RG-ACE

V1.0

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3.

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1.
2.
3. LINE
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5. File System
6. LICENSING
7. PKG_MGMT
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1

1.1 alias

F å%² Ú x X ð dož
alias *mode command-alias original-command*

í ” # x X ð d k + 9 ¨ ó • ð d x X k U Ê Ö Þ . F åož
no alias *mode* [*command-alias*]

+ 9 ¨ ó • ð d x X k U Y * **default** Ê Ö Þ . F åož
default alias *mode* [*command-alias*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
mode	ð d ñ W n x X ñ Ô x X % ”ož
command-alias	x X ð dož
original-command	ð d ñ W n Ž x X § což

o¬ Þ . F åo- ¨ ¯ * ê Ô Ó ï % ” k B ã x X ¨ ó • ð dož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¯ * ê Ô Ó ï % ” ó • x X ð d ho•po•so•uo•un Ž x d ã ð **helpo•pingo•showo•undebugo•undebug**ož
ó • x X ð d * **no alias exec** x X í ”ož
* F å x X ð d k U Y %² % Ÿ Û W Á%² Ú x Xož † ò k ë •%² ð d Û W n%² Ú x X ù%² B ã k À e U Y Ð Ò ÿ µ e µ B ãož
ð d ñ W n x X ñ Ô x X % ” © ¢ ù © Ï ¨ x X % ” k ¨ ¶ B F å % ” kÿ µ **alias** ? U Y ç ß ¢ ù U Y F å ð d ¶ B x X % ” y

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

x X ð d u 4 n ’ Î k ¨ ð d ù µ k ª P%² ¤ Z g* Ћk w k Y ” ª P y

```
*command-alias=original-command
```

† ò k ¨ EXEC % ” k ó • x X ð d”s” n P”**show** ” ¼ p ož é ÿ µ”s?” U Y B H’s’ • ã ¼ p y ð d

n 'Î y

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

ò ç ð d ñ W n x X 2%² % Ÿ k é k … – Z 1 x X , Ü Ûož † ò k ¨ EXEC % ” F å ð d”sv” W

Á x X **show version** k é y

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

œ _ _ Þ Ù = œ g † ò Ä á ^ Ћ • ð d â Â ž k é k ß ë Y U P ’ Î y

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

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.2 privilege

F å%² Ú x X ü g Ó ’ I 5%² x X ´ ðož

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

Ê Ö Þ . F åož

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

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
mode	} I Ó x X ñ K CLI x X % ”
all	1 6 x X ñ Ä ÿ x X Ó ’ k J , c Ó ’ ´ ð
level *level*	6 x X ê ÿ x X g Ó ’ ´ ð k ´ ð 8 0-15
reset	1 x X ü g Ó ’ Ê Ö ó • ´ ð
command-string	} I Ó x X …

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- n ª P%² B ã ¨ **privilege** x X U g I Ó CLI x X % ” ¼ p k c — Õ k U I Ó x X % ” *ƒ* O U k G ÿ J k ¨ ¶ B F å % ” k U Y … **privilege ?** ç ß ¢ ù ñ Ä U I Ó CLI x X % ”ož

o¬ F å †o- 1 y — å CLI ´ ð 1 M X ”test” k w — å ü g **reload** x X Ó ’ k U Y Ö y — Õož

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

4 ž k … ´ ð 1 µ CLI µ k G ë U Y … **reload** x X y

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

ò ç } 1 **reload** ¶ B ÿ x X C I Ó x Ø ´ /

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

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

H *f* U P * ’Î F å

no banner exec

o¬ @ *f* ª ¢o-

@ *f*	T
c	U P * ’Î ã œ … k U P * ’Î Ä • ª • ß ë • œ …ož
message	F å U P * ’Î Ä ož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y F å U P * ’Î k ò ç p µ È Ø ã œ … e Q À ÿ µ … k é ? … 1 t © Ï ’ož
¢ ï £ — Õ ž k MOTD g**banner motd** h Ù ¯ ª P k À e 1 ª P LOGIN U P ’ Î g**banner login** hk ï è £ — Õ Y e k1 ÿ G N • º ß ë EXECg**banner exec** h U P ’ Î ê incominggg**banner incoming** h U P ’ Îož ò ç © F g Telnet é ß ë incoming U P ’ Î k ¿ U N é ß ë EXEC U P ’ Îož
¥ x X F å U P ’ Î © S + ñ Ä line ¿ è k ò ç } ¨ î Ú ¿ è W 2 EXEC U P ’ Î k U Y ¨ À } line ¿ è F å **no exec-banner**ož

o¬ F å †o- 1 y µ P † g U P * ’Î — å y

```
Ruijie(config)# banner exec $ * … i H — Õ $
```

o¬ à • co- F å e k ï £ line ¿ è µ ¯ * ï % ” k U ª P ñ F å ’Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.3 banner incoming

F å • y F g Telnet N U P ’ Î

banner incoming *c message c*

H *f* F g telnet N U P ’ Î F å

no banner incoming

o¬ @ *f* ª ¢o-

@ *f*	T

c	F g Telnet N U P ’ Î ã œ … k U P ’ Î Ä • ª • ß ë • œ …ož
message	F å F g Telnet N U P ’ Î Ä ož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y F å F g Telnet N U P ’ Î k ò ç p µ È Ø ã œ … e Q À ÿ µ … ké ? … 1 t © Ï ’ož
¢ ï £ — Õ k MOTD g**banner motd** h Ù ¯ ª P k À e 1 ª P LOGIN U P ’ Î g**banner login** h k ï è £ — Õ Y e k 1 ÿ G N • º ß ë EXEC g**banner exec** h U P ’ Î ê incoming g**banner incoming** h U P ’ Îož ò ç © F g Telnet é ß ë incoming U P ’ Î k ¿ U N é ß ë EXEC U P ’ Îož

o¬ F å †o- 1 y µ P † g F g Telnet N ’ Î — å y

```
Ruijie(config)# banner incoming $ * … ¡H — Õ $
```

o¬ à • co- F å e k F g Telnet N ï £ line ¿ è µ ¯ * ï % ” k U ª P ñ F å ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.4 banner login

F å £ ö Ê ’ Î
banner login *c message c*

H ƒ £ ö Ê ’ Î F å
no banner login

o¬ @ ƒ ª ¢o-	@ ƒ	T

c

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y F å £ ö Ê ’ Î k ò ç p µ È Ø ã œ … e Q À ÿ µ … k é ? … 1 t © Ï ’ož
¢ ï £ è ˜ k MOTD g**banner motd** h Ù ¯ ª P k À e 1 ª P LOGIN U P ’ Î g**banner login** hk
ï è £ — Õ Y e k1 ÿ G N • º ß ë EXECg**banner exec** h U P ’ Î ê incominggg**banner incoming** h
U P ’ Îož ò ç © F g Telnet é ß ë incoming U P ’ Î k ¿ U N é ß ë EXEC U P ’ Îož

o¬ F å †o- 1 y µ P † g £ ö Ê ’ Î — å y

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

o¬ à • co- F å e k ï £ © Ï k U ª P ñ F å ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.5 banner motd

F å ? ™ * = ’ Î MOTD g message of the day h
banner [**motd**] *c message c*

H *f* ? ™ * = F å ’ Î
no banner [**motd**]

o¬ @ *f* ª ¢o-

@ *f*	T
c	? ™ * = ’ Î ã œ … k ? ™ * = ’ Î Ä • ª • ß ë • œ …ož
message	F å ? ™ * = ’ Î Ä ož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y F å ? ™ * = ’ Î k ò ç p µ È Ø ã œ … e Q À ÿ µ … k é ? … 1 t © Ï ’ož

¢ ï £ — Õ ž k MOTD g**banner motd** h Ù ¯ ª P k À e 1 ª P LOGIN U P ’ Î g

```
Ruijie(config)# banner exec $   £ • š Ý ž $
```

o¬ à • co- F å e k ï £ line ¿ è x g £ • š k U ª P ñ F å ' Îož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.7 banner slip-ppp

ò SLIP/PPP ¿ è N U P ' Î

banner slip-ppp *c message c*

H *f* SLIP/PPP ¿ è N U P ' Î

no banner slip-pp

o¬ @ *f* ª ¢o-

@ *f*	T
c	U P ' Î ã œ … k U P ' Î Ä • ª • ß ë • œ …ož
message	F å U P ' Î Ä ož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y F å U P * ' Î k ò ç p µ È Ø ã œ … e Q À ÿ µ … k é ? … 1 t © Ï 'ož

* SLIP/PPP ¿ è N g † ò è ˜ * Z N h ž k + • Ä € k ª P slip-ppp U P ' Î g**banner slip-ppp** **b**ž

o¬ F å †o- 1 y µ P † g SLIP/PPP U P ' Î — å y

```
Ruijie(config)# banner slip-ppp $ * … i H — Õ $
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.8 configure

µ ¶ B F å % ”ož

configure [**terminal**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y µ ¶ B F å % ”

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.9 disable

‘ z ¢ ù ï ñ ¨ ´ ðož

disable [*privilege-level*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
privilege-level	Ó ’ ^ ´

o¬ à • co- 1 y … **show sessions** x X k U Y ò 0 6 Telnet Client N © k] Æ t • •ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.11 do telnet

£ ñ Telnet Æ ˜ož

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

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
oob	* k Ù * ’ g%² " 6 * MGMT N M h i N ñ Telnet Æ ˜ k Q Ä ¨ — Õ À Õ MGMT ’ ò M ž ˜ õ k Ä ¥ # ¾
host	Telnet Æ ˜ IPV4 ª -o• IPV6 ª - ê ñ Ñ d
port	Telnet Æ ˜ TCP € M Z k ó • › 23
/source	6 Telnet ï € … › IP ê ñ › N M
ip *A.B.C.D*	6 Telnet ï € … › IPV4 ª -
ipv6 *X:X:X:X::X*	6 Telnet ï € … › IPV6 ª -
interface *interface-name*	6 Telnet ï € … › N M

o¬ Þ . F åo- -

o¬ x X % ”o- ¯ * ï % ” | Ô Ó % ”| N M % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- -

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

2.12 enable

µ Ô Ó ï % ”ož

enable [*privilege-level*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
privilege-level	Ó ’ ^ ´

o¬ Þ . F åo- -

o¬ x X % ”o- ¯ * ï % ”

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- … ¥ x X R ¯ * ï % ” µ ñ Ô Ó ï % ”ož ò ç Ó ’ ^ ´ k é 1 ¢ ù Ó ’ ^ ´ U ñ 6 Ó ’ ^ ´ož

o¬ F å †o- 1 y ò P † F å — Õ 1 ¢ ù Ó ’ ^ ´ ‘ z ñ † 14 ´ y

```
Ruijie> enable 14

Password:
```

o¬ à • co- * **show privilege** x X ò 0 ¢ ù ï ñ ¨ ´ ð

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- - 24F0.513 **Enable password**

F å c Ó ’ ´ ð M Xož

enable password [**level** *level*

level	ï ´ ð
0	g U # h 6 ¢ † M X …
password	ï µ Ô Ó EXEC F å C M X ¢ † k … x † 8 y1~126
5 *encrypted-password*	9 6] Æ MD5 U " % M X † Î k F å e 1 • % e M X g ‘

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- Enable • š M X ã password y security M X _ ypassword • % % M X k Q — å 15 ´ M X z security M X ¶ % M X k U Y 0 ½15 ´ — å M Xož ò ç © Ï k c ´ ð c ž ¨ Y _ M X k é password M X ÿ |ož ò ç — å ³ 15 ´ password M X k é k Ë ß Š s U P k w ô security M X z ò ç — å 15 ´ password M X y security M X ¶ , c k é k Ë ß Š s U P z M X · À Y % ¥ ” ‘ kpassword M X … • % % ksecurity M X … ¶ %ož

o¬ F å †o- 1 y µ P † — å ¶ M X pw10 y

o¬ Þ . F åo- ó • telnet-servero•snmp-agent y web-server © ø • k ssh-server © ¼ { ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 ø • ¼ { 6 Æ ož … **no enable service** x X ¼ { 6 Æ ož

enable service web-server a — K 3 Q ¶ * ‘ Ï “ [http | https | all] d " ´ û a — ¨ K â U å ‘ Ï “ g U all ‘ Ï “ • ¶ µ ½ ¨ Õ — http û ` ä https û ` " " ´ U http ‘ Ï “ • ¶ µ Õ — http û ` " " ´ U https ‘ Ï “ • ¶ µ Õ — https û ` d

o¬ F å †o- 1 y µ P † x X **enable service ssh-server** ø • SSH Server y

```
Ruijie(Config h# enable service ssh-server
```

o¬ à • co- * **show service** x X ò 0 Æ • o ê ¼ { Õ Ñ

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.16 end

R F å % ” ß ñ Ô Ó % ”

end

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- ñ Ä ³ Ô Ó % ”

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- ¨ ` ~ ³ Ô Ó % ” Q } ü g end x X / U ß ñ Ô Ó % ”

o¬ F å †o- 1 y µ P † x X **end** ß ñ Ô Ó % ” y

```
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#
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.17 exec-banner

¨ 6 line ¿ è M • ¬ t ª P EXEC U P ' Î

exec-banner

W 2 ¨ 6 line ¿ è ª P EXEC U P ' Î

no exec-banner

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ñ Ä ¿ è ¬ t EXEC U P ' Î

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

o¬ à • co- F å e k ï £ © Ï k ª P ñ F å ' Îož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.18 exec-timeout

F å LINE ñ 4 — Õ N Ý ž ž •ož

exec-timeout *minutes* [*seconds*]

H ƒ LINE N Ý ž k N K Ý žož

no exec-timeout

o¬ @ ƒ ª ¢o-

@ ƒ	T
minutes	6 Ý ž ž • ã U ƒ k H › 8 0-35791ož
seconds	g U # h 6 Ý ž ž • a ƒ k H › 8 0-2147483ož

o¬ Þ . F åo- Þ . Ý ž ž • 10 min

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç ¨ 6 ž • Ä k 4 N Z Ä ` ~ ÿ µ ÿ ß ' Î k 1 • 4 N k w Ê Ö 4 LINE q ~ U Ù Áož

o¬ F å †o- 1 y µ P † 6 line vty 0 N Ý ž ž • 5 ã 30 a y

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

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.19 exit

R F å % ” ß ñ ´ % ” ê ñ R Ô Ó % ” ß CLI µ
exit

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- ñ Ä % ”

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † x X **exit** ß ñ ´ % ” y

```
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
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

T

ª¢k¨À}Få i kUY*"?" Ûò0¢ùFå%" ñÄx

y

oint in a command by entering
ıg matches, the help list will
ıntil entering a '?' shows the

ł:
you are ready to enter a
v ?') and describes each possible

en an abbreviated argument is entered
rguments match the input

ñÄxXy

łs:

```
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
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
vrrp             VRRP interface subcommands
xconnect         Xconnect commands
```

‘ ! 6 â [mpls,lacp,isis,dldp " h H ' ´ " õ © ¬ • È » n ˜ • • " y d

3 y µ P † ª P x X e µ ñ æ @ ƒ • º y

```
Ruijie(config)#access-list 1 permit ?
  A.B.C.D  Source address
  any      Any source host
  host     A single source host
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.21 hostname

6 ê “ w — Õ Ñ dož

hostname *name*

o¬ @ ƒ ª ¢o-

@ ƒ	T
name	— Õ Ñ d k Q … … o• ƒ Y C N …ož Â Ý x † 63 …ož

o¬ Þ . F åo- Þ . Ñ d Ruijieož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ñ d } 9 œ ð — Õ Y C ¨ * Z y CHAP • š • Î ª — Õ ï dož

o¬ F å †o- 1 y µ P † 6 — Õ Ñ d BeiJing_Ruijie y

```
Ruijie(config)# hostname BeiJing_Ruijie
BeiJing_Ruijie(config)#
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.22 ip telnet source-interface

6 N M IP ª - • Telnet N › ª -ož

ip telnet source-interface *interface-name*

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	6 ¥ N M F å IP ª - • Telnet N › ª - k N M • º , AP Mo•Gi Mo•Loopback Mo•null Mo•VLAN Mož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 6 N M IP ª - • ¶ B Telnet N › ª -ož ¨ … telnet x X £ N%² V Telnet Æ ˜ ž ˜ k ò ç Z Ä ¥ N % Þ 6 › N M ê › ª - k 1 … ¥ ¶ B — åož … **no ip telnet source-interface** x X 1 — å Ê Ö ó • ›ož

o¬ F å †o- 1 y µ P † x X k 6 Loopback 1 N M IP ª - • ¶ B Telnet N › ª - y

```
Ruijie(config)# ip telnet source-interface Loopback 1
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.23 lock

¨ Ä € — å%² ¶ ž M X

lock

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- ¯ * ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- ï * — å ž M X • ” k ¨ ‘ 4 N k ¢ c ž k g { Ä € µ Y … 2 ˜ | ož * Y 5 â g { Ä € µ y

† %² µ y ÿ µ **lock** x X k © Ï k U P ÿ µ M X z

† 8 µ y ÿ µ M X k U Y © ` Þ … ož ÿ µ e k © Ï k U P G • ÿ µ M X k À e k © Ï k Ž ” I s k

w ª P Locked ’ Î z

} Ý M • µ Ä € k ¬ } ÿ µ — å ž M Xož

} ¨ Ä € … g { Ä € k , ¬ } * ¨ line F å % ” ü g **lockable** x X k ¨ , • line 4 g { Ä € •” Xož

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Ä € ¨ Þ . Õ Ñ u 4 **lock** x Xož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- ¥ x X 9 ¨ , • ¿ è u 4 g { Ä € Ô Å k } g { Ä € U Y * ¨ EXEC % ” ü g **lock** x Xož ò ç ï } ü g **lock** x X Û g { ¢ ù ¿ è N Ä € k < · À ¯ … x X **lockable** — å ¢ ù ¿ è ª • ï g { ¢ ù ¿ è N Ä €ož

o¬ F å †o- 1 y µ P † ¨ O ò V M ø • g { Ä € k w g { O ò V y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.25 login

¨ AAA ¼ { Õ Ñ k ¨ LINE ¿ è F å • % £ M X û àož

login

H ƒ £ M X û àož

no login

o¬ @ ƒ ª ¢o-

@ ƒ	T

-	-

o¬ Þ . F åo- O ò V ó • ¼ { login k VTY Ä € ó • ø • login ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç Z Ä o AAA ¶ Æ ké ¥ x X 9 £ • š ž • • % M X û àož L M X © © 6 VTY ê console N M F å M Xož

o¬ F å †o- 1 y µ P † ¦ P ¨ VTY — å £ M X û àož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.26 login access non-aaa

¨ AAA ø • Õ Ñ k F å ¥ x X k ¨ LINE ¿ è U Y # + J ³ AAA Æ Û g • šož

login access non-aaa

W 2 ¨ AAA ø • Õ Ñ … ³ AAA Æ Û g • šož

no login access non-aaa

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó • ¼ { ¥ ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç o AAA ¶ Æ c ž k ¨ LINE ¿ è Ý J ³ AAA • š • ” k é ¬ } F å ¥ x X k ¥ + ñ Ä Ä € C Ä |ož

o¬ F å †o- 1 y µ P † ¦ P ¨ ø • AAA ¶ Æ ž ˜ k ¨ VTY — å Î ª ï • šož

```
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)#
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.27 login authentication

¨ AAA ø • Õ Ñ k ¨ LINE ¿ è F å AAA £ • š • c ç nož

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

í ” £ • š • c ç nož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
default	ó • • š • c ç n d
list-name	U # • c ç n d

o¬ Þ . F åo- AAA ø • Õ Ñ k ó • … **default** • š • což

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † ¦ P ¨ VTY ¼ û • c ç n w radius g £ • šož

```
Ruijie(config)# aaa new-model
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.29 motd-banner

¨ 6 line ¿ è M • ¬ t ª P MOTD U P ’ Î
motd-banner

W 2 ¨ 6 line ¿ è ª P MOTD U P ’ Î
no motd-banner

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ñ Ä ¿ è ¬ t MOTD U P ’ Îož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- F å 4 **banner exec** y **banner motd** k é ó • Õ Ñ k 1 ¨ ñ Ä line ¿ è ª P EXEC y MOTD U P ’ Îož ò ç Ý ¨ î Ú À } line ¿ è ¼ { EXEC y MOTD U P ’ Î kU Y … ¥ x X **no** ¥ ” ¨ 6 ¿ è ¼ { EXEC y MOTD U P ’ Îož

▲ a — s **banner incoming** â o ´ ‡ " ´ " t sB@ @ ðÆúÀºNGPÐ¾f ¾ ± % k é ó ’ í •$ ` $ o B @2 0B04(rD002

2.31 prompt

F å ï x X N M gCLI h U Pož

prompt *string*

H *f* ï x X N M gCLI h U P … F åož

no prompt

o¬ @ *f* ª ¢o-

@ *f*	T
string	x X U P … … k Â x U Y F å 32 …

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç , Z Ä F å x X N M gCLI h U P … k é Y © Ï d f • U P … k U P … 1 š 5 © Ï d f J ò J ož
x X N M gCLI h U P … Q + EXEC % ” Ä |ož

o¬ F å †o- 1 y µ P † 1 F å x X U P … RGOS y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.32 secret

F å line ¿ è £ MD5 U " % M Xož

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

í ” line ¿ è £ MD5 U " % M Xož

no secret

o¬ @ ƒ ª ¢o-

0	g U # h 6 ¢ † M X † Î k F å e 1 g MD5 U " %
password	6 i ï line ¿ è M X ¢ † k … x † y1~25
5 *encrypted-secret*	9 6] Æ MD5 U " % M X † Î k F å e 1 • % e M X g ‘

o¬ Þ . F åo- -

o¬ x X % ”o- line F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 F å + i ï ¡ £ £ line ¿ è g • š MD5 U " % M Xož

⚠ " ´ G ¦ A + ø 5 • Û & æ ¥ A 3) g ¡ 24 É ¯ Ç — 3 ‡ 1 c 3 c 8 Q “ ø ¡ ¾ ”$” “ ø d

⚠ ¹ (M G ¦ A + ø 5 d ¢ N Æ ã • ò % É ´ ¬ ¸ < ¦ A ¶ Ç — ¨ ì ‘ G ¦ A + ø 5 d

⚠ line • ¶ » ½ ¨ " password ä secret Ç — ò , Ä h " t password ä secret f 5 Ç — ¨ Ã ¨ Û & Ç — V • $ secret Ç — / secret Ç — $ ž G ¨ V Ÿ # $ password Ç — ò f 5 Ç — [$ ž G Æ ã • Ã ž G d

o¬ F å †o- µ P † 6 line £ MD5 U " % M X vty0 y

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

F å 4 M X $ e kvty0 1 g MD5 U " % kshow ß Û | ç ò ñ P y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.33 session-timeout

F å ¢ ù LINE] Æ • y ñ i Ä € k ¢ Ý ž ž •ož
session-timeout *minutes* [**output**]

H *ƒ* LINE ñ i Ä € k ¢ Ý ž ž • k k ¢ K Ý žož
no session-timeout

o¬ @ *ƒ* ª ¢o-

minutes	6 Ý ž ž • ã U *ƒ*
output	© k 1 ÿ ß *ƒ* G - • ÿ µ k Û î • © k Ý ž

o¬ Þ . F åo- Þ . Ý ž ž • 0 min k W n K Ý žož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç ¨ 6 ž • Ä k R ¢ ù LINE] Æ • y ñ i Ä € k ¢ k Z Ä ` ~ ÿ µ ÿ ß ’ Î k 1 • 4 N k w Ê Ö 4 LINE q ~ U Ù Áož

o¬ F å †o- 1 y µ P † 6 line vty 0 k ¢ Ý ž ž • 5 ã U y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.34 show debugging

ª P ¢ ù — Õ ² ¡ • ¼ ø • ’ Îož
show debugging

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T

-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † © ü g **show debugging** x X %² P † y

```
Ruijie#show debugging

debug fw-group detect intf-state
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.35 show hostname

ª P ¢ ù — Õ Ñ d f ’ Îož

show hostname

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † © ü g **show hostname** x X %² P † k P † ª P ¥ — Õ Ñ d f Ruijie y

```
Ruijie#show hostname
Ruijie
Ruijie#
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.36 show line

ò 0 ¿ è F å ’ Îož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
console	ò 0 O ò V ¿ è F å ’ Îož
vty	ò 0 Z Ä € ¿ è F å ’ Îož
line-num	ò 0 line ¿ èož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 console M F å ’ Îož

```
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
```

< † K y

<	ª ¢
CON	Ä € • º kCON n P O ò Vož0 n P Ä € ¿ è Ú Z k Ú Z ù µ * Z n P ¢ ù 3 ¨ … Ä €ož
Type	Ä € • º k , CONo•VTY ˆož
speed	‘ 5 , äož
Overruns	Ü N v overrun j ¨ ƒ O Ï ‹ ›ož

Location: ""	¿ è location — åož
Type: "vt100"	¿ è Ã Ä € ö Õož
Special Chars	Ä € Ô : … k , Escape …o•Disconnect … y Activation …ož
Timeouts	Ä € Ý ž ž • knever n P K Ý žož
History	7 W x X “ £ • ¼ Y C Â Ý Ú) ƒož
Total input	R Ü N v ƒ G O Ï ‹ ›ož
Total output	G ñ Ü ƒ G O Ï ‹ ›ož
Data overflow	N v œ ß ƒ G O Ï ‹ ›ož
stop rx interrupt	Ü RX • ƒ O Ï ‹ ›ož

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.37 show reload

ò 0 © Ï M • o — åož

show reload

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o-

o¬ F å †o- 1 y µ P † ò 0 © Ï M • o — å y

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

< † K y

<	ª ¢
System reload state	© Ï M Ñ Ù Á

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.38 show running-config

ò 0 ¢ ù — Õ © Ï 3 ¨ g F å ' Î ê î N M F å ' Îož

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

o¬ @ ƒ ª ¢o-

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

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.40 show sessions

ª P] Æ • y Telnet Client † ? † ’ Îož

show sessions

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- ¯ * ï % ”

o¬ Þ . ´ ðo-

-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ ¨ NVRAM g ³ £ â Å š Ñ H ¥ ˜ h — Õ F å / startup-config — Õ o ž ü g F åož ¨ i H — Õ kstartup-config 6 © ‘ 9 — Õ Ä å Flash ó • F å † ^ /config.text F å ’ Îož

o¬ F å †o- -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

2.42 show this

ò 0 © Ï ¢ ù % ” ÿ | F å ’ Îož

```
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)#
```

2 y µ P † ò 0 interface range vlan 1-3 ÿ | F å ' Î

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

Building configuration...
!
interface VLAN 1
 ip address dhcp
interface VLAN 2
 ip address 1.1.1.1 255.255.255.0
interface VLAN 3
 ip address 3.3.3.3 255.255.255.0
!
end
Ruijie(config-if-range)#
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

2.43 speed

F å Ä € — Õ , äož

speed *speed*

Ê Ö Ä € — Õ , ä ó • F åož

no speed

o¬ @ *ƒ* ª ¢o-

@ ƒ	T
speed	Ä € — Õ n ÿ , ä k % y © bpsož + 9 g N M k Q 1 n ÿ , ä — å 9600o•19200o•38400o• 57600o•115200 %² k Þ . , ä © 9600ož

o¬ Þ . F åo- Þ . , ä © 9600

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ï U Y ÿ G ¬ } Û — å ‘ 5 ¿ è f Ô äož x X **speed** 1 c ž — å ‘ 5 ¿ è N v , ä Y C G , äož

o¬ F å †o- 1: µ P † 1 M , ä — å 57600 bps y

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

o¬ à • co- * **show line** x X ò 0 LINE ¿ è ñ F å , äož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.44 telnet

£ ñ Telnet Æ ˜ož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	* k Ù * ’ g%² " 6 * MGMT N M h i N ñ Telnet Æ ˜ k Q Ä ¨ — Õ À Õ MGMT ’ ò M ž ˜ õ k Ä ¥ # ¾
host	Telnet Æ ˜ IPV4 ª -o• IPV6 ª - ê ñ Ñ d
port	Telnet Æ ˜ TCP € M Z k ó • › 23
/source	6 Telnet ï € … › IP ê ñ › N M
ip *A.B.C.D*	6 Telnet ï € … › IPV4 ª -
ipv6 *X:X:X:X::X*	6 Telnet ï € … › IPV6 ª -
interface *interface-name*	6 Telnet ï € … › N M

o¬ Þ . F åo- -

o¬ x X % ”o- ¯ * ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- -

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

2.45 username

F å Î ª ï Ã Z Y C U # I Ó ’ Îož

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*]

í ” Î ª ïož

no username *name*

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
name	ï d
login mode	F å Ã Z £ • ” ’ òož
aux	’ ò Ã Z £ • ” auxož
console	’ ò Ã Z £ • ” consoleož
ssh	’ ò Ã Z £ • ” sshož
telnet	’ ò Ã Z £ • ” telnetož
online amount *number*	F å Ã Z c ž ¨ ¿ *ƒ* Oož
permission *oper-mode path*	F å Ã Z + 6 † ^ q • Ó ’ k *op-mode* n P q • % ” k *path* n P • † ^ ê ñ) £ è ¬ož
privilege *privilege-level*	F å Ã Z Ó ’ ´ ð k H › 8 0 ñ 15ož
reject remote-login	’ ò … ¥ Ã Z g i £ož
web-auth	4 Ã Z Q 9 web • šož
pwd-modify	ª • … ¥ Ã Z web • š ï “ w % A k ¥ # ¾ Q Ä ¨ F å 4 **web-auth** $ e õ U ož
nopassword	¥ Ã Z F å % Aož
password [**0**	**7**] *text-string*	F å Ã Z % A k0 n P ÿ µ ¢ † % A k7 n P ÿ µ % † % A k ó • ÿ µ

	¢ † % Aož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- ¥ x X 9 • y Î ª ï ƒ G € k ^ • š … ož

⚠ "´ G¦A + ø 7 • Û & æ ¥ A 3) g ¡ Ý ô d

⚠ ¹ (M G¦A + ø 7 d ¢ N Æ ã • ò % É ´ ¬ ¸ < ¦ A ¶ Ç — ¨ ì ‘ G¦A + ø 7 d

o¬ F å †o- 1 y µ P † F å%² ï d y M X k w Ç ï ´ ð 15 ´ y

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

2 y µ P † F å Ë web • š ï d y M X y

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

3 y µ P † F å ï test À Ä ñ Ä † ^ y) £ ¯ Ê Ó ’ y

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

4 y µ P † F å ï test ” 4 config.text † ^ k ¿ † ^ y) £ À Ä ¯ o • Êo • ü g Ó ’ y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.46 username export

ï ’ Î - ß ñ † ^ož

username export *filename*

o¬ @ ƒ ª ¢o-

[redacted]	fr R₹€‡ $ E•VòuV%•‡ $)rAVï²uVÂ ù ’X p• T àu xG „ @$ï) `4@$ï°) dC $ïV uV AVïV 'U`$ nû u
filename	† ^ d

o₭₣Þ. F åo-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- ¥ x X 9 ï ’ Î - ß ñ † ^ož

o¬ ™Â ðÉ •@}0† ÷@pÑÂ … 6 -o§– 7•@€»ñ••Ó i •@µ x`Eæùà

o¬ ™Â ðÉ •@}0† ÷@pÑÂ … 6 -o§– 7•@€»ñ••Ó i •@µ x`Eæùà

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.48 write

1 © Ï F å grunning-config h ‘ ñ 6 y åož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
memory	1 © Ï F å Ê µ NVRAM k ^ c 9 **copy running-config startup-config**ož
terminal	ª P © Ï F å k ^ c 9 show running-configož

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X] À Ä Á W x X k x 9 ¿ z d … y t Ý • U k ñ Y ‰ À ‘ Û • Ž ï … ož
ò ç ¥ † ^ ñ Ô — Õ ¨ k © Ï 1 ë • 6 † ^ w Ê µ © Ï F å z ò ç ¥ † ^ ñ Ô — Õ ¨ g U
Õ Ñ y o F å † ^ t 6 ¨ ò U & $ • U g ¥ — Õ k ò ¨ ü g **write** [**memory**] x X ž ¥ — Õ
9 Ì t ú h k é © Ï 1 ¤ | © k } 1 ¢ ù F å ‘ 9 ó • o F å † ^ /config.text k w ÿ G ï ›
‹ ü g , • q •ož

o¬ F å †o- 1 y Y P 8 ò ~ ¨ — Õ ‘ © Ï F å y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3 LINE

3.1 access-class

* ACL ¡ gIPv4 h O ò Ä € £ož

access-class { *access-list-number*

o¬ u V ª ¢o- -

3.2 accounting commands

• o line ¿ è x X t “ Ã ož

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

H *f* x X t “ Ã ož

no accounting commands *level*

o¬ @ *f* ª ¢o-

@ *f*	T
level	“ Ã x X ´ ð k 8 0~15 k Ð „ ´ ð x X ü g ž k ¬ } “ £ ’ Îož
default	ó • • š • c ç n dož
list-name	U # • c ç n dož

o¬ Þ . F åo- ¼ { ¿ è “ Ã ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- AAA • š È ` … k ¯ F å AAA x X “ Ã • c e k Ç • ¨ ¬ } g x X “ Ã Ä € ¿ è ož

o¬ F å †o- 1 y • o Vty 1 ¿ è x X t “ Ã k } L “ Ã x X ´ ð 15 ´ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.3 accounting exec

• o line ¿ è ï ˜ | t “ Ã ož

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

H ƒ Exec “ Ã ož

no accounting exec

o¬ @ ƒ ª ¢o-	@ ƒ	T

default

H *f* x X I Ó ož

no authorization commands *level*

o¬ @ *f* ª ¢o-

@ f	T
level	} g I Ó x X ´ ð k 8 0~15 k Ð „ ´ ð x X ¬ } I Ó * e õ ü gož
default	ó • • š • c ç n dož
list-name	U # • c ç n dož

o¬ Þ . F åo- ¼ { x X I Ó ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

default	ó • • š • c ç n dož
list-name	U # • c ç n dož

o¬ Þ . F åo- ¼ { Exec I Ó ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- AAA • š È ` … k ¯ F å AAA Exc I Ó • c e k Ç • ¨ ¬ } g Exec I Ó Ä € ¿ è ož

o¬ F å †o- 1 y + Vty 1 ¿ è g Exec I Óož

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authorization exec default group radius
Ruijie(config)# line vty 1
Ruijie(config-line)# authorization exec default
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.6 clear line

Ž ” ¿ è N Ù Áož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
console	Ž ” O ò V ¿ è N Ù Áož
vty	Ž ” Z Ä € ¿ è N Ù Áož
line-num	Ž ” line ¿ èož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … **clear line** x X Ž ” ¿ è N Ù Á k 1 k ò • •] Æ N Ä €ož w 1 ¿ è Ê Ö ñ Ì) Ù Á k U

Y M • • y Ä € Nož

o¬ F å †o- 1 y Ž ” LINE VTY 13 N Ù Á k ò ç ¥ VTY] Æ Ä ï € g † ò Telneto•SSH ˆ h N k ¢ k é k y ö • • Nož

```
Ruijie# clear line vty 13
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.7 disconnect-character

— å • • Ä € Æ N ½ pož

disconnect-character *ascii-value*

Ê Ö ó • Þ . — åož

no disconnect-character

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
ascii-value	• • Ä € Æ N ½ p ASCII A + • ò › k H › 8 0-255ož

o¬ Þ . F åo- Þ . Õ Ñ k © Ï — å Ä € Æ N • • ½ p **Ctrl+D** k - < © 0x04 + • Á ` pož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Î x X — å © Ä € Æ N • • ½ p k ï U Y ÿ G ¬ } — å • • Ä € Æ N ½ pož Ä € Æ N • • ½ p © o ASCII A(ò a ~ z k A ~ Z Y C 0 ~ 9 ˆ ˆ) k k é 1 - Ä € Æ 3 o * ’ož

o¬ F å †o- 1 y — å ¨ Vty0-5 • • Ä € Æ N ½ p Ctrl+E(¿ ASCII › 0x05)ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.8 escape-character

— å ¿ è ß …ož

escape-character *escape-value*

Ê Ö © Ï Þ . — åož

no escape-character

o¬ @ ƒ ª ¢o-

@ ƒ	T
escape-value	ï # ß … ASCII A + • ò › k H › 8 0-255ož

o¬ Þ . F åo- Þ . Õ Ñ k¿ è] Æ — å ß … w ¿ *escape-value* › 30 k- < © **Ctrl+^**(Á ` p **Ctrl+Shift+6**)ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç — å 4 **escape-character** *escape-value* x X k ï < U Y … *escape-value* + • Á ` p À e ¬ N 5 p µ **x** k < U Y • ¢ ù k ¢ › ñ ë • ¥ k ¢ = ÷ k ¢ >ož

o¬ F å †o- 1 y — å Vty 0 ¿ è ß … 23(+ • Á ` p (**Ctrl+w**))ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.9 exec

ª • line ¿ è µ x X g µož
exec

' ò line ¿ è µ x X g µož
no exec

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . ª • ¿ è µ x X g µož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 3 ª • line ¿ è µ x X g µ k U Y F å no exec ké ï £ ž * ñ F å ¿ è µ x X g µ k ò © * ¿ U Ì ' ò ¿ è µ x X g µož

o¬ F å †o- 1 y ' ò 1 ¿ è µ x X g µož

```
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
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.10 history

• o line ¿ è 7 W x X “ £ k ê ñ F å line ¿ è 7 W x X “ £ Ú) ƒož

history [**size** *size*]

H ƒ line ¿ è 7 W x X “ £ ož

no history

Ê Ö line ¿ è 7 W x X “ £ Ú) ƒ

no history size

o¬ @ ƒ ª ¢o-

@ ƒ	T
size *size*	Ú) ƒ k H › 8 y0~256ož

o¬ Þ . F åo- Þ . Õ Ñ • o 7 W x X “ £ k Â Ý 7 W x X “ £ Ú) ƒ 10

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å 0-5 line ¿ è 7 W “ £ Ú) ƒ 20ož

```
Ruijie(config)# line vty 0 5
Ruijie(config-line)# history size 20
```

2 y ¼ { 0-5 line ¿ è 7 W “ £ ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.11 length

— å 6 ¿ è Ä € % l Â Ý g ƒ ož

first-line	} µ first-line Ú Zož
last-line	} µ last-line Ú Zož

o¬ Þ . F åo-

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

o¬ F å †o- 1 y µ ñ LINE VTY 1 ñ 3 LINE % ”ož

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

o¬ à • co-

o¬ U P ’ Îo-

o¬ o • j ¨o-

o¬ u V ª ¢o-

3.13 line vty

Í ¢ ù U Y … VTY N ƒ)ož

line vty *line-number*

× 5 ¢ ù U Y … VTY N ƒ)ož

no line vty *line-number*

o¬ @ ƒ ª ¢o-

@ ƒ	T
line-number	VTY N ƒ) k 8 y0~35 ož

o¬ Þ . F åo-

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

o¬ F å †o- 1 y 1 U VTY N ƒ) Í ñ 20 k U VTY Ú Z 8 0-19ož

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

2 y 1 U VTY N ƒ) × 5 ñ 10 k U VTY Ú Z 8 0-9ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.14 location

— å 6 ¿ è y å T ož

location *location*

Ê Ö © Ï Þ . — åož

no location

o¬ @ ƒ ª ¢o-

@ ƒ	T
location	¢ ù ¿ è y å T ož

o¬ Þ . F åo- -

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y t M Ê Ö © ÀAà 2FpÑ Â"é Â ðÀƒ‡@Öùà

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.15 monitor

u 4 ¨ Ä € ø • ™ º ª Pož
monitor

H ƒ ¨ Ä € ø • ™ º ª Pož
no monitor

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y u 4 0-5 line ¿ è Ä € ø - ™ ºož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.16 privilege level

F å line ¿ è £ ´ ðož
privilege level *level*

Ê Ö line ¿ è £ ´ ðož
no privilege level

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
level	Ó ' ´ ð k H › 8 0-15ož

o¬ Þ . F åo- Þ . Õ Ñ kprivilege level 1ož

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y 1 0-4 VTY line ¿ è £ Ó ' ´ ð — å 14ož

```
Ruijie(config)# line vty 0 4
Ruijie(config-line)#privilege level 14
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.17 refuse-message

F å line ¿ è ! Í £ U P ' Îož
refuse-message [*c message c*]

H *ƒ* line ¿ è ! Í £ U P ' Îož
no refuse-message

o¬ @ ƒ ª ¢o-

@ ƒ	T
c	! Í £ U P ' Î ã œ ... ₭ Í £ U P ' Î Ä • ª • ß ë • œ ...ož
message	! Í £ U P ' Îož

o¬ Þ . F åo- -

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- ... ¥ x X U Y F å ß £ U P ' Î k ò ç p µ È Ø ã œ ... e Q À ÿ µ ... k é ? ... 1 t © Ï 'ož
¢ ït ! Í £ — Õ ž k v M k U P ¢ ù ¿ è ! Í ï £ U P ' Îož

o¬ F å †o- 1 y F å line ¿ è ß £ U P ' Î ³ c ï ' ò £ i H — Õož

```
Ruijie(config-line)#refuse-message @ ³c ï'ò £iH—Õ @
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.18 show history

ª P ¢ ù line ¿ è 7 W “ £ x Xož

show history

o¬ @ ƒ ª ¢o-

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.19 show line

ò 0 ¿ è F å ’ Îož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
console	ò 0 O ò V ¿ è F å ’ Îož
vty	ò 0 Z Ä € ¿ è F å ’ Îož
line-num	ò 0 line ¿ èož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 console M F å ’ Îož

```
Ruijie
```

```
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
```

< † K y

<	ª ¢
CON	Ä € • º kCON n P O ò Vož0 n P Ä € ¿ è Ú Z k Ú Z ù µ * Z n P ¢ ù 3 ¨ … Ä €ož
Type	Ä € • º k , CONo•VTY ˆož
speed	‘ 5 , äož
Overruns	Ü N v overrun j ¨ ƒ O Ï ‹ ›ož
Line 0	Ä € ¿ è Ú Zož
Location: ""	¿ è location — åož
Type: "vt100"	¿ è Ã Ä € ö Õož
Special Chars	Ä € Ô : … k , Escape …o•Disconnect … y Activation …ož
Timeouts	Ä € Ý ž ž • knever n P K Ý žož
History	7 W x X “ £ • ¼ Y C Â Ý Ú) ƒož
Total input	R Ü N v ƒ G O Ï ‹ ›ož
Total output	G ñ Ü ƒ G O Ï ‹ ›ož
Data overflow	N v œ ß ƒ G O Ï ‹ ›ož
stop rx interrupt	Ü RX • ƒ O Ï ‹ ›ož

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

3.20 show privilege

ª P ¢ ù line ¿ è Ó ’ ´ ðož

show privilege

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- ª P ¢ ù line ¿ è Ó ' ´ ðož

```
Ruijie# show privilege
Current privilege level is 10
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

3.21 show users

ª P ¿ è £ ï ' Îož

show users [**all**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	ª P ñ Ä U £ ¿ è ï ' Î k m ¢ ù] £ ¿ è ï ' Î k Y C Ì £ ¿ è ï ' Îož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P ¢ ù] £ ¿ è ï ' Îož

```
Ruijie# show users
Line            User        Host(s)             Idle      Location
--------------- ----------- ------------------- ---------- ------------------

  1 vty 0       ---         idle                00:00:29   20.1.1.2
* 2 vty 1       ---         idle                00:00:00   20.1.1.2
```

2 y ª P ñ Ä ¿ è ï ' Îož

```
Ruijie(config)# show users all
Line            User        Host(s)             Idle      Location
```

```
*  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   ---
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

3.22 speed

— å 6 ¿ è Ä € f Ô äož

speed *baudrate*

Ê Ö Þ . — åož

no speed

o¬ @ ƒ ª ¢o-

@ ƒ	T
baudrate	f Ô ä › k H › 8 9600-115200ož

o¬ Þ . – oâF ®€•@ 3Ð‰°£€Z Aàož

3.23 terminal escape-character

— å ¢ ù Ä € ß …ož

terminal escape-character *escape-value*

Ê Ö ¢ ù Ä € © Ï Þ . — åož

terminal no escape-character

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T						
escape-value	ï	#	ß	…	ASCII A + •	ò › k H › 8	0-255

o¬ Þ . F åo- Þ . Õ Ñ k % l Â Ý g ƒ 24 gož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y — å ¢ ù Ä € % l Â Ý g ƒ 10 gož

```
Ruijie# terminal length 10
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.26 terminal location

— å ¢ ù Ä € y å T ož

terminal location *location*

Ê Ö ¢ ù Ä € © Ï Þ . — åož

terminal no location

o¬ @ ƒ ª ¢o-

@ ƒ	T
location	¢ ù ¿ è y å T ož

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y — å ¢ ù Ä € y å T Swtich’s Line Vty 0ož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.27 terminal speed

— å ¢ ù Ä € f Ô äož

terminal speed *baudrate*

Ê Ö Þ . — åož

terminal no speed

o¬ @ ƒ ª ¢o-

@ ƒ	T
baudrate	f Ô ä › k H › 8 9600-115200ož

o¬ Þ . F åo- Þ . Õ Ñ k f Ô ä 9600ož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y — å ¢ ù Ä € f Ô ä 115200ož

```
Ruijie# terminal speed 115200
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.28 terminal width

F å ¢ ù Ä € % g Â Ý ç ƒ k /%² g ! †ož
terminal width *screen-width*

Ê Ö ¢ ù Ä € g !ož
terminal no width

o¬ @ ƒ ª ¢o-

@ ƒ	T
screen-width	g ! › k H › 8 0-256ož

o¬ Þ . F åo- Þ . Õ Ñ k % g Â Ý ç ƒ 79 çož

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y — å ¢ ù Ä € % g Â Ý ç ƒ 10 çož

```
Ruijie# terminal width 10
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.29 timeout login

— åline ¿ è £ • š Ý ž ž •ož
timeout login response *seconds*

Ê Ö ó • line ¿ è £ • š ž •ož
no timeout login response

o¬ @ ƒ ª ¢o-

@ ƒ	T
response	Line ¿ è ˆ - ï ÿ µ ` ~ ’ Î ž •ož
seconds	Ý ž ž • k H › 8 1-300 k % y aož

o¬ Þ . F åo- • š ˆ - ï ÿ µ Ý ž ž • k ó • 30 a

o¬ x X % ”o- LINE F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- F å 0-5 line Vty ¿ è £ • š Ý ž • 300 aož

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.30 transport input

6 line ¿ è U Y * ’ # ‘ož

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

Ê Ö line ¿ è U Y * ’ # ‘ož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	ª • ñ Ä # ‘ož
ssh	ª • ssh # ‘ož
telenet	ª • telnet # ‘ož
none	` ~ # ‘ C ª •ož

o¬ Þ . F åo- Þ . Õ Ñ k U Y * ’ # ‘ all k / ssh y telnet # ‘ C U Yož

```
Ruijie(config-line)#vacant-message @   ß i H — Õ @
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.32 width

F å 6 ¿ è Ä € % g Â Ý ç ƒ k /%² g ! †ož

width *screen-width*

Ê Ö 6 ¿ è g !ož

wwith

4 PASSWORD-POLICY

4.1 password policy life-cycle

— å M X ÿ u Êož
password policy life-cycle *days*

í ” M X ÿ u Ê — åož
no password policy life-cycle

o¬ @ ƒ ª ¢o-

@ ƒ	T
days	M X ÿ u Ê k % y y Þ k 8 y1~65535 ož

o¬ Þ . F åo- ’ ò M X ÿ u Êož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- M X ÿ u Ê Û ’ ò ï M X … ž • k ¢ M X Ý ÿ u Ê e k © Ï ¨ %²) ï £ ž k 1 U P ï “ w M Xož

i " t ® _ Ÿ s æ e Ç — ¹ ¶ **enable password** c**enable secret** a — " ä ‡ Ç — ¹ ¶ **username** *name* **password** *password* a — " s Line f ´ • K Ç — â “ Ò d

o¬ F å †o- 1 y µ P † F å M X ÿ u Ê 90 Þ y

```
Ruijie(config)# password policy life-cycle 90
```

o¬ à • co- 1 y … **show password policy** x X k U Y ò 0 © k — å M X ÿ u Ê C ÿ u Ê Ý 4ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.2 password policy min-size

’ ò ï M X Â 4 x †ož

password policy min-size

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¼ { M X y k ï — å M X ž g M X yož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- • o 4 4 e k Ü ¨ • • ï ž + … ` M X † Œ ò M X F å U P s Š y
1o• Ã Z c d M X z
2o• Q m … ê ƒ • % M Xož

" t ® _ Ÿ s æ e Ç — ¹ ¶ **enable password** c**enable secret** a — " ä ‡ Ç — ¹ ¶ **username** *name* **password** *password* a — " s Line f ´ • K Ç — â “ Ò d

o¬ F å †o- 1 y µ P † F å M X ò y

```
Ruijie(config)# password policy strong
```

o¬ à • co- 1 y … **show password policy** x X k U Y ò 0 © k • o M X y ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.5 service password-encryption

— å M X % ¥ož
service password-encryption

í ” M X % ¥ — åož
no service password-encryption

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- + M X g % ¥ož

```
Password min-size:              Enabled (6 characters)
Password life-cycle:            Enabled (90 days)
Password no-repeat-times:       Enabled (max history record: 5)
```

< † K y

<	ª ¢
Password encryption	M X © k % ¥
Password strong-check	© k ø • M X ò
Password secret-dictionary-check	© k ø • % A Á ò
Password min-size	' ò M X Â 4 x †
Password life-cycle	' ò M X ÿ u Ê
Password no-repeat-times	' ò M Ö … Â Ù) … M X

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

5

¨ † ^ © Ï • / ¾ † ^ož

copy *src-url dst-url*

o¬ @ ƒ ª ¢o-

@ ƒ	T
src-url	/ ¾ • › † ^ URLož › † ^ U Y ¨ Î ª ê ñ ¨ iož
dst-url	/ ¾ •) † ^ URLož) † ^ U Y ¨ Î ª ê iož

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- ⚠ ò ‘ ª } 3 Ñ } , ³ URL h ¸ < É } ¨ , ³ 3 Ñ , Ä … G " å ´ " q Đ " g þ *
” d

url U Y ò ” y

@ ƒ	T
running-config	¢ ù 3 ¨ ä F å † ^
startup-config	9 ì ÷ F å † ^
flash:	Î ª flash † ^ © Ï
tftp:	TFTP à Ì Æ ˜ URL k § c ò ñ P y **tftp**:[[//location]/directory]**/filename**

o¬ F å †o- 1 y / ¾ 192.168.64.2 — Õ † ^ netconfig ñ flash M & netconfig k Î ª netconfig] Æ ¨ y

```
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.
```

o¬ à • co- * **copy** y **dir** x X Û / ¾ y ª P † ^ ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- ñ 6 / ¾ › † ^ ©) £ k) £ © — c / ¾ ož

o¬ u V ª ¢o- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

5.4 dir

ª P%² † ^ © Ï † ^ ç nož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
filesystem:	† ^ © Ï url k e µ %² È Z k U † ^ © Ï , y**flash:** , **sata:**, **usb: tmp:**ož
file-url	è ¬ d k ò ç © Y / • ã k é n P Í + è ¬ k k é n P , + è ¬ož

o¬ Þ . F åo- ó • † ^ © Ï © **flash:** k ò ç è ¬ d Z Ä 6 k é n P ¥ † ^ © Ï ÿ è ¬ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P flash M & ÿ) £ † ^ ç n y

```
Ruijie#dir flash:/
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)
```

< † K y

<	ª ¢
1o•2o•3.ožožož	« – Z
-rw-	Ó ’ k%² † ^ U Y Ä µ ` Þ ¾ y d y n ¢ ©%²) £ r y U ¯ w y U Ê x y U ü g
10485760	† ^ Ý 4
rpmdb	† ^ d

files	† ^ ƒ) Ï ‹
directories	) £ ƒ) Ï ‹
total	È Ý 4
free	þ • U q •

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

5.5 erase

s ” Z Ä † ^ © Ï — Õ ê † ^ož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.6 file

ª P%² † ^ ’ Îož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
filesystem:	† ^ © Ï url k e µ %² È Z k U † ^ © Ï , y**flash:** , **sata:**, **usb: tmp:**ož
file-url	k è ¬ † ^ d k ò ç © Y / • ã k é n P Í + è ¬ k k é n P , + è ¬ož

o¬ Þ . F åo- ó • † ^ © Ï © flash:ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P gcc U ü g † ^ ’ Î y

```
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
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

5.7 file prompt

6 U P ´ ðož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
noisy	ñ Ä † ^ q • g G •
quiet	â 5 U P

o¬ Þ . F åo- **noisy**

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y “ w † ^ U P ´ ð noisy % ” y

```
Ruijie#file prompt noisy
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.8 mkdir

ë •%² •) £ož

mkdir [*filesystem*:] *directory*

o¬ @ ƒ ª ¢o-

@ ƒ	T
filesystem:	† ^ © Ï url k e µ %² È Z k U † ^ © Ï , y**flash:** , **sata:**, **usb:**, **tmp:**ož
directory	è ¬ d k ò ç © Y / • ã k é n P Í + è ¬ k k é n P , + è ¬ož

o¬ Þ . F åo- - ó • † ^ © Ï © **flash:** k ò ç è ¬ d Z Ä 6 k é n P ¥ † ^ © Ï ÿ è ¬ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ë •%² d newdir) £ y

```
Ruijie#dir
Directory of flash:/
1   -rw-        336   Jan 03 2012 18:53:42  fsthb/
```

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P flash M & ÿ) £ netconfig † ^ Ä y

```
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> \
```

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P W •) £ R flash: ä E ñ sata: i

