
ò%² š Ä%² P Ê Ö * ’ k é • N M Ê Ö Þ ož

o¬ F å †o- † 1 y • o + — Õ 10.83.132.10 Þ y y

```
5 X L M L H F R Q I L J L Q W J L
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W L S D G G U H V V
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W G O G S
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W
```

† 2 y • o + ç à < — Õ 10.83.131.10 Þ y y

```
5 X L M L H F R Q I L J
5 X L M L H F R Q I L J L Q W J L
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W L S D G G U H V V
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W G O G S
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.4 dldp passive

— åÞ y % ” t % ”ož ï U Y … ¥ x X ¤ # ¾ Ê Ö Þ . y % ”ož
dldp passive
no dldp passive

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- % ”

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ž à Ì k ò ç € — Õ C ø • Þ k * € ; G [illegible] Û ë * è y k • ” ¨ Ú
• M Ö †ož Ž Q } Ä%² € — Õ … [illegible] G k P%² € c ý y @ ƒ Û G • † C
ž U k < U Y ë E • — Õ y e è * è | ç k w - - . 4 k ! Ï › y — Õ

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

```
*L        3DVVLYH                                          8S
*L        3DVVLYH                                          8S
*L        3DVVLYH                                          8S
```

†2yªP CNM ßD/0 ñÄ!yµ Få'Îy

```
5XLMLH VKRZ GOGS LQWIDFH JLJDELW(WKHUQHW
,QWHUIDFH 7\SH ,S 1H[W KRS ,QWHUYDO 5HWU\ 5HVXPH

*L        3DVVLYH                                          8S
```

†3yªPñÄ!yµ Ï‹'Îy

```
5XLMLH VKRZ GOGS VWDWLVWLF
,QWHUIDFH 7\SH ,S UHFRUG WLPH 8S FRXQW 'RZQ FRXQW

*L        3DVVLYH            K P V
*L        3DVVLYH            G K P V
```

†4yªP CNM ßD/0 ñÄ!yµ Ï‹'Îy

```
5XLMLH VKRZ GOGS VWDWLVWLF LQWHUIDFH JLJDELW(WKHUQHW
,QWHUIDFH 7\SH ,S UHFRUG WLPH 8S FRXQW 'RZQ FRXQW

*L        3DVVLYH            K P V
```

<	ª¢
¥'ÎnP 9Ï‹ ßw)ƒ ž•<x†ož+•ž•x ªP " ßk L y nPvk d nPÞk h nP4žk m nPãUk s nPaož È`eµ ßw @ƒk/ª¢¨ <ž•Äk ßw 4Ú5)ož	
ßw	+•!yµ"£ #'ÙÁ ßp)ƒož
ßw	+•!yµ"£ #'ÙÁ ßw)ƒož

o¬UP'Îo- -

o¬uVª¢o- -

4 VRRP

4.1 show vrrp

ò 0 ₽₽ ê ñ ₽₽ " Ñ ê ñ Â -ož
show [ipv6] vrrp [brief |₽

o¬ @ ƒ ª ¢o-

@ ƒ	T
ipv6	• 9 ₽ ož Þ . ₽ ož
brief	ª P ₽ " Ñož Þ . ª P … ' Îož
₽	- ª P ₽ Á Zož Þ . ª P ñ Ä ₽ Õ a Á ' Îož

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç … U # @ ƒ k 1 ª P ñ Ä ₽ Á Õ Ñož

o¬ F å †o- 1 y ò 0 ñ Ä ₽ Á Õ Ñ

```
5XLMLH VKRZ YUUS
*LJDELW(WKHUQHW *URXS
 6WDWH LV %DFNXS
 9LUWXDO ,3 DGGUHVV LV FRQILJXUHG
 9LUWXDO 0$& DGGUHVV LV H
 $GYHUWLVHPHQW LQWHUYDO LV VHF
 3UHHPSWLRQ LV HQDEOHG
  PLQ GHOD\ LV VHF
 3UOROULW\ LV
 0DVWHU 5RXWHU LV SULRULW\ LV
 0DVWHU $GYHUWLVHPHQW LQWHUYDO LV VHF
 0DVWHU 'RZQ LQWHUYDO LV VHF
*LJDELW(WKHUQHW *URXS
 6WDWH LV 0DVWHU
 9LUWXDO ,3 DGGUHVV LV FRQILJXUHG
 9LUWXDO 0$& DGGUHVV LV H
 $GYHUWLVHPHQW LQWHUYDO LV VHF
 3UHHPSWLRQ LV HQDEOHG
  PLQ GHOD\ LV VHF
```

```
 3ULRULW\ LV
 0DVWHU 5RXWHU LV              ORFDO   SULRULW\ LV
 0DVWHU $GYHUWLVHPHQW LQWHUYDO LV   VHF
 0DVWHU 'RZQ LQWHUYDO LV      VHF
5XLMLH VKRZ LSY  YUUS
*LJDELW(WKHUQHW       *URXS
 6WDWH LV 0DVWHU
 9LUWXDO ,3Y  DGGUHVV LV DV IROORZV
   )(

 9LUWXDO 0$& DGGUHVV LV      H
 $GYHUWLVHPHQW LQWHUYDO LV   VHF
 $FFHSWB0RGH LV HQDEOHG
 3UHHPSWLRQ LV HQDEOHG
   PLQ GHOD\ LV   VHF
 3ULRULW\ LV
 0DVWHU 5RXWHU LV )(      ORFDO   SULRULW\ LV
 0DVWHU $GYHUWLVHPHQW LQWHUYDO LV   VHF
 0DVWHU 'RZQ LQWHUYDO LV      VHF
```

<†Ky

<	ª¢
[illegible]	ÕaÁÙÁ
[illegible]	ÕaÁZ' P ª-
[illegible]	ÕaÁZ' [illegible] ª-
[illegible]	ÕaÁ₽ *s•œ
[illegible]	ÕaÁ)•"
[illegible]	ÕaÁ)• ž•
[illegible]	ÕaÁi¯´
[illegible]	[illegible] è —Õ P ª-yi¯´
[illegible]	[illegible] è —Õ*s•œ
[illegible]	[illegible] è —Õâ|î••œ
[illegible]	[illegible] ÕaÁ[illegible] %"

2yò0 ₽ Á "Ñ

```
5XLMLH  VKRZ YUUS EULHI
,QWHUIDFH  *US 3UL WLPHU  2ZQ 3UH 6WDWH  0DVWHU DGGU   *URXS
*L                    3  %DFNXS
*L                    3  0DVWHU
5XLMLH VKRZ LSY  YUUS EULHI
,QWHUIDFH     *US 3UL WLPHU 2ZQ 3UH 6WDWH 0DVWHU DGGU  *URXS D
*L                    3  0DVWHU )(              )(
```

< † K y

<	ª ¢
⅛	Y ß à M d f
⅚	N M — å ₽ Õ a Á Z
₽	Õ a Á i ¯ ´
⅛	Õ a Á ‹ ‘ ⅛ è — Õ â | î • • œ
⅞	Õ a Á ⅞ Ù Á
₽	Õ a Á) • ”
⅚	Õ a Á Ù Á
⅛	⅛ è — Õ ₽ ª -
	Õ a Á Z ' ₽ ª -

Á Õ Ñož

]

ož Þ . ₽ ož

```
 $GYHUWLVHPHQW LQWHUYDO LV   VHF
 3UHHPSWLRQ LV HQDEOHG
   PLQ GHOD\ LV   VHF
 3ULRULW\ LV
 0DVWHU 5RXWHU LV                SULRULW\ LV
 0DVWHU $GYHUWLVHPHQW LQWHUYDO LV   VHF
 0DVWHU 'RZQ LQWHUYDO LV      VHF
*LJDELW(WKHUQHW      *URXS
 6WDWH LV 0DVWHU
 9LUWXDO ,3 DGGUHVV LV            FRQILJXUHG
 9LUWXDO 0$& DGGUHVV LV      H
 $GYHUWLVHPHQW LQWHUYDO LV   VHF
 3UHHPSWLRQ LV HQDEOHG
   PLQ GHOD\ LV   VHF
 3ULRULW\ LV
 0DVWHU 5RXWHU LV               ORFDO   SULRULW\ LV
 0DVWHU $GYHUWLVHPHQW LQWHUYDO LV   VHF
 0DVWHU 'RZQ LQWHUYDO LV      VHF
```

< † K y

<	ª ¢
6	Õ a Á Ù Á
[illegible]	Õ a Á Z ' P ª -
[illegible]	Õ a Á Z ' [illegible] ª -
[illegible]	Õ a Á R * s • œ
[illegible]	Õ a Á) • ”
[illegible]	Õ a Á) • ž •
[illegible]	Õ a Á i ¯ ´
[illegible]	[illegible] è — Õ P ª - y i ¯ ´
[illegible]	[illegible] è — Õ * s • œ
[illegible]	[illegible] è — Õ â | î • • œ

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

4.3 show vrrp packet statistics

ò 0 R † v G Ï ‹ ’ Îož

show vrrp packet statistics [illegible]]

o¬ @ ƒ ª ¢o-	@ ƒ	T
	ijjlln	

[illegible]	î N M ñ Ä G [illegible] † ƒ)ož
[illegible]	î N M ñ Ä G [illegible] † - ƒož

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

4.4 vrrp accept_mode

o [illegible] Z ' è ˜ † N v ož
vrrp ipv6 [illegible] accept_mode

¼ { [illegible] Z ' è ˜ † N v ož
no vrrp ipv6 [illegible] accept_mode

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	[illegible] Á Z

o¬ Þ . F åo- Þ . Õ Ñ k[illegible] Ù Á [illegible] © ª • N v) [illegible] ª - Z ' è ˜ [illegible] ª - † ož x
© [illegible] y [illegible] † ' © k F å [illegible] C · À N vožP Ù k [illegible] Ù Á [illegible] Ù \,S ©IPv6NA80015_

5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY DFFHSWBPRGH

o¬ à • co- 1 y … show ipv6 vrrp x X k U Y ò 0 ₽₽ Z ' è ˜ † N v © o © ¼ {ož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.5 vrrp authentication

o ₽ ƒ G à š ož
vrrp ₽ authentication ₽

¼ { ₽ ƒ G à š ož
no vrrp ₽ authentication

o¬ @ ƒ ª ¢o-

@ ƒ	T
₽	₽ Á Z
₽	9 ₽ Á à š … (Ý 8 - k L à š M X © ¢ † M X)

```
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS DXWKHQWLFDWLRQ [
```

o¬ à • co- 1 y … show vrrp x X k U Y ò 0 ƒ G à š © o © ¼ {ož

o¬ U P ' Îo- 1 y ò ç ÿ µ à š M X x † Ý 9 8 k é U P j ¨ož

```
9553 0D[LPXP DXWKHQWLFDWLRQ VWULQJ OHQJWK LV
```

o¬ o • j ¨o- 1 yc%² ® Õ a Á Ä _ è — Õ Y ß à N M ® Á à š % ” c - c%² ® Õ a Á Ä ß ë Ú ™ è — Õož
2 y + 9 ® k c%² ® Õ a Á Ä _ è — Õ Y ß à N M ® Á à š % ”, c ® ¢ † % A % ” k
x © à š … %² - c%² ® Õ a Á Ä ß ë Ú ™ è — Õož

o¬ u V ª ¢o- -

4.6 vrrp delay

o F å î N M ® Õ a Á • o ž •ož
vrrp delay { minimum ® | reload ® }

¼ { F å î N M ® Õ a Á • o ž •ož
no vrrp delay

o¬ @ ƒ ª ¢o-

@ ƒ	T
minimum ®	N M Ù Á J t ž • ž •
reload ®	© Ï o ž • ž •

o¬ Þ . F åo- F å î N M ® Õ a Á • o ž • z • ž • Ä _ y © Ï o ž • ž • k N M Ù Á J t ž • ž • k U Y ã ð F å k - U c ž F åož Þ . Ù Á k N M Z Ä F å ® Õ a Á • o ož _ ® Õ a Á • o ž • H › 8 ® 060 aož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- F å Î x X e k ¢ © Ï o k ê ñ N M Ù Á J t ž k ¥ N M ® Õ a Á k y / o z ò © ˆ - , • • ž • e Ç o ® Õ a Á k ‘ š ³) F å k â | ož ò ç ¨ • o ® ž ¥ N M N v ñ ® † k é k H ƒ • k y / o ® # ‘ož à Ì N M F å 4 x X k 1 + ® y ® c

ž ÿ |ož

o¬ F å †o- 1 y ¨ N M ₩/0 o ₽₹ ož ¥ ₽₹ Á Z 1 k ¨ N M ₩/0
o ₹ Õ a Á • o ož

