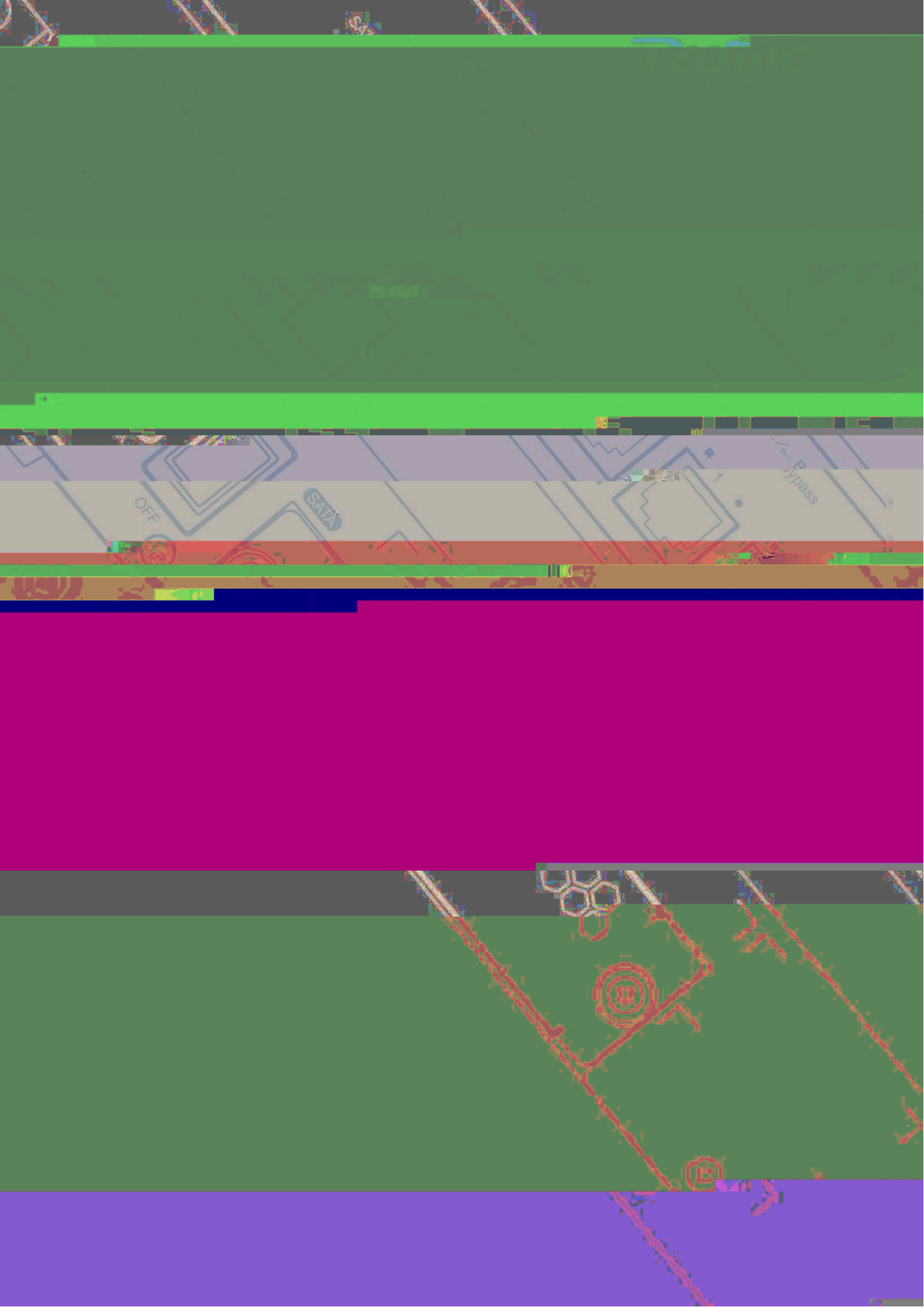
OFF
SATA
Bypass

گ ï ک ح

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Ḥ ò ẍ

ﻝ ﻡ ﺍ ת

ج à ﻝ ﻡ Ȧ ﻝ ١ http://www.ruijie.com.cn/

ج à ﻝ ﻡ ﻉ į ̀O http://webchat.ruijie.com.cn

ج à ﻝ ﻡ Ȧ ﻝ ١ ̀O ת ﻟ ̃Ḥ ̓Y ν http://www.ruijie.com.cn/service.aspx

7×24 ṇ ̀Ḥ ̓Ḥ ̀O ת ♬ ﻉ 4008-111-000

ج à ﻝ ﻡ ̀Ḥ o http://bbs.ruijie.com.cn/portal.php

Ẃ ð ڎ ئ ặ ﻝ http://www.ruijie.com.cn/service/know.aspx

ج à ﻝ ﻡ ̀Ḥ ̃Ḥ ̓Y ﻟ ɾ ţ ﻯ 4008111000@ruijie.com.cn

1.

ҧ Φ ĩ Ã Ẏ ï

ҧ Φ ڃ ε ҧ ̀Y j Ψ ọ ɛ Ł ژ ﷺ ̀ ̀ ζ ڀ ɾ ɪ ﻉ ˊ ~

ά ҧ Φ ̈Ω ε ҧ ọ ɛ ʰ ḛ ڳ ف Φ ۻ Ҧ ﷺ ̀ ̀ ζ ڀ ɾ ά ˊ ~

[ ] ˊ ~ ɾ [ ] ὺ ∀ ̛ ﷺ ̀ ҧ ڀ ﻝ ̀Ḥ ĩ J̌ ﷺ

{ x | y | ... } ˊ ~ ă J̌ ° J̌ ח

[x | y | ...] ˊ ~ ă J̌ ° J̌ ח ă ă j J̌

// ʰ ᵡ ά| Ã ﷺ Φ ˊ ~ ├ ᵩ Φ

2.

ف ڀ ɾ ﻉ ڀ ´ ‰ Ő ̛ ˊ ~ ̈Ḥ ص ﻯ Ẓ Ỉ ᵎ ├ Ẏ ﷺ Ȧ ف ‰ Ő ﷺ Ẏ ï

/

3.

ė ب ˝ մ῾ ▯ч ۱ ղ ڳ ĺ j ۱ ղ ڳ ̈Ӈ ۰ ɻ ˜Ƴ Ł ̈Ä ˜Ӈ ̍Y▯ч ۱ ف Φ ب ۷

ė մ῾ ▯Ĭ ˜ Ụ ĺ ũ Ʊ ۷ ▯ ķ ε ۅ ك ۱ ζ ʊ Ĭ ˜ Ụ ت Ҩ ղ ڳ ۲ ▯ Ф Ụ

ė ≛ ▯ث ۱ ث ۱ ‰ Ռ ˊ ˚ Ƴ ï ▯ث ۱ Ҩ ظ Φ ث ۱ ɲ ▯ s Ṗ ̈Ω

-

1.
2.
3. LINE
4. PASSWORD-POLICY
5. File System
6. LICENSING
7. PKG_MGMT
8.
9.
10. HTTP
11. WEB-UPGRADE

1

1.1 alias

alias *mode command-alias original-command*

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

default

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

mode	
command-alias	
original-command	

14

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

undebug

no alias exec

alias ?

*

EXEC ”s” ”**show**” ”s?” ’s’

EXEC ”sv”

show version

” ”

-

-

1.2 privilege

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

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

mode	CLI
all	
level *level*	0-15
reset	
command-string	

-

15

privilege CLI

privilege ? CLI

| | | |

-

-

no banner exec

c	
message	

c	Telnet
message	Telnet

-

14

Telnet

MOTD **banner motd** LOGIN **banner login**
EXEC **banner exec** incoming **banner incoming**
Telnet incoming EXEC

1 Telnet

Telnet line

-

-

-

2.4 banner login

banner login *c message c*

no banner login

c

14

MOTD **banner motd** LOGIN **banner login**
EXEC **banner exec** incoming **banner incoming**
Telnet incoming EXEC

1

-

-

-

2.5 banner motd

MOTD message of the day

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

no banner [**motd**]

c	
message	

-

14

MOTD **banner motd** LOGIN

line

-

-

-

2.7 banner slip-ppp

SLIP/PPP

banner slip-ppp *c message c*

SLIP/PPP

no banner slip-pp

c	
message	

-

14

SLIP/PPP slip-ppp **banner slip-ppp**

1 SLIP/PPP

-

-

-

-

2.8 configure

configure [**terminal**]

-	-

-

14

-

1

-

-

-

-

2.9 disable

disable [*privilege-level*]

privilege-level	

1 **show sessions** Telnet Client

-

-

-

2.11 do telnet

Telnet

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

oob	MGMT Telnet MGMT
host	Telnet IPV4 IPV6
port	Telnet TCP 23
/source	Telnet IP
ip *A.B.C.D*	Telnet IPV4
ipv6 *X:X:X:X::X*	Telnet IPV6
interface *interface-name*	Telnet

-

| |

1

-

-

-

-

-

2.12 enable

enable [*privilege-level*]

privilege-level	

-

0

1 14

show privilege

-

-

- 24F0.513 **Enable password**

enable password [**level** *level*

level	
0	
password	EXEC 1~126
5 *encrypted-password*	MD5

-

15

Enable password security password 15
security 0 15
password 15 password
security 15 password security
password security

1 pw10

telnet-server snmp-agent web-server ssh-server

14

no enable service

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

1 **enable service ssh-server** SSH Server

show service

-

-

-

2.16 end

end

-	-

-

0

end

1 **end**

-

-

-

-

2.17 exec-banner

line EXEC

exec-banner

line EXEC

no exec-banner

-	-

EXEC

Ò لمي صم line 6F9 f

-

-

-

2.18 exec-timeout

LINE

exec-timeout *minutes* [*seconds*]

LINE

no exec-timeout

minutes	0-35791
seconds	0-2147483

10 min

LINE

14

LINE

1 line vty 0 5 30

-

-

-

-

2.19 exit

CLI

exit

-	-

-

0

-

1 **exit**

```

```

-

-

-

-

2.20 help

help

-	-

-

1

”?”

1

```

```

2

```

```

mpls,lacp,isis,dldp

3

-

-

-

-

2.21 hostname

hostname *name*

name	63

Ruijie

14

CHAP

1 BeiJing_Ruijie

-

-

-

-

2.22 ip telnet source-interface

IP Telnet

ip telnet source-interface *interface-name*

interface-name	IP Telnet AP Gi Loopback null VLAN

-

14

IP Telnet telnet Telnet

no ip telnet source-interface

1 Loopback 1 IP Telnet

-

-

-

-

2.23 lock

lock

-	-

-

1

- **lock**
-
  “ Locked ”
-
  line **lockable** line

-	-

lock

LINE

1

EXEC **lock**

lock **lockable**

1

-

-

-

-

2.25 login

AAA LINE

login

no login

-	-

login VTY login

LINE

14

AAA VTY console

1 VTY

-

-

-

-

2.26 login access non-aaa

AAA LINE AAA

login access non-aaa

AAA AAA

no login access non-aaa

-	-

14

AAA LINE AAA

1 AAA VTY

-

-

-

-

2.27 login authentication

AAA LINE AAA

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

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

default	
list-name	

AAA **default**

LINE

14

-

1	VTY	radius

-

-

-

-

2.29 motd-banner

line MOTD

motd-banner

line MOTD

no motd-banner

-	-

MOTD

LINE

14

banner exec **banner motd** line EXEC MOTD

line EXEC MOTD **no**

EXEC MOTD

▲ **banner incoming** 3 ɒ / ע ‾ } Ţ - ך

2.31 prompt

CLI

prompt *string*

CLI

no prompt

string	32

-

14

CLI

CLI EXEC

1 RGOS

-

-

-

-

2.32 secret

line MD5

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

line MD5

no secret

0	MD5
password	line 1~25
5 *encrypted-secret*	MD5

-

line

14

line MD5

5 24 1 3 8 ”$”

5

5

line password secret password secret
secret secret password

line MD5 vty0

vty0 MD5 show

-

-

-

-

2.33 session-timeout

LINE

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

LINE

no session-timeout

minutes	
output	

0 min

LINE

14

LINE

LINE

1 line vty 0 5

-

-

-

-

2.34 show debugging

show debugging

-	-

15

-

1 **show debugging**

-

-

2.35 show hostname

show hostname

-	-

15

-

1 **show hostname** Ruijie

-

-

2.36 show line

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

console	
vty	
line-num	line

14

-

1 console

CON	CON 0 *
Type	CON VTY
speed	
Overruns	overrun

Location: ""	location
Type: "vt100"	
Special Chars	Escape Disconnect Activation
Timeouts	never
History	
Total input	
Total output	
Data overflow	
stop rx interrupt	RX

-

-

2.37 show reload

show reload

-	-

1

1

-

-

2.38 show running-config

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

-

-

2.40 show sessions

Telnet Client

show sessions

-	-

-	-

14

NVRAM startup-config

startup-config Flash “ /config.text ”

-

-

-

2.42 show this

```
2                    interface range vlan 1-3
```

-

-

2.43 speed

speed *speed*

no speed

speed	bps 9600 19200 38400 57600 115200 9600

9600

LINE

14

speed

1: 57600 bps

show line LINE

-

-

-

2.44 telnet

Telnet

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

oob	MGMT Telnet MGMT
host	Telnet IPV4 IPV6
port	Telnet TCP 23
/source	Telnet IP
ip *A.B.C.D*	Telnet IPV4
ipv6 *X:X:X:X::X*	Telnet IPV6
interface *interface-name*	Telnet

-

1

-

-

-

-

-

2.45 username

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*]

no username *name*

name	
login mode	
aux	aux
console	console
ssh	ssh
telnet	telnet
online amount *number*	
permission *oper-mode path*	*op-mode* *path*
privilege *privilege-level*	0 15
reject remote-login	
web-auth	web
pwd-modify	web **web-auth**
nopassword	
password [**0** | **7**] *text-string*	0 7

-

15

7

7

7

1 15

2 web

3 test

4 test config.text

-

-

-

-

2.46 username export

username export *filename*

	c c
filename	

-

1

Ò T Ë

Ò T Ë

-

-

-

2.48 write

running-config

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

memory	NVRAM **copy running-config startup-config**
terminal	show running-config

-

14

U **write** [**memory**]

“ /config.text ”

1

-

-

-

-

3 LINE

3.1 access-class

ACL IPv4

access-class { *access-list-number*

-

3.2 accounting commands

line

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

no accounting commands *level*

level	0~15
default	
list-name	

LINE

14

AAA AAA

1 Vty 1 15

-

-

-

-

3.3 accounting exec

line

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

Exec

no accounting exec

default

no authorization commands *level*

level	0~15
default	
list-name	

LINE

14

default	
list-name	

Exec

LINE

14

AAA AAA Exc Exec

1 Vty 1 Exec

-

-

-

-

3.6 clear line

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

console	
vty	
line-num	line

14

clear line

1 LINE VTY 13 VTY Telnet SSH

-

-

-

-

3.7 disconnect-character

disconnect-character *ascii-value*

no disconnect-character

ascii-value	ASCII	0-255

Ctrl+D 0x04

LINE

14

ASCII (‘ a ’ ~ ‘ z ’ ‘ A ’ ~ ‘ Z ’ ‘ 0 ’ ~ ‘ 9 ’)

1 Vty0-5 Ctrl+E(ASCII 0x05)

-

-

-

-

3.8 escape-character

escape-character *escape-value*

no escape-character

escape-value	ASCII 0-255

escape-value 30 **Ctrl+^**(**Ctrl+Shift+6**)

LINE

14

escape-character *escape-value* *escape-value*

“ **x** ”

1 Vty 0 23((**Ctrl+w**))

-

-

-

-

3.9 exec

line

exec

line

no exec

-	-

LINE

14

line no exec

1 1

```
```

-

-

-

-

3.10 history

line line

history [**size** *size*]

line

no history

line

no history size

size *size*	0~256

10

LINE

14

-

1 0-5 line 20

2 0-5 line

-

-

-

-

3.11 length

first-line	first-line
last-line	last-line

-

14

-

1 LINE VTY 1 3 LINE

-

-

-

-

3.13 line vty

VTY

line vty *line-number*

VTY

no line vty *line-number*

line-number	VTY 0~35

-

14

-

1	VTY	20	VTY	0-19
2	VTY	10	VTY	0-9

-

-

-

-

3.14 location

location *location*

no location

location	

-

LINE

14

-

1 Ɩ ṅ . Ȯ

-

-

-

3.15 monitor

monitor

no monitor

-	-

-

LINE

14

-

1 0-5 line

-

-

-

-

3.16 privilege level

line

privilege level *level*

line

no privilege level

level	0-15

privilege level 1

LINE

14

-

1 0-4 VTY line 14

-

-

-

-

3.17 refuse-message

line

refuse-message [*c message c*]

line

no refuse-message

c	
message	

-

LINE

14

1 line

-

-

-

-

3.18 show history

line

show history

-

-

-

-

3.19 show line

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

console	
vty	
line-num	line

14

-

1 console

CON	CON 0 *
Type	CON VTY
speed	
Overruns	overrun
Line 0	
Location: ""	location
Type: "vt100"	
Special Chars	Escape Disconnect Activation
Timeouts	never
History	
Total input	
Total output	
Data overflow	
stop rx interrupt	RX

-

-

3.20 show privilege

line

show privilege

-	-

1

-

line

```
```

-

-

3.21 show users

show users [**all**]

all	

14

-

1

```
```

2

```
```

-

-

3.22 speed

speed *baudrate*

no speed

baudrate	9600-115200

سخي ‘ ‘ ‘

3.23 terminal escape-character

terminal escape-character *escape-value*

terminal no escape-character

escape-value	ASCII	0-255

24

14

-

1 10

-

-

-

-

3.26 terminal location

terminal location *location*

terminal no location

location	

-

14

-

1 Swtich’s Line Vty 0
,

-

-

-

-

3.27 terminal speed

terminal speed *baudrate*

terminal no speed

baudrate	9600-115200

9600

14

-

1 115200

-

-

-

-

3.28 terminal width

terminal width *screen-width*

terminal no width

screen-width	0-256

79

14

-

1 10

-

-

-

-

3.29 timeout login

line

timeout login response *seconds*

line

no timeout login response

response	Line
seconds	1-300

30

LINE

14

-

0-5 line Vty 300

-

-

-

-

3.30 transport input

line

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

line

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

all	
ssh	ssh
telenet	telnet
none	

all ssh telnet

-

-

-

-

3.32 width

width *screen-width*

wwith

4 PASSWORD-POLICY

4.1 password policy life-cycle

password policy life-cycle *days*

no password policy life-cycle

days	1~65535

14

enable password **enable secret**
username *name* **password** *password* Line

1 90

1 **show password policy**

-

-

-

4.2 password policy min-size

password policy min-size

-	-

14

1
2

enable password **enable secret**
username *name* **password** *password* Line

1

1 **show password policy**

-

-

-

4.5 service password-encryption

service password-encryption

no service password-encryption

-	-

Password encryption	
Password strong-check	
Password secret-dictionary-check	
Password min-size	
Password life-cycle	
Password no-repeat-times	

-

-

5

copy *src-url dst-url*

src-url	URL
dst-url	URL

-

1

URL

url

running-config	
startup-config	
flash:	flash
tftp:	TFTP URL **tftp**:[[//location]/directory]**/filename**

1 192.168.64.2 netconfig **flash** netconfig netconfig

copy **dir**

-

-

-

5.4 dir

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

filesystem:	url **flash:**, **sata:**, **usb: tmp:**
file-url	“ ”

flash:

1

-

1 flash

1 2 3.	
-rw-	d r w x
10485760	
rpmdb	

files	
directories	
total	
free	

era-5F0936B44B>T5F20379T 0.75 g 123.4-.4 4462.34(usb0:3.967 -0.04 Td <04FE000.4/TT0 1<Tj erase)Tj 0

-

-

-

5.5 erase

-

-

5.6 file

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

filesystem:	url **flash:**, **sata:**, **usb: tmp:**
file-url	“ / ”

flash:

1

-

1 gcc

```
```

-

-

-

5.7 file prompt

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

noisy	
quiet	

noisy

1

-

1 noisy

-

-

-

-

5.8 mkdir

mkdir [*filesystem*:] *directory*

filesystem:	url **flash:**, **sata:**, **usb:**, **tmp:**
directory	“ ”

- **flash:**

1

-

1 newdir

1

-

1 flash netconfig

-	-

-

1

-

1 flash: sata:

1

-

1 flash fstab

flash:

1

-

I

usb	usb
flash	

1

1 usb

2 flash

-

-

-

5.14 show file systems

show file systems

-	-

1

-

1

Size(KB)	KB
Free(KB)	KB
Type	
Flags	ro : wo: rw:
Prefixes	

-

5.15 show mount

show mount

-	-

1

ip-address	IPv4
interface	

/

14

-

1 TFTP Client IP 192.168.23.236

2 TFTP Client IP gigabitEthernet 0/0

3 no IP

4 TFTP Client

1 show run tftp-client source ip192.168.23.236
2 show run tftp-client source gigabitEthernet 0/0

1 ip
2

-

-

5.17 tree

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

filesystem:	url **flash:**, **sata:**, **usb: tmp:**
directory	“ ”

- **flash:**

1

-

1 flash:/echo

-

-

-

5.18 verify

md5

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

/md5	MD5
md5-value	md5 md5
filesystem:	url **flash:**, **sata:**, **usb: tmp:**
file-url	“ ”

flash:

1

-

1 flash:/gcc md5

2 flash:/gcc md5

-

-

-

6 LICENSING

6.1

1

2

3

,

4

5

1.
2.

-

6.2 license grace-period

license grace-period *license days*

no license grace-period *filename*

default license grace-period *filename*

filename	
days	

120

4

SNMP TRAP

-

1

-

6.3 license install

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

flash:	flash
usb0:	USB
filename	

-

4

VSU **CM** **license install** cm **license install**

-

show license all-license

1

2

3

4

5

1.
2.
3. sn
4.
5.
6.

-

6.4 license unbind

license unbind *pak*

pak	

-

4

LIC-FCOE00000012268888

4

-

show license Attribute

1

2

3

4

5

6

1.
2.
3.
4.
5.