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y 1 flash M & ÿ) £ fstab

o¬ Þ . F åo- ó • † ^ © Ï © **flash:**ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å o- 1

o¬ @ ƒ ª ¢o-

@ ƒ	T
usb	B H usb ' Î
flash	B H flash ' Î

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o-

o¬ F å †o- 1 y ò 0 usb ' Î y

```
Ruijie#show disk usb
Disk /dev/sdb: 8159 MB, 8159477760 bytes
252 heads, 62 sectors/track, 1020 cylinders
Units = cylinders of 15624 * 512 = 7999488 bytes
```

2 y ò 0 flash ' Î y

```
Ruijie#show disk flash
Nand flash size: 512MB
Nor flash size: 1MB
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

5.14 show file systems

ª P † ^ © Ï , ¼ ' Îož

show file systems

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o-

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 yªPñÄ]5ú †^©Ï 'Îy

```
Ruijie#show file systems
  Size(KB)       Free(KB)    Type   Flags  Prefixes
        NA             NA       ram     rw  tmp:
        NA             NA   network     rw  tftp:
        NA             NA   network     rw  oob_tftp:
      8192           2416      disk     rw  flash:
 167772160      147772160      disk     rw  sata0:
   1048576         548576      disk     rw  usb0:
```

< † K y

<	ª ¢
Size(KB)	†^©Ï q • Ý 4 k % y KBož
Free(KB)	†^©Ï þ • q • k % y KBož
Type	†^©Ï • º
Flags	†^©Ï Ó ' k Ä ò Ù _ y ro : Q ¯ wo: Q Ê rw: U ¯ Ê
Prefixes	†^©Ï ù Ö

o¬ U P ' Îo- -

o¬ u V ª ¢o-

5.15 show mount

ª P © Ï 5 ú ' Îož

show mount

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o-

o¬ F å †o- 1 y ª P © Ï 5 ú ' Î y

```
Ruijie#show mount
/dev/sda1 on / type ext4 (rw,errors=remount-ro,commit=0)
proc on /proc type proc (rw,noexec,nosuid,nodev)
sysfs on /sys type sysfs (rw,noexec,nosuid,nodev)
fusectl on /sys/fs/fuse/connections type fusectl (rw)
none on /sys/kernel/debug type debugfs (rw)
none on /sys/kernel/security type securityfs (rw)
udev on /dev type devtmpfs (rw,mode=0755)
devpts on /dev/pts type devpts (rw,noexec,nosuid,gid=5,mode=0620)
tmpfs on /run type tmpfs (rw,noexec,nosuid,size=10%,mode=0755)
none on /run/lock type tmpfs (rw,noexec,nosuid,nodev,size=5242880)
none on /run/shm type tmpfs (rw,nosuid,nodev)
/dev/sda3 on /hao-share type ext3 (rw,commit=0)
binfmt_misc on /proc/sys/fs/binfmt_misc type binfmt_misc (rw,noexec,nosuid,nodev)
```

< † K k Y †%² g † y

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	6 IPv4 › ª -
interface	6 › N M

o¬ Þ . F åo- Þ . Õ Ñ k ï € g Î ª › ª -/ › N M Ç k è g # +ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y F å TFTP Client Ç ï € › IP 192.168.23.236 ª -ož

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

2 y F å TFTP Client Ç ï € › IP N M gigabitEthernet 0/0 ª -ož

```
Ruijie(config)# tftp-client source gigabitEthernet 0/0
```

3 yno x X H ƒ + ï € › IP ª - Ç ož

```
Ruijie(config)# no tftp-client source ip 192.168.23.236
```

4 yTFTP Client Ê Ö Þ . F åož

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

o¬ à • co- 1 y … show run x X k U Y ò 0 tftp-client source ip192.168.23.236 F åož
2 y … show run x X k U Y ò 0 tftp-client source gigabitEthernet 0/0 F åož

o¬ U P ’ Îo- 1 y ò ç F å ip ª - ê ñ N M © Î ª ª - k é k U P j ¨ z ò ç © k é F å è k k ß ë ` ~ U Pož
2 y%² F å è k k ß ë ` ~ U Pož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.17 tree

ª P%² ë Ä) £ † ^ ùož

tree [*filesystem*:] [*directory*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
filesystem:	† ^ © Ï url k e µ %² È Z k U † ^ © Ï , y**flash:** , **sata:**, **usb: tmp:**ož
directory	è ¬ d k ò ç © Y / • ã k é n P Í + è ¬ k k é n P , + è ¬ož

o¬ Þ . F åo- - ó • † ^ © Ï © **flash:**ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P flash:/echo µ † ^ ù y

```
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)
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

5.18 verify

‹ ‘o• ª Po• û à † ^ md5 ’ Î

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
/md5	‹ ‘ w ª P † ^ MD5 ›
md5-value	† ^ md5 › k 1 k y ‹ ‘ ß md5 › g A û
filesystem:	† ^ © Ï url k e µ %² È Z k U † ^ © Ï , y**flash:** , **sata:**, **usb: tmp:**ož
file-url	è ¬ d k ò ç © Y / • ã k é n P Í + è ¬ k k é n P , + è ¬ož

o¬ Þ . F åo- ó • † ^ © Ï © **flash:**ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y ‹ ‘ flash:/gcc md5 ’ Î y

```
Ruijie#verify flash:/gcc
8b072de7db7affd8b2ef824e7e4d716c
```

2 y ‹ ‘ flash:/gcc md5 ’ Î w g A û y

```
Ruijie#verify /md5 8b072de7db7affd8b2ef824e7e4d716c flash:/gcc
%SUCCESS verifying flash:/gcc = 8b072de7db7affd8b2ef824e7e4d716c
Ruijie#verify /md5 8b072de7db7affd8b2ef824e7e4d71 flash:/gcc
%Error verifying flash:/gcc
Computed signature = 8b072de7db7affd8b2ef824e7e4d716c
Submitted signature = 8b072de7db7affd8b2ef824e7e4d71
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

6 LICENSING

6.1

o¬ U P ' Îo- 1 y ¢ Õ a ñ Ä I Ó ž k © Ï ¨ U Õ a I Ó

```
Copy failed, there's no permanent license in the system.
```

2 y è Õ a © Ï ñ Ä I Ó

```
Success to copy all permanent license.
```

3 y ò ç — Õ Z Ä 6 Ô Å ê I Ó † ^ k é U P j ¨ož

```
Copy failed, there's no such service or license installed in the system.
```

4 y ò ç 6 I Ó © ž | Å k é U P â Âož

```
Copy failed, the license is temporary.
```

5 y è Õ a 6 I Ó

```
Success to copy license vsd.lic.
```

o¬ o • j ¨o- 1. © Ï ¨ 6 I Ó ê 6 † ^
2. 6 } Õ a I Ó © ž k Õ a

o¬ u V ª ¢o- -

6.2 license grace-period

— å I Ó â | U ù s Š ž •ož
license grace-peroid *license days*

¼ { â | ù Š sož
no license grace-peroid *filename*

Ê Ö Þ . F åož
default license grace-peroid *filename*

o¬ @ ƒ ª ¢o-

@ ƒ	T
filename	I Ó Ô Å d
days	â | ù Š s ' G µož

o¬ Þ . F åo- ¨ 120 Þo• › s I Ó ž • %² ! › k Þ . › ¿ û 4 ›ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 4

o¬ … 6 -o- ¢%² ¾ I Ó Ý ž ž ’ 4 9 D ñ u Ê Š s › ž k ? Þ D ÿ%²) Š s z ¨ I Ó â | ù%² Þ k k ? 4 ž D ÿ%²) Š sož Š s Y ™ º ê SNMP TRAP ¥ ” G ož

® a — â ‘ Ñ ã d

? y Ñ ã ì Ÿ • " ” • A > ¨ · R Ñ ã â ‘ • " d

o¬ F å †o- -

o¬ à • co- -

o¬ U P ’ Îo- 1 y © Ï ¨ 6 I Ó

```
There's no license abc in the system.
```

o¬ o • j ¨o- © Ï ¨ 6 I Ó

o¬ u V ª ¢o- -

6.3 license install

x%² I Óož

license install { **flash: | usb0:** } *filename*

o¬ @ ƒ ª ¢o-

@ ƒ	T
flash:	6 I Ó † ^ ¨ Ä B flash † ^ © Ï y å
usb0:	6 I Ó † ^ ¨ USB † ^ © Ï y å
filename	6 I Ó † ^ d

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 4

o¬ … 6 -o- I Ó † ^ d U “ wož 4 x X ¬ } I Óož

¨ VSU ê Ë k**CM** ’ ò á … **license install** x X ¿ U _ á - C x 4 ¥ I Ó z ³ cm ’ ò á …

license install x X k Q ¨ \ Î ª ü g xož

o¬ F å †o- -

o¬ à • co- … **show license all-license** ò 0 J P ' Î © k Ä + • I Ó d Û G © k 3 G xož

o¬ U P ' Îo- 1 y I Ó † ^ ¨y

```
Install failed: no such file or directory.
```

2 y I Ó † ^ ò `c y

```
Install failed: the install license may be wrong.
```

3 y © Ï Ä] ¨%² A } x I Ó † ^ ¾ • I Ó y

```
Install failed: the system already has a same license which is newer.
```

4 y M Ö x I Ó † ^ y

```
Install failed: the license has been installed before.
```

5 y ¥ I Ó © ž I Ó k © Ï] ¨ , c K ! I Ó

```
Install failed: The system already has a same permanent license.
```

o¬ o • j ¨o- 1. ¨6 I Ó † ^
2. I Ó † ^ `c
3. I Ó † ^ sn A — Õ F
4. Ä x I Ó A © Ï] Ä ¾ ›
5. M Ö x c%² I Ó † ^
6. Ä x ž I Ó k ò © Ï] x Ä K ! I Ó

o¬ u V ª ¢o- -

6.4 license unbind

† " Ç %² I Óož

license unbind *pak*

o¬ @ *ƒ* ª ¢o-

@ ƒ	T
pak	6 I Ó A

o¬ Þ . F åo- -

o¬ x X % "o- Ô Ó % "

o¬ Þ . ´ ðo- 4

o¬ … 6 -o- 4 x X ¬ } I Ó

a — ´ \¾ , v Q Ñ ã 3 Ñ ä s ë • • ^ G ‘ , d } š h , ^ G • ¡ • } ‘ • • h a — , ^ G d

N _ , ^ G V f ¢ ‘ r ò d r ò } š h , ^ G ¨ ‘ d

o¬ F å †o- † ” Ç I Ó A LIC-FCOE00000012268888 I Ó

```
Ruijie#license unbind LIC-FCOE00000012268888
Success to unbind license LIC-FCOE00000012268888.
```

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 4

o¬ … 6 -o- 4 x X ¬ } I Ó k I Ó † ^ d U “ wož

o¬ F å †o- -

o¬ à • co- U … **show license** x X k ò 0 Attribute < I Ó K Å © k K ! Û G + • K Å © k Ä ¾ •ož

o¬ U P ’ Îo- 1 y I Ó † ^ ¨ y

```
Update failed: No such file or directory.
```

2 y I Ó † ^ ò ` c y

```
Update failed: the update license may be wrong.
```

3 y Ä x I Ó † ^ A © Ï ¨ ¾ › y

```
Update failed: the new installed license is older than the system one
```

4 y ¥ I Ó $ ù] t x y

```
Update failed: the license has been installed before.
```

5 y ž I Ó W Á K ! I Ó y

```
Update failed: the period license cannot replace permanent license.
```

6 y Ä x I Ó + • I Ó Ô Å $ ù Ì x ` ~ I Ó k ¬ ¯ x y

```
Update failed: now the system does not have the license.
               Try "license install" instead.
```

o¬ o • j ¨o- 1. I Ó † ^ © Î — Õ
2. Ä û › I Ó Á W û • I Ó
3. ¾ • I Ó < $ ù] Æ x
4. Ä ž I Ó W Á K ! I Ó
5. ¾ • I Ó ž k + • I Ó Ô Å Ì x ` ~ I Ó

o¬ u V ª ¢o- -

6.7 show license

ò 0 — Õ I Ó Õ Ñož

show license { **all-license | dev-license | file** [*license*] }

o¬ @ ƒ ª ¢o-

@ ƒ	T
all-license	ªP — Õ ñÄ] x I Ó † ^ ç n
dev-license	ªP ê Ë _ — Õ I Ó † ^ ç n
file *filename*	ªP%² 6 I Ó d ' Î

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ ... 6 -o- ¥ x X ¬ } I Ó k 9 ª P © Ï I Ó ' Î

o¬ F å †o-

1. ªP©ÏL ñÄ] x I Ó ' Î

```
Ruijie#show  license all-license
Searching license in the system...
1. Service name: LIC-AP-64
    Attribute: Releasable
    [Permanent licenses]     [Licensed serial number]
```

```
   [Temporary license]      [Licensed serial number]
   19880900.lic             LIC-AP-6400000012264900
   (63 days left)

)ev 2:
1. Service name: LIC-FC-BLADE-S
   Attribute: Temporary, Releasable
   Left days: 99
   Licensed serial number: LIC-FC-BLADE-S 00000001884686

2. Service name: LIC-AP
   Attribute: Permanent, Releasable
   [Installed licenses]     [Licensed serial number]
   19880921.lic             LIC-AP00000012265001
   19880922.lic             LIC-AP00000012265002
```

< † K y

<	ª ¢
Service name	I Ó Ô Å d f
Attribute	¥ I Ó %² ? K Å
Left days	I Ó Ê ' þ • Þ ƒ
Installed license	] x I Ó † ^
Licensed serial number	I Ó A

o¬ ... 6 -o-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 4 x X ¬ } I Ó

o¬ F å †o- 1 y ò 0 I Ó ’ Î

```
Ruijie#show license usage
Searching license in the system...
1. Service name: LIC-AP-64
    Attribute: Releasable
    [Permanent licenses]     [Licensed serial number]
    19880966.lic             LIC-AP-6400000012264966
    19880988.lic             LIC-AP-6400000012264988

    [Temporary license]      [Licensed serial number]
    19880900.lic             LIC-AP-6400000012264900
    (63 days left)
```

< † K y

<	ª ¢
Service name	I Ó Ô Å d f
Attribute	¥ I Ó %² ? K Å
Left days	I Ó Ê ’ þ • Þ ƒ

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

7 PKG_MGMT

7.1 clear storage

Ž ” Î ª x ož

clear storage [*url*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
url	x y Î ª *url*) £ ê ¶ è ¬ d

o¬ Þ . F åo- I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ x X U Y 6 Ž ” î x ê î) £ ñ Ä x k ó • Ž ” Î ª ñ Ä x ož

o¬ F å †o-

```
Ruijie#clear storage
Remove the whole storage directory?[y/n]y
Ruijie#clear storage usb0
Remove the file or directory usb0 from the storage?[y/n]y
Ruijie#
```

o¬ à • co- ò 0 6 *url*

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.2 patch active

¬ t m k … m • ÿ |ož

patch active

7.3 patch deactive

… m • â |ož

patch deactive

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- l

o¬ -Pilåo-

¢ ù — Õ ½ m] Æ â |

o¬ u V ª ¢o- -

7.4 patch delete

í ” m ož

patch delete

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 4 x X 9 Ž ” — Õ] ¨ ½ m

o¬ F å †o- 1 m " ” — Õ Ž ”] x ½ m ož

```
Ruijie# patch delete
 Clear the patch patch_bridge success
 Clear the patch success
```

2 m Ñ ë — Õ Ž ”] x ½ m ož

```
Ruijie# patch delete slot M1
[Slot M1]:
Clear the patch patch_bridge success
Clear the patch success
```

o¬ à • co- … **show patch** ò 0 m ’ Îož

o¬ U P ’ Îo- 1 m ü g è U P y

```
Clear the patch success
```

2 m m Ì x k ¬ ¯ x ½ m y

```
Patch not installed
```

o¬ o • j ¨o- ¢ ù — Õ Ì x ½ m

o¬ u V ª ¢o- -

7.5 patch running

… m • K ! ÿ |ož

patch running

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- m x è e õ ü g ¬ t q • k ¬ t e m õ 1 3 t © Ï … k ¥ x X 9 K ! ¬ t ½ m ož

o¬ F å †o- 1 m " ” — Õ ¬ t m ož

```
Ruijie#patch running
The patch on the system now is in running status
```

2 m Ñ ë — Õ ¬ tož

```
Ruijie#patch running slot M1
[Slot M1]:
The patch on the system now is in running status
```

o¬ à • co- … **show patch** ò 0 m ’ Îož

o¬ U P ’ Îo- 1 m ü g è U P y

```
The patch on the system now is in running status
```

2 m ü g â Â U P j ¨ k m Ì x k ¬ ¯ x ½ m y

```
Patch not installed
```

3 m m] Æ â | k — ¬ ü g ¥ x X y

```
The patch is not in active or running status
```

4 m m ï | Ê k ¬ û © Æ y

```
Cannot find the package's scripts file
```

o¬ o • j ¨o- ¢ ù — Õ Ì x ½ m
¢ ù — Õ ½ m] Æ Ô 9 ¬ t Ù Á

o¬ u V ª ¢o- -

7.6 show component

ª P ¢ ù — Õ] x ñ Ä Á ^ C _ Á ^ ' Îož
show component [*component _name*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
component _name	Á ^ d fož ¢ ¨ 4 @ ƒ › ž k 9 ª P — Õ ñ Ä] x Á ^ C _ Á ^ Â Î ' Îož ¢ ¨ 4 @ ƒ › ž k 9 ª P + • Á ^ ¦ Â ' Î k û à Á ^ Ä © k … k y ¥ Á ^ k 3 o W •ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ x X m _ ¥ ” k k *component_name* @ ƒ y k ¥ @ ƒ ož ï ¨ ´ k 3 ú Á ^ ù ª ª ¬ } 4 † ¢ ù — Õ ñ Ä] x Á ^ C Á ^ Í Î ' Î k 4 ž • … k @ ƒ **show component** x Xož ¢ ï ¬ } ¦ Â 4 † Á ^ ž } … k @ ƒ **show component** x X k U B H + • Á ^ ¦ Â ' Îož * ? ' Î ï U Y • Ž 4 † Á ^ W • Ù Á k î • Á ^ Ä © k t K D ° k ¨ L ” { ž k G ' Á ^ ¶ k U ´ g • µ Ä M } Þ #ož

v Ô ¦ Ñ ° ¶ Q / V ' † o " 3 Ñ 0 • ã ¾ þ (Æ ã â ë • É E * ì **show component** a — Ÿ ñ n ¦ Ñ 3 Ñ } ° ¶ Q / Ÿ “ t - M ¥ Õ Ó ¾ î ë • É E * ¡) ¢ ä ' û ñ n d

o¬ F å †o- 1 m " ” — Õ ª P ¢ ù] x ñ Ä Á ^ C _ Á ^ ' Îož

```
Ruijie# show component
Package  :sysmonit
    Version:1.0.1.23cd34aa      Build time: Wed Dec  7 00:58:56 2013
    Size:12877    Install time :Wed  Mar 5 14:23:12 2012
    Description: this is a system monit package
    Required packages: None
------------------------------------------------------------------
```

```
    Package files:
        /lib64
        /lib64/libbridge.so
        /sbin
        /sbin/bridge


    Package file validate: [OK]
    Required relationship verify: [OK]
```

”4 Á ^ Â Î ’ Î Ù , y

<	ª ¢
Package file validate	û à Á ^ m † ^ ... Åož ò ç ñ Ä Á ^ † ^ C 3 o é ª P È ç [OK] z ò ç B ã † ^ â ê † ^ t “ w k é ª P È ç[ERR] k w ¢ G 6 ß „ † ^ â ê t “ wož
Required package	ç ¥ Á ^ ñ Ä ‰ Ó Á ^ k 3 ‰ Ó Á ^] Æ x é ö h [OK] z 3 ‰ Ó Á ^ Ì x é ö h [ERR] w ¦ Â ª ¢ „ ‰ Ó Á ^ Z Ä x C ‰ Ó Á ^ Í Î ’ Î
Package files	ç ß Ä m ñ Ä † ^

o¬ U P ’ Îo- ü g è ª P — Õ Ä _ Á ^ ’ Î y

```
Package   :sysmonit
    Version:1.0.1.23cd34aa      Build time: Wed Dec  7 00:58:56 2013
    Size:12877    Install time :Wed  Mar 5 14:23:12 2012
    Description: this is a system monit package
    Required packages: None
--------------------------------------------------------------------
Package:bridge
    Version:2.0.1.37cd5cda      Build time: Wed Dec  7 00:54:56 2013
    Size:23245    Install time :Wed  Mar 5 14:30:12 2012
    Description: this is a bridge package
    Required packages: None
--------------------------------------------------------------------
```

o¬ u V ª ¢o- -

7.7 show patch

ª P — Õ] x ½ m , ¼ ’ Îož

show patch [*patch _name*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
patch _name	m d fož ¢ ¨4 @ ƒ › ž y x X 9 ª P — Õ ñ Ä] x m C _ m Â Î ' Îož ¢ ¨4 @ ƒ › ž y x X 9 ª P + • m ¦ Â ' Î k m Ä k û à Á ^ Ä © k … ˆož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ x X U Y ò 0] x m k Y C m ' Î

o¬ F å †o- 1 m " ” — Õ ª P ¢ ù] x ñ Ä m ož

```
Ruijie# show patch
patch package patch_install installed in the system, version:pa1
Package : patch_bridge
status yrunning
Version: pa1        Build time: Mon May 13 09:03:07 2013
     Size: 277       Install time: Tue May 21 03:07:17 2013
     Description: a patch for bridge
     Required packages: None
```

… ¥ x X ¥ ” k U Y B H — Õ Ä] x ñ Ä m Â Î ' Îož

<	a
Package	m d f
status	m Ù Á
Version	Á ^ m í Î ' Î
Build time	m ¨ Æ ˜ Ú è ž •
Size	m m Ä Ý 4

```
    Install time: Thu Jan  1 00:56:43 1970
    Description: Experimentation
    Required packages: None
----------------------------------
```

3 m " " — Õ ª P ¢ ù — Õ] x Ô m ' Îož

```
Ruijie# show component bridge
package:bridge
    Version: 2.3.1.1252ea       Build time: Wed Dec  7 00:54:56 2011
    Size:26945    Install time : Wed Mar 19:23:15 2012
    Description:this is a bridge package
    Required packages: None
    Package files:
       /lib64
       /lib64/libbridge.so
       /sbin
       /sbin/bridge

   Package file validate: [OK]
```

" 4 m Â Î ' Î Ù , y

<	ª ¢
Package file validate	û à m m † ^ ... Åož ò ç ñ Ä † ^ C 3 o é ª P È ç[OK] zò ç B ã † ^ â ê † ^ t " w k é ª P È ç[ERR] k w ¢ G 6 ß „ † ^ â ê t " wož
Package files	ç ß m Ä m ñ Ä † ^

o¬ U P ' Îo- ü g e ª P — Õ ¨ m ' Îož

```
Patch package patch_install installed in the system, version:pa1
Package : patch_bridge
 Status yrunning
 Version: pa1       Build time: Mon May 13 09:03:07 2013
    Size: 277       Install time: Tue May 21 03:07:17 2013
    Description: a patch for bridge
    Required packages: None
```

o¬ u V ª ¢o- -

7.8 show upgrade file

ª P y ¨ @H

show upgrade file *url*

o¬ @ ƒ ª ¢o-

@ ƒ	T
url	x † ^ y Î ª *url* è ¬ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o-

o¬ U P ' Îo- ü g ª P x ' Îož

```
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
```

o¬ u V ª ¢o- -

7.9 show upgrade history

ª P ´ 7 W ' Îož

show upgrade history

o¬ @ ƒ ª ¢o-

@ ƒ	T
/	I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o- -

o¬ U P ' Îo-

```
Ruijie#show upgrade history
Last Upgrade Information:
    Time:         2014-08-31 12:15:03
    Method:       LOCAL
Package Name: N18000_RGOS11.0(1)B1_CM_01200616_install.bin
```

```
Package Type: Distribution
```

o¬ u V ª ¢o- -

7.10 upgrade

x k ´ Î ª † ^ © Ï Ä x ož

upgrade *url* [**force**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
url	*url* x y Î ª è ¬ož ¥ x X 9 ´ — Õ Ä y x ož
force	**force** n P ò ´

o¬ Þ . F åo- I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ x X u 4 _ ÿ © Ï Á ^ x k Ñ ë — Õ x k Á ^ x k ½ m ož … ¥ x X ù k ¯ … copy
x X 1 / µ — Õ † ^ © Ï Äož
¢ … ¥ x Xo• 6 8 @ ƒ ž k ´ 1 7 Á _ @jo6°˜ Dñy © ËB† [½ k Äož

ɑµ ¬¤(€ɑ›1ð $@pÚžÂ ðÄ pØ ož

§ ' x¢€ €^§ E Š Š6 °•‘ (• *ƒ(£` a ŠœŠ% a `8 (¢È¥ `WŠ$ E È¥ y x0

§ J x¢€ €§ E Š Š(Š x Pa H¢È¥ p È¥ P‘ è¥ ¢€ a P ŠO• ƒ
ð R 3W S ea ðE S 8 S x¢€ 8 S R S Š(p È¥ P‘ È¥ ¢€ a ‰ x0

```
[Slot M1]:Upgrade processing is 60%

[Slot 1]:Upgrade processing is 60%

[Slot M1]:Upgrade processing is 90%

[Slot M1]:
Upgrade info [OK]
  Kernel version[2.6.32.abb2b41f170c81->2.6.32.abb2b415749f40]
  Rootfs version[1.0.0.d5f0da02->1.0.0.660e0085]
```

.1bcc12e8]

c- ĭ ^ ie ec0%meeeeeeae

3 m — Õ u 4 ¥ x k M • B H x w ü g ´ x X

```
Device don't support
```

4 m — Õ — ¬ ´ y

```
The version in device is newer or the same
```

5 m ´ q • á k ò — Õ • k U & © k ñ y

```
No enough space for decompress
```

6 m ß ë M | Ê k © Ï C ° k û © Æ Ô ò y

```
No enough space,rootfs been destroyed. Please upgrade in uboot
```

7 m © Ï] ¨ m k ¬ ¯ 3 › m

```
Already exist patch, please uninstall before upgrade
```

8 m m 9 ¥ © Ï k ¾ E m y

```
Patch compatibility err
```

9 m ¥ — Õ — c … 4 m ´ k M • B H m y

```
some origin cmpnt has change
```

o¬ o • j ¨o- l

o¬ u V ª ¢o- -

7.11 upgrade auto

	%² p x ´ k + 9 VSU E Ñ © Ï k ¨ Ô Ó % ” * upgrade auto x X ü g ´ k ´ i ï — À t Ä k Q U • • gož + 9 % V — Õ g – F å VSU % ” © % Ñ % ” Ћ k ü g ¥ x X , ¢ 9 ü g **upgrade** x X e … Ñ M o k — c Ÿ ñ • •ož **upgrade auto** *url* [**force**]
o¬ @ *ƒ* ª ¢o-	
	@ ƒ T
	url © Ï ´ ž k ñ … ´ è ¬
	force **force** n P ò ´
o¬ x X % ”o-	Ô Ó % ”
o¬ Þ . ´ ðo-	2

o¬ … 6 -o- ü g ¥ x X + VSU © Ï g ´ož

… ¥ x X ù À 1 • Í Î ÷ ^ ú ñ — Õ g † ò * copy tftp x X hož

¨ c%²) ´ i k ¬ 1 **upgrade auto** x X ¿ ´ x X g ò **upgrade** h c ž … z ò ç ´

i ü g â Â ß k ¬ 7 © Ï U P ü g Í Î Ê Ö iož

´ i k ¬ M Ö ü g ¾ • © Ï x g , copy tftp y U

	5. … **show component** ò 0 Á ^ © k ´ è ož 6. … **show patch** ò 0 ½ m © k x è ož
o¬ U P ' Îo-	1 m ´ è U P y Upgrade info [OK] 2 m x — | ê t C ° M • B H x w ü g ´ x X y Invalid package file 3 m — Õ u 4 ¥ x k M • B H x w ü g ´ x X Device don't support 4 m — Õ — ¬ ´ y The version in device is newer or the same 5 m ´ q • á k ò — Õ • k U & © k ñ y No enough space for decompress 6 m ß ë M | Ê k © Ï C ° k û © Æ Ô ò y No enough space,rootfs been destroyed. Please upgrade in uboot 7 m © Ï] ¨ m k ¬ ¯ 3 › m Already exist patch, please uninstall before upgrade 8 m m 9 ¥ © Ï k ¾ E m y Patch compatibility err 9 m ¥ — Õ — c … 4 m ´ k M • B H m y some origin cmpnt has change
o¬ o • j ¨o-	l
o¬ u V ª ¢o-	-

7.12 upgrade download tftp

ú w x k ´ tftp Æ ˜ x ož

upgrade download tftp:/*path* [**force**]

upgrade download oob_tftp:/*path* [**force**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
path	*path* tftp Æ ˜ x è ¬ k ¥ x X R Æ ˜ ú x k w ´ož
force	n P ò ´

o¬ Þ . F åo- I

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¥ x X u 4 _ ÿ © Ï Á ^ x k Ñ ë — Õ x k Á ^ x k ½ m ož … ¥ x X è x †
^ / ¾ q • w ´ož

o¬ F å †o- 1 m ´ main ož

```
Ruijie# upgrade download tftp://192.168.201.98/eg1000m_main_1.0.0.0f328e91.bin
Accessing tftp://192.168.201.98/eg1000m_main_1.0.0.0f328e91.bin...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!
Transmission finished, file length 21525888 bytes.
 Upgrade processing is 10%
 Upgrade processing is 60%
 Upgrade processing is 90%
 Upgrade info [OK]
        Kernel version[2.6.32.91f9d21->2.6.32.9f8b56f]
        Rootfs version[1.0.0.2ad02537->1.0.0.1bcc12e8]
 Upgrade processing is 100%
 Reload to take effect!
```

o¬ à • co- 7. … **show version detail** ò 0 ÿ © Ï Á ^ © k ´ è ož
8. … **show component** ò 0 Á ^ © k ´ è ož
9. … **show patch** ò 0 ½ m © k x è ož

o¬ U P ’ Îo- 1 m ´ è U P y

```
Upgrade info [OK] z
```

2 m x — | ê t C ° M • B H x w ü g ´ x X y

```
Invalid package file
```

3 m — Õ u 4 ¥ x k M • B H x w ü g ´ x X y

```
Device don't support
```

4 m — Õ — ¬ ´ y

```
The version in device is newer or the same
```

5 m ´ q • á k ò — Õ • k U & © k ñ y

```
No enough space for decompress
```

6 m ß ë M | Ê k © Ï C ° k û © Æ Ô ò y

```
No enough space, rootfs been destroyed. Please upgrade in uboot
```

7 m © Ï] ¨ m k ¬ ¯ 3 › m y

```
Already exist patch, please uninstall before upgrade
```

8 m m 9 ¥ © Ï k ¾ E m y

```
Patch compatibility err
```

9 m ¥ — Õ — c … 4 m ´ k M • B H m y

```
Some origin component has change
```

o¬ o • j ¨o- l

o¬ u V ª ¢o-

7.13 upgrade rollback

… ÿ © Ï › ž ñ ´ ù Í Îož

upgrade rollback

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- l

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 3 ´ ÿ © Ï e — Õ 3 o W • k é U J 4 x X k N ¢) è ´ 4 ÿ © Ï Á ^ k ¥ x X õ ÿ |ož

•• 7 s a — " Ò M ¥ ¹ ¶ U # û ® a — ¬ £ ¢ M ¯ d

o¬ F å †o- 1 m " " — Õ … ÿ © Ï › ž ñ ´ ù Í Îož

```
Ruijie#upgrade rollback
 kernel rollback version[2.6.32.9f8b56f->2.6.32.91f9d21][OK]
 rootfs rollback version[1.0.0.1bcc12e8->1.0.0.2ad02537][OK]
 Rollback success!
 Reload system to take effect!
```

2 m Ñ ë — Õ … ÿ © Ï › ž ñ ´ ù Í Îož

```
Ruijie#upgrade rollback slot M1
 [Slot M1]:
 kernel rollback version[2.6.32.9f8b56f->2.6.32.91f9d21][OK]
 rootfs rollback version[1.0.0.1bcc12e8->1.0.0.2ad02537][OK]
 Rollback success!
 Reload system to take effect!
```

o¬ à • co- M o — Õ e k … **show version detail** ò 0 ÿ © Ï Á ^ © k è › ž

o¬ U P ' Îo- 1 m è U P y

```
 Rollback success!
 Restart to take effect !
```

2 m) w Z Ä ´ ÿ © Ï Á ^ k œ 4 ÿ © Ï Á ^ — c › ž y

```
Not subsys package last upgrade
```

3 m) ´ w Ì è k œ 4 › ž y

```
Last upgrade err or skip
```

4 m Ì ü g ´ x X k ê ñ] Æ ü g › ž q • y

```
Monitor file lost
```

o¬ o • j ¨o- %²) w ³ S + ÿ © Ï Á ^ ´ k ò © Á ^ k ½ m ˆ
] Æ ü g ÿ © Ï › ž q • ož

o¬ u V ª ¢o- -

8

8.1 clear logging

Ž ” Ä Ù Ï ™ º ’ Î

clear logging

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- ¥ x X Q Ž ” Ä Ù Ï ™ º † Ä ož Ž ” ™ º † Ï ‹ ’ Îož

o¬ F å †o- 1 y µ P † Ž ” Ä Ù Ï ™ º † Ä ož

```
Ruijie# clear logging
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

8.2 logging

1 ™ º “ £ ñ 6 Syslog Serverož

logging { *ip-address* } [**udp-port** *port*]

í ” Syslog Server ç n 6 ª - Syslog Serverož

no logging { *ip-address* }

Ê Ö ™ º G Syslog Server ó • € M Z g514 bž

no logging { *ip-address* } **udp-port**

o¬ @ ƒ ª ¢o-

@ ƒ	T

udp-port *port*	6 ™ º Ñ € M Z g ó • € M Z 514 h

o¬ Þ . F åo- ó • g ` ~ Syslog Server G ™ º ' Î

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 6 %² Syslog server Û N v — Õ ™ º ' Îož ï U Y F å Ú 5 Syslog Serverož ™ º ' Î 1 c ž G Ë F å ñ Ä Syslog Serverož

o¬ F å †o- 1 y µ P † 6 %² ª - 202.101.11.1 syslog server y

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

2 y µ P † 6 %² ª - 202.101.11.1 k € M Z 8099 syslog server y

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ™ º Æ ˜ ª -ož

o¬ U P ' Îo- 1 y ò ç — Õ] Æ F å Syslog Server Ý 5 k é U P j ¨ož

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

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.3 logging buffered

— å “ £ ™ º ' Î Ä Ù Ï @ ƒ g ™ º ' Î M Åo• Ù Ï Ý 4 bž

logging buffered [

	â ï / X j ì 0 o Ü ³ ¶ 4K þ 10M Bytes d & ì 0 o Ü ³ ¶ 4K þ 1M Bytes d c P • • Ü ³ ¶ 4K þ 128K Bytes d
level	™ º ' Î M Å k R 0 ñ 7ož U Y … ´ ð d f k - U Y + N … ƒ ož

o¬ Þ . F åo-

/ j Õ o Ö Ì 0 n ˜ • • + ø ' !

â ï ì 0 o o 1M Bytes d

X j ì 0 o o 256K Bytes d

& ì 0 o o 128K Bytes d

c P • • o 4K Bytes d

™ º ' Î M Å ó • 7ož

o¬ x X % "o- ¶ B F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ä Ù Ï q • © ² ê … k ò ç 6 Ý 4 Ä t Ê k é Â • ™ º ' Î 1 t ~ $ož } ò 0 Ä Ù Ï
™ º ' Î k ¬ … Ô Ó ï x X **show logging**ož
Ä Ù Ï ™ º ' Î © ž Å k — Õ M o ê ñ ü g Ô Ó ï x X **clear logging** kÙ Ï ™ º ' Î 1
t Ž "ož ò ç } æ í | Ê k • ¥ 1 ™ º Ê ñ ý J FLASH ê ñ G Ë Syslog Serverož
™ º ' Î ã Y 8 ´ ð y

¼ p	^ ´	T
Emergencies	0	¬ Ä Õ Ñ k © Ï 3 o gož
Alerts	1	¬ } y / J H R ' w 3 | Ê
Critical	2	M } Õ Ñ
Errors	3	j ¨ ' Î
Warnings	4	Š s ' Î
Notifications	5	¯ * • º k ¬ } ¼ h M } ' Îož
Informational	6	ª ¢ Å ' Î
Debugging	7	² ¡ ' Î

› Þ 4 k ´ ð Þ ä k / 0 ´ ð ' Î © Â ä ´ ð ' Îož
¢ 6 — Õ ª • ª P ™ º ' Î ´ ð Y e k ^ 9 ê z 9 ñ — å › ´ ð ™ º ' Î 1 t ª • ª Pož

} , Ä n û) ¨ · » ® ¨ / j Ö Ì ‹ ¹ ¾ Ö / j ¨ ¶ Ÿ â V N _ V " µ ž G
ð o d ã ¢ N ¾ Ù , Ä n û ¨ ·) ¶ b Ó U # • É Â · â N ! d Ù Ð } , Ä 0 s N ¨
/ j Ö Ì d

o¬ F å †o- 1 y µ P † — å Q ª • ´ ð 6 Y C z 9 6 ™ º ' Î " £ ¨ Ý 4 10000 - Ä Ù Ï y

```
Ruijie(config)# logging buffered 10000 6
```

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ™ º Ä Ù Ï @ ƒ ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.4 logging console

— å ª • ¨ O ò V ª P ™ º ’ Î ´ ð

logging console [*level*]

W 2 ¨ O ò V ø - ™ º †ož

no logging console

o¬ @ ƒ ª ¢o-

@ ƒ	T
level	™ º † M Å k 8 R 0 ñ 7ož U Y … ´ ð d f k - U Y + N … ƒ ož ¼ 9 ™ º ’ Î M Å ¦ Â ª ¢ k ¬ @ Á ò o¬ … 6 -œž

o¬ Þ . F åo- 7 gDebugging k ² ¡ ’ Î)

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- — å%² ™ º M Å Y e k ¨ ƒ › ˆ 9 ê z 9 ¥ M Å ´ ð ™ º † 1 t ª P ¨ O ò V ož

* **show logging** x X U Y ò 0 ™ º — å , ¼ @ ƒ y Ï ‹ož

™ º ’ Î ã Y 8 ´ ð y

¼ p	ˆ ´	T
Emergencies	0	¬ Ä Õ Ñ k © Ï 3 o gož
Alerts	1	¬ } y / J H R ‘ w 3 | Ê
Critical	2	M } Õ Ñ
Errors	3	j ¨ ’ Î
Warnings	4	Š s ’ Î
Notifications	5	¯ * • º k ¬ } ¼ h M } ’ Îož
Informational	6	ª ¢ Å ’ Î

Debugging	7	² ¡ ' Î

o¬ F å †o- 1 y µ P † — å ª • ¨ O ò V ª P ™ º ' Î ´ ð 6 y

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

o¬ à • co- 1 y... **show logging** x X kU Y ò 0 — å ª • ¨ O ò V ª P ™ º ' Î ´ ð y] Æ ÿ ß ñ O ò V µ ™ º Ú)ož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.5 logging count

ø • ™ º Ï ‹ ož

logging count

Ž " ™ º Ï ‹ ƒ G w ¼ { ™ º Ï ‹ ož

no logging count

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ™ º Ï ‹ ¼ {ož

o¬ x X % "o- ¶ B F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X ø • ™ º Ï ‹ ož R x X ø • ž • ÷ Ï ‹ož ü g **no logging count** x X ž k Ï ‹ t ¼ { • ` •_ L , p ¨ ¶ ùàoÀ¦p

o- 1

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.6 logging facility

— å ™ º ’ Î — Õ ›

logging facility *facility-type*

Ê Ö — Õ › ó • ›(23) ož

no logging facility

o¬ @ ƒ ª ¢o-

@ ƒ	T
facility-type	Syslog — Õ › k À } — å › ¬ @ ð … 6 -ož

o¬ Þ . F åo- ¨ • o RFC5424 ™ º ” Õ Ñ k — Õ › Þ . 16 g Local0 kLocal use hz

¨ Z Ä • o RFC5424 ™ º ” Õ Ñ k — Õ › Þ . 23 gLocal7 k Local use bž

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ™ º ’ Î — Õ › 9 ã - ™ º ’ Î i ¯ ´ k À } ‹ ‘ ¸ ” y

priority g i ¯ ´ h = Facility g — Õ › h * 8 + serverity g ™ º ˆ ´ bž

‹ ‘ ß Û e ™ º i ¯ ´ k 1 • ™ º † %² B ã G Ë ™ º Æ ˜ k ™ º Æ ˜ U Y 9 ö º c ™ º

Û › k ò o• ¡ + • ™ º › ™ ºož

n © Syslog U — Õ › y

Numerical Code	Facility
0 (kern)	Kernel messages
1 (user)	User-level messages
2 (mail)	Mail system
3 (daemon)	System daemons
4 (auth1)	security/authorization message
5 (syslog)	Messages generated internally by syslogd
6 (lpr)	Line printer system
7 (news)	USENET news
8 (uucp)	Unix-to-Unix copy system
9 (clock1)	Clock daemon

10 (auth2)	security/authorization message
11 (ftp)	FTP daemon
12 (ntp)	NTP daemon
13 (logaudit)	Log audit
14 (logalert)	Log alert
15 (clock2)	Clock daemon
16 (local0)	Local use
17 (local1)	Local use
18 (local2)	Local use
19 (local3)	Local use
20 (local4)	Local use
21 (local5)	Local use
22 (local6)	Local use
23 (local7)	Local use

ó • — Õ › (local7)23 ož

o¬ F å †o- 1 y µ — å Syslog — Õ › kernel y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.7 logging file

1 ™ º ’ Î ‘ ¨ † ^ k ™ º † ^ U Y ‘ ¨ F &o• ý J FLASHo•USB %² _ož

logging file { **flash:***filename* | **usb0:***filename* | **usb1:***filename* } [*max-file-size*] [*level*]

H ƒ ¨ ý J FLASH “ £ ™ º ’ Îož

no logging file

o¬ @ ƒ ª ¢o-

@ ƒ	T
flash	™ º † ^ # + ‘ ¨ ý J FLASH ¢
usb0	™ º † ^ # + ‘ ¨ USB0 ¢ k 4 # ¾ ¬ } — Õ À Ä 1 USB N M ž õ u 4 k w V µ ý J USB — Õ

usb1	™ º † ^ # + ‘ ¨ USB1 ¢ k 4 # ¾ ¬ } — Õ À Ä 2 USB N M ž õ u 4 k w V µ ý J USB — Õ
filename	™ º † ^ dož k † ^ • º k ¡ txt • ºož
max-file-size	™ º † ^ Â Ý ›ož R 128K ñ 6M bytes k Þ . Ý 4 128Kož
level	ª • t “ £ ñ ™ º † ^ ™ º ’ Î ´ ðož U Y … ´ ð d f k - U Y + N … ƒ ož Þ . Ê ñ ý J FLASH ™ º ´ ð 6ož ¼ 9 ™ º ’ Î ´ ð k ¬ @ ðo¬ … 6 -œž

o¬ Þ . F åo- 1 ™ º ’ Î “ £ ñ ý J FLASH ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç Z Ä Syslog Server kê ñ Â 9 _ _ ¶ ð Y e È ¨ à Ì n ÿ ™ º ’ Î kU Y # + 1 ™ º ’ Î + N ‘ ¨ ý J FLASH ož
™ º † ^ e Ö ¡ txt k F å † ^ e Ö d 1 t ! Íož

Ü ð o š Ã þ ô º FLASH ¡ – ó ð s ô º FLASH " ´ ð s ô º FLASH logging file flash Ü „ ‘ N å ÿ â m) û " d

™ º ’ Î ã Y 8 ´ ð y

¼ p	ˆ ´	T
Emergencies	0	¬ Ä Õ Ñ k © Ï 3 o gož
Alerts	1	¬ } y / J H R ‘ w 3 | Ê
Critical	2	M } Õ Ñ
Errors	3	j ¨ ’ Î
Warnings	4	Š s ’ Î
Notifications	5	¯ * • º k ¬ } ¼ h M } ’ Îož
Informational	6	ª ¢ Å ’ Î
Debugging	7	² ¡ ’ Î

o¬ F å †o- 1 y µ P † 1 ™ º ’ Î “ £ ¨ ý J FLASH k † ^ d syslog.txt k † ^ Ý 4 128K k ™ º ’ Î ´ ð 6ož

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ™ º ’ Î ‘ ¨ ý J FLASH , ¼ @ ƒ ož

o¬ U P ’ Îo- 1 y ò ç F å ž ˜ ™ º † ^ d x † Ý 20 … k • ò F å ž † ^ d x † 21 k é U P j ¨ ož

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

o¬ o • j ¨ o- -

o¬ u V ª ¢o-

8.8 logging file numbers

F å © Ï ™ º ' Î Ê µ ý J FLASH † ^ ƒ ož
logging file numbers *numbers*

H ƒ F å ™ º † ^ ƒ k Ê Ö ó • ›ož
no logging file numbers

o¬ @ ƒ ª ¢o-

@ ƒ	T
numbers	™ º † ^ ƒ k 8 y2~32 k % y y

o¬ Þ . F åo- ™ º † ^ ƒ ó • 16 ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X — å ™ º † ^ ƒ ož U Y * **no logging file numbers** x X k 1 ™ º † ^ ƒ Ê Ö ó • ›
16 ož
“ w ™ º † ^ ƒ k © Ï k í ”] Æ D ÿ ™ º † ^ k œ 4 k ò ç 4 - ³ ý J FLASH q • k ï ¬
} ô í ” © Ï] Æ D ÿ ™ º † ^ g í ” $ ù U Y ¯ * tftp 1 ™ º † ^ n ÿ ñ Ù Æ ˜ **b**ž † ò y © Ï •
o ™ º Ê † ^ e k ó • k Ê 16 ™ º † ^ k w • — — Õ] Æ D ÿ 4 16 ™ º † ^ k 4 ž Ý “ w ™ º †
^ ƒ 2 k © Ï D ÿ • ™ º ' Î 1 ¨ « – › 0 y 1 ™ º † ^ g • ² ê ~ $ M Ê kx
© $ ù] Æ D ÿ « – › 2 ñ 16 ™ º † ^ © k ‘ k © Ï k í ” k ï U Y ÿ G ¬ } ô í ” ™ º
† ^ož

o¬ F å †o- 1 y µ P † F å ™ º † ^ ƒ 8 ož

```
Ruijie(config)# logging file numbers 8
```

o¬ à • co- 1 y … **show run** x X k U Y ò 0 — å ™ º † ^ ƒož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.9 logging filter direction

1 ª î • g ™ º ’ Î ¡ Jož

logging filter direction { **all** | **buffer | file** | **server | terminal** }

Ž ” + ª î • g ™ º ’ Î ¡ q •ož

no logging filter direction { **all** | **buffer | file** | **server | terminal** }

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	¡ ª ñ Ä • g ™ º ’ Îg , y Console • go• VTY Ä €o• ™ º Ù Ï o• ™ º † ^o• ™ º Æ ˜ h
buffer	¡ ª ™ º Ù Ï ™ º ’ Î g / show logging x X ª P ß Û ™ º ’ Î h
file	¡ ª ™ º † ^ ™ º ’ Î
server	¡ ª ™ º Æ ˜ ™ º ’ Î
terminal	¡ ª O ò V y VTY Ä € g , Telnet/SSH ˆ h ™ º ’ Î

o¬ Þ . F åo- ¡ ª ñ Ä • g ™ º ’ Î k / all

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ï F å 4 ™ º ¡ e k * o Õ Ñ k k Ý } 1 F ¡ • é e ™ º ’ Î k ¨ ñ Ä • g C ¡ J g , yConsole • go•VTY Ä €o• ™ º Ù Ï o• ™ º † ^o• ™ º Æ ˜ Ik ò î ? Õ Ñ k ï U Q Ý ¡ ª Ô • g ™ º ’ Î k A ò y ¡ J ™ º ’ Î ¬ } ñ Ä € µ k x ¬ } Ê µ ñ ™ º † ^ k ê G Ë ™ º ’ Î ˜ k Q ¬ } F å ¡ ª **terminal** • g ™ º ’ Îož

o¬ F å †o- 1 y µ † ÿ F å ¡ ª **terminal** • g g , yconsole y VTY Ä € ˆ h ™ º ’ Î y

```
Ruijie(config)# logging filter direction terminal
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.10 logging filter rule

F å ™ º ’ Î ¡ • éož

logging filter rule { **exact-match module** *module-name* **mnemonic** *mnemonic-name* **level** *level* | **single-match** [**level** *level* | **mnemonic** *mnemonic-name* | **module** *module-name*] }

í ” ™ º ’ Î ¤ G F ¡ • éož

no logging filter rule exact-match [**module** *module-name* **mnemonic** *mnemonic-name* **level** *level*]

í ” ™ º ’ Î % F ¡ • éož

no logging filter rule single-match [**level** *level* | **mnemonic** *mnemonic-name* | **module** *module-name*]

o¬ @ ƒ ª ¢o-

@ ƒ	T
exact-match	¤ G F k 3 # + ¤ G F k é e µ ¡ # ¾ C ¬ } Ê Êož
single-match	% F k3 # + % F ké e µ ¡ # ¾ Q ¬ } Ê Ê ¿ %² ož
module *module-name*	% ² d k / Ê Ê } ¡ % ² d fož
mnemonic *mnemonic-name*	“ … d f k / Ê Ê } ¡ ™ º ’ Î “ … d fož
level *level*	™ º ’ Î ˆ ´ k / Ê Ê } ¡ ™ º ’ Î ˆ ´ož

o¬ Þ . F åo- — ™ º ’ Î ¡ • é k g ™ º ¡

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1. î ? Õ Ñ k ï U Q Ý ¡ J î %² Ô ™ º ’ Î k é U Y … ¤ G F • é k ¨ F å ž k ¬ } 6 À } % ² do• “ … d fo• ™ º ˆ ´ož

10. î ? Õ Ñ k ï U Ý ¡ J î ? • º ™ º ’ Î k é U Y … % F • é k ¨ F å ž k Q ¬ } 6 % ² do• ™ º ˆ ´ o• “ … d f ¢ %² _ož

ò " ð o ¶ Ò Ÿ • / / æ Q $ Ÿ • ä : ò $ Ÿ • / ½ ¨ " t ¢ , f Ö ` c Y š ø g ð o ‰ • æ Q $ Ÿ ¥ • ‰ : : ò $ d

o¬ F å †o- 1 y F å ™ º ’ Î ¡ • é ¤ G F k % ² d LOGINo• ™ º ˆ ´ 5o• “ … d f LOGOUT y

```
Ruijie(config)# logging filter rule exact-match module LOGIN mnemonic LOGOUT level 5
```

2 y F å ™ º ’ Î ¡ • é % F k % ² d SYS y

```
Ruijie(config)# logging filter rule single-match module SYS
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.12 logging flash flush

1 © Ï Ù Ï ™ º ' Î y / Ê µ ñ FLASH † ^ ož
logging flash flush

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨ © Ï • o ™ º ' Î Ê FLASH † ^ e k — Õ D ÿ ™ º ' Î k ¯ Ù ¨ © Ï ™ º Ù Ï k Q Ä ¢ Ù Ï
ê ž ˜ ñ Ê e k õ k 1 Ù Ï ™ º ' Î Ê µ ñ FLASH † ^ k U Y * ¥ x X — å 1 © Ï Ù Ï
™ º ' Î y / Ê µ ñ FLASH † ^ ož

▲ " **logging flash flush** a — ¨ " ¢ ± ´ ¢ ± " K ‡ Ü É } / j Õ / ð o ß &
þ FLASH 3 Ñ /

o¬ F å †o- 1 y µ P † 1 © Ï Ù Ï ™ º ' Î y / Ê µ ñ FLASH † ^ ož

```
Ruijie(config)# logging flash flush
```

o¬ à • co- 1 y … **dir** x X k U Y ò 0 Ê µ ñ FLASH ¢ ™ º † ^ož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.13 logging flash interval

F å © Ï ™ º ' Î Ê µ ý J FLASH ž • • œ o ž

logging flash interval *seconds*

H ƒ F å ™ º ' Î Ê FLASH ž • • œ k Ê Ö ó • › o ž

no logging flash interval

o¬ @ ƒ ª ¢ o-

@ ƒ	T
interval *seconds*	™ º ' Î Ê µ ñ FLASH † ^ ž • • œ k 8 y1~51840 k % y y a

o¬ Þ . F å o- ™ º ' Î Ê µ FLASH † ^ ž • • œ ó • 3600s k / y1 4 žo ž

o¬ x X % ” o- ¶ B F å % ”

o¬ Þ . ´ ð o- 14

o¬ … 6 - o- * 4 x X — å ™ º ' Î ' ñ FLASH † ^ ž • • œ k R x X F å e • ÷ ‹ žo ž U Y * no logging flash interval x X k 1 ™ º ' Î Ê FLASH † ^ ž • • œ Ê Ö ó • › 3600so ž

▲ t ¥ G , Ä ^ ¶ 4 ® à ß FALSH 3 Ñ ¨ · · O â ' " ^ Ì d

o¬ F å † o- 1 y µ P † F å ™ º ' Î Ê FLASH † ^ ž • • œ 5 ã U g300s **b** ž

```
Ruijie(config)# logging flash interval 300
```

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ž • • œ , ¼ @ ƒ o ž

o¬ U P ' Îo- -

o¬ o • j ¨ o- -

o¬ u V ª ¢ o- -

8.14 logging life-time

F å ý J FLASH

H ƒ F å ™ º ‘ ž •ož

no logging life-time level *level*

o¬ @ ƒ ª ¢o-

@ ƒ	T
level	6 ™ º ’ Î ´ ð k U Y … ´ ð d f k - U Y + N … ƒ ož
days	™ º ’ Î ´ ð + • ™ º † ^ ‘ Þ ƒ ož

o¬ Þ . F åo- Þ . + ™ º † ^ ‘ ž • g ’ ò k ™ º † ^ ‘ ž • I ’ 9 ï F å ™ º † ^ Ý 4ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ð Y ñ ý J FLASH Ý 4 y c ´ ð ™ º ’ Î M } Å i † c k U Y S + c ´ ð ™ º ’ Î 6 c ‘ Þ ƒ ož