```
5 X L M L H F R Q I L J X U H W H U P L Q D O
5 X L M L H F R Q I L J L Q W H U I D F H * L J D E L W ( W K H U Q H W
  Q R V Z L W F K S R U W
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Q R V Z L W F K S R U W
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S G H O D \ P L Q L P X P U H O R
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W L S D G G U H V V
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S L S
```

o¬ à • co- 1 y … show vrrp ê show ipv6 vrrp x X k U Y ò 0 ₹ Õ a Á • o þ • ž •ož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.7 vrrp description

₽₹ ê ñ ₽₹ 6 %² T …ož
vrrp [ipv6] ₩ description ₩

Ê Ö © Ï Þ . — åož
no vrrp [ipv6] ₩ description

o¬ @ ƒ ª ¢o-

@ ƒ	T
ipv6	• 9 ₽ ož Þ . ₽ ož
₩	₹ Á Z
₩	₹ Á T …

o¬ Þ . F åo- Þ . Õ Ñ k © Ï ¨ N M Z Ä o ₹ ož / Ž o 4 ₹ k © Ï - Z Ä Þ . — å ` ~ ₹ Á T …ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ₪ Á — å T … k U Y Ž 9 ã ₪ Áož ¢ — å T … Ý 80 - k U P F å j ¨ož

o¬ F å †o- 1 ÿ N M ₪/0 o ₪ ož ¥ Õ a Á Z 1 k ÿ N M ₪/0 ₪

Á 1 ₪ ₪ ₪ k ₪ ₪ Á 1 ₪ ₪ ₪

₪ ož

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5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW %XLOWLQ $GGUHVV &RQILJXUDWLRQ DQG $GPL
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY IH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW %XLOWLQ &RQILJXUDWLRQ DQ
$GPLQLVWUDWLRQ
```

o¬ à • co- 1 y … show vrrp ê show ipv6 vrrp x X k U Y ò 0 ₪ Á © k — å T …ož

o¬ U P ' Îo- 1 y ò ç — å T … Ý 80 - k U P F å j ¨ož

```
7KH OHQJWK RI GHVFULSWLRQ LV XS WR
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.8 vrrp ip

¨ N M o ₪ w — å + • Z ' P ª -ož

vrrp ₪ ip ₪ [secondary]

W 2 ¥ N M ₪ w H ƒ Z ' P ª - — åož

no vrrp ₪ ip ₪ [secondary]

o¬ @ ƒ ª ¢o-

@ ƒ	T
₪	₪ Á Z k c D } º Z H › 8 což
₪	Z ' — Õ P ª -
secondary	ö ¢ © ¥ Z ' — Õ) P ª -

o¬ Þ . F åo- Þ . Õ Ñ k © Ï ¨ N M Z Ä o ₪ ož

o¬ x X % ”o- N M % ”

o¬ u V ª ¢o- -

4.9 vrrp ipv6

¨ N M o ® ® w — å + • Z ' ® ª -ož
vrrp ® ipv6 ®-®

W 2 ¥ N M ® w H ƒ Z ' ® ª - — åož
no vrrp ® ipv6 ®-®

o¬ @ ƒ ª ¢o-

@ ƒ	T
®	® Á Z k c D } º Z H › 8 což
®-®	Z ' — Õ ® ª -

o¬ Þ . F åo- Þ . Õ Ñ k © Ï ¨ N M Z Ä o ® ® ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ® ® ® ® » 1 ½255 Á Zožc%² N M%² , c ® Á Z U Y c ž 9 ®
® y ®® ož †%² F å ª - · À © e è Î ª ª - ke è Î ª ª - · À ¨ ¿ Z ' ª - í ” e õ
í ”ož

o¬ F å †o- 1 y ¨ N M ®/0 o ® ® ož ¥ ® Á Z 1 k Z ' ® ª - ®01 y 20011ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW …
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LSY HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LSY DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      YUUS LSY )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      YUUS LSY
```

o¬ à • co- 1 y … show ipv6 vrrp x X k U Y ò 0 N M ® ® © o © ¼ {ož

o¬ U P ’ Îo- 1 y ò ç © ® x X ¥ N M ¨ ¥ Õ a Á Z Õ a Á k é U P ’ Îož

```
9553 WKHUH LV QRW LSY JURXS RQ LQWHUIDFH YO
```

2 y ò ç — å Z ' P ª - © Ä | ® ª - k é U P j ¨ož

9553 LV QRW D YDOLG KRVW DGGUHVV

3 y ò ç Õ a Á F å †%² Z' P ª - © e è Î ª ª - k é U P ' Î ož
9553 WKH ILUVW DGGUHVV DVVLJQHG WR ,3Y YLUWXDO URXWHU PXVW

4 y ò ç ¤ x X í " Z' P ª - k x ¥ Õ a Á ¨ ¥ Z' P ª - k é U P j ¨ ož
9553)(LV QRW YLUWXDO ,3Y DGGUHVV RI LSY JURXS RQ LQWHU

5 y ò ç ¤ x X í " © e è Î ª ª - k x ¨ ³ e è Î ª ª - k é U P ' Î ož
9553 OLQN ORFDO DGGUHVV PXVW EH GHOHWHG DW ODVW

o¬ o • j ¨ o- 1 y c%² ® Õ a Á Ä è — Õ ® Z' ® ª - %² - c%² ® Õ a Á Ä ß ë Ú ® è — Õ ož

o¬ u V ª ¢ o- -

4.10 vrrp preempt

— å ® Á ê ñ ® Ô 9) % " ož
vrrp [ipv6] ® preempt [delay ®]

W 2 ®) ož
no vrrp [ipv6] ® preempt [delay]

o¬ @ ƒ ª ¢ o-

@ ƒ	T
ipv6	• 9 ® ož Þ . ® ož
®	® Á Z
delay ®	Õ Õ s \ (Ä ® ï a $ ù • ož Þ . › 0 aož

o¬ Þ . F åo- Þ . Õ Ñ k © Ï ¨ N M Z Ä o ® ož
%² š o ® k® Á ó • W • ¨) % " ož

o¬ x X % " o- N M % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç ® Á W • ¨) % " ®½² š G ë \ i ¯ ´ ä 9 ¢ ù ® i ¯ ´ k 1) è ¥ ® Á — Õož ò ç ® Á W • ¨ ³) % " k / Ž G ë \ i ¯ ´ ä 9 ¢ ù ® i ¯ ´ k - k) è ¥ ® Á — Õož® Á … Y ß à N M P ª - Õ Ñ k) % " © k — å Þ # Ý k œ 4 ž ¥ ® Á À Ä Â Ý i ¯ ´ k è ¥ ® Á — Õož

o¬ F å †o- 1 y ¨ N M ℞/0 o ℞ ož ¥ ℞ Á Z 1 k%² š ℞ Á G ë
\ i ¯ ´(200) ä 9 ¢ ù — Õ i ¯ ´ k k ¨ ˆ - 15 a e s \ ) — Õož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
  QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS SUHHPSW GHOD\
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS SULRULW\
```

2 y ¨ N M ℞/0 o ℞ ož ¥ ℞ Á Z 1 k%² š ℞ Á G ë
\ i ¯ ´(200) ä 9 ¢ ù — Õ i ¯ ´ k k ¨ ˆ - 15 a e s \ ) — Õož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
  QR VZLWFKSRUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY SUHHPSW GHOD\
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY SULRULW\
```

o¬ à • co- 1 y … show vrrp ê show ipv6 vrrp x X k U Y ò 0) % ” © o © ¼ {ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.11 vrrp priority

— å℞ Á ê ñ ℞ Á i ¯ ´ož
vrrp [ipv6] priority

Ê Ö © Ï ó • — åož

no vrrp [ipv6] ₹ priority

o¬ @ ƒ ª ¢o-

@ ƒ	T
ipv6	• 9 ₹ ož Þ . ₹ ož
₹	₹ Á Z
₹	₹ Á i ¯´

o¬ Þ . F åo- Þ . Õ Ñ k © Ï ¨ N M Z Ä o ₹ ož%² š o ₹ k ₹ Á ó • ¿ i ¯´ 100ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 1 ô — å ₹ Á i ¯´ož

o¬ F å †o- 1 y ¨ N M ₹/0 o ₹₹ ož ¥ ₹₹ Á Z 1 k — å ₹₹ Á 1 i ¯´ 254ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *0&RQILJ @$ €`` •À €P€0p€P À @ð0
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.12 vrrp timers advertise

```
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   WLPHUV DGYHUWLVH
```

2 y ¨ N M ¶ /0 o ¶ ož ¥ ¶ Á Z 1 k — å ¶ *s G • œ 4 ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY  )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS LSY   WLPHUV DGYHUWL
```

3 y ¨ N M ¶ /0 o ¶ ož ¥ Õ a Á Z 1 k — å ¶ *s G • œ 50 ; ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY  )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS LSY   WLPHUV DGYHUWL
```

• œ 50 ; ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY  )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS   LSY
5XLMLH FRQ[illegible]                YUUS LSY   WLPHUV DGYHUWL
```

2 y F å 4 Á n † G ö Õ R ¶ Á ê ñ ¶ Õ a Á k ò ç F å † * s • œ

Ý 40 a k * ê xX ò 0 R Á * s G • œ 40 ož

F å 4 Á n † G ö Õ R ¶ Á ê ñ ¶ Õ a Á k ò ç F å † * s • œ

50-99 ; a k * ₽ ê ₽ p x X ò 0 ₽ Á * s G • œ F å ; a ž • z ò ç
Á n † G ö Õ ₽ ₽ ₽ Á F å † * s • œ 50-99 ; a k * ₽ x X ò 0
₽ Á * s G • œ ó • 1sož

o¬ U P ' Îo- 1 y F å 4 Á n † G ö Õ ₽ ₽ ₽ Á ê ñ ₽ ₽ Õ a Á k ò ç F å † * s • œ
Ý 40 a k é U P j ¨ y

```
9553  7KH 0D[LPXP DGYHU WLPH RI 9553Y  3DFNHW LV  V
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.13 vrrp timers learn

o ₽ ₽ ê ñ ₽ ₽ ž ˜ . ož
vrrp [ipv6] ₽ timers learn

¼ { ₽ ₽ ê ñ ₽ ₽ ž ˜ . ož
no vrrp [ipv6] ₽ timers learn

o¬ @ ƒ ª ¢o- @ ƒ

```
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS  LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS  WLPHUV OHDUQ
```

2 y ¨ N M ₽/0 o ₽₽ ož ¥ ₽₽ Á Z 1 k ¨ ₽₽ Á 1 o
4 ž ˜ . ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     LSY  DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS  LSY  )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS  LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW     YUUS LSY  WLPHUV OHDUQ
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- 1 y c%² ₽ Õ a Á Ä è — Õ ₽ * s G • œ %² k w Ì — å ž — Õ . - c%²
₽ Õ a Á Ä ß ë Ú ₽ è — Õož

o¬ u V ª ¢o- -

4.14

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[ ]

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vrrp ipv6 track { }

[interval [timeout [retry][ ]

¼ { track2]

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o¬ F å †o- 1 ÿ N M /0 o ož¥ Á Z 1 Á 1 + 1/1 g ! ,ož ò ç 1/1 e è • • k Á ¡ ¯ ´ < × 5 30 z ¨ 1/1 e
è Ê Ö e k Á 1 ¡ ¯ ´ Ê Öož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
  QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS SULRULW\
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS WUDFN *LJDELW(WKHUQ
```

2 ÿ N M /0 o ož¥ Á Z 1 Á 1 æ í Ñ 1000::1
© k U ñ ož

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5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
  QR VZLWFKSRUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY SULRULW\
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY WUDFN
```

3 y ¨ N M /0 o ož ¥ Á Z 1 Á 1 æ í à Ì N M
VLAN 1 Ñ FE80::2 © k U ñ k h Þ · À 6 à Ì N M ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
  QR VZLWFKSRUW ...
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY HQDEOH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LSY DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY )(
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY SULRULW\
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LSY WUDFN )( YOD
```

o¬ F å †o- 1 y ¨ N M ₽/0 o ₽₽ ož ¥ ₽₽ Á Z 1 k ¨ ₽₽ Á 1 F å
₽₽ … ₽ † G ö Õož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
   QR VZLWFKSORUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      YUUS YHUVLRQ
```

o¬ à • co- 1 y … show vrrp x X k U Y ò 0 N M F å ₽₽ † G ö Õož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5 VRRP Plus

5.1 show vrrp balance

ª P VRRP " Ñ ê ñ Â -ož

show vrrp balance [brief | g ¤]

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@ ƒ	T
brief	ª P VRRP " Ñož Þ . ª P … ' Îož
g	ª P 6 Á Z VRRP ' Îož

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç … U # @ ƒ k 1 ª P ñ Ä VRRP Á ¦ Â Õ Ñož

o¬ F å †o- 1 y ª P ñ Ä VRRP Á ¦ Â Õ Ñ

5 DEV

<	ª ¢

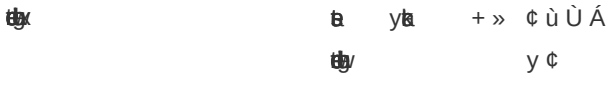
[illegible]	6 N M • º y Ú Zož

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P Y ß à M [illegible]/0 [illegible] ’ Îož


+ » ¢ ù Ù Á
y ¢

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.4 vrrp forwarder preempt

— å
Õ a Á ô G) ož
vrrp forwarder preempt

Ê Ö Þ . F åož
no vrrp forwarder preempt

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@ ƒ	T
	Á Z k H › 8 1-255ož

o¬ Þ . F åo- Þ . Õ Ñ k ó • ª • ô G)ož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ¨ C N M /0 k o Õ a Á ô G) ož

```
5 X L M L H F R Q I L J
5 X L M L H F R Q I L J L Q W H U I D F H * L J D E L W ( W K H U Q H W
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S L S
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S E @ 0 0 0 @ 0 T ¥€ @ S Ð q!†0 nô´
```

5.5 vrrp load-balancing

— å

¿ ú ® k Œ ož

vrrp load-balancing

5.6 vrrp timers redirect

— å Õ a Á W ò Z ª - M g ž • • œ y M g Ý ž ž •ož
vrrp timers redirect

Ê Ö Þ . F åož
no vrrp timers redirect

o¬ @ ƒ ª ¢o-

@ ƒ	T
	Õ a Á Á Z k H › 8 1 ½255ož
	M g ž • k ó • › 300 a g / 5 ã U h k H › 8 0 ½3600ož
	M g y Ý ž ž • k ó • › 14400 a g / 4 4 ž h k H › 8 g + 600 h½ 64800ož

o¬ Þ . F åo- Þ . Õ Ñ k Õ a Á W ò Z ª - M g ž • • œ 300 a k M g Ý ž ž • 14400 aož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- · À ¯ o k À e õ — å Õ a Á W ò Z ª - M g ž • • œ y M g Ý ž ž •ož

o¬ F å †o- 1 y — å Á 1 W ò Z ª - M g ž • • œ y M g Ý ž ž • y

```
5 X L M L H F R Q I L J
5 X L M L H F R Q I L J L Q W H U I D F H * L J D E L W ( W K H U Q H W
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S L S
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S E D O D Q F H
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W Y U U S W L P H U V U H G L U H F W
```

o¬ à • co- 1 y … show vrrp balance x X k ª P g Ù Áož
2 y … show vrrp balance interface x X k ª P 6 N M g Ù Á