-

6.7 show license

Service name	
Attribute	
Left days	
Installed license	

Licensed serial number

2

1

Service name	
Attribute	
Left days	

-

-

7 PKG_MGMT

7.1 clear storage

clear storage [*url*]

url	*url*

2

url

-

-

-

7.2 patch active

patch active

7.3 patch deactive

patch deactive

-	-

-

7.4 patch delete

patch delete

-	-

2

1

```
```

2

```
```

show patch

1

```
```

2

```
```

-

7.5 patch running

patch running

-	-

2

1

2

show patch

1

2

3

4

-

7.6 show component

show component [*component _name*]

component _name	

2

component_name

show component

show component

show component

Package file validate	[OK] [ERR]
Required package	“ [OK] ” “ [ERR] ”
Package files	

-

7.7 show patch

show patch [*patch _name*]

patch _name	

2

Package	
status	
Version	
Build time	
Size	

Package file validate	[OK] [ERR]
Package files	

-

7.8 show upgrade file

show upgrade file *url*

url	*url*

2

-

7.9 show upgrade history

show upgrade history

2

-

-

7.10 upgrade

upgrade *url* [**force**]

url	*url*
force	**force**

2

copy

1 Ω % ž

N

§ ' 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¥ ¢€ a P ŠO• ƒ

3

4

5 U

6

7

8

9

-

7.11 upgrade auto

VSU	upgrade auto VSU
upgrade **upgrade auto** *url* [**force**]	
url	
force	**force**
2	

VSU

copy tftp

upgrade auto **upgrade**

copy tftp U

5. **show component** 6. **show patch**
1 2 Invalid package file 3 Device don't support 4 5 U 6 7 8 9
-

7.12 upgrade download tftp

tftp

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

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

path	*path* tftp
force	

2

1 main

7. **show version detail**
8. **show component**
9. **show patch**

1

2

3

4

5 U

6

7

8

9

7.13 upgrade rollback

upgrade rollback

-	-

2

8

8.1 clear logging

clear logging

-	-

1

1

-

-

8.2 logging

Syslog Server

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

Syslog Server Syslog Server

no logging { *ip-address* }

Syslog Server 514

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

udp-port *port*	514

Syslog Server

14

Syslog server 5 Syslog Server
Syslog Server

1 202.101.11.1 syslog server

2 202.101.11.1 8099 syslog server

1 **show logging**

1 Syslog Server 5

-

-

8.3 logging buffered

logging buffered [

	/ 4K 10M Bytes 4K 1M Bytes 4K 128K Bytes
level	0 7

1M Bytes

256K Bytes

128K Bytes

4K Bytes

7

14

show logging

clear logging

FLASH Syslog Server

8

Emergencies	0	
Alerts	1	
Critical	2	
Errors	3	
Warnings	4	
Notifications	5	
Informational	6	
Debugging	7	

0

1 6 6 10000

1 **show logging**

-

-

-

8.4 logging console

logging console [*level*]

no logging console

level	0 7

7 Debugging)

14

show logging

8

Emergencies	0	
Alerts	1	
Critical	2	
Errors	3	
Warnings	4	
Notifications	5	
Informational	6	

Debugging	7	

1 6

1 **show logging**

-

-

-

8.5 logging count

logging count

no logging count

-	-

14

no logging count ų ʊ

o- 1

-

-

8.6 logging facility

logging facility *facility-type*

(23)

no logging facility

facility-type	Syslog

RFC5424 16 Local0 Local use

RFC5424 23 Local7 Local use

14

priority = Facility * 8 + serverity

Syslog

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

(local7)23

1 Syslog kernel

-

-

-

-

8.7 logging file

FLASH USB

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

FLASH

no logging file

flash	FLASH
usb0	USB0 1 USB USB

usb1	USB1 2 USB USB
filename	txt
max-file-size	128K 6M bytes 128K
level	FLASH 6

FLASH

14

Syslog Server

FLASH

txt

FLASH FLASH FLASH logging file flash

8

Emergencies	0	
Alerts	1	
Critical	2	
Errors	3	
Warnings	4	
Notifications	5	
Informational	6	
Debugging	7	

1 FLASH syslog.txt 128K 6

1 **show logging** FLASH

1 20 21

-

8.8 logging file numbers

FLASH

logging file numbers *numbers*

no logging file numbers

numbers	2~32

16

14

no logging file numbers

16

FLASH

tftp

16 16

2 0 1

2 16

1 8

1 **show run**

-

-

-

8.9 logging filter direction

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

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

all	Console VTY
buffer	show logging
file	
server	
terminal	VTY Telnet/SSH

all

14

Console VTY

terminal

1 **terminal** console VTY

-

-

-

-

8.10 logging filter rule

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

“ ”

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

“ ”

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

exact-match	
single-match	
module *module-name*	
mnemonic *mnemonic-name*	
level *level*	

14

1. “ ”

10. “ ”

1 LOGIN 5 LOGOUT

2 SYS

-

-

-

-

-

-

8.12 logging flash flush

FLASH

logging flash flush

-	-

-

14

FLASH

FLASH

FLASH

logging flash flush

FLASH

1 FLASH

1 **dir** FLASH

-

-

-

8.13 logging flash interval

FLASH

logging flash interval *seconds*

FLASH

no logging flash interval

interval *seconds*	FLASH 1~51840

FLASH 3600s 1

14

FLASH no logging flash interval FLASH 3600s

FALSH

1 FLASH 5 300s

1 **show logging**

-

-

-

8.14 logging life-time

FLASH

no logging life-time level *level*

level	
days	

14

FLASH

FLASH syslog/

1 6 10

-

-

-

-

8.15 logging monitor

VTY Telnet SSH

logging monitor [*level*]

VTY

no logging monitor

level	

-	-

14

Console VTY FLASH

Syslog Server

1 Log

1

1 **show logging**

-

-

-

8.17 logging rate-limit

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

no logging rate-limit

number	1~10000
all	0~7
console	
except	error(3) error
severity	0~7

14

1 debug 10 warning

14

Syslog server 5 Syslog Server
Syslog Server

1 202.101.11.1 syslog server

2 202.101.11.1 8099 syslog server

1 **show logging**

1 Syslog Server 5

-

8.19 logging source interface

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

no logging source [**interface**]

interface-type	
interface-number	

14

Syslog Server IP IP
IP IP
IP IP
IP

1 Loopback 0 Syslog

-

-

-

-

8.20 logging source ip

IP

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

IP

no logging source { **ip** }

ip-address	IPV4 IPV4

14

Syslog Server IP IP
IP IP
IP IP IP

1 192.168.1.1 Syslog

-

-

-

-

8.21 logging synchronous

logging synchronous

no logging synchronous

-	-

-

-

-

8.22 logging trap

Syslog Server

logging trap [*level*]

Syslog Server

no logging trap

level	

6 Informational

14

Syslog Server **logging** Syslog Server

logging trap

show logging

8

Emergencies	0	
Alerts	1	
Critical	2	
Errors	3	
Warnings	4	
Notifications	5	
Informational	6	
Debugging	7	

1 6 202.101.11.22 Syslog Server

1 **show logging** Syslog Server

-

-

-

8.23 logging userinfo

/ Log

logging userinfo

/ Log

no logging userinfo

-	-

/ Log

14

/ Log Log

1 Ж õ

-

8.24 logging userinfo command-log

Log

logging userinfo command-log

Log

no logging userinfo command-log

-	-

Log

14

service private-syslog

no service private-syslog

-	-

14

*timestamp: %facility-severity-mnemonic: description

* : % - - :

timestamp facility-severity-mnemonic: description

- - :

“ * ”

“ : ” “ % ”

1

1 **show logging**

-

-

-

-	-

14

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

message-type	g p

Buffer logging	
Standard format	
Timestamp debug messages	Debug
Timestamp log messages	Log
Sequence-number log messages	
Sysname log messages	
Count log messages	
Trap logging	Syslog Server
Log Buffer	

2 RFC5424 **show logging**

Syslog logging	enabled, disabled
Console logging	
Monitor logging	VTY
Buffer logging	
Count log messages	
Statistic log messages	
Statistic log messages to terminal	
Delay-send file name	
Trap logging	Syslog Server
Delay-send logging	
Log Buffer	

-

-

8.31 show logging config

show logging config

-	-

1

-

1 RFC5424 **show logging config**

Syslog logging	enabled, disabled
Console logging	
Monitor logging	VTY
Buffer logging	
Count log messages	
Statistic log messages	
Statistic log messages to terminal	
Delay-send file name	
Trap logging	Syslog Server
Delay-send logging	

-

-

8.32 show logging count

show logging count

Module Name	
Message Name	
Sev	
Occur	logging count
Last Time	

-

-

8.33 show logging reverse

show logging reverse

-	-

1

-

1 RFC5424 **show logging reverse**

Syslog logging	enabled, disabled
Console logging	
Monitor logging	VTY
Buffer logging	
Standard format	
Timestamp debug messages	Debug
Timestamp log messages	Log
Sequence-number log messages	
Sysname log messages	
Count log messages	
Trap logging	Syslog Server
Log Buffer	

2 RFC5424 **show logging reverse**

Syslog logging	enabled, disabled
Console logging	
Monitor logging	VTY
Buffer logging	
Count log messages	
Statistic log messages	
Statistic log messages to terminal	
Delay-send file name	
Trap logging	Syslog Server
Delay-send logging	
Log Buffer	

-

-

1

show running-config | in logging

-

-

-

9

9.1 feedback frequency

feedbackfrequency

no feedbackfrequenc6

9.2 feedback ignore item

id

feedbackignore item r

no feedbackignore item r

ignore item r	id 0 8

r

15

1 2

1 show run

id ى"H

o¬ U P ' Îo- F å id

' ' Îo- r

no feedbacksubscriber r

subscriber r	6

r

15

1

1 showrun

r

r

9.4 feedback user enable

feedbackuserenable

no feedbackuserenable

r	r

15

1

2 smtp

3

4

1

1 show run

r

r

r

9.5 mail-client check

mail client check

r	r

r

15

smtp

1

1

2 SMTP

3 smtp dns

4

1 smtp

2

r C2_03Tc t.06 15.6 3Tc Tj 5053 f <7f ( )Tj /410B6A0AA85 7.407 0.0539D0

o•

15

1 163 126 139 sina qq tom

2 smtp

3 smtp

4 smtp

1

1 showrun

1 Ā M

1

1

r

9.10 show feedback items

10 HTTP

10.1 enable service web-server

HTTP

10.2 http check-version

6

1 DNS

-

10.3 http update

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

all	
string	

5

6

7

8

1 DNS

-

10.4 http update mode

HTTP

http update mode manual

no http update mode

manual	

14

HTTP

HTTP

no HTTP

1 HTTP

-

-

-

-

10.5 http update server

HTTP

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

HTTP

no http update server

host-name	
ip-address	
port *port-number*	1-65535 80

0.0.0.0 80

14

HTTP

HTTP

1

DNS DNS

1 HTTP 10.83.132.1 90

-

HTTP

http update time daily *hh*:*mm*

HTTP

no http update time

hh:*mm*	24 :

14

HTTP Web (rgos.ruijie.com.cn)

Web

no

1 HTTP 23:40

-

-

-

-

10.8 ip http port

HTTP

ip http port *port-number*

no ip http port

port-number	HTTP 80 1025-65535

80

14

HTTP

1 HTTP 8080

show web-service Web

-

-

-

10.10

oÏÞuV0-

11 WEB-UPGRADE

web-upgrade	WEB
show web-upgrade	WEB

11.1 web-upgrade

show web-upgrade web

WEB

-

11.2 show web-upgrade

WEB

show web-upgrade

-	-

-

-

1 WEB

Version	
Md5	MD5
Size	
Build	
Compatible	
Incompatible	

-

-

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% åN M k ! @ o
bandwidth b

˚ Ök ! @ Þ. o
no bandwidth

o‹ @ “ ¢o›

@	T
b	? a U k ! k Y ? a K A Ô % y

o‹ Þ. F åo› ¢ ¥ N M Z ˜ å bandwidth x X @ k ¤ ÔÓ ï % show interface x X Û‘ P ¿ Þ. o

o‹ x X % o› N M F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› bandwidth x X § î N M k ! k Q ' ï s ' ˇ ¥ N M k ! 6 ök ó ÕÑ k Y ßà
N M k ! ' ÿG M Link , ä— k òç˜ ‹ } U Y \ 6 k Bandwidth Q ' Ł @ k k
§ Ò òe Ł N M 1 3 k !o

o‹ F å o› y Y ÿP 8 F åN M k ! @ 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 ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

1.2 carrier-delay

¤ N M F å% x X carrier-delay ¤ N M åœ f o

carrier-delay {[milliseconds] œ | up [milliseconds] œ down [milliseconds] œ }
˚ ÖÞ. o
no carrier-delay

o‹ @ “ ¢o›	@	T

1.3 clear counters

N M o

clear counters [ ]

o‹ @ “ ¢o›	@	T
		N M ” y N M Zo

o‹ x X % o› ÔÓ% o

o‹ Þ. · ðo› 14

o‹ 6 -o› N M ˇ U Y * ÔÓ% x X show interfaces ò0 k¤ ÔÓ% clear counters x X kU Y 1
N M ˇ 'o òç 6 N M k Ø 1 æ ˜ N M 'o

o‹ F å o› 1 y N M GigabitEthernet 1/1 o

```
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 ¸o› -

o‹ u V “ ¢o› -

1.4 clear interface

N M F ^ Öyo

clear interface

o‹ @ “ ¢o›	@	T
		N M ” y N M Zo

o‹ x X % o› ÔÓ% o

o‹ Þ. · ðo› 14

o‹ 6 -o› ¥ x X Q + A E M k 8 C ü‘ M Ł t M k Ł M y C ü‘ M Ł t M ˜ |o üg ¥ x X , ¢
9 + N M ˙ üg shutdown y no shutdown x Xo

o‹ F å o› 1 y + N M GigabitEthernet 1/1 g F ^ Öyo

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 ¸o› -

o‹ u V “ ¢o› -

1.5 description

åN M ðdo
description ⅓

˚ ŒŁ Þ. o
no description

o‹ @ “ ¢o›

@	T
⅓	N M ðdo

o‹ Þ. F åo› Þ. Z ˜ ðdo

o‹ x X % o› N M F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› show interfaces x X ò0 N M ¸ k , ðdo

o‹ F å o› 1 y ¸ N M GigabitEthernet 1/1 F åðd GBIC-1o

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 ò0 N M ðdo
2 y show interfaces description x X k U Y ò0 N M ðdo

o‹ U P ¸o› 1 y òçðd x Ý 80 k Ø U P j ¤o

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 “ ¢o› -

1.6 duplex

åN M E W % o

duplex { auto | full | half }

˚ ŒŁ Þ. o

no duplex

o‹ @ “ ¢o›	@	T
	auto	n P ¶ E W y ! E W o

o‹ @ “ ¢o›

@	T
‰p	N M ”
‰n	N M ÚZ

o‹ Þ. F åo› -

o‹ x X % o› N M %

o‹ Þ. · ðo› 14

o‹ 6 -o› ¥ x X µN M F å% k %† 5 < U Y w N M F åo

o‹ F å o› 1 y µ Aggregateport 1 F å% o

```
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% o

```
5 X L M L H  F R Q I L J  L Q W H U I D F H  * L J D E L W ( W K H U Q H W
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% o

```
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 ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

1.8 interface range

¤ ¶ B F å% interface x X µN M F å% o

Interface range { ‰g | macro ‰n }

Y x X d define interface-range Û #o

define interface-range ‰n

o‹ @ “ ¢o›

@	T
	O q N M ” y N M ÚZ 8 k U Y ' Y ßàÒòN Mo Loopback M k ÿµ¥ o
macro	# + ÿµ # Ûn P N M 8 kmacro_name d o

o‹ Þ. F åo› Þ. ÕÑ k ¥

o‹ x X % o› ¶ B F å% o

o‹ Þ. · ðo› 14

o‹ 6 -o› # k ‹ } ¤ ¶ B F å% k fl 1%† 8 N M ” * define interface-range x X g # Ł k Àe ˙ * interface range macro g N M O F å òo

ð	% y a k H 8 5 æ600

o‹ Þ. F åo› 10 ao

o‹ x X % o›

o‹ Þ. · ð› 14

o‹ 6 -o› ï g — ' k o ł - N M , … ¸o ó ÕÑ o k ¢ N M Ù G ÿw Jo N M v æ j ¤ l Œ N M G ÿ›TÙ k ł - U P ¸o F å no logging [link-updown | error-frame | link-dither] e k Ø k ł - U P ¸o

o‹ F å o› 1 y F å ł - N M Ù w J ¸o

```
5 X L M L H  F R Q I L J  O R J J L Q J  O L Q N  X S G R Z Q
5 X L M L H  F R Q I L J  O R J J L Q J  H U U R U  I U D P H
5 X L M L H  F R Q I L J  O R J J L Q J  O L Q N  G L W K H U
```

o‹ à co› -

o‹ U P ¸o› - N M Ù G ÿw J U P ¸ 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 æ j ¤ l U P ¸ y

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

N M G ÿ›TÙ U P ¸ 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 “ ¢o› -

1.11 medium-type

+ N M P ¯ ”o

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

˚ Œ Ł Þ. o

no medium-type

o‹ @ “ ¢o›

@	T
auto-select	# + P ¯ ”
prefer [fiber | copper]	# + i fl # + î _ P ¯ ”
fiber	ò# + ° M
copper	ò# + M

o‹ Þ. F åo› Þ. ' Mo

o‹ x X % o› N M F å% g Ò ò M h

o‹ Þ. · ðo› 14

o‹ 6 -o› òçc%† M U Y # + ° M y M _ P ¯ ” k ï Q ¿ $%†o %† G P ¯ ” $ e k ¤ F å
M K ¯ k òÙ o E Wo v O O òy , ä k C ' 6 M ¢ ø # + ” K ¯ o w J M ” e k ”
+ M K ¯ ¿ ó K ¯ k ï U Y ÿG ‹ } M F åo
òç ï F å M P ¯ # + k ¤ M Q ˜ %† _ P ¯ N k Õ ¢ ø N P ¯ z ¤ M _ P
¯ C N k Õ1 ï F å i fl P ¯ o P ¯ # + i fl P ¯ ó M k ï U Y * F å
medium-type auto-select prefer fiber Û åi fl P ¯ ° Mo ¤ # + % k M , äo E Wo v O
K ¯ 1 ó o

o‹ F å o› 1 y M GigabitEthernet 1/1 ' ° M k P ¯ ” åŁ Mo

```
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 H G L X P  W \ S H  F R S S H U
```

o‹ à co› 1 y show interfaces x X k U Y ò0 N M P ¯ ”o

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

1.12 mtu

åN M MTU
mtu œ

o‹ @ “ ¢o›

@	T
œ	64 l?(c D } ´ Ý c k / Ì —)

o‹ Þ. F åo› Þ. n í

o‹ 6 -o› åN M æ u 4 MTU k / e Ł C G B ª ´ Ýx o) ø Q u 4 åÒò M MTUo

o‹ F å o› 1 y M GigabitEthernet 1/1 MTU å 9000o

```
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 ò0 N M MTUo

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

1.13 physical-port dither protect

F åN M ›TÙ o
physical-port dither protect

o‹ @ “ ¢o›

@	T
-	-

o‹ Þ. F åo› ¥ oo

o‹ x X % o› ¶ B %

o‹ Þ. · ðo› 14

o‹ 6 -o› M e Ł ›TÙ k ï g — ' k oo ó ÕÑ o k / physical-port dither protect g ¢ N M G ÿ›TÙ w Ý %†) k 1 shutdown M k Üæ M z F å no physical-port dither protect x X e k Q ł - U P ¸k … { N Mo
“ ¢ y
N M ? 2s Œ10s y%†) ›TÙk òç y æ N M 2s ›TÙ 6) k ł - U P ¸k Òł - 10) U P ¸(- <
' 20s ˜ Ò y æ N M ›TÙ)kØ shutdown N Mo + 9 10s y%†) ›TÙk ›TÙ) Ý 10) k Ø ł - U P ¸k … { N M. o

o‹ F å o› 1 y o N M ›TÙ o

```
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 ¸o› - N M G ›TÙ U P ¸ y

N M ? 2s ˜ y æ 6) ›TÙŒ æ 10s ˜ y 10) ›TÙU P ò ¸ 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 $eFF9Λ$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 k ò0 N M 8 C ¸o

```
6ZLWFK$ VKRZ LQWHUIDFHV *LJDELW(WKHUQHW
,QGH[ GHF    KH[
*LJDELW(WKHUQHW    LV '2:1   OLQH SURWRFRO LV 'O: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 GRZQ

Interface	N M ˛
Link state	¢ ø e Ł Ù
Link state change times	e Ł Ù J)
Last change time	%†) e Ł Ù J

o‹ U P ˛o› -

o‹ u V “ ¢o› -

1.16 show in terfaces status

ò0 N M Ù ˛o
show interfaces [ ] status

o‹ @ “ ¢o›

1.17 show interfaces usage

ò0 N M k ! ï äo

show interfaces [ffffff

o‹ Þ. F åo› N M òÙ ' UPo

o‹ x X % o› N M %

o‹ Þ. · ðo› 14

o‹ 6 -o› + 9 N M g Y ßà Mo ü‘ M y A E Z ’ N M ħ¥ x X … { N M k N M ¿ F åQ À ¤ k x ' Ü
o show interfaces x X ò0 N M Ùo

/ ° ö ‡ 4 ® Ù . ³ no shutdown

o‹ Þ. F åo› Þ. ÕÑ k ¥ ł o

o‹ x X % o› N M % o

o‹ Þ. · ðo› 14

o‹ 6 -o› + 9 N M g Y ßà Mo ü‘ M y A E Z ’ N M łk ¥ x X F å‘ k G ¥ N M LinkTrap k ¢ ł k
òçN M Link Ù J kSNMP 1 G ß LinkTrap k F $ Ø Go

o‹ F å o› 1 y µ ÿF åN M G LinkTrapo
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 ÿF åN M G LinkTrapo

M o ø ª F N M « o h Þ M o ø • À F å o

o‹ F å o› 1 y o N M « K ! o

```
5 X L M L H F R Q I L J V Q P S V H U Y H U L I L Q G H [ S H U V L V W
```

o‹ à co› -

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

1.21 speed

å N M , ä o

speed [10 | 100 | 1000 | auto]

˚ Œ Ł Þ. o

no speed

o‹ @ “ ¢o›

@	T
10	n P N M , ä 10Mbpso
100	n P N M , ä 100Mbpso
1000	n P N M , ä 1000Mbpso
auto	n P N M , ä o

o‹ Þ. F å o› , ä Þ. ' o

o‹ x X % o› N M %

o‹ Þ. · ð o› 14

o‹ 6 -o› ò ç N M ' ü ‘ M Ł t k Ø ¥ N M , ä ü ‘ M , ä — o N M ß ü ‘ M \ , ä
å o show interfaces x X ò 0 å o N M ” c k “ å , ä ” - k ˜ æ c k ò SFP ”
N M < “ , ä 10Mo

o‹ F å o› 1 y M GigabitEthernet 1/1 , ä å Ł 100Mbpso

```
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 V S H H G
```

o‹ à co› 1 y show interfaces x X k U Y ò0 N M , ä

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

2 “ a Â

2.1 bridge-map

µ N ¥ 0 n x X % Co
bridge-map ⊕h

o‹ @ “ ¢o›

@	T
bridge-map ⊕h	N ¥ 0 n « Zo ¥ « Z H H — 9 Õ àÌ N M O k F å‹ }%† ˜ àN M y%† ÙàN M ` Ł%† + k 4 Õ Ù+ ˜ ÙàN M k < ˜ Ù N ¥ 0 no u 4 ÿN M F å k 4 ÿN M ˜ Ùà+ ¤ ˜o ò y Õ Ú ˜ + ˜ ÙàN M k Ø N ¥ 0 n « @ 8 0~2 o

o‹ Þ. F å›o

o‹ x X % o›

¶ B %

o‹ Þ. · ð›o

14

o‹ 6 -o›

* F å¸ x X k µ N ¥ 0 n x X % Co ¤ N ¥ 0 n x X % C k U Y 6 ˜ ÙàN M N ¥ 0
… ' y W % o

▲ ¡ - 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 % Co