⚠ ò —s t n ¨ · I É _ Ÿ • P ‡ n 3 Ñ Ö Ì I É _ Ÿ Ü ž Ò ¯ ð o 3 Ñ Ä ¢ É Â } ô º FLASH syslog/ , Ã • d

o¬ F å †o- 1 y µ P † F å ™ º ’ Î ´ ð 6 ™ º ’ Î k ‘ Þ ƒ 10 Þ y

```
Ruijie(config)# logging life-time level 6 10
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.15 logging monitor

— å ª • ¨ VTY v M gTelnet v Mo•SSH v M ^ h ª P ™ º ’ Î ´ ðož

logging monitor [*level*]

W 2 ¨ VTY v M ø - ™ º †ož

no logging monitor

o¬ @ ƒ ª ¢o-

@ ƒ	T
level	™ º † M Åož U Y … ´ ð d f k - U Y + N … ƒ ož ¼ 9 ™ º ’

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ª • ™ º ’ Î ¨ c — Õ ª Pož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ™ º ’ Î N U Y ª P ¨ Console v Mo•VTY v M k- U Y “ £ ¨ c — Õ yÄ Ù Ï o•ý J FLASHo• Syslog Serverož ¥ x X ™ º È • ¼ k ò ç ¼ { ™ º • ¼ k ñ Ä ™ º ’ Î 1 t ª P ê “ £ k ” 4 M Å ´ ð Ý 9 1 Logož

o¬ F å †o- 1 y µ P † ¨ — Õ ¼ { ™ º • ¼ y

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 © k ª • ™ º ’ Î ¨ — Õ ª Pož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.17 logging rate-limit

ø • ™ º , ä ’ ò k ’ ò ? a Ä ª • ÿ ß ™ º ’ Îož

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

¼ { ™ º , ä ’ ò ož

no logging rate-limit

o¬ @ ƒ ª ¢o-

@ ƒ	T
number	? a U Ä ª • Ô ò ™ º ’ Î k 8 1~10000ož
all	— å + ñ Ä ™ º ’ Î g , ä O ò k , 0~7 ´ ñ Ä ™ º ’ Îož
console	— å ? a U Ä ª • ¨ O ò V ª P ™ º ’ Î ƒož
except	4 9 ^ 9 4 M Å ´ ð ™ º ’ Î k g , ä O ò z ó • ´ ð error(3) k + 4 9 ^ 9 error ´ ð ™ º ’ Î g , ä O òož
severity	™ º ’ Î M Å ´ ð k ´ ð Þ 4 k M Å Þ ä k 8 0~7ož

o¬ Þ . F åo- g , ä O òož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 4 x X O ò © Ï ™ º ’ Î ÿ ßož … 4 x X k U Y … 2 Ý O ™ º ’ Î ÿ ßož

o¬ F å †o- 1 y— å ? a U Ä ª • Ô ò ñ Ä ™ º ’ Îg , debugh 10 Ú kx © + warning

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 6 %² Syslog server Û N v — Õ ™ º ’ Îož ï U Y F å Ú 5 Syslog Serverož ™ º ’ Î 1 c ž G Ë F å ñ Ä Syslog Serverož

o¬ F å †o- 1 y µ P † 6 %² ª - 202.101.11.1 syslog server y

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

2 y µ P † 6 %² ª - 202.101.11.1 k € M Z 8099 syslog server y

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ™ º Æ ˜ ª -ož

o¬ U P ’ Îo- 1 y ò ç — Õ] Æ F å Syslog Server Ý 5 k é U P j ¨ož

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

o¬ o • j ¨o- -

o¬ u V ª ¢o-

8.19 logging source interface

— å ™ º † › N Mož

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

H ƒ 6 † › N M — åož

no logging source [**interface**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type	N M • º
interface-number	N M Ú Z

o¬ Þ . F åo- ó • Z Ä — å ™ º › ª -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ó • Õ Ñ k G Ë Syslog Server ™ º † › IP ª - © † G N M IP ª -ož 4 Ž 9 æ í ' ò k U Y … ¥ x X 1 ñ Ä ™ º † › IP ª - ¡ î N M IP ª - k ý ' ò t < * Š%² ª - œ ð R „ V — Õ G ß Û ™ º † k — 3 — Õ Ì F å ¥ › N M ê › N M Ì F å IP ª - k é ™ º † › IP ª - Q † G N M IP ª -ož

o¬ F å †o- 1 y µ P † 6 Loopback 0 ª - Syslog † › ª - y

```
Ruijie(config)# logging source interface loopback 0
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.20 logging source ip

— å ™ º † › IP ª -ož

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

H ƒ 6 † › IP ª - — åož

no logging source { **ip** }

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	6 g IPV4 ™ º Ñ G ™ º † › IPV4 ª -

o¬ Þ . F åo- ó • Z Ä — å ™ º › ª -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ó • Õ Ñ k G Ë Syslog Server ™ º † › IP ª - © † G N M IP ª -ož 4 Ž 9 æ í ' ò k U Y … ¥ x X 1 ñ Ä ™ º † › IP ª - ¡ î IP ª - k ý ' ò t < * Š%² ª - œ ð R „ V — Õ G ß Û ™ º † k — 3 — Õ Ì F å ¥ IP ª - k é ™ º † › IP ª - Q † G N M IP ª -ož

o¬ F å †o- 1 y µ P † 6 ª - 192.168.1.1 Syslog † › ª - y

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

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.21 logging synchronous

ø • ï ÿ µ ™ º ’ Î ÿ ß c 5 k … 2 ï 3 ¨ ÿ µ … ž t ø •ož

logging synchronous

¼ { ï ÿ µ ™ º ’ Î ÿ ß c 5 ož

no logging synchronous

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ï ÿ µ ™ º ’ Î ÿ ß c 5 ¼ {

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.22 logging trap

— å ª • G Ë Syslog Server ™ º ’ Î ´ ðož
logging trap [*level*]

W 2 1 ™ º † G Ë Syslog Serverož
no logging trap

o¬ @ ƒ ª ¢o-

@ ƒ	T
level	™ º † M Åož U Y … ´ ð d f k - U Y + N … ƒ ož ¼ 9 ™ º ’ Î M Å ¦ Â ª ¢ k ¬ @ ðo¬ … 6 -œž

o¬ Þ . F åo- 6 gInformational k ª ¢ Å ’ Î h

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- } 1 ™ º ’ Î G Ë Syslog Server k Ù ¯ } … ¶ B F å x X **logging** F å Syslog Serverož À e k … **logging trap** 6 G Ë ™ º ’ Î M Å ´ ðož

* **show logging** x X U Y ò 0 ™ º — å , ¼ @ ƒ y Ï ‹ož

™ º ’ Î ã Y 8 ´ ð y

¼ p	ˆ ´	T
Emergencies	0	¬ Ä Õ Ñ k © Ï 3 o gož
Alerts	1	¬ } y / J H R ‘ w 3 | Ê
Critical	2	M } Õ Ñ
Errors	3	j ¨ ’ Î
Warnings	4	Š s ’ Î
Notifications	5	¯ * • º k ¬ } ¼ h M } ’ Îož
Informational	6	ª ¢ Å ’ Î
Debugging	7	² ¡ ’ Î

o¬ F å †o- 1 y µ † ÿ F å 1 ´ ð 6 ™ º ’ Î G Ë ª - 202.101.11.22 Syslog Server y

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 — å ª • G Ë Syslog Server ™ º ' Î ´ ðož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

8.23 logging userinfo

• o " £ ï £/ ß Log ' Îož

logging userinfo

¼ { " £ ï £/ ß Log ' Îož

no logging userinfo

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ï £/ ß — Õ ž ˜ k — Õ © k " £ , ¼ Log ' Îož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- • o " £ ï £/ ß — Õ Log ' Î e k ¢ Ä ï N ñ — Õ ž k < k ø ß , • Log ' Î U I — Õ ' ò t k ™ º ” ò y

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

o¬ F å †o- 1 y • jÐ

o¬ u V ª ¢o- -

8.24 logging userinfo command-log

• o “ £ ï q • Log ’ Îož

logging userinfo command-log

¼ { “ £ ï q • Log ’ Îož

no logging userinfo command-log

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- — Õ k “ £ , ¼ q • Log ’ Îož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

1 ™ º ”² … è \ Ä ™ ºª P ”ož

service private-syslog

H *ƒ* \ Ä ™ ºª P ” k w J ó • ™ º ” g ª Pož

no service private-syslog

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
-	-

o¬ Þ . F åo- ™ º ’ Î J ó • ™ º ” g ª Pož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ó • Õ Ñ k — Õ µ ™ º ’ Î ª P ” ò y

*timestamp: %facility-severity-mnemonic: description

‰) © y* ž • í: % % ² d- M Å ´ ð- “ … ’ Î: ¦ Â ™ º ’ Î

† ÿ ò y

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

3 ø • \ Ä ™ º ” ª P k — Õ µ ™ º ’ Î ª P ” ò y

timestamp facility-severity-mnemonic: description

‰) © y ž • í % ² d- M Å ´ ð- “ … ’ Î: ¦ Â ™ º ’ Î

† ÿ ò y

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

¿ k \ Ä ™ º ” ó • ™ º ” ð ¨ 9 ž • í y ö œ k \ Ä ™ º ” ž • í ù µ 5 4%² * o•

e µ 5 4%² : k ö œ ù µ 5 4%² %

o¬ F å †o- 1 y µ P † F å 1 ™ º ” ² … è \ Ä ™ º ”

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

o¬ à • co- 1 y … **show logging** x X k U Y ò 0 ™ ºª P ” © k ² … \ Ä ”ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ™ º ’ Î J ó • ™ º ” g ª Pož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14 ¶ B F

Ê Ö ™ º ’ Î ž • í ó • ›ož

default service timestamps [**message-type**]

o¬ @ ƒ ª ¢o-

@ ƒ	T
message-type	Ē€T ™ÐT Ŵ‰@ @•ð

Buffer logging	“£ ¨ Ä Ù Ï ™ º ’ Î ´ ð k Y C Ï ‹
Standard format	ö Õ ™ º ”
Timestamp debug messages	Debug ’ Î ž • í ”
Timestamp log messages	Log ’ Î ž • í ”
Sequence-number log messages	~ Z • ¼
Sysname log messages	™ º ’ Î © Ï d
Count log messages	™ º Ï ‹
Trap logging	G Ë Syslog Server ™ º ’ Î ´ ð k Y C Ï ‹
Log Buffer	“£ ¨ Ä Ù Ï ™ º †

2 y µ P † © ¨ • o RFC5424 ™ º ” Õ Ñ k ü g **show logging** %² È ç y

```
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"]
```

< † K y

<	ª ¢
Syslog logging	™ º • ¼ y ø • ª P enabled, ¼ { ª P disabled
Console logging	ø - ¨ O ò V ™ º ' Î ´ ð k Y C Ï ‹
Monitor logging	ø - ¨ VTY v M ™ º ' Î ´ ð k Y C Ï ‹
Buffer logging	" £ ¨ Ä Ù Ï ™ º ' Î ´ ð k Y C Ï ‹
Count log messages	™ º Ï ‹
Statistic log messages	™ º ž È • ¼
Statistic log messages to terminal	™ º ž ÿ ß O ò V y i Ä € • ¼
Delay-send file name	™ º • Ù ¨ — Õ Î ª † ^ do•¢ ù Ê µ † ^ « – Y C • ž • • œ
Trap logging	G Ë Syslog Server ™ º ' Î ´ ð k Y C Ï ‹
Delay-send logging	™ º • Ë Æ ~ ª - y • " k Y C Ï ‹
Log Buffer	" £ ¨ Ä Ù Ï ™ º †

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

8.31 show logging config

ò 0 ™ º F å @ ƒ o• Ï ‹ ' Îož

show logging config

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % "o- Ô Ó ï % "

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † © ¨ Z Ä • o RFC5424 ™ º " Õ Ñ k ü g **show logging config** %² È ç y

```
Ruijie# show logging config
Syslog logging: enabled
  Console logging: level debugging, 15495 messages logged
  Monitor logging: level debugging, 0 messages logged
```

```
  logging to  2000::1

Delay-send logging: 2641 message lines logged

  logging to  192.168.23.89  by tftp
```

< † K y

<	ª ¢
Syslog logging	™ º • ¼ y ø • ª P enabled, ¼ { ª P disabled
Console logging	ø - ¨ O ò V ™ º ' Î ´ ð k Y C Ï ‹
Monitor logging	ø - ¨ VTY v M ™ º ' Î ´ ð k Y C Ï ‹
Buffer logging	" £ ¨ Ä Ù Ï ™ º ' Î ´ ð k Y C Ï ‹
Count log messages	™ º Ï ‹
Statistic log messages	™ º ž È • ¼
Statistic log messages to terminal	™ º ž ÿ ß O ò V y i Ä € • ¼
Delay-send file name	™ º • Ù ¨ — Õ Î ª † ^ do•¢ ù Ê µ † ^ « – Y C • ž • • œ
Trap logging	G Ë Syslog Server ™ º ' Î ´ ð k Y C Ï ‹
Delay-send logging	™ º • Ë Æ ˜ ª - y • " k Y C Ï ‹

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

8.32 show logging count

ò 0 © Ï _ % ² ™ º ' Î D ÿ) ƒ k Y C Â e D ÿ ž • ^ Ï ‹ ' Îož

show logging count

o¬ @ ƒ ª ¢o-

```
Module Name   Message Name Sev Occur      Last Time
==================================================SYS           CONFIG_I         5   1
Jul 6 10:29:57
----------------------------------------SYS       TOTAL      1
```

< † K y

<	ª ¢
Module Name	™ º % ² d
Message Name	™ º “ … d f
Sev	™ º ´ ð
Occur	ø • logging count Y Û Ï ‹ ñ ¥ • ™ º Ú)
Last Time	Â e%²) D ÿ 4 • ™ º ž •

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

8.33 show logging reverse

ò 0 ™ º F å @ ƒo• Ï ‹ ’ Î k Y C Ä Ù Ï ™ º †ož ™ º ’ Î 7 Á ž • í R • ñ › ¿ ~ ª Pož
show logging reverse

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- -

o¬ F å †o- 1 y µ P † © ¨ Z Ä • o RFC5424 ™ º ” Õ Ñ k ü g **show logging reverse** %² È ç y

```
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
Log Buffer (Total 131072 Bytes): have written 1336,
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.
```

< † K y

<	ª ¢
Syslog logging	™ º • ¼ y ø • ª P enabled, ¼ { ª P disabled
Console logging	ø - ¨ O ò V ™ º ' Î ´ ð k Y C Ï ‹
Monitor logging	ø - ¨ VTY v M ™ º ' Î ´ ð k Y C Ï ‹
Buffer logging	" £ ¨ Ä Ù Ï ™ º ' Î ´ ð k Y C Ï ‹
Standard format	ö Õ ™ º "
Timestamp debug messages	Debug ' Î ž • í "
Timestamp log messages	Log ' Î ž • í "
Sequence-number log messages	~ Z • ¼
Sysname log messages	™ º ' Î © Ï d
Count log messages	™ º Ï ‹
Trap logging	G Ë Syslog Server ™ º ' Î ´ ð k Y C Ï ‹
Log Buffer	" £ ¨ Ä Ù Ï ™ º †

2 y µ P † © ¨ • o RFC5424 ™ º " Õ Ñ k ü g **show logging reverse** %² È ç y

```
Ruijie# show logging reverse
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
<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.
```

< † K y

<	ª ¢
Syslog logging	™ º • ¼ y ø • ª P enabled, ¼ { ª P disabled
Console logging	ø - ¨ O ò V ™ º ' Î ´ ð k Y C Ï ‹
Monitor logging	ø - ¨ VTY v M ™ º ' Î ´ ð k Y C Ï ‹
Buffer logging	" £ ¨ Ä Ù Ï ™ º ' Î ´ ð k Y C Ï ‹
Count log messages	™ º Ï ‹
Statistic log messages	™ º ž È • ¼
Statistic log messages to terminal	™ º ž ÿ ß O ò V y i Ä € • ¼
Delay-send file name	™ º • Ù ¨ — Õ Î ª † ^ do•¢ ù Ê µ † ^ « – Y C • ž • • œ
Trap logging	G Ë Syslog Server ™ º ' Î ´ ð k Y C Ï ‹
Delay-send logging	™ º • Ë Æ ˜ ª - y • " k Y C Ï ‹
Log Buffer	" £ ¨ Ä Ù Ï ™ º †

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

o¬ F å †o- 1 y µ P † k — å © Ï ™ º § ^ †ož

```
Ruijie(config)# logging language Chinese
```

o¬ à • co- * **show running-config | in logging** x X U Y ò 0 ï F å ,¼ @ ƒ ' Îož

```
Ruijie#show running-config | begin line
logging language Chinese
 login local
```

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

9

9.1 feedback frequency

F å = ^ G È ä
feedbackfrequencymin

Ê Ö Þ . F å
no feedbackfrequenc6

9.2 feedback ignore item

— å ¿ s Š # ¾ id
feedbackignore item item id

í ” F å
no feedbackignore item item id

o¬ @ ƒ ª ¢o-

@ ƒ	T
ignore item item id	— å ¿ # ¾ idož 8 0 8

o¬ Þ . F åo- r

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o-

▲ " Û » ‡ ° Ó (™ â Ÿ " Ñ d

o¬ F å †o- 1 y — å = ^ G È ä 2 4 žož

```
Ruijie(config)# feedback frequency 120
```

o¬ à • co- 1 y … showrun x X k ò 0 F åož

o¬ U P ’ Îo- F å id
o¬ U P ’ •±j ¨ F å id
o¬ U P ’ U€`ª z!ðr0 — t å“ Â

no feedbacksubscribemail address

o¬ @ ƒ ª ¢o-

@ ƒ	T
subscribemail address	— å N v ’ Î = ^ ª -ož U Ú) F å k Â Ú u 4 6 ož

o¬ Þ . F åo- r

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- ò ç ¬ } G ñ Ú K = ” k é M Ö ü g ¥ x Xož

o¬ F å †o- 1 y — å v ^ Kož

```
Ruijie(config)# feedback subscriber ruijie@sina.com.cn
```

o¬ à • co- 1 y … showrun x X k ò 0 F åož

o¬ U P ’ Îo- r

o¬ o • j ¨o- F å = ” ª - U ož x X ò ” y U Å k ¬ } ï \ òož

o¬ u V ª ¢o- r

9.4 feedback user enable

• o ‘ o s Š ož

feedbackuserenable

¼ { ‘ o s Š

no feedbackuserenable

o¬ @ ƒ ª ¢o-

@ ƒ	T
r	r

o¬ Þ . F åo- ¼ {

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- … ‘ o s Š · À • oož
¬ } c ž F å Y õ 3 o … y
1o• • o = ^ Æ
2o• F å smtp Æ ˜
3o• F å G f Zo• % A
4o• F å v ^ K ª -

o¬ F å †o- 1 y • o ‘ o s Š ož

```
Ruijie(config)# feedback user enable
```

o¬ à • co- 1 y … showrun x X k ò 0 F åož

o¬ U P ’ Îo- r

o¬ o • j ¨o- r

o¬ u V ª ¢o- r

9.5 mail-client check

ò = ^ , ¼ F å ÿ |
mail client check

o¬ @ ƒ ª ¢o-

@ ƒ	T
r	r

o¬ Þ . F åo- r

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- F å smtp Æ ˜ y = ” f Zo• % A e k … ¥ x X ò F å © k è ož
ò ç F å è k é = ” k v ñ%² / y ¡ = ^ož

o¬ F å †o- 1 y ò = ^ F åož

```
Ruijie# mail-client check
Connect to smtp server. OK`
Login to smtp server. OK!
```

```
Send a test mail. OK!
Check OK`
```

o¬ à • co- … { ƒ ˜ £ = ” k ò 0 © k v ñ y ¡ = ^ož

o¬ U P ’ Îo- 1 y à š è ož

```
Connect to smtp server. OK`
Login to smtp server. OK!
Send a test mail. OK!
Check OK`
```

2 y Ì F å SMTPÆ ˜ ê f Zož

```
Check failed`
```

3 ysmtp Æ ˜ F å j ¨ k ê Ì F å dnsož

```
Connect to smtp server. Failed!
```

4 y ï d ê % A j ¨ož

```
Send a test mail. Failed`
```

o¬ o • j ¨o- 1o• smtp Æ ˜ F å j ¨
2o• = ” f Z ê % A j ¨

o¬ u V ª ¢o- r

o¬ Þ . ´ ðo- 15

1 y … © o = ” à { ¬ = ” f Zož) ù Æ à š U Y Ä 163o•126o•139o•sinæ•qqo•tomož ¿
= ” f Z Ä U - k x Ì Æ à šož
2 y = ” u 4 smtp Æ ož = ” C u 4ož
3 y … { ƒ ˜ £ = ” k ò 0 © k • o smtp Æ
4 y £ = ” à { k ò 0 smtp Æ ˜ ª -ož

o¬ F å †o- 1 y F å = ” f Z y % A

o¬ à • co- 1 y … showrun x X ò 0 © k F å è ož

o¬ U P ’ Îo- 1 Â ð 0

o¬ … 6 -o- G = ^ , ¼ k C ¬ } • o = ^ Æ ož

o¬ F å †o- 1 y • o = ^ Æ ož

```
Ruijie(config)# mail-service enable
```

o¬ à • co- 1

o¬ u V ª ¢o- r

9.10 show feedback items

10 HTTP

10.1 enable service web-server

ø • HTTP Æ ož

10.2 http check-version

6 y ò ç ¶ B %² Í Î] Æ © Â • ož

```
%notice: All bussiness modules are the latest versions.
```

o¬ o • j ¨o- 1 o• ü g ¥ x X U P Æ ˜ * ' â Â k U © à Ì * ê ñ Z Ä • o DNS Æ ož

o¬ u V ª ¢o- -

10.3 http update

ô ´ † ^ož

http update { **all** | *string* }

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	´ ñ Ä %²
string	¬ } ´ %² d f k U Y ÿ µ Ú k d f $ • * q ã ož

5 y ò ç — Õ ¬ Ä áož

```
%warning: Out of memory, application memory failure.
```

6 y ò ç Æ ˜ • ‹ † ” +ož

```
%notice: The server response message format is wrong.
```

7 y ò ç %² 3 ¨ ´ ê ñ Z Ä h Æ Í Î Zož

```
%notice: Suspend, some business modules are upgrading or haven't registered release.
```

8 y ò ç ¶ B %² Í Î] Æ © Â • ož

```
%notice: All bussiness modules are the latest versions.
```

o¬ o • j ¨o- 1 o• ü g ¥ x X U P Æ ˜ * ’ â Â k U © à Ì * ê ñ Z Ä • o DNS Æ ož

o¬ u V ª ¢o- -

10.4 http update mode

F å HTTP ´ % ” ô ´ % ”ož

http update mode manual

Ê Ö ´ % ”ož

no http update mode

o¬ @ ƒ ª ¢o-

@ ƒ	T
manual	ô ´ % ”ož

o¬ Þ . F åo- ó • © ´ % ”ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X F å HTTP ´ % ”ož

F å ¥ x X kHTTP © ô ´ % ”ož

ü g ¥ x X **no** ¥ ” kHTTP © ´ % ” k ´ ž • ñ k ó • k y Æ ˜ U ´ † ^ ’ Î k w ú ´ oðž

o¬ F å †o- 1 y 1 HTTP ´ % ” — å ô y % ”ož

```
Ruijie(config)# http update mode manual
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

10.5 http update server

F å HTTP ´ Æ ˜ª - y € M Zož

http update server { *host-name* | *ip-address* } [**port** *port-number*]

í " F å HTTP ´ Æ ˜ k Ê Ö Þ . ›ož

no http update server

o¬ @ ƒ ª ¢o-

@ ƒ	T
host-name	Æ ˜ ¿ dož
ip-address	Æ ˜ ª -ož
port *port-number*	Æ ˜ € M Z k H › 8 1-65535ož Þ . 80ož

o¬ Þ . F åo- ó • Æ ˜ ª - © 0.0.0.0 k € M Z © 80ož

o¬ x X % "o- ¶ B % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * Î x X F å HTTP ´ Æ ˜ ª - y € M Zož

HTTP ´ ž ki ¯ N Î x X F å Æ ˜ ª - kò ç N ké k & : ¡ N Î ª " £ Æ ˜ ª - k

ò ç ñ Ä Æ ˜ C — c N k é — c g ´ož

© Ï Ä B k " £ 1 ê Ú ´ Æ ˜ ª - ' Î k ? ª - ª • " wož

▲ û ` v ¶ â " Ù ‡ – ‰ š Ã 3 Ñ / š Ã t ¶ Ÿ – ‰ û ` v d

o ' — s • • DNS _ Ÿ É " DNS û ` v d

o¬ F å †o- 1 y F å HTTP ´ Æ ˜ ª - 10.83.132.1 k € M Z 90ož

```
Ruijie(config)# http update server 10.83.132.1 port 90
```

o¬ à • co- -

o¬ U P ' Îo- -

F å HTTP y ž •ož

http update time daily *hh*:*mm*

í ” F å HTTP y ž • k Ê Ö Þ . F åož

no http update time

o¬ @ ƒ ª ¢o-

@ ƒ	T
hh:*mm*	À } ´ ž • k ” 4 ž g24 4 ž ò h: ã Uož

o¬ Þ . F åo- ó • y ž • © š Ñ ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * Î x X F å HTTP y ž • k— Õ ¨ ? Þ 6 ž • N ñ Web Æ ˜(rgos.ruijie.com.cn) y © k Ä U ´ † ^ ’ Îož B H ñ † ^ ’ Î U Y * Web µ ò 0ož ü g ¥ x X **no** ¥ ” k — Õ y ž • © š Ñož

o¬ F å †o- 1 y F å HTTP y ž • 23:40ož

```
Ruijie(config)# http update time daily 23:40
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

10.8 ip http port

— å HTTP Æ € Mož

ip http port *port-number*

Ê Ö Þ . € Mož

no ip http port

o¬ @ ƒ ª ¢o-

@ ƒ	T
port-number	— å HTTP Æ € M k H › 8 80 C 1025-65535ož

o¬ Þ . F åo- ó • € M Z 80ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X — å HTTP Æ € Mož

o¬ F å †o- 1 y — å HTTP Æ € M © 8080ož

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

o¬ à • co- … **show web-service** x X k ò 0 Web Æ ˜ Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

10.10

oÏÞuV0-

11 WEB-UPGRADE

x X	•
web-upgrade	WEB ´ož
show web-upgrade	ª P ¢ ù WEB ’ Îož

11.1 web-upgrade

o¬ à š • co- * show web-upgrade ò 0 ¢ ù web ’ Î k G • ´ è

o¬ U P ’ Îo-

o¬ o • j ¨o- WEB † ^ è ¬ ê † ^ d 3 G

o¬ u V ª ¢o- -

11.2 show web-upgrade

ª P ¢ ù WEB Í Î ’ Îož

show web-upgrade

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ” k F å % ” k N M % ”

o¬ Þ . ´ ðo- -

o¬ … 6 -o- -

o¬ F å †o- 1 y ª P ¢ ù WEB Í Î ’ Î

```
Ruijie# show web-upgrade
Version      : 2018.6.8.10
Md5          : a310c329b917fdc992864f8287d83681
Size         : 9012807
Build        : 2018-06-08 10:37:41
Compatible   : EG*
Incompatible : EG2100-P|EG680-P
```

… ¥ x X U Y B H Ä ’ Îož

<	ª ¢
Version	Í Î ’ Î
Md5	MD5
Size	Ý 4
Build	Ú ÿ è ž •
Compatible	u 4 D } º Z
Incompatible	u 4 D } º Z

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

w W ? ¿ / L 4 · B

Ú ` Ÿ4¡ y ·JÒCÃ ,Ì G Y • È Ù À ¹ ß0´8V Ö

1. y ·
2. õ ã1u)Ú
3. PCAP
4. Aggregate Port

1 / L

1.1 bandwidth

¨ N M F å % ” — å N M k ! @ ƒ ož
bandwidth kilobits

Ê Ö k ! @ ƒ Þ . ›ož
no bandwidth

o¬ @ ƒ ª ¢o-

@ ƒ	T
kilobits	? a U k ! k Y ? a K A Ô % y

o¬ Þ . F åo- ¢ ¥ N M Z Ä — å bandwidth x X @ ƒ ž k ¨ Ô Ó ï % ” show interface x X Û ª P ¿ Þ . ›ož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- bandwidth x X Ž § € î N M k ! k Q © • ï s • © Ï ¥ N M k ! 6 ö k ó • Õ Ñ k Y ß à
N M k ! © ÿ G Ž € M Link , ä Đ k ò ç Ä ¬ } U Y \ 6 k Bandwidth Q © è @ ƒ k k
§ € Ò ò e è N M 1 3 k !ož

o¬ F å †o- y Y † ÿ P 8 F å N M k ! @ ƒ 64Kbps y
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 E D Q G Z L G W K

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.2 carrier-delay

¨ N M F å % ” … x X carrier-delay ¨ N M — å ú f ž •ož

carrier-delay {[milliseconds] num | up [milliseconds] num down [milliseconds] num}
Ê Ö Þ . ›ož
no carrier-delay

o¬ @ ƒ ª ¢o-	@ ƒ	T

1.3 clear counters

Ž ” N M ‹ ƒ ˜ož

clear counters [interface-type interface-number]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type interface-number	N M • º y N M Zož

o¬ x X % ”o- Ô Ó % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- N M Ï ‹ › U Y * Ô Ó % ” x X show interfaces ò 0 k¨ Ô Ó % ” … clear counters x X kU Y 1 N M Ï ‹ › Ž ©ož ò ç 6 N M k é 1 ñ Ä N M ‹ ƒ ˜ Ž ©ož

o¬ F å †o- 1 y Ž ” N M GigabitEthernet 1/1 ‹ ƒ ˜ož

5 X L M L H F O H D U F R X Q W H U V * L J D E L W (W K H U Q H W

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

1.4 clear interface

N M F ^ Ö yož

clear interface interface-type interface-number

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type interface-number	N M • º y N M Zož

o¬ x X % ”o- Ô Ó % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X Q + A E € M k 8 C ü ` € M è t € M k è € M y C ü ` € M è t € M Ä |ož ü g ¥ x X , ¢ 9 + N M Ç ü g shutdown y no shutdown x Xož

o¬ F å †o- 1 y + N M GigabitEthernet 1/1 g F ^ Ö yož

5 X L M L H F O H D U L Q W H U I D F H * L J D E L W (W K H U Q H W

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

1.5 description

— å N M ð dož
description string

Ê Ö è Þ . ›ož
no description

o¬ @ ƒ ª ¢o-

@ ƒ	T
string	N M ð dož

o¬ Þ . F åo- Þ . Z Ä ð dož

o¬ x X % ”o- N M F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … show interfaces x X ò 0 N M ’ Î k , ð dož

o¬ F å †o- 1 y Ë N M GigabitEthernet 1/1 F å ð d GBIC-1ož

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 G H V F U L S W L R Q * % , &

o¬ à • co- 1 y … show interfaces x X k U Y ò 0 N M ð dož
2 y … show interfaces description x X k U Y ò 0 N M ð dož

o¬ U P ’ Îo- 1 y ò ç ð d x † Ý 80 k é U P j ¨ož

7 K H O H Q J W K R I G H V F U L S W L R Q L V X S W R

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.6 duplex

— å N M E W % ”ož
duplex { auto | full | half }

Ê Ö è Þ . ›ož
no duplex

o¬ @ ƒ ª ¢o-

@ ƒ	T
auto	n P ¶ E W y ! E W •ož

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type	N M • º
interface-number	N M Ú Z

o¬ Þ . F åo- -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X µ N M F å % ” k %² 5 < U Y “ w N M F åož

o¬ F å †o- 1 y µ Aggregateport 1 F å % ”ož

```
5 X L M L H F R Q I L J L Q W H U I D F H $ J J U H J D W H S R U W
5 X L M L H F R Q I L J L I $ J J U H J D W H S R U W
```

2 y µ GigabitEthernet 1/2 F å % ”ož

```
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
```

3 y µ VLAN 1 F å % ”ož

```
5 X L M L H F R Q I L J L Q W H U I D F H Y O D Q
5 X L M L H F R Q I L J L I 9 / $ 1
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.8 interface range

¨ ¶ B F å % ” … interface x X µ N M F å % ”ož

Interface range { port-range | macro macro_name }

Y x X d … define interface-range Û #ož

define interface-range macro_name

o¬ @ ƒ ª ¢o-

@ ƒ	T
port-range	O q • N M • º y N M Ú Z 8 k U Y © Y ß à Ò ò N Mo• Loopback M ˆ k ÿ µ ¥ ” interface-type slot-number/interface-numberož
macro macro_name	# + ÿ µ # Û n P N M 8 kmacro_name d ož

o¬ Þ . F åo- Þ . Õ Ñ k … ¥

o¬ x X % ”o- ¶ B F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … # ž ˜ k ¬ } ¨ ¶ B F å % ” k ¯ 1%² 8 N M • º * define interface-range x X g # è macro_name k À e Ç * interface range macro macro_name g N M O F å ’ òož

seconds	% y a k H › 8 5 ñ 600

o¬ Þ . F åo- 10 aož

o¬ x X % ”o-

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ï g Ð © k • o ø - N M , ¼ ’ Îož ó • Õ Ñ • o k ¢ N M Ù Á G ÿ w Jo• N M v ñ j ¨ l ê N M G ÿ -TÙ ž k ø - U P ’ Îož F å no logging [link-updown | error-frame | link-dither] e k é k ø - U P ’ Îož

o¬ F å †o- 1 y F å ø - N M Ù Á w J ’ Îož

```
5XLMLH FRQILJ ORJJLQJ OLQN XSGRZQ
5XLMLH FRQILJ ORJJLQJ HUURU IUDPH
5XLMLH FRQILJ ORJJLQJ OLQN GLWKHU
```

o¬ à • co- -

o¬ U P ’ Îo- - N M Ù Á G ÿ w J ž U P ’ Î y

%LINK-3-UPDOWN: Interface GigabitEthernet 0/0, changed state to up.

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet 0/0, changed state to up.

N M v ñ j ¨ l ž U P ’ Î y

%PORT-3-ERR_FRAME: Received error frames on interface GigabitEthernet 0/0. Please check the physical link.

N M G ÿ -TÙ ž U P ’ Î y

%LINK-4-DITHER: The state of Interface GigabitEthernet 0/1 is astable. Please check the physical link.

%LINK-4-DITHER: The state of interface GigabitEthernet 0/1 is astable and the interface will be shutdown.Please check the physical link

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.11 medium-type

+ N M P Å • ºož

medium-type { auto-select [prefer [fiber | copper]] | fiber | copper }

Ê Ö è Þ . ›ož

no medium-type

o¬ @ ƒ ª ¢o-

@ ƒ	T
auto-select	# + P Å • º
prefer [fiber | copper]	# + ž ˜ i ¯ # + î _ P Å • º
fiber	ò # + ° M
copper	ò # + M

o¬ Þ . F åo- Þ . © Mož

o¬ x X % ”o- N M F å % ” g Ò ò € M h

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç c%² € M U Y # + ° M y M _ P Å • º k ï Q … ¿ $%²ož%² š G P Å • º $ e k ¨ F å €
M K Å k † ò Ù Áo• E Wo• v O O ò y , ä ˆ k C © 6 € M ¢ ù # + • º K Åož w J € M • º e k • • º
+ • € M K Å ¿ ó • K Å k ï U Y ÿ G ¬ } M • F åož
ò ç ï F å € M P Å # + k ¨ € M Q Ä%² _ P Å N ž k — Õ … ¢ ù N P Å z ¨ € M _ P
Å C N ž k — Õ 1 … ï F å i ¯ P Åož P Å # + i ¯ P Å ó • M k ï U Y * F å
medium-type auto-select prefer fiber Û — å i ¯ P Å ° Mož ¨ # + % ” k € M , äo• E Wo• v O ˆ
K Å 1 … ó • ›ož

o¬ F å †o- 1 y € M GigabitEthernet 1/1 © ° M k P Å • º — å è Mož

```
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW PHGLXP W\SH FRSSHU
```

o¬ à • co- 1 y … show interfaces x X k U Y ò 0 N M P Å • ºož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.12 mtu

— å N M MTU
mtu num

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	64 l?(c D } Â Ý › c k / Ì Ð)

o¬ Þ . F åo- Þ . n•í • Vqq pÂ ’Æ[p k U Ÿ ò 0 (ñû ’(•ò£ˆ@ŽPBnHfúÐ í 1o ¬ u V ª Î o -

o¬ … 6 -o- — å N M ñ u 4 MTU k / e è C ƒ G B ã Â Ý x †ož) ù Q u 4 — å Ò ò € M MTUož

o¬ F å †o- 1 y € M GigabitEthernet 1/1 MTU — å 9000ož

```
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  P W X
```

o¬ à • co- 1 y … show interfaces x X k U Y ò 0 N M MTUož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.13 physical-port dither protect

F å N M -TÙ ‘ ož
physical-port dither protect

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¥ • oož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- € M e è -TÙ ‘ k ï g Đ © k • oož ó • Õ Ñ • o ‘ k / physical-port dither protect g ¢ N M G ÿ -TÙ ž w Ý %² •) ƒ ž k 1 shutdown € M k Ü ñ ‘ € M • z F å no physical-port dither protect x X e k Q ø - U P ’ Î k ¼ { N Mož
ª ¢ y
N M ? 2s ê 10s y%²) -TÙ k ò ç y ñ N M 2s -TÙ 6) k ø - U P ’ Î k Ò ø - 10) U P ’ Î(- < © 20s Ä Ò y ñ N M -TÙ) ké shutdown N Mož + 9 10s y%²) -TÙ k -TÙ) ƒ Ý 10) k é ø - U P ’ Î k ¼ { N M. ož

o¬ F å †o- 1 y • o ‘ N M -TÙ ož

```
5 X L M L H  F R Q I L J  S K \ V L F D O  S R U W  G L W K H U  S U R W H F W
```

o¬ à • co- -

o¬ U P ’ Îo- - N M G -TÙ ž U P ’ Î y

N M ? 2s Ä y ñ 6) -TÙ ê ñ 10s Ä y 10) -TÙ U P ò ’ Î y

%LINK-4-DITHER: The state of Interf

```
  7LPH GXUDWLRQ VLQFH ODVW OLQN VWDWH FKDQJH   GD\V   KRXUV
  /DVWFKDQJH WLPH   'D\   +RXU   0LQXWH   6HFRQG
  3ULRULW\ LV
  0HGLXP W\SH LV &RSSHU
  $GPLQ GXSOH[ PRGH LV $872  RSHU GXSOH[ LV 8QNQRZQ
  $GPLQ VSHHG LV $872  RSHU VSHHG LV 8QNQRZQ
  )ORZ UHFHLYH FRQWURO DGPLQ VWDWXV LV 2)) IORZ VHQG FRQWURO
  )ORZ UHFHLYH FRQWURO RSHU VWDWXV LV 8QNQRZQ IORZ VHQG FRQ
  6WRUP &RQWURO  %URDGFDVW LV 2))  0XOWLFDVW LV 2))  8QLFDVW L
%ULGJH DWWULEXWHV
  3RUW W\SH  DFFHVV
  9ODQ LG                        M $ K F 9 V 1  ,'
4XHXHLQJ VWUDWHJ\ ),)2
  2XWSXW TXHXH      GURSV
  ,QSXW TXHXH       GURSV
5[ORDG LV      7[ORDG LV
  PLQXWHV LQSXW UDWH   ELWV VHF    SDFNHWV VHF
  PLQXWHV RXWSXW UDWH   ELWV VHF    SDFNHWV VHF
    SDFNHWV LQSXW   E\WHV   QR EXIIHU   GURSSHG
  5HFHLYHG   EURDGFDVWV   UXQWV   JLDQWV
    LQSXW HUURUV   &5&   IUDPH   RYHUUXQ   DERUW
    SDFNHWV RXWSXW   E\WHV   XQGHUUXQV   GURSSHG
    RXWSXW HUURUV   FROOLVLRQV   LQWHUIDFH UHVHWV
```

2 y ¢ GigabitEthernet 0/1 Hybrid € M ž k ò 0 N M 8 C ' Îož

```
6ZLWFK$ VKRZ LQWHUIDFHV *LJDELW(WKHUQHW
,QGH[ GHF    KH[
*LJDELW(WKHUQHW    LV '2:1   OLQH SURWRFRO LV '2:1
 +DUGZDUH LV %URDGFRP    *LJDELW(WKHUQHW
 ,QWHUIDFH DGGUHVV LV  QR LS DGGUHVV
 078    E\WHV %:       .ELW
 (QFDSVXODWLRQ SURWRFRO LV (WKHUQHW ,,  ORRSEDFN QRW VHW
 .HHSDOLYH LQWHUYDO LV   VHF  VHW
 &DUULHU GHOD\ LV   VHF
 (WKHUQHW DWWULEXWHV
  /DVW OLQN VWDWH FKDQJH WLPH
  7LPH GXUDWLRQ VLQFH ODVW OLQN VWDWH FKDQJH   GD\V   KRXUV
  /DVWFKDQJH WLPH   'D\   +RXU   0LQXWH   6HFRQG
  3ULRULW\ LV
  0HGLXP W\SH LV &RSSHU
  $GPLQ GXSOH[ PRGH LV $872  RSHU GXSOH[ LV 8QNQRZQ
```

$GPLQ VSHHG LV $872 RSHU VSHHG LV 8QNQRZQ

5XLMLH VKRZ LQWHUIDFHV *LJDELW(WKHUQHW OLQN VWDWH FKDQJH
,QWHUIDFH /LQN VWDWH /LQN VWDWH FKDQJH WLPHV /DVW FKI

*L G R Z Q

Interface	N M ' Î
Link state	¢ ù e è Ù Á
Link state change times	e è Ù Á J) ƒ
Last change time	%²) e è Ù Á J ž •

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

1.16 show in terfaces status

ò 0 N M Ù Á ' Îož

show interfaces [interface-type interface-number] status

o¬ @ ƒ ª ¢o-

1.17 show interfaces usage

ò 0 N M k ! ï äož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type interface-number	U # @ ƒ k N M • º y N M Ú Z k # é ª P ñ Ä N Mož
up	U # @ ƒ k ª P N M Ù Á up k ! ï ä
down	U # @ ƒ k ª P N M Ù Á down k ! ï ä

o¬ x X % ”o- ñ Ä CLI ï % ”

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- ò ç 6 N M d f k é ª P ñ Ä N M k ! ï ä ’ Îož L k ! 6 © Ž e è k ! k ò © N M

bandwidth F å ›ož

o¬ F å †o- 1 y ª P N M GigabitEthernet 0/1 € M k ! ï ä ’ Îož

, Q W H U I D F H % D Q G Z L G W K $ Y H U D J H 8 V D J H 2 X W S X W 8

ag8760ed [<09190980054D066B0621>-14.893F090008E40.006A204FE8066T0 1 0bandwitEt921>-[(Output Usag8740ed |

o¬ Þ . F åo- N M ’ ò Ù Á © UPož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- + 9 N M g Y ß à € Mo• ü ` € M y A E Z ' N M ћ¥ x X ¼ { N M k N M ¿ F å Q À ¨ k x © Ü • ož … show interfaces x X ò 0 N M Ù Áož

/ ° ö ‡ 4 ® Ù . ³ no shutdown

o¬ Þ . F åo- Þ . Õ Ñ k ¥ ø •ož

o¬ x X % ”o- N M % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- + 9 N M g Y ß à € Mo• ü ` € M y A E Z ' N M ħ ¥ x X F å © k G ¥ N M LinkTrap k ¢ ø • ž k ò ç N M Link Ù Á J kSNMP 1 G ß LinkTrap k F $ é Gož

o¬ F å †o- 1 y µ † ÿ F å N M G LinkTrapož

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 Q R V Q P S W U D S O L Q N V W D W X V

2 y µ † ÿ F å N M G LinkTrapož

… M o ù ã F N M « –ož h Þ M o ù · À ‘ š F åož

o¬ F å †o- 1 y • o N M « – K ! ož

```
5XLMLH FRQILJ VQPS VHUYHU LI LQGH[ SHUVLVW
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.21 speed

— å N M , äož
speed [10 | 100 | 1000 | auto]

Ê Ö è Þ . ›ož
no speed

o¬ @ ƒ ª ¢o-

@ ƒ	T
10	n P N M , ä 10Mbpsož
100	n P N M , ä 100Mbpsož
1000	n P N M , ä 1000Mbpsož
auto	n P N M , ä • ož

o¬ Þ . F åo- , ä Þ . © • ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç N M © ü ` € M è t k é ¥ N M , ä ü ` € M , ä Ð ož N M ß ü ` € M ž … \ , ä —
åož … show interfaces x X ò 0 — åož N M • º c k ª • — å , ä • º - k Ä ñ c k ò SFP • º
N M < ª • , ä — 10Mož

o¬ F å †o- 1 y € M GigabitEthernet 1/1 , ä — å è 100Mbpsož

```
5XLMLH FRQILJ LQWHUIDFH *LJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW VSHHG
```

o¬ à • co- 1 y … show interfaces x X k U Y ò 0 N M , äož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2 “ a Â

2.1 bridge-map

µ N ¥ 0 n x X % ” Což
bridge-map bridge-num

o¬ @ ƒ ª ¢o-

@ ƒ	T
bridge-map bridge-num	N ¥ 0 n « – Zož ¥ « – Z H › H Ð 9 — Õ à Ì N M ƒ O k F å ¬ }%² Ä à N M y%² Ù à N M Á è%² + k œ 4 — Õ Ä Ù + Ä Ù à N M k < Ä Ù N ¥ 0 nož u 4 ÿ N M F å k œ 4 ÿ N M Ä Ù à + ƒ ‹ ‘ ¨ Äož † ò y — Õ Â Ú Ä + Ä Ù à N M k é N ¥ 0 n « – @ ƒ 8 0~2 ož

o¬ Þ . F åo- —ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * F å Î x X k µ N ¥ 0 n x X % ” Což ¨ N ¥ 0 n x X % ” C k U Y 6 Ä Ù à N M N ¥ 0 ¼ © y W • % ”ož

¡ - 0 þ Ä ‘ f ´ ì Ÿ " Ä ‘ f ´ - 0 a — · Î sys-mode a — d

¢ ø } ¶ a — f ´ â m „ no 5 d

o¬ F å †o- 1 y µ N ¥ 0 n x X % ” Což

```
5 X L M L H  F R Q I L J X U H  W H U P L Q D O
```

```
5XLMLH FRQILJ EULGJH PDS
```

2 y ÿ µ @ ƒ `ckéUP¢ù ¥0 ¨ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
  %ULGJH QRW H[LVW
```

3 yno J%²] ¨ ¥0kéUP ª•ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ QR EULGJH PDS
  5HPRYDO RI EULGJH PDS LV QRW SHUPLWWHG
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4 k · À W • ¨ à % ” ož

2.2 bypass couple

— å N M W • ¨ F ^ bypass % ”ož
bypass couple couple-num

H ƒ N M F ^ bypass % ”ož
no bypass couple couple-num

o¬ @ ƒ ª ¢o-

@ ƒ	T
couple-num	F ^ bypass +

o¬ Þ . F åo- Bypass ¼ {

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1%² + N M — å ¨ F ^ bypass % ”ož

o¬ F å †o- † 1

o¬ à • co- 1 y … show running-config x X k U Y ò 0 ¢ ù byapss F å Õ Ñož

o¬ U P ’ Îo- 1 y ò ç F å % ” ¢ ù % ” , c k é — U Pož

2 y ò ç F å % ” ¢ ù % ” c k é
• o è U P y
& R X S O H E \ S D V V V W D U W H G
¼ { è U P y
& R X S O H E \ S D V V V W R S H G

¿ • Y error: • ã U P j ¨ U Pož

o¬ o • j ¨o- c

o¬ u V ª ¢o-

2.3 lan-ip

F å receive-only % ” Ä à à < IP Q Aož
lan-ip ip_address subnet_mask

H ƒ F å receive-only % ” Ä à à < IP Q Aož
no lan-ip ip_address subnet_mask

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip_address	Ä à à < IP
subnet_mask	ÿ à Q A

o¬ Þ . F åo- —ož

o¬ x X % ”o- N ¥ 0 n x X C F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ï ¨ — å W • ¨ % % ” ž k U ÿ G Ž Ä à à < Õ Ñ F åož

¡ - 0 þ Ä ‘ f ´ ì Ÿ " Ä ‘ f ´ - 0 a — · Î sys-mode a — d

æ ¤ f ´ • ‘ þ ò " • IP m] ´ f ´ • œ ` ì ¶ » þ ò n û d

« • ¶ » " 100 Q m d f Q æ ¤ f ´ • ¶ " - ½ • m d

o¬ F å †o- 1 y F å N ¥ 0 n 0 W • ¨ receive-only % ” z ¢ ù à Ì Ä à à < y192.168.1.0/24 y 10.10.10.0/24ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELV
5XLMLH FRQILJ EULGJH PDS ODQ LS
5XLMLH FRQILJ EULGJH PDS ODQ LS
```

o¬ à • co- 1 y … show bridge-map bridge-num lan-ip x X k U Y ò 0 6 Ä à à < F åož

o¬ U P ’ Îo- 1 y ³ % % ” F å Ä à IP < k U P ª • F åož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELV
5XLMLH FRQILJ EULGJH PDS ODQ LS
LW V QRW UHFHLYHBRQO\ PRGH
```

2 y F å † 101 Ä à < k U P Ä à IP <] ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS ODQ LS
ODQ LS QHW LV IXOO
```

o¬ o • j ¨o- c

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4 k · À W • ¨ à % ” ož

2.4 link-mode

F å ¥ 0 C W • % ”ož

link-mode interface-name1 interface-name2 { forward | sniffer | bypass | receive-only }

H *f*] — å Ä Ù à N M N ¥ 0 ¼ © y ô G W • % ”ož

no link-mode interface-name1 interface-name2 { forward | sniffer | bypass | receive-only }

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name1	N ¥ 0 Ä à à Ì N M k ¥ @ ƒ F å Ù à à Ì N M.
interface-name2	N ¥ 0 Ù à à Ì N M k ¥ @ ƒ F å Ä à à Ì N Mož
forward	¥ N ¥ 0 n + • Ä Ù à N M W • ¨ forward W • % ” k U Y + ô G † g v O œ ð k v O Š • k v O O ò k v O ‹ož
sniffer	¥ N ¥ 0 n + • Ä Ù à N M W • ¨ sniffer W • % ” kU Y + ô G † g v O œ ð k v O ‹ož
bypass	¥ N ¥ 0 n + • Ä Ù à N M W • ¨ ÷ ^ bypass W • % ” k ô G † Q g N M † v G Ï ‹ e < + N ô Gož
receive-only	¥ N % ” n + • Ä Ù à M W • ¨ receive-only W • % ” k U Y + ô G † g v O œ ð ˆ q • k x © Q N v † k ô G †ož

o¬ Þ . F åo- —ož

o¬ x X % ”o- N ¥ 0 n x X C F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- u 4 ÿ N M F å N W • % ”ož
ï • ÿ G Ž ¬ } k ¨ — Õ % ” # + ¢ W • % ”ož

¡ - 0 þ Ä ‘ f ´ ì Ÿ " Ä ‘ f ´ - 0 a — · Î sys-mode a — d

o¬ F å †o- 1 y F å Ä à M GigabitEthernet 0/0 y Ù à M GigabitEthernet 0/1 W • ¨ forward W • % ” ož

```
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
```

o¬ à • co- 1 y … show bridge-map x X k U Y ò 0 ¢ ù F å Õ Ñož

o¬ U P ’ Îo- 1 y F å ¥ 0 W • % ” bypass % ”ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
```

2 y ò ç M Ö F å 4 x X k é • F å ~ $ = Ä F åož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
```

3yòç†%² NM ©ÄàMkêñ†8 NM ©ÙàMkêñ NM%²ýkCkßëUPož4Ô•—
Gi0/0 y Gi0/2 ©ÄàMkGi0/1 ©ÙàMož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
 :DQ LQWHUIDFH LV QRW VXLWDEOH IRU EULGJH PDS LQVLGH LQWHUIDF