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.7 vrrp weighting

— å Õ a Á Ó M yf9 ›ož

vrrp weighting [lower][upper]

Ê Ö Þ . F åož

no vrrp weighting

o¬ @ ƒ ª ¢o-

@ ƒ	T
	Õ a Á Á Z k H › 8 1 ½255ož
	Ó M › k ó • › 100 k H › 8 2 ½254ož
lower	Ó M ' › k ó • › 1 k H › 8 1 ½ g - 1 hož
upper	Ó M ' › k ó • › 100 k H › 8 ½ *ož*

o¬ Þ . F åo- Þ . Õ Ñ k Õ a Á Ó M › 100 k Ó M ' › 1 k Ó M ' › 100ož

o¬ x X % "o- N M F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- · À ¯ o k À e õ — å Õ a Á Ó M y ' ›ož

o¬ F å †o- 1 y — å Á 1 Ó M y ' ›ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS LS
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS EDODQFH
5XLMLH FRQILJ LI *LJDELW(WKHUQHW YUUS ZHLJKWLQJ ORZHU
```

o¬ à • co- 1 y … show vrrp balance x X k ª P g Ù Áož

2 y … show vrrp balance interface x X k ª P 6 N M g Ù Áož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

6 IP Event Dampening

6.1 dampening

ø • N M ož
dampening [[[restart
[ ]]]]

¼ { N M ož
no dampening

Ê Ö Þ . F å g ¼ { ¥ k no dampening | ç%² ýož
default dampening

o¬ @ ƒ ª ¢o-

@ ƒ	T
	! p Ê k 8 -30> k ó • 5sož
	† ” ò y ’ k 8 -20000> k ó • 1000
	ò y ’ k 8 -20000> k ó • 2000ož
	Â Ý ò ž • k 8 -255> k ó • 4 •ož
restart	ì ÷ Ú ã › k 8 -20000> k ó • 2000ož

o¬ Þ . F åo- ¼ { N M ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ k § € + / Ñ è k ² Á è k Á è y ož ¢%² N M á x X F å Ú ^ k Ô 9 ò Ù Á
ž k Y I § € % ² • ¥ N M Ù Á k R ò k í ” + • è k w k R ¥ N M v G ƒ G ož
¢ ¨%²] Æ F å 4 dampening x X N M k M • F å x X k k … ¥ N M ñ Ä ’ Î Ž q k x
N M ì ô) ƒ Q k ‘ k ” ³ … clear counters x X Ž ” N M Ï ‹ ’ Îož

o¬ F å †o- 1 y + A E Ñ N M /1 — å N M 7 ^ ò k ! p Ê 30 a k † ” ò y ’ 1500 k ò y ’
10000 k Â x ò ž • 100 aož

```
5XLMLH FRQILJ LQWHUIDFH JLJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW GDPSHQLQJ
```

o¬ à • co- 1 y … show runuing-config x X k U Y ò 0 © o © ¼ {ož
2 y … show interfaces dampening x X k U Y ò 0 N M ¦ Â F å ' Îož

o¬ U P ' Îo- 1 y ò ç F å ß 4 k- ‹ ' ± ß Â Ý Ú ã › A ò y ' } 4 k é ¥ N M 1 K ± ñ
òož K 9 F å j ¨ k 4 ž k ø - • w ò ' Î k U P ï F å â Â y

```
0 D [ L P X P S H Q D O W \ L V O H V V W K D Q V X S S U H V V S H Q D O W \ , Q F U H
```

2 y ¢ F å ¥ x X ž k © Ï Ä á Y ü g ¥ F å ' k - k ø - F å â Â U P y

```
1 R P H P R U \ F R Q I L J X U H G D P S H Q L Q J I D L O
```

o¬ o • j ¨ o- 1 y F å ß 4 k - F å â Âož
2 y ¨ C A E Ñ N M k Z Ä k < + N F å ož

o¬ u V ª ¢o- + 9 A E Ñ N M C) ô E g C M ô E 2 C M k ò R ô E k ¥ N M F å
dampening x X 1 t í "ož

6.2 show dampening interface

ª P t Ú ã N M Ï ‹ ' Îož
show dampening interface

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % "o- Ô Ó % "o• ¶ B % "o• N M % "

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- … ¥ x X U Y ò 0 — Õ „ ? N M F å 4 k „ ? N M t ò 4ož

o¬ F å †o- 1 y ò 0 t Ú ã N M Ï ‹ ' Îož

```
5 X L M L H V K R Z G D P S H Q L Q J L Q W H U I D F H
L Q W H U I D F H V D U H F R Q I L J X U H G Z L W K G D P S H Q L Q J
1 R L Q W H U I D F H L V E H L Q J V X S S U H V V H G
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

6.3 show interfaces dampening

ª P N M		F å Õ Ñož
show interfaces	[	]dampening

o¬ @ ƒ ª ¢o- ¡T 1 [illegible] -6028265.6 [illegible] 118-0.[illegible] 27.0469[illegible] -6028265.6 [illegible] 792.0369[illegible] -792 [illegible] 856.7 118-0.[illegible] 24 1[illegible] 6 [illegible] 856.7 1 1 [illegible] 142.6

7 VSU

7.1 dad relay enable

F å Â 9 ü ` M y E Ñ ô G ož
dad relay enable

¼ { ô G ož
no dad relay enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . ¼ { Â 9 ü ` M y E Ñ ô G Ô Åož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X Q ¨ ® N M … ož

o¬ F å †o- 1. ø • ½ ož

```
5XLMLH FRQILJ LQWHUIDFH DJJUHJDWHSRUW
5XLMLH FRQILJ LI $JJUHJDWH3RUW GDG UHOD\ HQDEOH
```

2 m ¼ { ½ ož

```
5XLMLH FRQILJ LQWHUIDFH DJJUHJDWHSRUW
5XLMLH FRQILJ LI $JJUHJDWH3RUW QR GDG UHOD\ HQDEOH
5XLMLH FRQILJ LI $JJUHJDWH3RUW H[LW
```

o¬ à • co- … show switch virtual dual-active aggregateport x X ò 0 F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- ® ô G † · À © ® M

o¬ u V ª ¢o- -

7.2 dual-active bfd interface

F å Þ y Mož
dual-active bfd interface

í ” y Mož
no dual-active bfd interface

o¬ @ ƒ ª ¢o-

@ ƒ	T
	y N M • º y Ú Z

o¬ Þ . F åo- -

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Þ y N M · À © è € M k ¨ c — Õ ož

o¬ F å †o- F å € M 1/1/1 Þ E Ñ y N M

```
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR VZLWFKSRUW
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ GXDO DFWLYH EIG LQWHUIDFH *LJDELW(WK
5XLMLH FRQILJ YV GRPDLQ GXDO DFWLYH EIG LQWHUIDFH *LJDELW(WK
```

o¬ à • co- … show swcshvsl dhX-acdiwdaož

o¬pU•P låo- -

o¬†`§ð¶ ªƒo- y M © è M

o¬gP `ª© %o-

F å E Ñ y ož

dual-active detection { aggregateport | bfd }

Ê Ö ó • F åož

no dual-active detection { aggregateport | bfd }

@ ƒ ª ¢o- @ ƒ

7.4 dual-active exclude interface

F å ¨ % ” M•Ù € Mož
uaal-actvve exclde innterfac

F å Â 9 ü ` M E Ñ y Mož
dual-active interface

í ” y Mož
no dual-active interface

o¬ @ ƒ ª ¢o-

@ ƒ	T
	N M • º y N M Ú Z k · À • º N Mož

o¬ Þ . F åo- -

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Â 9 ü ` M E Ñ y M Q F å%² k ¨ — å M y N M ù } ¯ ë • ¥ N M k e F å y M k ù%²) F å y M ~ $ Jož

o¬ F å †o- F å ü ` M • y Mož

```
5XLMLH FRQILJ LQWHUIDFH DJJUHJDWHSRUW
5XLMLH FRQILJ LI $JJUHJDWH3RUW H[LW
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ GXDO DFWLYH LQWHUIDFH DJJUHJDWHSRUW
```

o¬ à • co- …

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	% Ñ % ” 8 Ó N M d k ò [illegible]/1 [illegible] % ” Ó N M d k ò [illegible]/0/1
copper	M K Å
fiber	° M K Å

o¬ Þ . F åo- -

o¬ x X % ”o- [illegible] F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X U Y ¨ [illegible] % ” k - U Y ¨ % Ñ % ” ož x X F å e ¬ } ‘ F åož

⚠ [illegible] j Ç `K ´ [illegible] Ç j Ç ¶ » Ø Ç ™ ¶ » „ Ø Ç „ Ø Ç ¶ » › (
Ç " ´ â G) + ø • o „ Ø (Ç d s › (Ç ¡ G c › (ë ÿ d n ˜ ‡ 5 + ø
j Ç ¶ » ´ [illegible] Ç È õ Î n ˜ ! 6 " Í d

± ´ • • Ÿ Ø » h › Ç ³ [illegible] Ç ç ´ • • h „ Ø » h › Ç ä (Ç [¶ » ³ [illegible] Ç d

± ´ • • h f Ö ™ ¡ ° Ø » h f Ö d

⚠ 40G ¢ Ó j Ç â Ÿ ³ N [illegible] Ç d

⚠ " ´ T ¹ Ç [illegible] ± } Ç ‘ W , œ ` ì Ÿ ´ [illegible] Ç d

⚠ ! 6 ‘ Ð ¢ ¦ ½ , é + ½ ¨ ´ [illegible] Ç È õ Î n ˜ ! 6 " Í d

o¬ F å †o- † 1 y % Ñ % ” k • / g ” [illegible] è t € Mož

```
5XLMLH FRQILJ YVO SRUW
5XLMLH FRQILJ YVO SRUW SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQH
5XLMLH FRQILJ YVO SRUW QR SRUW PHPEHU LQWHUIDFH *LJDELW(WKH
```

† 2 y [illegible] % ” k • / g ” [illegible] è t € Mož

```
5XLMLH FRQILJ YVO SRUW
5XLMLH FRQILJ YVO SRUW SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQH
5XLMLH FRQILJ YVO SRUW QR SRUW PHPEHU LQWHUIDFH *LJDELW(WKH
```

o¬ à • co- … show switch virtual link port x X ò 0 F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- • [illegible] M € M k ¨ " " — Õ · À © ® Y € M k ” " — Õ · À ® Y ° Mož
ò ç € M t ï F å [illegible] F 0 M · À 1 ¥ F å í ” k õ g ô E [illegible] è t M q •ož

o¬ u V ª ¢o- -

7.7 led-blink

• o/ ¼ { ½ z \ «

led-blink {enable | disable} [device]

o¬ @ ƒ ª ¢o-

@ ƒ	T
enable	• o ½ z \ «
disable	¼ { ½ z \ «
	— Õd

o¬ Þ . F åo- ¼ { ½ z \ «

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨ % Ñ % ” k N U Y • o/ ¼ { Î — Õ ½ z \ « k — ¼ p ož

¨ % ” k U Y * 6 k + 6 — Õ • o/ ¼ { ½ z \ « k ò ç ¿ # ¾ k é n

P ñ Ä — Õ ½ z \ « • o/ ¼ {ož

ò ç Ì ¼ { ½ z \ « k ¨ • o 30 ã U e k k ¼ {ož

4 F å U ‘ k%² š M o k ê G ÿ Õ ä E k ½ z \ « 1 t ¼ {ož

o¬ F å †o- † 1 y % Ñ % ” • o/ ¼ { Î — Õ ½ z \ «

```
5XLMLH OHG EOLQN HQDEOH
5XLMLH OHG EOLQN GLVDEOH
```

† 2 y ø •/ ¼ { ê Ë 6 — Õ ½ z \ «

```
5XLMLH OHG EOLQN HQDEOH GHYLFH
5XLMLH OHG EOLQN GLVDEOH GHYLFH
```

† 3 y ø •/ ¼ { ê Ë ñ Ä — Õ ½ z \ «

```
5XLMLH OHG EOLQN HQDEOH
5XLMLH OHG EOLQN GLVDEOH
```

o¬ à • co- € (6 — Õ ° © k ½ z

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.8 show switch id

ª P Î — Õ A E Ú Zož
show switch id

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- † 1 y % Ñ % ” ò 0 Î — Õ A E Ú Zož

```
5 X L M L H  V K R Z  V Z L W F K  L G
6 Z L W F K  , '  L V
```

† 2 y % ” ò 0 Î — Õ g A E Ú Zož

```
5 X L M L H  V K R Z  V Z L W F K  L G
6 Z L W F K  , '  L V
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.9 show switch virtual

ò 0 ¿ D k Y C ? V — Õ Ú Zo• Ù Á y …)ož
show switch virtual

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- † 1 y % Ñ % ” y

```
5XLMLH VKRZ VZLWFK YLUWXDO
&XUUHQW V\VWHP LV UXQQLQJ LQ 67$1'$/21( PRGH
```

† 2 y % ” k Ä V è t A E — Õ y

```
5XLMLH VKRZ VZLWFK YLUWXDO
6ZLWFKBLG 'RPDLQBLG 3ULRULW\ 6WDWXV 5ROH 'HVFU

2. $&7,9( VZLWFK
2. &$1','$7( VZLWFK
2. 67$1'%< VZLWFK
```

< † K y

<	ª ¢
	— Õ Z k , Z Ä © F å “ w › k Ì M o k Z Ä ÿ | ož
	— Õ ¿ k , Z Ä © F å “ w › k Ì M o k Z Ä ÿ | ož
	Ä ¯ ´ k , Z Ä © F å “ w › k Ì M o k Z Ä ÿ | ož
	— Õ Ù Á y — Õ 3 o z Ê Ö Ù Á z Y • Ù Á z y Ù Áož
	…) y ¶ B — Õ z ¶ B R — Õ z ¶ B ˜ # — Õož
	— Õ ð dož

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

7.10 show switch virtual balance

ª P % ” v O ® k % ” F åož

show switch virtual balance

o¬ @ ƒ ª ¢o-

@ ƒ	T

-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- ⊽ % ” ò 0 Î — Õ v O ® k F å % ” y