```
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 ÿµ @ ‘ c k Ø U P ¢ ø ¥ 0 ¤o

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

3 yno J%†] ¤ ¥ 0 k Ø U P “ o

```
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 “ ¢o› æ ˜ à… ' çD } fi u 4 k • ÀW ¤ à % o

2.2 bypass couple

åN M W ¤ F ^ bypass % o
bypass couple þn

H N M F ^ bypass % o
no bypass couple þn

o‹ @ “ ¢o›

@	T
þn	F ^ bypass +

o‹ Þ. F åo› Bypass … {

o‹ x X % o› ¶ B F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› 1%† + N M å¤ F ^ bypass % o

o‹ F å o› 1

o‹ à co› 1 y show running-config x X k U Y ò0 ¢ ø byapss F åÕÑ

o‹ U P ¸o› 1 y òçF å% ¢ ø % , c k Ø U Po

2 y òçF å% ¢ ø % c k Ø
o Ł U P y
&RXSOH E\SDVV VWDUWHG
... { Ł U P y
&RXSOH E\SDVV VWRSHG

¿ Y error: ª U P j ¤ U Po

o‹ o j ¤o› c

o‹ u V “ ¢o›

2.3 lan-ip

F å receive-only % ˜ àà< IP Q Ao
lan-ip

H F å receive-only % ˜ àà< IP Q Ao
no lan-ip

o‹ @ “ ¢o›

@	T
	˜ àà< IP
	ÿàQ A

o‹ Þ. F åo› o

o‹ x X % o› N ¥ 0 n x X C F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› ï ¤ å W ¤ % % k U ÿG ˜ àà< ÕÑF åo

¡ - 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 ¢ ø àÌ ˜ àà< y192.168.1.0/24 y 10.10.10.0/24o

```
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 ‰n lan-ip x X k U Y ò0 6 ˜ àà< F åo

o‹ U P ¸o› 1 y ‡ % % F å˜ à IP < k U P “ F åo

```
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 ˜ à< k U P ˜ à IP <] o

```
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 “ ¢o› æ ˜ à… ' çD } fi u 4 k • ÀW ¤ à % o

2.4 link-mode

F å ¥ 0 C W % o

link-mode ‰ŠŒ{ forward | sniffer | bypass | receive-only }

H] å ˜ ÙàN M N ¥ 0 … ' y ôG W % o

no link-mode ‰ŠŒ{ forward | sniffer | bypass | receive-only }

o‹ @ “ ¢o›

@	T
[illegible]	N ¥ 0 ˜ àà Ì N M k ¥ @ F åÙàà Ì N M.
[illegible]	N ¥ 0 Ùàà Ì N M k ¥ @ F å˜ àà Ì N Mo
forward	¥ N ¥ 0 n + ˜ ÙàN M W ¤ forward W % k U Y + ôG g v O ðk v O k v O O òk v O o
sniffer	¥ N ¥ 0 n + ˜ ÙàN M W ¤ sniffer W % kU Y + ôG g v O ðk v O o
bypass	¥ N ¥ 0 n + ˜ ÙàN M W ¤ ÷^ bypass W % k ôG Q g N M v G ˇ e < + N ôGo
receive-only	¥ N % n + ˜ ÙàM W ¤ þ W % k U Y + ôG g v O ð q k x ' Q N v k ôG o

o‹ Þ. F åo›

o

o‹ x X % o›

N ¥ 0 n x X C F å%

o‹ Þ. · ðo›

14

o‹ 6 -o›

u 4 ÿN M F å N W % o

ï ÿG ‹ } k ¤ Õ % # + ¢ W % o

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

o‹ F å o› 1 y F å˜ àM GigabitEthernet 0/0 y ÙàM GigabitEthernet 0/1 W ¤ forward W % o

```
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 ò0 ¢ ø F åÕÕo

o‹ U P ¸o› 1 y F å ¥ 0 W % bypass % o

```
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 òçM ŒF å4 x X k Ø F å~ $ = ˜ F åo

```
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
```

3 y òç %† N M '˜àM k Œ æ 8 N M 'ÙàM k Œ æ N M%† ýk C k ßº U Po 4 Ô
Gi0/0 y Gi0/2 '˜àM kGi0/1 'ÙàMo

```
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
```

4 y òç6 N M] ¤ ¿ U ¥ 0 n k Ø k ßº U Po

```
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 y Z ˜ # + 3 G K ¯ N M ` Ł o
2 y F å% % e k Z ˜ F å¿ ˜ à IP <o

o‹ u V “ ¢o› ¿ U à… ' çD } Q u 4 forwardo sniffer o ÷^ bypasso % % _ W % k • ÀW ¤ à % o

2.5 native

å8 C M native vlan
native lan ɒn vid ɯd

1 8 C M native vlan ˚ Öó g4089 h
no native lan ɒn

o‹ @ “ ¢o›

@	T
ɒn	M Z k 8 0-4
ɯd	} å native vlan

o‹ Þ. F åo› Þ. ? 8 C M native vlan C 4089o

o‹ x X % o› ¶ B %

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 y F å¥ x X ø k • À vlan port x X 1 ¥ M µ} å vlan k w • À' untag

o‹ F å o› 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 ò0 ¢ ø F åÕ‰

```
…
LQWHUIDFH *LJDELW(WKHUQHW
 HQFDSVXODWLRQ GRW 4
 YODQ SRUW
…

QDWLYH ODQ YLG

…
```

o‹ U P ¸o› 1 y F åŁ k U P

2 y M ' C M k “ w native vlan

(UURU 3RUW LV :$1 SRUW FDQ W VHW QDWLYH YODQ

3 y å vlan ¤ k Z ˜ fl ¤ ÿN 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 “ w native vlano

2 y å vlan ¤ k Z ˜ fl ¤ ÿN M / x vlano

3 y M ¤ } å vlan o

4 y } å vlan ' k tag k native vlan • À' untag o

o‹ u V “ ¢o› -

2.6 native-vlan

å N ¥ 0 n native-vlan id o

native-vlan vid

H å N ¥ 0 n native-vlan id o

no native-vlan

˚ ÖÞ. F åo

default native-vlan

o‹ @ “ ¢o›

@	T
native-vlan vid	Vlan id k @ “ 8 1~4094
default	Þ. native-vlan ÚZ 1

o‹ Þ. F åo› Þ. native-vlan ÚZ 1o

o‹ x X % o› N ¥ 0 n x X C F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› ¤ àÌ Œ ¸ k òç v æ Z ˜ k vlan tag k Ø ¥ 1 t ð ¢ ø F å vlan id + vlan ª + » z òç˜ k vlan tag k Ø ð ¥ tag + vlan ª + »o

¡ - 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 100o

```
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 ò0 ¢ ø native-vlan F åo

o‹ U P ¸o› 1 y F å ¥ 0 n native-vlan id 100 k F åŁ U P k U Y F å~ $ = ˜ F åo

```
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 òç6 id Ý 4094 k Ø x X c F å >o

o‹ o j ¤o› -

o‹ u V “ ¢o› æ ˜ à… ' çD } fi u 4 k • ÀW ¤ à % o

2.7 show bridge-map

“ P N ¥ 0 n , … ¸o
show bridge-map ℔n [lan-ip]

o‹ @ “ ¢o›

@	T
bridge-map ℔n	N ¥ 0 n « Zo

o‹ x X % o› ÔÓ% o ¶ B % o N M %

o‹ Þ. · ðo› 14

o‹ 6 -o› * 6 N ¥ 0 n « Z k Û‘ P , … N ¥ 0 n ¸o
6 N ¥ 0 n « k Ø “ P æ ˜ N ¥ 0 n ¸o
k lan-ip @ k U Y “ P % % ˜ 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

<	“¢
,QVLGH LQWHUIDFH	`Ł ~àN M
2XWVLGH LQWHUIDFH	`Ł ÙàN M
:RUNLQJ PRGH	¢ø ¥0 W % k˜ forwardosnifferobypasso receive-only _o
Native vlan	¢ ¥0 native-vlan ÚŽ

2 y ò0 % % ~à IP < F åÕÑ

```
5XLMLH  VKRZ EULGJH PDS  ODQ LS
,3 DGG            PDVN DGG
```

< Ky

<	“¢
,3 DGG	~à IP “›
PDVN DGG	~à IP < Q A

o‹ U P ¸o› -

o‹ u V “¢o› æ~à... 'çD } fi u 4 k • ÀW ¤ à % o

2.8 split

åN M W ¤ 4 10G % o

split slot ln

H åk äE æ 1 40G M % o
no split slot ø

o‹ @ “ ¢o›	@	T
	ø	40G M $ Z k 8 [0,1]

o‹ Þ. F åo› F åo

o‹ x X % o› ¶ B F å%

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 o 1 40G M 4 10G M $ äEo
2o x X ‹ F åk M o ÿ|o

o‹ F å o› 1 y F å1 1 40G M äE Ł 4 10G M y

```
Ruijie(config)#split slot 0
```

o‹ à co› 1 y ÕM o e k show running-config x X k U Y ò0 ¢ ø 40G M F åÕ‰
2 y ÕM o e kshow interface k k ÿŁ 4 10G M gslot 0 + TenGigabitEthernet 0/8 - 0/11 kslot 1 + TenGigabitEthernet 0/12 – 0/15 h

o‹ U P ¸o› F åŁ 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: ª U P j ¤ U Po

o‹ o j ¤o› -

o‹ u V “ ¢o›

2.9 show switch-info

ò0 Õø 5 M 8 C K ¯ Y C ˜ ÙàK ¯o
show switch-info

o‹ @ “ ¢o›	@	T

-	-

o‹ Þ. F åo› -

o‹ x X % o› ÔÓ% o ¶ B % o N M %

o‹ Þ. · ðo› 14

o‹ 6 -o› -

o‹ F å o› ò0 Õø 5 M 8 C K ¯ Y C ˜ ÙàK ¯ 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

<	“ ¢
PORT g %† çh	n P M Z k µÆ ø 5 M ¿ ~%†%† +
PORT g 8 çh	n P M ' 8 C M
LAN	n P M ' C Mo ˜ àM
WAN	n P M ' C Mo ÙàM
ç	n P ' k u 4 8 C ôE k0- u 4 k1- u 4

o‹ à co› -

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

2.10 show sys-mode

ò0 ' ˇ % k N M ˜ ÙàK ¯ , … ¸o

show sys-mode

@	T
-	-

o‹ x X % o› ¶ B %

o‹ Þ. · ðo› 14

o‹ 6 -o› ¤ ¶ B F å% k F åN M ˜ ÙàK ¯ kno x X ˚ ŒN M K ¯ æ ó o U u 4 ÒòN Mo
ü‘ M ÀÕ˜ ÙàK ¯ k ¿ ˜ ÙàK ¯ µ¿ N M Ł t K ¯ — k u 4 ô äEo
B ª ÿN M - À˜ ˜ ÙàK ¯ y Y ßM ÿN M kdialer M ÿN Mo ¿ ˜ ÙàK ¯ u 4 ôW F åo
ÿN M º R N M — ˜ ÙàK ¯ k N M ¤ w ˜ ÙàF åe M o ÿ| k Àe c 5 ¸ ÿN Mo
˜ ÙàK ¯ w k ‹ } F åM o ÿ|o

o‹ F å o› 1 y F å GigabitEthernet 0/0 ˜ àN Mo

o‹ à co› 1 y show sys-mode x X k U Y ò0 æ ˜ àÌ N M ˜ ÙàK ¯o

o‹ U P ¸o› 1 y F åŁ Œ M ŒF åk U Po

2 y F åü‘ M ÙàM k U P 7 tM × ´ òe3 CPCŒº ! 3e8D B L M L H F R V I L J V T F L J I D F ‘ H U W / J ⊣ S8 5 ï° !

o‹ Þ. F åo› EG ' œ NBR ' çD } Þ. à… % o ACE ' œ MSC D } Þ. à % o

o‹ x X % o› ¶ B %

o‹ Þ. · ðo› 14

o‹ 6 -o› ¥ x X 9 6 ' ˇ W ¤ à… % ' ‡ à… % o ‹ } F åe M o Õ ÿ|o
' ˇ W ¤ à… % kÿG Ł n ÛôG kU Y g NAT ôE k4 àÌ N M C M kU Y F å
IP “ ›o
' ˇ W ¤ ‡ à… % kÿG N ¥ 0 n ÛôG k + g NAT ôE k4 àÌ N M 8 C M k
N M F å IP “ ›o

o‹ F å o› 1 y F å' ˇ W % ‡ à… % g à % ho
5 X L M L H F R Q I L J Q R V \ V P R G H J D W H Z D \

o‹ à co› 1 y show sys-mode x X k U Y ò0 ¢ ø ' ˇ % Ừ o

o‹ U P ¸o› 1 y w ' ˇ W % k U P M o e ÿ|o
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 Q R V \ V P R G H J D W H Z D \
6 \ V W H P P R G H K D V F K D Q J H G < R X P X V W V D Y H F R Q I L J D Q G U H O R D G W K H

o‹ o j ¤o› -

o‹ u V “ ¢o› -

2.13 vlan port

o‹ Þ. F åo› Þ. ? M Q ¤ ó vlan 4089 o

o‹ x X % o› ÿN M %

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 y F å¥ x X ø k • Àfl ¤ ÿN M / x 802.1Q vlan
2 y ¥ x X Q + 8 C M ÿ|o òç M 8 ˜˜ C M k Ø x X Q + 8 ˜ 8 C M ÿ|o
3 y x X @ ymax >= min o

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 ò0 ¢ ø F åÕ‰

```
…
LQWHUIDFH *LJDELW(WKHUQHW
 HQFDSVXODWLRQ GRW 4
 YODQ SRUW
…
```

o‹ U P ¸o› 1 y F åŁ k U P

```

```

2 y F å M 8 ˜˜ C M k x X + ¥ M | k ¿ M ˜ |

```
:DUQ 3RUW LV :$1 SRUW WKLV RSHUDWLRQ LV LQYDOLG IRU WKLV SR
```

3 y üg no x X k Z ˜ 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 ˜ / x 4 Y O D Q

```
(UURU 1R 4 YODQ LV H[LVW WKLV RSHUDWLRQ LV QRW YDOLG
```

6 yvlan $ ø F å untag k tag ø ‹ fl no J $ ø F å

```
(UURU 9ODQ LV XQWDJJHG SOHDVH H[HFXWH QR YODQ SRUW EHIR
```

o‹ o j ¤o› 1 y 6 M 8 ˜˜ C M k x X + ¥ M | k ¿ M ˜ |o
2 y üg no x X k Z ˜ M µ¥ vlano
3 ymax M Z 4 9 min M Zo

4 y Z ˜ / x 802.1Q vlano
5 yvlan $ ø F å untag k tag ø ‹ fl no J $ ø F åo

o‹ u V “ ¢o› -

2.14 xaui-mode

åN M W ¤ fi % o
xaui-mode slot ø

H åk äE æ 4 fi M % o
no xaui-mode slot ø

o‹ @ “ ¢o›

3 PCAP

1.22 packet capture file

6 ^ do
packet capture file [buffer-size] [packet-num]

í ^ k ˚ Ö ÿß log
clear packet capture file

o‹ @ “ ¢o›	@	T
		^ d
	Ù Ý4o # + ó 7 ` 2M Ý4 y k ^ æ 6 Ý4 2 o	
	Oo æ 6 O e k 2o # + ó 4 Ò H o	

o‹ x X % o› ÔÓ%

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 o å4 ^ d Y e k G ó ¤ ^ Lo Ì å ^ d k G + N Y syslog ¥ ÿß¤ O ò
V o Ì å ^ d k ó Q ÿß 30 o

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› üg ¥ x X Y e k ï U * show packet capture status òF å' k Ł o

o‹ U P ¸o›

o‹ o j ¤o› -

o‹ u V “ ¢o› -

3.1 packet capture point

º µo

packet capture point name rule name location {interface name vlan vid control-plane} {in | out | both}

í µo

clear packet capture point name

o‹ @ “ ¢o›

@	T
name	µd f
name	F Ø d f k captur x X #
name	M d f
vid	vlan id
control-plane	O òµ
in | out | both	g k µMo ßMo Œ æ E g

o‹ Þ. F åo›

-

o‹ x X % o›

ÔÓ%

o‹ Þ. · ðo›

14

o‹ 6 -o› 1 o ÿG ‹ } k ï U Y ¤ c%† y å # Ú g) ø u 4 4 h c Ø Œ æ
go Ú µU Y c W k ; § o

o‹ F å o›

1 y º H

clear packet capture rule ææn

o‹ @ “ ¢o›

@	T
ææn	F Ø d f
æo	MAC
æb	) MAC
þø ip| arp	8 C # ”
þe	IP
þæ	IP Q A
þd	) IP
þæ	) IP Q A
þo | tcp | udp	C # ”
þe	tcp/udp # M
þd	tcp/udp #) M

o‹ x X % o› ÔÓ%

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 o ï U Y # Ú c Ø k Y Ø d f ª c Øo # Ø Y e k Ø ‹ } t µ ı
k ÿ|o
2o í Ø $ ø k ‹ } í æ ˜ ¥ Ø µo

o‹ F å o› 1 y # tcp # F Ø
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› üg ¥ x X Y e k ï U * show packet capture status òF å' k Ł o

o‹ U P ¸o›

o‹ o j ¤o› -

o‹ u V “ ¢o› -

3.3 packet capture start

÷ o
packet capture start

2 o

packet capture stop

o‹ @ “ ¢o›

@	T
start	÷
stop	2

o‹ x X % o› ÔÓ%

o‹ Þ. · ðo› 14

o‹ 6 -o› 1 o ÷ Y e k òç ÿµ 2 x X k O Æ e k µ1 2 o òç 2 Ú

^ 9 Ì Æ k ÿµ¥ x X e k y / 2 o

2o ÿµ ÷ e k æ ˜ µc ÷ o

o‹ F å o› 1 s þ J ´ ð À s Ö œ À · c 0 _ " H f œ —

o‹ F å o› -

o‹ U P ¸o› 1 y ò0 ¸ “ 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

<	“ ¢
Capture rule	Ø d f

etype	8 C # ”
source MAC	MAC
destination MAC	) MAC
protocol	C # ”
source IP	IP
destination IP	) IP
source port	M
destination port	) M
Capture point	µd f
location	y å
direction	g
buffer size	buffer Ý4
packets limit	) ò
filename	ÿß ^ d f
status	Ù
packets captured	] B B O

o‹ u V “ ¢o› -

4 Aggregate Port

4.1 aggregateport load-balance

F å AP ¶ B v O u k c Œ æ F å6 AP M v O u k co
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˚ Ö Þ. Œ æ 1 6 AP M v O u k c ÿ| ¶ B v O u k co
no aggregateport load-balance

o‹ @ “ ¢o›

@	T
dst-mac	ÿG ÿµ) MAC “› g v O ª Fo ¤ AP _ e Ł k) MAC “› , c t æ , c M ķ) MAC c ª F æ c Mo
src-mac	ÿG ÿµ MAC “› g v O ª Fo ¤ AP _ e Ł k c MAC “› ª F æ c M k , c MAC “› , c Mo
src-dst-ip	ÿG IP) IP g v O ª Fo c IP+) IP v O * c M ôG k c%† IP+) IP * , c e Ł ôGo ¤ C Ú^ k J 4 v O u k o
dst-ip	ÿG ÿµ) IP “› g v O ª Fo ¤ AP _ e Ł k) IP “› , c t æ , c M k) IP c ª F æ c Mo
src-ip	ÿG ÿµ IP “› g v O ª Fo ¤ AP _ e Ł k c IP “› ª F æ c M k , c IP “› , c Mo
src-dst-mac	ÿG MAC) MAC g v O ª Fo c MAC+) MAC v O * c M ôG k c%† MAC+) MAC * , c e Ł ôGo
src-dst-ip-l4port	ÿG IP) IP y L4 M Z) L4 M Z g v O ª Fo
src- l4port	ÿG L4 C M Z g v O ª Fo c L4 C M Z ¤ _ Ł t e Ł u k ª F kÀ˜ , c L4 C M Z Ø ¡ ª F ¸ , c Ł t e Ło
dst- l4port	ÿG L4 C) M Z g v O ª Fo c L4 C) M Z ¤ _ Ł t e Ł u k ª F kÀ˜ , c L4 C) M Z Ø ¡ ª F ¸ , , c Ł t e Ło
src-dst-l4port	ÿG L4 C M Z L4 C) M Z g v O ª Fo c L4 C M Z+L4 C) M Z ¤ _ Ł t e Ł u k ª F kÀ˜ , c L4 C

M Z+L4

o‹ F å o› 1 y F å´ 9) MAC “› AP ¶ B v O u k c y

```
5XLMLH FRQILJ DJJUHJDWHSRUW ORDG EDODQFH GVW PDF
```

2 y ¤ AP 1 M F å´ 9) MAC “› v O u k c y

```
5XLMLH FRQILJ LQWHUIDFH DJJUHJDWHSRUW
5XLMLH FRQILJ LI $JJUHJDWH3RUW DJJUHJDWHSRUW ORDG EDODQFH
```

o‹ à co› show aggregateport load-balance x X ò0 å v O u k co

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o›

o‹ F å o› 1 y µ ÿ 9 ł AP Ł t M LinkTrap * s y

o‹ à co› Ã ¹EîE› show running ¹,ßG!5B ú , ü Ä

o‹ U P ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

4.3 ap-interface wireport port-group

AC G F åü‘ M F å

ap-interface wireport ł port-group a ł

no ap-interface wireport ł port-group

o‹ @ “ ¢o›

@	T
ł	AP ˜ ¿ M M Z
a ł	ü‘ M Z

o‹ Þ. F åo› Þ. ÕÑ k G † ` ü‘ M F åo

o‹ x X % o› ap-config kap-group F å% o

o‹ Þ. · ðo› 14

o‹ 6 -o› AC * t x X G%† ÚF å1 AP %† ˜ ¿ M µ%† ü‘ M kòç¥ ˜ ¿ M] ˇ K 9 î ü‘ M Ł t M k Ø “ µæ ü‘ M

o‹ F å o› µ ÿ 9 1 AP GigabitEthernet 0/1 µæ ü‘ M AggregatePort 1 y