5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
 /DQ LQWHUIDFH LV QRW VXLWDEOH IRU EULGJH PDS RXVLGH LQWHUIDF

5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
 ,QVLGH LQWHUIDFH FDQ W EH WKH VDPH DV RXWVLGH LQWHUIDFH
```

4yòç6 NM]¨¿U ¥0n kékßëUPož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
 /DQ LQWHUIDFH KDV FRQILJXUHG RQ RWKHU EULGJH PDS

5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ EULGJH PDS
5XLMLH FRQILJ EULGJH PDS OLQN PRGH *LJDELW(WKHUQHW *LJDELW
 :DQ LQWHUIDFH KDV FRQILJXUHG RQ RWKHU EULGJH PDS
```

o¬o•j¨o- 1 yZÄ#+3G KÅ NMÁè ož
2yFå% %”ekZÄFå¿Äà IP <ož

o¬uVª¢o- ¿Uà¼©çD}Qu4 forwardo•sniffero•÷^ bypasso•% %”š_W•%”k·ÀW•¨à %” ož

2.5 native

— å 8 C M native vlan
native lan num vid vlan-id

1 8 C M native vlan Ê Ö ó • › g4089 h
no native lan num

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	€ M Z k 8 0-4
vlan-id	} — å native vlan

o¬ Þ . F åo- Þ . ? 8 C M native vlan C 4089ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 y F å ¥ x X ù k · À … vlan port x X 1 ¥ € M µ } — å vlan k w · À © untag

o¬ F å †o- “ Œ € M 2 native vlan 200

```
5XLMLH FRQILJ LQW JLJDELW(WKHUQHW
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW HQFDSVXODWLRQ GRW 4
 2FW &RPPDQG LV 2.
 2FW 1RWLFH SOHDVH XVH FRPPDQG YODQ SRUW WR DGG
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW YODQ SRUW
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW H[LW
5XLMLH FRQILJ QDWLYH ODQ YLG
5XLMLH FRQILJ
```

o¬ à • co- 1 y … show running-config x X k U Y ò 0 ¢ ù F å Õ Ñož

```
…
LQWHUIDFH *LJDELW(WKHUQHW
 HQFDSVXODWLRQ GRW 4
 YODQ SRUW
…

QDWLYH ODQ YLG

…
```

o¬ U P ’ Îo- 1 y F å è k — U P

2 y € M © C M k ª • “ w native vlan

(UURU 3RUW LV :$1 SRUW FDQ W VHW QDWLYH YODQ

3 y — å vlan ¨ k Z Ä ¯ ¨ ÿ N M / x vlan

(UURU 9ODQ LV XQSUHVHQW

4 y € M ¨ } — å vlan

(UURU 3RUW LV QRW LQ YODQ

5 y } — å vlan © k tag k native vlan · À © untag

(UURU 9ODQ LV WDJ WKH QDWLYH YODQ PXVW EH XQWDJ

o¬ o • j ¨o- 1 y € M © C M k ª • “ w native vlanož

2 y — å vlan ¨ k Z Ä ¯ ¨ ÿ N M / x vlanož

3 y € M ¨ } — å vlan ož

4 y } — å vlan © k tag k native vlan · À © untag ož

o¬ u V ª ¢o- -

2.6 native-vlan

— å N ¥ 0 n native-vlan id ›ož

native-vlan vlan-id

H ƒ — å N ¥ 0 n native-vlan id ›ož

no native-vlan

Ê Ö Þ . F åož

default native-vlan

o¬ @ ƒ ª ¢o-

@ ƒ	T
native-vlan vlan-id	Vlan id › k @ ƒ ª • 8 1~4094
default	Þ . native-vlan Ú Z 1

o¬ Þ . F åo- Þ . native-vlan Ú Z 1ož

o¬ x X % ”o- N ¥ 0 n x X C F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨ Ž à Ì ê Ë k ò ç v ñ † Z Ä k vlan tag k é ¥ † 1 t œ ð ¢ ù F å vlan id + • vlan ã • + » z ò ç Ä k vlan tag k é œ ð ¥ tag + • vlan ã • + »ož

¡ - 0 þ Ä ‘ f ´ ì Ÿ " Ä ‘ f ´ - 0 a — · Î sys-mode a — d

o¬ F å †o- 1 y F å N ¥ 0 n 1 native-vlan id 100ož

```
5 X L M L H  F R Q I L J  E U L G J H  P D S
5 X L M L H  F R Q I L J  E U L G J H  P D S  Q D W L Y H  Y O D Q
```

o¬ à • co- 1 y … show bridge-map x X k U Y ò 0 ¢ ù native-vlan F åož

o¬ U P ’ Îo- 1 y F å ¥ 0 n native-vlan id 100 k F å è — U P k U Y • F å ~ $ = Ä F åož

```
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  E U L G J H  P D S
5 X L M L H  F R Q I L J  E U L G J H  P D S  Q D W L Y H  Y O D Q
```

2 y ò ç 6 id Ý 4094 k é x X — c F å >ož

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4 k · À W • ¨ à % ” ož

2.7 show bridge-map

ª P N ¥ 0 n , ¼ ’ Îož

show bridge-map bridge-num [lan-ip]

o¬ @ ƒ ª ¢o-

@ ƒ	T
bridge-map bridge-num	N ¥ 0 n « – Zož

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 6 N ¥ 0 n « – Z k Û ª P , ¼ N ¥ 0 n ’ Îož

6 N ¥ 0 n « – k é ª P ñ Ä N ¥ 0 n ’ Îož

k lan-ip @ ƒ k U Y ª P % % ” Ä à IP < F å

```
5XLMLH  VKRZ EULGJH PDS
%5,'*( 0$3  67$7( LV '2:1
 ,QVLGH LQWHUIDFH LV *LJDELW(WKHUQHW     2XWVLGH LQWHUIDFH LV
 :RUNLQJ PRGH LV IRUZDUG
 1DWLYH YODQ LV

%5,'*( 0$3  67$7( LV '2:1
 ,QVLGH LQWHUIDFH LV 18// 2XWVLGH LQWHUIDFH LV 18//
 :RUNLQJ PRGH LV QXOO
 1DWLYH YODQ LV

%5,'*( 0$3  67$7( LV '2:1
 ,QVLGH LQWHUIDFH LV 18// 2XWVLGH LQWHUIDFH LV 18//
 :RUNLQJ PRGH LV QXOO
 1DWLYH YODQ LV
```

<†Ky

<	ª¢
,QVLGH LQWHUIDFH	Áè ÄàNM
2XWVLGH LQWHUIDFH	Áè ÙàNM
:RUNLQJ PRGH	¢ù ¥0 W•%”kÄ forwardosnifferobypasso• receive-only š_ož
Native vlan	¢ ¥0 native-vlan ÚZ

2yò0% %” Äà IP <FåÕÑ

```
5XLMLH  VKRZ EULGJH PDS  ODQ LS
,3 DGG            PDVN DGG
```

<†Ky

<	ª¢
,3 DGG	Äà IP ª-
PDVN DGG	Äà IP <QA

o¬UP’Îo- -

o¬uVª¢o- ñÄà¼©çD}®u4k·ÀW•¨à %” ož

2.8 split

—åNMW•¨ 4 10G %”ož

split slot slot-num

H *ƒ* — å k ä E ñ 1 40G M % ”ož

no split slot slot-num

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
slot-num	40G M $ Z k 8 [0,1]

o¬ Þ . F åo- — F åož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 o•1 40G M 4 10G M $ • ä Eož

2o• x X ¬ ‘ F å k M o ÿ |ož

o¬ F å †o- † 1 y F å 1 † 1 40G M ä E è 4 10G M y

```
Ruijie(config)#split slot 0
```

o¬ à • co- 1 y — Õ M o e k … show running-config x X k U Y ò 0 ¢ ù 40G M F å Õ Ñož

2 y — Õ M o e kshow interface k k ÿ è 4 10G M gslot 0 + • TenGigabitEthernet 0/8 - 0/11 kslot 1 + • TenGigabitEthernet 0/12 – 0/15 h

o¬ U P ’ Îo- F å è U P y

```
3 O H D V H  V D Y H  W K H  F R Q I L J  D Q G  U H O R D G  V \ V W H P  W R  W D N H  H I I H F W
```

¿ • Y error: • ã U P j ¨ U Pož

o¬ o • j ¨o- -

o¬ u V ª ¢o-

2.9 show switch-info

ò 0 — Õ ù 5 € M 8 C K Å Y C Ä Ù à K Åož

show switch-info

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T

-	-

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- ò 0 — Õ ù 5 € M 8 C K Å Y C Ä Ù à K Å y

```
5 X L M L H  V K R Z  V Z L W F K  L Q I R
3 2 5 7      / $ 1
3 2 5 7      3 2 5 7
3 2 5 7      / $ 1
3 2 5 7      3 2 5 7
3 2 5 7      : $ 1

5 X L M L H
```

< † K y

<	ª ¢
PORT g †%² ç h	n P € M Z k µ á ù 5 € M ¿ ~%²%² + •
PORT g † 8 ç h	n P € M © 8 C M
LAN	n P € M © C Mo• Ä à M
WAN	n P € M © C Mo• Ù à M
† ç	n P © k u 4 8 C ô E k0- u 4 k1- u 4

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.10 show sys-mode

ò 0 © Ï % ” k N M Ä Ù à K Å , ¼ ’ Îož

show sys-mode

@ *f*	T
-	-

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨¶ B F å % ” k F å N M Ä Ù à K Å kno x X Ê Ö N M K Å ñ ó • ›ož U u 4 Ò ò N Mož
ü ` M À Õ Ä Ù à K Å k ¿ Ä Ù à K Å µ ¿ N M è t K Å Ð k u 4 ô ä Eož
B ã ÿ N M - À Ä Ä Ù à K Å y Y ß M ÿ N M kdialer M ÿ N Mož ¿ Ä Ù à K Å u 4 ô W F åož
• ÿ N M ë • ž R N M Ð Ä Ù à K Å k N M ¨ “ w Ä Ù à F å e M o ÿ | k À e c 5 Ë ÿ N Mož
Ä Ù à K Å “ w k ¬ } ‘ F å M o ÿ |ož

o¬ F å †o- 1 y F å GigabitEthernet 0/0 Ä à N Mož

ÐAàL@ž tàT

o¬ à • co- 1 y … show sys-mode x X k U Y ò 0 ñ Ä à Ì N M Ä Ù à K Åož

o¬ U P ’ Îo- 1 y F å è ê M Ö F å k — U Pož

2

o¬ Þ . F åo- EG © ço•NBR © ç D } Þ . à ¼ % ”ožACE © ço• MSC D } Þ . à % ”ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X 9 6 © Ï W • ¨ à ¼ % ” © ³ à ¼ % ”ož ¬ } ‘ F å e M o — Õ õ ÿ |ož
© Ï W • ¨ à ¼ % ” ž kÿ G è n Û ô G † kU Y g NAT ô E k4 ž à Ì N M C M kU Y F å IP ª -ož
© Ï W • ¨ ³ à ¼ % ” ž kÿ G N ¥ 0 n Û ô G † k + † g NAT ô E k4 ž à Ì N M 8 C M k N M F å IP ª -ož

o¬ F å †o- 1 y F å © Ï W • % ” ³ à ¼ % ” g à % ” hož

```
5XLMLH FRQILJ QR V\V PRGH JDWHZD\
```

o¬ à • co- 1 y … show sys-mode x X k U Y ò 0 ¢ ù © Ï % ” Ù Áož

o¬ U P ’ Îo- 1 y “ w © Ï W • % ” k U P M o e ÿ |ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ QR V\V PRGH JDWHZD\
6\VWHP PRGH KDV FKDQJHG <RX PXVW VDYH FRQILJ DQG UHORDG WKH
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.13 vlan port

o¬ Þ . F åo- Þ . ? € M Q ¨ ó • vlan 4089 ož

o¬ x X % ”o- ÿ N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 y F å ¥ x X ù k · À ¯ ¨ ÿ N M / x 802.1Q vlan
2 y ¥ x X Q + 8 C M ÿ |ož ò ç € M 8 Ä Ä C M k é x X Q + 8 Ä 8 C M ÿ |ož
3 y x X @ ƒ ymax >= min ož

o¬ F å †o- 1 € M 1-2 µ vlan 100 k w k tag

```
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW HQFDSVXODWLRQ GR
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW HQFDSVXODWLRQ GRW 4
 2FW &RPPDQG LV 2.
 2FW 1RWLFH SOHDVH XVH FRPPDQG YODQ SRUW WR DGG
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW YODQ SRUW
5XLMLH FRQILJ VXELI *LJDELW(WKHUQHW
```

o¬ à • co- 1 y … show running-config x X k U Y ò 0 ¢ ù F å Õ Ñož

```
…
LQWHUIDFH *LJDELW(WKHUQHW
 HQFDSVXODWLRQ GRW 4
 YODQ SRUW
…
```

o¬ U P ’ Îo- 1 y F å è k — U P

```

```

2 y F å € M 8 Ä Ä C M k x X + ¥ € M — | k ¿ • € M Ä |

```
:DUQ 3RUW LV :$1 SRUW WKLV RSHUDWLRQ LV LQYDOLG IRU WKLV SR
```

3 y ü g no x X ž k Z Ä € M µ ¥ vlan k x X — |

```
:DUQ 1R SRUWV EHORQJ WR YODQ WKLV RSHUDWLRQ LV QRW YDOLG
```

4 ymax € M Z 4 9 min € M Z

```
(UURU 0D[ SRUW QXPEHU PXVW JUHDWHU WKDQ PLQ SRUW QXPEHU
```

5 y Z Ä / x 4 YODQ

```
(UURU 1R 4 YODQ LV H[LVW WKLV RSHUDWLRQ LV QRW YDOLG
```

6 yvlan $ ù F å untag k “ Œ tag ù ¬ ¯ no J $ ù F å

```
(UURU 9ODQ LV XQWDJJHG SOHDVH H[HFXWH QR YODQ SRUW EHIR
```

o¬ o • j ¨o- 1 y 6 € M 8 Ä Ä C M k x X + ¥ € M — | k ¿ • € M Ä |ož
2 y ü g no x X ž k Z Ä € M µ ¥ vlanož
3 ymax € M Z 4 9 min € M Zož

4 y Z Ä / x 802.1Q vlanož

5 yvlan $ ù F å untag k “ Œ tag ù ¬ ¯ no J $ ù F åož

o¬ u V ª ¢o- -

2.14 xaui-mode

— å N M W • ¨ ® % ”ož

xaui-mode slot slot-num

H ƒ — å k ä E ñ 4 ® M % ”ož

no xaui-mode slot slot-num

o¬ @ ƒ ª ¢o-

3 PCAP

1.22 packet capture file

6 ‘ † ^ dož
packet capture file filename [buffer-size buf-size] [packet-num pkt-num]

í ” ‘ † ^ k Ê Ö ÿ ß log
clear packet capture file

o¬ @ ƒ ª ¢o-

@ ƒ	T
filename	‘ † ^ d
buf-size	Ù Ï Ý 4ož # + ó • 7 Á 2M Ý 4 y k † ^ ñ 6 Ý 4 2 ož
pkt-num	ƒ Oož ñ 6 ƒ O e k 2ož # + ó • 4 Ò H †ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 o• — å 4 ‘ † ^ d Y e k ƒ G ó • ‘ ¨ † ^ Ložˆ Ì — å † ^ d k ƒ G + N Y syslog ¥ ” ÿ ß ¨ O ò V ož Ì — å † ^ d ž k ó • Q ÿ ß 30 †ož

o¬ F å †o- † 1 y 6 ‘ † ^ d capture.pcap k H 100 †
5 X L M L H S D F N H W F D S W X U H I L O H I O D V K F D S W X U H S F D S S D F N H W Q X P

o¬ à • co- ü g ¥ x X Y e k ï U * show packet capture status ò F å © k è ož

o¬ U P ’ Îo-

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.1 packet capture point

ë • µož

packet capture point capture-point-name rule rule-name location {interface interface-name | vlan vlan-id | control-plane} {in | out | both}

í ” µož

clear packet capture point capture-point-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
capture-point-name	µ d f
rule-name	F • é d f k capture X #
interface-name	€ M d f
vlan-id	vlan id
control-plane	O ò µ
in | out | both	• g k µ Mo• ß Mo• ê ñ E g

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 o• ÿ G ¬ } k ï U Y ¨ c%² y å # Ú g) ù u 4 4 h c • é ê ñ †
• gož Ú µ U Y c ž W • k ; § €ož

o¬ F å †o- † 1 y ë • H

clear packet capture rule rule-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-name	F • é d f
smac	› MAC
dmac	) MAC
type | ip | arp	8 C # ‘ • º
sip	› IP
sip-mask	› IP Q A
dip	) IP
dip-mask	) IP Q A
protocol | tcp | udp	C # ‘ • º
sport	tcp/udp # ‘ › € M
dport	tcp/udp # ‘) € M

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 o• ï U Y # Ú c • é k Y • é d f ã c • éož # • é Y e k • é ¬ } t µ – õ
k Ž ÿ |ož
2o• í ” • é $ ù k ¬ } í ” ñ Ä – ¥ • é µož

o¬ F å †o- † 1 y # tcp # ‘ F • é
5 X L M L H S D F N H W F D S W X U H U X O H W F S H W \ S H L S S U R W R F R O W F S

o¬ à • co- ü g ¥ x X Y e k ï U * show packet capture status ò F å © k è ož

o¬ U P ’ Îo-

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.3 packet capture start

• ÷ ož
packet capture start

2 ož

packet capture stop

o¬ @ ƒ ª ¢o-

@ ƒ	T
start	• ÷
stop	2

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 o• • ÷ Y e k ò ç ÿ µ 2 x X k ƒ O á e k µ 1 2 ož ò ç 2 Ú

^ 9 Ì á k ÿ µ ¥ x X e k y / 2 ož

2o• ÿ µ • ÷ e k ñ Ä µ c ž • ÷ ož

o¬ F å †o- † 1

o¬ F å †o- -

o¬ U P ' Îo- † 1 y ò 0 ' Î ª P ò y

```
5XLMLH VKRZ SDFNHW FDSWXUH VWDWXV


&DSWXUH UXOHV
   &DSWXUH UXOHV WFS
      HW\SH [
      VRXUFH 0$&
      GHVWLQDWLRQ 0$&
      SURWRFRO [
      VRXUFH ,3
      GHVWLQDWLRQ ,3
      VRXUFH SRUW
      GHVWLQDWLRQ SRUW

&DSWXUH SRLQWV
   &DSWXUH SRLQW FRQWUROSODQH
      &DSWXUH UXOHV WFS
      ORFDWLRQ FRQWURO SODQH
      GLUHFWLRQ DOO
      VWDWXV VWRSSHG
      SDFNHWV FDSWXUHG LQ
      SDFNHWV FDSWXUHG RXW


&DSWXUH ILOH
   ILOHQDPH WPS WHVW SFDS
      EXIIHU VL]H 0%
      SDFNHWV OLPLW
  5XLMLH
```

< † K y

<	ª ¢
Capture rule	• é d f

etype	8 C # ‘ • º
source MAC	› MAC
destination MAC	) MAC
protocol	C # ‘ • º
source IP	› IP
destination IP	) IP
source port	› € M
destination port	) € M
Capture point	µ d f
location	y å
direction	• g
buffer size	buffer Ý 4
packets limit	ƒ) ’ ò
filename	ÿ ß † ^ d f
status	Ù Á
packets captured	] B B † ƒ O

o¬ u V ª ¢o- -

4 Aggregate Port

4.1 aggregateport load-balance

F å AP ¶ B v O u k ‘ c ê ñ F å 6 AP M v O u k ‘ což
aggregateport load-balance { dst-mac | src-mac | src-dst-mac | dst-ip | src-ip | src-dst-ip | src-dst-ip-l4port | src- l4port | dst-l4port | src-dst-l4port | src-ip-src-l4port | src-ip-dst-l4port | dst-ip-src-l4port | dst-ip-dst-l4port | src-ip-src-dst-l4port | dst-ip-src-dst-l4port | src-dst-ip-src-l4port | src-dst-ip-dst-l4port }

1 AP ¶ B v O u k — å Ê Ö Þ . › ê ñ 1 6 AP M v O u k ‘ c ÿ | ¶ B v O u k ‘ což
no aggregateport load-balance

o¬ @ ƒ ª ¢o-

@ ƒ	T
dst-mac	ÿ G ÿ µ †) MAC ª - g v O ã Fož¨ AP _ e è k) MAC ª - , c † t ñ , c € M k) MAC c † ã F ñ c € Mož
src-mac	ÿ G ÿ µ † › MAC ª - g v O ã Fož ¨ AP _ e è k c MAC ª - † ã F ñ c € M k , c MAC ª - † … , c € Mož
src-dst-ip	ÿ G › IP) IP g v O ã Fož c › IP+) IP v O * c € M ô G k c%² › IP+) IP * , c e è ô Gož ¨ C Ú ^ k • ‘ J 4 v O u k • ”ož
dst-ip	ÿ G ÿ µ †) IP ª - g v O ã Fož¨ AP _ e è k) IP ª - , c † t ñ , c € M k) IP c † ã F ñ c € Mož
src-ip	ÿ G ÿ µ † › IP ª - g v O ã Fož¨ AP _ e è k c IP ª - † ã F ñ c € M k , c IP ª - † … , c € Mož
src-dst-mac	ÿ G › MAC) MAC g v O ã Fož c › MAC+) MAC v O * c € M ô G k c%² › MAC+) MAC * , c e è ô Gož
src-dst-ip-l4port	ÿ G › IP) IP y › L4 € M Z) L4 € M Z g v O ã Fož
src- l4port	ÿ G L4 C › € M Z g v O ã Fož c L4 C › € M Z † ¨ _ è t e è • u k ã F kÀ Ä , c L4 C › € M Z † é ¡ ã F Ë , c è t e èož
dst- l4port	ÿ G L4 C) € M Z g v O ã Fož c L4 C) € M Z † ¨ _ è t e è • u k ã F kÀ Ä , c L4 C) € M Z † é ¡ ã F Ë , c è t e èož
src-dst-l4port	ÿ G L4 C › € M Z L4 C) € M Z g v O ã Fož c L4 C › € M Z+L4 C) € M Z † ¨ _ è t e è • u k ã F kÀ Ä , c L4 C

› € M Z+L4

o¬ F å †o- 1 y F å Â 9) MAC ª - AP ¶ B v O u k ‘ c y

5 X L M L H F R Q I L J D J J U H J D W H S R U W O R D G E D O D Q F H G V W P D F

2 y ¨ AP 1 M F å Â 9) MAC ª - v O u k ‘ c y

5 X L M L H F R Q I L J L Q W H U I D F H D J J U H J D W H S R U W

5 X L M L H F R Q I L J L I $ J J U H J D W H 3 R U W D J J U H J D W H S R U W O R D G E D O D Q F H

o¬ à • co- … show aggregateport load-balance x X ò 0 — å v O u k ‘ což

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- src-dst-ip-l4port ä src-dst-ip-src-dst-l4port ˆ ¶ µ n q 3 W ä , IP+L4 W ä , j Ç Ü h ˆ ù º ´ c / IP+-dst-Ip-src-dst-l4port

o¬ F å †o- 1 y µ † ÿ 9 ø • AP è t M LinkTrap * s y

o¬ à • co- Ã ¹EîE› show running ¹,ßG!5B ú , ü Ä

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.3 ap-interface wireport port-group

AC G F å ü ` M F å

ap-interface wireport port-number port-group ap-number

no ap-interface wireport port-number port-group

o¬ @ ƒ ª ¢o-

@ ƒ	T
port-number	AP Ä ¿ M € M Z
ap-number	ü ` M Z

o¬ Þ . F åo- Þ . Õ Ñ k G ² Á ü ` M F åož

o¬ x X % ”o- ap-config kap-group F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- AC * t x X G%² Ú F å 1 AP %² Ä ¿ M µ%² ü ` M ž kò ç ¥ Ä ¿ M ] Æ K 9 î ü ` M è t M k é ª • µ ñ • ü ` M

o¬ F å †o- µ † ÿ 9 1 AP GigabitEthernet 0/1 µ ñ ü ` M AggregatePort 1 y

```
5XLMLH FRQILJ
5XLMLH FRQILJ DS FRQILJ G DDEE FF
<RX DUH JRLQJ WR FRQILJ $3 G DDEE FF ZKLFK LV RQOLQH QRZ
5XLMLH FRQILJ DS DS LQWHUIDFH ZLUHSRUW SRUW JURXS
```

o¬ à • co- AP Þ Ã ¹EîE› show running Q ¸ ¹,ßG!5B ú , ü Ä

o¬ U P ’ Îo-

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.4 interface aggregateport

F å Y ß à AP M ê ñ µ Y ß à AP M N M F å % ”ož
interface aggregateport ap-number

í ” AP Mož
no interface aggregateport ap-number

o¬ @ ƒ ª ¢o-

@ ƒ	T
ap-number	AP N M Zož

o¬ Þ . F åo- Þ . Õ Ñ kAP M Ì t ë •ož

o¬ x X % ”o- ¶ B F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¢ AP M] Æ ë • k F å interface aggregateport x X ž µ AP M N M F å % ” z ¢ AP M Ì ë • k F å interface aggregateport k ¯ ë • AP M k ò ç ë • è k é µ AP M N M F å % ”ož

o¬ F å †o- 1 y µ † ÿ 9 ë • w µ AP 5 N M F å % ” y

```
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 V  D J J U H J D W H S R U W
5 X L M L H  F R Q I L J  L I  $ J J U H J D W H S R U W  H Q G
```

o¬ à • co- Ã ¹EîE› show running Q ¸ ¹,ßG!5B ú , ü Ä

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.5 port-group

1%² Y ß à Ò ò € M — å M- Õ AP è t € Mož
port-group port-group-number

í ” ¥ € M Aggregate Port è t K Åož
no port-group

o¬ @ ƒ ª ¢o-

@ ƒ	T
port-group-number	M- ÕAP è t € M Á Ú Z k /M- Õ AP N M Zož

aggregate-port-number	AP N M Zož
load-balance	ª P

: $Ś$! 4¡ IP *!*1‘9Æ‰,Ì$Ğ$Ÿ. ¨%ØÀ„ ß0·8V Ö

1. IP *!*1 9Æ‰
2. IP Event Dampening
3. TCP
4. FPM

1 IP ƒ ¥ / Í ı

1.1 gateway

… ¥ x X F å MGMT N M Þ . à ¼ož
gateway addres

í ” MGMT N M Þ . à ¼ F åož
no gateway

o¬ @ ƒ ª ¢o-

@ ƒ	T
address	MGMT N M IPv4 * ’ Þ . à ¼ ª -

o¬ Þ . F åo- -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- MGMT N M • º © MGMT k Ú Z ¡ 0

o¬ F å †o- 1 y F å MGMT N M Þ . à ¼ ª - 1.1.1.1

```
5 X L M L H ( F R Q I L J ) # L Q W H U I D F H P J P W 0
5 X L M L H ( F R Q I L J - L I - 0 J P W 0 ) # J D W H Z D \ 1. 1. 1. 1
5 X L M L H ( F R Q I L J - L I - 0 J P W 0 ) #
```

o¬ à • co- show run U • , • F å

o¬ U P ’ Îo- % 0. 0. 0. 0 L V Q R W D 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- ip]TJ 1 Tf Tf -0.000 Tw 10.72 0 Td [<0745.7 130745./TT0 T09F383 1 Tf -0. 1 Tf 9 467.22 Tm <6F85F383 1 Tf -0.407 0 Td

ip address ip-address network-mask [secondary] | [slave]

í ” 6 N M IP ª -ož
no ip address [ip-address network-mask [secondary] | [slave]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	32 A Ô y IP ª - k8 y%² Á k Y ò • ” n P k Á $ • µ œ •ož
network-mask	32 A Ô y à Ì Q A k“1” n P Q A y k“0” n P Ñ yož ? 8 y%² Á k Y ò • ” n P k Á $ • µ œ •ož
secondary	n P F å) IP ª -ož Þ . F å ip ª -ož
slave	n P F å slave IP ª -ož

o¬ Þ . F åo- N M Z Ä F å IP ª -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- %² — Õ Q Ä F å 4 IP ª - k õ U Y N v y G IP ƒ G k N M F å 4 IP ª - k ª ¢ ¥ N M ª • g IP # ‘ož
à Ì Q A - ©%² 32 y A Ô ƒ › k ö œ 5 ¥ IP ª - „ Ù A Ô à Ì B ãož à Ì Q A k › 1
A Ô + • IP ª - A Ô y < © à Ì B ã k › 0 A Ô + • IP ª - A Ô y < © Ñ ª - B ãož ò A • à Ì + • à Ì Q A 255.0.0.0 ož , U Y ï à Ì Q A +%² à Ì g ÿ à æ ã k ÿ à æ ã < © 1%² Ñ ª - B ã %² ? A Ô y - • à Ì B ã k Ý 4 Ñ O k Í à Ì ƒ O k ž à Ì Q A < f ÿ à Q Aož
RGOS ÷ ^ U Y u 4%² N M F å Ú IP ª - k ¿ %² IP ª - k ¿ • ¶ B) IP ª - ê ñ slave IPož

Y Q • 8 • ì 0 o É ¯ ‘ • ì 0 o • 8 IP 0 ì ˜ ‘ dã ¨ M â ¾ " ip address g ip default-gateway a — c / ¢ Q – ¢ Q \ M ¥ | ± " t Ù " - $ ý ! M ¥ ¹ ¶ î À 9 þ • • t d ã 5 Æ ã • ‘ ° ip address a — gateway ‘ Ï “ ÿ ½ ¨ • 8 IP 0 ì ˜ ‘ d gateway ‘ Ï “ â } show running config / ¡ µ — ¾ § ö ip default-gateway a — ÿ ¡ µ ´ d

o¬ F å †o-

```
1y F å 4 N M , 3ª - 10. 10. 10. 1k à Ì Q A 255. 255. 255. 0ož
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 0/ 1
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 0/ 1 ) # L S D G G U H V V 10. 10. 10. 1 255. 255. 255

2y “ w Þ . à ¼ 10. 10. 10. 254ož
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 0/ 1
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 0/ 1 ) # L S D G G U H V V 10. 10. 10. 1 255. 255. 255

3y F å N M ª - 10. 10. 10. 1/ 24k V O Ð Y H 10. 10. 10. 1/ 24
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 0/ 1
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 0/ 1 ) # L S D G G U H V V 10. 10. 10. 1 255. 255. 255
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 0/ 1 ) # L S D G G U H V V 10. 10. 20. 1 255. 255. 255
```

o¬ à • co- 1 yshow ip interface U • N M F å Õ Ñož

2 yshow running-config [interface interface-type interface-number] U • N M slave ip F å Õ Ñož

o¬ U P ’ Îo- 1. ª • F å mask ¶ 1 ê ¶ 0 Q A g ê › N M U Y u 4 32y Q A h k ò ç F å 4 k é ß ë Y U P y

```
, Q Y D O L G , 3 P D V N .
```

2. Ì F å ip ª - Õ Ñ ª • F å) ip ª - k k é k ß ë Y U P y

```
& D Q Q R W D G G , 3 D G G U H V V .
```

3. Ì F å ip ª - Õ Ñ ª • F å Slave ip ª - k k é k ß ë Y U P y

```
3 O H D V H F R Q I L J W K H S U L P D U \ , 3 D G G U H V V I L U V W .
```

o¬ o • j ¨o- 1. Ì F å ip ª - Õ Ñ F å) ip ª -ož

2. Ì F å ip ª - Õ Ñ F å slave ip ª -ož

3. í ” ª - $ ù Z Ä í ” ñ Ä R ª -ož

4. c%² N M c , 3ª - à < M Lož

o¬ u V ª ¢o- -

1.3 ip address negotiate

F å * PPP # Œ B H N M IP ª -ož

ip address negotiate

í ”EîE PPP &#(79 &6y&,X IP *!*1ož
no ip address negotiate

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	

o¬ Þ . F åo- N M Z Ä F åEîE PPP &#(79 & IP ª -

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- Q Ä è ˜ µ + µ N M õ u 4 * PPP # Œ B H IP ª - k ¨ N M F å 4 ip address negotiate e k + €
¬ } F å peer default ip address ož

o¬ F å †o- 1 y F åEîE PPP &#(79 &6y& IP *!*1ož

```
5 X L M L H ( F R Q I L J ) # L Q W H U I D F H G L D O H U 1
5 X L M L H ( R Q I L J - L I - G L D O H U 1) # L S D G G U H V V Q H J R W L D W H
```

o¬ à • co- 1 yshow ip interface U • N M F å Õ Ñož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.4 ip address-pool local

… IP ª - P ož
ip address-pool local

¼ { IP ª - P ož
no ip address-pool local

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	

o¬ Þ . F åo- Þ . … IP ª - P

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- Þ . Õ Ñ kIP ª - P • o k ï U Y F å IP ª - P kPPP ï U Y IP ª - P ã F + € IP ª -ož
ò ç Ý ¼ { IP ª - P k U Y … no ip address-pool local x X k 4 ž k í ” ñ Ä $ ù F å IP ª - Pož

o¬ F å †o- 1 y … IP ª - P ož

```
5XLMLH(FRQILJ)# LS DGGUHVV-SRRO ORFDO
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.5 ip broadcast-address

F å%² N M z n ª -ož
ip broadcast-address ip-address

H ƒ z n ª - F åož
no ip broadcast-address

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	IP à Ì z n ª -ož

o¬ Þ . F åo- Þ . IP z n ª - 255.255.255.255

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o-) ù IP z n †) ö ª -%² " ¶ 1 k n P 255.255.255.255ožRGOS ÷ ^ U Y * # D ÿ ¿ IP
ª - z n † k ò U Y c ž N v ¶ 1 Y C \ # z n ož

ƒ G õ g g z n ñ Ò ò z n ô Eož

ò ç ¨ N M F å 4 no ip directed-broadcast kRGOS 1 ’ N v ñ + à Ì g z n †ož

o¬ F å †o- 1 y ¨ — Õ gigabitEthernet 0/1 € M o 4 g z n ô Gož

```
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 0/ 1
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 0/ 1)# L S G L U H F W H G - E U R D G F D V W
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.7 ip icmp error-interval

F å IP Ù B U ã Ì y ‡ G ICMP) U † G , äož

ip icmp error-interval DF milliseconds [bucket-size]

å ¿ ICMP [j † G , äož

ip icmp error-interval milliseconds [bucket-size]

IP Ù B U ã Ì y ‡ G ICMP) U † G , ä Ê Ö è Þ . ›ož

no ip icmp error-interval DF milliseconds [bucket-size]

¿ ICMP [j † G , ä Ê Ö è Þ . ›ož

no ip icmp error-interval milliseconds [bucket-size]

o¬ @ ƒ ª ¢o-

@ ƒ	T
milliseconds	X Î ó • u Ê k H › 8 0~2147483647 k Þ . › 100 k % y D aož H › 0 ž k n P ’ ò ICMP [j † G , äož
bucket-size	X Î ¹ X Î ƒ k H › 8 1~200 k Þ . › 10ož

o¬ Þ . F åo- 100 D a G 10 ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 4 … 2 ! Í Æ x à k + ICMP [j † G , ä g ' ò k J X Î ' což
ò ç IP † ¬ } ã Ì kx © IP Ù B U ã Ì y t — å 4 k — Õ k g › IP ª - G Ú Z 4 ICMP)
U † k _ ICMP [j † } (© è ¬ MTU G ëož 4 … 2 ¿ ICMP [j † ß Ú - G ß
Ú Z 4 ICMP) U † k R ò - è ¬ MTU G ë â | k + Ú Z 4 ICMP) U †
y ¿ ICMP [j † ã ð ' ,ož
œ ž ~ ¤ † © 10 D a k • ' ï X Î ó • u Ê F å è 10 D a … ƒ • ož ò ç X Î ó • u Ê
Ý 9,0 4 9 10 k Žÿ | ó • u Ê © 10 D a k † ò F å 5 D a 1 k Ž | ç © 10 D a 2 z ò ç X Î
ó • u Ê © 10 D a … ƒ • k Žÿ | ó • u Ê E ' è 10 D a … ƒ • k † ò F å 15 D a 3
k Ž | ç © 10 D a 2 ož

o¬ F å †o- 1 y F å IP Ù B U ã Ì y ‡ G ICMP) U † G , ä 1 a 100 ož

```
5 X L M L H ( F R Q I L J ) # L S L F P S H U U R U - L Q W H U Y D O ') 1000 100
```

2 y F å ¿ ICMP [j † G , ä 1 a 10 ož

```
5 X L M L H ( F R Q I L J ) # L S L F P S H U U R U - L Q W H U Y D O 1000 10
```

o¬ à • co- … show running-config ò 0 F åož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

o¬ F å †o- 1 y — Õ gigabitEthernet 0/1 N M 1 k € • ICMP Q A ¬ L †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 0/ 1
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 0/ 1) # L S P D V N - U H S O \
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.10 ip mtu

F å IP Â Ý n ÿ % « gMTU hož

ip mtu bytes

Ê Ö Þ . F åož

no ip mtu

o¬ @ ƒ ª ¢o-

@ ƒ	T
bytes	IP Â Ý n ÿ % « k Y - % y k 8 68~1500ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.11 ip redirects

o ICMP M g ƒ Îož
ip redirects

¼ { ICMP M gož
no ip redirects

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . o ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¢ è © Â i ž k Ä U … ± — Õ R%² N M N v ñ ƒ G k } R ¥ N M G ß >ož ò ç — Õ 1 ƒ G
R N v N M M • G ß > k — Õ < k Ë ƒ G › G %² ICMP M g ƒ Î k s • ƒ G › ñ ¥) ö ª - à ¼
c%² ÿ à P Ù%² V — Õož ý ƒ G › < k 1 e Ò ƒ G 7 Á Â „ è ¬ g G ož
RGOS ÷ ^ Þ . o ICMP M gož

o¬ F å †o- 1 ygigabitEthernet 0/1 N M ¼ { 4 ICMP M gož

```
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 0/ 1
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 0/ 1) # Q R L S U H G L U H F W V
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.12 ip source-route

- o IP

H ƒ F å Î Ñ G % n † TTL ›ož

no ip ttl

o¬ @ ƒ ª ¢o-

@ ƒ	T
value	TTL › k H › 8 © 0~255ož

o¬ Þ . F åo- Þ . › © 64

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o-

o¬ F å †o- 1 y F å Î Ñ G % n † Þ . TTL › 100ož

5 X L M L H (F R Q I L J) # L S W W O 100

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.14 ip unnumbered

F å N M ™ IP ª -ož

ip unnumbered interface-type interface-number

H ƒ ¥ F åož

no ip unnumbered

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-type	¼ û N M • ºož
interface-number	¼ û N M Ú Zož

o¬ Þ . F åo- Þ . Õ Ñ k Z Ä F å — Ú Z N Mož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- — Ú Z N M < © Q ¨ N M o IP # ‘ k x © ã F IP ª - k — Ú Z N M ¬ } ¼ û%² À Ä IP ª - N Mož — IP

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ò ç RGOS ÷ ^ N v ñ%²) ö ª - ï % n † k A Ô ò ¥ † C # ' k < k G %² ICMP) ö U ƒ Îož
ò ç RGOS ÷ ^ 9 Z Ä è k ò ô G%² ƒ G k < k g ƒ G › G ICMP Ñ U ƒ Îož
¥ x X § € ñ Ä ICMP) ö U ƒ Îož

o¬ F å †o- 1 y ¼ { gigabitEthernet 0/1 N M G ICMP) ö U ƒ Îož

```
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 0/ 1
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 0/ 1 ) # Q R L S X Q U H D F K D E O H V
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.16 peer default ip address

PPP # Œ ã F IP ª - Ë + €ož

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

H ƒ ã F IP ª - Ë + €ož

no peer default ip address

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	6 + € ã F IP ª -ož
pool-name	U # ¨ 6 ã F IP ª - ª - P d k 3 Ì F å ¥ @ ƒ k é ¨ default ª - P ã F IP ª -ož

o¬ Þ . F åo- Þ . Õ Ñ k N M + € ã F IP ª -ož

o¬ x X % ”o- N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- ¢ + € N M Ì F å IP ª - ò Î € — Õ] Æ Ä IP ª - ž k U F å Î € — Õ + € N M ã F IP ª -ož ž k ¬
} ¨ + € — Õ F å ip address negotiate x X k ¨ Î € — Õ F å peer default ip address x X k … + €

N M N I PPP # Œ ã F IP ª -ož

¥ x X N u 4 / x PPP ê SLIP # ‘ µ + µ N M F åož

peer default ip address pool x X k © R IP ª - P L ã F ß%² IP ª - Ë + € k IP ª - P © * ip local pool x X F å ª - Pož

peer default ip address ip-address x X k + N Ë + € 6 %² IP ª - k ¥ x X ¨ Z ' % á N M C ‘ 5 M F åož

o¬ F å †o- 1 y F å N M dialer + € ã F IP ª - 10.0.0.1ož

```
5 X L M L H ( F R Q I L J ) # L Q W H U I D F H G L D O H U 1
5 X L M L H ( F R Q I L J - L I - G L D O H U 1 ) # S H H U G H I D X O W L S D G G U H V V 10. 0. 0. 1
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.17 show ip interface

ª P N M IP Ù Á ’ Îož

show ip interface [interface-type interface-number | brief]

o¬ @ ƒ ª ¢o-

@ ƒ	T
Interface-type	6 N M • º
Interface-number	6 N M Ú Z
brief	ª P C N M IP Â Î F å ’ Î g , N M primary ipo•secondary ip y N M Ù Á h

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ … 6 -o- %² N M Ô 9 U Ù Á kRGOS 1 k ¨ è n ë •%² Ú + è ož U U N M © 6 RGOS ÷ ^ * ¥ N M U Y v G ƒ G ož ò ç N M R U Ù Á J U Ù Á kRGOS

o¬ F å †o- 1 y ª P ñ Ä N M IP Ù Á ' Îož

```
5XLMLH#VKRZ LS LQWHUIDFH EULHI
,QWHUIDFH              ,3-$GGUHVV(3U(QWHUIDFH)  IP Address(Sec)  W R F R O
*LJDELW(WKHUQHW 0/10  2.2.2.2/24      3.3.3.3/24     GRZQ     GRZQ
*LJDELW(WKHUQHW 0/11  QR DGGUHVV      QR DGGUHVV     GRZQ     GRZQ
9/$1 1                1.1.1.1/24      QR DGGUHVV     GRZQ     GRZQ
```

Status M í Ç]¾ q _ Ü up down ä administratively down û shutdown a — < Ç œ % ' ž d

Protocol M í Ç IPv4 Ø Ð q _ d

2 y ª P VLAN 1 N M IP Ù Á ' Îož

```
5XLMLH#VKRZ LS LQWHUIDFH YODQ 1
9/$1 1
  ,3 LQWHUIDFH VWDWH LV: '2:1
  ,3 LQWHUIDFH W\SH LV: %52$'&$67
  ,3 LQWHUIDFH 078 LV: 1500
  ,3 DGGUHVV LV:
    1.1.1.1/24 (SULPDU\)
  ,3 DGGUHVV QHJRWLDWH LV: 2))
  )RUZDUG GLUHFW-EURDGFDVW LV: 2))
  ,&03 PDVN UHSO\ LV: 21
  6HQG ,&03 UHGLUHFW LV: 21
  6HQG ,&03 XQUHDFKDEOHG LV: 21
  3UR[\ $53 LV: 2))
$53 SDFNHW LQSXW QXPEHU:        0
    5HTXHVW SDFNHW:             0
    5HSO\ SDFNHW:               0
    8QNQRZQ SDFNHW:             0
77/ LQYDOLG SDFNHW QXPEHU:      0
,&03 SDFNHW LQSXW QXPEHU:       0
    (FKR UHTXHVW:               0
(FKR UHSO\:                     0
    8QUHDFKDEOH:                0
    6RXUFH TXHQFK:              0
    5RXWLQJ UHGLUHFW:           0
```

< † K y

<	ª ¢

IP interface type is:	ª P N M • º k ò z n k µ + µ ˆož
IP interface MTU is:	ª P N M — å MTU ›ož
IP address is:	ª P N M IP ª - y Q A ’ Îož
IP address negotiate is:	ª P N M IP ª - © k # Œ B ±ož
Forward direct-boardcast is:	ª P © k ô G g z nož
ICMP mask reply is:	ª P © k G ICMP Q A • ‹ †ož
Send ICMP redirect is:	ª P © k G ICMP M g †ož
Send ICMP unreachabled is:	ª P © k G ICMP U †ož
Proxy ARP is:	ª P © k o W ò ARP ož
ARP packet input number: 0 Request packet: 0 Reply packet: 0 Unknown packet: 0	ª P N M v ñ ARP † È ƒ k , y ARP ¬ L † ARP • ‹ † Ì = • º †
TTL invalid packet number:	ª P N M v ñ TTL — | † ƒ
ICMP packet input number: 0 Echo request: 0 Echo reply: 0 Unreachable: 0 Source quench: 0 Routing redirect: 0	ª P N M v ñ ICMP † È ƒ k , ò † y Echo ¬ L † Echo • ‹ † U † › { ò † è M g †

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

1.18 show ip packet queue

ª P # ‘ ÷ IP † v G Ï ‹ ’ Î

show ip packet queue

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o-

```
5XLMLH#VKRZ LS SDFNHW TXHXH
5HFHLYH 31925 SDFNHWV(IUDJPHQW 0):
  ,3 SDFNHW UHFHLYH TXHXH: OHQJWK 0, PD[ 1542, RYHUIORZ 0.
  5HFHLYH 13 ,&03 HFKR SDFNHWV, 25 ,&03 UHSO\ SDFNHWV .
  'LVFDUGV:
    )DLOHG WR DOORF VNE: 0.
    5HFHLYH TXHXH RYHUIORZ: 0.
    8QNQRZ SURWRFRO GURSV: 0.
    ,&03 UFY GURSV: 0. IRU VNE FKHFN IDLO.
    ,&03 UFY GURSV: 0. IRU VNE LV EURDGFDVW.
6HQW SDFNHWV:
  6XFFHVV: 15644
  *HQHUDWH 13 DQG VHQG 8 ,&03 UHSO\ SDFNHWV, VHQG 26 ,&03 HFKR SD
  ,W UHFRUGV 187 XV DV PD[ WLPH LQ ,&03 UHSO\ SURFHVV.
  )DLOHG WR DOORF HIEXI: 0
  'URSSHG E\ ()03: 0
  1R5RXWHV: 887
  *HW YUI IDLOV: 0
  &DQQRW DVVLJQHG DGGUHVV GURSV: 0
  )DLOHG WR HQFDSVXODWH HWKHUQHW KHDG: 0
,&03 HUURU TXHXH: OHQJWK 0, PD[ 1542, RYHUIORZ 0.
```

< † K y

<	ª ¢
IP packet receive queue	# ‘ ÷ IP N v „ ç @ ƒ
Discards	N v i ’ †

Sent packets

1.19 show ip packet statistics

ò 0 IP † Ï ‹ ’ Îož

show ip packet statistics [total | interface-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
total	ñ Ä N M Ï ‹ › È yož
interface-name	N M d f

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 1

o¬ ... 6 -o- -

o¬ F å †o- 1 y Y © ¥ x X ’ Î r ë y

```
5 1#V K R Z  L S  S D F N H W  V W D W L V W L F V
7 R W D O
  5 H F H L Y H G  113962 S D F N H W V ,  11948991 E \ W H V
    8 Q L F D V W : 90962, 0 X O W L F D V W : 5232, % U R D G F D V W : 17768
    ’ L V F D U G V : 0
      + G U ( U U R U V : 0( % D G & K H F N V X P : 0, 7 7 / ( [ F H H G H G : 0, 2 W K H U V : 0)
      1 R 5 R X W H V : 0
      2 W K H U V : 0
  6 H Q W  34917 S D F N H W V ,  1863146 E \ W H V
    8 Q L F D V W : 30678, 0 X O W L F D V W : 4239, % U R D G F D V W : 0
* L J D E L W ( W K H U Q H W  0/ 1
  5 H F H L Y H G  6715 S D F N H W V ,  416587 E \ W H V
    8 Q L F D V W : 2482, 0 X O W L F D V W : 4233, % U R D G F D V W : 0
    ’ L V F D U G V : 0
      + G U ( U U R U V : 0( % D G & K H F N V X P : 0, 7 7 / ( [ F H H G H G : 0, 2 W K H U V : 0)
      1 R 5 R X W H V : 0
      2 W K H U V : 0
  6 H Q W  6720 S D F N H W V ,  417096 E \ W H V
    8 Q L F D V W : 2481, 0 X O W L F D V W : 4239, % U R D G F D V W : 0
/ R R S E D F N  0
  5 H F H L Y H G  0 S D F N H W V ,  0 E \ W H V
    8 Q L F D V W : 0, 0 X O W L F D V W : 0, % U R D G F D V W : 0
    ’ L V F D U G V : 0
      + G U ( U U R U V : 0( % D G & K H F N V X P : 0, 7 7 / ( [ F H H G H G : 0, 2 W K H U V : 0)
```

```
      1R5RXWHV:0
      2WKHUV:0
  6HQW 0 SDFNHWV, 0 E\WHV
    8QLFDVW:0,0XOWLFDVW:0,%URDGFDVW:0
7XQQHO 1
  5HFHLYHG 0 SDFNHWV, 0 E\WHV
    8QLFDVW:0,0XOWLFDVW:0,%URDGFDVW:0
    'LVFDUGV:0
      +GU(UURUV:0(%DG&KHFNVXP:0,77/([FHHGHG:0,2WKHUV:0)
      1R5RXWHV:0
      2WKHUV:0
  6HQW 21584 SDFNHWV, 1122848 E\WHV
    8QLFDVW:21584,0XOWLFDVW:0,%URDGFDVW:0
```

< † K y

<	ª ¢
Total	n P N Û ª P © ñ Ä N M Ï ‹ › È y
GigabitEthernet 0/1	n P N Û ª P © S + %² À } N M Ï ‹ › ' Î
Received	N v ñ † ƒ) k - ƒ)ož Y C % n/ Á n/ z n Ï ‹ k , ƒ) k Y C + • = œ
Sent	G † ƒ) k - ƒ) k % n/ Á n/ z n ƒ)

o¬ U P ' Îo- -

o¬ F å †o- 1 y ò 0 ñ Ä ë • ª - P ’ Îož

```
5XLMLH# VKRZ LS SRRO
5XLMLH(FRQILJ)#VKRZ LS SRRO
3RRO                %HJLQ          (QG              )UHH    ,Q XVH
GHIDXOW             1.1.1.1        1.1.1.1          1       0
SRRO1               2.2.2.2        2.2.2.254        253     0
SRRO2               3.1.1.1        3.2.1.1          65537   0
SRRO3               192.168.1.1    192.168.1.254    254     0
```

< † K y

<	ª ¢
Pool	ª - P d
Begin	ª - P Ü ÷ ip ª -
Free	¢ ù ª - P q ~ ip ª -ož
In use	¢ ù ª - P 3 ¨ … ip ª -

o¬ U P ’ Îo- ò ç Z Ä ë • ` ~ ª - P k é ª P y

```
1R ,3 ORFDO SRROV H[LVW
```

o¬ u V ª ¢o- -

1.21 show ip raw-socket

ª P ñ Ä IPv4 = ÷ ì N ož

show ip raw-socket [num]

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	# ‘ Z

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 ñ Ä IPv4 = ÷ ì N ož

```
5XLMLH# VKRZ LS UDZ-VRFNHW
1XPEHU 3URWRFRO 3URFHVV QDPH
```

```
1     ,&03     GKFS.HOI
2     ,&03     YUUS.HOI
3     ,*03     LJPS.HOI
4     9553     YUUS.HOI
```

```
6       U J - V Q P S G          ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 161    0. 0. 0. 0: 0                *
7       Z E D Y 2              ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 2000   0. 0. 0. 0: 0              *
8       Y U U S B S O X V . H O I     ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 3333   0. 0. 0. 0: 0           *
9       P S O V . H O I          ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 3503   0. 0. 0. 0: 0             *
10      U G V B R W K H U B W K      ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 3799   0. 0. 0. 0: 0           *
11      U J - V Q P S G          ' * 5 $ 0     8 ' 3       0. 0. 0. 0: 14800  0. 0. 0. 0: 0             *
12      U J - V V K G            6 7 5 ( $ 0     7 & 3       0. 0. 0. 0: 22     0. 0. 0. 0: 0              / , 6 7 ( 1
13      U J - W H O Q H W G        6 7 5 ( $ 0     7 & 3       0. 0. 0. 0: 23     0. 0. 0. 0: 0              / , 6 7
14      Z E D U G                6 7 5 ( $ 0     7 & 3       0. 0. 0. 0: 4389   0. 0. 0. 0: 0             / , 6 7 ( 1
15      Z E D U G                6 7 5 ( $ 0     7 & 3       0. 0. 0. 0: 7165   0. 0. 0. 0: 0             / , 6 7 ( 1
7 R W D O :  15
```

< † K y

<	ª ¢
Number	~ Z
Process name	i d f
Type	ì N • º k RAW n P = ÷ ì N k DGRAM n P ƒ G • º k STREAM n P v • ºož
Protocol	# ' Z
LocalIP:Port	Î ª IP ª - y € M
ForeignIP:Port	+ € IP ª - y € M
State	Ù Á k Q + TCP ì N Ä Þ #ož
Total	ì N È ƒ

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

1.23 show ip udp

ª P ñ Ä IPv4 UDP ì N k U Y = 3 „ ? UDP € M + Ù U ˆ Æ ož

show ip udp [local-port num]

ª P IPv4 UDP ì N Ï ‹ ›ož

show ip udp statistics

o¬ @ ƒ ª ¢o-	@ ƒ	T

local-port num	Î ª € M Z

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 ñ Ä IPv4 UDP ì N ož

5 X L M L H # V K R Z L S X G S

1 X P E H U	/ R F D O $ G G U H V V	3 H H U $ G G U H V V	3 U R F H V V Q D P H
1	0. 0. 0. 0: 68	0. 0. 0. 0: 0	G K F S F . H O I
2	0. 0. 0. 0: 161	0. 0. 0. 0: 0	U J - V Q P S G
3	0. 0. 0. 0: 2000	0. 0. 0. 0: 0	Z E D Y 2
4	0. 0. 0. 0: 3333	0. 0. 0. 0: 0	Y U U S B S O X V . H O I
5	0. 0. 0. 0: 3503	0. 0. 0. 0: 0	P S O V . H O I
6	0. 0. 0. 0: 3799	0. 0. 0. 0: 0	U G V B R W K H U B W K
7	0. 0. 0. 0: 14800	0. 0. 0. 0: 0	U J - V Q P S G

< † K y

<	ª ¢
Number	~ Z
Local Address	Î ª IP ª - y € M
Peer Address	+ € IP ª - y € M
Process name	i d f

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

o¬ à • co- 1 y … show runuing-config x X k U Y ò 0 ip event dampening © o © ¼ {ož
2 y … show interfaces dampening x X k U Y ò 0 dampening N M ¦ Â F å ' Îož

o¬ U P ' Îo- 1 y ò ç F å max-suppress 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
%0D[LPXP SHQDOW\ (10) LV OHVV WKDQ VXSSUHVV SHQDOW\ (2000). ,QFUH

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
%1R PHPRU\, FRQILJXUH GDPSHQLQJ IDLO!

o¬ o • j ¨o- 1 y F å max-suppress ß 4 k - F å â Âož
2 y ¨ C A E Ñ N M k Z Ä no switchport k < + N F å dampening ož

o¬ u V ª ¢o- C A E Ñ y è ˜ õ u 4ož
+ 9 A E Ñ N M C) ô E g C M ô E 2 C M ħ k ò R routed port ô E switch port k ¥ N M F å dampening x X 1 t í ”ož
+ 9 è ˜ Û ª Q Ä N M U Y F å N M 7 ^ ò ož¥ U Y + F Ä ¥ x X N M ñ Ä ÿ N M ÿ | k
x + N ¨ ÿ N M F å ¥ x Xož ¥ x X - u 4 ¨ virtual template F åož

2.2 show dampening interface

ª P t Ú ã N M Ï ‹ ' Îož
show dampening interface

o¬ @ ƒ ª ¢o-	@ ƒ	T

o¬ u V ª ¢o- -

2.3 show interfaces dampening

ª P N M IP Event Dampening F å Õ Ñož
show interfaces [interface-id] dampening

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-id	N M d f g † ò GigabitEthernet 0/1 bž

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- 3 6 4 interface-id k 1 N ª P ¥ 6 N M dampening ’ Îož

o¬ F å †o- 1 y ò 0 N M IP Event Dampening F å Õ Ñož

3 TCP

3.1 ip tcp adjust-mss

— å ô G TCPv4 SYN

o¬ u V ª ¢o- -

3.2 ip tcp keepalive

¥ x X Û • o TCP ‘ t ož

ip tcp keepalive [interval num1] [times num2] [idle-period num3]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interval num1	G ‘ t † ž • • œ k % y © a k H › 8 © 1 ñ 120

3.3 ip tcp mss

— å TCP N MSS Â Ý ›ož

ip tcp mss max-segment-size

Ê Ö Þ . F åož

no ip tcp mss

o¬ @ ƒ ª ¢o-

@ ƒ	T
max-segment-size	MSS ' ›ož % y - k H › 8 68-10000ož ó • … ÿ G MTU ‹ ' ± ñ MSSož

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ip tcp mss • < © ' ò / 1 • y TCP N MSS Â Ý ›ož ` ~ • • y N # Œ MSS › Ý F å ›ož ò ç } × 4 N Â Ý MSS › k U Y F å ¥ x X k%² " Õ Ñ ¬ } F åož ó • … ÿ G MTU ‹ ' ± ñ MSS k ò ñ P y

IPv4 TCP y MSS = + € IP ª - + • ß M IP MTU - 20 - IP Ù B - 20 - TCP Ù Bož

ò ç ¥ N u 4 î ? # ¾ k; " MSS } × > # ¾ 4 - + ÷ e x † ›ožò MD5 # ¾ } × > 20 - k MD5 # ¾ x † 18 - k + ÷ e 20 -ož

ò ç ï F å 4 MSS k Ž ÿ | MSS © R ÿ G MTU ‹ ' ± ñ MSS y ï F å MSS H û 4 ›ož

o¬ F å †o- 1 y — å TCP N MSS ' › 1300 -ož