```
5XLMLH VKRZ VZLWFK YLUWXDO EDODQFH
$JJUHJDWH SRUW /))yHQDEOH
```

< † K y

<	ª ¢
⊽E	⊽ Î ª ⊽ i ô G

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

7.11 show switch virtual config

ª P % Ñ ê ⊽ % ” ⊽ F å ’ Îož

show switch virtual config

```
VZLW@RKK  SSJUURQLWkg^@0



YVO SRUW
SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQHW
SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQHW [illegible]
```

† 3 y%” ò 0 © Ï — Õ 1 F å ’ Îož

```
5XLMLH VKRZ VZLWFK YLUWXDO FRQILJ
VZLWFKBLG PDF G I

VZLWFK YLUWXDO GRPDLQ

VZLWFK
VZLWFK SULRULW\
VZLWFK GHVFULSWLRQ VZLWFK

YVO SRUW
SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQHW
SRUW PHPEHU LQWHUIDFH *LJDELW(WKHUQHW
```

< † K y

<	ª ¢
[illegible]	— Õd
[illegible]	— Õ ñ K ¿
[illegible]	— Õ i ¯ ´
[illegible]	— Õ T …
[illegible]	M F å ’ Î

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

7.12 show switch virtual dual-active

ò 0 E — Õ y ’ Îož

show switch virtual dual-active { aggregateport | bfd | summary }

o¬ @ ƒ ª ¢o-

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- † 1 y ò 0 E — Õ y F å y Ù Áož

```
5XLMLH VKRZ VZLWFK YLUWXDO GXDO DFWLYH VXPPDU\
%)' GXDO DFWLYH GHWHFWLRQ HQDEOHG <HV
$JJUHJDWHSRUW GXDO DFWLYH GHWHFWLRQ HQDEOHG 1R
,QWHUIDFHV H[FOXGHG IURP VKXWGRZQ LQ UHFRYHU\ PRGH
*LJDELW(WKHUQHW
*LJDELW(WKHUQHW
,Q GXDO DFWLYH UHFRYHU\ PRGH 1R
```

† 2 y ò 0 Þ E — Õ y F å ' Îož

```
5XLMLH VKRZ VZLWFK YLUWXDO GXDO DFWLYH EIG
%)' GXDO DFWLYH GHWHFWLRQ HQDEOHG <HV
%)' GXDO DFWLYH LQWHUIDFH FRQILJXUHG
   *LJDELW(WKHUQHW      83
   *LJDELW(WKHUQHW      83
```

† 3 y Â 9 ü ` M E Ñ y Ù Áož

```
5XLMLH VKRZ VZLWFK YLUWXDO GXDO DFWLYH DJJUHJDWHSRUW
$JJUHJDWHSRUW GXDO DFWLYH GHWHFWLRQ HQDEOHG <HV
$JJUHJDWHSRUW GXDO DFWLYH LQWHUIDFH FRQILJXUHG
   $JJUHJDWH3RUW    83

      *LJDELW(WKHUQHW      83
      *LJDELW(WKHUQHW      83
      *LJDELW(WKHUQHW      83
```

o¬ u V ª ¢o- -

7.13 show switch virtual link

ò 0 Ù Á ' Îož
show switch virtual link [port]

o¬ @ ƒ ª ¢o-

@ ƒ	T
port	ª P ÿ N M Ù Á ' Îož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- è t € M Ä š _ Ù Á y kož n P ¢ ù € M Ò ò © z
n P ¢ ù € M ß ë j l z n P ¢ ù € M Ò ò © k x © Z Ä y ñ + € © Ä |
è t M z n P € M x Ò ò © k ò y ñ + € ©%² Ä | è t Mož

o¬ F å †o- † 1 y ò 0 ü ` e è ' Îož

```
5XLMLH  VKRZ VZLWFK YLUWXDO OLQN
96/ $3   6WDWH   3HHU 96/    5[      7[      8SWLPH

        83                                  G  K   P
        83                                  G  K   P
```

< † K y

<	ª ¢
	ç nož
	Ù Á k ã y _ož
	+ € N
	N v †ož
	G †ož
	N ž •ož

† 2 y ò 0 € M ' Îož

```
5XLMLH  VKRZ VZLWFK YLUWXDO OLQN SRUW

VZLWFK
3RUW                        $3  6WDWH  3HHU SRUW          5[    7[    8SW
```

```
*LJDELW(WKHUQHW          2.    *LJDELW(WKHUQHW              G  K
*LJDELW(WKHUQHW          2.    *LJDELW(WKHUQHW              G  K

6ZLWFK
3RUW                  $3  6WDWH  3HHU SRUW          5[   7[  8SW

*LJDELW(WKHUQHW          2.    *LJDELW(WKHUQHW              G  K
*LJDELW(WKHUQHW          2.    *LJDELW(WKHUQHW              G  K
```

< † K y

<	ª ¢
Ð	€ M ç n
Ù	€ M Ù Á
Ð	+ € € M
Ø	N v †
Ø	G †
Ø	Ø € M N ž •

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

7.14 show switch virtual role

ò 0 ? V Ñ " Ú Z k …) y i ¯ ´ož
show switch virtual role

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % "o- Ô Ó % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P x X c show switch virtual

o¬ F å †o-

† 1 y % Ñ % " y

```
5XLMLH  VKRZ VZLWFK YLUWXDO
&XUUHQW V\VWHP LV UXQQLQJ LQ 67$1'$/21( PRGH
```

```
> @            > @

6ZLWFK> @  $&7,9(  0$&    G  I      G   'HVFULSWLRQ  6ZLWFK
6ZLWFK> @  67$1'%<  0$&                'HVFULSWLRQ  6ZLWFK
```

<†Ky

<	ª¢
[illegible]	"÷¥Ù
[illegible]	—ÕT

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

7.16 switch

%Ñ%" k6 —Õ¨ [illegible] ©ÏÄ Ú Zož
switch [illegible]

Ê Ö ó • ›ož
no switch

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	—Õ¨ [illegible] Ä Ú Zož
	Ü ³ T l â ½ !6 — G

o¬ Þ . F åo- Þ . Ú Z © 1

o¬ x X % "o- [illegible] F å %"

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- — Õ Ú Z Û ¨ Z ' — Õ ö œ ? è t k ¨ [illegible] % " k N M d f " R [illegible] ô E [illegible] k ¿ [illegible] <©NMñKAEÑ Ú Zož
¨# — Õ i k ò ç V — Õ C] Æ © — Õ k ê ñ C © ê o Z Ä G …) k w V A E Ñ
i ¯ ´ , c k ; " Ú Z 4 — Õ è — Õož
¥ x X Q ¨ % Ñ % " " w A E Ñ Ú Z k [illegible] % " ¬ } * switch [illegible] renumber [illegible] " w A

```
5XLMLH FRQILJ  VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ  VZLWFK
5XLMLH FRQILJ YV GRPDLQ  H[LW
```

o¬ à • co- … show switch virtual config

o¬ F å †o- † 1 y % Ñ % ” k ä E ñ % ”ož

```
5XLMLH VZLWFK FRQYHUW PRGH YLUWXDO
```

```
† y968% ” k¯1RÑgVZBLG häE %Ñ%”kÇ1 Ñ VZBLG äE %Ñ%”ož
5XLMLH VZLWFK FRQYHUW PRGH VWDQGDORQH
5XLMLH VZLWFK FRQYHUW PRGH VWDQGDORQH
```

o¬ à • co- -

o¬ U P ’ Îo- 1. % ”ô è % Ñ y

U P © k à Þ ô è % Ñ % ”k ò ç à Þ 1 Õ a kw í” † ^ k M o — Õož

```
&RQYHUW PRGH ZLOO EDFNXS DQG GHOHWH FRQILJ ILOH DQG UHORDG WKH
```

U P © k R Õ a † ^ Ê Ö †^

```
'R \RX ZDQW WR UHFRYHU FRQILJ ILOH IURP EDFN IEOHU QWRFDQGHORQJ
>\HV QR@ Q
```

2. % Ñ % ”ô è % ”y

U P © k à Þ ô è % ”k ò ç à Þ 1 Õ a kw í” † ^ k M o — Õož

```
&RQYHUW PRGH ZLOO EDFNXS DQG GHOHWH FRQILJ ILOH DQG UHORDG WKH
```

U P © k R Õ a † ^ Ê Ö †^y

```
'R \RX ZDQW WR UHFRYHU FRQILJ ILOH IURP EDFN IEOHU QWRFDQGHORQ
>\HV QR@
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.18 switch crc

F å j l y @ ƒož

switch crc errors times

Ê Ö ñ Þ . ›ož

no switch crc

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	9 F å) ò j l ' Í ƒ g ¢ Ý 9 ƒ • ©%²) j l h
[illegible]	Ò Ú 5) e k J H • g • U P ê ¼ { € M h

o¬ Þ . F åo- [illegible] Þ . › 3 z [illegible] Þ . › 10

o¬ x X % ”o- [illegible] F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- † 1 y F å j l ' Í ƒ Ý 9 10 k • %²) j l k Ò 5)ož • € M ‘ oož

```
5 X L M L H F R Q I L J V Z L W F K Y L U W X D O G R P D L Q
5 X L M L H F R Q I L J Y V G R P D L Q
5 X L M L H F R Q I L J Y V G R P D L Q V Z L W F K F U F H U U R U V W L P H V
```

o¬ à • co- … show switch virtual config x X ò 0ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.19 switch description

F å A E Ñ ¨ [illegible] Ä — Õ T ož
switch [illegible] description [illegible]

1 T … Ž qož n5 00 Tn Tc -25.3 -1.72 Td (013 0 T_0 1 Tf 0 Tc T* 66FAC08120BAC05780458082506946FAD>Tj /TT0 18

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X ¨ % Ñ % ” y % ” C U Y … k F å y / ÿ |ož

o¬ F å †o- † 1 y

```
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ VZLWFK GHVFULSWLRQ EXLOGLQJ$
5XLMLH FRQILJ YV GRPDLQ H[LW
```

o¬ à • co- … show switch virtual x X ò 0 F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.20 switch domain

% ” k U “ w ` Þ — Õ ož
switch domain

1 Ê Ö è ó • ›ož
no switch domain

o¬ @ ƒ ª ¢o-

@ ƒ	T
	% ” ¢ ù g — Õ Ú Zož Ü ³ T I â ½ ! 6 — G È õ Î n ˜ ! 6 " Í d
	“ w e k 8 1-255ož

o¬ Þ . F åo- Þ . › 100ož

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X Q ¨ % ” … k ¨ % Ñ % ” … k M o e õ ÿ |ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- i ¯ ´ ƒ › Þ Ý k n P i ¯ ´ Þ äož ¨ # — Õ i k i ¯ ´ ä — Õ è — Õož
¥ x X ¨ % Ñ % ” y % ” C U Y … ož “ w i ¯ ´ · À M o Y e õ k ÿ |ož
¥ x X k “ w ož % ” k n P ¢ ù g A E Ñ Ú Z k ò ç ¢ ù ¨ ¥ Ú Z k é F å -
ÿ |ož

o¬ F å †o- † 1 y % Ñ % ” F å A E — Õ 1 i ¯ ´ 200ož

```
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ VZLWFK SULRULW\
5XLMLH FRQILJ YV GRPDLQ H[LW
```

† 2 y % ” k “ w A E — Õ 1 i ¯ ´ 200 k Ê Ö A E — Õ 2 i ¯ ´ Þ . ›ož

```
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ VZLWFK SULRULW\
5XLMLH FRQILJ YV GRPDLQ QR VZLWFK SULRULW\
5XLMLH FRQILJ YV GRPDLQ H[LW
```

o¬ à • co- … show switch virtual x X ò 0 F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.22 switch renumber

% ” k U “ w ` Þ A E — Õ Ú Zož
switch renumber

Ê Ö è ó • ›ož
no switch

o¬ @ ƒ ª ¢o-

@ ƒ	T
	% ” ¢ ù g — Õ Ú Zož Ü ³ T l â ½ ! 6 — G È õ Î n ˜ ! 6 " Í ¢l
	“ w e — Õ Ú Zož

o¬ Þ . F åo-	-
o¬ x X % ”o-	F å % ”
o¬ Þ . ´ ðo-	14
o¬ … 6 -o-	a — Ÿ } f ´ • ° ° a — ¾ Ü
o¬ F å †o-	† 1 y % ” k ¢ ù g A E – 5 X L M L H F R Q I L J V Z 5 X L M L H F R Q I L J Y V G † 2 y % ” k ¢ ù g A E – 5 X L M L H F R Q I L J V Z 5 X L M L H F R Q I L J Y V G
o¬ à • co-	… show switch virtual x X ò C
o¬ U P ’ Îo-	-
o¬ o • j ¨o-	-
o¬ u V ª ¢o-	-

7.23 switch virtual aggregateport

ø • % ” M Î ª i ¯ ô C
switch virtual aggregateport-lff ena

¼ { Î ª i ¯ ô G Ô Å k / J ç — Õ v
no switch virtual aggregateport-lff

-

-

o¬ Þ . F åo-	Þ . ž k ¥ Ô Å © ø • ož
o¬ x X % ”o-	⊠ F å % ”
o¬ Þ . ´ ðo-	14
o¬ … 6 -o-	-
o¬ F å †o-	† 1 y⊠ % ” k F å ⊠ M Î ª i ¯ ô G Ô Åož

5 X L M L H F R Q I L J V Z L W F K Y L U W X D O G R P D L Q

[redacted] D J J U H J D W H S R U W O I I H Q D

o¬ à • co-	… show switch virtual balance x X ò 0 F åož
o¬ U P ’ Îo-	-
o¬ o • j ¨o-	-
o¬ u V ª ¢o-	-