```
5 X L M L H  F R Q I L J
5 X L M L H  F R Q I L J  D S  F R Q I L J  G  D D E E  F F
< R X  D U H  J R L Q J  W R  F R Q I L J  $ 3  G  D D E E  F F  Z K L F K  L V  R Q O L Q H  Q R Z
5 X L M L H  F R Q I L J  D S  D S  L Q W H U I D F H  Z L U H S R U W  S R U W  J U R X S
```

o‹ à co› AP Þ Ã ¹EîE› show running Q ¸ ¹,ßG!5B ú , ü Ä

o‹ U P ¸o›

o‹ o j ¤o› -

o‹ u V “ ¢o› -

4.4 interface aggregateport

F åY ßà AP M Œ æ µY ßà AP M N M F å% o
interface aggregateport ąþn

í AP Mo
no interface aggregateport ąþn

o‹ @ “ ¢o›

@	T
ąþn	AP N M Zo

o‹ Þ. F åo› Þ. ÕÑ kAP M Ì t º o

o‹ x X % o› ¶ B F å% o

o‹ Þ. · ðo› 14

o‹ 6 -o› ¢ AP M] ˇ º k F å interface aggregateport x X µ AP M N M F å% z ¢ AP M Ì º k F å interface aggregateport k fl º AP M k òçº Ł k Ø µ AP M N M F å% o

o‹ F å o› 1 y µ ÿ 9 º 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 ¸o› -

o‹ o j ¤o› -

o‹ u V “ ¢o› -

4.5 port-group

1%† Y ßàÒò M å M- Õ AP Ł t Mo

port-group ø n

í ¥ M Aggregate Port Ł t K ¯o

no port-group

o‹ @ “ ¢o›

@	T
ø n	M- ÕAP Ł t M ` ÚŽ k /M- Õ AP N M Zo

agga	AP N M Zo
load-balance	“ P

w W ? ¿ / 6 © ¬ x §

Ú ` Ÿ4¡ IP ` á u,Ì G Y • È Ù À ¹ ß0´8V Ö

1. IP / á u
2. IP Event Dampening
3. TCP
4. FPM

1 IP © ¬/ §

1.1 gateway

… ¥ x X F å MGMT N M Þ . à ¼ož
gateway ð

í ” MGMT N M Þ . à ¼ F åož
no gateway

o¬ @ ƒ ª ¢o-

@ ƒ	T
ð	MGMT N MIPv4 * ’ 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

```
5XLMLH FRQILJ LQWHUIDFH PJPW
5XLMLH FRQILJ LI 0JPW JDWHZD\
5XLMLH FRQILJ LI 0JPW
```

o¬ à • co- show run U • , • F å

o¬ U P ’ Îo-

```
LV QRW D YDOLG KRVW DGGUHVV
```

o¬ o • j ¨o- -

o¬ u V ª ¢o-

ip address [secondary] | [slave]

í ” 6 N M IP ª -ož
no ip address [secondary] | [slave]]

o¬ @ ƒ ª ¢o-

@ ƒ	T
	32 A Ô y IP ª - k8 y%² Á k Y ò • ” n P k Á $ • µ œ •ož
	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-

```
 yFå4NM ,3ª-              kàÌQA              ož
5XLMLH FRQILJ LQWHUIDFH JLJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LS DGGUHVV

 y“wÞ.à¼                ož
5XLMLH FRQILJ LQWHUIDFH JLJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LS DGGUHVV

 yFåNM ª-                kVOÐ¬YH
5XLMLH FRQILJ LQWHUIDFH JLJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LS DGGUHVV
5XLMLH FRQILJ LI *LJDELW(WKHUQHW      LS DGGUHVV
```

o¬ à • co- 1 yshow ip interface U • N M F å Õ Ñož

2 yshow running-config [interface ß à n] 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 y Q A h k ò ç F å 4 k é ß ë Y U P y

```
,QYDOLG ,3 PDVN
```

2. Ì F å ip ª - Õ Ñ ª • F å) ip ª - k k é k ß ë Y U P y

```
&DQQRW DGG ,3 DGGUHVV
```

3. Ì F å ip ª - Õ Ñ ª • F å Slave ip ª - k k é k ß ë Y U P y

```
3OHDVH FRQILJ WKH SULPDU\ ,3 DGGUHVV ILUVW
```

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

í ” ª - $ ù Z Ä í ” ñ Ä R ª -ož

c%² N M c , 3 ª - 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 # 9‹ ª y ·,X IP ož
no ip address negotiate

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	

o¬ Þ . F åo- N M Z Ä F åEîE› PPP # 9‹ ª 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 # 9‹ ª y · IP ož

```
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
5 X L M L H R Q I L J L I G L D O H U 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 þd

H ƒ z n ª - F åož
no ip broadcast-address

o¬ @ ƒ ª ¢o-

@ ƒ	T
þd	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
5 X L M L H F R Q I L J  L I  * L J D E L W ( W K H U Q H W  L S  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 ⅛ [⅛]

å ¿ ICMP [j † G , äož
ip icmp error-interval ⅛ [⅛]

IP Ù B U ã Ì y ‡ G ICMP) U † G , ä Ê Ö è Þ . ›ož
no ip icmp error-interval DF ⅛ [⅛]

¿ ICMP [j † G , ä Ê Ö è Þ . ›ož
no ip icmp error-interval ⅛ [⅛]

o¬ @ ƒ ª ¢o-

@ ƒ	T
⅛	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
⅛	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 ')
```

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
```

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

```
5XLMLH FRQILJ LQWHUIDFH JLJDELW(WKHUQHW
5XLMLH FRQILJ LI *LJDELW(WKHUQHW LS PDVN UHSO\
```

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 þ

Ê Ö Þ . F åož

no ip mtu

o¬ @ ƒ ª ¢o-

@ ƒ	T
þ	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
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 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
ha	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

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 ha ha n

H ƒ ¥ F åož
no ip unnumbered

o¬ @ ƒ ª ¢o-

@ ƒ	T
ha	¼ û N M • ºož
ha n	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
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  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 | pool [ipn] }

H ƒ ã F IP ª - Ë + €ož
no peer default ip address

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip	6 + € ã F IP ª -ož
ipn	U # È 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 þ 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

```
5XLMLH FRQILJ LQWHUIDFH GLDOHU
5XLMLH FRQILJ LI GLDOHU SHHU GHIDXOW LS DGGUHVV
```

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 [þ ê n | brief]

o¬ @ ƒ ª ¢o-

@ ƒ	T
þ	6 N M • º
ê n	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 L6 WID-Address(Sec) W R FR O
*LJDELW(WKHUQHW                                    GRZQ    GRZQ
*LJDELW(WKHUQHW      QR DGGUHVV    QR DGGUHVV    GRZQ    GRZQ
9/$1                               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
9/$1
  ,3 LQWHUIDFH VWDWH LV '2:1
  ,3 LQWHUIDFH W\SH LV %52$'&$67
  ,3 LQWHUIDFH 078 LV
  ,3 DGGUHVV LV
             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
    5HTXHVW SDFNHW
    5HSO\ SDFNHW
    8QNQRZQ SDFNHW
77/ LQYDOLG SDFNHW QXPEHU
,&03 SDFNHW LQSXW QXPEHU
    (FKR UHTXHVW
(FKR UHSO\
    8QUHDFKDEOH
    6RXUFH TXHQFK
    5RXWLQJ UHGLUHFW
```

< † 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      SDFNHWV IUDJPHQW
 ,3 SDFNHW UHFHLYH TXHXH  OHQJWK    PD[      RYHUIORZ
 5HFHLYH    ,&03 HFKR SDFNHWV     ,&03 UHSO\ SDFNHWV
 'LVFDUGV

   5HFHLYH TXHXH RYHUIORZ
   8QNQRZ SURWRFRO GURSV
   ,&03 UFY GURSV     IRU VNE FKHFN IDLO
   ,&03 UFY GURSV     IRU VNE LV EURDGFDVW
```

1.19 show ip packet statistics

ò 0 IP † Ï ‹ ’ Îož

show ip packet statistics [total | fan]

o¬ @ ƒ ª ¢o-

@ ƒ	T
total	ñ Ä N M Ï ‹ › È yož
fan	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  VKRZ LS SDFNHW VWDWLVWLFV
7RWDO
  5HFHLYHG        SDFNHWV          E\WHV
    8QLFDVW       0XOWLFDVW       %URDGFDVW
    'LVFDUGV
      +GU(UURUV   %DG&KHFNVXP   77/([FHHGHG   2WKHUV
      1R5RXWHV
      2WKHUV
  6HQW        SDFNHWV          E\WHV
    8QLFDVW       0XOWLFDVW       %URDGFDVW
*LJDELW(WKHUQHW
  5HFHLYHG       SDFNHWV         E\WHV
    8QLFDVW       0XOWLFDVW       %URDGFDVW
    'LVFDUGV
      +GU(UURUV   %DG&KHFNVXP   77/([FHHGHG   2WKHUV
      1R5RXWHV
      2WKHUV
  6HQW        SDFNHWV          E\WHV
    8QLFDVW       0XOWLFDVW       %URDGFDVW
/RRSEDFN
  5HFHLYHG    SDFNHWV     E\WHV
    8QLFDVW    0XOWLFDVW    %URDGFDVW
    'LVFDUGV
      +GU(UURUV   %DG&KHFNVXP   77/([FHHGHG   2WKHUV
```

```
      1R5RXWHV
      2WKHUV
  6HQW   SDFNHWV    E\WHV
    8QLFDVW   0XOWLFDVW   %URDGFDVW
7XQQHO
  5HFHLYHG   SDFNHWV    E\WHV
    8QLFDVW   0XOWLFDVW   %URDGFDVW
    'LVFDUGV
      +GU(UURUV   %DG&KHFNVXP   77/([FHHGHG   2WKHUV
      1R5RXWHV
      2WKHUV
  6HQW       SDFNHWV          E\WHV
    8QLFDVW       0XOWLFDVW   %URDGFDVW
```

< † 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
SRRO
SRRO
SRRO
```

< † 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 [œ]

o¬ @ ƒ ª ¢o-

@ ƒ	T
œ	# ‘ 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
```

,&03 GKFS HOI
,&03 YUUS HOI
,*03 LJPS HOI
9553 YUUS HOI
7 R W D O • P†€ 0 0 05 h p p @ 0 5Pƒ À¨`° 7Ÿ"€Õ r2“ bti™!#• –Æ'Bˆ D AVA_•0y 6y) Vá™l`b i™!#•ð...n”,`‘•VAù ‘#x

```
      UJ VQPSG        '*5$0    8'3
      ZEDY           '*5$0    8'3
      YUUSBSOXV HOI    '*5$0    8'3
      PSOV HOI        '*5$0    8'3
      UGVBRWKHUBWK     '*5$0    8'3
      UJ VQPSG        '*5$0    8'3
      UJ VVKG         675($0   7&3                                  /,67(1
      UJ WHOQHWG       675($0   7&3                                   /,67
      ZEDUG           675($0   7&3                                  /,67(1
      ZEDUG           675($0   7&3                                  /,67(1
7RWDO
```

< † 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 ¤n]

ª P IPv4 UDP ì N Ï ‹ ›ož

show ip udp statistics

o¬ @ ƒ ª ¢o-

@ ƒ	T

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
0 D [L P X P S H Q D O W \ L V O H V V W K D Q V X S S U H V V S H Q D O W \ , Q F U H

2 y ¢ F å ¥ x X ž k © Ï Ä á Y ü g ¥ F å ' k - k ø - F å â Â U P y
1 R P H P R U \ F R Q I L J X U H G D P S H Q L Q J I D L O

o¬ o • j ¨ o- 1 y F å 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

o¬ u V ª ¢o- -

2.3 show interfaces dampening

ª P N M IP Event Dampening F å Õ Ñož
show interfaces [ø] dampening

o¬ @ ƒ ª ¢o-

@ ƒ	T
ø	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 ñn] [times ñn] [idle-period ñn]

o¬ @ ƒ ª ¢o-	@ ƒ	T
	interval ñn	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 ïgn

Ê Ö Þ . F åož

no ip tcp mss

o¬ @ ƒ ª ¢o-

@ ƒ	T
ïgn	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
```

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 ‰n | age-timer infinite]

¼ { TCP è ¬ MTU G ë ož

no ip tcp path-mtu-discovery

o¬ @ ƒ ª ¢o-

@ ƒ	T
age-timer ‰n	TCP ¨ G ë PMTU e k M • g M y ž • • œož% y ã U k H › 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

```
5XLMLH FRQILJ LS WFS SDWK PWX GLVFRYHU\
```

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 Q 4 ø W @ † 3 À q Ê P e À Â ½ #

Ê Ö Þ . ›ož

no ip tcp synwait-time

o¬ @ ƒ ª ¢o-	@ ƒ	T
	ë	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

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 ë

Ê Ö Þ . ›ož

no ip tcp window-size

o¬ @ ƒ ª ¢o-	@ ƒ	T
	ë	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

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

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 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 [ha] [garbage]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ha	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 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 ⁄d] [local-port œn] [peer-ip ⁄d] [peer-port œn]

ª P © Ï ¢ ù IPv4 TCP N Ï ‹ ’ Îož

show tcp connect statistics

o¬ @ ƒ ª ¢o-

@ ƒ	T
local-ip ⁄d	Î ª IP ª -
local-port œn	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
  %LQG KDVK EXFNHW VL]H
0HPRU\ LQIRUPDWLRQ
  *OREDO PHPRU\ OLPLW  ORZ      SUHVVXUH       KLJK       XQLW  S
  3HU VRFNHW UHFHLYH EXIIHU VL]H  PLQ     GHIDXOW      PD[
  3HU VRFNHW VHQG EXIIHU VL]H  PLQ     GHIDXOW      PD[       XQ
  &XUUHQW DOORFDWHG PHPRU\
  &XUUHQW PHPRU\ SUHVVXUH IODJ
6<1 VSHFLILF LQIRUPDWLRQ
  0D[ 6<1B5(&9 VRFNHWV SHU /,67(1 VRFNHW
  0D[ 6<1 UHWULHV
  0D[ 6<1 $&. UHWULHV
7LPHZDLW VSHFLILF LQIRUPDWLRQ
  0D[ WLPHZDLW VRFNHWV
  &XUUHQW WLPHZDLW VRFNHWV
  7LPHZDLW UHF\FOH
  5HXVH WLPHZDLW SRUW
.HHSDOLYH LQIRUPDWLRQ
  .HHSDOLYH RQ
  ,GOH SHULRG     VHFRQGV
  ,QWHUYDO    VHFRQGV
  0D[ SUREHV
078 SURELQJ
```

```
 (QDEOH PWX SURELQJ
),1 VSHFLILF LQIRUPDWLRQ
 ),1B:$,7B  WLPHRXW     VHFRQGV
2USKDQ VRFNHW LQIRUPDWLRQ
 0D[ RUSKDQV
 0D[ RUSKDQ UHWULHV
 &XUUHQW RUSKDQV
```

< † 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] [local-port] [peer-ip] [peer-port]

o¬ @ ƒ ª ¢o- @ ƒ Bh nû S xBy 7,Pb @ ƒ

o¬ F å †o- 1 y ò 0 IPv4 TCP N è ¬ MTUož

```
5XLMLH VKRZ WFS SPWX
1XPEHU /RFDO $GGUHVV )RUHLJQ $GGUHVV 3078
```

< † 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 [œ]

o¬ @ ƒ ª ¢o-

@ ƒ	T
œ	€ 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

```
5XLMLH VKRZ WFS SRUW
7&3 FRQQHFWLRQV RQ SRUW
1XPEHU /RFDO $GGUHVV )RUHLJQ $GGUHVV 6WDWH
                                    (67$%/,6+('
7RWDO

7&3 FRQQHFWLRQV RQ SRUW
```

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
  (UURUV      FKHFNVXP
7KUHH ZD\ KDQGVKDNH
  5HTXHVW TXHXH RYHUIORZ
  $FFHSW EDFNORJ IXOO
  :HE DXWKHQWLFDWLRQ OLPLW SHU XVHU
  )DLOHG WR DOORF PHPRU\ IRU UHTXHVW VRFN
  )DLOHG WR FUHDWH RSHQ UHTXHVW FKLOG
  6<1 $&. UHWUDQVPLWV
  7LPHRXWHG UHTXHVWV
7LPH ZDLW
  7LPH ZDLW EXFNHW WDEOH RYHUIORZ
```

< † 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 ož
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 †

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

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 N L S` s`b ` B AC •Q!†C•d5 ÙÐ c3Ü c

o¬ … 6 -o- - -

û¬À.q ^6 -õ `ER1V%û LÀ@qÊÈ T@PEZ8Vb€Ö ðaby(aDRmÀ)!28*1* ₩ ‘5.(5Z79.02

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
œ	— 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 W K U H V K R O G W F S F O R V H G

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] [source] [destination]

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 ò0 ¢ ø F å' k o 8 C ª ð o
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 ò0 ¢ ø F å' k o 8 C ¶ B I U % o
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 d f Ø%† ¯ 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

```
5XLMLH FRQILJ OD\HU VDP DFFLS UHODWH HQDEOH
```

2 y ¼ { sam Ã Z ¼ û Á d ož

```
5XLMLH FRQILJ QR OD\HU VDP DFFLS UHODWH HQDEOH
```

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 ò0 ¢ ø 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 ò0 ¢ ø F å’ k o
d ¸ 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

```
5XLMLH FRQILJ OD\HU VWULFW YHULILFDWLRQ HQDEOH
```

2 y ¼ { subs € Ä å — ß = • š ož

```
5XLMLH FRQILJ QR OD\HU VWULFW YHULILFDWLRQ HQDEOH
```

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 ò0 ' k oo

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

Þ 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 Þ à 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 Ñ Ä P H Á ï ï Á L S K R V W

o¬ å • 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 U

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 ò0 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 í { ` K

```
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- -

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\
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\
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\          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-

o¬ … 6 -o-

o¬ F å †o- 1

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-

```
        ’ 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 µA j q d a æ

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-subnet 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-

@ ƒ	T
ip-addr	6 À } IP
ip-start	6 IP 8 • ÷ IP
ip-end	6 IP 8 È Ø IP
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 i ¯ ´ Ý 9 permit • éož

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-

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 G V W 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-

4.3 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 k H › 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
```

2o• • — Ä à IP à < 192.168.1.0/24 k é [¬ L © ” 4 Ä à à < IP ¬ } ë • v k ¢ k ¿ • C by-pass

Ô òož

```
5XLMLH  FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV  RQH SHU OLQH   (QG ZLWK &17/ =
5XLMLH FRQILJ  LS DFFHVV OLVW VWDQGDUG
5XLMLH FRQILJ VWG QDFO  GHQ\
5XLMLH FRQILJ VWG QDFO  SHUPLW DQ\
5XLMLH FRQILJ H[W QDFO  H[LW
5XLMLH FRQILJ  IORZ SUH PJU  DFFHVV OLVW  DFWLRQ E\ SDVV
```

o¬ à • co- 1 o• … show flow-pre-mgr rule-info ò 0 F å • é Y C k ¢ F Õ Ñ z
2o• … show flow-pre-mgr ip-info ò 0 IP k ¢ Y C ' ò Õ Ñož

o¬ U P ' Îo- 1 y ò ç • é ID] Æ t … k é U P j ¨ož

```
5XOH LG DOUHDG\ H[LVWV  SOHDVH GHOHWH LW ILUVW
```

o¬ o • j ¨o- Ì F å 6 ACLož

o¬ u V ª ¢o-

4.4 flow-pre-mgr enable

o ¶ B k ¢ ƒ ' ò
flow-pre-mgr enable

¼ { ¶ B k ¢ ƒ ' ò
no flow-pre-mgr enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- • o Ù Á

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … 4 x X • o ¶ B k ¢ ƒ ' ò k ó • • ¼ • o Ù Áož … no flow-pre-mgr enable Û ¼ { ¶ B k ¢ ƒ ož

o¬ F å †o- ¼ { ¶ B k ¢ ƒ ' ò ož

o¬ F å †o- F å Ä à 1 IP •• N , † Ý 1000 k Æ ˜ à < g192.168.1.0/24 h •• N F å è 10000ož

```
5XLMLH FRQILJXUH WHUPLQDO
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW UHDO KRVW OLPLW
5XLMLH FRQILJ IORZ SUH PJU QHZ VHVVLRQ OLPLW VSHFLI\ VXEQHW
```

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-

4.6 flow-pre-mgr new-session-limit { start-up | virtual-host | real-host }

— å — Õ o Ñ ã Ä ñ Ä Z ' IP •• N ƒ ' ò k Ý ' ò › v u V g z

— å o Ñ ã U e k Z ' IP •• N ƒ ' ò k Ý ' ò › v u V g z

— å 1 IP •• N ƒ ' ò k Ý ' ò › v u V g ož

flow-pre-mgr new-session-limit { start-up | virtual-host | real-host } limit limit-number

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

```
5XLMLH FRQILJ  IORZ SUH PJU SULRULW\ VZPS
```

o¬ à • co- … show flow-pre-mgr rule-info ò 0 ä E e • é i ¯ ´ož 4 x X i ¯ ´ 7 Á R ä ñ z L çož

o¬ U P ’ Îo- -

o¬ o • j ¨o- rule-id1 ê rule-id2 ¨ k é x X Ÿ ` ~ Ô òož

o¬ u V ª ¢o-

4.8 flow-pre-mgr protocol-enable

F å — Õ y g OSPFo•VRRPo•RIP # ‘
flow-pre-mgr protocol-enable

F å y g # ‘
no flow-pre-mgr protocol-enable

o¬ @ ƒ ª ¢o-

@ ƒ	T
-	-

o¬ Þ . F åo- ó • y g

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- ó • y gož
v Ä ë • Ô ò Ô ò ¿ ~ © yip session filte Æ# ‘ y g Æ IP • • , ä ’ ò Æ buffe ‘

o¬ F å †o- • o # ‘ y gož

```
5XLMLH FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV RQH SHU OLQH (QG ZLWK &17/ =
5XLMLH FRQILJ IORZ SUH PJU SURWRFRO HQDEOH
```

o¬ à • co- … show flow-pre-mgr protocol-enable ò 0 # ‘ y g © k • oož

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.9 flow-pre-mgr subscriber

F å Â 9 ï/ ï Á k ¢ ƒ ' ò ›
flow-pre-mgr rule-id subscriber subs_name action {block | by-pass | {trust total-limit total-limit-number per-ip-limit per-limit-number }}

í " Â 9 ï/ ï Á k ¢ ƒ ' ò ›
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
subs_name	• é ¼ û ² Á ï ê ² Á ï Á
total-limit-number	ï/ ï Á È v k ¢ ƒ ' ò › kH › æ — Õ Ä Ä ¼ k¿ 0 n P ' ò
per-limit-number	¥ ï/ ï Á ? IP v k ¢ ƒ ' ò › k H › 8 — Õ Ä Ä ¼ k Ý 9 total-limit-number 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 ï/ ï Á 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 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 ï/ ï Á v k ¢ ƒ ' ò Y C ? IP v k ¢ ƒ ' ò k v k ¢ Ý 6 ' ò › e Ç ª • • • v k ¢ * 'ož
4 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
5 h à ¼ % " k + 9 %² ´ è ˜ è j ¨ - › › ß ƒ G v k é [Ÿ ' òož

¡ • — s • 8 - ¹ » ƒ " s ë / ¦ ð o d

o¬ F å †o- F å ï Á UserGroupA ª • ë • 5000 Ú v k ¢ k w UserGroupA ? IP ª • ë • v k ¢ ƒ

300 k Ý ' ò › e Š • • v * 'ož

```
5XLMLH  FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV  RQH SHU OLQH  (QG ZLWK &17/ =
```