```
5 X L M L H ( F R Q I L J ) # L S W F S P V V 1300
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.4 ip tcp path-mtu-discovery

ø • TCP è ¬ MTU G ë ož

ip tcp path-mtu-discovery [age-timer minutes | age-timer infinite]

¼ { TCP è ¬ MTU G ë ož

no ip tcp path-mtu-discovery

o¬ @ ƒ ª ¢o-

@ ƒ	T
age-timer minutes	TCP ¨ G ë PMTU e kM • g M y ž • • œož% y ã U kH › 8 10-30ož Þ . › 10ož
age-timer infinite	TCP ¨ G ë PTMU e k M • M yož

o¬ Þ . F åo- ¼ {ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- TCP è ¬ Â Ý n ÿ % « G ë © 7 RFC1191 ë k U Y U ä à Ì k ! ï äož ¢ ï …
TCP Û O n ÿ Ý ² ƒ G ž k ¥ U Y … n ÿ Å ± ñ ¢ ª U ož
7 RFC1191 T k TCP ¨ G ë PMTU e k œ%² < ž • U Y … ¾ Ý MSS Û M y • PMTUož ž •
• œ < © … @ ƒ age-timer Û 6 ož¢ — Õ G ë PMTU A TCP N € # Œ ß Û MSS 4 ž k— Õ < k
7 F å ž • • œ k > : ¡ G ë ¾ Ý PMTUož + ñ PMTU ñ MSS › k ê ñ ï 2 ž ˜ k
M y i õ k 2ož 2 ž ˜ k … age-timer infinite @ ƒož

o¬ F å †o- 1 y • o PMTU G ë ož

```
5 X L M L H ( F R Q I L J )# L S W F S S D W K - P W X - G L V F R Y H U \
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

3.5 ip tcp send-reset

ª • ¨ v ñ € M U TCP † ž G reset †ož
ip tcp send-reset

W 2 ¨ v ñ € M U TCP † ž G reset †ož
no ip tcp send-reset

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- v ñ € M U TCP † ž G reset †ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- %² " Õ Ñ kTCP % ² ¨ ã G TCP † ž k ò ç ñ ¥ † ñ K TCP N ; " k › Ö%² reset
† Y Ä 2 + € TCP Nož x © - k è x à ñ x à) ö k Ý O € M U TCP † k + — Õ -
è x à k U Y * Y x X Û W 2 + € M U † G reset †ož

o¬ F å †o- 1 y W 2 ¨ v ñ € M U TCP † ž G reset †ož
5 X L M L H (F R Q I L J) # Q R L S W F S V H Q G - U H V H W

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- 11.0 Í Î … ’ 4 10.x Í Î F å x X ip tcp not-send-rst k w Ã 10.x Í Î k ò ç ü g 4 10.x
Ð `hy› Ö%°Ü ˆÇL$g †ož

Ê Ö Þ . ›ož

no ip tcp synwait-time

o¬ @ ƒ ª ¢o-

@ ƒ	T
seconds	SYN † Ý ž ž •ož % y a k H › 8 5-300 k Þ . › 20ož

o¬ Þ . F åo- Þ . Ý ž ž • 20 a

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç à Ì ¨ SYN x à k × 5 SYN Ý ž ž • U Y … 2%² ? Ï › ƒ ô k x + Ò SYN x à ñ | çož ¨ — Õ Ù ¬ L • y N ž k × 5 SYN Ý ž ž • U Y × 5 ï ˆ - ž • k ò telnetož ò ç à Ì A û [- U Y ¢ Í Ý ž ž •ož

o¬ F å †o- 1 y — å • y N SYN † Ý ž ž • 10 aož

5 X L M L H (F R Q I L J) # L S W F S V \ Q Z D L W - W L P H 10

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- 11.0 Í Î … ’ 4 10.x Í Î F å x X ip tcp syntime-out k w Ã 10.x Í Î k ò ç ü g 4 10.x Í Î F å x X k 1 ô E è 11.0 Í Î F å x Xož

3.7 ip tcp window-size

— å TCP v M Ý 4ož

ip tcp window-size size

Ê Ö Þ . ›ož

no ip tcp window-size

o¬ @ ƒ ª ¢o-

@ ƒ	T
size	v M Ý 4ož

	% y © - k H › 8 128-(65535 << 14) k Þ . › © 65535ož

o¬ Þ . F åo- Þ . › © 65535 -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- TCP N v Ù Ï Û Ù R + € N v ñ ƒ G k ? ƒ G e Ò k t • i ~ ¯ Hož%² " Õ Ñ k TCP v M
› F ¥ N v Ù Ï q ~ q • Ý 4ož + 9 k ! A û Ýo• Ä Ý O ƒ G N k Í Ý v M U Y ª K U ä TCP
n ÿ Å ož
ò ç v M Ý 9 65535 - k • o v M ý Ý ož

o¬ F å †o- 1 y — å v M Ý 4 16386 -ož
5 X L M L H (F R Q I L J) # L S W F S Z L Q G R Z - V L] H 16386

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- - ož

3.8 service tcp-keepalives-in

• o TCP Æ ˜ € ‘ t ož
service tcp-keepalives-in [interval] [garbage]

¼ { TCP Æ ˜ € ‘ t
•– ¡ € Æ ˜ € ‘ t
s76úÀW€G0E€, i@

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ä ž ˜ TCP Æ ˜ e È = 3 ï € © k ¨ 3 o W • k < ¬ } … TCP ‘ t ož
ò ç Ò G 4) ‘ t † k Z Ä v ñ + • G ` ~ TCP † k < • TCP N — | k K y TCP
Nož

o¬ F å †o- 1 y • o TCP Æ ˜ € ‘ t k G ‘ t † ž • • œ © 10 a k ‘ t † ` k%² - — | ƒ Gož
5 X L M L H (F R Q I L J) # V H U Y L F H W F S - N H H S D O L Y H V - L Q 10 J D U E D J H

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- 11.0 Í Î … ’ ¥ x X k ¥ x X › W k ò ç ï ü g ¥ x X k 1 ô E è • F å x X ip tcp keepalive ‘ ož

3.9 service tcp-keepalives-out

• o TCP ï € ‘ t ož
service tcp-keepalives-out [interval] [garbage]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interval	G ‘ t † ž • • œ k % y © a k H › 8 © 1 ñ 65535 k Þ . › © 60 a
garbage	‘ t † ` k%² - — | ƒ G k ó • ` kož

o¬ Þ . F åo- ¼ { TCP ï € ‘ t

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- TCP ï € U Y … ‘ t M y Æ ˜ © k ¨ 3 o W • ož
ò ç Ò G 4) ‘ t † k Z Ä v ñ + • G ` ~ TCP † k < • TCP N — | k K y TCP
Nož

o¬ F å †o- 1 y • o TCP ï € ‘ t k G ‘ t † ž • • œ © 10 a k ‘ t † ` k%² - — | ƒ Gož
5 X L M L H (F R Q I L J) # V H U Y L F H W F S - N H H S D O L Y H V - R X W 10 J D U E D J H

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- 11.0 Í Î … ’ ¥ x X k ¥ x X › W k ò ç ï ü g ¥ x X k 1 ô E è • F å x X ip tcp keepalive ‘ ož

3.10 show tcp connect

ª P © Ï ¢ ù IPv4 TCP N Â Î ’ Îož

show tcp connect [local-ip a.b.c.d] [local-port num] [peer-ip a.b.c.d] [peer-port num]

ª P © Ï ¢ ù IPv4 TCP N Ï ‹ ’ Îož

show tcp connect statistics

o¬ @ ƒ ª ¢o-

@ ƒ	T
local-ip a.b.c.d	Î ª IP ª -
local-port num	Î ª € M

Local Address	Î ª ª - € M Z k È Z e µ ƒ © € M Z k A ò © € M Zož	“1.1.1.1:23” “23”
Foreign Address	€ ª - € M Z k È Z e µ ƒ © € M Z k A ò © € M Zož	“1.1.1.1:23” “23”
State	TCP	

3.11 show tcp parameter

ª P © Ï ¢ ù TCP @ ƒ ' Î

show tcp parameter

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ ... 6 -o- -

o¬ F å †o- 1 y ò 0 © Ï ¢ ù tcp @ ƒ ' Î

```
5XLMLH#VKRZ WFS SDUDPHWHU
+DVK WDEOH LQIRUPDWLRQ:
  (VWDEOLVKHG KDVK EXFNHW VL]H: 16384
  %LQG KDVK EXFNHW VL]H: 16384
0HPRU\ LQIRUPDWLRQ:
  *OREDO PHPRU\ OLPLW: ORZ 92160, SUHVVXUH 122880, KLJK 184320 (XQLW: S
  3HU-VRFNHW UHFHLYH EXIIHU VL]H: PLQ 4096, GHIDXOW 87380, PD[ 3932160 (
  3HU-VRFNHW VHQG EXIIHU VL]H: PLQ 4096, GHIDXOW 16384, PD[ 3932160 (XQ
  &XUUHQW DOORFDWHG PHPRU\: 0
  &XUUHQW PHPRU\ SUHVVXUH IODJ: 0
6<1 VSHFLILF LQIRUPDWLRQ:
  0D[ 6<1B5(&9 VRFNHWV SHU /,67(1 VRFNHW: 65535
  0D[ 6<1 UHWULHV: 5
  0D[ 6<1 $&. UHWULHV: 5
7LPHZDLW VSHFLILF LQIRUPDWLRQ:
  0D[ WLPHZDLW VRFNHWV: 180000
  &XUUHQW WLPHZDLW VRFNHWV: 0
  7LPHZDLW UHF\FOH: 0
  5HXVH WLPHZDLW SRUW: 0
.HHSDOLYH LQIRUPDWLRQ:
  .HHSDOLYH RQ: 0
  ,GOH SHULRG: 900 VHFRQGV
  ,QWHUYDO: 75 VHFRQGV
  0D[ SUREHV: 6
078 SURELQJ:
```

```
 (QDEOH PWX SURELQJ: 0
),1 VSHFLILF LQIRUPDWLRQ:
 ),1B:$,7B2 WLPHRXW: 60 VHFRQGV
2USKDQ VRFNHW LQIRUPDWLRQ:
 0D[ RUSKDQV: 16384
 0D[ RUSKDQ UHWULHV: 0
 &XUUHQW RUSKDQV: 0
```

< † K y

<	ª ¢
Hash table information	TCP N • e n @ ƒ ' Î
Memory information	TCP N v G Ù @ ƒ ' Î
SYN specific information	TCP Æ € N Š n , ¼ @ ƒ ' Î
Timewait specific information	TIMEWAIT Ù Á TCP N @ ƒ ' Î
Keepalive information	TCP ' t ž U @ ƒ ' Î
MTU probing	MTU M y , ¼ @ ƒ ' Î
FIN specific information	TCP N ¼ { , ¼ @ ƒ ' Î
Orphan socket information	Ì À } • ¼ û TCP N @ ƒ ' Î

o¬ U P ' Îo- -

3.12 show tcp pmtu

ª P IPv4 TCP N è ¬ MTUož

show tcp pmtu [local-ip a.b.c.d] [local-port num] [peer-ip a.b.c.d] [peer-port num]

o¬ @ ƒ ª ¢o- @ ƒ Bh nû S xBy 7,Pb @bƒc.d

o¬ F å †o- 1 y ò 0 IPv4 TCP N è ¬ MTUož

```
5 X L M L H # V K R Z W F S S P W X
1 X P E H U /R F D O $ G G U H V V )R U H L J Q $ G G U H V V 3 0 7 8
1 192. 168. 195. 212. 23 192. 168. 195. 112. 13560 1440
```

< † K y

<	ª ¢
Number	~ Z
Local Address	Î ª ª - € M Z k È Z e µ ƒ © € M Z k A ò “192.168.195.212.23” “23” © € M Zož
Foreign Address	€ ª - € M Z k È Z e µ ƒ © € M Z k A ò “192.168.195.212.23” “23” © € M Zož
PMTU	è ¬ MTUož

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

3.13 show tcp port

ª P © Ï ¢ ù TCP € M … Õ Ñož

show tcp port [num]

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	€ M Z

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 © Ï ¢ ù IPv4 TCP € M … Õ Ñož

```
5 X L M L H # V K R Z W F S S R U W
7 & 3 F R Q Q H F W L R Q V R Q S R U W 23:
1 X P E H U /R F D O $ G G U H V V )R U H L J Q $ G G U H V V 6 W D W H
1 1. 1. 1. 1: 23 1. 1. 1. 2: 64571 ( 6 7 $ % / , 6 + ( ’
7 R W D O : 1

7 & 3 F R Q Q H F W L R Q V R Q S R U W 2650:
```

o¬ Þ . ´ ðo- 2

o¬ … 6 -o- -

o¬ F å †o- 1 y ò 0 © Ï ¢ ù tcp Ï ‹ ' Î

```
5XLMLH#VKRZ WFS VWDWLVWLFV
7&3 3DFNHWV
  5HFHLYHG: 1103
  (UURUV : 0(FKHFNVXP: 0)
7KUHH ZD\ KDQGVKDNH
  5HTXHVW TXHXH RYHUIORZ: 0
  $FFHSW EDFNORJ IXOO: 0
  :HE DXWKHQWLFDWLRQ OLPLW SHU XVHU: 0
  )DLOHG WR DOORF PHPRU\ IRU UHTXHVW VRFN: 0
  )DLOHG WR FUHDWH RSHQ UHTXHVW FKLOG: 0
  6<1 $&. UHWUDQVPLWV: 0
  7LPHRXWHG UHTXHVWV: 0
7LPH-ZDLW
  7LPH-ZDLW EXFNHW WDEOH RYHUIORZ: 0
```

< † K y

<	ª ¢
TCP Packets	TCP N v ñ 3 o † k j ¨ †
Three way handshake	) W ô i ' Î k m v ñ N ¬ L) ƒ k • Æ ˜ € ï € • y N) ƒ k 9 WEB • š ' ò -) W ô â Â) ƒ k Ä á ò — c ë • TCP ì N) ƒ k — c ë • ÿ N) ƒ k † M n) ƒ Y C † M n Ý ž - N Ì • y) ƒ o ž
Time-wait	TIMEWAIT Ù Á N ' Î

o¬ U P ' Îo- -

4 FPM

4.1 clear ip fpm counters

Ž ” FPM Ô ò ipv4 † ‹ *f*
clear ip fpm counters

o¬ @ *f* ª ¢o-

@ *f*	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

4.2 ip session direct-trans-disable

F å ª • ¨ v ž U Y • v + N % n †
ip session direct-trans-disable

Ê Ö ó • — å
no ip session direct-trans-disable

o¬ @ *f* ª ¢o-

@ *f*	T

o¬ Þ . F åo- AC kAP D } Þ . ¨ v n ž k U Y ü g + • N • v k + N % n Ÿ , Ô ò Œ ož ¿ D } — Î ¾ F å

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- — å — Õ ¨ v ž ª • • v + N % n †

```
5XLMLH(FRQILJ)# LS VHVVLRQ GLUHFW-WUDQV-GLVDEOH
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o-

o¬ u V ª ¢o- -

4.3 ip session tcp-loose

F å ! à tcp Ù Á J ò

o¬ U P ’ Îo- -

o¬ o • j ¨o-

o¬ u V ª ¢o- -

4.4 ip session tcp-state-inspection-disable

F å Ÿ tcp Ù Á J ò
ip session tcp-state-inspection-disable

Ê Ö ó • — å
no ip session tcp-state-inspection-disable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Ÿ tcp Ù Á æ í

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- -

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o-

o¬ u V ª ¢o- -

4.5 ip session tcp-state-inspection-enable

F å ø • tcp Ù Á J ò

ip session tcp-state-inspection- enable

Ê Ö ó • — å

no ip session tcp-state-inspection- enable

o¬ @ ƒ ª ¢o-

@ ƒ	T

o¬ Þ . F åo- AC o•AP D } Þ . ¼ { tcp Ù Á J ò k ¿ D } — Î ¾ F å

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- -

o¬ F å †o- — å ¨ — Õ • o tcp Ù Á J ò

5 X L M L H (F R Q I L J) # L S V H V V L R Q W F S - V W D W H - L Q V S H F W L R Q - H Q D E O H

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o-

o¬ u V ª ¢o- -

4.6 ip session threshold

F å v ª • N v † ƒ

ip session threshold {icmp-closed | icmp-started | rawip-closed |

rawip-closed	— å # ‘ ¿ ip # ‘ Ù Á ¼ { v † * ƒ k ó • 10 g 1 - 2000000000 h
tcp-syn-sent	— å # ‘ TCP Ù Á syn-send v † * ƒ k10 g5 - 2000000000 h
tcp-syn-receive	— å # ‘ TCP Ù Á syn-receive v † * ƒ k ó • 20 g 5 - 2000000000 h
tcp-closed	— å # ‘ TCP Ù Á closed v † * ƒ k ó • 20 g5 - 2000000000 h
udp-closed	— å # ‘ UDP Ù Á ¼ { v † * ƒ k ó • 10 g1 - 2000000000 h
num	— å † * ƒ

o¬ Þ . F åo- Þ . … © ó • ›

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- } … ¢ ù F å ÿ | k ¬ } ë ¨ + • — Õ µ F å ip session track-state-strictly

o¬ F å †o- — å — Õ Z 1 $ Z 2 — Õ µ tcp closed Ù Á † * ƒ 100ož

5 X L M L H (F R Q I L J) # L S V H V V L R Q 1 2 W K U H V K R O G W F S - F O R V H G 100

o¬ à • co-

o¬ U P ’ Îo- -

o¬ o • j ¨o-

o¬ u V ª ¢o- -

4.7 ip session timeout

F å ï ž •

ip session timeout {icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-established | tcp-fin-wait1 | tcp-fin-wait2 | tcp-syn-receive | tcp-syn-sent | tcp-syn-sent2 | tcp-time-wait | udp-closed | udp-started | udp-connected | udtesibishd } {

o¬ @ ƒ ª ¢o- @ ƒ

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- … ¥ x X U Y ò 0 FPM Ô ò ipv4 † ž ‹ ƒ ’ Î k ! B ã © S + † ’ Î k ! B ã © S + v ’ Î

o¬ F å †o- -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

4.10 show ip fpm flows

ò 0 ipv4 † v ’ Î

show ip fpm flows

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 15

o¬ … 6 -o- … ¥ x X U Y ò 0 ipv4 † v ’ Î

o¬ F å †o- -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

4.11 show ip fpm flows filter

• # ò 0 ipv4 † v ’ Î

show ip fpm flows filter protocol saddr smask daddr dmask

o¬ @ ƒ ª ¢o-

@ ƒ	T

Active flows num	t ã v n *f*
event count:65,	¢ ù 7 ^ ‹ *f*
Fpm attribute is eg	Ù Á æ í n © 7 Á à ¼ D } Ô Å ë

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

Ú ` Ÿ4¡> 1u)Ú,Ì G Y • È Ù À ¹ ß0´8V Ö

1. layer23
2. APP-IDENTIFY
3. APP-PROXY
4. < îA± DL$
5. FLOW-CONTROL
6. FLOW-AUDIT
7. CONTENT-AUDIT

1 layer23

1.1 layer23 classify enable

• o 8 C ã • œ ð ož
layer23 classify enable

¼ { 8 C ã • œ ð ož
no layer23 classify enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k 8 C ã • œ ð © • o ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o 8 C ã • œ ð e u 4 Â 9 vid k Â 9 › ip ê › mac k Â 9) ip + » œ ðož

o¬ F å †o- 1 y • o 8 C ã • œ ðož

```
5XLMLH FRQILJ OD\HU FODVVLI\ HQDEOH
```

2 y ¼ { 8 C z s % ”ož

```
5XLMLH FRQILJ QR OD\HU FODVVLI\ HQDEOH
```

o¬ à • co- 1 y … show run | in layer23 x X © k ª P layer23 classify enable g U Y ò 0 ¢ ù F å © k o 8 C ã • œ ð ož
2 y … show layer23 obj-info x X ò 0 Ä þ © k o 8 C ã • œ ð ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- 8 C ã • œ ð Ì • o k - Â 9 ï v O k ‹ ˆ Œ — c ÿ |ož

o¬ u V ª ¢o- ¶ © ç D }

1.2 layer23 deny-mode enable

• o 8 C ¶ B I U % ”ož
layer23 deny-mode enable

¼ { 8 C ¶ B I U % ”ož
no layer23 deny-mode enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k 8 C ¶ B I U % ” © ¼ { ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o 8 C ¶ B I U % ” e k ó • ’ ñ Ä † k ” ³ ï + » • ñ d % g / L ” I U ï bž

o¬ F å †o- 1 y • o ¶ B I U % ”ož

```
5 X L M L H  F R Q I L J   O D \ H U   G H Q \  P R G H  H Q D E O H
```

2 y ¼ { ¶ B I U % ”ož

```
5 X L M L H  F R Q I L J   Q R  O D \ H U   G H Q \  P R G H  H Q D E O H
```

o¬ à • co- 1 y … show layer23 deny-mode x X k U Y ò 0 8 C I U % ” © o © ¼ {ož
2 y … show run | in layer23 x X © k ª P layer23 deny-mode enable g U Y ò 0 ¢ ù F å © k • o 8 C ¶ B I U % ”ož
3 y … show layer23 obj-info x X ò 0 Ä þ © k • o ¶ B I U % ”ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.3 layer23 flow-detect

• o 8 C v O ! y / F å v O ! y v Oo• ž • • œož
layer23 flow-detect { enable | flow flowrate | time-interval time }

¼ { 8 C v O y ¿ ož
no layer23 flow-detect { enable | flow flowrate | time-interval time }

o¬ @ ƒ ª ¢o-

@ ƒ	T
enable	v O y ¿ • ¼
flow flowrate	F å v O
time-interval time	F å ž • • œ

o¬ Þ . F åo- Þ . Õ Ñ k 8 C v O ¿ y © ¼ { ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o 8 C v O y e k* — Õ € • š ¿ ip y Ã Z k ¢ Ô ž • • œ Ä v O ñ F å v O @
ƒ ž k — Õ € 1 ¥ ip - µ^ë ¿ k 3 æ † • Ä û c ž k * = † • ¿ož

o¬ F å †o- 1 y • o v O y k F å 30 ã U — v O ¿ož

```
5XLMLH FRQILJ OD\HU IORZ GHWHFW HQDEOH
5XLMLH FRQILJ OD\HU IORZ GHWHFW IORZ
5XLMLH FRQILJ OD\HU IORZ GHWHFW WLPH LQWHUYDO
```

2 y ¼ { v O y ož

```
5XLMLH FRQILJ QR OD\HU IORZ GHWHFW
```

o¬ à • co- 1 y … show layer23 flow-detect x X k U Y ò 0 v O y © k • o C F å @ ƒ ož
2 y … Ä å Î ª • š ¿ e k • o 8 C v O y k F å 15 ã U — v O y ¿ e kpc E ip ª - k ˆ
- 15 ã U e ip t — Õ ^ë ¿ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.4 layer23 sam-accip-relate enable

• o sam Ã Z ¼ û Á d ož
layer23 sam-accip-relate enable

¼ { sam Ã Z ¼ û Á d ož
no layer23 sam-accip-relate enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k ¥ © ¼ { ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o ¥ e k 8 C œ ð k 1 sam Æ ˜ c 5 Û d ’ Î k , ipo• Ã Zo• Áož 9 — Õ € d f Ø%² Å
K 9 Ú Ë Á k œ 4 ¨ — Õ € 1 Ã Z d f Á ` • c: ÷ c: ’ Y ¥ ” Û ‘ š d f Ø%² Å k 4 Q S
+ sam Æ ˜ c 5 ï ÿ |ož

o¬ F å †o- 1 y • o sam Ã Z ¼ û Á d ož
5 X L M L H F R Q I L J O D \ H U V D P D F F L S U H O D W H H Q D E O H

2 y ¼ { sam Ã Z ¼ û Á d ož
5 X L M L H F R Q I L J Q R O D \ H U V D P D F F L S U H O D W H H Q D E O H

o¬ à • co- 1 y … show layer23 sam-acc x X k U Y ò 0 ¥ © o © ¼ {ož
2 y … show run | in layer23 x X © k ª P layer23 sam-acc-relate enable g U Y ò 0 ¢ ù F å © k • o
sam c Ã Z ã K c Á ož
3 ysam Ã Z c 5 ñ — Õ € e kshow auth-subs brief ò 0 ø d © k Á ` 4 Á d fož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.5 layer23 scc-attention enable

• o d ’ Î — å scc ož
layer23 scc-attention enable

¼ { d ’ Î — å scc ož
no layer23 scc-attention enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k ¥ © • o ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o ¥ e k 1 N I ñ Æ ˜ d ’ Î — å ñ scc n ¾ k À e — å ñ aclk n ¾ 9 y g ïož

h Þ y%² " Õ Ñ U Y ¼ { ¥ # ¾ 9 i — Õ Ô ò Å ož

¢ ¨ A E Ñ y — Õ € c ž • o • š « ° k Ý } ë N µ A E Ñ • š * e k — Õ € — ¬ • š « ° k ¥
· À • oož ¥ « °%² " B ã N µ A E Ñ Z Ä • š k B ã Ä • š k ï e È N µ A E Ñ • š *
ï — ¬ 8) • š k Ì • ï ¨ — Õ € ë • šož

o¬ F å †o- 1 y • o d ’ Î — å scc ož

```
5XLMLH FRQILJ OD\HU VFF DWWHQWLRQ HQDEOH
```

2 y ¼ { d ’ Î — å sccož

```
5XLMLH FRQILJ QR OD\HU VFF DWWHQWLRQ HQDEOH
```

o¬ à • co- 1 y … show layer23 state x X k U Y ò 0 ¥ © o © ¼ {ož
2 y … show run | in layer23 x X © k ª P layer23 scc-attention enable g U Y ò 0 ¢ ù F å © k • o
d ’ Î — å scc ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.6 layer23 strict-verification enable

• o IP+MAC Ç û à ¡ % ”ož
layer23 strict-verification enable

¼ { û à % ”ož
no layer23 strict-verification enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k ¥ © ¼ { ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- o ¥ e k ” ³ ² Á ARP Ç ï k IP+MAC C 3 G F † õ k y g k k é † 1 t ’ k ¬
]$ á … ož

o¬ F å †o- 1 y • o IP/MAC Ç ¡ % ”ož
5 X L M L H F R Q I L J O D \ H U V W U L F W Y H U L I L F D W L R Q H Q D E O H

2 y ¼ { subs € Ä å — ß = • š ož
5 X L M L H F R Q I L J Q R O D \ H U V W U L F W Y H U L I L F D W L R Q H Q D E O H

o¬ à • co- 1 y … show layer23 strict-verification x X k U Y ò 0 ¥ © o © ¼ {ož
2 y … show run | in strict x X © k ª P layer23 strict-verification enable g U Y ò 0 © k • oož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.7 network-group

w J à Ì + » ñ K Ë + » è ¬ož

network-group str1 move to parent str2

o¬ @ ƒ ª ¢o-

@ ƒ	T
str1	¬ } g à Ì + » d f
str2	g $ e ñ ¨ Ë + » d f

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X } 9 w J = à Ì + » ¿ U K Å Y C ¿ ÿ - µ C) È ã Õ Ñ k w J ¿ ñ K è ¬ož

o¬ F å †o- 1 y 1 = Û ¨ ÿ) £ userA g ñ group1 ož

5 X L M L H Q H W Z R U N J U R X S X V H U $ P R Y H W R S D U H Q W J U R X S

o¬ à • co- … show network-group brief x X k U Y ò 0 ¢ ù à Ì + » Á Ã C) È ã ò ¤ © k g è ož

o¬ U P ’ Îo- 1 y } g à Ì + » d f ¨ož

F D Q Q R W I L Q G W K H F K L O G Q H W Z R U N

2 y g e ñ K Ë + » d f ¨ož

F D Q Q R W I L Q G W K H S D U H Q W Q H W Z R U N

3 y g ñ \ d f ož

F D Q Q W P R Y H W R S D U H Q W R I \ R X U V H O I

4 y g ÿ + »ož

F D Q Q W P R Y H W K H U R R W

5 y g ñ \ = Î Ë + » d f k ¬ }ož

W K H Q H W Z R U N Q H H G Q W W R E H P R Y H G

6 y = Î Ë + » © Á + » g ož

F K L O G V R I W K H U D Q J H Q H W Z R U N F D Q Q R W E H P R Y H G

7 y g $ e Ë + » Q © Á + »ož

W K H S D U H Q W D I W H U F K D Q J H G V K R X O G E H W K H Q H W Z R U N J U R X S

8 y g ñ \ ÿ - µ ož

F D Q Q W P R Y H W R W K H F K L O G R I \ R X U V H O I

9 y g $ e Á Ã È ã ‹ † Ý Â Ý ’ òož
W K H G H S W K R I W K H Q H W Z R U N P R Y L Q J L V P R U H W K D Q

10 y g © Ï ó • ë • + »ož
F D Q Q R W P R Y H W K H V \ V W H P G H I D X O W J U R X S

o¬ o • j ¨o- 1 y g $ e C ´ ƒ Ý ’ ò k - — c g è ož
2 y © Ï ó • + » — c g ož

o¬ u V ª ¢o- ¶ © ç D }

1.8 network-group export

- ß ¢ ù © Ï à Ì + » F å ñ † ^ ož
network-group export { txt | csv } filename

o¬ @ ƒ ª ¢o-

@ ƒ	T
filename	† ^ d

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X } 9 O - ß à Ì + » k 1) ù © Ï à Ì + » F å - ß ñ Ù B † ^ ož

o¬ F å †o- 1 y - ß à Ì + » F å ñ † ^ ip-info.txt ož
5 X L M L H Q H W Z R U N J U R X S H [S R U W W [W L S L Q I R W [W

o¬ à • co- … show network-groupall x show network-group brief k ø • ip-info.txt ò 0 ¢ ù F å © k] Æ - µ ñ ¥ † ^ ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.9 network-group import

- µ à Ì + » ñ ¢ ù F å ož

network-group import { txt | csv } filename [overwrite]

o¬ @ ƒ ª ¢o-	@ ƒ	T

2 y © Ï ó • ë • + » ª • í ”ož

```
FDQQRW GHOHWH WKH QHWZRUN GHIDXOW JURXS
```

3 y Ë + » ñ K è ¬ j ¨ož

```
3DUHQW VWULQJ HUURU
```

4 y F å Ë + » j ¨ož

```
SDUHQW VXEVFULEHU HUURU
```

5 y d f y xxx Ï sož

```
QDPH FRQIOLFW ZLWK [[[
```

6 y à Ì + » Á y à Ì + » A Eož

```
QHWZRUN JURXS DQG QHWZRUN FDQ QRW H[FKDQJH
```

7 y y xxx + » ip F å Ï sož

```
LS FRQIOLFW ZLWK [[[
```

8 yip ª - j ¨ož

```
LS DGGUHVV HUURU
```

9 yrange + » Ë + » Q © ï Áož

```
SDUHQW RI LS UDQJH QHWZRUN PXVW EH QHWZRUN JURXS
```

10 yip ê ñ Q A j ¨ož

```
LS RU PDVN HUURU
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.11 network-group rename

M x d à Ì + » d fož

o¬ … 6 -o- 9 ª P • š + » F å ' Î k * 6 ¼ p U ª P c ¥ " à Ì + » ' Îož

o¬ F å †o- 1 y ò 0 ñ Ä • š + » Ã Z ¦ Â ' Îož

```
Q D P H                                                    G L U  W \ S H  L Q G H [
V P S B U R R W
V D P B U R R W
Z H E D X W K B U R R W
```

< † K y

<	ª ¢
name	• š + » d f
dir	• š + » Á K Å
type	• š + » • ºg1-auth o‹2-smpo‹3-smp+autho‹4-sam h
index	• š + » « – › k Ø%² Å

o¬ U P ' Îo- -

o¬ u V ª ¢o- ¶ © ç D }

1.13 show network-group

ò 0 à Ì + » ' Îož

show network-group [all | brief | parent [name | root]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	ª P ñ Ä à Ì + » ' Î
brief	ª P à Ì + » Á Ã C) È ã
parent	ª P à Ì + » ÿ - µ ' Î
name | root	à Ì + » d f ê ÿ + »

o¬ x X % "o- Ô Ó % "o• ¶ B % "o• N M % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 9 ª P à Ì + » F å ' Î k * 6 ¼ p U ª P c ¥ " à Ì + » ' Îož

o¬ F å †o- 1 y ò 0 ñ Ä à Ì + » ¦ Â ' Îož

```
Q D P H                                    G L U  L Q G H [  L S
U R R W
```

2 X W B 6 H U Y H U
L L
M M
X X
X X L L

< † K y

<	ª ¢
name	à Ì + » d f
dir	à Ì + » Á K Å
index	à Ì + » « – › k Ø%² Å
ip	F å à Ì + » ip ª -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ¶ © ç D }

1.14 show subscriber

ò 0 ï + » ’ Îož
show subscriber [all | brief | parent [name | root]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
all	ª P ñ Ä ï + » ’ Î
brief	ª P ï + » Á Ã C) È ã
parent	ª P ï + » ÿ - µ ’ Î
name | root	ï + » d f ê ÿ + »

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 9 ª P ï + » F å ’ Î k * 6 ¼ p U ª P c ¥ ” ï + » ’ Îož

o¬ F å †o- 1

```
Z L W K R X W B D X W K B X V H U

[ [ \

W W

9 S Q B * U R X S

< B

H H

[ K O

H J

X L L X

W W W
```

< † K y

<	ª ¢
name	ï + » d f
mac	F å mac ª -
dir	ï + » Á K Å
av-fc	² v O ö º
av-con	² œ ðo• ‹ ö º
vip	vip ö º
rel	d % K Å ö º
deny	I U K Å ö º
pwd-e	“ w % A K Å ö º
au-deny	W 2 web • š • K Å ö º
login	login • š Ó ’
vpn	vpn • š Ó ’
vbr	vpn ã u Ñ ã ö º
webauth	web • š Ó ’
ssl-deny	W 2 sslvpn • š • K Å
bind	Ç ö º y0- Ç k1- % g Ç k2- E g Ç
h-pwd	m Ä % A ö º
idx	+ » « – ›
ssl-radius	sslvpn Ã Z Æ € û à K Å

ip	F å ip ª -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

1.15 show vlan-group

ò 0 vlan + » ’ Îož

show vlan-group [name-str]

o¬ @ ƒ ª ¢o-

@ ƒ	T
name-str	ª P 6 vlan + » ’ Î

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 9 ª P vlan + » ’ Îož

o¬ F å †o- 1 y ò 0 ñ Ä vlan + » ¦ Â ’ Îož

Y O D Q J U R X S L Q G H [Y O D Q B L G

U R R W

W W

< † K y

o¬ @ ƒ ª ¢o-

@ ƒ	T
str1	¬ } g ï + » d f
str2	g $ e ñ ¨ Ë + » d f

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X } 9 w J = ï + » ¿ U K Å Y C ¿ ÿ - µ C) È ã Õ Ñ k w J ¿ ñ K è ¬ož

o¬ F å †o- 1 y 1 = Û ¨ ÿ) £ userA g ñ group1 ož

5 X L M L H V X E V F U L E H U X V H U $ P R Y H W R S D U H Q W J U R X S

o¬ à • co- … showsubscriber brief x X k U Y ò 0 ¢ ù ï + » Á Ã C) È ã ò ¤ © k g è ož

o¬ U P ’ Îo- 1 y } g ï + » d f ¨ož

F D Q Q R W I L Q G W K H F K L O G V X E V

2 y g e ñ K Ë + » d f ¨ož

F D Q Q R W I L Q G W K H S D U H Q W V X E V

3 y g ñ \ d f ož

F D Q Q W P R Y H W R S D U H Q W R I \ R X U V H O I

4 y g ÿ + »ož

F D Q Q W P R Y H W K H U R R W

5 y g ñ \ = Î Ë + » d f k ¬ }ož

W K H V X E V F U L E H U Q H H G Q W W R E H P R Y H G

6 y = Î Ë + » ú•œ ‘•b°«° €–pP†ùà

F K L O G V R I W K H U D Q J H V X E V F U L E H U F D Q Q R W E H P R Y H G

7 y g $ e Ë + » Q •œ b°«¶ùà

W K H S D U H Q W D I W H U F K D Q J H G V K R X O G E H W K H V X E V F U L E H U J U R X S

8 y g ñ \ ÿ - µ ož

F D Q Q W P R Y H W R W K H F K L O G R I \ R X U V H O I

9 y g $ e Á Ã È ã ‹ † Ý Â Ý ’ òož
WKH GHSWK RI WKH VXEVFULEHU PRYLQJ LV PRUH WKDQ

10 y g © Ï ó • ë • + »ož
FDQ QRW PRYH WKH V\VWHP GHIDXOW VXEV

o¬ o • j ¨o- 1 y g $ e C ´ ƒ Ý ’ ò k - — c g è ož
2 y © Ï ó • + » — c g ož

o¬ u V ª ¢o- ¶ © ç D }

1.17 subscriber allow

— å ï + » Ã Z … Ó ’ož
subscriber allow string privilege { none | { [webauth] [vpn] [login] } }

no Q ¸ L$A’5B á*ó È „G!5B,X L$ Q ¸ î?Z,ª s 9 L$G!5B Ä

o¬ @ ƒ ª ¢o-

@ ƒ	T
string	ï + » Ã Z d f
none	ª • ` ~ Ó ’
webauth	web • š Ó ’
vpn	vpn • š Ó ’
login	login • š Ó ’

o¬ Þ . F åo- Þ . Õ Ñ k ª • ï + » Ã Z vpn • š Ó ’ y web • š Ó ’ož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- — å Ã Z … Ó ’ k U Y C ª • … ê ñ ª • login • š kvpn • š y web • š $%² k $ 8 k $ ož
login • š) ù u 4 … ï ’ ò Ô Ã Z • šož

o¬ F å †o- 1 y — å ï 1 vpn Ó ’ y login Ó ’ož
5 X L M L H F R Q I L J V X E V F U L E H U P R Y L Q J L V P R U H W K D Q

2 y — å ï 1 ñ Ä Ó ’ C ª •ož

5 X L M L H F R Q I L J V X E V F U L S W L O O H Q R Q H

o¬ à • co- … show subscriber by-name str k ò 0 î ï + » login kvpn y webauth ö º © k 1 k W n + • ¥ Ó ’ © k • oož

Q D P H P D F G L U D Y I F D Y F R Q Y L S U H O G H Q \
Y S Q Y E U Z H E D X W K E L Q G K S Z G L G [L S

5XLMLH VXEVFULEHU H[SRUW W[W XVHU LQIR W[W

o¬ à • co- … show subscriber all x show subscriber brief k ø • user-info.txt ò 0 ¢ ù F å © k] Æ - µ ñ ¥ † ^ ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

1.19 subscriber import

- µ ï + » ñ ¢ ù F å ož
subscriber import { txt | csv } filename [overwrite]

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
filename	† ^ d
overwrite	Ï s % ” ö º

o¬ Þ . F åo- -

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X } 9 O - µ ï + » ñ ¢ ù F å >ož
txt ” † ^ L Ú Ê ï + » ” ò y † ^ ? g W n%² ï + » k + » _ « ª ¿ ~ ò y è ¬o• Ã Z d fo• % Ao• ip ª -o• MAC ª -o• © k E g Ç ö ºo• © k ² œ ðo• ‹, © k ² v O(— å Y ž ² œ ð — å Y), © k VIP ï, © k — å d %, © k W 2 à, © k ª • “ w % A, © k W 2 web • š £, © k • vpn ã u Ñ Ã Z(%² " Õ Ñ ï } Ú þ ¥ ö º), © k ª • web • š Ã Z Ó ’, © k ª • vpn • š Ã Z Ó ’, © k W 2 sslvpn • š £, sslvpn Ã Z Î ª % A © k û à, ô Ñ Z A(# Ê)ož ï + » ? « ª k œ • k Z Ä Ä ¾ U Y q 5 k x © k } ‘ k ò y Â e%² ç ¨ k ; " ‘ k ¨ g Íož
µ © .txt ï + » † ^ %² Ú ï + » “ £ † y
/ ñ Ä ï/ ï Á 1, ï 1,,192.168.197.1,,
csv ” † ^ ¨ Microsoft Excel Ú þ e µ à P .csv ” / U ± ñ ¥ ” † ^ož † ^ “ £ Ú þ ” y%² Ú “ £ ã 6 ç k ã ð y Ë + » è ¬o• + » d fo• % Ao• + » ip ª -o• maco• © k E g Ç ö ºo•© k ² œ ðo• ‹, © k ² v O(— å Y ž ² œ ð — å Y), © k VIP ï, © k — å d %, © k W 2 à, © k ª • “ w % A, © k W 2 web • š £,

1.22 subscriber static

F å%² ï + »ož

subscriber static name namestr parent parstr [[[[ip-host ip-addr] [mac mac-addr] | ip-subnet subnetmask | ip-range start end] [password [0 | 6 | 7] pwd_str { two-way-bind | single-way-bind }]] | [password [0 | 6 | 7] pwd_str]] [phone phone_number]

í ”%² ï + »ož

no subscriber static name

¥ Á Z Q ... Ç ip ê ñ mac k x © ¥ < ip ê ñ mac ª - U t ¿ U Ã Z ... ož

Ç ip y mac Ã Z n P ¥ Ã Z I ... ip ê mac ª - ' ò k m Ä ip y mac Ã Z ó • E g Ç ož

Ä å • š k ... ¿ Ã Z ¿ e k k • ¨ Ã Z k © ... ¥ ù Ã Z ¿ ip © • ¨

webauth_root ož

P à 4 ó Ñ Z A ï k U Y ... ô Ñ Z g Î ª ? ' • š û àož

s À ` K ¾ ¢ â ½ s À · ` K â Ÿ - ½ d

o¬ F å ïo L ÿ Ê Ä ï 1 kip ª - © 192.168.196.156 *k* ¿ Ë + » © ï Á 1 k ï Á 1 Ë + » © ñ Ä ï Áož

5 X L M L H F R Q I L J V X E V F U L E H U S W D W H Q W Q D P H Á ï ï Á L S K R V W

o¬ â • co- ... show subscriberall k ò 0 ñ Ä ï + » ' Îož

o UP Îo 1 y ¥ ï + » ¨ož

F D Q Q R W I L Q G W K L V V X E V F U L E H U

2 y © Ï ó • ë • + » ª • í ”ož

F D Q Q R W G H O H W H W K H G H I D X O W J U R X S

3 y Ë + » ñ K è ¬ j ¨ož

S I L J V X E V F W U L O J H U U R

10 y y xxx + » ip F å Ï sož

```
LS FRQIOLFW ZLWK [[[
```

11 y y % g Ç ip xxx + » ip F å Ï sož

```
LS FRQIOLFW ZLWK ELQG VLQJOH ZD\ [[[
```

12 y y xxx + » mac F å Ï sož

```
PDF FRQIOLFW ZLWK [[[
```

13 y y % g Ç mac xxx + » mac F å Ï sož

```
PDF FRQIOLFW ZLWK VLQJOH ELQG [[[
```

14 yip ª - j ¨ož

```
LS DGGUHVV HUURU
```

15 yrange + » Ë + » Q © ï Áož

```
SDUHQW RI LS UDQJH VXEVFULEHU PXVW EH VXEVFULEHU JURXS
```

16 yip ê ñ Q A j ¨ož

```
LS RU PDVN HUURU
```

17 y F å range + » y % g Ç ip xxx + » ip F å Ï sož

```
,3 5$1*( LS FRQIOLFW ZLWK ELQG VLQJOH ZD\ [[[
```

18 y ô Ñ Z A û à j ¨ y x † …o• … ³ co• ô Ñ Z Ï s Ø%²ož

```
WKH OHQ RI SKRQH QXPEHU LV QRW
WKH SKRQH QXPEHU LV LOOHJDO
WKH SKRQH QXPEHU LV FRQIOLFW ZLWK [[[
```

o¬ o • j ¨o- 1 y % E g Ç " ¾ ò † j ¨ož

2 y Ã Z Ó ’ F å | Ê - — c • šož

o¬ u V ª ¢o- ¶ © ç D }

1.23 vlan-group

F å vlan + »ož

vlan-group name vlan vid-list

í ” vlan + »

no vlan-group name

o¬ @ ƒ ª ¢o-

@ ƒ	T
name	vlan + » d f
vid-list	+ » vid

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- vlan + » $ • vlan id Ï s k Ú vlan id $ •) Z œ • k ò ¬ F å Ú Ò vlan id K 9 c%² vlan + » k U - œ • Ü ÷ vlan id y È Ø vlan id n P Ú Ò vlan idož

ó • ¨%² ó • vlan + » any k • o 8 C ã • œ ð ž k ¨ à ¼ % ” ñ Ä ƒ G v ó • F ó • + » any ož

à % ” ñ Ä ƒ G v ó • F native vlan ñ + • vlan + » Ƙ à native vlan Z Ä + • vlan + » k é ƒ G v F ó • + » any ož

c vlan + » $ • d f , c kvlan + » ¨ à ¼ % ” œ ð — |

o¬ F å †o- 1 y F å vlan + » vlan-group1 m vlan 1o•vlan 3o•vlan7 o•vlan8 o•vlan9 ož

5 X L M L H F R Q I L J Y O D Q J U R X S Y O D Q J U R X S Y O D Q

o¬ à • co- … show vlan-groupall g ò 0 vlan + » ñ Ä ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ¶ © ç D }

2 APP-IDENTIFY

2.1 app-add

• Í ï # • Á • ož
app-add app-name

í ” ï # Á •
app-del app-name

o¬ @ ƒ ª ¢o-	@ ƒ	T

3 y # • Á µ P%² # • Á k é U P y

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP JURXS DDD
5XLMLH FRQILJ FXVWRP JURXS H[LW
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP JURXS EEE
5XLMLH FRQILJ FXVWRP JURXS DSS DGG DDD
2QH FXVWRP JURXS FDQQRW MRLQ DQRWKHU FXVWRP JURXS
```

o¬ o • j ¨o- 1 y • ¨

2 y # • Á µ P%² # • Á

o¬ u V ª ¢o- à ¼ © ç D }

2.2 app-del

í ” ï # • Á • ož

app-del app-name

```
5XLMLH FRQILJ
5XLMLH FRQILJ  LGHQWLI\ DSSOLFDWLRQ FXVWRP JURXS DDD
5XLMLH FRQILJ FXVWRP JURXS  DSS GHO EFG
7KLV DSSOLFDWLRQ GRHVQ W H[LVW
```

2y• Ì µ• ÁkéUPy

```
5XLMLH FRQILJ
5XLMLH FRQILJ  LGHQWLI\ DSSOLFDWLRQ FXVWRP JURXS DDD
5XLMLH FRQILJ FXVWRP JURXS  DSS GHO ž*'÷^
7KH DSSOLFDWLRQ GRHVQ W MRLQ WKH FXVWRP JURXS
```

o¬ o•j¨o- 1 y• ¨

2y• ¨9 #• Á

o¬ u V ª ¢o- à¼© ç D }

2.3 identify-application app-db enable

•o• v¤ ož

identify-application app-db enable

¼{• v¤ ož

no identify-application app-db enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó••o

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

* 4xXUY•o• v¤ Ä

o¬ F å †o- 1 y•o• v¤ ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ  LGHQWLI\ DSSOLFDWLRQ DSS GE HQDEOH
```

o¬ o•j¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.4 identify-application block

1 î • µ Š • • Áož
identify-application block app-name

1 î • g ß Š • • Áož
no identify-application block app-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
app-name	• d fož

o¬ Þ . F åo- Þ . µ Š • • Á

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y 1 î • µ Š • • Áož

o¬ F å †o- 1 y 1 MSN • µ Š • • Áož

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ EORFN 061
```

o¬ à • co- 1 y … show identify-application block x X k U Y ò 0 Š • • Á ñ Ä • ož

o¬ U P ’ Îo- 1 y ò ç î •] Æ ¨ ¿ U © Ï • Á k é U P j ¨ož ò MSN] Æ µ ò Á Õ Ñ k 1 MSN • µ Š • • Á k é U P y

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ EORFN 061
7KH DSSOLFDWLRQ KDV DOUHDG\ EHHQ MRLQHG ,QKLELWLYHB*URXS
```

2 y ò ç 1 Ì ¨ • µ Š • • Á k é U P ¥ • ¨ož

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ EORFN ;;;
7KH DSSOLFDWLRQ GRHV QRW H[LVW
```

o¬ o • j ¨o- 1 y î •] µ ¿ © Ï • Á
2 y • ¨

o¬ u V ª ¢o- à ¼ © ç D }

2.5 identify-application clear key-inhibitive-block-other group

Ž ”¼p • Á k ò • Á y Š • • Á ñ Ä • ož
identify-application clear key-inhibitive-block-other group

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- î • U Y µ¼p • Á k - U Y µ ò • Á k - U Y µ Š • • Á k x c ž ˜ µ¼p •
Á A µ ò • Á k * Ú x X U Y 1¼p • Á k ò • Á y Š • • Á • í ”ož

o¬ F å †o- 1 y 1 ñ Ä • R¼p • Á k ò • Á y Š • • Á í ”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 G H Q W L I \ D S S O L F D W L R Q F O H D U N H \ L Q K L E L W L Y H E O R F
```

o¬ à • co- 1 y … show identify-application key o• show identify-app lication inhibitive o• show identify-application-block x show identify-application other x X k U Y ò 0 ¼ po• òo• Š • y ¿ U •
Á ñ Ä • ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.6 identify-application custom name

F å%² Ú ï # • éož
identity-application custom name software-name class class-name { ip sip { any any | sip-low sip-high } dip { any any | dip-low dip-high } | { tcp | udp } { sport { any any | sport-low sport-high } dport { any any | dport-low dport-high } | { sip { any any | sip-low sip-high } { sport { any any | sport-low sport-high } | dip { any any | dip-low dip-high } } | dip { any any | dip-low dip-high } dport { any any | dport-low dport-high } } } }

1 î • g ß Š • • Áož

no identity-application custom name software-name class class-name { ip sip { any any | sip-low sip-high } dip { any any | dip-low dip-high } | { tcp | udp } { sport { any any | sport-low sport-high } dport { any any | dport-low dport-high } | { sip { any any | sip-low sip-high } { sport { any any | sport-low sport-high } | dip { any any | dip-low dip-high } } | dip { any any | dip-low dip-high } dport { any any | dport-low dport-high } } } }

o¬ @ ƒ ª ¢o-

@ ƒ	T
software-name	• ÷ ^ d fož
class-name	• ã • d fož
sport-low	Ü ÷ › € Mož 8 0-65535 ê anyož
sport-high	È Ø › € Mož 8 0-65535 ê anyož
dport-low	Ü ÷) € Mož 8 0-65535 ê anyož
dport-high	È Ø) € Mož 8 0-65535 ê anyož
sip-low	Ü ÷ › ipož
sip-high	È Ø › ipož
dip-low	Ü ÷) ipož
dip-high	È Ø) ipož

o¬ Þ . F åo- Þ . — ï # • é

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * F å Î x X U Y • %² Ú ï # • éož

iFúÐ

y }@j·E²T•§ 6± Ú F J²«" F•-

ip:1.1.1.1 + port:80, ip:1.1.1.1 + port:100, ...ip:1.1.1.1 + port:200, ý c%² ip ip+port + Â Ú Q F å 16

o¬ F å †o- 1 y F å%² Ú ï # • é k • ã • # • ç k • d f ª • ç k › € M 8 1 ñ 10 k) € M 8 1 ñ 100 k # ‘ • º tcp y

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH ª•ç FODVV #•ç
```