7.24 switch virtual domain

% Ñ % ” F å ⊠ ¿ Ú Zož ê ⊠ % ” k µ ⊠ F å % ”ož switch virtual domain ⊠

¿ Ú Z Ê Ö è Þ . Œ"R -; @ð1 Q•F ,% U ˆß F t ˆÂ%&“Ü • ƒo¬ u V ª ¢o-

o¬ F å †o- † 1 y F å ¿ Ú Z 1 k = ¯ © 100

```
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.25 switch virtual ecmp-lff enable

* Y x X ø • ø % " þn Î ª i ¯ ô G Ô Åož
switch virtual þfn enable

¼ { Î ª i ¯ ô G Ô Å k / J ç — Õ v O ® k % "ož
no switch virtual þfn enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . ¥ Ô Å © ø • ož

o¬ x X % "o- ÷ÿdn F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- † 1 yø % " k F å þn Î ª i ¯ ô G Ô Å

```
5XLMLH FRQILJ VZLWFK YLUWXDO GRPDLQ
5XLMLH FRQILJ YV GRPDLQ VZLWFK YLUWXDO HFPS OII HQDEOH
```

o¬ à • co- … show switch virtual balance x X ò 0 F åož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.26 vsl-port

µ F å % ”ož
vsl-port

o¬ @ ƒ ª ¢o-

@ ƒ	@ ƒ
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X ¨ % Ñ % ” y % ” C U Y … ož

o¬ F å †o- † 1 y % Ñ % ” k µ F å % ”ož

```
5 X L M L H F R Q I L J Y V O S R U W
5 X L M L H F R Q I L J Y V O S R U W
```

† 2 y % ” k µ € M F å % ”ož

```
5 X L M L H F R Q I L J Y V O S R U W
5 X L M L H F R Q I L J Y V O S R U W
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

w W ? ¿ fl a æ 0

Ú ` Ÿ4¡5%1u â,¥ { Q ¸ –5×,Ì G Y • È Ù À ¹ ß0´8V Ö

1. SNMP
2. RMON
3. NTP
4. SNTP
5. SPAN-RSPAN
6. ERSPAN
7. sFlow

1 SNMP

1.1 clear snmp locked-ip

} Ž ” SNMP Ò • š â Â e t g › IP ª - n k ¬ ü g Ô Ó % ” x X clear snmp locked-ip ož

clear snmp locked-ip [ipv4 **þ-d** | ipv6 **þ-d**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ipv4 **þ-d**	Ž ” î Ô › IPv4 ª -
ipv6 **þ-d**	Ž ” î Ô › IPv6 ª -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 ô W Ž ” SNMP Ò • š â Â e t g › IP ª - k U Y Ž ” … › IP ª - n k - U Y Ž ” î Ô › IP ª -ož
› IP ª - t Ž ” e k Û 9 4 › IP ª - SNMP ˜ | † k A U Y M • : ¡ • šož

o¬ F å †o- µ P † Ž ” … SNMP Ò • š â Â e t g › IP ª - n y
5 X L M L H F O H D U V Q P S O R F N H G L S

o¬ U P ’ Îo- -

o¬ u V ª ¢o-

1.2 no snmp-server

F å I U — Õ SNMP W ò ož
no snmp-server

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- o SNMP W ò

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- SNMP W ò Æ ó • • o kP Ù ¨ — å SNMP W ò @ ƒ g † ò NMS Ñ ª -o•• š d y ˜ | Ó ’ ˆ hž k
c ž - k ø • SNMP W ò Æ k … ¥ x X U Y ¼ { — Õ u 4 ñ Ä Í Î SNMP W ò Æ ož
¥ x X · À Æ • ¼ x X enable service snmp-agent c ž ø • k SNMP W ò Æ õ ÿ | kx Q } ¼ { 4
¿ %² kSNMP W ò Æ 1 k ÿ |ož
… ¥ x X c ž k 1 I U ñ Ä SNMP W ò Æ F å g / … show running-config x X ò 0 ž k ª P F
å k M • • o SNMP W ò Æ U Y Ê Ö h k ò enable service snmp-agent x X é k I U SNMP W ò F åož

o¬ F å †o- 1 y I U SNMP W ò Æ ož
5 X L M L H F R Q I L J Q R V Q P S V H U Y H U

o¬ à • co- ü g no snmp-server x X k À e ü g show running-config x X ò 0 F å k U Y G ë ” 4 ¥ x X Y Ù k ñ Ä
SNMP W ò F å x X C t I Uož 4 ž … NMS — c ˜ | MIBož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.3 show snmp

ª P SNMP Ù Á ’ Îož
show snmp [mib | user | view┼ c ˜ |

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P © SNMP Ï ‹ ' Îož

```
5XLMLH VKRZ VQPS
&KDVVLV ))
  6103 SDFNHWV LQSXW
        %DG 6103 YHUVLRQ HUURUV
        8QNQRZQ FRPPXQLW\ QDPH
        ,OOHJDO RSHUDWLRQ IRU FRPPXQLW\ QDPH VXSSOLHG
        (QFRGLQJ HUURUV
        1XPEHU RI UHTXHVWHG YDULDEOHV
        1XPEHU RI DOWHUHG YDULDEOHV
        *HW UHTXHVW 3'8V
        *HW QH[W 3'8V
        6HW UHTXHVW 3'8V
  6103 SDFNHWV RXWSXW
        7RR ELJ HUURUV 0D[LPXP SDFNHW VL]H
        1R VXFK QDPH HUURUV
        %DG YDOXHV HUURUV
        *HQHUDO HUURUV
        5HVSRQVH 3'8V
        7UDS 3'8V
6103 JOREDO WUDS GLVDEOHG
6103 ORJJLQJ GLVDEOHG
6103 DJHQW HQDEOHG
```

< † K y

<	ª ¢
Chassis	© Ï ~ ç Aož
SNMP packets input	ÿ µ † ‹ ƒ y ÿ µ † È ƒ
Bad SNMP version errors	ÿ µ † ‹ ƒ y Í Î j ¨ † È ƒ
Unknown community name	ÿ µ † ‹ ƒ y … Ì = • } d g ˜ | † È ƒ
Illegal operation for community name supplied	ÿ µ † ‹ ƒ y … • } d g Þ Ó q • † È ƒ
Encoding errors	ÿ µ † ‹ ƒ y Ú A j ¨ † È ƒ
Number of requested variables	ÿ µ † ‹ ƒ y ¯ H MIB + » È ƒ
Number of altered variables	ÿ µ † ‹ ƒ y — å MIB + » È ƒ
Get-request PDUs	ÿ µ † ‹ ƒ yGet ¬ L † È ƒ

Get-next PDUs	ÿ µ † ‹ ƒ yGet-next ¬ L † È ƒ
Set-request PDUs	ÿ µ † ‹ ƒ ySet ¬ L † È ƒ

5 X L M L H F R Q I L J L Q W H U I D F H J L J D E L W (W K H U Q H W
5 X L M L H F R Q*ILLJJDIEIL-W (W K H U Q H W Q R V Q P S W U D S O L Q N V W D W X V

2 y ø • N M G Link Trap ož

5 X L M L H F R Q I L J L Q W H U I D F H J L J D E L W (W K H U Q H W
5 X L M L H F R Q*ILLJJDIEIL-W (W K H U Q H W V Q P S W U D S O L Q N V W D W X V

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.5 snmp-server authentication attempt

Î x X 9 ' ò SNMP Ò • š â Â) ƒ k w 6 Ò • š â Â e Ô ò Œ ož ¥ x X no ¥ " Ž " Ò • š â Â) ƒ ' ò C , ¼ Ô ò Œ ož

snmp-server authentication attempt **ían** exceed { lock | lock-time **ían** | unlock }

Ž " Ò • š â Â) ƒ ' ò C , ¼ Ô ò Œ ož

no snmp-server authentication attempt **ían** exceed { lock | lock-time **ían** | unlock }

o¬ @ ƒ ª ¢o-

@ ƒ	T
ían	SNMP • š â Â Â Ý) ƒ k 8 y1~10 ož
exceed	+ SNMP : ¡ • š e â Â) ƒ Ý Â Ý ' ò › ñ J H Ô ò Œ ož
lock	n P K ! W 2 ¥ › IP ª - g • š k%² + ç µ ò d % k ¬ } ' ò t ô W g † "ož
lock-time **ían**	n P W 2 ¥ › IP ª -%² < ž • e k Ç ª • ¿ M • • š ¿ k**ían** W 2 ¥ › IP ª - ž • k 8 y1 ½65535 k % y y ã Uož
unlock	n P + • š â Â ï Ÿ ' ò Ô ò k ª • ¿ Ð Ò £ož

o¬ Þ . F åo- ó • ¼ { SNMP x à … y

o¬ x X % "o- ¶ B F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- SNMP • š â Â e k © Ï k 1 ¿ µ SNMP › IP ª - ' ò ò d %ož ¢ • š â Â) ƒ Ý ' › ž k © Ï 1

k ÿ G — Õ — å Ô ò R ‘ + ¿ $ e ˜ | • š g g , • ’ ò y

+ 9 t K ! W 2 • š › IP ª - k Q Ä ’ ò t g ô W † ” e k ¥ › IP ª - õ M • ˜ | • š z

+ 9 t W 2%² < ž • Ä • š › IP ª - k ¢ — å W 2 ž • Ý ž ê ñ ’ ò t ô W † ” e k ¥ › IP ª - õ U Y M • • š z

+ 9 I ’ ò › IP ª - kQ } ï M • ˜ | • š ž k... 4 3 G community g S + SNMPv1 y SNMPv2c h ê username g S + SNMPv3 Ík < U Y M • • š è ož

o¬ F å †o- 1 y µ P † — å SNMP Ò • š â Â) ƒ 4 k Ò 4) • š â Â e g 30 ã U:

5 X L M L H F R Q I L J V Q P S V H U Y H U D X W K H Q W L F D W L R Q D W W H P S W H [F H H G

o¬ à • co- ø • SNMP x à ... y e k j ¨ • } d ê j ¨ ï d g ˜ | • š k Ò • š â Â e k g ¥ ›
IP ª - k Ç) ˜ | • š ž ˜ k Ä log ¥ IP] Æ t g ož show snmp locked-ip U Y ò 0 ñ g ç n Ä ¥
IP ª -ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.6 snmp-server chassis-id

F å © Ï ~ ç Aož
snmp-server chassis-id ¢

Ê Ö Þ . ›ož
no snmp-server chassis-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
¢	© Ï ~ ç Z † Î k U Y © ƒ ê ...ož

o¬ Þ . F åo- ~ ç Z Þ . › © 60FF60

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- SNMP © Ï ~ ç Z%² " ... Ñ ˜ ~ ç Z kY Ž + — Õ g œ ðož© Ï ~ ç Z U Y * show snmp x X ò 0ož

o¬ F å †o- 1 y F å SNMP © Ï ~ ç Z 123456ož

5XLMLH FRQILJ VQPS VHUYHU FKDVVLV LG

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.7 snmp-server community

F å • š d y ˜ | Ó 'ož

snmp-server community [0 | 7] **ky**[view **imen**] [[ro | rw] [host **id**]] [ipv6 **p-lan**] [**lan** | **lan**]

í " • š dož

no snmp-server community [0 | 7] **ky**

o¬ @ ƒ ª ¢o-

@ ƒ	T
0	n P ÿ µ • } … ¢ † …
7	n P ÿ µ • } … % † …
ky	• } … k , ¢ 9 NMS y SNMP W ò $ • * ' % Aož
imen	6 , £ d f k 9 Â 9 , £ ' òož
ro	6 NMS + MIB J O Q ¯ k " wož
rw	NMS + MIB J O U ¯ U Êož
lan	˜ | ç n ~ ç Z(1-199 C 1300-2699) k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
lan	˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
p-lan	ipv6 ˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv6 NMS ª - 8 ož
id	¼ û NMS ª - k 6 ˜ | MIB NMS ª -ož

o¬ Þ . F åo- ñ Ä • } Þ . Q ¯ož

o¬ x X % "o- ¶ B F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X o — Õ SNMP W ò †%² M } x X k 6 4 • } K Åo• ª • ˜ | MIB NMS 8 ˆ ˆož
} ¼ { SNMP W ò k ü g no snmp-server x X / Uož

o¬ F å †o- 1 y F å ª • NMS … public SNMP • } ˜ | … + MIB ˜ | k Ó ' Q ¯ož
5 X L M L H F R Q I L J V Q P S V H U Y H U F R P P X Q L W \ S X E O L F U R

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.8 snmp-server contact

F å © Ï û © • ”ož
snmp-server contact

í ” 6 û © • ”ož
no snmp-server contact

o¬ @ ƒ ª ¢o-

@ ƒ	T
	T © Ï û © • ” …

o¬ Þ . F åo- © Ï û © • ” qož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å SNMP © Ï û © • ” i-net800@i-net.com.cnož
5 X L M L H F R Q I L J V Q P S V H U Y H U F R Q W D F W L Q H W # L Q H W F R P F Q

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.9 snmp-server enable traps

F å Agent g NMS G Trap ƒ Îož
snmp-server enable traps [ ]