```
5XLMLH  FRQILJXUH WHUPLQDO
(QWHU FRQILJXUDWLRQ FRPPDQGV  RQH SHU OLQH  (QG ZLWK &17/ =
5XLMLH FRQILJ  IORZ SUH PJU WRWDO OLPLW
```

o¬ à • co- 1 o• … show flow-pre-mgr rule-info ò 0 F å • é Y C k ¢ F Õ Ñ z
2o• … show flow-pre-mgr ip-info ò 0 IP k ¢ Y C ' ò Õ Ñož

o¬ U P ' Îo-

o¬ U P ’ Îo- -

o¬ o • j ¨o- -

o¬ u V ª ¢o-

4.12 flow-pre-mgr upload-pps-lim it { specify | specify-range | specify-subnet }

— å 6 IP g , ’ ò

flow-pre-mgr upload-pps-limit { specify ip-addr | specify-range ip-start ip-end | specify-subnet ip-subnet ip-mask } limit limit-number

í ” 6 IP g , ’ ò

no flow-pre-mgr upload-pps-limit { specify ip-addr | specify-range ip-start ip-end | specify-subnet ip-subnet ip-mask }

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-addr	6 À } IP
ip-start	6 IP 8 • ÷ IP
ip-end	6 IP 8 È Ø IP
ip-subnet	6 ÿ à à <
ip-mask	6 Q A
limit-number	g , ’ ò › k H › 8 y0-10000000

o¬ Þ . F åo- — , ¼ F å

o¬ x X % ”o- ¶ B % ”

o¬ Þ . ´ ðo- 14

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-

4.14 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
%XII UHDO
%XII YLUWXDO
```

o¬ U P ' Îo- -

o¬ u V ª ¢o-

4.15 show flow-pre-mgr ip-info

ò 0 IP k ¢ ƒ Y C ' ò @ ƒ

show flow-pre-mgr ip-info [ip-address]

o¬ @ ƒ ª ¢o-

@ ƒ	T
ip-address	ò 0 6 IP k ¢ Y C ' ò @ ƒ
default	6 ip-address @ ƒ ¢ k é ò 0 ¶ B IPož

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ ... 6 -o- … ¥ x X ò 0 IP k ¢ ƒ Y C ' ò @ ƒ

o¬ F å †o- ò 0 IP k ¢ ƒ Y C ' ò @ ƒ

```
5XLMLH VKRZ IORZ SUH PJU LS LQIR
,3 $''5(66                IORZ FQW      IORZ OLPLW




5XLMLH
```

< † K y

<	ª ¢
IP-ADDRESS	IP ª -
flow-cnt	¢ ù k ¢ ‹ ƒ
flow-limit	k ¢ ' ò ›

o¬ U P ' Îo- -

o¬ u V ª ¢o-

4.16 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-

@ ƒ	T
-	-

o¬ x X % ”o- Ô Ó % ”o• ¶ B % ”o• N M % ”

o¬ Þ . ´ ðo- 14

o¬ … 6 -o- … ¥ x X ò 0 ¢ ù — Õ • • N ’ ò F å Õ Ñož

o¬ F å †o- ò 0 F å

```
5XLMLH  VKRZ IORZ SUH PJU QHZ VHVVLRQ OLPLW
IORZ SUH PJU QHZ VHVVLRQ OLPLW VWDUW XS OLPLW
IORZ SUH PJU QHZ VHVVLRQ OLPLW YLUWXDO KRVW OLPLW
IORZ SUH PJU QHZ VHVVLRQ OLPLW UHDO KRVW OLPLW
IORZ SUH PJU QHZ VHVVLRQ OLPLW VSHFLI\ KRVW          OLPLW
IORZ SUH PJU QHZ VHVVLRQ OLPLW VSHFLI\ KRVW          OLPLW
```

o¬ U P ’ Îo-

o¬ u V ª ¢o-

4.17 show flow-pre-m gr new-session-limit attack

ò 0 Â %²) • • x à ™ º “ £

show flow-pre-mgr new-session-limit attack

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 ¢ ù — Õ Â %²) I ñ • • N x à “ £ož

… ¥ x X ò Â ÷ÞPu €"uRD&AVï 3•™Â ù ‘#xE— • ð . ” S , V Ò V , I I \ §

```
UHDO KRVW
```

o¬ U P ’ Îo- -

o¬ u V ª ¢o-

4.18 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-

4.19 show flow-pre-mgr upload-pps-limit

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

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

```
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] @ïVÂ ñ"‡Ô õl ÇE0 }¦yUà dw0Ü -Ò'í • š + » oì u6B6D& þ •'" À •cSdVï° –56Enû (

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 7 Tc 0.0695 Tw 5

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{ | ... | upload | download | subscriber-group | subscriber | auth-subs-group |
{ desc | asc } [top n [detail detail | by-user }]

@ *f*	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 *f*
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 4où

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 } [start-item integer1 end-ite m 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
keyword	¡ Ú ^ y ø Þ “ £
account-string	¡ Ú ^ y ø Þ Ã Z
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 IM ‹ ¢ Â ’ Îož

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
```

w W ? ¿ — " ‘

Ú ` Ÿ4¡ h*ü #A,,Ì G Y • È Ù À ¹ ß0´8V Ö

1. DNS
2. NTP
3. SNTP
4. FTP-Server
5. TIME RANGE

1 DNS

1.1 clear host

clear host [* | host]

host	
*	

14

ip host

DNS DNS

1 -IP Ä

```
5XLMLH FRQILJ FOHDU KRVW
```

-

-

1.2 ip domain-lookup

DNS

ip domain-lookup

DNS

no ip domain-lookup

-	-

1 www .test.com 192.168.5.243

5XLMLH FRQILJ LS KRVW ZZZ WHVW FRP

show run

show hosts IP IP

-

-

-

1.4 ip name-server

IP/IPv6

ip name-server [oob] { | |

no ip name-server [oob] { | |

oob	mgmt
	IP
	IPv6

14

DNS Server IP/IPv6 DNS Server Server

Server DNS

6 DNS Server

DNS

1 IPv4 IPv6

5XLMLH FRQILJ LS QDPH VHUYHU YLD PJPW

5XLMLH FRQILJ LS QDPH VHUYHU '% EII IHH I '% I

show run

-

-

1.5 show hosts

DNS

show hosts [ ]

14

DNS

1

```
5XLMLH VKRZ KRVWV
1DPH VHUYHUV DUH
VWDWLF

+RVW W\SH $GGUHVV 77/ VHF
VZLWFK VWDWLF
ZZZ UXLMLH FRP G\QDPLF
```

Name servers	
Host	
type	
Address	IP
TTL	/IP

-

-

2 NTP

2.1 no ntp

NTP ntp

no ntp

peer	NTP
serve	NTP
serve-only	NTP
query-only	NTP
[illegible]	IP 1 99 1300 1999
[illegible]	IP

NTP

14

NTP NTP

NTP —

NTP

no ntp authentication-key

	ID 1 4294967295
	0 7

14

md5 key-id ntp trusted-key

key-id

1024

1 ID 6

5XLMLH FRQILJ QWS DXWKHQWLFDWLRQ NH\ PG ZRRRRRS

-

-

-

-

2.5 ntp disable

NTP

ntp disable

-	-

NTP

14

RGOS 20

14

NTP ID

1

```
5XLMLH FRQILJ QWS DXWKHQWLFDWLRQ NH\ PG ZRRRRRS
5XLMLH FRQILJ QWS WUXVWHG NH\
5XLMLH FRQILJ QWS VHUYHU NH\
```

-

-

-

-

2.9 ntp update-calendar

NTP

ntp update-calendar

no ntp update-calendar

```
5XLMLH FRQILJ  QWS XSGDWH FDOHQGDU
```

-

-

-

-

2.10 show ntp server

NTP

show ntp server

-	-

VLAN

14

NTP NTP

1 NTP

```
5XLMLH VKRZ QWS VHUYHU
QWS VHUYHU                          VRXUFH   NH\LG     SUHIHU YHU

                                  1RQH    1RQH      )$/6(
                                  1RQH    1RQH      )$/6(
```

ntp-server	NTP IP 'H M]

-

2.11 show ntp status

NTP

show ntp status

-	-

VLAN

14

NTP NTP

1 NTP

```
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
```

stratum	
reference	
freq	
precision	
reference time	UTC
clock offset	
root delay	

3 SNTP

3.1 show sntp

SNTP

show sntp

-	-

14

-

1 SNTP

```
5XLMLH VKRZ VQWS
6173 VWDWH (QDEOH
6173 VHUYHU
6173 V\QF LQWHUYDO
7LPH ]RQH
```

state	sntp
server	
sync interval	
Time zone	
SNTP server source	IP

-

-

3.2 sntp enable

SNTP

sntp enable

—Disable

no sntp enable

-	-

SNTP Disable

14

-

5XLMLH FRQILJ VQWS HQDEOH

1 show sntp SNTP

-

-

-

1 SNTP

5XLMLH FRQILJ VQWS VHUYHU

1 show sntp SNTP

-

-

ftp-server login timeout tm

no 2

no ftp-server login timeout

default ftp-server login timeout

tm	1-30

2

14

1 5

5XLMLH FRQILJ IWS VHUYHU ORJLQ WLPHRXW

2 10

5XLMLH FRQILJ QR IWS VHUYHU ORJLQ WLPHRXW

-

-

-

4.3 ftp-server login times

FTP

ftp-server login times tm

no 3

no ftp-server login times

default ftp-server timeout

time	1-10

default ftp-server username

% Password is too long, max length is 25

1.
2.
3.
4.
5.
-

4.7 show ftp-server

FTP

show ftp-server

	5. om-4.393 -1.3J /C2_0 1 1 Tf -0.25 Tc 27(e)1(98 0 0 0 9 0 9 014.9 1 c 27(e)1(98 0 0

```
                    FOLHQW ,3          >   @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
XVHUQDPH D        SDVVZRUG 3/$,17 EEEE      FRQQHFW QXP> @
```

-

-

-

5 TIME RANGE

5.1 absolute

absolute { [start time hh:mm dd] [end time hh:mm dd] }

no absolute

start time hh:mm dd	
end time hh:mm dd	

time-range

14

absolute

0 1 1 00 00 9999 12 31 23 59

1 time range time range

```
5XLMLH FRQILJ WLPH UDQJH QR KWWS
5XLMLH FRQILJ WLPH UDQJH
```

2

```
5XLMLH FRQILJ WLPH UDQJH DEVROXWH VWDUW -$1 HQG -
```

1 show time-range [time] t i m e

5.2 periodic

periodic [time] to [time] [end]

no periodic [time] to [time] [end]

time	
end	

1 time range

```
5XLMLH FRQILJ WLPH UDQJH QR KWWS
5XLMLH FRQILJ WLPH UDQJH
```

1 show time-range [ ] time range

-

-

-

6 fl äø4ì Z p V ¿

6.1 clear rping table all

Rping

clear rping table [all | [ping-object tw] | [trace-object jw]

w	
tn	

14

Rping

1 Rping

```
5XLMLH FOHDU USLQJ WDEOH DOO
```

2: user ruijie

```
5XLMLH FOHDU USLQJ WDEOH XVHU UXLMLH
```

1

-

6.2 ping

IPv4

d	IPv4
g	

```
5HSO\ IURP                E\WHV     WLPH  PV 77/
5HSO\ IURP                E\WHV     WLPH  PV 77/
```

VRF

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms.2 ping IP

192.168.21.26 1500 20 3

ffff IP 192.168.21.99

```
   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[
   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/

6XFFHVV UDWH LV     SHUFHQW          URXQG WULS PLQ DYJ PD[        P
```

-

-

-

6.3 ping ipv6

IPv6

ping [vrf vrf-name | [oob] ipv6] [ipv6-address [via tunnel-name] [length length] [ntimes times] [timeout seconds] [data data] [source ipv6-address] [detail] [interval millisecond] [out-interface interface [**next-hop** *next-hop*]]]

oob	MGMT MGMT
vrf-name	VRF VRF
ipv6-address	IPv6
tunnel-name	oob
length	16~18024 100
times	1~ 4294967295
seconds	1~10
data	1-255
ipv6-address	IPv6 ::1
detail	‘ ’ ‘ . ’
interface	

I lAYD• u $ fòg 6°± ”G Çâ 5 ª ï&x ° k 0à ¿ k ê ›àVp N M ZÐ ZÐn ‰°t Ðtà €$ f •V €$ f b • b • á† •™ þ!ðÀ @pA

0

ping ipv6

‘Request receive error.’

ping ipv6 ping ipv6

DNS

1 ping ipv6 IP 2001::5

```
   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

   GHWDLSQ1QJ
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
```

```
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
5HSO\ IURP        E\WHV     WLPH  PV

6XFFHVV UDWH LV     SHUFHQW        URXQG WULS PLQ DYJ PD[        P
```

-

-

-

-

6.4 show rping detail

Rping

show rping detail

-	-

14

Rping

1 Rping

```
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\
```

Total owner number	
Total test number	
owner	
test name	
storage type	

-

6.5 traceroute

IPv4

traceroute [oob | ip] [**s** [probe **n**] [source **s**] [timeout **s**] [ttl **n** **n**] [out-interface interface [next-hop next-hop]]]

oob	MGMT MGMT
s	IPv4
n	1~255
s	IPv4 127.0.0.1
s	1~10
n	TTL 1~255
interface	
next-hop	IPv4

3 3 TTL 1 255

traceroute traceroute

0

Traceroute

DNS

1 traceroute

```
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
```

IP 61.154.22.36 1

6

2 traceroute

```
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
```

```
                    PVHF    PVHF    PVHF
                     PVHF    PVHF    PVHF
                     PVHF    PVHF    PVHF
                     PVHF    PVHF    PVHF
                    PVHF    PVHF    PVHF
```

IP 202.108.37.42 1

17 4

3

```
5XLMLH WUDFHURXWH ZZZ LHWI RUJ
7UDQVODWLQJ ZZZ LHWI RUJ >2.@
 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
                     PVHF   PVHF   PVHF
                     PVHF   PVHF   PVHF
                     PVHF   PVHF   PVHF

                   PVHF   PVHF   PVHF
```

-

-

-

6.6 traceroute ipv6

IPv6

traceroute [vrf *vrf-name* | [oob] ipv6 [*dest-ipv6-address* [via *egress-type*] [probe *probe-num*] [timeout *timeout*] [ttl *min-ttl* [*max-ttl*]] [out-interface *interface* [**next-hop** *next-hop*]]]

oob	MGMT MGMT
vrf-name	VRF VRF
dest-ipv6-address	IPv6
egress-type	oob
probe-num	1~255
timeout	1~10
min-ttl *max-ttl*	TTL 1~255
interface	
next-hop	IPv6

3 3 TTL 1 255

traceroute ipv6 traceroute ipv6

0

Traceroute ipv6

DNS

1 traceroute ipv6

```
5XLMLH WUDFHURXWH LSY
   SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                    PVHF   PVHF   PVHF
                    PVHF   PVHF   PVHF
                    PVHF   PVHF   PVHF
                    PVHF    PVHF    PVHF
```

IP 3004::1 1 4

2 traceroute ipv6

```
5XLMLH  WUDFHURXWH LSY
   SUHVV &WUO & WR EUHDN !
7UDFLQJ WKH URXWH WR
                    PVHF    PVHF    PVHF
                    PVHF    PVHF   PVHF
                    PVHF    PVHF    PVHF


                    PVHF     PVHF     PVHF
```

IP 3004::1 1 5

4

-

-

-

-

-

1.
2. NSM

1

1.1 accept-lifetime

accept-lifetime *start-time* { **infinite |** *end-time* **| duration** *seconds* }

no accept-lifetime

start-time	
infinite	
end-time	start-time
duration *seconds*	start-time 1-2147483646

14

1.2 ip as-path access-list

AS

ip as-path access-list *path-list-num* { **permit** | **deny** } *regular-expression*

AS

no ip as-path access-list *path-list-num* [{ **permit** | **deny** } *regular-expression*]

path-list-num	AS AS 1---500
permit	
deny	
regular-expression	1..255

14

1 AS AS 123

1 **show running-config**

1 AS

2

3 AS

-

-

1.3 ip community-list

ip community-list { *community-list-number* **| standard** *community-list-name* } { **permit | deny** } [{ *community-list-number* | **internet** | **local-AS** }]

ip community-list { *community-list-number* | **expanded** *community-list-name* } { **permit | deny** } [*regular-expression*]

no ip community-list { { **standard** | **expanded** } *community-list-name* | *community-list-number* }

standard	
expanded	
community-list-name	80
community-list-number	1-99 100-199
permit	
deny	
community-number	AA:NN(2) 0-4294967295
internet	Internet
local-AS	AS

2	internet

1 **show running-config**

1

2 80

3

4

5

6

-

-

1.4 ip extcommunity-list

Route Map Route Map BGP/MPLS VPN VPN

ip extcommunity-list {*expanded-list* | **expanded** *list-name* } { **permit | deny** } [*regular-expression*]

ip extcommunity-list {*standard-list* **| standard** *list-name* } { **permit | deny** } [**rt** *value*] [**soo** *value*]

no ip extcommunity-list {*expanded-list* **| expanded** *list-name* **|** *standard-list* **| standard** *list-name* }

ip extcommunity-list

ip extcommunity-list {*expanded-list* | **expanded** *list-name*| *standard-list* | **standard** *list-name* }

no ip extcommunity-list {*expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name*}

expand-list	[100~199] extcommunity
standard-list	extcommunity

2 ip extcommunity

1 **show running-config**

prefix-list-name	
seq-number	1 2147483647 5 5
deny	
permit	
ip-prefix	0 32
minimum-prefix-length	( ) **ge** **ge le**
maximum-prefix-length	( ) **le** **ge le**

14

ip prefix-list IP permit deny

ge le

ip-prefix ge le ip-prefix

ge minimum-prefix-length 32 ß2 ˆ+ ó \2 sÐO•Ÿp |\TU0uP Ð Œ •(

1 **show running-config**

-1

-

-

1.6 ip prefix-list description

ip prefix-list *prefix-list-name* **description** *descripton-text*

no ip prefix-list *prefix-list-name* **description**

prefix-list-name	
descripton-text	

14

-

1 IP

-

1.7 ip prefix-list sequence-number

ip prefix-list sequence-number

no ip prefix-list sequence-number

no key *key-id*

key-id	ID	0-2147483647

-

14

-

1 ripkeys 1

1 **show running-config**

-

-

-

1.9 key chain

key chain *key-chain-name*

no key chain *key-chain-name*

key-chain-name	

-

14

1 ripkeys

exact-match

1 **match** 1 **set** **match** **set**

1 1 20

1 **show running-config**

-1 name Community-list

-

14

match interface

OSPF

RIP RIP OSPF

route maps

1 **match** 1 **set** **match**

set

1 OSPF RIP GigabitEthernet 0/0 RIP

1 **show running-config**

-1 interface 4

intebitEth]T/C2_0 1 Tf0 Tc 4.08 0 Td[<0417>7<07830ADD0E0438500B66430500436B2406140914386643054

1.13 match ip address

match ip address { *access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...*| *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*] }

no match ip address [*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...* | *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]]

access-list-number	1-99 1300-1999 100-199 2000-2699

tmAV8ÐÓétmAVèµpfF ÚgFûÿÞž

[*access-list-number...* | *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*] }

no match ip next-hop [*access-list-number* [*access-list-number...* | *access-list-name...*] | *access-list-name* [*access-list-number...* | *access-list-name*] | **prefix-list** *prefix-list-name* [*prefix-list-name...*]]

access-list-number	1-99 1300-1999 100-199 2000-2699
access-list-name	-l0E.6 ref]30615.9 T

access-list-name	
prefix-list *prefix-list-name*	

1	GigabitEthernet 1/0	500	GigabitEthernet 1/2

1 **show running-config**

-

-

1.17 match metric

match metric *metric*

no match metric

metric	0-4294967295

-

1 **match** 1 **set** **match** **set**

1 OSPF RIP 10 RIP OSPF

1 **show running-config**

-

-

-

1.18 match route-type

match route-type { **static | connect | rip | local | internal | external** [**type-1 | type-2**] }

no match route-type [**static | connect | rip | local | internal | external** [**type-1 | type-2**]]

static	
connect	
rip	RIP
local	
Internal	OSPF
external	(OSPF)
type-1 | **type-2**	OSPF 1 2

-

14

OSPF

RIP RIP OSPF

IP

14

match tag tag

OSPF

RIP RIP OSPF

IP

route maps

1 **match** 1 **set** **match**

set

1 RIP OSPF RIP OSPF 50 80

> 1 **show running-config**

: -1 tag 4 :

-

-

1.20 memory-lack exit-policy

lower

memory-lack exit-policy { **ospf** | **Rip** }

no memory-lack exit-policy

ospf	OSPF
rip	RIP

14

lower

-

1 **show running-config**

-

-

-

1.21 route-map

	permit match set
deny	deny match deny match set

sequence-number

1 **show running-config**

-1 route-map 32

-

-

1.22 send-lifetime

send-lifetime *start-time* { **infinite |** *end-time* **| duration** *seconds* }

no send-lifetime

start-time	
infinite	
end-time	start-time
duration *seconds*	start-time

-

-

1.23 set default interface

match

set default interface *interface-type interface-number* [*…interface-type interface-number*]

no set default interface *interface-type interface-number* [*…interface-type interface-number*]

interface-type	
interface-number	

-

14

set default interface

1

down **set** **set**

1 serial 1/0 500

GigabitEthernet 1/0

1 **show running-config**

1 interface 4

2 interface GigabitEthernet 0/0

-

-

1.24 set interface

match

set interface *interface-type interface-number* [*…interface-type interface-number*]

no set interface *interface-type interface-number* [*…interface-type interface-number*]

interface-type	
interface-number	

down **set** **set**

null 0

1 serial 1/0 500 GigabitEthernet 0/0

1 **show running-config**

1 ne]T/C2_0 1 Tf0 Tc 0408 4 Td[<07170A83>7<07ADDB00B]T/TT0 1 Tf-4F0011 1 T.(4Tj/C2_0 1 Tf0 . 4 Td[<0

14

set WCMP WCMP
weight

-

-

1.26 set ip dscp

match DSCP

set ip dscp *dscp_value*

DSCP

no set ip dscp

dscp_value	IP IP DSCP

-

14

-

-

1 **show running-config**

-1 set ip tos/precedence

-

-

1.27 set ip next-hop

match IP

set ip next-hop *ip-address* [*weight*] [*…ip-address* [*weight*]]

IP

no set ip next-hop [*ip-address* [*weight*] [*…ip-address* [*weight*]]]

ip-address	IP
weight	

-

14

set WCMP WCMP

weight WCMP

set ip next-hop IP 32

ip address weight 4 nexthop *f* › ;MÞ. {è‘– þtC2_8288 2 *f* › [MÞ.