2 yF å%² Ú ï # • é k• ã • myp2p k• d f myxunlei k› € M ` Þ k) € M 8 200 k # ‘ • º udp y

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH P\[XQOHL FODVV
```

3 y F å%² Ú ï # • é k • ã • myqq k • d f Ô « €] Æ ¨ ã • im k › € M 111 k) € M 8 2020 k # ‘ • º udp y

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH P\TT FODVV LP
```

o¬ à • co- 1 y … show identify-application custom-rule x X k U Y ª P ñ Ä # • • éož

o¬ U P ’ Îo- 1 y F å • é ip < Ý 32 ip y

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH UXOH FODVV 7&
GSRUW
+LJK LS DGGUHVV PXVW EH ODUJHU WKDQ ORZ LS DGGUHVV DQG WKH UDQ
```

2 yip ê € M ª • F å any ž k U P y

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH UXOH FODVV 7&
GSRUW DQ\ DQ\
,W V QRW DOORZ IRU HLWKHU GVW LS DGGUHVV RU GVW SRUW QXPEHU
```

3 yip ê € M Ï s ž k U P y

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH UXOH FODVV 7&
GSRUW
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH UXOH FODVV 7&
GSRUW
3RUW RU LS KDV DOUHDG\ XVHG
```

4 yip ê € M Ï s ž k U P y

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ FXVWRP UXOH
7<3( 1$0( &/$66 63/ 63+ '3/ '3+
```

```
6,3+          ',3/          ',3+



7&3 UXOH                    7&B$'B.(<                DQ\  DQ\
DQ\
7&3 UXOH                    7&B$'B.(<                DQ\  DQ\
DQ\
7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
DQ\
7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
DQ\
7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€                   DQ\  DQ\          D
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
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7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
DQ\
7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
DQ\
7&3 UXOH                    ƒG€              DQ\  DQ\          DQ\
DQ\
5XLMLH FRQILJ  LGHQWLI\ DSSOLFDWLRQ FXVWRP QDPH UXOH  FODVV ƒ
  GSRUW
7KH VDPH ,3 DVVRFLDWHG ZLWK GLIIHUHQW SRUW FDQQRW H[FHHG
```

o¬ o • j ¨o- 1 y F å • é ip < Ý 32 ip
2 yip ê € M ª • F å any ê ñ c ž F å any

3 yip ê € M Ï s

o¬ u V ª ¢o- à ¼ © ç D }

2.7 identify-application custom-group

• Í ï # • Áož
identify-application custom-group group-name

í ” ï # • Áož
no identify-application custom-group group-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
group-name	• Á d

o¬ Þ . F åo- Þ . Õ Ñ — ï # • Á

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y • Í ï # • Áož
ï U Â Ú # 100 • ï # • Áož
F å ¥ x X e k x X F å % ” ô µ custom-group F å x X Což

o¬ F å †o- 1 y µ x X • Í ï # ï y`Ð4d ´`–@

o¬ o • j ¨o- 1 y # • Á d f y © Ï • Ï s
2 y # • Á ƒ Ý ’

o¬ u V ª ¢o- à ¼ © ç D }

2.8 identify-application dfi enable

• o dfi œ ð p2p ú v y § º v ož
identify-application dfi enable

… ¥ x X no # ¾ ¼ { • œ ð ož
no identify-application dfi enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ ¼ {ož - U % Þ • oož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y • o dfi œ ð p2p ú v y § º v ož

o¬ F å †o- 1 y • o dfi œ ð p2p y § º v 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 G H Q W L I \  D S S O L F D W L R Q  G I L  H Q D E O H
```

o¬ à • co- 1 y … show running-config ò 0 • ¼ož ¢ ¼ { ž k ª P

```
L G H Q W L I \  D S S O L F D W L R Q  G I L  H Q D E O H
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.9 identify-application dpi enable

• o DPI œ ð ož
identify-application dpi enable

¼ { DPI œ ð ož
no identify-application dpi enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- • œ ð • o Õ Ñ k Þ . • oož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y • o DPI œ ð ož

o¬ F å †o- 1 y • o DPI œ ðož

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ GSL HQDEOH
```

o¬ à • co- 1 y … show running-config ò 0 • ¼ož ¢ ¼ { ž k ª P

```
QR LGHQWLI\ DSSOLFDWLRQ GSL HQDEOH
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.10 identify-a pplication enable

• o • œ ð ¶ B ož
identify-application enable

¼ { • œ ð ¶ B ož
no identify-application enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ • o 4 ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y • o • œ ð ¶ B ož

o¬ F å †o- 1 y • o • œ ðož

```
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 G H Q W L I \ D S S O L F D W L R Q H Q D E O H
```

o¬ à • co- 1 y … show identify-application enable ò 0 Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.11 identify-application inhibitive

1 î • µ ò • Áož

o¬ F å †o- 1 y 1 MS • µ ò • Áož

```
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 G H Q W L I \ D S S O L F D W L R Q L Q K L E L W L Y H 0 6 1
```

o¬ à • co- 1 y … show identify-application inhibitive x X k U Y ò 0 ò • Á ñ Ä • ož

o¬ U P ’ Îo- 1 Pœðh F y ƒ5à•!!†gB„ œ 6°N•uPœ ™Â ù Vf3fc$ 5 X L M L H F R V– À 0

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ NH\ 061
```

o¬ à • co- 1 y … show identify-application key x X k U Y ò 0 ¼ p • Á ñ Ä • ož

o¬ U P ' Îo- 1 y ò ç î •] Æ ¨ ¿ U © Ï • Á k é U P j ¨ož ò MSN] Æ µ Š • • Á Õ Ñ k 1 MSN • µ ¼ p • Á k é U P y

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ NH\ 061
7KH DSSOLFDWLRQ KDV DOUHDG\ EHHQ MRLQHG %ORFNB*URXS
```

2 y ò ç 1 Ì ¨ • µ ¼ p • Á k é U P ¥ • ¨ož

```
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ NH\ ;;;
7KH DSSOLFDWLRQ GRHV QRW H[LVW
```

o¬ o • j ¨o- 1 y •] Æ ¨ ¿ U © Ï • Á
2 y • ¨

o¬ u V ª ¢o- à ¼ © ç D }

2.13 identify-appli cation len-seq enable

• o x † ~ ç œ ð ož
identify-application len-seq enable

¼ { x † ~ ç œ ð ož
no identify-application len-seq enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo-

o¬ à • co- 1 y … show running-config ò 0 • ¼ož ¢ ¼ { ž k ª P

```
Q R  L G H Q W L I \  D S S O L F D W L R Q  O H Q  V H T  H Q D E O H
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.14 identify-application other

1 î • µ ¿ • Áož
identify-application other app-name

1 î • g ß ¿ • Áož
no identify-application other app-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
app-name	• d fož

o¬ Þ . F åo- Þ . µ ¿ • Á

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y 1 î • µ ¿ • Áož

o¬ F å †o- 1 y 1 MSN • µ ¿ • Áož

```
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 G H Q W L I \  D S S O L F D W L R Q  R W K H U  0 6 1
```

o¬ à • co- 1 y … show identify-application other x X k U Y ò 0 ¿ • Á ñ Ä • ož

o¬ U P ’ Îo- 1 y ò ç 1 Ì ¨ • µ ¿ • Á k é U P ¥ • ¨ož

```
5 X L M L H  F R Q I L J  L G H Q W L I \  D S S O L F D W L R Q  R W K H U  ; ; ;
7 K H  D S S O L F D W L R Q  G R H V  Q R W  H [ L V W
```

o¬ o • j ¨o- 1 y • ¨

o¬ u V ª ¢o- à ¼ © ç D }

2.15 identify-applicati on proto-detect enable

• o • œ ð # ‘ M y œ ð ož
identify-application proto-detect enable

… ¥ x X no # ¾ ¼ { # ‘ M y œ ð ož
no identify-application proto-detect enable

o¬ @ ƒ ª ¢o-

no identify-application proto-expect enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¨ • o • œ ð Õ Ñ k ó • • o ¥ ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y • o # ‘ Ä Ê œ ð ož

o¬ F å †o- 1 y • o # ‘ Ä Ê œ ð ož

5 X L M L @L•‘ BT Œt M q(•-X• €¥" ™Â ù• 3d•’ 5 X L M L @L•‘ BTu Œt M ±(•-X• €¥,q ˜ ‰ y€ • RS%2 E%y•-X• %2Uú

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y F å # ‘ Ä Ê - µ ï ž •ož

o¬ F å †o- 1 y F å # ‘ Ä Ê - µ ï ž • 3 ã Uož

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ SURWR H[SHFW WLPHRXW
```

o¬ à • co- 1 y … show running-config ò 0ož ¢ Ä F å ž k ª P

```
LGHQWLI\ DSSOLFDWLRQ SURWR H[SHFW WLPHRXW
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.18 identify-application signature update

´ Ô « €ož

identify-application signature update

o¬ @ ƒ ª ¢o-

```
5XLMLH UXQ V\VWHP VKHOO
a  FS GDWD DSSBVLJQDWXUH XSG VELQ VLJQDWXUH DSSBWPS
a  H[LW
5XLMLH
```

3 y ´ Ô « €ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ LGHQWLI\ DSSOLFDWLRQ VLJQDWXUH XSGDWH
```

o¬ à • co- 1 y … show identify-application version ò 0 Ô « € Í Î ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

2.19 show identify-application

ª P • • é ù ’ Îož

show identify-application

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- -

o¬ … 6 -o- * 4 x X U Y ø - ß ¢ ù • • é ù ’ Îož

o¬ F å †o- 1 y ª P • • é ù ’ Î

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ
DQ\
   /ž * ’ ÷ ^
      ‹ L Ÿ Ÿ
      0 6 1
         0 6 1 &+$7
         0 6 1 $8',2
         0 6 1 ),/(
         0 6 1 ,È
         0 6 1 £
```

```
        ’ 44
            44 &+$7
            44 §º
            44 †^nÿ
            44 †^»F
            44 ,È
            44  £
        :(%,0
            061 :(%,0
            <$+22 :(%,0
            $,0
        à£ee
        Ï’
    ,3à Ì ¢
        6.<3(
        K  #‘•
            +    +267&$//6&
            &$// 6,* 75$16
            57&3
            573
           ,07& 0&6
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à¼© ç D }

2.20 show identify-application block

ªP µŠ•• Á • ê ã •ož

show identify-application block

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

```
5XLMLH  VKRZ LGHQWLW\ DSSOLFDWLRQ EORFN
 U ÷ ^
[redacted]
 ª
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.21 show identify-application class

ª P • ã • ’ Îož

show identify-application class [class-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
class-name	• ã • d

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 • ã • ’ Î k ê ñ î • ã • • ož

o¬ F å †o-

```
÷^¾•
+77,È
àc
àÌF&
/ž*'B02%,/(
,È_§ºB02%,/(
 úWÀB02%,/(
•çB02%,/(
```

2yò0î • ã• •

```
5XLMLH  VKRZ LGHQWLI\ DSSOLFDWLRQ FODVV ;ûà†^nÿ
)73
+7736
1173
7)73
,;,$
691
60%
```

```
V\VWHP JURXS 8QNH\B*URXS
V\VWHP JURXS %ORFNB*URXS
   DSSOLFDWLRQ 061 JURXS
V\VWHP JURXS 2WKHUB*URXS
   DSSOLFDWLRQ /ž*'÷^ JURXS
   DSSOLFDWàLRQ J,U3RXS
   DSSOLFDWLRQ àÌ•ç÷^ JURXS
   DSSOLFDWLRQ ,Èvý}÷^ JURXS
   DSSOLFDWLRQ 3U3RXS
   DSSOLFDWLRQ U÷^ JURXS
   DSSOLFDWLRQJU:R{%S
   DSSOLFDWLRQ JUR7X3S
   DSSOLFDWLRQ ;ûà†^nÿ JURXS
   DSSOLFDWLRQ ÿ=^#‘ JURXS
   DSSOLFDWLRQ ƒG€ JURXS
   DSSOLFDWLRQ àÌ'ò#‘ JURXS
   DSSOLFDWLRQ è #‘ JURXS
   DSSOLFDWLRQ ¶#‘ JURXS
   DSSOLFDWLRQJU9R3X1S
   DSSOLFDWLRQ i~|#‘ JURXS
   DSSOLFDWLRQ ÷^¾• JURXS
   DSSOLFDWLRQ JUR7X3S
   DSSOLFDWLRQ àc JURXS
   DSSOLFDWLRQ àÌF& JURXS
   DSSOLFDWLRQ /ž*'B02%,/( JURXS
   DSSOLFDWLRQ ,È_§ºB02%,/( JURXS
   DSSOLFDWLRQ úWÀB02%,/( JURXS
   DSSOLFDWLRQ •çB02%,/( JURXS
   DSSOLFDWLRQ QAB02%,/( JURXS
   DSSOLFDWLRQ à&B02%,/( JURXS
   DSSOLFDWLRQ :(%B02%,/( JURXS
   DSSOLFDWLRQ ¿UB02%,/( JURXS
   DSSOLFDWLRQ àÆB02%,/( JURXS
   DSSOLFDWLRQ šôB02%,/( JURXS
   DSSOLFDWLRQ à uV_à cgB02%,/( JURXS
   DSSOLFDWLRQ ³( JURXS
   DSSOLFDWLR2RQ JUŲRXS
   DSSOLFDWLRQ ,Èk‘ JURXS
   DSSOLFDWLRQ JUR7X3S
   DSSOLFDWLRQ JUR7X3S
   DSSOLFDWLRQ 5)& JURXS
```

```
   DSSOLFDWLRQ ,&03 '(7$,/ JURXS
   DSSOLFDWLRQ ,3 5$: JURXS
   DSSOLFDW#L‘ÁQJU3RXS
   DSSOLFDWLRQ 7&B$'B.(< JURXS
FXVWRP JURXS 7&B$'B.H\
   DSSOLFDW•RQJU:R%S
   DSSOLFDWLRúQ JU7R7X3S
   DSSOLFDWLRQ ú3 3 +773
   DSSOLFDWLRQ úWÀB02%,/( JURXS
FXVWRP JURXS URXWHaURXWH
   DSSOLFDW•RQJU:R%S
   DSSOLFDWLRúQ JU7R7X3S
   DSSOLFDWLRnQ JU7R7X3S
FXVWRP JURXS aURXWH
   DSSOLFDWLRúQ JU7R7X3S
   DSSOLFDWLRnQ JU7R7X3S
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à¼ © ç D }

2.23 show identify-application custom-rule

ª P # • • éož

show identify-application custom- rule

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ñ Ä # • • éož

o¬ F å †o- 1 y ò 0 • ã Á

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ FXVWRP UXOH
7<3( 1$0(                    &/$66                    63/  63+  '3/  '3+
6,3+          ',3/          ',3+
```

```
7&3  UXOH                    7&B$'B.(<                  DQ\  DQ\
DQ\
7&3  UXOH                    7&B$'B.(<                  DQ\  DQ\
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
7&3  UXOH                    ƒG€                 DQ\  DQ\          D
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
7&3  UXOH                    ƒG€            DQ\  DQ\          DQ\
DQ\
```

< † K y

<	ª ¢
TYPE	# ‘ ’ Îož
NAME	• é d f
CLASS	• é ñ K • ã •
SPL	Ü ÷ › € M
SPH	Ä 2 › € M
DPL	Ü ÷) € M
DPH	Ä 2) € M
SIPL	Ü ÷ › IP ª -
SIPH	Ä 2 › IP ª -
DIPL	Ü ÷) IP ª -
DIPH	Ä 2) IP ª -

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.24 show identify-application dfi enable

ò 0 • œ ð DFI ož

show identify-application dfi enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 • œ ð DFI ož

o¬ F å †o- 1 y ò 0 • œ ð DFI

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ GIL HQDEOH
GIL HQDEOH
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.25 show identify-application enable

ò 0 • œ ð ož

show identify-application enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 • œ ð ož

o¬ F å †o- 1 y ò 0 • œ ð

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ HQDEOH
RQ
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.26 show identify-application group-state

ª P ã Á % ”ož

show identify-application group-state

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 ¢ ù ã Á % ”ož

o¬ F å †o- 1 y ª P • ã • ’ Î y

5XLMLH VKRZ LGHQWLW\ DSSOLFDWLRQ JURXS VWDWH
DSS JURXS VWDWH RQ

< † K y

<	ª ¢
app group state	on ¢ ù • 7 ¼ p • Á k ò • Á Á klP # ‘ Á g ã Á

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.27 show identify-application inhibitive

ª P µ ò • Á • ê ã •ož

show identify-application inhibitive

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 ¢ ù ; ? • ê ã • µ 4 ò • Áož

o¬ F å †o- 1 y ª P ò • Á •

2.31 show identify-app lication proto-expect enable

ª P # ‘ Ä Ê ’ Îož

show identify-application proto-expect enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 ¢ ù # ‘ Ä Ê ’ Îož

o¬ F å †o- 1 y ª P # ‘ Ä Ê Â Î ’ Î

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ SURWR H[SHFW HQDEOH
3URWR H[SHFW LV HQDEOH
3URWR H[SHFW DSSBGE LV XQDEOH
3URWR H[SHFW WLPHRXW LV QRW VHW> V@
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

2.32 show identify-application version

ª P Ô « € Í Î Z ’ Îož

show identify-application version

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y ò 0 ¢ ù Ô « € Í Î ’ Îož

o¬ F å †o- 1 y ò 0 ¢ ù Ô « € Í Î ’ Î

```
5XLMLH VKRZ LGHQWLI\ DSSOLFDWLRQ YHUVLRQ
```

9 H U V L R Q 9

< † K y

<	ª ¢
Version	Í Î Zož

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

3 APP-PROXY

3.1 app-proxy enable

• o • W ò ož
app-proxy enable

¼ { • W ò ož
no app-proxy enable

o¬ @ ƒ ª ¢o-

app-proxy http enable

¼ { HTTP • W ò ož
no app-proxy http enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó • • o

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X • o HTTP • W ò ož

o¬ F å †o- 1 y • o HTTP • W ò ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ DSS SUR[\ KWWS HQDEOH
```

o¬ à • co- 1 y … show app-proxy enable x X k U Y ò 0 HTTP • W ò © o © ¼ {ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- à ¼ © ç D }

3.3 show app-proxy enable

ò 0 • W ò • ¼ož
show app-proxy enable

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 • W ò , ¼ • ¼ Ù Áož

o¬ F å †o- 1 y • W ò • ¼

```
5XLMLH VKRZ DSS SUR[\ HQDEOH
DSS SUR[\                                    <
DSS SUR[\ KWWS                                 <
DSS SUR[\ XGS                                  <
DSS SUR[\ XUO                                  <
DSS SUR[\ GQV                                  <
```

< † K y

<	ª ¢
app-proxy	• W ò È • ¼
app-proxy http	HTTP • W ò • ¼
app-proxy udp	UDP 7ù v • ¼
app-proxy url	DNS – v € … • ¼
app-proxy dns	• W ò DNS • ¼

o¬ U P ’ Îo- -

o¬ u V ª ¢o- à ¼ © ç D }

4 µ A j q d a ñ

4.1 flow-pre-mgr { down-deny | down-permit }

+ g • • † g ¡

flow-pre-mgr { down -deny | down -permit } id { { { ip | icmp | ospf } { src-host { ip-addr | any } | src-range { ip-start ip-end | any } | src-subnet { ip-subnet ip-mask | any } } { dst-host ip-addr | dst-range ip-start ip-end | dst-subnet ip-subnet ip-mask } } | { { tcp | udp } { src-host { ip-addr | any } | src-range { ip-start ip-end | any } | src-subnet { ip-subnet ip-mask | any } } { src-port { port | any } | sport-range { port-srart port-end | any } } { dst-host ip-addr | dst-range ip-start ip-end | dst-subne t ip-subnet ip-mask } { dst-port { port | any } | dport-range { port-srart port-end | any } } } }

í " î Ú ¡ • é

no flow-pre-mgr { down-deny | down-permit } id

o¬ @ ƒ ª ¢o-

ÀT xÐ

o¬ F å †o- F å ª • Ù à ˜ | — Õ ” 4 80 € M Ù ñ Ä € M k W 2 Ù à IP 110.110.110.24 ping — Õož — Õ IP172.18.124.118

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU GRZQ GHQ\ LFPS VUF KRVW
5XLMLH FRQILJ IORZ SUH PJU GRZQ SHUPLW WFS VUF KRVW DQ\ VUF GVW SRUW
5XLMLH FRQILJ IORZ SUH PJU GRZQ SHUPLW XGS VUF KRVW DQ\ VUF GVW SRUW
```

o¬ à • co- 1 o• … show flow-pre-mgr drop-count ò 0 Õ Ñož
2o• … show ip session filter ò 0 ? Ú • é F † ƒož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.2 flow-pre-mgr port-limit range { tcp | udp }

• € M ' ò € M 8
flow-pre-mgr port-limit range { tcp | udp } port-start port-end

í ” î € M 8
no flow-pre-mgr port-limit range { tcp | udp } port-start port-end

o¬ @ ƒ ª ¢o-

@ ƒ	T
port-start	€ M 8 Ü ÷ € M
port-end	€ M 8 È Ø € M

o¬ Þ . F åo- ó • — å € M Ä ytcp 445

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 h ó • ¨ tcp 445 € M ' òož
2 h F ` flow-pre-mgr port-limit ratio num x X … ož
3 h u 4 Ú ÿ € M k ¢ ƒ ' ò y È k ¢ ƒ ' òo• • • k ¢ ƒ ' ò g 1 ipo• Ô : ip y Z ' ip ho• Â 9
acl È k ¢ ƒ ' òo• Â 9 ï ? ip k ¢ ƒ ' òož

4 h ñ Ä ÿ » € M 8 ož

o¬ F å †o- F å È k ¢ ƒ ' ò 10000 z F å 1 ip • • v , ä 300 z F å Â 9 ï ? ip k ¢ ƒ ' ò 500 z F å Â 9 acl È k ¢ ƒ ' ò 5000 z Ç F å tcp 12200 € M ' ò € M k ' ò ã A ã $ 10ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU WRWDO OLPLW
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW UHDO KRVW OLPLW
5XLMLH FRQILJ IORZ SUH PJU DFFHVV OLVW DFWLRQ WUXVW WRWDO
5XLMLH FRQILJ IORZ SUH PJU VXEVFULEHU DQ\ DFWLRQ WUXVW WRWA
5XLMLH FRQILJ IORZ SUH PJU SRUW OLPLW UDQJH WFS
5XLMLH FRQILJ IORZ SUH PJU SRUW OLPLW UDWLR
```

o¬ à • co- 1. … show flow-pre-mgr ip-info ò 0 ? ip € M k ¢ ƒ Y C ' ò ›ož

2. …

ip-subnet	6 ÿ à à <
ip-mask	6 Q A
port	€ M
port-srart	€ M 8 Ü ÷ € M
port-end	€ M 8 È Ø € M

o¬ Þ . F åo- — F å

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- y ip session filter %² ý C © 9 † ¡ kQ © ñ Å Ä ð kò ç F å ACL Ä Ý O ACE ¢ k • ‘ … ¥ Ú x X kÅ k Ä ñ U ož ¥ x X 9 + g ½ • † g ¡ k $ F ì Ä + g • • † g ¡ x Xož

F å g • • † ¡ • é ž k › IP anyož

F å g • • † ¡ • é ž k) IP þ anyož

Permit y deny • é Ä _ ID k k Ï sož

Deny • é ¡ ¯ ´ Ý 9 permit • éož

o¬ F å †o- F å ª • Ä à 192.168.1.0/24 à < y 172.18.1.0/24 à - IP à k © W 2 ¿ 192.168.1.24 IP àož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU XS GHQ\ LS VUF KRVW GVW K
5XLMLH FRQILJ IORZ SUH PJU XS SHUPLW LS VUF VXEQHW
5XLMLH FRQILJ IORZ SUH PJU XS SHUPLW LS VUF VXEQHW
```

o¬ à • co- 3 o• … show flow-pre-mgr drop-count ò 0 Õ Ñož

4o• … show ip session filter ò 0 ? Ú • é F † ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.5 flow-pre-mgr access-list

F å Â 9 ACL k ¢ ƒ ’ ò ›

flow-pre-mgr rule-id access-list acl-number action { block | by-pass | { trust total-limit total-limit-number } }

í " Â 9 ACL k ¢ ƒ ' ò • é
no flow-pre-mgr rule-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-id	• é ö œ Z kH › 8 1~50 k ¢ F å ö œ Z] Æ t … ž k é k U P Ï s k — c F å è ož
acl-number	• é ¼ û ACL Z k H › 8 1~199ož
total-limit total-limit-number	ACL È v k ¢ ƒ ' ò › k H › 8 — Õ Ä Ä ¼ k ¿ 0 n P ' òož

o¬ Þ . F åo- — , ¼ F å

o¬ x X % "o- ¶ B % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 h F å Â 9 ACL v k ¢ ƒ O ò • " yblock o•by-pass ê trust k } í " , ¼ F å k ¨ ¶ B F å % " *
ü g no flow-pre-mgr id / Uož
2 h F å • é À Ä i ¯ ´ k i ¯ ´ 7 Á Â e F å • é i ¯ ´ Â ä = é Û #ož
3 h Â 9 ACL v k ¢ ƒ ' ò ª • ï F å ? IP v k ¢ ƒ ' òož
4 h action ª ¢ k block n P ª • v k ¢ * ' z by-pass n P ¬ } ë • v k ¢ k + N ÿ G ¥ 0 ¼ © ô
G † g ¥ x X ¼ p Q Ä ¨ N % "o• % % " õ k ß ë k à ¼ % " © k Ä ¥ x X ¼ p h z
trust n P ª • F å ¥ ACL È v k ¢ ƒ ' ò k v k ¢ Ý 6 ' ò › e Ç ª • • • v k ¢ * 'ož
5 h ñ ACL › IP + • Ä à IP k › € M + • Ä à € M k) IP + • Ù à IP k) € M + • Ù à € Mož
6 h — Õ ñ u 4 Â Ý v k ¢ ƒ — Õ Ä Ä ¼ k F å ¥ x X ž k ª • ÿ µ Â Ý › / — Õ Â Ú u 4
v k ¢ ƒož
7 h Â 9 ACL v k ¢ ƒ ' ò • é + Å § € û Ý k F å ß Úož Î • é * o 9 9 ² — Õ ë • — Þ # v
k ¢ k @ ð P †ož
8 h • é ¼ û ACL k ¿ m ACL Ú) N u 4 F å › IPo• › € Mo•) IPo•) € Mo• # ' Z k k é ¥ Ú
ACL Ú) ¨ Î % ² © — c ÿ | ož
9 h à ¼ % " k + 9 %² ´ è ~ è j ¨ - › › ß ƒ G v k é [Ÿ ' òož

¡ • " ACL d

o¬ F å †o- 1 o• F å%² Ú ACL 9 F — Õ Ù à IP y220.200.20.20 • y v k ' ò ¿ v k ¢ ƒ 30 Úož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ LS DFFHVV OLVW H[WHQGHG
5XLMLH FRQILJ H[W QDFO SHUPLW LS DQ\ KRVW
5XLMLH FRQILJ H[W QDFO GHQ\ LS DQ\ DQ\
5XLMLH FRQILJ H[W QDFO H[LW
```

5XLMLH FRQILJ IORZ SUH PJU DFFHVV OLVW DFWLRQ WUXVW WRWD

ƒ ož

o¬ F å †o- ¼ { ¶ B k ¢ ƒ ' ò ož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ QR IORZ SUH PJU HQDEOH
```

o¬ à • co- … show running-config Û ò 0 © k ¨ no flow-pre-mgr enable k ¨ < © • o Ù Áož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.7 flow-pre-mgr new-session-limit { specify | specify-range | specify-subnet }

F å 1 IP • • N ƒ ' ò e k U î ? Ô : IP g ò Æ ˜ h ¬ } y ! ' ò ›ož

flow-pre-mgr new-session-limit { specify ip-addr | specify-range ip-start ip-end | specify-subnet ip-subnet ip-mask } limit limit-number

í ” 6 1 IP • • N ' ò

no flow-pre-mgr new-session-limit { specify ip-addr |i 1 Tf 0.0006 Tc 0.5628 T97 0 21856.7 405.3 Tm 66Tj 178(m)- T

IP •• N , ä © ® ñ%² Ü g ‹ ' k / •• N ' ò › © ¸ k 4 • + — Õ o Ñ k Ä à ï ¤
¿ k ¬ } ž ˜ •• N ' ò y ! g Æ à › 20000~30000 h k ê ñ — ' ò ›ož
Virtual-host y — Õ o Ñ ê ñ Î Ä þ % ² M • ú ã U e k Z ' IP •• N , ä ' ò › k c ý - © ñ Ä Z '
IP •• † ® ñ%² Ü g • • , ä ‹ ' k / •• N ' ò › © ñ Ä Z ' IP ¸ ož Æ à › 3000 X Xož
Real-host y 1 IP •• N ' ò k ? IP •• , ä % Þ ‹ 'ož

o¬ F å †o- F å — Õ o Ñ ã U Ä k Z ' IP •• N ' ò 20000 z F å Z ' IP •• N ' ò 3000 z F å 1 IP •• N ' ò 300

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW VWDUW XS OLPLW
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW YLUWXDO KRVW OL
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW UHDO KRVW OLPLW
```

o¬ à • co- 1 o• … show flow-pre-mgr new-session-limit ò 0 F åož
2o• … show flow-pre-mgr drop-count ò 0 Õ Ñož
3o• … show flow-pre-mgr new-session-limit attack ò 0 w x à ›ož

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.9 flow-pre-mgr priority-swap

ä E Ú • é ¡ ¯ ´
flow-pre-mgr priority-swap rule-id1 rule-id2

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-id1	} ä E ¡ ¯ ´ • é ID
rule-id2	} ä E ¡ ¯ ´ • é ID

o¬ Þ . F åo- —

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … 4 x X ä E Ú • é ¡ ¯ ´ož

v k ¢ ƒ o ž

2 h à ¼ % " k + 9 %² ´ è ˜ è j ¨ - › › ß ƒ G v k é [Ÿ ' ò o ž

o ¬ F å †o- F å ¶ B v k ¢ ƒ ' ò 20 k ¢ v k ¢ ƒ ñ 20 ž k Ç ª • ë • v k w Š • o ž

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 I O R Z S U H P J U W R W D O O L P L W

o ¬ à • co- 1 o • … show flow-pre-mgr rule-info ò 0 F å • é Y C k ¢ F Õ Ñ z

2 o • … show flow-pre-mgr ip-info ò 0 IP k ¢ Y C ' ò Õ Ñ o ž

o ¬ U P ' Î o- -

o¬ F å †o- F å Ä à ï ? a g † ƒ Ý 3000 z 192.168.1.2 ï ? a Q • U Â Ú g 10000 †ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU XSORDG SSV OLPLW
5XLMLH FRQILJ IORZ SUH PJU XSORDG SSV OLPLW VSHFLI\ OL
```

o¬ à • co- 1 o• … show flow-pre-mgr upload-pps-limit ò 0 F å z

2o• … show flow-pre-mgr drop-count ò 0 g , ’ ò Õ Ñož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.15 ip session filter

F å • • v ¡

Ip session filter acl-id

í ” • • v ¡

no ip session filter

o¬ @ ƒ ª ¢o-

@ ƒ	T
acl-id	ACL ID Z k 9 • • † ¡ož - .

o ¬ ACL @

o¬ à • co- 1 o• … show flow-pre-mgr drop-count ò 0 t ACL ¡ J † ƒ z

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.16 show flow-pre-mgr drop-count

ò 0 buffer ‘ ™ º “ £
show flow-pre-mgr drop-count

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 ò 0 _ ÿ ƒož

o¬ F å †o- ò 0 ƒ

```
5XLMLH VKRZ IORZ SUH PJU GURS FRXQW
'523 7<3(          '523 3.7

)LOWHU SNW
6HVVLRQ UHDO
6HVVLRQ VSHFLI\
6HVVLRQ YLUWXDO
6HVVLRQ FSX
336 UHDO
336 VSHFLI\
336 YLUWXDO
6HVVLRQ UHDO SRUW
6HVVLRQ VSHF SRUW
6HVVLRQ YW SRUW
6HVVLRQ WRWDO SRUW
```

o¬ u V ª ¢o-

4.18 show flow-pre-mgr new-session-limit

ò 0 F å … • • x à • é

show flow-pre-mgr new-session-limit

o¬ @ ƒ ª ¢

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X ò 0 ¢ ù — Õ Â %²) I ñ • • N x à " £ož

o¬ F å †o- ò 0 F å

```
5XLMLH  VKRZ IORZ SUH PJU QHZ VHVVLRQ OLPLW DWWDFN
+267 7<3(          +267 ,3           7,0(

UHDO KRVW
```

o¬ U P ' Îo- -

o¬ u V ª ¢o-

4.20 show flow-pre-mgr rule-info

ò 0 F å • é
show flow-pre-mgr rule-info

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 ò 0 F å • é Y C k ¢ F Õ Ñož

o¬ F å †o- ò 0 F å • é Y C k ¢ F Õ Ñož

```
5XLMLH VKRZ IORZ SUH PJU UXOH LQIR
IORZ SUH PJU WRWDO OLPLW
 DFWLYH IORZ SUH PJU  VXEVFULEHU 8VHU*URXS$ DFWLRQ WUXVW WRW
IORZV
 LQDFWLYH IORZ SUH PJU  DFFHVV OLVW  DFWLRQ EORFN  IORZV
```

< † K y

<	ª ¢
active	• é ¢ ù © ÿ | Ù Á
inactive	• é ¢ ù © ÿ | Ù Á
flows	¢ ù Ä Ú 5 k ¢ F • é

o¬ U P ’ Îo- -

o¬ u V ª ¢o-

4.21 show flow-pre-mgr upload-pps-limit

ò 0 F å … g v O x à • é

show flow-pre-mgr upload-pps-limit

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % å … àu €) %„.6x C° • tQ‘#xS sõ

5 FLOW-CONTROL

5.1 auto-pir

… v O * 3 ù PIR Á ² … ož
auto-pir enable [interval NUM [root-rate Percentage]] [exclude-pass]

¼ { v O * 3 ƒ PIR Á ² … ož
no auto-pir enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
NUM	² … • œ k % y y a k F å ó • 1 a k F å 8 1 ½3600
Percentage	PIR 9 ò ê Ê Ö , › y ÿ * 3 k ! ï ä k Ô ò . þ ò y — ä 9 , › ž ‡ G PIR 9 ò ò k 7 Á * 3 i ¯ ´ R z ñ ä k ò ç ¨ * 3 , ä Ý CIR k é 9 ò ¿ PIR z — z 9 , › 10 ã µ ž ‡ G PIR Ê Ö k 7 Á * 3 i ¯ ´ R ä ñ z g Ê Ö z — P 9 9 ñ $ • ž Ÿ Ô ò F å ó • 90 k F å 8 1 ½99oðž Y ó • › 90 † k z 9 80% ž ‡ G PIR Ê Ö k ä 9 90% ž ‡ G PIR 9 ò ò k P 9 80% y 90% $ • ž Ÿ Ô òož
exclude-pass	root-rate , › ‹ ‘ ó • , y g v O k ÿ µ exclude-pass ¼ p e , pass v Oož

o¬ Þ . F åo- EG D } ó • • o kNPE D } ó • ¼ {ož

o¬ x X % ”o- channel-tree F å % ”ož

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 9 ¨ %² ´ v O — Õ « ° k ò ç µ ñ µ v O) k ! D ä k ò ¿ • k ! ± ñ ‘ š ž k U Y
… ¥ ož
L ‹ ‘ ÿ k ! ï ä Ž ï ä k , v O O ò ô G y ’ v Oož

o¬ F å †o- … Œ Á group1 inbound * 3 ù PIR ² - :

```
5 X L M L H  F R Q I L J  F R Q I L J
```

```
5XLMLH FRQILJ  IORZ FRQWURO JURXS
5XLMLH FRQILJ IORZ FRQWURO  FKDQQHO WUHH LQERXQG
5XLMLH FRQILJ FKDQQHO WUHH  DXWR SLU HQDEOH
```

o¬ à • co- … show flow-control Name [inbound | outbound] auto-pir U Y auto-pir © k ÿ |ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.2 change-priority

A E c%² v O O ò Á Ú Œ • é i ¯ ´ y
change-priority rule1 rule1-num rule2 rule2-num [by-rule-number]

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule1-num	A E †%² Ú Œ • é Ú Z k ó • i ¯ ´ Ú Z
rule2-num	A E † 8 Ú Œ • é Ú Z k ó • i ¯ ´ Ú Z
by-rule-number	ÿ µ n ¢ rule1 -num y rule2 -num • é Number kò © ó • i ¯ ´ Ú Z

o¬ Þ . F åo- —

o¬ x X % ”o- v O O ò Á F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Œ • é i ¯ ´ Ú Z U Y * show flow-control-policy rule [group name] Pri_num < Û ò 0ož

o¬ F å †o- 1 y A E v O O ò Á group1 i ¯ ´ Ú Z 1 y 2 Ú Œ • é i ¯ ´ k h Þ 1 y 2 i ¯ ´ Ú Z y

```
5XLMLH FRQILJ  FRQILJ
5XLMLH FRQILJ  IORZ FRQWURO JURXS
5XLMLH FRQILJ IORZ FRQWURO  FKDQJH SULRULW\ UXOH  UXOH
```

o¬ à • co- … show flow-control-policy rule [group name] x X k U Y ò 0 ñ Ä Œ • é ê ñ î Ô v O O ò Á Œ • é ¦ Â ’ Îož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.3 channel-default

6 ó • v O * 3ož
channel-default channel-name

Ê Ö Þ . F åož
no channel-default

o¬ @ ƒ ª ¢o-

@ ƒ	T
channel-name	] Æ F å v O * 3 d

o¬ Þ . F åo- Þ . Õ Ñ k ÿ * 3ož

o¬ x X % ”o- channel-tree F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * F å Î x X k ñ Ä v O Œ F â Â v O ® k µ 6 ó • * 3

o¬ F å †o- 6 v O Á test g • g v O ù depart5 * 3 ó • * 3ož

```
5XLMLH FRQILJ IORZ FRQWURO WHVW
5XLMLH FRQILJ IORZ FRQWURO FKDQQHO WUHH LQERXQG
5XLMLH FRQILJ FKDQQHO WUHH FKDQQHO GHIDXOW GHSDUW
```

o¬ à • co- … show flow-control {NAME} U Y ò 0 … v O Á F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.4 channel-group

ë • v O * 3ož

channel-group name parent { NULL | parent_name } [cir cir_num] [pir pir_num] [pri pri_num] { fifo | { per-net [per-mask mask] | per-user } per-pir ppir_num [limit limit_num] [session-limit session_limit_num] [reverse] }

F å v O * 3 µ » F Pož

channel-group name pool pool_name

í ” v O * 3

no channel-group name

í ” v O * 3 » F P

no channel-group name pool pool_name

o¬ @ ƒ ª ¢o-

@ ƒ	T
name	ë • * 3 d

	Ñ ã ¸ à à <(IP) ' , k ó • 3 g Per-net

o¬ Þ . F åo- Þ . Õ Ñ Ì F å v O * 3

o¬ x X % ”o- channel-tree F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1. %² v O ù Q ¨%² ÿ * 3 k ÿ * 3 cir y pir ¬ } F å , ^ › z

2. * 3 cir F å ž k } L F å cir ¿ ñ Ä ¬ ˜ * 3 cir $ y 4 9 ^ 9 Ë * 3 cir z * 3 pir F å ž k } L F å pir · À 4 9 ^ 9 Ë * 3 pir z

3. ä i ¯ ´ * 3 i ¯ ± ñ ² † k (É Õ Ñ Ù ä ¾ z z

4. per-net „ ç y per-user „ ç ¸ u „ ç kQ Ä ¨ (É Õ Ñ F å õ Ä Þ # kõ k } ë ¿ ¸ u G Ô µ z

5. per-net „ ç limit $ Ù à < v O k 1 k µ per-net „ ç ó • „ ç k ¥ ó • „ ç G i ¯ ´ Â z klimit $ Ä à < k ! k i ¯ ‘ žož P Ù k per-pir o limito session-limit ® u 4 T ì k ò Root * 3 ' ò session-limit 1000 k Root * 3 ÿ * 3 ' ò BT session-limit 500 k Ž m # ³ BT v O ' ò session-limit 1000 k BT ' ò 500 ož

6. Q u 4 v O ù Â µ C µ » F P k / Q Ä Y ÿ * 3 C ¿ Ë * 3 ª • µ » F P k w » F P · À] Æ ë • z

7. µ Per-IP • º » F P k * 3 • º · À Per-IP • º k / Per-net per-mask 32 k w limit Ý 9 » F P limit ' ò z

8. » F P è t * 3 Ý 8 ož

o • S H U X • V º H * Ù 3 u 4 µ » F P ož

o¬ F å †o- ¨ v O Á test g • g v O ù ë • d root * 3 y

```
5 X L M L H  F R Q I L J  I O R Z  F R Q W U R O  W H V W
5 X L M L H  F R Q I L J  I O R Z  F R Q W U R O  F K D Q Q H O  W U H H  L Q E R X Q G
5 X L M L H  F R Q I L J  F K D Q Q H O  W U H H  F K D Q Q H O  J U R X S  U R R W  S D U H Q W  Q X O O  F
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.5 channel-tree

ë • v O * 3 ùož

channel-tree { inbound | outbound }

í ” v O * 3 ƒož
[no] channel-tree { inbound | outbound }

o¬ @ ƒ ª ¢o-

@ ƒ	T
inbound	g
outbound	g

o¬ Þ . F åo- Þ . Z Ä F å v O ùož

o¬ x X % ”o- Flow-control % ”

o¬ Þ . ´ ðo- 14 W 7 ˆ Ç ÿ

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ž ” v O Á ƒ G Ï ‹ ’ Î ›

o¬ F å †o- Ž ” v O Á Gi0/1 Ï ‹ ’ Î y

```
5XLMLH FOHDU IORZ FRQWURO *L VWDWLVWLFV
```

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.7 comment

F å v O O ò Á ª ¢ož
comment Comment_String

í ”] Æ F å ª ¢ <ož
[no] comment Comment_String

o¬ @ ƒ ª ¢o-

@ ƒ	T
Comment_String	ª ¢ … k Â Ý u 4 127 … k • Ä q

o¬ Þ . F åo- Þ . Õ Ñ Z Ä F å ª ¢ <ož

o¬ x X % ”o- flow-control F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- —

o¬ F å †o- ¨ v O Á Gi0/1 F å ª ¢ < y

```
5XLMLH FRQILJ IORZ FRQWURO *L
5XLMLH FRQILJ IORZ FRQWURO FRPPHQW 'LDQ[LQ 0
```

o¬ à • co- … show flow-control {NAME} U Y ò 0 … v O Á F å

o¬ U P ’ Îo- —

```
5XLMLH FRQILJ
5XLMLH FRQILJ LQWHUIDFH JL
5XLMLH FRQILJ LI *LJDELW(WKHUQHW IORZ SROLF\ JURXS
```

2 yinterface gi0/1 N M H ƒ • v O Œ Á group1 y

```
5XLMLH FRQILJ
5XLMLH FRQILJ LQWHUIDFH JL
5XLMLH FRQILJ LI *LJDELW(WKHUQHW QR IORZ SROLF\
```

o¬ à • co- … show run x X k U Y ò 0 N M © k F å 4 v Oož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.10 flow-rule

F å%² Ú v O Œ • é k ¬ } ã è B ã g F å k ù ! B ã n P Œ • é ¼ p k e ! B ã n P Œ • é • y

flow-rule num [vlan-group vlan-group-name] [subscriber subscriber-name] [auth-group auth-group-name] [network-group network-group-name] [app-group app-group-name] time-range time-rang-name [vpn]

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

í ”%² Ú Œ ož

no flow-rule num

W 2%² Ú Œ ož

flow-rule num disable

Œ † ” W 2ož

no flow-rule num disable

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	v O Œ • é Ú Z k ÿ µ 8 1 ½8192
vlan-group-name	Œ • é ¼ û vlan-group + » d f kany n P F ` ~ + »
subscriber-name	Œ • é ¼ û subscriber + » d f kany n P F ` ~ + »

auth-group-name	Œ • é ¼ û • š + » d f kany n P F ` ~ • š + »
network-group-name	Œ • é ¼ û network-group + » d f kany n P F ` ~ + »
app-group-name	Œ • é ¼ û app-group + » d f kany n P F ` ~ + »
time-rang-name	Œ • é ¼ û time-rang + » d f
in-channel-name	Œ • é ¼ û in-channel * 3 d f
out-channel-name	Œ • é ¼ û out-channel * 3 d f
string	Œ • é h K
disable	W ¥ Œ • é k Þ . © ³ W
vpn	F å VPN Œ k Q F VPDN v O k Þ . © ³ VPN Œ
default	ó • Œ k i ¯ ´ Â z k ó • Œ $ • Â 9 Þ Â Þ i ¯ ÿ	= é

o¬ Þ . F åo- Þ . Õ Ñ © Ï Z Ä F å ` ~ Œ • éož

o¬ x X % ” . F åo-

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.11 flow-template

Y] Ä v O Á % á k / ¾%² a • F å k w U Y ¾ • k ! Ý 4 k 9 B æ ‰ < ÿ G % á ê ñ ¿ v O Á ½
, ÿ è • F å y
flow-template copy Src_name Dst_name [bandwith In_bandwith Out_bandwith [perpir-update]] [force]

o¬ @ *ƒ* ª ¢o-

@ *ƒ*	T
Src_name	/ ¾ › v O Á k / • % á v O Á d
Dst_name	• ë • v O Á d k ª • Src_name *, c*
In_bandwith	Ê È ¾ • g k ! Ý 4 k ÿ µ 8 y 500~ 10000000 k % y y kbps k ÿ µ ó • H › F å Á g k ! Ý 4
Out_bandwith	Ê È ¾ • g k ! Ý 4 k ÿ µ 8 y 500~ 10000000 k % y y kbps k ÿ µ ó • H › F å Á g k ! Ý 4
perpir-update	ÿ µ é Per-PIR ÷ Ä š k ! ˆ A † ² … k ÿ µ Õ Ñ ¢ k ! Ý 9 Â Õ k ! 10M ž ˆ A † ² …
force	ò ç) ö v O Á] Æ ¨ k ÿ µ force é k / ¾ â Â kò ÿ µ force é k ¯ í ” ¨ v O Á Ç • ÷ / ¾

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1o• k ! ¾ • § € ñ ñ Ä » F P y * 3 k ! F å k ® k ˆ A † ² …ož
2 Ã F å / ¾ 9 ÿ G] Ä v O Á F å % á ÿ è • F å ¿ k ! ¾ • U Y • © S + • ë • v O Á k ü g k ! ¾ • z

o¬ F å †o- ÿ G v O Á AAA ÿ è%² • v O Á BBB k w k ! ¾ • 15M

```
5XLMLH FRQILJ
5XLMLH FRQILJ IORZ WHPSODWH FRS\ $$$ %%% EDQGZLWK
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.12 share-pool

ë • » F Pož

share-pool Name rate num1 [type { normal | per-ip [limit num2l }]

í ” » F Pož

no share-pool Name

o¬ @ ƒ ª ¢o-

```
5XLMLH FRQILJ IORZ FRQWURO JURXS
5XLMLH FRQILJ IORZ FRQWURO FKDQQHO WUHH LQERXQG
5XLMLH FRQILJ FKDQQHO WUHH VKDUH SRRO WHVW UDWH W\SH QR
```

o¬ à • co- … show flow-control { NAME } U Y ò 0 … v O Á F å

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.13 show flow control

ª P v O Á F å ’ Î k 6 v O Á é ª P ñ Ä v O Á F å y
show flow-control [Name]

ª P v O * 3 F å ’ Î y
show flow-control Name { inbound | outbound } [channel-group channel-name [detail]]

ª P » F P F å ’ Î y
show flow-control Name { inbound | outbound } [share-pool [pool-name]]

ª P auto-pir Ù Á ’ Î y
show flow-control Name [inbound | outbound] auto-pir

o¬ @ ƒ ª ¢o-

@ ƒ	T
Name	v O Á d
inbound	g • g v O ùož
outbound	g • g v O ùož
channel-name	v O * 3 F å k detail ¼ p 9 ª P FIFOo•SFQ y Per-net „ ç g Ù Á ’ Î
pool-name	» F P , ¼ ª P k ÿ µ Name ª P ñ Ä Pool k ÿ µ é ª P Ô Pool

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç ÿ µ channel-group channel-name ¼ p k é Q ª P + • * 3 F å ’ Î k k é ª P … v O * 3 ù F å ñ Ä * 3 F å ’ Îož

o¬ F å †o-

```
IORZ UXOH    DFWLRQ SDVV LQ FKDQQHO NH\ RXW FKDQQHO NH\ FRPPH
IORZ UXOH    QHWZRUN JURXS 2XWB6HUYHU WLPH UDQJH DQ\
IORZ UXOH    DFWLRQ SDVV LQ FKDQQHO NH\ RXW FKDQQHO NH\ FRPPH
IORZ UXOH    DSS JURXS 7&B$'B.H\ WLPH UDQJH DQ\
IORZ UXOH    DFWLRQ SDVV LQ FKDQQHO NH\ RXW FKDQQHO NH\ FRPPH
IORZ UXOH    GLVDEOH
```

2ªP g•g6 *3 Få'Î:

```
5XLMLH VK IORZ FRQWURO WHVW LQERXQG FKDQQHO JURXS URRW
*URXS QDPH                    &,5    3,5    3UL  6FKHGXOH
&,'5 &,5 3,5 /LPLW 6HVV OLPLW 6KDUH SRRO  5


URRW                                          SHU QHW
```

3ªP*3ù gñÄ*3 Få'Îy

```
5XLMLH VK IORZ FRQWURO WHVW LQERXQG
*URXS QDPH                    &,5    3,5    3UL  6FKHGXOH
&,'5 &,5 3,5 /LPLW 6HVV OLPLW 6KDUH SRRO  5


URRW                                          SHU QHW

NH\                                          SHU QHW

QRUPDO                                        SHU QHW

XQNH\                                         SHU QHW
```

<†Ky

<	ª¢
Group-name	*3d
CIR	®'Î,ä
PIR	Q›'Î,ä
Pri	*3i¯´
Schedule	*3„ç•º
CIDR/CIR/PIR/Limit/Sess-limit/Share-pool	CIDR/CIR/PIR/Limit/Sess-limit/Share-pool

4 ªP gñÄ»FP Få'Îy

```
5XLMLH VKRZ IORZ FRQWURO WHVW RXWERXQG VKDUH SRRO
```

```
*OREDO SRRO                    *OREDO UHG REM
7UHH SRRO

6KDUH SRRO      5DWH        7\SH        /LPLW       &KLOG

WFS                          1RUPDO      1$
XGS                          1RUPDO      1$
S                           1RUPDO      1$
```

< † K y

<	ª ¢
Global pool	¶ B » F P ƒ O
Global red obj	¶ B ñ ' ò » F P + » k S + Normal • º » F P y Per-IP • º » F P _ - µ g Ï ‹
Tree pool	+ • Channel-tree » F P ƒ
Share-pool	» F P d
Rate	» F P ',
Type	» F P • º
Limit	Per-IP • º » F P Ä	k ï ' ò ƒ
Child	è t * 3 ƒ k h Þ Q ‹ ' µ Pool * 3 ƒ k ò Ä Y ÿ Ë * 3 µ » F P ¥ Ï ‹ › Q 1

5 ª P g 6 » F P 'Î y

```
5XLMLH VKRZ IORZ FRQWURO WHVW  RXWERXQG VKDUH SRRO S
3RRO       S
5DWH              7\SH      1RUPDO     /LPLW      1$
6WDWH     *UHHQ     &KLOG              $FWLYH     1$
.LOO IORZ

*URXS QDPH  &LU    3LU     3UL  7\SH      /LPLW     6KDUH SRRO

S  WFS                       ILIR      1$       S
S  XGS                       ILIR      1$       S
```

< † K y

<	ª ¢
Pool	» F P d
Rate	» F P ',
Type	» F P • º
Limit	Per-IP • º » F P Ä	k ï ' ò ƒ
State	Normal • º » F P Ä	k Green n ¢ Ì ñ ' ò › k Red n ¢ ñ ' › kPer-IP • º NA
Child	è t * 3 ƒ k h Þ Q ‹ ' µ Pool * 3 ƒ k ò Ä

	Y ÿ Ë * 3 µ » F P ¥ Ï ‹ › Q 1
Limit	Per-IP • º » F P Ä	k ï ' ò ƒ
Active	t ï ƒ kPer-IP • º » F P Ä	
Kill flow	È Ø v) ƒ Ï ‹ k Per-IP • º » F P Ä	kÏ ‹ Ý Per-IP • º » F P Limit ' ò ï v O È Ø) ƒ
Group-name	» F P è t * 3 d
Cir	» F P è t * 3 ® k !
Pir	» F P è t * 3 Q › k !
Type	» F P è t * 3 • º
Pri	» F P è t * 3 i ¯ ´
Limit	» F P è t * 3 ï ƒ ' ò kPer-net • º ž Ä	
Share-pool	* 3 µ » F P d h Þ y ò ç 6 ª P » F P ¨ è t ³ Y ÿ * 3 k ¥ ³ Y ÿ * 3 ÿ * 3 - k * ¥ x X ª P ß Û k¿ ÿ * 3 Ä µ P Ù » F P é Share-pool ª P + • d k k é NA

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

5.14 show flow-control-policy group

ª P v O O ò Á ¦ Â ' Îož

show flow-control-policy group

o¬ @ ƒ ª ¢o-

@ ƒ	T