W 2 SNMP g NMS G Trap ƒ Îož
no snmp-server enable traps

o¬ @ ƒ ª ¢o-

@ ƒ	T
	G Trap • º k Ä Y • º y snmp: o SNMP 7 ^ TRAP * = z bridge: o BRIDGE 7 ^ TRAP * = z mac-notification: o MAC 7 ^ TRAP * = z ospf: o OSPF 7 ^ TRAP * = z vrrp: o VRRP 7 ^ TRAP * = z web-auth: o WEB • š 7 ^ TRAP * =ož

o¬ Þ . F åo- Þ . k W 2 SNMP g NMS G Trap ƒ Îoðž

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X · À ¶ B F å x X snmp-server host %² Ü … k õ G Trap ƒ Îož
ò ç Z Ä 6 Trap • º k é , ñ Ä Trap • ºož

o¬ F å †o- 1 y F å G SNMP 7 ^ Trap ƒ Îož

```
5XLMLH FRQILJ VQPS VHUYHU HQDEOH WUDSV VQPS
5XLMLH FRQILJ VQPS VHUYHU KRVW SXEOLF VQPS
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.10 snmp-server flow-control

F å SNMP v Oož

snmp-server flow-control pps [¤]

Ê Ö SNMP v O ó • ›ož

no snmp-server flow-control pps

o¬ @ ƒ ª ¢o-

@ ƒ	T
¤	? a Ô ò SNMP ¬ L † ƒ O k 8 <50-65535>

o¬ Þ . F åo- Þ . F å ¤ 300 • Á(Œ"bapiÜ w=o¬ x X H% ”-

í ” ï Áož

no snmp-server group [illegible] { v1 | v2c | v3 {auth | noauth | priv } }

o¬ @ ƒ ª ¢o-

@ ƒ	T
v1 | v2c |v3	6 ¢ SNMP Í Îož
auth	¥ Á ï n ÿ ƒ Î ¬ } à š x ƒ G ¬ } ‘ % k Q + v3 Ä |ož
noauth	¥ Á ï n ÿ ƒ Î ¬ } à š ƒ G - ¬ } ‘ % k Q + v3 Ä |ož
priv	¥ Á ï n ÿ ƒ Î ¬ } à š c ž n ÿ ƒ G ¬ } ‘ % k Q + v3 Ä |ož
[illegible]	¼ û%² Q ¯ , £ož
[illegible]	¼ û%² ¯ Ê , £ož
[illegible]	˜ | ç n ~ ç Z k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
[illegible]	˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
[illegible]	ipv6 ˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv6 NMS ª - 8 ož

o¬ Þ . F åo- Þ . Z Ä F å ï Áož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å%² ï Á mib2userož

5XLMLH FRQILJ VQPS VHUYHU JURXS PLE XVHU Y SULY UHDG PLE

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.12 snmp-server host

F å Agent G ƒ Î NMS Ñ ª -ož

1.13 snmp-server inform

F å inform

í ” © Ï y åož

no snmp-server location

o¬ @ ƒ ª ¢o-

@ ƒ	T
■	T © Ï ’ Î … ož

o¬ Þ . ´ ðo- 14

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.17 snmp-server queue-length

F å Trap ƒ Î † „ ç x †ož
snmp-server queue-length ‰

Ê Ö Þ . ›ož
no snmp-server queue-length

o¬ @ ƒ ª ¢o-

@ ƒ	T
‰	„ ç x † k Ý 4 R 1 ñ 1000ož

o¬ Þ . F åo- 10

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * ² … ƒ Î „ ç Ý 4 Û O ò ƒ Î G , †ož

o¬ F å †o- 1 y F å Trap ƒ Î „ ç x † 100ož
5 X L M L H F R Q I L J V Q P S V H U Y H U T X H X H O H Q J W K

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.18 snmp-server system-shutdown

o¬ F å †o- 1 y 6 Y ß à M 0/1 IP ª - • G Trap ƒ Î › ª -ož

5 X L M L H F R Q I L J V Q P S V H U Y H U W U D S V R X U F H I D V W H W K H U Q H W

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.21 snmp-server trap-timeout

F å G Trap ƒ Î M G Ý ž ž •ož

snmp-server trap-timeout d

Ê Ö Þ . F åož

no snmp-server trap-timeout

o¬ @ ƒ ª ¢o-

@ ƒ	T

d

o¬ u V ª ¢o- -

1.22 snmp-server udp-port

6 N v SNMP † # ‘ € M Zož

snmp-server udp-port **ßm**

Ê Ö Þ . F åož

no snmp-server udp-port

o¬ @ ƒ ª ¢o-

í ” SNMP ïož

no snmp-server user **[illegible]** {v1 | v2c | v3 }

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	ï dož
[illegible]	¥ ï + • Á d
v1 | v2c | v3	6 ¢ SNMP Í Îož Q Ä v3 u 4 e µ ¶ @ ƒož
encrypted	6 © % A ÿ µ • ” % † ÿ µož k é k Y ¢ † ÿ µož ò ç # + 4 Y % † ÿ µ k é ¬ } ÿ µ Ò 16 ò ƒ … n P % Wož h Þ … MD5 • š % W x † 16 - k ò SHA • š # ‘ % W x † 20 -ož Y … n P%² -ož % n P % W N + Î – r Ä |ož
auth	6 © k … à šož
md5	6 … MD5 • š # ‘ožsha 6 … SHA • š # ‘ož
[illegible]	F å • š # ‘ … M X … g Ý 32 … **[illegible]**ž © Ï 1 ? M X ô E è , • • š % Wož
priv	6 © k … ‘ %ždes56 6 ¢ … 56 y DES % # ‘ož
[illegible]	% M X … g Ý 32 … **[illegible]**ž © Ï 1 M X ô E è , • % % Wož
[illegible]	˜ | ç n ~ ç Z k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
[illegible]	˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv4 NMS ª - 8 ož
[illegible]	ipv6 ˜ | ç n d f k ¼ û 6 ˜ | ç n k 6 ˜ | MIB ipv6 NMS ª - 8 ož

o¬ Þ . F åo- Þ . Z Ä F å ïož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å%² SNMPv3 ï k … MD5 • š k y … DES %ož

5 X L M L H F R Q I L J V Q P S V H U Y H U X V H U X V H U P L E X V H U Y D X W K P G D X W

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.24 snmp-server view

F å SNMP , £ož

snmp-server view [illegible] {include | exclude }

í ” SNMP , £ož

no snmp-server view [illegible] [[illegible]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	, £ dož
[illegible]	, £ ¼ û MIB + » k ©%²<• MIB ÿ ùož
include	ö ¢ ¥ MIB + » ÿ ù t m ¨ , £ $ Äož
exclude	ö ¢ ¥ MIB + » ÿ ù t L ” ¨ , £ $ Ùož

o¬ Þ . F åo- Þ . F å%² default , £ k ª • ˜ | ñ Ä MIB + »ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å%² , £ k , ñ Ä MIB-2 ÿ ù goid 1.3.6.1 bž

5 X L M L H F R Q I L J V Q P S V H U Y H U Y L H Z P L E L Q F O X G H

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2 RMON

2.1 rmon alarm

F å RMON s Š ož

rmon alarm [illegible] [illegible] {absolute | delta} rising-threshold [illegible] [illegible] falling-threshold [illegible] [illegible]] [owner [illegible]]

í ” 6 s Š n ¾ož

no rmon alarm [illegible]

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	s Š n ¾ « – Z k ’ › 8 y1~65535
[illegible]	s Š J O k 1~255 … … k w Y - µ OID µ ã ” g ” entry.integer.instance k ò 1.3.6.1.2.1.2.1.10.1 h g n P
[illegible]	J ý • œ ž • k % y a k H › 8 1 ½2147483647
absolute	J ý • º Í + › J ý k / J ý ž • ñ ž + N U H J O ›
delta	J ý • º J › J ý k / J ý ž • ñ ž U H © J O ¨ J ý • œ Ä J ›
rising-threshold [illegible]	— å J ý ƒ O ’ @ ƒ [illegible] k H › 8 y-2147483648~+2147483647
[illegible]	g U # h ñ ’ ž ‡ G 7 ^ Z [illegible] 7 ^
falling-threshold [illegible]	— å J ý ƒ O ’ @ ƒ [illegible] k H › 8 y-2147483648~+2147483647
owner [illegible]	g U # h — å n ¾ ë • ñ [illegible] 1~63 … … k ã Ý 4 Ê

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª • +] Æ F å s Š n ¾ @ ƒ g “ w k , s Š J Oo• J ý • ºo• n ¾ ë • ño• J ý • œ ž •o• J ý ƒ O / ’ › C ¿ + • ‡ G 7 ^ož

o¬ F å †o- 1 y! O MIB J O † ifInNUcastPkts.6 k J ý ž • • œ 60 a k ¢ J ý › ñ ’ 20 ê ñ ’ 10 ž C ‡ G 7 ^ 1 g 7 ^ Ô òož

5 X L M L H F R Q I L J X U H W H U P L Q D O

(Q W H U F R Q I L J X U D W L R Q F R P P D Q G V R Q H S H U O L Q H (Q G Z L W K & 1 7 / =

o¬ … 6 -o- ª • +] Æ F å 7 W O ò n n ¾ @ ƒ g “ w z ª • ¨ N M í ” ³ Î N M F å 7 W Ï ‹ n ¾ož

o¬ F å †o- 1 o• F å ¨ € M GigabitEthernet 0/1 … -

o¬ … 6 -o- ª • +] Æ F å Ï ‹ n n ¾ @ ƒ g “ w z ª • ¨ N M í ” ³ Î N M F å 7 W Ï ‹ n ¾ož

o¬ F å †o- 1 y F å ¨ € M GigabitEthernet 0/1 … Ï ‹ ož

```
5 X L M L H F R Q I L J X U H W H U P L Q D O
(Q W H U F R Q I L J X U D W L R Q F R P P D Q G V R Q H S H U O L Q H (Q G Z L W K &1 7 / =
5 X L M L H F R Q I L J L Q W H U I D F H J L J D E L W (W K H U Q H W
5 X L M L H F R Q I L J * L J D E L W (W K H U Q H W U P R Q F R O O H F W L R Q V W D W V R Z Q
```

o¬ à • co- 1 y … show run x X k U Y ò 0 x X F å © k è
2 y … show rmon statistics ê ñ show rmon x X k U Y ò 0 ñ Ï ‹ n n ¾ À } @ ƒ Ä

o¬ U P ’ Îo- 1 y í ” ¨ F å ž k é U P j ¨
2 y “ w] Æ F å Ï ‹ n ¾ @ ƒ k U P j ¨
3 y F å n ¾ ƒ] Æ ñ ’ ª • Ç F å ž k U P j ¨
4 y ¨ ¬ Ä è Õ Ñ k é U P j ¨

o¬ o • j ¨o- 1 y M Ö F å ê ñ “ w] Æ F å Ï ‹ n n ¾

o¬ u V ª ¢o- -

2.4 rmon event

F å RMON 7 ^ož
rmon event [log] [trap] [description [owner]

í ” 6 7 ^ n ¾ož
no rmon event

o¬ @ ƒ ª ¢o-

@ ƒ	T
	7 ^ n « – Z k H › 8 y1~65535
log	g U # h ™ º 7 ^ k ¢ 7 ^ t ‡ G ž k © Ï k “ £ ™ º k ó • ™ º “ £ O © 10 Ú k Ý 10 Ú ž k í ” Â • $ ù “ £
trap	g U # hTrap 7 ^ k ¢ 7 ^ t ‡ G ž k © Ï k Y • } d G Trap
description d	g U # h— å 7 ^ T ’ Î 1~127 … …
owner	g U # h — å n ¾ ë • ñ 1~63 … … k ã Ý 4 Ê

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª • +] Æ F å 7 ^ n ¾ @ ƒ g “ w k , 7 ^ n • ºo• • } d fo• ë • ño• T ’ Î ˆ @ ƒož

o¬ F å †o- 1 y # 7 ^ • y “ £ 7 ^o• G trap ƒ Î ktrap G ñ • } d publicož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ UPRQ HYHQW ORJ WUDS SXEOLF GHVFULSWLRQ LI,Q18
```

o¬ à • co- 1 y … show ru n x X k U Y ò 0 x X F å © k è
2 y … show rmon event ê ñ show rmon x X k U Y ò 0 ñ 7 ^ n Y C D ÿ 7 ^ “ £ n n ¾ À } @ ƒ
Ä

o¬ U P ’ Îo- 1 y í ” ¨ F å ž k é U P j ¨
2 y F å n ¾ ƒ] Æ ñ ’ ª • Ç F å ž k U P j ¨
3 y ¨ ¬ Ä è Õ Ñ k é U P j ¨

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.5 show rmon

ª P ñ Ä RMON ’ Îož
show rmon

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P ’ Î , ñ Ä s Š n ’ Îo• 7 ^ n C 7 ^ “ £ n ’ Îo• 7 W O ò n C 7 W “ £ n ’ Îo• Ï ‹ n ’ Îož

o¬ F å †o-

```
5XLMLH VKRZ UPRQ
```

```
HWKHU VWDWLVWLF WDEOH
                LQGH[
                LQWHUIDFH   *LJDELW(WKHUQHW
                RZQHU   DGPLQ
                VWDWXV
                GURS(YHQWV
                RFWHWV
                SNWV
                EURDGFDVW3NWV
                PXOWL3NWV
                FUF$OLJQ(UURUV
                XQGHU6L]H3NWV
                RYHU6L]H3NWV
                IUDJPHQWV
                MDEEHUV
                FROOLVLRQV
                SDFNHWV  2FWHWV
                SDFNHWV  7R   2FWHWV
                SDFNHWV   7R   2FWHWV
                SDFNHWV   7R   2FWHWV
                SDFNHWV   7R    2FWHWV
                SDFNHWV    7R    2FWHWV

UPRQ KLVWRU\ FRQWURO WDEOH
                LQGH[
                LQWHUIDFH   *LJDELW(WKHUQHW
                EXFNHWV5HTXHVWHG
                EXFNHWV*UDQWHG
                LQWHUYDO
                RZQHU   8VHU$
                VWDWV

UPRQ KLVWRU\ WDEOH
                LQGH[
                VDPSOH,QGH[
                LQWHUYDO6WDUW    G   K   P   V
                GURS(YHQWV
                RFWHWV
                SNWV
                EURDGFDVW3NWV
                PXOWL3NWV
```

2.6 show rmon alarm

ª P s Š n ’ Îož

show rmon alarm

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 s Š n ’ Î

```
5XLMLH VKRZ UPRQ DODUP
UPRQ DODUP WDEOH
                LQGH[
                LQWHUYDO
                RLG
                VDPSOH7\SH
                DODUP9DOXH
                VWDUWXS$ODUP
                ULVLQJ7KUHVKROG
                IDOOLQJ7KUHVKROG
                ULVLQJ(YHQW,QGH[
                IDOOLQJ(YHQW,QGH[
                RZQHU 8VHU$
                VWDWXV
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.7 show rmon event

ª P 7 ^ n ’ Î

show rmon event

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 7 ^ n ’ Î