•G ¨

1 **show running-config**

-

-

-

1.28 set ip next-hop verify-availability

IP

set ip next-hop verify-availability *ip-address* [**track** *track-obj-number*]

no set ip next-hop verify-availability *ip-address* [**track** *track-obj-number*]

ip-address	IP
track	
track-obj-number	

-

14

1 192.168.1.2 1

1 **show running-config**

-

-

-

1.29 set ip precedence

match IP

set ip precedence { *number* | **critical** | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine** }

IP

no set ip precedence

number	IP 0-7 7 critical 6 flash 5 flash-override 4 immediate 3 internet 2 network 1 priority 0 routine
critical | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine**	IP

-

14

IP IP

set ip precedence

IP

1 GigabitEthernet 0/0 192.168.217.68 precedence 4

1 **show running-config**

-1 set ip dscp

-

-

1.30 set ip tos

match IP TOS

set ip tos { *number* | **max-reliability | max-throughput | min-delay | min-monetary-cost | normal** }

no set ip tos

number	IP TOS 0-15
max-reliability | max-throughput | min-delay | min-monetary-cost | normal	IP **max-reliability** 2 **max-throughput** 4 **min-delay** 8 **min-monetary-cost** 1 **normal** 0

-

14

IP TOS IP
IP TOS

1 GigabitEthernet 0/0 192.168.217.68 tos 4

1 **show running-config**

-1 set ip dscp

-

-

1.31 set level

match
set level { **stub-area** | **backbone** }

no set level

stub-area	OSPF Stub Area
backbone	OSPF

-

14

-

1 OSPF RIP backbone

set metric

‘ + ’ ‘ - ’ metric RIP metric

1-16

OSPF

RIP RIP OSPF

IP

route maps

1 **match** 1 **set** **match**

set

1 OSPF RIP 40

1 **show running-config**

-

-

-

1.33 set metric-type

match

set metric-type *type*

no set metric-type

type	OSPF type-2

-

14

OSPF

RIP RIP OSPF

IP

14

OSPF

RIP RIP OSPF

IP

route maps

1 **match** 1 **set** **match**

set

1 1 192.168.1.2

1 **show running-config**

1 IP A 0 127 B C

-

-

1.35 set tag

match

set tag *tag*

no set tag

14

1 OSPF RIP 100

1 **show running-config**

-

-

-

1.36 show ip as-path-access-list

show ip as-path-access-list [*num*]

num	as-path-access-list

14

as-path-access-list

1 AS

AS path access list	AS
permit	
^30$	

-

-

1.1 show ip community-list

show ip community-list [*community-list-number* | *community-list-name*]

community-list-number	1-99 100-199
community-list-name	80

14

1

permit	
local-AS	
0:10	

-

-

1.37 show ip extcommunity-list

show ip extcommunity-list [*extcommunity-list-num* | *extcommunity-list-name*]

extcommunity-list-num	[1~199] id extcommunity
extcommunity-list-name	extcommunity

14

-

1

Standard extended community-list 1	
10	
permit	
RT:1:200	

-

-

1.38 show ip prefix-list

show ip prefix-list [*prefix-name*]

prefix-name	

14

1 IPv4

ip prefix-list pre	IPv4
2 entries	
seq 5	
permit	
192.168.64.0/24	IPv4

-

-

1.39 show ip protocols

IPv4

show ip protocols { **Ospf | Rip** }

ospf	OSPF
rip	RIP
-	

14

-

-

-

1.40 show key chain

show key chain [*keychain name*]

keychain name	

14

1

key chain	
key	id
accept-lifetime	
send-lifetime	

-

-

1.41 show route-map

show route-map [*route-map-name*]

route-map-name	

14

1

route-map	
Permit	permit
sequence 10	
Match clauses	permit deny set
Set clauses	match

-

-

ip-address	ipv4

14

no ip routing

192.168.1.1

show ip redirects

-

-

-

2.3 ip default-network

ip default-network *network*

no ip default-network *network*

default ip default-network *network*

network	

0.0.0.0/0

14

default-network

network	
net-mask	
ip-address	ip-address interface ip-address
interface	ip-address interface interface
distance	1
tag	Tag 0
permanent	
track *object-number*	track ,object-number track id track
weight *number*	1
descriptio80785.6c 065p(734#d-tex	

1	172.16.100.0/24	192.168.12.1	115
2			
		172.16.100.0/24	GigabitEthernet 0/0

show ip route

-

-

-

2.5 ip routing

RGOS

no ip routing

no ip routing

ip routing

no ip routing

RGOS IP

-

-

-

-

2.6 ip static route-limit

ip static route-limit *number*

no ip static route-limit

default ip static route-limit

number	1-10000

900

(default value: 1024)

-

-

-

-

2.7 show ip redirects

show ip redirects

-	-

14

no ip routing

show ip redirects

Default Gateway	ip

-

-

2.8 show ip route

IP

show ip route [[*network* [*mask* [**longer-prefix**]] | **count** | *protocol* [*process-id*] | **weight**]]

ecmp IP

show ip route [[**normal** | **ecmp**] [*network* [*mask*]]]

network	
mask	
longer-prefix	( )
count	ECMP/WCMP
protocol	**connected**, **static** **ospf**, **rip**
process-id	
weight	
normal	

14

show ip route **normal** | **ecmp** | **fast-reroute**

1 **show ip route**

2 **show ip route** *network*

3 **show ip route count**

4 **show ip route weight**

5 **show ip route normal**

6 **show ip route ecmp**

7 **show ip route fast-reroute**

8 **show ip route fast-reroute** *network*

O	C L S R RIP B BGP O OSPF I IS-IS
E2	E1 OSPF E2 OSPF N1 OSPF NSSA 1 N2 OSPF NSSA 2 SU IS-IS L1 IS-IS 1 L2 IS-IS 2 IA
20.0.0.0/8	
[1/0]	
Via 20.0.0.1	IP
00:00:06	
VLAN 1	
Routing Descriptor Blocks	IP BGP

isis,bgp

-

-

2.9 show ip route summary

show ip route summary

14

-

1. ACL
2. SSH
3. ITBOX
4. AAA
5. RADIUS
6. TACACS+
7. Web
8. IP+MAC
9. IP-GROUP
10. LINK-SAM
11. FLOW-ACCOUNT
12. webservice
13.

1 ACL

1.1

id	ACL IP ACL 1-99 1300-1999 IP ACL 100-199 2000-2699 MAC ACL 700–799 ACL 2700–2899
name	ACL
sn	ACL ( )
start-sn	
inc-sn	
deny	
permit	
port	IPv4 eigrp gre ipinip igmp nos ospf icmp udp tcp ip IP 0-255 icmp/tcp/udp
interface idx	
src	
src-wildcard	0.255.0.32
pfix-len	
dscp	, 0-63

tos	0-15
cos	cos (0-7)
cos inner cos	tag cos
icmp-type	ICMP 0-255
icmp-code	ICMP 0-255
icmp-message	ICMP
operator port[port]	Operator lt- eq- gt- neq- range- port
src-mac-addr	
dst-mac-addr	
VID vid	vlan id
VID inner vid	tag vid
ethernet-type	0x
match-all tcpf	tcp flag
established	tcp flag rst ack
text	
in	
out	
{rule mask offset}+	rule mask offset “+”
log	ACL

A	MAC	0	O	TTL	34
B	MAC	6	P		35
C		12	Q	IP	36
D	VLAN tag	14	R	ip	38
E	DSAP( )	18	S	ip	42
F	SSAP( )	19	T	TCP	46
G	Ctrl	20	U	TCP	48
H	Org Code	21	V		50
I		24	W		54
J	IP	26	XY	IP	58
K	TOS	27	Z	flags	59
L	IP	28	a	Windows size	60

M	ID	30	b		62
N	Flags	32			

1.2 access-list

ACL ACL ACL ACL

1. IP ACL ACL ACL

access-list *id* { **deny** | **permit** } { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**]

2. IP ACL ACL ACL

access-list *id* { **deny** | **permit** } *protocol* { *source source-wildcard* | **host** *source* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**]

3. MAC ACL ACL ACL

access-list *id* { **deny** | **permit** } { **any** | *src-mac-addr* mask } { **any** | *dst-mac-addr* mask } **[cos** [*out*] **[inner** *in*]]

4. ACL ACL ACL { **uppe (0dc)807Tc 0[0]-9.33-1.733[Td[2 1.38**-0.00200 T

{ **any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

access-list *id* { **deny** | **permit** } **tcp** [**VID** [*out*] [**inner** *in*]] { *source source-wildcard* | **host** *Source* | **any** } { **any** } [**operator** port [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [**operator port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

User Datagram Protocol (UDP)

access-list *id* { **deny** | **permit** } **udp**[**VID** [*out*] [**inner** *in*]] { *source source –wildcard* | **host** *source* | **any** } { **any** } [**operator port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [**operator port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

ACL

no access-list *id*

id	ACL IP ACL 1-99 1300-1999 IP ACL 100-199 2700 – 2899 MAC ACL 700 – 799 ACL 2000-2699
deny	
permit	
source	
source-wildcard	0.255.0.32
protocol	IP EIGRP GRE IPINIP IGMP NOS OSPF ICMP UDP TCP IP IP 0-255 ICMP/TCP/UDP
destination	
destination-wildcard	0.255.0.32
precedence	
precedence	0-7
range	
lower	
upper	
time-range	o• o•

operator	lt- eq- gt- neq- range-
port [*port*]	*range*
text	

ACL ACL

14

access-list

- IP ACL 1-99 1300-1999
- IP ACL 100-199 2000-2699
- MAC ACL 700-799 MAC
- 2700-2899 IP ACL IP ACL MAC ACL
  ACL ACL ACL VLAN ID

ˆ Њ ð õ Ζ Ʊ ˚ Μ ð ¡ Φ Μ ð Ŏ Н ő ł ` Ι Ă x в ç ş
precedence *precedence*/ **range** *lower upper*/ **time-range** *time-range-name* ¢

TCP Flag

- urg
- ack
- psh
- rst
- syn
- fin

- critical
- flash
- flash-override
- immediate
- internet
- network
- priority
- routine

- max-reliability
- max-throughput
- min-delay
- min-monetary-cost

- normal

ICMP

- administratively-prohibited
- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable
- host-unknown
- host-unreachable
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- router-advertisement
- router-solicitation
- source-quench
- source-route-failed
- time-exceeded
- timestamp-reply
- timestamp-request

- ttl-exceeded
- unreachable

TCP TCP

- chargen
- cmd
- daytime
- discard
- domain
- echo
- exec
- finger
- ftp
- ftp-data
- gopher
- hostname
- ident
- irc
- klogin
- kshell
- login
- nntp
- pim-auto-rp
- pop2
- pop3
- smtp
- sunrpc
- syslog
- tacacs
- talk
- telnet
- time
- uucp
- whois
- www

UDP UDP

- biff
- bootpc
- bootps
- discard
- dnsix
- domain

- echo
- isakmp
- mobile-ip
- nameserver
- netbios-dgm
- netbios-ns
- netbios-ss
- ntp
- pim-auto-rp
- rip
- snmp
- snmptrap
- sunrpc
- syslog
- tacacs
- talk
- tftp
- time
- who
- xdmcp

į Ä ACL Ą ő ℗ ACL ę ǫ **no** {**sn** | **permit** | **deny**} ⱬ ƈ Ä ¢

1 dP-1.773 TD<6FAC0B4609E5042004866FAD>Tj/TT0 1 Tf1.1288 6>]TJ0TT0 1 T7F604D50A980B7C.007 4E7TfE 1 TT

Expert Extended ACL ACL IP 192.168.12.3 MAC 00d0.f800.0044 TCP

1 **show access-lists** ACL ACL
2 **show access-lists** *id* ACL ACL
3 **show access-lists** *name* ACL ACL

ACL ACL

-

-

1.3 access-list list-remark

ACL

access-list *id* **list-remark** *text*

ACL

no access-list *id* **list-remark**

id	ACL IP ACL 1-99 1300-1999 IP ACL 100-199 2000-2699 MAC ACL 700–799 ACL 2700–2899
text	

ACL

14

ACL ACL ACL
ACL

1 1 ACL ACL “ this acl is to filter the host 192.168.4.12 ”

1 **show access-lists** ACL ACL
2 **show access-list** s ACL

1 **show access-lists** ACL ACL

2 **show access-lists** *id* ACL ACL

3 **show access-lists** *name* ACL ACL

ACL ACL

-

-

1.5 clear access-list counters

ACL deny

clear access-list counters [*id* | *name*]

id	ACL IP ACL 1-99 1300-1999 IP ACL 100-199 2000-2699 MAC ACL 700–799 ACL 2700–2899
name	ACL

14

ACL deny ACL deny

1 1 ACL

-

-

1.6 clear counters access-list

ACL

clear counters access-list [*id* | *name*]

id	ACL IP ACL 1-99 1300-1999 IP ACL 100-199 2000-2699 MAC ACL 700–799 ACL 2700–2899
name	ACL

14

ACL ACL

1 2700 ACL

ㅋ -

-

1.7

lower upper] [**time-range** *time-range-name*]

User Datagram Protocol (UDP)

[*sn*] **deny udp** { *source source –wildcard* | **host** *source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

3. MAC ACL

- MAC ACL ACL

[*sn*] **deny** { **any** } { **any** } [**cos** [*out*] [**inner** *in*]]

- MAC ACL ACL

no { *sn* | {**deny** { **any** } { **any** } [**cos** [*out*] [**inner** *in*]] } }

4. ACL

- ACL ACL

[*sn*] **deny**[*protocol* | [**cos** [*out*] [**inner** *in*]]] [[**VID** [*out*] [**inner** *in* € ACLm 1 ð (

[*sn*

[*icmp-message*]] [**precedence** *precedence*] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

[*sn*] **deny tcp** [[**VID** [*out*] [**inner** *in*]]] { *source source-wildcard* | **host** *Source* | **any** } { **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

User Datagram Protocol (UDP)

[*sn*] **deny udp [[VID** [*out*] [**inner** *in*]]] { *source source –wildcard* | **host** *source* | **any** } { **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

Address Resolution Protocol (ARP)

[*sn*] **deny arp** { **vid** *vlan-id* } [*source-mac-address source-wildcard* **| any**] [**host** *destination –mac-address* | **any**] { *sender-ip sender-ip–wildcard* | **host** *sender-ip* | **any** } { *sender-mac sender-mac-wildcard* | **host** *sender-mac* | **any** } { *target-ip target-ip–wildcard* | **host** *target-ip* | **any** }

sn	ACL
prefix-length	
flow-label	
flow-label	0-1048575
protocol	IPv6 IPv6 | icmp | tcp | udp <0-255>
time-range	
time-range-name	

ACL

ACL

14

ACL ACL

1 Expert Extended ACL ACL IP 192.168.4.12 MAC 001300498272 TCP

2 IP ACL IP 192.168.4.12 TCP 100
gigabitetetheernet 1/1

3 MAC ACL MAC 0013.0049.8272 100
gigabitetetheernet 1/1

-

-

-

1.8 ip access-group

ACL

ip access-group { *id* | *name* } { **in** | **out** }

ACL

no ip access-group { *id* | *name* } { **in** | **out** }

id	IP ACL IP ACL 1-199 1300-2699
name	IP ACL IP ACL
in	
out	

2 ACL ACL

-

-

1.9 ip access-list

IP ACL IP ACL ACL

ip access-list { **extended** | **standard** } { *id* | *name* }

ACL

no ip access-list { **extended** | **standard** } { *id* | *name* }

id	IP 1-99 1300-1999 100-199 2000-2699
name	IP

ACL

14

IP IP IP ACL IP
IP IP ACL IP ACL
deny **permit** **show access-lists** ACL

1 “ std-acl ” IP ACL

2 “ 123 “ ACL

14

IP ACL IP ACL

1 IP ACL

2 IP ACL

show running ACL

-

-

-

1.11 ip access-list log-update interval

IPv4 ACL

ip access-list log-update interval *time*

no ip access-list log-update interval

time	ACL ACL logging [0, 1440] 5 5 ACL 0 ACL logging

14

IP ACL IP ACL
ACL

1 1 ACL 21 43

1 **show access-lists** ACL
2 **show access-lists** *id* ACL
3 **show access-lists** *name* ACL

-

-

-

1.13 list-remark

ACL
list-remark *text*

ACL
no list-remark

text	

ACL

ACL

14

ACL ACL

access-list list-remark ACL

1 102 IP ACL “ this acl is to filter the host 192.168.4.12 ”

1 **show access-lists** ACL ACL

2 **show access-lists** *id* ACL ACL

3 **show access-lists** *name* ACL ACL

-

-

-

1.14 permit

ACL / ACL

5. IP ACL

- IP ACL ACL

[*sn*] **permit** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**]

- IP ACL ACL

no { *sn* | { **permit** { *source source-wildcard* | **host** *source* | **any** } [**time-range** *tm-range-name*] [**log**] } }

6. IP ACL

- IP ACL ACL

[*sn*] **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**]

- IP ACL ACL

no { *sn* | { **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*] [**log**] } }

ɪ IP ɳ ɨ ˬ ` I ş

Internet Control Message Protocol (ICMP)

[*sn*] **permit icmp** { *source source-wildcard* | **host** *source* | **any** } { *destination destination-wildcard* | **host** *destination* | **any** } [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

[*sn*] **permit tcp** { *source source-wildcard* | **host** *Source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [*operator* **port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

User Datagram Protocol (UDP)

[*sn*] **permit udp** { *source source –wildcard* | **host** *source* | **any** } [*operator* **port** [*port*]] { *destination destination-wildcard* | **host** *destination* | **any** } [**operator port** [*port*]] [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

7. MAC ACL

- MAC ACL ACL

[*sn*] **permit** { **any** | *source-mac-address mask*} { **any** | *destination -mac-address mask* } [**cos** [*out*] [**inner** *in*]]

- MAC ACL ACL

no { *sn* | { **permit** { **any** | *source-mac-address mask*} { **any** | *destination -mac-address mask* } [**cos** [*out*]

[**inner** *in*]] } }

8. ACL

- ACL ACL

[*sn*] **permit** [**protocol** | [**cos** [*out*] [**inner** *in*]]] **[VID** [*out*] **[inner** *in*] **]** { *source source-wildcard* | **host** *source* **| any } { any** } { *destination destination-wildcard* | **host** *destination* | **any** } { **any** } [**precedence** *precedence*] [**range** *lower upper*] [**time-range** *time-range-name*]

- ACL ACL

no { *sn* | { **permit** [**protocol** | [**cos** [*out*] [**inner** *in*]]] **[VID** [*out*] **[inner** *in*] **]** { *source source-wildcard* | **host**

Address Resolution Protocol (ARP)

[*sn*] **permit arp** { **vid** *vlan-id* } [**any**] [**host** *destination –mac-address* | **any**] { *sender-ip sender-ip–wildcard* | **host** *sender-ip* | **any** } { *sender-mac sender-mac-wildcard* | **host** *sender-mac* | **any** } { *target-ip target-ip–wildcard* | **host** *target-ip* | **any** }

sn	ACL
prefix-length	
flow-label	
flow-label	0-1048575
protocol	IPv6 IPv6 | icmp | tcp | udp <0-255>
time-range	
time-range-name	

```
```

```
3       MAC     ACL                     MAC     0013.0049.8272                  100
                gigabitethernet 1/1
```

```
```

```
4       ip      ACL                     IP      192.168.4.12                    1
```

```
```

```
6               ACL                     IP      192.168.4.12                    gigabitethernet
1/1
```

```
```

1	**show access-lists**	ACL	ACL
2	**show access-lists** *id*	ACL	ACL
3	**show access-lists** *name*	ACL	ACL

-

-

-

1.15 remark

ACL ACE

remark *text*

ACE

no remark *text*

text	

ACE

ACL

14

ACE

φ 100 š Ḍ ő в š ACL ئ Ч 2 ئ ¢

Ä ace ˜H ά ″ Ķ ace ˆ ŕ Ä ¢

1 102 IP ACL ACE

1 **show access-lists** ACL ACL

2 **show access-lists** *id* ACL ACL

3 **show access-lists** *name* ACL ACL

-

-

-

1.16 show access-group

ACL

show access-group [**interface** *interface-name*]

interface	

1.17 show access-lists

ACL ACL

show access-lists [*id* | *name*] [**summary**]

id	ACL
name	ACL
summary	ACL

14

ACL ACL ACL

1 “ n_acl ” ACL

2 ACL

-

-

1.18 show ip access-group

IP IP ACL

show ip access-group [**interface** *interface-name*]

interface *Interface-name*	

14

IP IP ACL IP IP ACL

1 GigabitEthernet 0/1 IP IP ACL

-

-

2 SSH

2.1 crypto key generate

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

rsa	RSA
dsa	DSA

SSH Server

14

SSH Server SSH **enable service** **ssh-server** SSH Server SSH 1 RSA SSH 2 RSA DSA RSA SSH1 SSH2 DSA SSH2

š w˝I ε dˇ ₅ ǫ ĸ ő ά p DSA ά RSA Ű ɱ ɾ Ɣ ɖ ő ̈ в w˝I ε ç ɾ Ű ɱ в ő ¯ λ w˝I ε ɭ Ẉ Ƙ ų ' ʅ ɖ ő , ɖ Ƙ DSA ά RSA ˜ ÷ ^ ¢

● RSA ˝Ḥ ÷ ɾ ₾ ϑy d 512 őDSA ˝Ḥ ÷ ɾ ₾ ϑy d 360 ő ʁ ɾ ₾ ˚˚ ϑy d ▬ 2048 ¢ SSH2 ő w˝I ε ō ɬ SCP - Ӟ w˝I ε Ŏ ά ɖ ε Ƙ ɾ ÷ ϑy d ǫ ˚˚ ĵ̈ ˥ 768 ¢ , ˝I ÷ RSA ά DSA ˝Ḥ ÷ ɾ ˝H ő ″ ˝Ḥ ÷ ₾ п 768 ĵ̈ ˚˚ 768 ¢

Ä ÷ ő в ˅ ⱬ Ƈ **no crypto key generate** ő ʜ ǫ ⱬ Ƈ **crte**

2 rsa

3 rsa 512~2048

-

-

2.2 crypto key zeroize

SSH

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

rsa	RSA
dsa	DSA

-

14

SSH Server DISABLE SSH Server **no enable service ssh-server**

1 rsa

1

2.3 disconnect ssh

SSH

disconnect ssh [**vty**] *session-id*

vty	vty
session-id	SSH 0~35

-

14

SSH SSH VTY
SSH SSH

1 SSH SSH

2 VTY SSH

1 **show ssh** SSH

-

-

-

2.4 ip scp server enable

SCP

ip scp server enable

SCP

14

SSH Server SSH Server

1 2

1 **show ip ssh** SSH Server

-

-

-

2.6 ip ssh cipher-mode

SSH Server

ip ssh cipher-mode { **cbc** | **ctr** | **others** }

no SSH Server

no ip ssh cipher-mode

cbc	SSH Server cbc cipher block chaining mode DES-CBC 3DES-CBC AES-128-CBC AES-192-CBC AES-256-CBC Blowfish-CBC
ctr	SSH Server ctr counter mode AES128-CTR AES192-CTR AES256-CTR
others	SSH Server others RC4

SSH Server cbc ctr

14

SSH Server

SSHv1 Server DES-CBC 3DES-CBC Blowfish-CBC SSHv2 Server AES128-CTR AES192-CTR AES256-CTR DES-CBC 3DES-CBC AES-128-CBC AES-192-CBC AES-256-CBC Blowfish-CBC RC4

“ cbc ” cipher block chaining mode “ ctr ” counter mode others

“ cbc ” “ others ”

SSH Server “ ctr ”

SSH Server

1 SSH Server ctr

-

-

-

-

2.7 ip ssh hmac-algorithm

SSH Server

ip ssh hmac-algorithm { **md5** | **md5-96** | **sha1** | **sha1-96** }

no SSH Server

no ip ssh hmac-algorith

md5	SSH Server	md5
md5-96	SSH Server	md5-96
sha1	SSH Server	sha1
sha1-96	SSH Server	sha1-96

SSH Server SSHv1 SSHv2 4 MD5 SHA1 SHA1-96 MD5-96

14

-

1 *test* RSA DSA

-

1 SSH Public Key 1024

2

-

-

2.9 ip ssh time-out

SSH Server

ip ssh time-out *time*

no ip ssh time-out

time	1~120s

120s

14

SSH Server 120s

1 100s

1 **show ip ssh** SSH Server

-

-

-

2.10 **ip ssh version**

SSH Server

ip ssh version { **1** | **2** }

no ip ssh version

1	SSH Server SSH1
2	SSH Server SSH2

SSH 1 2

14

SSH Server SSH SSH Server C20E SSH Server

1 **show ip ssh** SSH Server SSH

-

-

-

2.11 ipv6 ssh access-class

SSH Server IPv6 ACL

ipv6 ssh access-class *accessv6-list-name*

SSH Server IPv6 ACL

no ipv6 ssh access-class

accessv6-list-name	IPv6 ACL

-

14

SSH IPv6 ACL line IPv6 ACL
IPv6 ACL SSH IPv6 ACL SSH IPv6 ACL

1 SSH testv6 IPv6 ACL

-

-

-

-

2.12 **show crypto key mypubkey**

SSH Server

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

-

-

2.13 **show ip ssh**

SSH Server

show ip ssh

-	-

14

SSH Server SSH Server

1 SSH Server

SSH Enable/Disable	SSH Server /
version 1|2	SSH Server SSH
please generate rsa and dsa key to enable SSH	rsa/dsa SSH Server

Authentication timeout	
Authentication retries	
SSH SCP Server enaled/disabled	SSH SCP /

-

3 ITBOX

3.1 evpn-server clear-remark

evpn-server clear-remark sn *sn*

sn	

14

1

1 show evpn-server client

-

-

3.2 evpn-server delete

evpn-server delete sn *sn*

sn	

14

-

-

-

3.5 evpn-server reload

19606.