```
5XLMLH VKRZ IORZ FRQWURO SROLF\ JURXS
JURXSBQDPH                    JURXSBLG  DSSO\BLI[    SROLF\BHQWULHV
JURXS
JURXS
```

< † K y

<	ª ¢
group-name	v O O ò Á d f
group-id	v O O ò Á Ú Z
apply_ifx	v O O ò Á • N M « – › k 0 n P Z Ä • ñ ` ~ N M
policy_entries	4 v O O ò Á F å v O Œ • é Ú ƒ

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

5.15 show flow-control-policy rule

ª P v O Œ • é ¦ Â ’ Îož
show flow-control-policy rule [group name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
name	v O O ò Á d fož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- † ª P © Ï ñ Ä Œ • é ê ñ î v O O ò Á Œ • é ¦ Â ’ Î k , ? Ú Œ • é Ú Zo• i ¯ ´ Ú Zo• Œ • é ñ K N M « – ›o• _ + » ido• ¢ ù Ú 5 Ú v F ñ Ú Œ • éo• Ú Œ • é Â Ý k ¢ ƒ Y C Œ • é Ä | Åož

o¬ F å †o- ª P © Ï ñ Ä v O O ò Á ¦ Â ’ Î y

```
5XLMLH VK IORZ FRQWURO SROLF\ UXOH

6RPH FRPPHQW

_ SULR    SULRULW\ RI WKH UXOH _ JUS    JURXS WKH UXOH ORFDW
JURXS  _
_ LI[    LQWHUIDFH FRUUHVSRQG _ YODQBLG   YODQ LGHQWLI\    _
```

```
_
_ DXWKBLG   DXWKBJURXS LGHQWLI\  _ QHWBZNBLG   QHWZRUN LGHQWL
LGHQWLI\   _
_ LQ       LQ FKDQQHO LGHQWLI\  _ RXW       RXW FKDQQHO LGHQWLI\
_
_ VHV      FRQILJ VHVVLRQ       _ VWDW      GLVDEOH RU HQDEOH     _
UXOH _

SULR JUS UXOH LI[ YODQBLG   VXEVBLG   DXWKBLG   QHWBZNBLG D
VHV  VWDW HI

XS

XS

XS

XS

XS

XS

XS

XS

XS

XS

GRZQ

XS

XS

XS

XS
```

X S

X S

X S

X S

X S

X S

< † K y

<	ª ¢
prio	v O Œ • é i ¯ ´ Ú Z
grp	v O O ò Á Ú Z k ö ¢ Î Œ ñ K v O Á
rule	v O Œ Ú Z
ifx	v O Œ • é ñ K N M « – › k 0 n P 4 • é ñ ¨ v O O ò Á Z Ä • ñ N M
vlan_id	v O Œ • é ¼ û vlan-group + »

o¬ u V ª ¢o- -

5.16 small-packet

F å 4 † i ¯ Ú 6 * 3ož k TCP ê UDP ¼ p é _ # ' C u 4
small-packet name [tcp | udp]

o¬ @ ƒ ª ¢o-

@ ƒ	T
name	v O * 3 d fož
TCP	N u 4 TCP 4 †
UDP	N u 4 UDP 4 †

o¬ Þ . F åo- R F å % á / ¾ ÿ è F å ž k + 9 * Z M ê k ! 4 9 ˆ 9 10M Ò ò M kÞ . k ¨ g * 3 • o tcp 4 † Ú ¼ p * 3

o¬ x X % ”o- channel-tree F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- + 9 ß M k ! û 4 Õ Ñ k• ' ¨ v O g * 3 • o TCP † 4 † i ¯ Ú ¼ p * 3 k ý U Y U ä web ˆ 4 † û Ú • v O i f ä

o¬ F å †o- ¨”test” v O Œ Á F å tcp 4 † i ¯ Ú ¼ p * 3

```
  µ W H V W v O Œ Á
5 X L M L H F R Q I L J I O R Z F R Q W U R O W H V W
  µ g * 3 ù
5 X L M L H F R Q I L J I O R Z F R Q W U R O F K D Q Q H O W U H H R X W E R X Q G
 ò ç Z Ä N H*\3 ¯ F å N H*\3
5 X L M L H F R Q I L J I O R Z F R Q W U R O F K D Q Q H O J U R X S N H \ S D U H Q W U R R W F L
 F å W F4S † i ¯ Ú N H*\3
5 X L M L H F R Q I L J I O R Z F R Q W U R O V P D O O S D F N H W N H \ W F S
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- -

6 FLOW-AUDIT

6.1 flow-audit data-store

F å v O ! O ‹ ” Þ no• u no• Ã n Ù ¿ ’ Î n ƒ G ‘ Þ ƒ

flow-audit data-store num

í ” , ¼ F åož

no flow-audit data-store

o¬ @ ƒ ª ¢o-	@ ƒ	T
	num	% y Þ k H › 8 10 – 90 Þ

í ” , ¼ F åož

no flow-audit data-store day-report

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	% y Þ k H › 8 10-90 Þ

o¬ Þ . F åo- Þ . Õ Ñ k Þ n 7 W ƒ G ‘ Þ ƒ 60 Þož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * Î x X F å v O ! O ‹ Þ n 7 W ƒ G ‘ Þ ƒož

o¬ F å †o- 1 y F & … ¬ ™ k Ý ‘ ß Ú Þ n ƒ G k F å 30 Þ

5 X L M L H F R Q I L J
(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 I O R Z D X G L W G D W D V W R U H G D \ U H S R U W

o¬ à • co- 1 y … show run x X k U Y ò 0 F å v O ! O ‹ Þ n 7 W ƒ G ‘ Þ ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- Ä Ä å ¥ — Õ u 4

6.3 flow-audit data-store month-report

F å v O ! O ‹ Ã n 7 W ƒ G ‘ Ã ƒ

flow-audit data-store month-report num

í ” , ¼ F åož

no flow-audit data-store month-report

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	% y Ã k H › 8 1-12 Ã

o¬ Þ . F åo- Þ . Õ Ñ k Ã n 7 W ƒ G ‘ Ã ƒ 12 Ãož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * Î x X F å v O ! O ‹ Ã n 7 W ƒ G ‘ Ã ƒož

o¬ F å †o- 1 y ‘ %² v “ £ ß Ú k < ‘ ! v

```
5 X L M L H  F R Q I L J
(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  I O R Z  D X G L W  G D W D  V W R U H  P R Q W K  U H S R U W
```

o¬ à • co- 1 y … show run x X k U Y ò 0 F å v O ! O ‹ Ã n 7 W ƒ G ‘ Ã ƒož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- Ä Ä å ¥ — Õ u 4

6.4 flow-audit data-store week-report

F å v O ! O ‹ u n 7 W ƒ G ‘ u ƒ
flow-audit data-store week-report num
í ” , ¼ F åož
no flow-audit data-store week-report

o¬ @ ƒ ª ¢o-

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- Ä Ä å ¥ — Õ u 4

6.5 flow-audit enable

• o v O ! O ‹ ož
flow-audit enable

¼ { v O ! O ‹
no flow-audit enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ k v O ! O ‹ ø •ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * F å Î x X o v O ! O ‹ ož

o¬ F å †o- 1 y • o — Õ v O ! O ‹ ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ IORZ DXGLW HQDEOH
```

2 y ¼ { — Õ v O ! O ‹ ož

```
5XLMLH FRQILJ
5XLMLH FRQILJ QR IORZ DXGLW HQDEOH
```

o¬ à • co- 1 y … show run x X k U Y v O ! O ‹ © o © ¼ {ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

6.6 flow-audit generate-report

o¬ @ ƒ ª ¢o-

@ ƒ	T
percent	ã A k H › 8 1-100

o¬ Þ . F åo- Þ . Õ Ñ k v O ! O ª • … F & F Ì F & È O 50%ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * Î x X F å v O ! O F & F Ìož

o¬ F å †o- 1 y — Õ F & … ¬ ™ k Ë v O ‹ 50% F & O ß Ú 4 k Ý × 5 ñ 30%ož

```
5 X L M L H F R Q I L J
( 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 I O R Z D X G L W K D U G G L V N T X R W D
```

o¬ à • co- 1 y … show run x X k U Y ò 0 F å v O ! O F & F Ìož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- Ä Ä å ¥ — Õ u 4

6.8 flow-audit rt-refresh

F å v O ! O ž v O ó • È äož
flow-audit rt-refresh num

í ” , ¼ F åož
no flow-audit rt-refresh

o¬ @ ƒ ª ¢o-

@ ƒ	T
num	ó • È ä, 10 a k no x X Ê Ö ó • 30 a

o¬ Þ . F åo- Þ . Õ Ñ k ó • 30 a ó •ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ = 5XLMLH FRQILJ IORZ DXGLW YSQ LQVLGH LS

o¬ à • co- 1 y … show run x X k U Y ò 0 F å VPN ! O • ”ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

6.10 show flowrate

ª P … Ñ ê 6 N M î ž • < Ä ê Â Ù 4 ž Ä ê ¢ ù v O ’ Îož

show flowrate { global | interface interface-name } [{ recent hour | minute_interval begin-year begin-month begin-day begin-hour:begin-minute to end-year end-month end-day end-hour:end-minute | [month | week] time-interval begin-year begin-month begin-day begin-hour to end-year end-month end-day end-hour | { [month | week] day-interval begin-year begin-month begin-day to end-year end-month end-day | day begin-year begin-month begin-day } [hour-interval begin-hour to end-hour [begin-hour2 to end-hour2]] } [detail]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	N M d
hour	Â 4 ž ƒ
begin-year	ž • < Ü ÷ v
begin-month	ž • < Ü ÷ Ã
begin-day	ž • < Ü ÷ ™
begin-hour	ž • < Ü ÷ 4 ž
begin-minute	ž • < Ü ÷ ã U
end-year	ž • < È Ø v
end-month	ž • < È Ø Ã
end-day	ž • < È Ø ™
end-hour	ž • < È Ø 4 ž
end-minute	ž • < È Ø ã U
begin-hour2	ž • < Ü ÷ 4 ž 2
end-hour2	ž • < È Ø 4 ž 2

o¬ Þ . F åo- —ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P … Ñ ê 6 N M ž v O ’ Îož
* 6 ¼ p global Û ª P … Ñ ž v O ’ Î z * 6 ¼ p interface ª P 6 N M ž v O ’ Î;
eg: show flowrate global g ò ¤ … Ñ ž v O ’ Î h
show flowrate interface gi0/3 g ò ¤ * è d ”gi0/3” ž v O ’ Î h

o¬ F å †o- 1 y ª P N M gigabitEthernet 0/1 ¢ ù v Oož

```
5XLMLH VKRZ IORZUDWH LQWHUIDFH JLJDELW(WKHUQHW
,QWHUIDFH *LJDELW(WKHUQHW
3DVV LQSXW UDWH ELWV VHF SDFNHWV VHF
3DVV RXWSXW UDWH ELWV VHF SDFNHWV VHF
'URS LQSXW UDWH ELWV VHF SDFNHWV VHF
'URS RXWSXW UDWH ELWV VHF SDFNHWV VHF
```

2 y ª P … Ñ ž v O ’ Îož

```
5XLMLH VKRZ IORZUDWH JOREDO
JOREDO
3DVV ,QSXW UDWH ELWV VHF SDFNHWV VHF
3DVV 2XWSXW UDWH ELWV VHF SDFNHWV VHF
'URS ,QSXW UDWH ELWV VHF SDFNHWV VHF
'URS 2XWSXW UDWH ELWV VHF SDFNHWV VHF
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ž • < Y k N Ä Ä å ¥ — Õ u 4

6.11 show flowrate application

ª P … Ñ ê 6 * è ¢ ù ê ñ ž • < Ä • o• • Áo• • • º , ¼ v O ’ Îož

show flowrate application { global | interface interface-name | vwan } [[subscriber subscriber-name] [subscriber-group subscriber-group] | { by-auth } [auth-subs-group auth-group-name] [auth-subs auth-name]] [ip ip-address] [application-group application-group] [{ [by-group] | [application-type application-type] [{ by-type | application application-name }] }] [{ recent hour | minute-interval begin-year begin-month begin-day begin-hour:begin-minute to end-year end-month end-day end-hour:end-minute 31 Tc 0.024 -31.2 (we(k)]TJ /TT0 1 Tf -0.00045Tc 2.097 0 Td (] [Tj /TT2 1 Tf 0.002 Tc 0 7870 Td [(hd)5(t

[begin-hour2 to end-hour2] }] [order-by { { pass | drop } { upload | download } | application } { desc | asc } [top n]] [detail]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	C N M d f k ¨ à ¼ % ” …
subscriber-name	ï d
subscriber-group	ï Á d
auth-group	• š + » Á d
auth-name	• š + » d

eg: show flowrate application global g ò ¤ … Ñ ž • v O ' Î h

show flowrate application interface gi0/3 g ò ¤ * è d "gi0/3" _ _ • ž v O ' Î h

show flowrate application interface gi0/3 by-group g ò ¤ * è d "gi0/3" ñ Ä • Á ž v O ' Î h

show flowrate application interface gi0/3 by-type g ò ¤ * è d "gi0/3" ñ Ä • • º ž v O ' Î h

show flowr app vwan g ò ¤ ' 3 , • ž v O h

* ¼ p top y @ ƒ n Û ª P L ~ È ç ù n Ú " £ z

eg: show flowrate application interface gi0/3 order by pass download desc top 5 g ò ¤ * è d "gi0/3"

ž • v O k ¿ È ç 7 Á ú v O ' ~ L ç k w ª P ù 5 Ú " £ h

* ¼ p subscribero•subscriber-groupo•auth-subs-groupo•auth-subso•ip ¿ %² ê Ù ¡ ò

```
,3•                ,3#‘Á            2WKHUB*URXS

WHOQHW             i˜|#‘            2WKHUB*URXS
```

3yªP’3 , ž• vO’Îož

```
5XLMLH  VKRZ IORZU DSS YZDQ
YZDQ
FRXQW
$SSOLFDWLRQ          $SSOLFDWLRQ JURXS    $SSOLFDWLRQ W\SH
3$66     8SORDG ESV     'RZQORDG ESV    8SORDG SSV     'RZQORDG SSV
'523     8SORDG ESV     'RZQORDG ESV    8SORDG SSV     'RZQORDG SSV
 ’Ï›           3 3 • ÷^          8QNH\B*URXS

44  £_øÞ          /ž*’÷^          .H\B*URXS

,3•                ,3#‘Á            2WKHUB*URXS
```

o¬UP’Îo- -

o¬uVª¢o- ž•< YkNÄÄå ¥ —Õu4

6.12 show flowrate ip

ªP…Ñê6 NMî ž•<ÄêÂ Ù4žÄê¢ù vO’Îož

begin-month begin-day } [hour-interval begin-hour1 to end-hour1 [begin-hour2 to end-hour2]] }] [order-by { { pass | drop } { upload | download } | ip | subscriber-group | subscriber | auth-subs-group | auth-subs } { desc | asc } [top n [detail]]] [{ detail | by-user }]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	N M d k ¨ à ¼ % ” …
subscriber-group	ï Á d
subscriber-name	ï d
auth-group	• š + » Á d
auth-name	• š + » d
Ip-address	IP ª -
application-name	• d
application-group	• Á d
application-type	• • º
hour	Â 4 ž ƒ
begin-year	ž • < Ü ÷ v
begin-month	ž • < Ü ÷ Ã
begin-day	ž • < Ü ÷ ™
begin-hour	ž • < Ü ÷ 4 ž
begin-minute	ž • < Ü ÷ ã U
end-year	ž • < È Ø v
end-month	ž • < È Ø Ã
end-day	ž • < È Ø ™
end-hour	ž • < È Ø 4 ž
end-minute	ž • < È Ø ã U
begin-hour1	ž • < Ü ÷ 4 ž 1
end-hour1	ž • < È Ø 4 ž 1
begin-hour2	ž • < Ü ÷ 4 ž 2
end-hour2	ž • < È Ø 4 ž 2
n	ù n Ú “ £

o¬ Þ . F åo- —ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P ï , ¼ ž v O ’ Îož

* 6 ¼ p global Û ª P … Ñ ï ž v O ’ Î z * 6 ¼ p interface ª P 6 N M ï

show flowrate ip interface gi0/3 g ò ¤ * è d ”gi0/3” ï ž v O ’ Î h

show flowrate ip vwan g ò ¤ Ú ’ 3 , ï ž v O ’ Î h

* ¼ p top y @ ƒ n Û B H L ~ È ç ù n Ú “ £ z

eg: show flowrate ip interface gi0/3 order by pass download desc top 5 g ò ¤ * è d gi0/3 ž ï v O k ¿ È ç 7 Á ú v O ‘ ~ L ç k w ª P ù 5 Ú “ £ h

* ¼ p applicationo•application-groupo•application-type ¿ %² ê Ù ¡ ò ¤ ž • v O ’ Îož

eg: show flowrate ip interface gi0/3 application PPTP g ò ¤ * è d gi0/3 app PPTP ž ï v O h

¥ x X u 4 7 Á Ï ‹ k U Y by-group ¼ p Û ë 7 ï Á Ï ‹ z

o¬ F å †o- 1 y à ¼ % ” k ª P N M gigabitEthernet 0/1 ¢ ù ï v Oož

```
5XLMLH  VKRZ IORZUDWH LS LQWHUIDFH JLJDELW(WKHUQHW
6XEVFULEHU                LS
3$66  8SORDG ESV    'RZQORDG ESV    8SORDG SSV    'RZQORDG SSV
'523  8SORDG ESV    'RZQORDG ESV    8SORDG SSV    'RZQORDG SSV
 8VHUBJURXS$ 8VHUBQDPH$


 8VHUBJURXS% 8VHUBQDPH%
```

2 y ª P … Ñ ï ž v Oož

```
5XLMLH  VKRZ IORZU LS JOREDO
JOREDO
VXEVFULEHU          LS
3$66  8SORDG ESV    'RZQORDG ESV    8SORDG SSV    'RZQORDG SSV
'523  8SORDG ESV    'RZQORDG ESV    8SORDG SSV    'RZQORDG SSV
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ž • < Y k N Ä Ä å ¥ — Õ u 4

6.13 show flowrate ip-application

ª P … Ñ ê 6 * è IPo• • ž v O ’ Îož

show flowrate ip-application { global | interface interface-name [by-vpn] } [[subscriber subscriber-name] [subscriber-group subscriber-group] [vip] | { by-auth } [auth-subs-group auth-group-name] [auth-subs auth-name]] [ip ip-address] [application application-name] [application-group application-group] [application-type application-type] [order-by { { pass | drop } { upload | download } | ip | application | subscriber-group | subscriber | auth-subs-group | auth-subs } {desc | asc } [top n]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	N M d k ¨ à ¼ % ” …
subscriber-group	ï Á d
subscriber-name	ï d
auth-group-name	• š + » Á d
auth-name	• š + » d
ip-address	IP ª -
application-name	• d
application-group	• Á d
application-type	• • º
n	ù n Ú “ £

o¬ Þ . F åo- —ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P ipo• • , ¼ ž v O ’ Î Ä

* 6 ¼ p global Û ª P … Ñ IPo• • ž v O ’ Î z * 6 ¼ p interface ª P 6 N M IPo• • ž v O ’ Î z

eg: show flowrate ip-application global ip 192.168.1.3 g ò ¤ … Ñ IPo• • ’ Î h

show flowrate ip-application interface gi0/3 ip 192.168.1.3 g ò ¤ * è d ”gi0/3” k ip 192.168.1.3 IPo• • v O ’ Î h

* ¼ p top y @ ƒ n Û ª P L ~ È ç ù n Ú “ £ z

eg: show flowrate ip-application interface gi0/3 ip 192.168.1.3 order by pass download desc top 5 g ò ¤ * è d gi0/3 ip 192.168.1.1 ¢ ù • v O k ¿ È ç 7 Á ú v O ‘ ~ L ç k w ª P

ù 5 Ú " £ h

o¬ F å †o- 1 y à ¼ % " k ª P N M gigabitEthernet 0/1 IP 172.18.36.102 • v Oož

```
5XLMLH VKRZ IORZUDWH LS DSSOLFDWLRQ LQWHUIDFH JLJDELW(WKHUQ
LS
SDWK *LJDELW(WKHUQHW
6XEVFULEHU LS $SSOLFDWLRQ $SSOLFDWLRQ JURXS $SSOLFDWLRQ V
3$66 8SORDG ESV 'RZQORDG ESV 8SORDG SSV 'RZQORDG SSV
'523 8SORDG ESV 'RZQORDG ESV 8SORDG SSV 'RZQORDG SSV
 XVHUBJURXS$ XVHUBQDPH$ DSSOLFDWLRQ$ DSSOLFDWLR


 XVHUBJURXS$ XVHUBQDPH% DSSOLFDWLRQ% DSSOLFDWLRC


 XVHUBJURXS$ XVHUBQDPH& DSSOLFDWLRQ& DSSOLFDWLRQB
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- ž • < Y k N Ä Ä å ¥ — Õ u 4

6.14 show online ip

ª P … Ñ ê 6 * è ¢ ù ¨ ¿ IP à ž xo• v O ' Î C 6 ž • < IP à ž x ' Îož

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

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	C N M d f k ¨ à ¼ % " …
subscriber-name	ï d
subscriber-group	ï Á d
auth-name	• š + » d
auth-group	• š + » Á d

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ž • < Y k N Ä Ä å ¥ — Õ u 4

6.15 show online ip-application

ª P … Ñ ê 6 * è ¢ ù ¨ ¿ IPo• • à ž xo• v O ’ Îož

show online ip-application {global | interface interface-name} [[subscriber subscriber-name] [subscriber-group subscriber-group] [vip] | [auth auth-name] [auth-group auth-group]] [ip ip-address] [application application-name] [application-group application-group] [application-type application-type] [order-by {{pass | drop } {upload | download } | ip | subscriber-group | subscriber | auth-group | application } {desc | asc }] [offset start –record {limit record-num}]

o¬ @ ƒ ª ¢o-

@ ƒ	T
interface-name	C N M d f k ¨ à ¼ % ” …
subscriber-name	ï d
subscriber-group	ï Á d
auth-name	• š + » d
auth-group	• š + » Á d
Ip-address	IP ª -
application-name	• d
application-group	• Á d
application-type	• • º
start-record	ž g “ £ g
record-num	ª P “ £ g ƒ

o¬ Þ . F åo- —ož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 6 ¼ p

record-num	ª P “ £ g ƒ

7 CONTENT-AUDIT

7.1 app-audit

• o • Š • i ‹ k w — å • œ ž •ož
app-audit optimize-cache [time]

¼ { • Š • i ‹ ož
no app-audit optimize-cache

• o • O ò ‹ + TCP N i Š • k / G rst † • • Nož
app-audit optimize-deny

¼ { • O ò ‹ + TCP N i Š • ož
no app-audit optimize-deny

o¬ @ ƒ ª ¢o-

@ ƒ	T
time	¥ @ ƒ % y © a k • o ¥ e k M Ö ‹ c%² IP ¨ time ž • Ä , c • Š • •ož

```
5XLMLH FRQILJ  QR DSS DXGLW RSWLPL]H GHQ\
5XLMLH FRQILJ  HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.2 app-rule

í ” Œ Á ñ Ä • O ò ‹ • éož
app-rule delete-all

A E ˜ | O ò • é i ¯ ´ož
app-rule priority-swap rule-id1 rule-id2

g Ä ‹ Œ Á • • O ò ‹ • éož
app-rule rule-id time-range time-name app-group app-group-name action { permit | deny } [audit] [vpn] [vip] [comment comment-string]

í ” • O ò ‹ • éož
no app-rule rule-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-id1	- A E i ¯ ´ • é 1 IDož
rule-id2	- A E i ¯ ´ • é 2 IDož
rule-id	• é ID ö œ k H › 8 g1~200 ħk • é O 200ož
time-name	W n • é ÿ | ž • < ž • + » dož
app-group-name	• é } O ò • Á dož
comment-string	¥ • é T ož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  XUO FODVV FODVV$
5XLMLH XUO FOV FRQILJ  FRPPHQW &/$66$ &200(17
5XLMLH XUO FOV FRQILJ  HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.6 content-audit http-port

• %² HTTP € Mož

content-audit http-port port-num

í ”%² HTTP € Mož

no content-audit http-port port-num

o¬ @ ƒ ª ¢o-

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  QR FRQWHQW DXGLW KWWS SRUW
5XLMLH XUO REM FRQILJ  HQG
```

o¬ à • co-

+ # Œ Á g ¶ B W ož
content-policy-config disable-all

H ƒ # Œ Á ¶ B W ož
no content-policy-config disable-all

W î Œ Áož
content-policy-config disable-policy policy-name

H ƒ W Œ Áož
no content-policy-config disable-policy policy-name

A E Œ Á i ¯ ´ož
content-policy-config priority-swap policy-name1 policy-name2

o¬ @ ƒ ª ¢o-

@ ƒ	T
policy-name	Ä ‹ Œ Á d fož
policy-name1	¬ } + ² i ¯ ´ Œ Á dož
policy-name2	¬ } + ² i ¯ ´ P%² Œ Á dož

o¬ Þ . F åo- Þ . — F åož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 y ¶ B W Q + # Œ Á Ü • k + Ä å Œ Á — |ož
2 y Œ Á ó • C © Ä | ož W Œ Á U ˆ 4%² _ U Y ‘ Œ Á F å k x © … ¥ Œ Á • ”ož } Ý
W î Œ Á k ¬ } ª ” ª F å%² Ú W x Xož
3 y W Œ Á k í ” Œ Á Ä y ï ¼ ûož
4 y F å W Œ Á x X ž k ò ç 6 Œ Á d ¨ k é ¥ x X k ÿ |ož
5 y í ” Œ Á e k W Œ Á F å - k c ž t í ”ož
6 y F å A E Œ Á i ¯ ´ e kshow running-config U Y 0 ñ Œ Á L ~ G ÿ 4 J k x show running-config k ß ë ¥ x Xož

o¬ F å †o- 1 y ¼ { ñ Ä # Œ Áož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ FRQWHQW SROLF\ FRQILJ GLVDEOH DOO
5XLMLH FRQILJ HQG
```

2 y W Ä ‹ Œ Á policyAož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW SROLF\ FRQILJ GLVDEOH SROLF\ SROLF\$
5XLMLH FRQILJ  HQG
```

3 y A E Œ Á policyAo•policyB i ¯ ´ož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW SROLF\ FRQILJ SROLF\ VZDS SROLF\$ SROLF
5XLMLH FRQILJ  HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.11 content-policy-relate

— å ï Ð Ë ï Á Œ ož

content-policy-relate no-inherit { subscriber { subs-name1 | any } | auth-subscriber { subs-name2 | any } }

Ê Ö ï Œ Ð K Åož

no content-policy-relate no-inherit { subscriber { subs-name1 | any } | auth-subscriber { subs-name2 | any } }

1 Œ Á ¼ û ñ ïož

content-policy-re late relate { subscriber { subs-name1 | any } | auth-subscriber { subs-name2 | any } } policy policy-name

í ” ï Œ Á ¼ ûoðž

no content-policy-relate relate { subscriber { subs-name1 | any } | auth-subscriber { subs-name2 | any } } policy policy-name

o¬ @ ƒ ª ¢o- @ ƒ

¼ { IM ó • ‹ ož
no im-rule audit-default-enable

í ” Œ Á ñ Ä IM • éož
im-rule delete-all

A E IM ˜ | O ò • é i ¯ ´ož
im-rule priority-swap rule-id1 rule-id2

g Ä ‹ Œ Á • IM ˜ | O ò • é ¸ » B ãož
im-rule rule-id time-range time-name action { permit | deny } [audit] [comment comment-string]

g Ä ‹ Œ Á • IM ˜ | O ò • é %² 5 @ ƒ T k } © T • é ¼ p F Ú ^ k ¥ x X
· À y im-rule rule-id time-range x X F ` … ož
im-rule rule-id im-type im-name [relation { and | or } [account content-object-name1] [message content-object-name2]]

í ” IM ˜ | O ò • éož
no im-rule rule-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-id1	- A E i ¯ ´ • é 1 IDož
rule-id2	- A E i ¯ ´ • é 2 IDož
rule-id	• é ID ö œ k H › 8 g1~200 Ħk • é O 200ož
time-name	W n • é ÿ | ž • < ž • + » dož
comment-string	¥ • é T ož
im-name	6 ¢ ‹ IM ÷ ^ožim-name n P Ô string … ož † ò string … qq n P Î • é Q ‹ QQ ÷ ^ zstring … qq,msn ê msn,qq n P Î • é Q ‹ QQ ÷ ^ y MSN ÷ ^ož

3 y • é ñ ¼ û time-nameo•content-object-name U Y ¨ k 4 ž • é ÿ |ož
4 yQQ ø Þ % ' Î k) ù u 4 Ä ¡ ‹ g ò ç im-name QQ é message ª • t F å bž
5 y A E i ¯ ´ x X © 9 + ² Ú ˜ | O ò • é i ¯ ´ k g ¥ x X e kshow running-config U Y 0 ñ
• é L ~ G ÿ 4 J k x show running-config k ß ë ¥ x Xož
6 yó • ‹ Q ¨ Œ Á d _AUDIT_DEFAULT ó • ‹ Á Ä g F å k ¨ ¿ Œ Á Ä F å ¥ x X é
ÿ |ož

o¬ F å †o- 1 y o IM ó • ‹ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ FRQWHQW SROLF\ B$8',7B'()$8/7
5XLMLH FRQW SOF\ FRQILJ LP UXOH DXGLW GHIDXOW HQDEOH
5XLMLH FRQW SOF\ FRQILJ HQG
```

2 y í " Œ Á policyA ñ Ä IM • éož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ LP UXOH GHOHWH DOO
5XLMLH FRQW SOF\ FRQILJ HQG
```

3 y A E Œ Á policyA Ä IM ˜ | O ò • é 10 y • é 20 i ¯ ´ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ LP UXOH SULRULW\ VZDS
5XLMLH FRQW SOF\ FRQILJ HQG
```

4 y Ä ‹ Œ Á policyA • %² MSN ˜ | ‹ • é k ª • ï g MSN ø Þ k w ¬ } ‹ ¥ ï
î ? Ô Ã Z accountA ê Ô ø Þ ¼ p keyA ' Îož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ LP UXOH WLPH UDQJH DQ\ DFWLRQ SHUPL
5XLMLH FRQW SOF\ FRQILJ LP UXOH LP W\SH PVQ UHODWLRQ RU DFF
5XLMLH FRQW SOF\ FRQILJ HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ' Îo- 1 y ò ç F å rule-id] ¨ k é Ë ß U Pož

```
5XLMLH FRQILJ LP UXOH WLPH UDQJH DQ\ DFWLRQ SHUPLW DXGLW FR
5XOH DOUHDG\ H[LVWV SOHDVH GHOHWH LW ILUVW
```

2 y ò ç Ì F å • é ¸ » B ã k + N F å • é %² 5 ª ¢ k é Ë ß U Pož

```
5XLMLH FRQILJ LP UXOH LP W\SH PVQ UHODWLRQ RU DFFRXQW DFFRX
```

```
5XOH   LV  QRW  H[LVW
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7.13 keyword

g Ä + » • ¼ p ož
keyword string

í ” ¼ p ož
no keyword string

o¬ @ ƒ ª ¢o-

@ ƒ	T
string	Ä + » m ¼ p ož ª • Â Ý x † 100 -ož

o¬ Þ . F åo- Þ . — F åož

o¬ x X % ”o- Ä + » F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y F å Ä + » ñ m ¼ p ož

o¬ F å †o- 1 y F å%² Ä + » objA k m ¼ p helloož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW REMHFW REM$
5XLMLH FRQWHQW REM FRQILJ  NH\ZRUG KHOOR
5XLMLH FRQWHQW REM FRQILJ  HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.15 show app-audit detail

ò ¤ • O ò ‹ ¢ Â ’ Îož

show app-audit detail [export] { recent hours | time-range from yyyy mm dd hh:mm:ss to yyyy mm dd hh:mm:ss | day-interval yyyy mm dd to yyyy mm dd [hour-interval hour1 to hour2 [hour3 to hour4]] } [interface intf-name | bridge bridge-num] [subscriber subs-name1] [auth-subscriber subs-name2] [app-group app-group-name] [rule-name rule-name] [ip addr] [permit | deny] order-by { time | subscriber | internal-ip | app } { asc | desc } [start-item integer1 end-item integer2]

o¬ @ ƒ ª ¢o-

@ ƒ	T
hours	Ê ž • <
yyyy mm dd	v Ã ™
hh:mm:ss	4 ž ã U a
hour1	ž • < ¡ Ú ^ y • ÷ 4 ž <
hour2	ž • < ¡ Ú ^ y È Ø 4 ž <
hour3	ž • < ¡ Ú ^ y • ÷ 4 ž <
hour4	ž • < ¡ Ú ^ y È Ø 4 ž <
intf-name	N M d f
bridge-num	Ú Z
subs-name1	¡ Ú ^ y ² Á ï d k ¤ G F
subs-name2	¡ Ú ^ y • š ï d k ¤ G F
app-group-name	¡ Ú ^ y • Á d f
rule-name	¡ Ú ^ y F • é d f
addr	¡ Ú ^ yIP k ¤ G F z Ú IP , œ •
integer1	ò ¤ È ç ¤ ` Ü ÷ y å
integer2	ò ¤ È ç ¤ ` È Ø y å

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò ¤ ê - ß • O ò ‹ ¢ Â ’ Îož

o¬ F å †o- 1 y ò ¤ 2013-5-1 0 µ ñ 2013-5-7 24 µ k ï userA • O ò ‹ ¢ Â ’ Îož

```
5XLMLH  VKRZ DSS DXGLW GHWDLO WLPH UDQJH IURP                    WR
RUGHU E\ WLPH GHVF VWDUW LWHP  HQG LWHP

7LPH
VXEVFULEHU  XVHU$
DXWK VXEVFULEHU  DQ\
,S
$SS  44
5XOH 'HQ\44
$FWLRQ  GHQ\
```

app-group-name	¡ Ú ^ y • Á d f
rule-name	¡ Ú ^ y F • é d f

7.18 show content-audit statistics

ª P Ä ‹ ž Ï ‹ ' Îož

show content-audit statistics { brief | counts }

o¬ @ ƒ ª ¢o-

@ ƒ	T
brief	ª P Ä ‹ ž Ï ‹ " } ' Î k Q ª P Â 50 Ú " £ož
stat	ª P Ä ‹ ž Ï ‹ ‹ ƒ ' Î k , È " £ ƒ y Š • " £ ƒ ož

o¬ x X % "o- Ô Ó % "

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- … ¥ x X U Y ò 0 ž Ï ‹ " } ' Î ê ‹ ƒ ' Îož

o¬ F å †o- 1 y ò 0 ž Ï ‹ " } ' Îož

```
5XLMLH VKRZ FRQWHQW DXGLW VWDWLVWLFV EULHI
DXGLW WRWOH QXPEHU
   LG      UHODWH XVHU      DXGLW WLPH          DFWLRQ  NH\ W\SH

                                        SHUPLW UHFY PDLO WLWOH ,ñ
                                        SHUPLW UHFY PDLO WLWOH ôG K
                                        SHUPLW VHQG PDLO WLWOH ôG
```

y ò 0 ž Ï ‹ ê ‹ ƒ ' Îož

```
ZHE EEV SRVW LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP

ZHE PDLO LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP

061 LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP

44 LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP

323  PDLO LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP

6073 PDLO LQIRUPDWLRQ
   WRWOH QXP
   EORFN QXP
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.19 show content-audit write-db

ª P Ä ‹ ‹ © k Ê Î ª ¥ • ¼ Ù Áož
show content-audit write-db

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò 0 Ä ‹ _ ‹ ’ Î © k Ê Î ª ¥ • ¼ Ù Áož

o¬ F å †o- 1 y ò 0 Ä ‹ _ Ê Î ª ¥ • ¼ Ù Áož

```
5XLMLH VKRZ FRQWHQW DXGLW ZULWH GE
XUOBZULWHBGE
ZHEBVHDUFKBZULWHBGE
ZHEBEEVBZULWHBGE
ZHEBPDLOBZULWHBGE
PDLOBZULWHBGE
LPBZULWHBGE
DSSBFRQWURBZULWHBGE
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- Ä Ä å ¥ D } u 4 k — Ä å ¥ D } u 4ož

7.20 show content-policy

ª P Œ Á , ¼ ’ Îož

show content-policy [policy policy-name | stat policy-name | all-rule]

o¬ @ ƒ ª ¢o-

@ ƒ	T
content-policy	x X ñ ¥ @ ƒ + N È Ø k ª P ñ Ä Œ Á C Á Ä ñ Ä Œ " Ñ
policy	ª P 6 Œ Á C Á Ä ñ Ä Œ ¦ Õ
stat	ª P 6 Œ Á Ù Á g Œ Á © k ¨ kid Ú 5 bž
all-rule	7 Á Œ Á L ~ ª P ñ Ä Œ Á C Á Ä ñ Ä Œ ¦ Õ
policy-name	Œ Á d fož 6 ¥ @ ƒ n P ò ¤ d policy-name Œ Á Ä ¦ Â Œ ’ Îož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò ¤ Œ Á , ¼ ’ Îož

o¬ F å †o- 1 y ò 0 ñ Ä ¨ Œ Á C Á Ä ñ Ä Œ " Ñož

```
5XLMLH VKRZ FRQWHQW SROLF\
FRQWHQW SROLF\ B723B35,25,7<
 DFWLYH DSS UXOH     WLPH UDQJH DQ\ DSS JURXS %ORFNB*URXS DFWL
```

```
 DFWLYH DSS UXOH     WLPH UDQJH DQ\ DSS JURXS %ORFNB*URXS DFWL

FRQWHQW SROLF\ B$8',7B'()$8/7
```

S R O L F \ W \ S H D S S U X O H

U X O H L G

XïQóÉdœ! %ₐúG HG 0 0 0 0 X WAVï° œ$v"†‰^ nû ™Â ù '#xdv@ @ 0 0 ™Â xŸ£p „

D S >™Â xŸ£p!...t % O R F N B * U R X S

```
SROLF\ W\SH  LP UXOH

UXOH LG
WLPH UDQJH
UXOH W\SH       PVQ TT
NH\ZRUG
DFWLRQ          SHUPLW
DXGLW           <
HIIHFWLYH
FRPPHQW         GHIDXOWBDXGLW
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.21 show content-policy-relate

Y Œ , £ ª P ï y Œ ¼ û ’ Îož

show content-policy-relate policy-view [{ policy policy-name | { subscriber { subs-name1 | any } | auth-subscriber { |

o¬ F å †o- 1 y Y Œ , £ ò 0 ² Á ï d userA ¼ û ’ Îož

```
5XLMLH VKRZ FRQWHQW SROLF\ UHODWH SROLF\ YLHZ VXEVFULEHU XVH
SROLF\ QDPH SROLF\$
GLVDEOH RII
SUL
HIIHFWLYH
VXEVFULEHU XVHU% XVHU$
DXWK VXEVFULEHU
```

2 y Y ï , £ ò 0 ² Á ï d userA ¼ û ’ Îož

```
5XLMLH VKRZ FRQWHQW SROLF\ UHODWH XVHU YLHZ VXEVFULEHU XVHU$
SROLF\ QDPH SROLF\$
SUL
GLVDEOH RQ
HIIHFWLYH
UHODWLRQ GLVDEOH RQ
LQKHULW

SROLF\ VXPPDU\
XVHU LQKHULW
```

3 y Y Œ , £ ò 0 ï IP ª - A.B.C.D ¼ û ’ Î g 4 IP µ # ï Á cstm_grp1 bž

```
5XLMLH VKRZ FRQWHQW SROLF\ UHODWH SROLF\ YLHZ LS $ % & '
SROLF\ QDPH SROLF\&
GLVDEOH RII
SUL
HIIHFWLYH
VXEVFULEHU FVWPBJUS
DXWK VXEVFULEHU
```

4 y Y ï , £ ò 0 ï IP ª - A.B.C.D ¼ û ’ Îož

```
5XLMLH VKRZ FRQWHQW SROLF\ UHODWH XVHU YLHZ LS $ % & '
SROLF\ QDPH SROLF\&
SUL
GLVDEOH RQ
HIIHFWLYH
UHODWLRQ GLVDEOH RQ
LQKHULW

SROLF\ VXPPDU\
XVHU LQKHULW
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.22 show im-audit detail

ò ¤ IM ‹ ¢ Â ’ Îož

show im-audit detail [export] { recent hours | time-range from yyyy mm dd hh:mm:ss to yyyy mm dd hh:mm:ss | day-interval yyyy mm dd to yyyy mm dd [hour-interval hour1 to hour2 [hour3 to hour4]] } [interface intf-name | bridge bridge-num] [subscriber subs-name1] [auth-subscriber subs-name2] [direction { in | out | double }] [type { qq | msn }] [message keyword] [account account-string] [rule-name rule-name] [ip addr] [permit | deny] order-by { time | subscriber | auth-subscriber | internal-ip | direction } { asc | desc ip addr

o¬ F å †o- 1 y ò ¤ 2013-5-1 0 µ ñ 2013-5-7 24 µ k ï userA MSN ‹ ¢ Â ’ Îož

```
5XLMLH  VKRZ LP DXGLW GHWDLO WLPH UDQJH IURP                    WR
W\SH PVQ RUGHU E\ WLPH GHVF VWDUW LWHP  HQG LWHP

7LPH
$SS W\SH  PVQ
6HQGHU  XVHU$#KRWPDLO FRP
5HFHLYHU  XVHU%#\DKRR FRP
'LUHFWLRQ  RXW
3DWK  *LJDELW(WKHUQHW
,S
8VHU  XVHU$
$XWK 8VHU
0DWFK 5XOH  UXOH$
$FWLRQ  SHUPLW
0HVVDJH  KHOOR
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o- Ä Ä å ¥ D } u 4 k — Ä å ¥ D } u 4ož

7.23 show im-audit stat ò V žI M

intf-name	N M d f
bridge-num	Ú Z

hour2	ž • < ¡ Ú ^ y È Ø 4 ž <
hour3	ž • < ¡ Ú ^ y • ÷ 4 ž <
hour4	ž • < ¡ Ú ^ y È Ø 4 ž <
intf-name	N M d f
bridge-num	Ú Z
subs-name1	¡ Ú ^ y ² Á ï d k ¤ G F
subs-name2	¡ Ú ^ y • š ï d k ¤ G F
addr	¡ Ú ^ yIP k ¤ G F z Ú IP , œ •
class-name	¡ Ú ^ yURL ã • d f k ¤ G F
obj-name	¡ Ú ^ yURL + » d f k ¤ G F
url-string	¡ Ú ^ yURL … k % ¥ F
host-string1	¡ Ú ^ yHOST … k ¤ G F
host-string2	¡ Ú ^ yHOST { µ k ¤ G F

7.25 show url-audit stat

ò ¤ URL ‹ Ï ‹ ’ Îož

show url-audit stat { recent hours | time-range from yyyy mm dd hh:mm:ss to yyyy mm dd hh:mm:ss | day-interval yyyy mm dd to yyyy mm dd [hour-interval hour1 to hour2 [hour3 to hour4]] } [interface intf-name | bridge bridge-num] [subscriber subs-name] [auth-subscriber

7.26 show url-audit top

o¬ U P ’ Îo- -

o¬ u V ª ¢o- Ä Ä å ¥ à ¼ D } u 4 k — Ä å ¥ à ¼ D } u 4ož

7.27 show url-class system

ª P © Ï ¢ ù URL € _ ã • dož
show url-class system [class { id class-id | name class-name }]

ª P © Ï ¢ ù URL € T ’ Îož
show url-class system comment [class { id class-id | name class-name }]

ª P © Ï URL € ¢ ù # “ w ’ Îož
show url-class system custom [class { id class-id | name class-name }]

ª P ¤ Õ ¡ € , ¼ ’ Îož
show url-class system exact

o¬ @ ƒ ª ¢o-

@ ƒ	T
class-name	ò 0 6 © Ï ã • d class-name ’ Î z Ì 6 class n P ò 0 ñ Ä © Ï URL ã • ’ Î
class-id	ò 0 6 © Ï ã • ID class-id ’ Îož

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò ¤ © Ï URL € , ¼ ’ Îož

o¬ F å †o- 1 y ò 0 © Ï ¢ ù URL € _ ã • dož

```
5XLMLH VKRZ XUO FODVV V\VWHP
YHUVLRQ

V\VWHP XUO FODVV QXPEHU
Ý •
    L ú %R
      •  ,  7
    : ( %ð ’
    o
```

```
    @
Ý•
    `
    èK
     Y . h
```

2yò0©Ï¢ù URL €ãÁ ã•'Îož

```
5XLMLH  VKRZ XUO FODVV V\VWHP FXVWRP
YHUVLRQ

V\VWHP XUO FODVV QXPEHU
FRQVXPSWLRQ DPRXQW
UHPDLQ DPRXQW     g Ùg©%²?·} Ï‹'Îh
Ý•
    XUO FODVV  Lú%R
       FRPPHQW  Lú%R•T
         DGG  DGG  FRP
         DGG  DGG  FRP
        PRYH  PRYH  FRP
        PRYH  PRYH  FRP
    XUO FODVV  Ë7
       FRPPHQW  Ë7•T
    XUO FOD¥V  ,7
       FRPPHQ•W  ,7
         DGG  DGG  FRP
         DGG  DGG  FRP
        PRYH  PRYH  FRP
        PRYH  PRYH  FRP
Ý•
    XUO FODVV
       FRPPHQW
     Y . h
```

3yò0©Ï¢ù URL €ã• T 'Îož

```
5XLMLH  VKRZ XUO FODVV V\VWHP FRPPHQW
YHUVLRQ

6\VWHP XUO FODVV QXPEHU
Ý•
    Lú%R   T 'Î
      •  Ţ 'Î7
```

ª P # URL ã • F å ' Îož

show url-class user-cfg [class-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
class-name	# ã • d

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X U Y ò ¤ # URL ã • F å ' Îož

o¬ F å †o- 1 y ª P _ # URL ã • F å ' Îož

```
5XLMLH VKRZ XUO FODVV XVHU FIJ
XUO FODVV &/$66$
XUO LHWI RUJ
FRPPHQW FRPPHQW IRU &/$66$
XUO FODVV &/$66%
XUO Z F RUJ
FRPPHQW FRPPHQW IRU &/$66%
```

2 y ª P 6 URL ã • F å ' Îož

```
5XLMLH VKRZ XUO FODVV XVHU FIJ &/$66$
XUO FODVV &/$66$
XUO LHWI RUJ
FRPPHQW FRPPHQW IRU &/$66$
```

o¬ U P ' Îo- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.30 url

g URL ã • • URL Ú)ož

url url-string

í ” URL Ú)ož

no url url-string

o¬ @ ƒ ª ¢o-

@ ƒ	T

url-string	URL ã • ñ m URL Ú) k u 4 % ” F y 1o• 3 # à { ã • m URL ¿ d ÿ) £ k é F ¥ ÿ) £ ñ Ä † ^ož † ò yURL ietf.org/2006 k é F ietf.org/2006) £ ñ Ä Ä ož 2o• 3 # à { ã • m URL ¿ d m è ¬ k é F ñ Ä + ¥ ¿ d C ¿ ÿ ¿ d ˜	k † ò yURL ietf.org k é F + www.ieft.org C download.ietf.org o• news.ietf.org ˆ ÿ ¿ ˜ |ož

o¬ Þ . F åo- Þ . — F åož

o¬ x X % ”o- URL ã • F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 yURL % ” F) ù N u 4 2 ´) £ k ª • ï F å ietf.org/2006/12/1 z
2 y URL ÿ ¿ d % ” F) ù N u 4 4 ´ ÿ ¿ d k 3 ï F å test.rfc.download.ietf.org k é N F ¤ G
¿ dož

o¬ F å †o- 1 y URL ã • classA • %² Ú) yietf.org ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO FODVV FODVV$
5XLMLH XUO FOV FRQILJ XUO LHWI RUJ
5XLMLH XUO FOV FRQILJ HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- 1 y ò ç F å URL ” 3 G k é Ë ß U Pož

```
5XLMLH FRQILJ XUO LHWI RUJ
)RUPDW HUURU
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.31 url-audit

• o , • URL i ‹ ož

url-audit { exact-filter | except-postfix | except-regexp [regexp] | only-get | optimize-cache [time] }

¼ { , • URL i ‹ ož

no url-audit { exact-filter | except-postfix | except-regexp [regexp] | only-get | optimize-cache [time] }

o¬ @ ƒ ª ¢o-

@ ƒ	T
regexp	¥ @ ƒ ©%² 3 é n ” k• o ¥ e k F ¥ 3 é n ” URL k t ‹ož
time	¥ @ ƒ % y © a k • o ¥ e ktime ž • Ä M Ö ‹ c%² URL Y C R ¥ URL à ¼ ø • e N ¼ož

o¬ Þ . F åo- ó • • o k w x X ª P ß Ûož Q Ä ¨ ü g 4 no x X e k x X õ ª P ß Ûož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 y ò ç ¨ • o url-audit except-regexp ž Z Ä 6 3 é n ” k é ó • 6 .*=.*&.*=.* ož
2 y • o url-audit except-postfix k 1 ‹ µ ? e Ö URL kjpg o•csso•js o•gifo•pngo•swfo•bmpo•icoo•ngo•dllo•GIFo•JPG o•xmlo•iniož
3 y • o url-audit optimize-cache k ó • ž • 30sož

o¬ F å †o- 1 y • o Q ‹ HTTP GETož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO DXGLW RQO\ JHW
5XLMLH FRQILJ HQG
```

2 y F å … ` ó • 3 é n ” g.*=.*&.*=.* h URL ˜ | ‹ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO DXGLW H[FHSW UHJH[S
5XLMLH FRQILJ HQG
```

3 y F å £ Ì ˆ e Ö URL ˜ | ‹ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO DXGLW H[FHSW SRVWIL[
5XLMLH FRQILJ HQG
```

4 y F å 6 60s Ä k c%² IP M Ö URL ˜ | ‹ Y C R ¥ URL ¼ µ µ • e N - ‹ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO DXGLW RSWLPL]H FDFKH
5XLMLH FRQILJ HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.32 url-class

6 URL ã • d k w µ URL ã • F å % ”ož
url-class class-name

í ” URL ã •ož
no url-class class-name

o¬ @ ƒ ª ¢o-

@ ƒ	T
class-name	URL ã • d f

7.33 url-filter-notice

F å URL ¡ U P ¼ µ ª P Ä ož
url-filter-notice display [text]

¼ { URL ¡ U P ¼ µ ª P ož
no url-filter-notice

o¬ @ ƒ ª ¢o-	@ ƒ	T
	text	URL ¡ U P ¼ µ ª P ’ Îož ÿ µ ª P ó • ’ Îož

o¬ Þ . F åo- ó • • oož ó • ª P Ä y
"You are forbidden to visit the website, please contact webmaster!"

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y F å URL ¡ U P ¼ µ ª P Ä ož

o¬ F å †o- 1 y F å URL ¡ U P ¼ µ ª P ’ Î y

```
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  X U O  I L O W H U  Q R W L F H  G L V S O D \  Ó ˜ |  à { ] t W 2 k ¬  ’ ò t û © `
5 X L M L H  F R Q I L J  H Q G
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.34 url-object

6 URL + » d k w µ URL + » F å % ”ož
url-object object-name

í ” URL + »ož

no url-object object -name

o¬ @ ƒ ª ¢o-

@ ƒ	T
object-name	URL + » d fož ª • Â Ý x † 40 -ož

o¬ Þ . F åo- Þ . — F åož

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- * 4 x X U Y F å URL + »ož URL + » O 100ož

o¬ F å †o- 1 y • Í%² URL + » objAož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ XUO REMHFW REM$
5XLMLH XUO REM FRQILJ HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

7.35 url-rule

o URL ó • ‹ ož

url-rule audit-default-enable

¼ { URL ó • ‹ ož

no url-rule audit-default-enable

í ” Œ Á ñ Ä URL • éož

url-rule delete-all

A E URL ˜ | O ò • é i ¯ ´ož

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

g Ä ‹ Œ Á • URL ˜ | O ò • éož

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

í ” URL ˜ | O ò • éož

no url-rule rule-id

• o URL ! à d % ož

url-rule apply-referer

¼ { URL ! à d % ož

no url-rule apply-referer

o¬ @ ƒ ª ¢o-

@ ƒ	T
rule-id1	- A E i ¯ ´ • é 1 IDož
rule-id2	- A E i ¯ ´ • é 2 IDož
rule-id	• é ID ö œ k H › 8 g1~200 ħk • é O 200ož
url-obj-name	• é ¼ û URL + »
time-name	W n • é ÿ | ž • < ž • + » dož
comment-string	¥ • é T ož

o¬ Þ . F åo- Þ . — F åož

o¬ x X % ”o- Ä ‹ Œ Á F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- 1 y • é rule-id ¨ c%² Ä ‹ Œ Á ª • M Ö k ¨ c Ä ‹ Œ Á ª • M Öož

2 y%² Ä ‹ Œ Á ˜ | O ò • é C Ä , • i ¯ ´ k Â e F ; Ú • é i ¯ ´ Â äož

3 y • é ñ ¼ û time-nameo•url-obj-name U Y ¨ k 4 ž • é ÿ |ož

4 y A E i ¯ ´ x X © 9 + ² Ú ˜ | O ò • é i ¯ ´ k g ¥ x X e kshow running-config U Y 0 ñ

• é L ~ G ÿ 4 J k x show running-config k ß ë ¥ x Xož

5 yó • ‹ Q ¨ Œ Á d

```
5XLMLH FRQILJ  FRQWHQW SROLF\ B$8',7B'()$8/7
5XLMLH FRQW SOF\ FRQILJ  XUO UXOH DXGLW GHIDXOW HQDEOH
5XLMLH FRQW SOF\ FRQILJ  HQG
```