```
5XLMLH VKRZ UPRQ HYHQW
UPRQ HYHQW WDEOH
                LQGH[
                GHVFULSWLRQ  LI,Q18FDVW3NWV LV DEQRUPDO
                W\SH
                FRPPXQLW\  SXEOLF
                ODVW7LPH6HQW   G  K  P  V
                RZQHU  8VHU$
                VWDWXV

UPRQ ORJ WDEOH
                HYHQW,QGH[
                LQGH[
                ORJ7LPH   G   K   P   V
                ORJ'HVFULSWLRQ  LI,Q18FDVW3NWV LV DEQRUPDO
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.8 show rmon history

ª P 7 W n ’ Îož

show rmon history

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 7 W Á ’ Î

```
5XLMLH VKRZ UPRQ KLVWRU\
UPRQ KLVWRU\ FRQWURO WDEOH
                LQGH[
                LQWHUIDFH   *LJDELW(WKHUQHW
                EXFNHWV5HTXHVWHG
                EXFNHWV*UDQWHG
                LQWHUYDO
                RZQHU   8VHU$
                VWDWV

UPRQ KLVWRU\ WDEOH
                LQGH[
                VDPSOH,QGH[
                LQWHUYDO6WDUW    G   K   P   V
                GURS(YHQWV
                RFWHWV
                SNWV
                EURDGFDVW3NWV
                PXOWL3NWV
                FUF$OLJQ(UURUV
                XQGHU6L]H3NWV
                RYHU6L]H3NWV
                IUDJPHQWV
                MDEEHUV
                FROOLVLRQV
                XWLOL]DWLRQ
```

// Ä 4 7 W “ £ ’ Î ¨ 4 Ô ¿

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.9 show rmon statistics

ª P Y ß à Ï ‹ ’ Îož

show rmon statistics

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

3 NTP

3.1 no ntp

¼ { NTP c 5 Æ k 2 ž • Æ ˜ c 5 k Ž ” ntp ñ Ä F å ’ Îož
no ntp

o¬ @ ƒ ª ¢o-

o¬ @ ƒ ª ¢o-

@ ƒ	T
peer	˜ª • + Î ª NTP Æ g ž • ¬ L y O ò ò ¤ k- ª • Î ª — Õ i © Ï c 5 ž • g ¶ ˜ | Ó ’ hož
serve	ª • + Î ª NTP Æ g ž • ¬ L y O ò ò ¤ kx ª • Î ª — Õ i © Ï c 5 ž •ož
serve-only	N ª • + Î ª NTP Æ g ž • ¬ Lož
query-only	N ª • + Î ª NTP Æ g O ò ò ¤ož
[illegible]	IP ˜ | O ò ç n ö Z z 8 1 ½99 y 1300 ½1999ož
[illegible]	IP ˜ | O ò ç n dož

o¬ Þ . F åo- Þ . Õ Ñ Ì F å ` ~ NTP ˜ \| O ò • éož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- — å + Î ª — Õ NTP Æ ˜ \| O ò Ó ’ož L U ˆ 4%² _ Â 4 ’ † ¶ R ‘ k ¾ ¶ • c © … NTP ï a à š Ñ òož
¢%² ˜ \| ¬ L ñ ž k NTP

H ƒ ¶ B NTP • š % Wož

no ntp authentication-key **key-id**

o¬ @ ƒ ª ¢o-

@ ƒ	T
key-id	% WÍD z H › 8 1 ½4294967295ož
key-type	% W … ož
md5 key	g U # h ¥ % W © k © % k0 n P — % k7 n P • % %ož ó • © — %ož

o¬ Þ . F åo- Þ . Z Ä F å • š % Wož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- F å ¶ B • š % W k w J md5 g % k ? % W Ä%² Š%² key-id ö œ k ï U Y ntp trusted-key 1 ¥ key-id + • % W — å ¶ B ’ ` % Wož

% W ’ 1024 k x © ? Æ ˜ N N u 4%² % Wož

o¬ F å †o- 1 y F å%² ID 6 • š % W y

5 X L M L H F R Q I L J Q W S D X W K H Q W L F D W L R Q N H \ P G Z R R R R R S

o¬ à • co- **-**

o¬ U P ’ Îo- **-**

o¬ o • j ¨o- **-**

o¬ u V ª ¢o- -

3.5 ntp disable

¼ { + • N M N v NTP † ož

ntp disable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ N M C U Y N I NTP †ož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨ Þ . Õ Ñ k ` Þ N M N I NTP † C U Y U ˆ Ë ï € g ž U ² … k* — å kU Y I U
+ • N M v ñ NTP †ož

⌊ Ẓ ® Ḳ ﻳ ɪ ₅ ⁱ ⊢ π ⌊ Ẓ ﻳ IP ḫ π ɪ ₅ ⁱ ő ₅ ⁱ ﻧ Ḳ ﺟ Ƀ ¢

o¬ F å †o- 1 y ¼ { N M N v NTP † y
5 X L M L H F R Q I L J L I Q R Q W S G L V D E O H

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.6 ntp master

— å Î ª ž U • NTP ž U g Î ª ž U @ ð › U ´ h k ¿ — Õ U ˆ c 5 ž •ož
ntp master [**tan**]

H ƒ NTP ž U — åož
no ntp master

o¬ @ ƒ ª ¢o-

@ ƒ	T
tan	g U # h 6 Î ª ž U ñ Ô C ƒ k 8 1 ½15 z 3 6 ¥ @ ƒ é ó • › 8ož F@ÑÐ[Ÿ BWdD1…"X $ B AVƒ ••à'ì" ðÆúÀfrÐñ™Þ .Š |L, t FÐT€ˆ0

o¬ x X % ”o- ¶ B F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-) ù i H RGOS © Ï N u 4 ï € Z Ä Æ ˜ € k u 4 c 5 Æ ˜ ’ 20 ož
} g Æ ˜ % * ’ k Ù ¯ ¬ } — å ¶ B % % W Y C ¶ B ’ ` % W k À e 6 + • % W Æ ˜ ’
` % W k õ U Y G Ü Æ ˜ % * ’ k } è Æ ˜ % * ’ } L Æ ˜ Ä , c ¶ B % % W ¶
B ’ ` % W
¨ , c Õ Ñ g ¤ G † h k i ¯ # + prefer ž U g c 5
F å NTP G † › N M ž ˜ • ¥ h Þ %² kF å N M · À F å 4 IP w U Y y + • NTP Æ ˜ *
’ N Mož

o¬ F å †o- 1 y F å à Ì — Õ NTP serverož

```
5 X L M L H F R Q I L J Q W S V H U Y H U F å , 3 Y
5 X L M L H F R Q I L J Q W S V H U Y H F U å , 3 Y
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.8 ntp trusted-key

1%² ID + • % W F å ¶ B ’ ` % Wož
ntp trusted-key **ýid**

í ” ID + • ¶ B ’ ` % Wož
no ntp trusted-key **ýid**

o¬ @ ƒ ª ¢o-

@ ƒ	T
ýid	¶ B ’ ` % W IDož H › 8 1 ½4294967295ož

o¬ Þ . F åo- ó • Õ Ñ Z Ä ’ ` % Wož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.10 show ntp server

ª P NTP Æ ~ ' Îož

show ntp server

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % "o- Ô Ó ï % "o• ¶ B F å % "o• N M F å % "o•VLAN F å % "ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç Ä F å NTP Æ k é ª P ¢ ù NTP Æ ~ ' Î k k é ¥ x X k ø - ` ~ ' Îož

o¬ F å †o- 1 y ª P ¢ ù © Ï NTP Æ ~ ' Î

Æ ~ ' Î

5 X L M L H V K R Z Q W S V H U Y H U

Q W S V H U Y H U V R X U F H N 6? #† P € > ð0 `p0 0 0 0 à 0 ™N 3

[redacted]

[redacted]

o¬ Þ . ´ ðo- 14

[redacted]

o¬ F å †o- 1 y ª P ¢ ù © Ï NTP ' Î

```
5XLMLH VKRZ QWS VWDWXV
&ORFN LV V\QFKURQL]HG VWUDWXP UHIHUHQFH LV
QRPLQDO IUHT LV +] DFWXDO IUHT LV +] SUHFLVLRQ LV
UHIHUHQFH WLPH LV ' %' % (( 87&
FORFN RIIVHW LV VHF URRW GHOD\ LV VHF
URRW GLVSHUVLRQ LV PVHF SHHU GLVS
```

< † K y

[redacted]

[redacted]	n P ¢ ù © Ï ž U È ä z
precision	n P ¢ ù © Ï ž U ¤ † z

4 SNTP

4.1 show sntp

ª P SNTP , ¼ @ ƒož

show sntp

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”o• ¶ B F å % ”o• N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 SNTP , ¼ @ ƒož

```
5 X L M L H   V K R Z   V Q W S
6 1 7 3  V W D W H              ( Q D E O H
6 1 7 3  V H U Y H U
6 1 7 3  V \ Q F  L Q W H U Y D O
7 L P H  ] R Q H
```

< † K y

<	ª ¢
state	n P sntp • o Ù Á
server	n P ž • c 5 Æ ˜
sync interval	n P ž • c 5 • œ
Time zone	¢ ù ž
SNTP server source	n P ž • c 5 † Ê - › IP ª -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

4.2 sntp enable

— å ø • SNTP ož

sntp enable

1 ¥ — å Ê Ö Þ . ›—Disableož

no sntp enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . SNTP Ù Á © Disable

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

5 X L M L H F R Q I L J V Q W S H Q D E O H

o¬ à • co- 1 y … show sntp x X ò 0 SNTP , ¼ @ ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

@ ƒ	T

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

Ŭ ɪ Ũ Ũ ș в ġ4 ġ ő ị 4 ġ ő ⁺ Ũ Ũ ș ¨H	sntp enable ⁻ Ĉ ¢

o¬ F å †o- 1 y F å SNTP ? 4 ž c 5%²) ž •

5 X L M L H F R Q I L J V Q W S L Q W H U Y D O

o¬ à • co- 1 y … show sntp x X ò 0 SNTP , ¼ @ ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.4 sntp server

— å SNTP Serverož

sntp server { **pdlh** }

í ” 6 SNTP Server

no sntp server

o¬ @ ƒ ª ¢o-

@ ƒ	T
pdl	SNTP Æ ˜ IP ª -
dh	SNTP Æ ˜ ¿ d

o¬ Þ . F åo- Þ . Z Ä — å ` ~ SNTP Æ ˜

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 9 SNTP # ‘ y NTP ¶ Ã k ñ Y — å SNTP Server ¶ U Y F å è internet ¸ NTP Serverož

o¬ F å †o- 1 y F å à Ì SNTP Æ ˜

5XLMLH FRQILJ VQWS VHUYHU

o¬ à • co- 1 y … show sntp x X ò 0 SNTP , ¼ @ ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5 SPAN-RSPAN

5.1 mac-loopback

ø • N M MAC ê ož
mac-loopback

¼ { N M MAC ê ož
no mac-loopback

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¼ { N M MAC ê ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Î ª ë%² + Ú v ¦ ž k ¬ } ø • N M MAC ê g ¬ # +%² DOWN Ù Á € M Ÿ MAC ê M k
} ¨ ¥ € M • ¿ F åožbž

o¬ F å †o- 1 y Ù ¯ F å i VLANož

```
5 X L M L H F R Q I L J Y O D Q
5 X L M L H F R Q I L J Y O D Q U H P R W H V S D Q
5 X L M L H F R Q I L J Y O D Q H [ L W
```

2 y F å › — Õ C v ¦ › Mož

```
5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q U H P R W H V R X U F H
5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q V R X U F H L Q W H U I D F H J L J D E L W ( W K H
```

3 y F å v ¦) M k w ø •) M MAC ê g U Y € (ñ GigabitEtherne t 4/2 € M Û UP Ü Û bž

```
5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q G H V W L Q D W L R Q U H P R W H Y O D Q L
5 X L M L H F R Q I L J L Q W H U I D F H J L J D E L W ( W K H U Q H W
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W V Z L W F K S R U W D F F H V V Y O D Q
5 X L M L H F R Q I L J L I * L J D E L W ( W K H U Q H W P D F O R R S E D F N
```

4 y F å GigabitEthernet 4/3-4 N M µ i VLANož

í ” i v ¦ k ¢ ê í ” i v ¦ k ¢) € Mož

no monitor session [destination remote vlan interface

3 y F å i v ¦ k ¢ož

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ UHPRWH VRXUFH
```

4 y › — Õ F å i v ¦ ÿß € Mo• ê ñ) — Õ) € Mož

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ GHVWLQDWLRQ UHPRWH YODQ L
```

5 y F å VLAN Ÿ v ¦ ›ož

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ VRXUFH YODQ
```

6 y í ” v ¦ k ¢ g , v ¦ › y) € M F å bž

```
5XLMLH FRQILJ QR PRQLWRU VHVVLRQ
```

7 y í ” v ¦ k ¢ › ê ñ) M(k ¢ Î ï k t í ”)ož

```
5XLMLH FRQILJ QR PRQLWRU VHVVLRQ VRXUFH LQWHUIDFH JLJDELW
5XLMLH FRQILJ QR PRQLWRU VHVVLRQ GHVWLQDWLRQ LQWHUIDFH JL
```

8 y F å CPU † • v ¦ › k U Y F å Q ! O CPU † k - U Y F å c ž ! O ¯ * v ¦ † y CPU †

O Q ! O CPU ñ › M † y

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ VRXUFH LQWHUIDFH JLJDELW(WKH
```

O ! O CPU † y ¯ * v ¦ † k ¬ } c ž F å cpu v ¦ y ¯ * v ¦ož

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ VRXUFH LQWHUIDFH JLJDELW(WKH
5XLMLH FRQILJ PRQLWRU VHVVLRQ VRXUFH LQWHUIDFH JLJDELW(WKH
```

o¬ ² ¡ ’ Îo- -

o¬ U P ’ Îo- 1 y 3 € M © AP è t M ž k } 1 ¿ F å v ¦ › ê) é k Ë ß ò U Pož

```
6HW IDLO RQ DS PHPEHU
```