17806. M o 9Ëã uož

evpn-server reload sn *sn*

sn	

14

1

sn	
name	
manager	
phone	
province	
city	
district	

-

14

-

1

show evpn-server client

-

-

3.7 evpn-server reset

evpn-server reset sn *sn*

sn	

14

1

-

-

-

3.8 evpn-server shell

shell

evpn-server shell *all-clients* { **string** *scripts* | **file** *path* }

shell

evpn-server shell sn *sn* { **string** *scripts* | **file** *path* } [**with-result**]

sn	
scripts	
path	

14

with-result

1

“ ”

2 VPN

“ ”

-

-

1.1 evpn-server version

evpn-server version *product version*

no evpn-server version *product*

product	
version	

14

iTBox.tgz /mnt/sata0/evpn

1 RG-MA1210 1.0.0.1114

1 **evpn-server shell**

“ ”

-

-

3.9 show evpn-server client

show evpn-server client info

show evpn-server client offline [**province** *province*] [**city** *city*] [**district** *district*]

show evpn-server client online [**province** *province*] [**city** *city*] [**district** *district*]

show evpn-server client port-off [**province** *province*] [**city** *city*] [**district** *district*]

show evpn-server client sn *sn*

VPN

show evpn-server client vpn-off [**province** *province*] [**city** *city*] [**district** *district*]

VPN

show evpn-server client vpn-on [**province** *province*] [**city** *city*] [**district** *district*]

province	
city	
district	
sn	

14

1

2 VPN

-

-

3.10 **show evpn-server config**

show evpn-server config

-	-

4 AAA

4.1 aaa accounting commands

NAS

aaa accounting commands *level* { **default** | *list-name* } **start-stop** *method1* [*method2*...]

no aaa accounting commands *level* { **default** | *list-name* }

level	0~15
default	
list-name	
method	“ **none** **group** ” 4
none	
group	TACACS+

14

RGOS

none

1 TACACS+ 15

show aaa method-list

1 group

2 group

3

-

-

4.2 aaa accounting exec

NAS

aaa accounting exec { **default** | *list-name* } **start-stop** *method1* [*method2*...]

Exec

no aaa accounting exec { **default** | *list-name* }

default	Exec
list-name	Exec
method	“ **none** **group** ” 4
none	
group	RADIUS TACACS+

14

RGOS Exec

none Exec

NAS CLI Start

Stop Start

Stop

Exec Ę m – Ł ت . ų ҿ

o¬ Þ . ´ ðh à Â ÷@pÐK`d ,PiFúÐ Ex Wì! *ªí %' ’ Q BZ€• jÐExec

1 group

2 group

3

-

-

4.3 aaa accounting network

aaa accounting network { **default** | *list-name* } **start-stop** *method1* [*method2*...]

no aaa accounting network { **default** | *list-name* }

default	Network
list-name	
start-stop	
method	4
none	
group	RADIUS TACACS+

14

RGOS **start-stop**

1 RADIUS

show aaa method-list

1 group

2 group

3

-

-

4.4 aaa accounting update

aaa accounting update

no aaa accounting update

-	-

14

AAA AAA

1

show aaa accounting update

-

-

-

4.5 aaa accounting update periodic

aaa accounting update periodic *interval*

no aaa accounting update periodic

interval	1

5

14

AAA AAA

1 1

show aaa accounting update

1

-

-

4.6 aaa authentication enable

AAA Enable **aaa authentication enable** Enable

aaa authentication enable default *method1* [*method2*...]

no aaa authentication enable default

default	Enable Enable
method	“ local none group enable ” 4
local	
none	
group	RADIUS TACACS+
enable	enable

-

14

AAA Enable AAA Enable **aaa authentication enable** Enable

Enable Enable

:1 AAA Enable RADIUS RADIUS

show aaa method-list Enable

1 group

2 group

3

-

-

4.7 aaa authentication iportal

AAA Portal Web **aaa authentication iportal** Portal Web

aaa authentication iportal { **default** | *list-name* } *method1* [*method2*...]

no aaa authentication iportal { **default** | *list-name* }

Default	Portal Web
list-name	Portal Web
method	“ local none group subs ” 4
local	
none	
group	RADIUS
subs	subs

-

14

AAA Portal Web AAA Portal Web **aaa authentication iportal** Portal Web

1 rds_web AAA Portal Web RADIUS RADIUS

show aaa method-list iportal

1 group

2 group

3

-

-

4.8 aaa authentication login

AAA Login **aaa authentication login** Login

aaa authentication login { **default** | *list-name* } *method1* [*method2*...]

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

default	Login
list-name	Login
method	“ local none group subs ” 4
local	
none	
group	RADIUS TACACS+
subs	subs

-

14

AAA AAA Login **aaa authentication login** Login

Login Login

1 list-1 AAA Login RADIUS RADIUS

show aaa method-list Login

1 group

2 group

3

-

-

4.9 aaa authentication ppp

AAA PPP **aaa authentication ppp** PPP

aaa authentication ppp { **default** | *list-name* } *method1* [*method2*...]

no aaa authentication ppp { **default** | *list-name* }

default	PPP
list-name	PPP
method	“ local none group subs ” 4
local	

none	
group	RADIUS
subs	subs

-

14

AAA PPP AAA PPP **aaa authentication ppp** PPP

:1 rds_ppp AAA PPP RADIUS RADIUS

show aaa method-list PPP

1 group

2 group

3

-

-

4.10 aaa authentication sslvpn

AAA sslvpn **aaa authentication sslvpn** sslvpn

aaa authentication sslvpn { **default** | *list-name* } *method1* [*method2*...]

sslvpn

no aaa authentication sslvpn { **default** | *list-name* }

default	sslvpn
list-name	sslvpn
method	“ local none group subs ” 4
local	
none	
group	

4.11 aaa authorization commands

NAS CLI AAA

aaa authorization commands

aaa authorization commands *level* { **default** | *list-name* } *method1* [*method2*...]

AAA

no aaa authorization commands *level* { **default** | *list-name* }

level	0~15
default	
list-name	
method	“ none group ” 4
none	
group	TACACS+

AAA

14

RGOS AAA

14

14

1 TACACS+ 15

show aaa method-list

1 group

2 group

3

-

-

4.12 aaa authorization config-commands

AAA **aaa authorization config-commands**

aaa authorization config-commands

AAA

no aaa authorization config-commands

-	-

AAA

14

no

1

-

-

-

-

4.13 **aaa authorization console**

AAA **aaa authorization**

console

aaa authorization console

ð ð O O ož V V 0 0 ‘ ‘ • •

AAA Exec

no aaa authorization exec { **default** | *list-name* }

4.15 **aaa authorization network**

AAA

-

-

4.16 **aaa domain**

aaa domain { **default** | *domain-name* }

no aaa domain { **default** | *domain-name* }

default	
domain-name	

14

AAA default
domain-name
32

1

show aaa domain

-

-

-

4.17 aaa domain enable

AAA AAA

AAA

aaa domain enable

no aaa domain enable

-	-

AAA

14

AAA

1 AAA

show aaa domain

-

-

-

4.18 aaa local authentication attempts

login

aaa local authentication attempts *max-attempts*

max-attempts	1~2147483647

3

14

4.21 aaa log enable

AAA syslog aaa log enable

aaa log enable

AAA syslog

no aaa log enable

-	-

AAA syslog

14

AAA syslog

1 aaa syslog

show running-config aaa syslog

-

-

-

4.22 aaa log rate-limit

AAA syslog aaa log rate-limit

aaa log rate-limit *num*

AAA syslog

no aaa log rate-limit

num	syslog 0 - 65535 0 1 - 65535 5

5 5 AAA syslog

14

AAA syslog
syslog

1 AAA syslog 10

show running-config AAA syslog

-

-

-

4.23 **aaa new-model**

RGOS AAA **aaa new-model** AAA
aaa new-model

AAA
no aaa new-model

-	-

AAA

show aaa domain

-

-

-

4.25 accounting network

Network

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

no accounting network

default	
list-name	

default

14

Network

1 Network

show aaa domain Network

3

-

-

4.26 **authentication dot1x**

IEEE802.1x

authentication dot1x { **default** | *list-name* }

no authentication dot1x

-

-

4.27 **authorization network**

Network

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

no authorization network

-

4.28 clear aaa local user lockout

clear aaa local user lockout {

1

-

-

4.30 **show aaa domain**

show aaa domain [**default** | *domain-name*]

default	
domain-name	

14

1 domain.com

-

-

4.31 **show aaa group**

AAA

show aaa group

-	-

14

AAA

1 AAA

-

-

4.32 **show aaa lockout**

login

show aaa lockout

-	-

14

login

1 login

-

-

4.33 **show aaa method-list**

AAA

show aaa method-list

-	-

14

AAA

1 AAA

4.36 **username-format**

NAS

username-format { **without-domain** | **with-domain** }

no username-format

without-domain	
with-domain	

14

NAS

1

NAS

-

5.2 ip oob

AAA mgmt

ip oob

AAA mgmt

no ip oob

- -

-

14

aaa group server radius radius

mgmt

mgmt mgmt0

-

show radius group RADIUS oob

-

-

5.3 ip radius source-interface

RADIUS

ip radius source-interface *interface-name*

RADIUS

no radius source-interface *interface-name*

interface-name	radius

radius

14

radius nas radius
ip radius

1 radius FastEthernet 0/0 ip radius :

show running-config radius

-

-

-

5.4 radius set qos cos

radius qos cos

radius set qos cos

radius qos

no radius set qos cos

-	-

qos dscp

14

-

1

-

-

-

5.6 radius vendor-specific attribute support

radius

radius vendor-specific attribute support { cisco | huawei | ms}

radius

no radius vendor-specific attribute support { cisco | huawei | ms}

cisco	
huawei	
ms	

14

1 radius

2 radius

show running-config **show running-config**

-

-

-

5.7 radius vendor-specific extend

radius id

radius vendor-specific extend

id

no radius vendor-specific extend

-	-

id

14

id

1 radius id

show running-config

-

-

-

5.8 radius-server account attribute

RADIUS

radius-server account attribute *type* **package**

RADIUS

radius-server account attribute *type* **unpackage**

no radius-server account attribute *type* **package**

default radius-server account attribute *type* **package**

no radius-server account attribute *type* **unpackage**

default radius-server account attribute *type* **unpackage**

type	Radius	1-255

Ŵ å ở ų Ụ Ụ Ŵ ỏ i c Ű ụ̂ ü

radius radius cmcc

5.11 radius-server attribute class

RADIUS Class

radius-server attribute class user-flow-control { **format-16bytes** | **format-32bytes** }

RADIUS Class

no radius-server attribute class user-flow-control

user-flow-control	class
format-16bytes	class 16
format-32bytes	class 32

class

14

Class

1 Class 32

show running-config radius

-

-

-

5.12 radius-server attribute 31

RADIUS Calling-Station-ID MAC

radius-server attribute 31 mac format { **ietf | normal | unformatted** }

RADIUS Calling-Station-ID MAC

no radius-server attribute 31 mac format

ietf	ETF RFC3580 ‘ - ’ 00-D0-F8-33-22-AC
normal	MAC ‘ . ’ 00d0.f833.22ac
unformatted	00d0f83322ac

unformatted

14

RADIUS 802.1x IETF Calling-Station-ID IETF

1 RADIUS Calling-Station-ID IETF

show running-config radius mac

-

-

-

5.13 radius-server authentication attribute

RADIUS

radius-server authentication attribute *type* **package**

radius

radius-server authentication attribute *type* **unpackage**

no radius-server authentication attribute *type* **package**

default radius-server authentication attribute *type* **package**

no radius-server authentication attribute *type* **unpackage**

default radius-server authentication attribute *type* **unpackage**

type	Radius	1-255

RFC

14

RADIUS

RFC

no default

1 radius NAS-PORT-ID

radius radius 87

5.14 radius-server authentication vendor

RADIUS

radius-server authentication vendor [cmcc | microsoft | cisco] package

no radius-server authentication vendor *vendor_name* **package**

default radius-server authentication vendor *vendor_name* **package**

cmcc | microsoft | cisco	cmcc microsoft cisco

14

RADIUS

1 radius cmcc

radius radius cmcc

5.15 radius-server dead-criteria

RADIUS

radius-server dead-criteria { **time** *seconds* [**tries** *number*] | **tries** *number* }

RADIUS

no radius-server dead-criteria { **time** *seconds* [**tries** *number*] | **tries** *number* }

time *seconds*	RADIUS RADIUS 1-120
tries *number*	RADIUS RADIUS 1-100

time *seconds* 60
tries *number* 10

14

RADIUS RADIUS

1 120 20

show radius parameter RADIUS

-

-

-

5.16 radius-server deadtime

RADIUS

radius-server deadtime *minutes*

RADIUS

no radius-server deadtime

minutes	RADIUS 1-1440 24

minutes 0 RADIUS RADIUS

14

RADIUS **radius-server deadtime**

RADIUS RADIUS **radius-server deadtime**

1 1

show radius parameter RADIUS

14

RADIUS AAA RADIUS **radius-server host** RADIUS RADIUS RADIUS RADIUS radius

1 IPv4 RADIUS

2 IPv4 RADIUS 60 UDP

3 IPv6 RADIUS

show radius server RADIUS

-

-

5.18 **radius-server key**

RADIUS

radius-server key [**0** | **7**] *text-string*

no radius-server key

text-string	
0 | **7**	0 7

14

RADIUS RADIUS
RADIUS

1 RADIUS aaa

show radius server RADIUS

-

-

-

5.19 radius-server retransmit

RADIUS
radius-server retransmit *retries*

no radius-server retransmit

retries	RADIUS 1-100

3

14

AAA
RADIUS

-

-

-

5.20 **radius-server source-port**

RADIUS

radius-server source-port *port*

no radius-server source-port

port	1-65535

14

RADIUS

1 radius 10000

port1	
port2	

14

1 ss 192.168.4.12 5 6

show radius group	RADIUS

-

aaa group server	aaa
show aaa group	aaa

-

-

5.23 **show radius acct statistics**

RADIUS

show radius radius acct statistics

-

1 RADIUS

-

-

5.25 **show radius auth statistics**

RADIUS

show radius auth statistics

-	-

14

-

1 RADIUS

-

-

5.26 **show radius group**

RADIUS

show radius group

1 RADIUS

-

-

5.28 **show radius server**

RADIUS

show radius server

-	-

14

-

1 RADIUS

-

-

5.29 **show radius vendor-specific**

RADIUS

show radius vendor-specific

-	-

14

-

1 RADIUS

-

-

6.2 ip oob

TACACS+ mgmt

ip oob

TACACS+ mgmt

no ip oob

-	-

-

TACACS+

14

aaa group server tacacs+ TACACS+

mgmt mgmt0

-

interface-name	tacacs+

tacacs+

14

tacacs+ nas tacacs+
ip tacacs+

1 tacacs+ gigabitEthernet 0/0 ip

show running-config tacacs+

-

-

-

6.4 server

TACACS+

server {*ipv4-address* }

no server {*ipv4-address* }

ipv4-address	IPv4

TACACS+

14

aaa group server tacacs+ TACACS+

TACACS+ **tacacs-server host**

TACACS+

1 tac1 TACACS+ 1.1.1.1 TACACS+

show running-config

-

-

6.6 tacacs-server host

show radius server

7 Web

7.1 accounting

accounting { *method-list* }

no accounting

method-list	

default

14

7.2 authentication

authentication { *method-list* }

no authentication

14

-

show web-auth template

-

-

-

7.4 clear web-auth direct-arp

arp

clear web-auth direct-arp

14

-

1 arp

-

-

7.5 clear web-auth direct-host

clear web-auth direct-host [range]

14

-

1

2

Ruijie# clear web-auth direct-host range

-

-

7.6 clear web-auth direct-site

clear web-auth direct-site [range]

14

-

1

1

Ruijie# clear web-auth direct-site range

-

-

7.7 clear web-auth group

clear web-auth group

14

-

1

-

-

7.8 clear web-auth user

clear web-auth user { **all** | **ip {** *ip-address }* | **mac** *mac-address* **| name** *name-string* ip {

nasip-str	ip
nasid-str	NAS ID
nasid2-str	NAS ID (nasid)
ac-name	
apmac-str	AP MAC
url-str	url
ssid-str	SSID
port-str	
ac-sno-str	ac
ap-sno-str	ap

md5

ARP

http redirect direct-arp { *ip-address* [*ip-mask*] }

no http redirect direct- arp { *ip-address* [*ip-mask*] }

ip-address	Ipv4
Ip-mask	Ipv4

ARP

14

Ipv4-address	Ipv4
Ip-mask	Ipv4
Arp	ARP CHECK ARP **arp** IPv4
Mac-address	MAC
Startip-address	ip
Endip-address	ip
Group-name	
Description-str	

14

Web Web

50

1 IP 172.16.0.1

2 MAC 0000:5e00:0101

3. 10.0.0.1 12.0.0.1

show web-auth direct-site [range]

1 IP/

-

-

7.12 **http redirect port**

HTTP WEB

http redirect port *port-num*

HTTP WEB

no http redirect port *port-num*

port-num	HTTP WEB

ή n HTTP HTTP

http redirect session-limit *session-num* [**port** *port-session-num*]

HTTP

no http redirect session-limit

seconds	*seconds* 1-10

3

14

HTTP GET/HEAD

HTTP GET/HEAD TCP

1 4

show web-auth parameter

-

-

-

7.15 **ip**

portal IP **ip**

ip { *ip-address* }

HTTP IP

no ip

ip-address	portal IPv4

portal IP

14

1 portal

show running-config

-

-

-

7.17 iportal nat enable

web NAT

iportal nat enable

no iportal nat enable

14

-

1 web

7.18 iportal retransmit

web http

iportal retransmit *times*

no iportal retransmit

times	

3

14

-

1 http 5

internet-name	
local-name	

14

-

1 web

-

-

-

-

7.21 **login-popup**

login-popup *url-string*

no login-popup

url-string	

14

http:// ĵ https:// ◖ ¢

1

show web-auth template

-

-

-

7.22 online-popup

online-popup *url-string*

no online-popup

url-string	

14

http:// ӈ https:// ◂ ¢

1

show web-auth template

-

-

-

7.23 page-suite

page-suite *filename*

no page-suite

Filename	

14

ڈ ζ FLASH ɾ portal/zip ˝ ȣ ¢

1

show web-auth template

-

-

-

7.24 **port**

portal

port { *port-num* }

no port

port	portal	http

50100 UDP

14

-

-

show web-auth template

-

-

-

7.25 redirect

redirect { ***http*** **|** ***js*** }

no redirect

http	HTTP 302 url
js	HTTP 200 js url

js cmcc http

14

-

-

show web-auth template

-

-

-

7.26 **show web-auth cgi**

CGI

show web-auth control

	QÐz•V° €i žVùà

14

-

1

Address	IP
Msk	IP

-

-

7.29 **show web-auth direct-host**

web

show web-auth direct-host [range]

-	-

14

1

Address	IP
Mask	IP

Set-request PDUs	ژ ï ă ɯ'Ǫ χ Set ت ∂ ï ă Ở'Ǫ
SNMP packets output	ژ. ï ă ɯ'Ǫ χ ژ. ï ă Ở'Ǫ
Too big errors (Maximum packet size 1472)	ژ. ï ă ɯ'Ǫ χ ٨ ذ ٤ ٨ ص 1472 Ề ` ζ ï ă Ở'Ǫ
No such name errors	ژ. ï ă ɯ'Ǫ χ ف No such name ﷺ ï ă Ở'Ǫ
Bad values errors	ژ. ï ă ɯ'Ǫ χ ف Bad values ﷺ ï ă Ở'Ǫ
General errors	ژ. ï ă ɯ'Ǫ χ ف General error ﷺ ï ă Ở'Ǫ
Response PDU	ژ. ï ă ɯ'Ǫ χ* Ẃف ﷺ ï ă Ở'Ǫ
Trap PDUs	ژ. ï ă ɯ'Ǫ χ ¸ ﷺ Trap ï ă Ở'Ǫ
SNMP global trap	ṕ Trap Ầ ↑ õ
SNMP logging	ṕ SNMP ṇ Ố Ầ ↑ õ
SNMP agent	ṕ SNMP ɲת Ầ ↑ õ