2 y í ” Œ Á policyA ñ Ä URL • éož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ  XUO UXOH GHOHWH DOO
5XLMLH FRQW SOF\ FRQILJ  HQG
```

3 y A E Œ Á policyA Ä URL ˜ | O ò • é 10 y • é 20 i ¯ ´ož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ  XUO UXOH SULRULW\ VZDS
5XLMLH FRQW SOF\ FRQILJ  HQG
```

4 y Ä ‹ Œ Á policyA • %² URL ˜ | ‹ • é k ª • ˜ | URL + » url-objA URL kw ¬ } ‹ ¥ • URL ˜ |ož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  FRQWHQW SROLF\ SROLF\$
5XLMLH FRQW SOF\ FRQILJ  XUO UXOH  XUO REMHFW XUO REM$ WLPH U
5XLMLH FRQW SOF\ FRQILJ  HQG
```

5 y • o URL ! à d % ož

```
5XLMLH  FRQILJXUH WHUPLQDO
5XLMLH FRQILJ  XUO UXOH DSSO\ UHIHUHU
5XLMLH FRQILJ  HQG
```

o¬ à • co- … show running-config x X U Y ò 0 F å Ù Áož

o¬ U P ’ Îo- 1 y ò ç F å rule-id] ¨ k é Ë ß U Pož

```
5XLMLH FRQILJ  XUO UXOH  XUO REMHFW XUO REM$ WLPH UDQJH DQ\ D
5XOH  DOUHDG\ H[LVWV SOHDVH GHOHWH LW IRUVW
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- ñ Ä à ¼ © ç D } ® u 4ož

Ú ` Ÿ4¡ h*ü #A,,Ì G Y • È Ù À ¹ ß0´8V Ö

1. DNS

1 DNS

1.1 clear host

Ž ” Á Ñ d Ù Ï nož
clear host [* | host-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
host-name	U Y í ”î 6 Á ¿ d Ù Ïož
*	n P í ” ñ Ä Á ¿ d Ù Ï

o¬ x X % ”o- Ô Ó ï % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Ñ d Ù Ï n ¥ 0 “ £ k Ä Û › y

* ip host ² Á F å z
* DNS Á .ož ü g ¥ x X k k í ” ¢ ù * DNS Á . ñ Ñ d “ £ož

o¬ F å †o- 1 y Y F å k k í ” Ñ d-IP ª - Ù Ï n ñ Ä Á . ñ ¥ 0 “ £ Ä

5 X L M L H F R Q I L J F O H D U K R V W

o¬ U P ’ Îo- -

o¬ u V ª ¢o- -

1.2 ip domain-lookup

o DNS g ¿ d † äož
ip domain-lookup

¼ { DNS ¿ d † ä ož
no ip domain-lookup

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ ø • DNS ¿ d † ä

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¥ x X ø • DNS ¿ d † ä • ¼ k ü g ¥ x X k é o DNS g ¿ d † äož

o¬ F å †o- 1 y ¼ { DNS ¿ d † ä ož

5 X L M L H F R Q I L J Q R L S G R P D L Q O R R N X S

o¬ à • co- * show run ò 0 F å k ¨ ip domain-lookup F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.3 ip host

ô W F å Ñ d y IP ª - ¥ 0ož

ip host host-name ip-address

í ” Ñ ç nož

no ip host host-name ip-address

o¬ @ ƒ ª ¢o-

@ ƒ	T
host-name	— Õ Ñ d
ip-address	— Õ IP ª -

o¬ Þ . F åo- -

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

o¬ F å †o- 1 y ² Á F å www .test.com ¿ d 192.168.5.243

```
5 X L M L H  F R Q I L J   L S  K R V W  Z Z Z  W H V W  F R P
```

o¬ à • co- show run ò 0 F å k ¨ ñ F å x X

show hosts ò 0 ¢ ù ¿ d y IP + • ¼ © k ¨ ñ F å ¿ d y IP + • n ¾

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.4 ip name-server

F å ¿ d Æ ˜ IP/IPv6 ª -ož

ip name-server [oob] { ip-address | ipv6-address }

í " F å ¿ d Æ ˜ož

no ip name-server [oob] { ip-address | ipv6-address }

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	mgmt M
ip-address	¿ d Æ ˜ IP ª -
ipv6-address	¿ d Æ ˜ IPv6 ª -

o¬ Þ . F åo- Þ . Z Ä F å ¿ d Æ ˜

o¬ x X % "o- ¶ B F å % "

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- Q Ä F å 4 ¿ d Æ ˜ õ g Á ¿ d † äož

- DNS Server IP/IPv6 ª -ož?) ü g Ú x X k— Õ C k • %² DNS Serverož¢ — c R †%² Server B H ñ ¿ d ž k — Õ k : ¡ g e Ò Ù Server G DNS ¬ L k + ñ 3 G v ñ › • 2ož
- © Ï Â Ú u 4 6 Æ ˜ož í " DNS Server ž k ò ç Ó 6 4 ip-address ê ipv6-address @ ƒ k é Q í " 6 Æ ˜ k k é í " ñ Ä DNS Æ ˜ ª -ož

o¬ F å †o- 1 y F å IPv4 ¿ d Æ ˜ y IPv6 ¿ d Æ ˜

```
5 X L M L H  F R Q I L J   L S  Q D P H  V H U Y H U                Y L D  P J P W
5 X L M L H  F R Q I L J   L S  Q D P H  V H U Y H U      ' %       E I I  I H H  I        ' %     I
```

o¬ à • co- show run ò 0 F å k ¨ ñ F å x X

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

1.5 show hosts

ª P DNS F å ’ Îož

show hosts [hostname]

o¬ @ ƒ ª ¢o-

@ ƒ	T
hostname	ò 0 6 ¿ dož Þ . Õ Ñ ò 0 ñ Ä ¿ d ’ Î

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ª P DNS , ¼ F å ’ Î

o¬ F å †o- 1 y ò 0 ñ Ä ¿ d ’ Î

```
5XLMLH VKRZ KRVWV
1DPH VHUYHUV DUH
        VWDWLF

+RVW          W\SH      $GGUHVV          77/ VHF
VZLWFK         VWDWLF
ZZZ UXLMLH FRP G\QDPLF
```

< † K y

<	ª ¢
Name servers	¿ d Æ ˜

o¬ u V ª ¢o- -

2 NTP

2.1 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-

@ ƒ	T
-	-

o¬ Þ . F åo- Þ . Õ Ñ NTP Æ © ¼ { ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¨ Þ . Õ Ñ kNTP © ¼ { k x Q } F å 4 NTP Æ ˜ ê NTP ¶ œ ð Ñ ò kNTP < k t ø •ož

o¬ F å †o- 1 y ¼ { NTP Æ ož

```
5 X L M L H  F R Q I L J  Q R  Q W S
```

o¬ à • co- show run ò 0 © k ¨ NTP F å

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.2 ntp access-group

F å NTP Æ ˜ | O ò Ó ’ož
ntp access-group { peer | serve | serve-only | query-only } access-list-number | access-list-name

H ƒ — å ˜ | O ò Ó ’ož
no ntp access-group {peer | serve | serve-only | query-only } access-list-number | access-list-name

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 ¤ k x 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
access-list-number	IP ˜ | O ò ç n ö Z z 8 1 ½99 y 1300 ½1999ož
access-list-name	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 ' k¾ ¶ • c © … NTP ï a à š Ñ òož
¢%² ˜ \| ¬ L ñ ž k NTP Æ 7 Á R Â 4 ˜ \| ' ò ñ Â Ý ˜ \| ' ò ¿ ~ ‰) F • é k Y †%² F ñ • é Õož F ¿ ~ peero•serve o•serve-only o•query-only ož
ò ç Ì F å ` ~ ˜ \| O ò • é k é ñ Ä ˜ \| C © ª • ož x%² š F å 4 ˜ \| O ò • é k é N Ä • é ñ ª • ˜ \| õ gož

, • , Ä € # [Å % 8 _ Ÿ d9 ö ¾ Ö h í) û Ÿ • $ ì • ƒ þ 0 Å % 8 - ' È Ð [M ¥ [d

o¬ F å †o- 1 y F å Q ª • 192.168.1.1 — Õ + Î ª — Õ g ž • ¬ L

```
5XLMLH FRQILJ DFFHVV OLVW SHUPLW
5XLMLH FRQILJ QWS DFFHVV JURXS VHUYH RQO\
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.3 ntp authenticate

F å NTP

H ƒ ¶ B NTP • š % Wož

no ntp authentication-key key-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
key-id	% WID z H › 8 1 ½4294967295ož
key-string	% W … ož
enc-type	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 öà NðsÔY w J ;Ðntp trusted-key(7)7(29)7(5)]TJ

U Y w

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
Ÿ t) û » " Ç ¼ G ¾ Ÿ t " lP Ì Ÿ q 3 Ç } c P Ç h a — d

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- -

2.6 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 [stratum]

H ƒ NTP ž U — åož
no ntp master

o¬ @ ƒ ª ¢o-

ª © Ï — c Ù B ž U › c 5 ž k U Y * ¥ x X — å Î ª ž U @ ð › U ´ k ¿ U — Õ U ˆ c 5 ž •ož
%² š g 4 4 — å k © Ï Ž k A ¿ ž U C ƒ ƒ › ¾ ä ž U › g c 5ož

▲ ° ® a — ¨ ¡ ‹ ¹ Ì ï d Ü ‡ ¨ 2 • " V ¨ 2 c ¾ G t ¨ 2 ô ¨ ó ¶ Ÿ Ü
ç þ Ò ¨ 2 W " d " ´ s ½ ¢ î / • Q • • [° t a — • ¶ Ÿ • • · ¨ 2 Ó
ý ! î ¨ 2 ½ ä â 7 G d

▲ ° a — • / , Ä ¶ # 0 ó æ ¨ 2 W ½ ä ¶ • ¶ Ÿ ‘ Í N Î y , Ä ¨ 2 » I c â V ¶ Ö *
d

o¬ F å †o- 1 y — å Î ª ž U @ ð › U ´ k w — å ¿ ž U C ƒ 12ož

```
5XLMLH FRQILJ QWS PDVWHU
```

o¬ à • co- 1 y … show ntp status x X ò 0 NTP , ¼ F åož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.7 ntp server

NTP ï € 6 %² NTP Æ ˜ož

ntp server[oob] { ip-addr | domain | ip domain | ipv6 domain } [version version] [source if-name] [key keyid] [prefer]

í ” 6 NTP Æ ˜ož

no ntp server ip-addr

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	g U # h 6 R MGMT N µ NTP Æ ˜ k ó • Õ Ñ Ú MGMTož
ip-addr	— å NTP Æ ˜ IP ª - k u 4 IPv4 y IPv6 z
domain	— å NTP Æ ˜ ¿ d k u 4 IPv4 y IPv6 z
version	g U # h 6 NTP Í Î g1-3 h k ó • J NTPv3 Í Î z

if-name 1-3

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 Rå , 3 Y
```

o¬ à • co- -

o¬ U P ' Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

2.8 ntp trusted-key

1%² ID + • % W F å ¶ B ' ` % Wož
ntp trusted-key key-id

í ” ID + • ¶ B ' ` % Wož
no ntp trusted-key key-id

o¬ @ ƒ ª ¢o-

@ ƒ	T
key-id	¶ 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¬ … 6 -o- ¨ NTP * ’ E • · À J , c ’ ` % W k * ID Û ò % W k ò % W Î ï © n ÿ k Y U ä ¶ Åož

o¬ F å †o- 1 y F å%² • š % W k w 4 % W — å + • Æ ~ ’ ` % Wož

```
5XLMLH FRQILJ QWS DXWKHQWLFDWLRQ NH\ PG ZRRRRRS
5XLMLH FRQILJ QWS WUXVWHG NH\
5XLMLH FRQILJ QWS VHUYHU NH\
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

2.9 ntp update-calendar

— åNTP ï € Ê … R Ù B ž U › c 5 ± Û ž U › ¾ • — Õ F ^ ž Uož
ntp update-calendar

H ƒ Ê ¾ • F ^ ž U ož
no ntp update-calendar

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó • Ì F å Ê ¾ • F ^ ž U ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … 4 U Y • NTP ï € Ê … R Ù B ž U › c 5 ± Û ž U › ¾ • — Õ F ^ ž Uož— Õ F ^ ž U
/ … ¨ — Õ ¼ Ñ ê ¨ — Õ Ö y Õ Ñ Q À Ü Ð Ò Ú ož
¨ Þ . Õ Ñ Z Ä F å NTP ¾ • F ^ ž Uož F å $ e kNTP ï € k ¨ ?) Ù B ž U › c 5 è ž - c ž
¾ • — Õ F ^ ž Uož

o¬ F å †o- 1 y F å NTP Ê ¾ • F ^ ž U

5XLMLH FRQILJ QWS XSGDWH FDOHQGDU

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

-

o¬ u V ª ¢o- -

2.11 show ntp status

ª P NTP ' Îož

show ntp status

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 © Ï NTP Æ ø • ké ª P ¢ ù NTP ' Î k¨ †%²) • c 5 Æ ˜ $ ù ¥ x X k ø - ` ~ ' Îož

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 GLVSHUVLRQ LV PVHF

< † K y

<	ª ¢
stratum	n P ¢ ù ž U ˆ ´ z
reference	n P c 5 Æ ˜ ª - z
freq	n P ¢ ù © Ï ž U È ä z
precision	n P ¢ ù © Ï ž U ¤ † z
reference time	n P c 5 Æ ˜ @ ð ž U UTC ž • › z
clock offset	n P ¢ ù ž U ž g z
root delay	n P ¢ ù ž U • z
root dispersion	n P ½ ´ Æ ˜ ž • ¤ † z
peer dispersion	n P c 5 Æ ˜ ž • ¤ †ož

o¬ U P ' Îo- -

o¬ u V ª ¢o-

3 SNTP

3.1 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- -

3.2 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- -

o¬ F å †o- 1 y • o SNTP
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- -

3.3 sntp interval

— å SNTP Client ¬ } ž y NTP/SNTP Server c 5 ž U ž • • œož
sntp interval seconds

H ƒ SNTP c 5 • œ — å k Ê Ö ñ Þ . c 5 ž • • œož
no sntp interval

o¬ @ ƒ ª ¢o-

@ ƒ	T
seconds	ž c 5 • œ k % y aož H › 8 60 ½65535ož

o¬ Þ . F åo- 1800s

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ã : • " ¨ · · O â V K ‡ “ Ò " ´ ‘ K ‡ “ Ò È " û ¨ · · O û sntp enable a — d

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¬ 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-

4 FTP-Server

4.1 ftp-server enable

o FTP Æ ˜
ftp-server enable

Ê Ö Þ . F å
default ftp-server enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ¼ { Ù Á

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¢ FTP Æ ˜o ž k * FTP ï € U Y $ N k w g † ^ n ê ú ˆ q • k · À c ž F å 4 x X
y ftp-server topdir x X õ … FTP ï € ˜ | FTP Æ ˜ † ^

o¬ F å †o- 1 y o FTP Æ ˜ w ’ ò ï € N ˜ | syslog ÿ) £ y

```
5XLMLH FRQILJ IWS VHUYHU WRSGLU V\VORJ
5XLMLH FRQILJ IWS VHUYHU HQDEOH
```

2 y ¼ { FTP Æ ˜ y

```
5XLMLH FRQILJ QR IWS VHUYHU HQDEOH
```

o¬ à • co- 1: show ftp-server U 0 ñ F å è ož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.2 ftp-server login timeout

F å FTP k ¢ • Ä | ž x

ftp-se rver login timeout time

… ¥ x X no ¥ ” Ê Ö q ~ ž ’ ó • › g2 ã U h
no ftp-server login timeout

Ê Ö Þ . F å
default ftp-server login timeout

o¬ @ ƒ ª ¢o-

@ ƒ	T
time	q ~ ž ’ g % y y ã U z 8 y1-30 h

o¬ Þ . F åo- ó • ž ’ 2 ã U

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- • Ä | ž • © 6 ï • y e N e k ?) • š ï Ã Z y % A Â x ¨ ¿ ž •ož ¨ ¥ Ä | ž • Ä ï 3 Ì Ç)
g ï % A • š 1 t 2 k ¢ k R ò ‘ š ¿ U ï Ü •ož

o¬ F å †o- 1 y Y P 8 ò ~ F å q ~ ž ’ 5 ã U y
5 X L M L H F R Q I L J I W S V H U Y H U O R J L Q W L P H R X W
2 y Y P 8 ò ~ Ê Ö q ~ ž ’ ó • › g10 ã U h y
5 X L M L H F R Q I L J Q R I W S V H U Y H U O R J L Q W L P H R X W

o¬ à • co-

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

4.3 ftp-server login times

F å FTP k ¢ • Ä |) ƒ
ftp-server login times time

… ¥ x X no ¥ ” Ê Ö ó • › g3) h
no ftp-server login times

Ê Ö Þ . F å

default ftp-serve r timeout

o¬ @ ƒ ª ¢o-

@ ƒ	T
time	q ~ ž ’ g 8 y1-10 h

o¬ Þ . F åo- ó •) ƒ 3)

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- k ¢ Ä |) ƒ © 6 ¨%² FTP k ¢ ¨ • i k ï Â Ú U Y g Ã Z % A • š) ƒož ó • — å 3) k / ¨ ® ‹) ÿ µ j ¨ ï d ê % A ž k k ¢ t 2 k R ò ª • ¿ U ï ¿ož

22_0 1 Tf 0.807 0 553<046B0AA /T12>-74090050A003790A9579E6C459D67E079E0B9203670A3 /T8D082907849B3805T0 1 Tf ( )Tj EC2
3

	directory	FTP ï € Ü g q • ½ C) £

o¬ Þ . F åo- ó • — ½ C) £ — å g ª • ¯ Ê ` ~) £ h

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- FT P Æ ˜ ½ C) £ ’ 4 ï € £ e U Y ˜ | † ^) £ 8 ož · À 3 G 6 ½ C) £ õ • FTP ï
€ ˜ | FTP Æ ˜ † ^
F[illegible] ˜ ` ~ † ^ n £) £

[illegible] NP €©€·À

default ftp-serve r username username

o¬ @ ƒ ª ¢o-

@ ƒ	T
username	£ ï d
password	£ % A

o¬ Þ . F åo- ó • — ï d k — % A

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- F å ï € • FTP Æ ˜ ž ¬ } U ˆ ï dož ï € £ ž ¬ } c ž U ˆ 3 G ï d y % A õ £ož
ï d Â Ý x † 64 … k • ª • Ä q ož ï d U Y 6 † >o• ! … ƒ y ! … … Z Á èožFTP
Æ ˜ Â Ú Q F å%² ï d
% A · À m > ê ƒ k % A ù e U Y Ä q k x 1 t ¿ z % A • q • % A %² B ãož
¢ † % A Â 4 x † 1 …o• Â Ý x † 25 … z % † % A Â 4 x † 4 …o• Â Ý x † 52
…
FTP Æ ˜ · À F å £ ï d y £ % A Y Ž + ï € N g ï a à š k % A y ï%²%² F +ož FTP Æ
˜ u 4 d ï £ k ò ç Ž ” 4 ï d F å ï € 1 — c * Æ ˜ ï a à š

o¬ F å †o- † 1 y Y P 8 ò ~ F å ï d user y

```
5XLMLH FRQILJ IWS VHUYHU XVHUQDPH XVHU SDVVZRUG SDVV
```

† 2 y Y P 8 ò ~ H ƒ ï d F å y

```
5XLMLH FRQILJ QR IWS VHUYHU XVHUQDPH XVHU
```

o¬ à • co- 1: show ftp-server U • F å è

o¬ U P ’ Îo- 1: Ì F å ï d k ï : ¡ N

```
)73659 86(5 +DYHQ W FRQILJ XVHUQDPH
```

2. F å ï d x

```
5XLMLH FRQILJ VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVGGGGGGG
8VHUQDPH DEFGHIJKMLMNOQQ VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV
is NULL or too long, max length is 64.
```

3 yServer € Ì F å % A k ï : ¡ N

```
)73659 3$66 +DYHQ W FRQILJ SDVVZRUG
```

4 y F å % † % A x † ß ?

```
5XLMLH FRQILJ IWS VHUYHU XVHUQDPH XVHU SDVVZRUG
,QYDOLG HQFU\SWHG SDVVZRUG PLQ OHQJWK LV PD[ OHQJWK LV
```

5 y F å ¢ † % A ß x

```
5XLMLH FRQILJ IWS VHUYHU XVHUQDPH XVHU SDVVZRUG DEFGHIJKLMNO
```

5 FTP Client

5.1 ftp-client ascii

… † Î gASCII h • ” g FTP n ÿož

ftp-client [vrf vrf-name] ascii

H ƒ † Î n ÿ • ” k … 8 ò n ÿ • ”ož

no ftp-client [vrf vrf-name] ascii

Ê Ö Þ . F å. ož

default ftp-client [vrf vrf-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
vrf vrf-name	6 VRFož Þ . ¸à †ož

o¬ Þ . F åo- ó • Õ Ñ FTP n ÿ % ” 8 ò g BINARY h • ”

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- _ É ° default a — ¨ Ü FTP Client K ì ˜ " ‡ ô l U „ N PASV º ´ 3 Ñ Ž Û •) % BINARY f ´ º j W IP â) û ^ G d

o¬ F å †o- 1 y F å … † Î gASCII h • ” g FTP n ÿož

```
5 X L M L H  F R Q I L J  I W S  F O L H Q W  D V F L L
```

2 y F å vrf-name … † Î g ASCII h • ” g FTP n ÿož

```
5 X L M L H  F R Q I L J  I W S  F O L H Q W  Y U I  Y U I  Q D P H  D V F L L
```

3 y F å … † Î gBINARY h • ” g FTP n ÿož

```
5 X L M L H  F R Q I L J  Q R  I W S  F O L H Q W  D V F L L
```

4 y F å vrf-name … † Î g BINARY h • ” g FTP n ÿož

```
5XLMLH FRQILJ QR IWS FOLHQW YUI YUI QDPH DVFLL
```

5 yFTP Client Ê Ö Þ . F åož

```
5XLMLH FRQILJ GHIDXOW IWS FOLHQW
```

6 yFTP Client vrf-name Ê Ö Þ . F åož

```
5XLMLH FRQILJ GHIDXOW IWS FOLHQW YUI YUI QDPH
```

o¬ à • co- 1 y … show run x X k U Y ò 0 ftp-client ascii F åož
2 y … show run x X k U Y ò 0 ftp-client vrf vrf-name ascii F åož

o¬ U P ' Îo- 1 y%² F å è k k ß ë ` ~ U Pož
2 y ò ç vrf-name ¨ Î ª — Õ ¨ k é k U P j ¨ y % VPN Routing/Forwarding instance name error z k
é F å è k k ß ë ` ~ U Pož
3 y%² F å è k k ß ë ` ~ U Pož
4 y ò ç vrf-name ¨ Î ª — Õ ¨ k é k U P j ¨ y % VPN Routing/Forwarding instance name error z k
é F å è k k ß ë ` ~ U Pož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.2 ftp-client port

F å FTP … gPORT h • ” g ƒ G Nož
ftp-client [vrf vrf-name] port

Ê Ö t • ”ož
no ftp-client [vrf vrf-name] port

Ê Ö Þ . F å. ož
default ftp-client [vrf vrf-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
vrf vrf-name	6 VRFož Þ . ¸ à †ož

o¬ Þ . F åo- ó • Õ Ñ FTP N t gPASV h • ”

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.3 ftp-client source

FTP Client U Y Ç ï € › IP ª - k … ¥ IP ª - Æ ˜ € IP ª - g * ’ož

ftp-client [vrf vrf-name] source { ip-address | ipv6-address | interface}

H ƒ + ï € › IP ª - Ç ož

no ftp-client [vrf vrf-name] source

Ê Ö Þ . F å. ož

default ftp-client [vrf vrf-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
vrf vrf-name	6 VRFož Þ . ¸ à †ož

o¬ Þ . F åo- Þ . Õ Ñ k ï € g Î ª IP Ç k è g # +ož

o¬ x X % ”o- ¶ B F å % ”

5 yno x X H ƒ + ï € › IP ª - Ç ož

```
5XLMLH FRQILJ QR IWS FOLHQW VRXUFH
```

6 yno x X H ƒ + ï € › IP ª - Ç ož

```
5XLMLH FRQILJ QR IWS FOLHQW YUI YUI QDPH VRXUFH
```

7 yFTP Client Ê Ö Þ . F åož

```
5XLMLH FRQILJ GHIDXOW IWS FOLHQW
```

8 yFTP Client vrf-name Ê Ö Þ . F åož

```
5XLMLH FRQILJ GHIDXOW IWS FOLHQW YUI YUI QDPH
```

o¬ à • co- 1 y … show run x X k U Y ò 0 ftp-client source192.168.23.236 F åož
2 y … show run x X k U Y ò 0 ftp-client source 2003:0:0:0::2 F åož
3 y … show run x X k U Y ò 0 ftp-client vrf vft-name source192.168.23.236 F åož
4 y … show run x X k U Y ò 0 ftp-client vrf vft-name source 2003:0:0:0::2 F åož

o¬ U P ’ Îo- 1 y ò ç 192.168.23.236 © Î ª ª - k é k U P j ¨ z ò ç © k é F å è k k ß ë ` ~ U Pož
2yòç 2003:0:0:0::2 © Î ª ª - ké k U P j ¨ y Bind failed: the specified source address is non-local ip z ò ç © k é F å è k k ß ë ` ~ U Pož
3 y ò ç vrf-name ¨ Î ª — Õ ¨ U P y 192.168.23.236 © Î ª ª - k é k U P j ¨ y Bind failed: the specified source address is non-local ip z ò ç ¨ © k é F å è k k ß ë ` ~ U Pož
4 y ò ç vrf-name ¨ Î ª — Õ ¨ U P y % VPN Routing/Forwarding instance name error k 2003:0:0:0::2 © Î ª ª - k é k U P j ¨ y Bind failed: the specified source address is non-local ip ` ~ð Ã!2R À %±GàuP• ùà
3 b À ’ h# el ¨ Î ª — Õ “ ¨ U P y
2
o¬ U P ’ Îo-

no ftp-c lie nt [vrf vrf-name] source-address

Ê Ö Þ . F å. ož
default ftp-client [vrf vrf-name]

o¬ @ ƒ ª ¢o-

@ ƒ	T
vrf vrf-name	6 VRFož Þ . ¸ à †ož

o¬ Þ . F åo- Þ . Õ Ñ k ï € g Î ª IP Ç k è g # +ož

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o-

_ É ° default a — ¨ Ü FTP Client K ì ˜ " ‡ ô I U „ N PASV º ´ 3 Ñ

ažZêlfùè) % BINARY)Ì

5XLMLH FRQILJ GHIDXOW IWS FOLHQW

8 y

remote-file	i Æ ˜ † ^ d k x † ' ò 255 - k u 4 q y † ...
local-directory	U # Î ª — Õ † ^ æ è ¬ k ò ç 6 4 ¥ † ^ è ¬ k é · À ' š ¥ † ^ æ è ¬] Æ 7 ¯ ë • k 4 x X u 4 † ^ æ ë • z ò ç q é n P ¨ — Õ ¢ ù) £ k x † ' ò 255 - k u 4 q y † ...
local-file	Î ª — Õ † ^ d k x † ' ò 255 - k u 4 q y † ...

o¬ Þ . F åo- —

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- -

o¬ F å †o- 1 yR ï d user k% A pass kP ª - 192.168.23.69 FTP Server root) £ ú † ^ d remote-file † ^ ñ — Õ home) £ k ¥ † ^ d local-fileož

5 X L M L H F R S \ I W S X V H U S D V V # U R R W U H P R W H I L O H I O D V K K R

2 y — Õ home) £ local-file † ^ n ñ FTP Server root) £ k † ^ x d remote-fileož

5 X L M L H F R S \ I O D V K K R P H O R F D O I L O H I W S X V H U S D V V # U R R

o¬ à • co- ... dir ¨ Î ª ª — Õ ò 0 local-file † ^ © k ¨ k ¨ ú è k ¨ ú â Âož

o¬ U P ' Îo- ú è k ø • debug ftp-client k U P , • j ¨ k è k U P successož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

5.6 copy flash

dest-address	˜ | FTP Server IP ª -
remote-directory	U # FTP Server † ^ è ¬ d k x † ' ò 255 - k u 4 q y † … k ò ç q k n P FTP Æ ˜ ¢ ù W • è ¬
remote-file	i Æ ˜ † ^ d k x † ' ò 255 - k u 4 q y † …
local-directory	U # Î ª — Õ † ^ æ è ¬ k ò ç 6 4 ¥ † ^ è ¬ k é · À ' š ¥ † ^ æ è ¬] Æ 7 ¯ ë • k 4 x X u 4 † ^ æ ë • z ò ç q é n P ¨ — Õ ¢ ù) £ k x † ' ò 255 - k u 4 q y † …
local-file	Î ª — Õ † ^ d k x † ' ò 255 - k u 4 q y † …

o¬ Þ . F åo- —

o¬ x X % ”o- Ô Ó % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- -

o¬ F å †o- 1 y R ï d user k % A pass k IP ª - 192.168.23.69 FTP Server k — Õ home) £ local-file † ^ n ñ FTP Server root) £ k † ^ x d remote-file

```
5XLMLH FRS\ IODVK KRPH ORFDO ILOH IWS XVHU SDVV#                    URR
```

o¬ à • co- ¨ FTP Server root) £ ò 0 local-file † ^ © k ¨ k ¨ ú è k ¨ ú â Âož

o¬ U P ' Îo- n è k ø • debug ftp-client k U P , • j ¨ k è k U P successož

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

6 TIME RANGE

6.1 absolute

— å Í + ž • •ož
absolute { [star t time date] [end time date] }

í ”] ¨ Í + ž • •ož
no absolute

o¬ @ ƒ ª ¢o-

@ ƒ	T
star t time date	• • ÷ ž •
end time date	• È Ø ž •

o¬ Þ . F åo- Z Ä F å Í + ž • • k Þ . ž Â Ý ž • •ož

o¬ x X % ”o- time-range % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ò ç Ý } • î ¨%² Í + ž • • Ä ÿ | k U Y … absolute x X F å%² • ÷ y È Ø ž • •ož
Â Ý ž • • 0 v 1 Ã 1 ™00 y 00 k 9999 v 12 Ã 31 ™23 y 59ož

o¬ F å †o- 1 y ë •%² time range w µ time range % ”

```
5XLMLH FRQILJ WLPH UDQJH QR KWWS
5XLMLH FRQILJ WLPH UDQJH
```

2 y F å Í + ž • •

```
5XLMLH FRQILJ WLPH UDQJH DEVROXWH VWDUW -$1 HQG -
```

1 y ë •%² ab

6.2 periodic

o¬ F å †o- 1 y ë •%² time range

```
5XLMLH FRQILJ WLPH UDQJH QR KWWS
5XLMLH FRQILJ WLPH UDQJH
```

o¬ à • co- 1 y … show time-range [time-range-name] x X k U Y ò 0 time range © k ¨ož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

7 ¯ › ä ù4ì Z p V ¿

7.1 clear rping table all

Ž ”

address	6) IPv4 ª - ê ¿ dož
length	6 G ƒ G ƒ G Ê - < x † k 8 y 36~18024 kó • Ê - x † 100ož
times	6 G ƒ G ƒ k 8 y1~ 4294967295 ož
seconds	6 Ý ž ž • k 8 y1~10 g a hož
data	6 † Ê - ƒ G k " 1-255 x † … k ó • Ê - abcdož
source	6 † › IPv4 ª - ê › N Mož ¿ k ê › N M ª - g † ò 127.0.0.1 h ª • • › ª -ož
df-bit	— å IP DF ö œ y k ¢ DF y t — å 1 ž k n P + ƒ G g ã < Ô ò k ó • DF y 0ož
validate	— å © k û à € • †ož
detail	— å › ª © k ª P ¦ Â ' Î k ó • Q ª P ` y . ož
interface	6 G ƒ G † ß M N Mož
next-hop	6 G ƒ G † ß N M %² é IPv4 ª -
millisecond	6 ? ping † • œ ž • k 8 y 10~300000 g D a h k Þ . • œ ž • © 100 D a

o¬ Þ . F åo- Þ . ¨ 6 ž • g Þ . 2 a h Ä k 5 x † 100Byte ƒ G ñ 6 IP ª -ož

o¬ x X % ”o- ¨ ¯ * ï % ” k Q g Â Î ping z ¨ Ô Ó ï % ” k U Y g ping ý J ož

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- g ping k ò ç Ä • ‹ k é ª P ß • ‹ , ¼ ' Î k Â e ÿ ß %² Ï ‹ ' Îož ¨ ý J ping k U Y 6 G ƒ G ƒo • x †o • Ý ž ž • ˆ ˆ k y Â Î ping %² ý k Â e - ÿ ß %² Ï ‹ ' Îož } … ¿ d k é } ¯ F å ¿ d Æ ˜ k À } F å ¬ @ ð DNS F å B ãož

o¬ F å †o- 1 y ¯ * ping †ož 6) IP ª - 192.168.21.26ož

```
o • SLQJ
5XLMLH SLQJ
6HQGLQJ E\WH ,&03 (FKRHV WR WLPHRXW LV VHFRQGV
 SUHVV &WUO & WR EUHDN !

6XFFHVV UDWH LV SHUFHQW URXQG WULS PLQ DYJ PD[ P
ªP GHWDLSQ1 QJ
5XLMLH SLQJ GHWDLO
 $SU 3,1* '(%8* 3LQJ YUI LQGH[
6HQGLQJ E\WH ,&03 (FKRHV WR WLPHRXW LV VHFRQGV
   SUHVV &WUO & WR EUHDN !
5HSO\ IURP E\WHV WLPH PV 77/
5HSO\ IURP E\WHV WLPH PV 77/
5HSO\ IURP E\WHV WLPH PV 77/
```

```
5HSO\ IURP              E\WHV    WLPH  PV 77/
5HSO\ IURP              E\WHV    WLPH  PV 77/
```

‘!6â [VRF "hH'´ "õ© ¬•È»n˜•• " yd

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms.2 y ý J ping †ož 6) IP ª - 192.168.21.26 k G ƒ G x † 1500 k G ƒ G ƒ 20 k Ý ž ž• 3 a k † Ê - ƒ G ffff k w — å › IP ª - 192.168.21.99ož

```
o• SLQJ
5XLMLH SLQJ    OHQJWK    QWLPHV    GDWD IIII VRXUFH          V
6HQGLQJ        E\WH ,&03 (FKRHV WR          WLPHRXW LV  VHFRQ
   SUHVV &WUO & WR EUHDN !


6XFFHVV UDWH LV   SHUFHQW      URXQG WULS PLQ DYJ PD[
ªP GHWDLSQ1QJ
SLQJ          OHQJWK    QWLPHV    GDWD IIII VRXUFH          WLP
6HQGLQJ        E\WH ,&03 (FKRHV WR          WLPHRXW LV  VHFRQG
   SUHVV &WUO & WR EUHDN !
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/
5HSO\ IURP          E\WHV    WLPH  PV 77/

6XFFHVV UDWH LV   SHUFHQW      URXQG WULS PLQ DYJ PD[      P
```

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

y 6 IPv6 ª - © k U k w ÿ ß , ¼ ’ Îož

ping [vrf vrf-name | [oob] ipv6] [ip-address [via mgmt-name] [length length] [ntimes times] [timeout seconds] [data data] [source source] [detail] [interval millisecond] [out-interface interface [next-hop *next-hop*]]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	— å … k Ù * 3ož ¢ 6 MGMT M • › N M ž k · À — å ¥ @ ƒož ' } [MGMT • • h [d
vrf-name	VRF d ož ' } [VRF • • h [d
ip-address	6) IPv6 ª - ê ¿ dož
mgmt-name	6 ¨ oob % ” † ß M ’ ò Mož
length	6 G ƒ G x † k 8 y16~18024 k k ó • Ê - x † 100ož
times	6 G ƒ G ƒ k 8 y1~ 4294967295 ož
seconds	6 Ý ž ž • k 8 y1~10 g a hož
data	6 † Ê - ƒ G k ” 1-255 x † … ož
source	6 † › IPv6 ª - ê › N Mož ¿ k ê › N M ª - g † ò::1 h ª • • › ª -ož
detail	— å › ª © k ª P ¦ Â ’ Î k ó • Q ª P ` y . ož
interface	6 G ƒ G † ß M N Mož
next-hop	6 G ƒ G † ß N M %² é IPv6 ª -
millisecond	6 ? ping † • œ ž • k 8 y 10~300000 g D a h k Þ . • œ ž • © 100 D a

0 0 0 BT /TT0 1 Tf 0.0028 Tf 5.253 0 Td [<0003>-1<0004>]TJ ET

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- g ping ip v6 k ò ç Ä • ‹ ké ª P ß • ‹ , ¼ ’ Î kò ç • ‹ ƒ G Ä ¬ L ƒ G Ä F k
é ª P %² ‘Request receive error.’ k Â e ÿ ß%² Ï ‹ ’ Îož
¨ ý J ping ipv6 k U Y 6 G ƒ G ƒo• x †o• Ý ž ž • ˆ ˆ k y Â Î ping ipv6 %² ý k
Â e - ÿ ß%² Ï ‹ ’ Îož
} … ¿ d k é } ¯ F å ¿ d Æ ˜ k À } F å ¬ @ ð DNS F å B ãož

o¬ F å †o- 1 y ¯ * ping ipv6 †ož 6) IP ª - 2001::5ož

```
o•  SLQJ
5XLMLH  SLQJ LSY
6HQGLQJ       E\WH ,&03 (FKRHV WR       WLPHRXW LV  VHFRQGV
  SUHVV &WUO & WR EUHDN !

6XFFHVV UDWH LV    SHUFHQW      URXQG WULS PLQ DYJ PD[       P

ªP GHWDLSQ1 QJ
5XLMLH SLQJ       GHWDLO
6HQGLQJ       E\WH ,&03 (FKRHV WR       WLPHRXW LV  VHFRQGV
   SUHVV &WUO & WR EUHDN !
5HSO\ IURP       E\WHV    WLPH  PV
5HSO\ IURP       E\WHV    WLPH  PV
5HSO\ IURP       E\WHV    WLPH  PV
5HSO\ IURP       E\WHV    WLPH  PV
5HSO\ IURP       E\WHV    WLPH  PV

6XFFHVV UDWH LV    SHUFHQW      URXQG WULS PLQ DYJ PD[       PV
```

2 y ý J

```
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV
5HSO\ IURP      E\WHV    WLPH PV

6XFFHVV UDWH LV   SHUFHQW      URXQG WULS PLQ DYJ PD[      P
```

0510047010510057000523O p Q W # 5w 1070005[(s)4(h)-1(o)12(w)-21(rpi)6(ng de)4(ta)4(il)]TJ0 12 <</MCID 13 >>1w 8.227 <0005(0

o¬ F å †o- 1 y ò 0 Rping ¦ Â ’ Î

```
5XLMLH VKRZ USLQJ GHWDLO
7RWDO RZQHU QXPEHU
7RWDO WHVW QXPEHU
RZQHU XVHU
  WHVW QDPH WDJHWB VWRUDJH W\SH YRODWLOH
  WHVW QDPH WDJHWB VWRUDJH W\SH QRQ9RODWLOH
RZQHU XVHU
  WHVW QDPH WDJHWB VWRUDJH W\SH SHUPDQHQW
  WHVW QDPH WDJHWB VWRUDJH W\SH UHDG2QO\
```

< † K y

<	ª ¢
Total owner number	ï È ƒ
Total test number	y ¡ È ƒ
owner	ï d
test name	y ¡ d
storage type	" ¾ g ¥ • º

o¬ U P ’ Îo-

ɵ¬ u V ª ¢o-

7.5 traceroute

ª P IPv4 ƒ G R › ª - ñ) ª - ñ Æ à ¼ož

traceroute [oob | ip] [adress [probe number] [source source] [timeout seconds] [ttl minimum maximum] [out-interface interface [next-hop next-hop]]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	— å … k Ù * 3ož ¢ 6 MGMT M • › N M ž k · À — å ¥ @ ƒož ' } [MGMT • • h [d
address	6) IPv4 ª - ê ¿ dož
number	6 G M y ƒ O k 8 y1~255ož
source	6 † › IPv4 ª - ê › N Mož ¿ k ê › N M ª - g † ò 127.0.0.1 h ª • • › ª -
seconds	6 Ý ž ž • k 8 y1~10 g a hož
minimum maximum	6ГLÂ›4ку8Â ý1~255ož
interface	6 G ƒ G † ß M N Mož
next-hop	ò G ƒ G † ß N M %² é IPv4 ª -

o¬ Þ . F åo- Þ . Ý ž ž • 3 a k G M y ƒ O 3 k Â 4 y Â Ý TTL ã ð 1 y 255ož

o¬ x X % ”o- ¨ ¯ * ï % ” k Q g Â Î traceroute z ¨ Ô Ó ï % ” k U Y g traceroute ý J ož

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- Traceroute x X } 9 ò à Ì * Å k w ¨ à Ì { ž G ÿ ž k Õ G y { ž G ÿ y åož } … ¿ d k é } ¯ F å ¿ d Æ ˜ k À } F å ¬ @ ð DNS F å B ãož

o¬ F å †o- 1 y ç à Ì * traceroute † ÿož

```
5XLMLH  WUDFHURXWH
  SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                      PVHF   PVHF   PVHF
                      PVHF   PVHF   PVHF
                      PVHF   PVHF   PVHF
                      PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF   PVHF    PVHF
                       PVHF   PVHF    PVHF
```

R µ È ç U Y 0 ñ k R › ª - } ˜ | IP ª - 61.154.22.36 Ñ k à Ì ƒ G C Æ 4 „ ? à ¼ g1 l6 h k c ž Ë ß 4 ñ ¥ à ¼ ñ 0 Ë ž •ož

2 y ç à Ì î ? à ¼ * traceroute † ÿož

```
5XLMLH  WUDFHURXWH
  SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                      PVHF   PVHF   PVHF
                        PVHF   PVHF   PVHF
                        PVHF    PVHF    PVHF

                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF    PVHF
                        PVHF    PVHF     PVHF
```

P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F

R µ È ç U Y 0 ñ k R › ª - } ˜ | IP ª - 202.108.37.42 Ñ k à Ì ƒ G C Æ 4 „ ? à ¼ g1
l17 h k w à ¼ 4 ß ë 4 { žož
3 y ç … ¿ d † ÿož

5 X L M L H W U D F H U R X W H Z Z Z L H W I R U J
7 U D Q V O D W L Q J Z Z Z L H W I R U J >2.@
S U H V V & W U O & W R E U H D N !
7 U D F L Q J W K H U R X W H W R

P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F
P V H F P V H F P V H F

P V H F P V H F P V H F

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

7.6 traceroute ipv6

ª P IPv6 ƒ G R › ª - ñ) ª - ñ Æ à ¼ož

traceroute [vrf vrf-name | [oob] ipv6] [address [via mgmt-name] [probe number] [timeout seconds] [ttl minimum maximum] [out-interface interface [next-hop *next-hop*]]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
oob	— å … k Ù * 3ož ¢ 6 MGMT M • › N M ž k · À — å ¥ @ ƒož '} [MGMT • • h [d
vrf-name	VRF d ož '} [VRF • • h [d
address	6) IPv6 ª - ê ¿ dož
mgmt-name	6 ¨ oob % ” † ß M ’ ò Mož
number	6 G M y ƒ O k 8 y1~255ož
seconds	6 Ý ž ž • k 8 y1~10 g a hož
minimum maximum	6 Â 4 y Â Ý TTL › k 8 y1~255ož
interface	6 G ƒ G † ß M N Mož
next-hop	ò G ƒ G † ß N M %² é IPv6 ª -

o¬ Þ . F åo- Þ . Ý ž ž • 3 a k G M y ƒ O 3 k Â 4 y Â Ý TTL ã ð 1 y 255ož

o¬ x X % ”o- ¨ ¯ * ï % ” k Q g Â Î traceroute ipv6 z ¨ Ô Ó ï % ” k U Y g traceroute ipv6 ý J ož

o¬ Þ . ´ ðo- 0

o¬ … 6 -o- Traceroute ipv6 x X } 9 ò à Ì * Å k w ¨ à Ì { ž G ÿ ž k Õ G y { ž G ÿ y åož } … ¿ d k é } ¯ F å ¿ d Æ ˜ k À } F å ¬ @ ð DNS F å B ãož

o¬ F å †o- 1 y ç à Ì * traceroute ipv6 † ÿož

```
5XLMLH WUDFHURXWH LSY
   SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                    PVHF  PVHF  PVHF
                    PVHF  PVHF  PVHF
                    PVHF  PVHF  PVHF
                    PVHF  PVHF  PVHF
```

R µ È ç U Y 0 ñ k R › ª - } ˜ | IP ª - 3004::1 Ñ k à Ì ƒ G C Æ 4 „ ? à ¼ g1 l4 h k c ž Ë ß 4 ñ ¥ à ¼ ñ 0 Ë ž •ož

2 y ç à Ì î ? à ¼ * traceroute ipv6 † ÿož

```
5XLMLH  WUDFHURXWH LSY
   SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                    PVHF   PVHF   PVHF
                    PVHF   PVHF  PVHF
                    PVHF   PVHF   PVHF

                    PVHF    PVHF    PVHF
```

R µ È ç U Y 0 ñ k R › ª - } ˜ | IP ª - 3004::1 Ñ k à Ì ƒ G C Æ 4 „ ? à ¼ g1 l5 h k w à ¼ 4 ß ë 4 { žož

o¬ à • co- -

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

Ú ` Ÿ4¡CÃ+ ,Ì G Y • È Ù À ¹ ß0´8V Ö

1. #A, ´ G
2. NSM

1 " ` x »

1.1 accept-lifetime

F å % W e N v • g ÿ Êož
accept-lifetime start-time { infinite | end-time | duration seconds }

í ” % W e N v • g ÿ Êož
no accept-lifetime

o¬ @ ƒ ª ¢o-

@ ƒ	T
start-time	6 ÿ Ê • ÷ ž •
infinite	¥ @ ƒ n P ¥ % W R • ÷ ž •%² + Ä |
end-time	% W Ä | Ê È Ø ž • k · À ® 9 start-time
duration seconds	6 Ä | Ê R start-time • ÷ 4 Ò ž • k H › 8 y1-2147483646

o¬ Þ . F åo- Z Ä # % W e N v ÿ Ê

o¬ x X % ”o- % W e % W F å % ”

o¬ Þ . ´ ðo- 14

1.2 ip as-path access-list

Â 9 3 é n ” AS è ¬ ¡ • éož
ip as-path access-list path-list-num { permit | deny } regular-expression

í ” Â 9 3 é n ” AS è ¬ ¡ • éož
no ip as-path access-list path-list-num [{ permit | deny } regular-expression]

o¬ @ ƒ ª ¢o-

@ ƒ	T
path-list-num	Â 9 3 é n ” AS è ¬ O ò ç n d k AS è ¬ ç n ö œ … k8 y 1---500ož
permit	ª • ˜ |
deny	! Í ˜ |
regular-expression	3 é n ”ož 8 y1..255 …ož

o¬ Þ . F åo- Z Ä # ç n

o¬ x X % ”o- ¶ B F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ¼ 9 3 é n ” P Å ¬ @ • F å 6 'ož

o¬ F å †o- 1 y ë • AS è ¬ ¡ • é k F Q m AS Z 123 è ¬ ’ Îož

```
5XLMLH FRQILJ LS DV SDWK DFFHVV OLVW GHQ\ A
```

o¬ à • co- 1 y … show running-config x X ò 0 F åož

o¬ U P ’ Îo- 1 y í ” AS è ¬ ¡ • é ž k ÿ µ • é d f ê ¡ • é ¨ k é U P j ¨ ’ Îož

```
7KLV REMHFW GRHVQ W H[LVW
```

2 y ò ç ÿ µ — | ¡ • é k é U P j ¨ ’ Îož

```
&DQ W FRPSLOH UHJH[S
```

3 y ò ç F å • é M Ö AS è ¬ ¡ • é k é U P j ¨ ’ Îož

```
,QVHUWLRQ IDLOHG ZLWK GXSOLFDWH SROLF\
```

o¬ o • j ¨o- -

o¬ u V ª ¢o- -

1.3 ip community-list

• } K Å ç n

ö Õ • º • } K Å ç n k w O ò + ˜ |ož

ip community-list { community-list-number | standard community-list-name } { permit | deny } [{ community-list-number | internet | local-AS }]

ý J • º • } K Å ç n k w O ò + ˜ |ož

ip community-list { community-list-number | expanded community-list-name } { permit | deny } [regular-expression]

í ” • } K Å ç nož

no ip community-list { { standard | expanded } community-list-name | community-list-number }

o¬ @ ƒ ª ¢o-

@ ƒ	T
standard	ö Õ • } ç n
expanded	ý J • } ç n
community-list-name	• } ç n d • } ç n d Ý 80 …
community-list-number	• } ç n Z ö Õ • } ç n y Ú Z 8 1-99 ý J • } ç n y Ú Z 8 100-199
permit	ª • ˜ |
deny	! Í ˜ |
community-number	• } K Å ›ož ” AA:NN(^ © Ï Z y 2 - ƒ) k ê ñ ©%² ƒ › k 8 0-4294967295ož
internet	n P Internet • } k ñ Ä è ¬ C K 9 ¥ • }ož
local-AS	n P Î è ¬ G b ñ Î AS Ù B k ¢ F å û (ž k Î è ¬ G b Ë ¿ ^ © Ï ê ÿ ^ © Ïož

o¬ Þ . F åo- Z Ä # • } ç n

5XLMLH FRQILJ LS FRPPXQLW\ OLVW VWDQGDUG WHVW GHQ\

2y #öÕ•}KÅçnkª••}KÅ internetož

5XLMLH FRQILJ LS FRPPXQLW\ OLVW VWDQGDUG WHVW SHUPLW LQWHU

o¬ à•co- 1 y… show running-config x X ò 0 F åož

o¬ UP’Îo- 1 yòç6 •}KÅçnd ¶©ƒ kéUPj¨’Îož

&RPPXQLW\ OLVW QDPH FDQQRW KDYH DOO GLJLWV

2yòç6 •}KÅçnd x†Ý 80 …kéUPj¨’Îož

&RPPXQLW\ OLVW QDPH OHQJWKV VKRXOG EH OHVV WKDQ FKDUV

3yí”žòçÿµ çnê ¡•é ¨kéUPj¨’Îož

7KLV REMHFW GRHVQ W H[LVW

4yòçFå•éMÖ •}KÅ ¡•ékéUPj¨’Îož

,QVHUWLRQ IDLOHG ZLWK GXSOLFDWH SROLF\

5yòçFå~çZMÖ •}KÅ ¡•ékéUPj¨’Îož

&RPPXQLW\ OLVW HQWU\ ZLWK WKLV VHTXHQFH DOUHDG\ H[LVW

6yòçcž # m,cd öÕyýJ•}KÅçnkéUPj¨’Îož

&RPPXQLW\ OLVW QDPH FRQIOLFW ZLWK SUHYLRXV GHILQHG

o¬ o•j¨o- -

o¬ uVª¢o- -

1.4 ip extcommunity-list

Route Map – ýJ•}KÅçnk¼û¥çn Route Map 1¨ BGP/MPLS VPN • ÛO ò VPN è ¡ož

ip extcommunity-list {expanded-list | expanded list-name } { permit | deny } [regular-expression]

#öÕ•º ýJ•}KÅçnož

ip extcommunity-list {standard-list | standard list-name } { permit | deny } [rt value] [soo value]

í”ýJ•}KÅçnož

no ip extcommunity-list {expanded-list | expanded list-name | standard-list | standard list-name }

ë • ý J • } K Å ç n k U Y µ ip extcommunity-list F å % ”
ip extcommunity-list {expanded-list | expanded list-name| standard-list | standard list-name }

í ” ý J K Å ç nož
no ip extcommunity-list {expanded-list | expanded list-name | standard-list | standard list-name}

o¬ @ ƒ ª ¢o-

@ ƒ	T
expand-list	H › 8 [100~199] k Û ö œ ý J extcommunity ç n k % ² extcommunity ç n U m Ú • éož
standard-list	B ç n fW_ Ç3 &•ì„1&ð¨ N–øEGtE” C ï%&eGt C ïV Tw@$1É_° ñ _UgSY!eõVu5’ _UgS

o¬ Þ . F åo- Þ . Ì # ý J • } K Å ç n • éož

o¬ x X % ”o- ¶ B F å % ”o•ip extcommunity-list F å % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ip extcommunity-list x X Û ë •%² m Ä Ú extcommunity › extcommunity • é ç n k } •
9 RouteMap match extcommunity • é k Û F % * ð ý J • } K Å R ò ñ è ¡) ož
+ 9 ý J extcommunity • é # k ¿ regular-expression • é ò y

…	… Z	Ô : Þ #
O Z	.	F ` Þ % …
¤ Z	*	F … © ê ñ ` Þ ~ ç
Z	+	F … %² ê ñ ` Þ ~ ç
| Z	?	F … © ê ñ%² … Z
Z	^	F … • ÷
è « Z	$	F … È Ø
æ ¿	_	F) Zo• , Zo• … • ÷ y È Øo• q
• , Z	[]	F%² 8 % …

expanded ip extcommunity-list F å % ” x X Ä y
[sequence-number]deny regular-expression #%² ! Í extcommunity • éož
[sequence-number] permit regular-expression #%² ª • extcommunity • éož
exit ß ¢ ù ß % ”ož

no [sequence-number]deny regular-expression í ”%² ! Í extcommunity • éož

no [sequence-number] permit regular-expression í ”%² ª • extcommunity • éož

standard ip extcommunity-list F å % ” x X Ä y
[sequence-number] deny { [rt value] [soo value]} ² ! Í 5 ð G %7"%È Â ðÆ •A<éiož[sequence-number