2 yremote-vlan-id + • VLAN ¨ ê ñ © i VLAN ž é Ë ß ò U Pož

```
YODQ GRHVQ W H[LVW RU LW LVQ W UHPRWH VSDQ YODQ
```

o¬ u V ª ¢o- -

5.3 remote-span

VLAN % ” F å VLAN i VLANož

remote-span

VLAN % ” 1 i VLAN F å ¯ * VLANož

no remote-span

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¼ { i VLANož

o¬ x X % ”o- VLAN % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 4 x X Û F å VLAN K 9 i VLANož

o¬ F å †o- 1 y F å i VLANož

6 ERSPAN

6.1 destination ip address

— å GRE / x 6) IP ª -ož … ¥ x X no # ¾ í ”) IP ª -ož

destination ip address ¤

no destination ip address

o¬ @ ƒ ª ¢o-

@ ƒ	T
¤	GRE / x) IP ª -

o¬ Þ . F åo- Þ . IP ª - q

o¬ x X % ”o- ERSPAN F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } › ñ Ô Ó % ” k ÿ µ end x X k ê p µ Ctrl+C Á ` pož

} › ñ ¶ B F å % ” k ÿ µ exit x Xož

o¬ F å †o- F å ip †) ip ª -

5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q H U V S D Q V R X U F H
5 X L M L H F R Q I L J P R Q H U V S D Q V U F G H V W L Q D W L R Q L S D G G U H V V

o¬ û à • co-

x X	T
show monitor	ª P v ¦ k ¢ ’ Îož

o¬ U P ’ Îo- ò ç ÿ µ ÿ µ IP ª - — | IP ª - é ü g destination ip address ž Ë ß U P ’ Î y

Invalid ip address

o¬ u V ª ¢o- -

6.2 ip dscp

— å / x IP † dscp › k … ¥ x X no # ¾ Ê Ö ó • ›ož

ip dscp ■

no ip dscp

o¬ @ ƒ ª ¢o-

@ ƒ	T
■	/ x IP † dscp ›

o¬ Þ . F åo- / x IP † ó • dscp › 0ož

o¬ x X % ”o- ERSPAN F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } › ñ Ô Ó % ” k ÿ µ end x X k ê p µ Ctrl+C Á `ož

} › ñ ¶ B F å % ” k ÿ µ exit x Xož

o¬ F å †o- F å ip † dscp ›

```
5XLMLH FRQILJ PRQLWRU VHVVLRQ HUVSDQ VRXUFH
5XLMLH FRQILJ PRQ HUVSDQ VUF LS GVFS
```

o¬ û à • co-

x X	T
show monitor	ª P v ¦ k ¢ ’ Îož

o¬ U P ’ Îo-

o¬ u V ª ¢o- -

6.3 ip ttl

— å / x IP † TTL › k … ¥ x X no # ¾ Ê Ö ó • ›ož

ip ttl **tta**	
no ip ttl	

tta	/ x IP ttl

5XLMLH FRQILJ PRQLWRU VHVVLRQ HUVSDQ VRXUFH
5XLMLH FRQILJ PRQ HUVSDQ VUF LS WWO

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	k ¢ Z

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } › ñ Ô Ó % ” k ÿ µ end x X k ê p µ Ctrl+C Á ` pož

} › ñ ¶ B F å % ” k ÿ µ exit x Xož

o¬ F å †o- F å%² ERSPAN k ¢ 2 k w µ ERSPAN › v ¦ — Õ F å % ”

5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q H U V S D Q V R X U F H

o¬ û à • co-

x X	T
show monitor	ª P v ¦ k ¢ ’ Îož

o¬ U P ’ Îo-

o¬ u V ª ¢o- -

6.5 origin ip address

— å GRE / x 6 › IP ª -ož … ¥ x X no # ¾ í ” › IP ª -ož

origin ip address [illegible]
no origin ip address

o¬ @ ƒ ª ¢o-

@ ƒ	T
[illegible]	GRE / x › IP ª -

o¬ Þ . F åo- -

o¬ x X % ”o- ERSPAN F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } › ñ Ô Ó % ” k ÿ µ end x X k ê p µ Ctrl+C Á ` pož

} › ñ ¶ B F å % ” k ÿ µ exit x Xož

o¬ F å †o- F å ip † › ip ª -

5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q H U V S D Q V R X U F H
5 X L M L H F R Q I L J P R Q H U V S D Q V U F R U L J L Q L S D G G U H V V

o¬ û à • co-

x X	T
show monitor	ª P v ¦ k ¢ ’ Îož

o¬ U P ’ Îo-

o¬ u V ª ¢o- -

6.6 shutdown

— å ¼ { k ¢ož … ¥ x X no # ¾ 1 — å Ê Ö è Þ . ›ož

shutdown

no shutdown

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó • • o k ¢ ož

o¬ x X % ”o- ERSPAN F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } › ñ Ô Ó % ” k ÿ µ end x X k ê p µ Ctrl+C Á ` pož

} › ñ ¶ B F å % ” k ÿ µ exit x Xož

o¬ F å †o- ¼ { ERSPAN k ¢ 2

5 X L M L H F R Q I L J P R Q L W R U V H V V L R Q H U V S D Q V R X U F H
5 X L M L H F R Q I L J P R Q H U V S D Q V U F V K X W G R Z Q

o¬ û à • co-

x X	T
show monitor	ª P v ¦ k ¢ ’ Îož

o¬ U P ’ Îo-

o¬ u V ª ¢o- -

6.7 source interface

F å ERSPAN v ¦ › € Mož … ¥ x X no # ¾ í ” › Mož

source interface ¦	[rx | tx | both]
no source interface ¦	[rx | tx | both]

F å Â 9 v ERSPAN v ¦ ›

source interface ¦	rx acl acl-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
¦	v ¦ › € M
rx	Q v ¦ N v • g ƒ G
tx	Q v ¦ G • g ƒ G

both	N vo• G • g ƒ G ® v ¦ krx/tx ® Ì F å ž k ó • ¥ # ¾
acl **bam**	ACL Œ d

o¬ Þ . F åo- -

o¬ x X % ”o- ERSPAN

L Q Y D O L G K R V W D G G U H V V

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.2 sflow collector collector-id destination

F å sFlow Collector ª -ož

sflow collector **ïd** destination { **ip4** ipv6 **ip6** } **ip**]

í ” sFlow Collector ª -ož

no sflow collector **ïd** destination { **ip4** ipv6 **ip6** } **ip**]

Ê Ö Þ . F åož

default sflow collector **ïd** destination { **ip4** ipv6 **ip6** } **ip**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ïd	sFlow Collector id k H › 8 1-2
ip4	sFlow Collector IPv4 ª -
ipv6 **ip6**	sFlow Collector IPv6 ª -
ip	sFlow Collector ! n € M Z

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 F å sFlow Collector ª - k ª - Q Ñ ª - k ¢ F å ³ Ñ ª - k A ò Á n ª -o• z n ª - k 1 U P F å â ÂožsFlow Collector ¨ F å € M Z ! n sFlow †ož

o¬ F å †o-

o¬ à • co- 1 y … show sflow x X k U Y ò 0 sFlow Collector ª - © k F åož

o¬ U P ’ Îo- 1 y ò ç F å ª - © ³ c ª - k é U P j ¨ož

L Q Y D O L G K R V W D G G U H V V

2 yvpn ¨ož

Y S Q L V Q R W H [L V W

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.3 sflow collector collector-id max-datagram-size

F å ÿ ß sFlow † Â Ý x †ož
sflow collector [illegible] max-datagram-size [illegible]

í ” ÿ ß sFlow † Â Ý x † F åož
no sflow collector [illegible] max-datagram-size

Ê Ö Þ . F åož
default sflow r

7.4 sflow counter collector

F å sFlow counter J ý ÿ ß collector idož
sflow counter collector **id**

í ” sFlow counter J ý ÿ ß collector id F åož
no sflow counter collector

Ê Ö Þ . F åož
default sflow counter collector

o¬ @ ƒ ª ¢o-

@ ƒ	T
id	sFlow Collector id k H › 8 1-2

o¬ Þ . F åo- -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

~`t# AEç!4ðÒ ò Ø‡ k HžVúq(Œt &~`t ÙÂ`W•®,Ä @p ÐI ]`•à’à¸Œt g ÑB°h s ‡ k H í " AIˆo ,RìG ÂTGÄdA

í ” sFlow counter J ý ž • • œ F åož

no sflow counter interval

Ê Ö Þ . F åož

default sflow counter interval

o¬ @ ƒ ª ¢o-

@ ƒ	T
d	ž • • œ k H › 8 3-2147483647 k Þ . › 30 k % y a

o¬ Þ . F åo- 30

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … " ÖâQð (Ç÷@p ÐD ,PªPiFúÐ H ›™ (ÇŒR€s1„Â ðÆúÀ•à’à›@ B 3 o¬ Þtî . a-inteTf 0 Tc 0 Tw

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Ì …

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X u 4 ¨ Ò ò Mo• ü ` M F åož
c ž o 4 counter J ý y flow J ý ož
+ • sFlow Collector Q Ä F å / 6 ª - k sFlow † õ ÿ ßož

o¬ F å †o- 1 y ¨ N M TenGigabitEthernet 0/5 F å sFlow J ý … ož
5 X L M L H F R Q I L J L I 7 H Q * L J D E L W (W K H U Q H W V I O R Z H Q D E O H

o¬ à • co- 1 y … show sflow x X k U Y ò 0 N M sflow J ý © k … ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.7 sflow flow collector

F å sFlow flow J ý ÿ ß collector idož
sflow flow collector **id**

í ” sFlow flow J ý ÿ ß collector id F åož
no sflow flow collector

Ê Ö Þ . F åož
default sflow flow collector

o¬ @ ƒ ª ¢o-

@ ƒ	T
id	sFlow Collector id k H › 8 1-2

o¬ Þ . F åo- -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X u 4 ¨ Ò ò Mo•SVI Mo• ü ` M y è ÿ N M F åož
+ • sFlow Collector Q Ä F å IP ª -,sFlow † õ ÿ ßož

o¬ F å †o- 1 y ¨ N M TenGigabitEthernet 0/5 F å sFlow flow J ý ÿ ß ñ sFlow Collector 2ož
5 X L M L H F R Q I L J L I 7 H Q * L J D E L W (W K H U Q H W V I O R Z I O R Z F R O O H F W R U

o¬ à • co- 1 y … show sflow x X k U Y ò 0 sFlow flow J ý ÿ ß collector id © k F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.8 sflow flow max-header

F å sFlow flow J ý / ¾ † ã Â Ý x †ož
sflow flow max-header ý

í ” sFlow flow J ý / ¾ † ã Â Ý x † F åož
no sflow flow max-header

Ê Ö Þ . F åož
default sflow flow max-header

o¬ @ ƒ ª ¢o-

@ ƒ	T
ý	/ ¾ † ã Â Ý x † k H › 8 18-256 k Þ . › 64 k % y -

o¬ Þ . F åo- 64

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- F å ¨ g † Ä / ¾ ž k R = ÷ † ã B • ÷ k ª • / ¾ Â Ý - ƒož / ¾ Ä k “ £ ¨ ÿ è J
ý ý Î ož

o¬ F å †o- 1 y F å sFlow flow J ý / ¾ † ã Â Ý x † 128 -ož

```
5 X L M L H  F R Q I L J  V I O R Z  I O R Z  P D [  K H D G H U
```

o¬ à • co- 1 y … show sflow x X k U Y ò 0 sFlow flow J ý / ¾ † ã Â Ý x † © k F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.9 sflow sampling-rate

F å sFlow flow J ý J ý äož
sflow sampling-rate ¶

í ” sFlow flow J ý J ý ä F åož
no sflow sampling-rate

Ê Ö Þ . F åož
default sflow sampling-rate

o¬ @ ƒ ª ¢o-

@ ƒ	T
¶	sFlow flow J ý J ý ä k / ? rate † J ý%² † k H › 8 4096-16777215 k Þ . › 8192

o¬ Þ . F åo-

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X F å 4 sFlow flow J ý ¶ B J ý ä k ñ Ä N M sFlow flow J ý C … J ý äož

o¬ F å †o- 1 y F å sFlow flow J ý J ý ä 4096ož

```
5 X L M L H  F R Q I L J  V I O R Z  V D P S O L Q J  U D W H
```

o¬ à • co- 1 y … show sflow x X k U Y ò 0 sFlow flow J ý J ý ä © k F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.10 show sflow

ª P sFlow F å ’ Îož

show sflow

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P sFlow F åož

```
5XLMLH FRQILJ VKRZ VIORZ
V)ORZ GDWDJUDP YHUVLRQ
*OREDO LQIRUPDWLRQ
$JHQW ,3
VIORZ FRXQWHU LQWHUYDO
VIORZ IORZ PD[ KHDGHU
VIORZ VDPSOLQJ UDWH
&ROOHFWRU LQIRUPDWLRQ
,' ,3 3RUW 6L]H 931

18//
3RUW LQIRUPDWLRQ
,QWHUIDFH &,' ),' (QDEOH
7HQ*LJDELW(WKHUQHW <
7HQ*LJDELW(WKHUQHW 1
```

< † K y

<	ª ¢
sFlow datagram version	sFlow † Í Î Z k H › Q 5 k n P ¢ ù N u 4 G Í Î Z 5 sFlow †

Agent IP	sFlow Agent IP ª - k sflow agent address {ip-address | ipv6 ipv6-address } F å
sflow counter interval	Counter J ý ž • • œ
sflow flow max-header	R = ÷ † ã • ÷ k ª • / ¾ Â Ý - ƒ
sflow sampling-rate	Flow J ý † J ý ä
ID	sFlow Collector id
IP	N v sFlow † sFlow Collector IP ª -