ώ˜ Ụ -

Ẉ ᴶ ب ˝ -

2.4 snmp trap link-status

ἔ Ầ ì گ Link Trap ı Ấ

snmp trap link-status

ژ ì گ Link Trap ı Ấ

no snmp trap link-status

‴Ǫ ب ˝

Ǫ	ώ ك
-	-

ỉ ڀ ل ỉ ù ï Ỉ ı Ấ ἔ Ầ þ ' ì ı Link ↑ õ ψ SNMP Ṅ ¸ LinkTrap

ɲ₩Ã ì ڀ ل₩Ã

ỉ ۱ 14

ŧ ″YṀ Ḿ ì ε Ꝋ θ ل ì Ap ì SVI ì ζ Ẹ ı Ấ ἔ Ầ`H þ ' ì ı Link ↑ õ ψ SNMP Ṅ ¸ Link Trap j

ڀ ل 1 χ ژ ì گ Link Trap ı Ấ

–

- Ḿ ɋ ⇔ ˆ ₿ ɲ - ◊ IP ʂ ɣ ɷ ⁽ ɲ ɸ Φ ɛ Ṫ ɹ ɲ ª Ỉ ◊ IP ʂ ɣ ɛ ỉ ᵽ Ȁ ɯ ɜ ɲ - ψ
- Ḿ ɋ ₿ ₰ Ḥ ɾ ɲ - ◊ IP ʂ ɣ Ḛ Ф ɻ ₿ Ḥ ɾ ʌ Ḥ ă ä ⁽ ɲ ɛ Ṫ ɹ ɲ ª Ỉ ◊ IP ʂ ɣ ɛ ˡ Ɋ ᵽ Ȁ ɲ - ψ

Ḿ j ᵖ ᔕ ◊ IP ʂ ɣ ɻ ɪ Ȁ ᵽ Ȁ ɯ ɜ ɲ - Ḥ ɪ * . community ɛ ɻ Ḿ SNMPv1 SNMPv2c ζ ă username ɛ ɻ Ḿ SNMPv3 ζ ð ˡ Ɋ ᵽ Ȁ ɲ - ă ɪ

ᵽ ɻ	1 χ ï ˻ SNMP ف ʌ ɲ -¸ م Ⱪ Ɋ 4 ف ʌ 4 Ⱪ ɲ -¸ م ª ჯ ħ 30 ت:
₅ ჯ Ä |	ɛ̈ À SNMP ѽ` گ ï ₅ ₩ ɪ ĺ ª ɪ ჭ ئ ₱ ᵉ ă ჭ ئ ɪ Ä ᵉ ڤ Φ ɯ ɜ ɲ - ف ʌ ɲ -¸ م ª ჯ ħ Ỉ ◊ IP ʂ ɣ Ⱪ ɯ ɜ ɲ - Ḥ õ log Ỉ IP Ţ ɻ ɋ ჯ ħ ɪ show snmp locked-ip ˡ Ɋ ˜ ჯ ħ ´ õ Ỉ IP ʂ ɣ
ώ˜ Ụ	-
Ẃ ȸ ჭ ئ	-
Ẉ ᴶ ᵽ ˝	-

2.6 snmp-server chassis-id

ᵽ ɻ ʌ ʌ ẑ .
snmp-server chassis-id *text*

Õ ʰ ȷ̂
no snmp-server chassis-id

Ɋ ᵽ ˝	Ɋ	ѽ ك
	text	ʌ ʌ ẑ ă ˡ Ɋ ĩ Ɋ È ă È ʎ

ȷ̂ ᵽ ɻ ẑ ȷ̂ ĩ 60FF60

ᵬ ₩ Ã ṕ ᵽ ɻ ₩ Ã

ȷ̂ ʌ 14

ɪ ˝ Ẏ Ṁ SNMP ʌ ʌ ẑ ˜ ɪ ẑ Ɋ Ḿ Ф ʱ ف Φ ⅋ ʌ ʌ ẑ ˡ Ɋ ص **show snmp** ᵬ ˜

ᵽ ɻ 1 χ ᵽ ɻ SNMP ʌ ʌ ẑ ᴕ 123456

ₛ ⱬ Ά | -

ώ˜ Ụ -

Ẃ ȣ ჯ ئ -

Ẉ ᴶ ب ˝ -

2.7 snmp-server community

ب ɻ ɲ - ᵉ ևڎ ں

snmp-server community [0 | 7] *string* [**view** *view-name*] [[**ro** | **rw**] [**host** *ipaddr*]] [**ipv6** *ipv6-aclname*] [*aclnum* | *aclname*]

ں ɲ - ᵉ

no snmp-server community [0 | 7] *string*

ΐΩ ب ˝

ΐΩ	ώ ك
0	´ ~ ڑ ﷺ þ È ١ ﷺ ˝ ă È ١
7	´ ~ ڑ ﷺ þ È ١ ﷺ ؎ ă È ١
string	þ È ١ ˀ Ę NMS SNMP ЂЛ ڑ ﷺ ن ؎
view-name	˝ Y ӈ ȣ g ﷺ ᵉ ٧ ɾ ᵍ ȣ g ﷺ ١ ת
ro	˝ Y ӈ NMS Ḿ MIB ﷺ ψ ؏ ΐ ح j ΐ ώ
rw	NMS Ḿ MIB ﷺ ψ ؏ ˡ ح ˡ
aclnum	ևڎ ´ ẑ (1-199 1300-2699) ΐ ˝ Y ӈ ﷺ ևڎ ´ ˝ Y ӈ ΐ ևڎ MIB ﷺ ipv4 NMS ş x ... ķ
aclname	ևڎ ´ ᵉ ٧ ΐ ˝ Y ӈ ﷺ ևڎ ´ ˝ Y ӈ ΐ ևڎ MIB ﷺ ipv4 NMS ş x ... ķ
ipv6-aclname	ipv6 ևڎ ´ ᵉ ٧ ΐ ˝ Y ӈ ﷺ ևڎ ´ ˝ Y ӈ ΐ ևڎ MIB ﷺ ipv6 NMS ş x ... ķ
ipaddr	ΐ NMS ş x ˝ Y ӈ ևڎ MIB ﷺ NMS ş x

ɻ ب ɻ ΆA õ þ ɻ ﷺ ح

ɲ ₩ Ã ṕ ب ɻ ₩ Ã

ɻ ١ 14

ŧ ˝YṀ Í ɲнж ŧ ф ɨ SNMP ɲђт ı ǐ ▯ч ٹ ɩ ɲ ˝Y ӈ ҏ ▯Ṟ ớ ҕ ԟ ڎ MIB ▯ NMS„ ҕ ч ч ɩ ڎ SNMP ɲђт ı ǐ ¨E Φ **no snmp-server** ɲ ˈ

ٹ ɻ 1 χ ٹ ɻ ҕ NMS ŧ public ▯ SNMP ҏ ԟ ڎ È ч Ḿ MIB ▯ԟ ڎ ىж ح

ɔ ڃ Ä | -

ώ˜ Ụ -

Ẃ ȣ ڇ ئ -

Ẉ ʲ ب ˝ -

2.8 snmp-server contact

ٹ ɻ ч ʌ ▯ ǐ ч Ä Ã

snmp-server contact *text*

ђ˝Y ӈ ▯ ǐ ч Ä Ã

no snmp-server contact

¨Ọ ب ˝

¨Ọ	ώ ك
text	ώ ك ч ʌ ǐ ч Ä Ã▯È ч

ǰ ٹ ɻ ч ʌ ǐ ч Ä Ã ж ч

ɲ₩Ã ṕ ٹ ɻ₩Ã

ǰ ʌ 14

ŧ ˝YṀ -

ٹ ɻ 1 χ ٹ ɻ SNMP ▯ч ʌ ǐ ч Ä Ã ж i-net800@i-net.com.cn

ɔ ڃ Ä | -

ώ˜ Ụ -

Ẃ ð ڃ ئ -

Ẉ ᴶ ب ˮ -

2.9 snmp-server enable secret-dictionary-check

ٻ ڵ Ḿ community user ڦ Φ ڑ È Ɛ ₅ ⁋

snmp-server enable secret-dictionary-check

2.10 snmp-server enable traps

ٻ ل Agent ڎ NMS گ Trap ╦ Ụ
snmp-server enable traps [*notification-type*]

ˆ ₿ SNMP NMS ڎ گ Trap ╦ Ụ
no snmp-server enable traps

ٛQٻ ˝

ٛQ	ώ ك
notification-type	ڎ گ Trap ١ ڙ ũ Ꝗ ï ١ ڙ χ snmp: SNMP TRAP ڼ˜ ψ bridge: BRIDGE TRAP ڼ˜ ψ mac-notification: MAC TRAP ڼ˜ ψ ospf: OSPF TRAP ڼ˜ ψ vrrp: VRRP TRAP ڼ˜ ψ web-auth: WEB ɲ - TRAP ڼ˜

ڸ ٻ ل ڸ ï ˆ ₿ SNMP NMS ڎ گ Trap ╦ Ụ

ɲЬ₩Ã ṕ ٻ ل₩Ã

ڸ ١ 14

ŧ ˝YṀ Ĵ ɲЬ ọ ɤ ɲЬ ṕ ٻ ل ɲЬ **snmp-server host** ٧ ŧ ɛ́ ĵ گ Trap ╦ Ụ
ḅ ' ≡ ũ˝Y ḧ Trap ١ ڙ ủ ٛA ũ Trap ١ ڙ

ٻ ل 1 χ ٻ ل ڎ گ SNMP Trap ╦ Ụ

₅ ڃ Ä | -

ώ˜ Ụ -

Ẃ ȸ ڇ ئ -

Ẉ ᴶ ٻ ˝ -

2.11 snmp-server flow-control

ٮ ل SNMP ╙ í

snmp-server flow-control pps [*count*]

Õ ᵸ SNMP ╙ í ⦋OBJ⦌ س ɲ

no snmp-server flow-control pps

″Ϙ ٮ ″	″Ϙ	ώ ك
	count	⅛ ١ ∫ ת⦋OBJ⦌ SNMP ت ∂ ĭ ă ″Ϙ ̧ ‗ ҕ <50-65535>

ỉ ٮ ل ỉ ٮ ل *count* ᵻ 300

ɲь ₩ Ã ṕ ٮ ل ₩ Ã

ỉ ١ 14

ɨ ″ Y Ṁ -

ٮ ل 1 χ ٮ ل ⅛ ١ ∫ ת 200 SNMP ت ∂ ĭ ă

ₛ ڃ Ά | -

ώ˜ Ụ -

Ẃ ծ ڃ ئ -

Ẉ ᴶ ٮ ″ -

2.12 snmp-server group

ٮ ل SNMP ɨ ″A ١

snmp-server group *groupname* { **v1** | **v2c** | **v3** { **auth** | **noauth** | **priv** } } [**read** *readview*] [**write** *writeview*] [**access** { **ipv6** *ipv6-aclname* | *aclnum* | *aclname* }]

ڻ ɨ ″A ١

no snmp-server group *groupname* { **v1** | **v2c** | **v3** {**auth** | **noauth** | **priv**} }

ӝ ب ˮ

ɔ˝Y ḧ SNMP ʖ ʂ ɤ

no snmp-server host [**oob**] { *host-addr* | **ipv6** *ipv6-addr* } [**traps | informs**] [**version** { **1** | **2c** | **3** { **auth** | **noauth** | **priv** }] *community-string* [**udp-port** *port-num*]

˝Ọ ب ˝

˝Ọ	ώ ك
oob	Ṅ ɾ ȮO ɲ ˝Y ḧ ʬ Ṿ ᵘ ڼ ε ˜ ˝Y ڼ ص MGMT È ɾ ȮO ɲ ζ õ ɱ ɸ ᵻ ʊ ᵻ MGMT ٦ ת H ɛ̇ õ أ ǰ ˚
host-addr	SNMP ʖ ʂ ɤ
ipv6-addr	SNMP ʖ ʂ ɤ ε ipv6 ζ
**traps	informs**	ب ل ʖ گ trap ĭ ă ف ĩ inform ĭ ă
version	ǰ˝O snmp ν V1 V2C V3
auth	**noauth**	**priv**	ب ل V3 ɤ Ä Ḡ ٦
community-string	ɒ È ١ ã̃ ɤ Ä ᵉ ε V3 ν ζ
port-num	ب ل snmp ʖ ٩
notification-type	ʖ گ Trap ١ ʒ ḅ snmp Trap Trap

ỉ ب ل ỉ ù ï ≡ õ SNMP ʖ

ɲ₩Ã ṕ ب ل ₩Ã

ỉ ٦ 14

ɤ˝YṀ Ỉ ɲʌ ṕ ب ل ɲ **snmp-server enable traps** ٧ ɤ ʖ ٨ NMS گ Trap ╦ Ụ
١ Ꞙ ب ل ^ j ª SNMP ʖ ɤ ì ώ Trap ╦ Ụ ʖ ١ Ꞙ ɤ j ª Trap ١ ʒ ٤ j ª ٩

ب ل 1 χ˝Y ḧ SNMP ʖ ì ώ SNMP Trap

ₛ ڃ Ä -

ώ˜ Ụ -

Ẃ ð ڄ ئ -

Ẉ ᴶ ب ˝

2.14 snmp-server inform

ٮ ل inform ő ؛ گ Ҝ ̋Ǫ ъ ٨ ٰH گ ٰH ژ

snmp-server inform [retries *retry-num* | timeout *time*]

Õ ᵸ inform ĭ ă ő ؛ ٮ Ҝ ̋Ǫ ٨ ٰH گ ٰH ژ

no snmp-server inform

̋Ǫ ٮ ″

̋Ǫ	ѽ ك
retry-num	Inform ĭ ă ő ؛ ٮ Ҝ ̋Ǫ ˵ ƕ ĩ <0-255>
time	Inform ĭ ă ٨ ٰH گ ٰH ژ ˵ ƕ ĩ <0-21474836>

ỉ ٮ ل ỉ ٮ ل *retry-num ѭ 3 time ѭ 15s*

ɲ₩Ã ṕ ٮ ل ₩Ã

ỉ ٨ 14

ŧ ″YṀ -

ٮ ل 1 χ ٮ ل inform

no snmp-server location

	text	

ǰ ㄏ 14

ɨ ″YṀ -

ᵽ ㅗ 1 χ ᵽ ㅗ ₱ ɨ ㅗ ㅓ Ụ

ₛ ⇂ Ä | -

ώ˜ Ụ -

Ẃ ȣ ⇂ ئ -

Ẉ ᴶ ب ″ -

2.17 snmp-server packetsize

ᵽ ㅗ SNMP Ɲת ϖ ᶻ ″Ǫ̃Ω ï ă ɜ ỷ
snmp-server packetsize *byte-count*

Õ″ ᵸ ǰ
no snmp-server packetsize

″Ǫ ب ″

″Ǫ	ώ ك
byte-count	″Ǫ̃Ω ᶻ ṇ 484 È ` 17876 È `

ǰ ᵽ ㅗ 1472 È `

ɲ₩Ã ṕ ₩Ã

ǰ ㄏ 14

ɨ ″YṀ -

ᵽ ㅗ 1 χ ᵽ ㅗ SNMP ϖ ᶻ ″Ǫ̃Ω ᶻ ṇ ᵿ 1492

ₛ ⇂ Ä | -

ώ˜ Ụ -

Ẃ ỏ ჭ ئ -

Ẉ ᴶ ب ˝ -

2.18 snmp-server queue-length

ب ـل Trap ╦ Ụ ï ă ⊠ ـک ذ ỷ

snmp-server queue-length *length*

Õ ʯ ʮ ỉ

no snmp-server queue-length

‵Ϙ ب ˝	‵Ϙ	ώ ك
	length	ـک ذ ỷ ᶻ ṇ 1 1000

ỉ ب ـل 10

ɲь ₩ Ã ṕ ب ـل ₩ Ã

ỉ ۱ 14

ŧ ″ Y Ṁ ڼ ص ذ ‵Ϙ ╦ Ụ ـک ᶻ ṇ ᵽ í ╦ Ụ گ ھ ỷ

ب ـل 1 χ ب ـل Trap ╦ Ụ ـک ذ ỷ ㎞ 100

ₛ ڃ Ä | -

ώ˜ Ụ -

Ẃ ỏ ჭ ئ -

Ẉ ᴶ ب ˝ -

2.19 snmp-server system-shutdown

ɲь₩Ã ṕ ٮ ل ₩Ã

ỉ ٨ 14

ŧ ″YṀ ŧ Í ɲь ا ٮ ل ڜ Trap ╦ Ụ Ạ Ṿ ٧ õ† Ã È ɟ ⿻È ɟ ´ ˜Ḥ'Y⿻õ ɛ ɨ ٧H ڑ È ɟ⿻ʊ ″Ọ˜Ω ١ ʒ ″Ọ˜Ọ„ ƀ ا ð RUIJIE-TRAP-FORMAT-MIB.mib ă ب ″

SNMP v1 Trap

ٮ ل 1 χ ″Y ḧ Trap ╦ Ụ Ạ Ṿ ٧ õ È ɟ

₅ ⱬ Ά | -

ώ˜ Ụ -

Ẃ ð ჭ ئ -

Ẉ ᴶ ب ″ -

2.21 snmp-server trap-source

″Y ḧ ڜ Trap ╦ Ụ⿻ ◊ ş χ

snmp-server trap-source *interface*

Õ″ ᵸ ỉ ٮ ل

no snmp-server trap-source

″Ọ ب ″

″Ọ	ώ ك
interface	ŧ ⾮ SNMP ◊ ş χ⿻ ì

ỉ ٮ ل SNMP ï ă ì ¸ ỗ ŧ ì ⿻ IP ş χ ⾮ ◊ ş χ

ɲь₩Ã ṕ ٮ ل ₩Ã

ỉ ٨ 14

ŧ ″YṀ ỉ ù ï SNMP ï ă ì ¸ ỗ ŧ ì ⿻ IP ş χ ⾮ ◊ ş χ ⾮ ٦ ת ٷ ا Œ ŧ Í ɲ ɖ ḧ ŧ ş IP ş χ ⾮ SNMP⿻ ◊ ş χ

ٮ ل 1 χ ˝Y ĥ Ꝙ θ ل 0/1 ⿲ IP ş χ ᠻ گ Trap ╦ Ụ⿲ ◊ ş χ

ₛ ڃ Ά | -

ώ˜ Ụ -

Ẃ ȸ ڃ ئ -

Ẉ ᴶ ب ˝ -

2.22 snmp-server trap-timeout

ٮ ل گ Trap ╦ Ụ پ ⿲ ʌ ՝H՝H ژ
snmp-server trap-timeout *seconds*

Õ ʱ ǰ ٮ ل
no snmp-server trap-timeout

˝Ꝙ ب ˝

˝Ꝙ	ώ ك
seconds	ʌ ՝H՝H ژ ᠻ ١ ɒ ˵ ɲ ϧ χ 1 – 1000

ǰ ٮ ل 30 ١

ɲ₩Ă ṕ ٮ ل ₩Ă

ǰ ۱ 14

ŧ ˝YṀ -

ٮ ل 1 χ ٮ ل گ Trap ╦ Ụ پ ⿲ ʌ ՝H՝H ژ ᠻ 60 ١

ₛ ڃ Ά | -

ώ˜ Ụ -

Ẃ ȸ ڃ ئ -

Ẉ ᴶ ب ˮ -

2.23

ب SNMP ɾ Ä

no snmp-server user *username groupname* {**v1** | **v2c** | **v3** }

Ä ب ˝

Ä	ώ ك
username	ɾ Ä ª
groupname	Ǐ ɾ Ä Ḿ Ẓ ɻ ª
v1 | **v2c** | **v3**	˝ Y ˝ SNMP v õ v3 ˁ Ḥ ' Y ɑ ˛ Ḡ Ä
encrypted	˝ Y ḧ ĩ Ḷ ژ Á Ã ѭ Ḷ ă ژ Ɯ ˝ ă ژ ḅ ' J̌ ˝ O Ɯ Ḷ ă ژ ـ ا ژ ف ɻ 16 ف Ä Ê È ɨ ˊ ~ Ḷ ɵ ├ Ỵ ɾ MD5 ɲ - Ḷ ɵ ذ ỷ ѭ 16 È ` ă SHA ɲ - ɲ Ḷ ɵ ذ ỷ ѭ 20 È ` Ɯ È ɨ ˊ ~ È ` ɾ Ḷ ˊ ~ Ḷ ɵ Ḿ Â ˝ Ḥ õ ᾧ
auth	˝ Y ḧ ĩ ɾ ڃ -
md5	˝ Y ḧ ɾ MD5 ɲ - ɲ **sha** ˝ Y ḧ ɾ SHA ɲ - ɲ
auth-password	ب ɻ ɲ - ɲ ɾ ɲь È ɨ ε j ʌ ص 32 È ɨ ζ ﻯ ﺍ Ṅ ف ɲь ج Ä ă Ẓ ɲ - Ḷ ɵ
priv	˝ Y ḧ ĩ ɾ Ḷ **des56** ˝ Y ˝ ɾ 56 DES ɾ Ḷ ɲ
priv-password	ѭ ɾ Ḷ ɾ ɲь È ɨ ε j ʌ ص 32 È ɨ ζ ﻯ ﺍ Ṅ ف ɲь ج Ä ă Ẓ ɾ Ḷ Ḷ ɵ
aclnum	ևڈ ˊ ẑ ǐ ˝ Y ḧ ևڈ ˊ ˝ Y ḧ ǐ ևڈ MIB ipv4 NMS ş ẋ ₎ ḡ
aclname	ևڈ ˊ ª ɻ ǐ ˝ Y ḧ ևڈ ˊ ˝ Y ḧ ǐ ևڈ MIB ipv4 NMS ş ẋ ₎ ḡ
Ipv6-aclname	ipv6 ևڈ ˊ ª ɻ ǐ ˝ Y ḧ ևڈ ˊ ˝ Y ḧ ǐ ևڈ MIB ipv6 NMS ş ẋ ₎ ḡ

ǰ ب ل ǰ ≡ ũ ب ل ɾ Ä

ɲь ₩ Ã ṕ ب ل ₩ Ã

ǰ ﺍ 14

ɾ ˝ Y Ṁ -

ب ل 1 χ ب ل SNMPv3 ɾ Ä ɾ MD5 ɲ - ɾ DES ɾ Ḷ

ɔ ڃ Ä | -

ώ ˜ Ụ -

Ẃ ȸ ڃ ئ -

-

1. HTTP-AD

1 HTTP-AD

1.1 in-path rule auto-discovery dstport port 80 accelerate http rulenum start

80 TCP

in-path rule auto-discovery dstport port 80 accelerate http rulenum start

TCP

no in-path rule all

	فِ	فِ

TCP

show in-path rules

-	-

14

TCP

1 TCP

-

1.3 show was http ad config

show was http ad config

-	-

Ů A N + y ď ! m r ρ Ġ a

1

-

1.4 show was http ad46 Tm(10tus g-0.001 Tf0.0001 -1.77332 0 10.5 123.7859 86 3g7)T

-

1.5 show was status

was

14

was

1 was

1 **show was status** was

-

-

1.7 was http ad enable

ad

was http ad enable

ad

no was http ad enable

-	-

ad

14

ad

1 ad

1 **show was http ad config** ad

-

was , was enable

1.8 was http ad url

was http ad url *string*

no was http ad url

string	

-

14

1

1.