RG-S2928G-S

RGOS 10.4(2b11)

V1.1

-	-

1.1.2 privilege

ҳ ҳ ˘ Л Љ Ю **privilege** ҳ Â ҳ **no** Л Љ ҳ ѝ Â

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

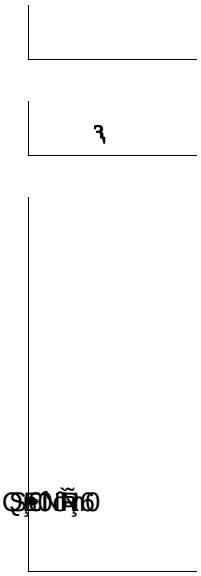
no privilege *mode* [**all**] [**level** *level*] *command-string*

mode	ҳ CLI
[**all**]	ҳ ҳ ˘ Л ѝ ˚ Â
level *level*	ҳ ˘ 0-15 Â
reset	ҳ ѝ Â
command-string	ҳ Â

Ю ĭ **privilege** ҳ Л CLI ҳ ˘ a˚ ˘ Л ҳ Л Л ˘ Ю˝ Л Љ **privilege ?** Л CLI ҳ Â

config	
exec	
interface	
ip-dhcp-pool	DHCP
keychain	KeyChain
keychain-key	KeyChain-key
time-range	Time-Range

ЉЮ ˘ CLI 1 ҳ ѝ ”test”˘ **reload** ҳ ˘ Л Љ Æ Â



ʒ

ʒ

╗ Â Ю ⁄ı ⁸ ╗ ʒ ˘

╗ Â

ʒ Ж Ю

- 1 26 Â
- ʒ ⁄ı Љ ˘ Â й ʒ ǂ Â

╗ ˘ ł ʒ˘ a

QEN ñ6 a Eîm• EXEC Â a ╗ ʒ Â ⁄ı

EXE_0 1 T<</3Â76D112B(pw)-8(10).994 1FF514E3>6<01C4>6383.0053 Tc /P<</MCID 3

ʒ

ʒ˘ ѝ password security ʒ ч Âpassword ѝ ╗ ʒ˘ ⁄ ѝ 15 ʒ Âsecurity ʒ ѝ ╗ ʒ˘ ⁄ Лъ ѝ 0 15 ʒ Â ˘ ˘ ˘ Лъ Э ч ʒ˘ password ʒ a Â 15 password ʒ˘ ˘ ╟ ѝ security ʒ' 15 password ʒ security ʒ ˘ ˘ ' ʒ Лъ╗ ˘ password ʒ ╗ ˘ security ʒ ╗ Â

Ю ʒ ѝ pw10˙

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

ʒ

ʒ	
enable password	a˘ ʒ Â

⁄

ʒ

-	-

2.1.5 enable service

б ╚^ SSH Server/Telnet Server/Web Server/Snmp Agent˜ ˘ Ю˘ ⁄ Лъ ʒ **enable service** ʒ'

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

	б SSH Server˘ ʒ˘ IPv4 IPv6 ╚'
	б Telnet Server

ʒ

ʒ б ╘Â **no enable service** ʒ ╘Â

Ю ʒ' enable service ssh-sesrver, SSH Server ╖ '

Ruijie(Config˜ # **enable service ssh-sesrver**

ʒ

ʒ	
show service	╘ '

ʎ

ʒ

-	-

2.1.6 execute

ʒ˘ ʒ **execute** ʒ Â

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

flash:	Э
filename	¨

ʒ

ʒ ʒ Â

¨ ʎ Љ ˘ PC Э

TFTP Flash Â ˘ ˘

CLI ʒ Â ˧ ˘ ʒ˘

˝I ˘ ʒ Â

Ю line_rcms_script.text˝ Э ʎ

Telnet

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

```
Ruijie# execute flash:line_rcms_script.text  transport input all
```

Э **lock** ҳ˘ Л Љ line Ю **lockable**

login

no login

-	-

line

AAA

VTY console

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

password	line

-	-

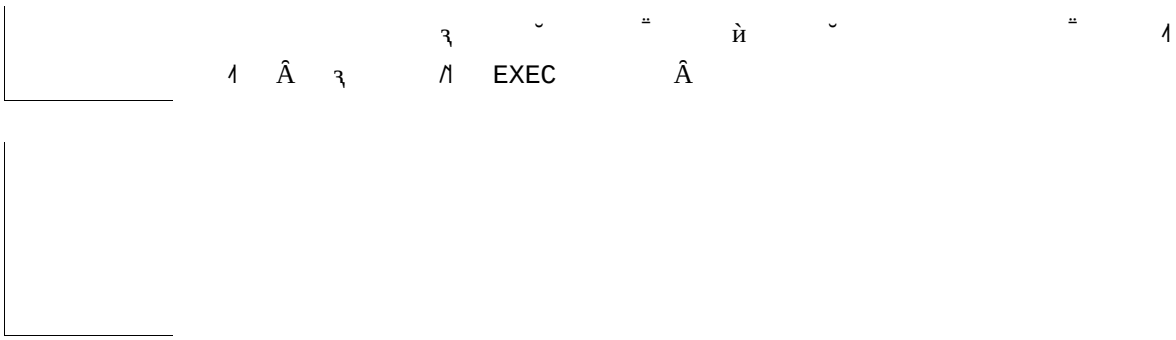
2.1.13 login authentication

AAA AAA

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

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

default	
list-name	


EXEC

Ruijie# **reload in** *10*

Router will reload in 600 seconds.

-	-

-	-

2.2.10 session-timeout

LINE **session-timeout** **no session-timeout** LINE

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

no session-timeout

minutes	
output	

0 min

LINE

ꝛ

show running-config

-	-

ꝛ

ꝛ

ꝛ	
-	-

ꝛ

-	-

2.3.5 show startup-config

NVRAM ˆ ˆ Э ˇ

ꝛ **show startup-config** Â

show startup-config

-	-

ꝛ

NVRAM ˆ ˆ Э startup-config ѝ ╟

Â

startup-config Flash ľ /config.text Ł Â

	-	-

	-	-

LINE ३

telnet	Line Ю Л Telnet Â
none	Line Ю a Â

˘ VTY Â è TTY ù NONE a
Â Л Љ ł˘ Л Љ **default transport input**
¾ ù Â

¾ Line

¾ Line Ю ÂVTY Ю Â
ł˘ Л Л Љ VTY Э ╗ Â **show**
running ¾ Line Ю Â

🕮	d**efault transport input** ¾ Â **no transport input** ¾˘ LINE Ю Â б **transport input none** ˚ Â

line vty 0 4 Ю Л telnet

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

¾	
show running	Â

Л RGOS10.1 Љ Э

ɛ ɜ

5

5.1

5.1.1 carrier-delay

Ю ҳ **carrier-delay** ˘ ҳ **no** Â

carrier-delay [*seconds*]

no carrier-delay

seconds	Л ˘ Лъ ѝ æ˘ 1 60 Â

2 Â

ҳ Â

DCD ÿ Down Up ˘
DCD Л ˘ ж Л a Э
Â
DCD ˘ ж ˘ Л Лъ ╗ ˘ Лъ
Л Лъ Â Л˘ DCD ˘ ж
˘ Лъ Â

ЛъЮ ѝ 5 ‘

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

ҳ	
-	-

Л

ҳ

-	-

5.1.2 clear counters

clear counters [*interface-id*]

interface-id	Â

ȝ Â

/ Л Ъ ȝ **show interfaces** ˘ Ю **clear counters** ȝ˘ / Л Ъ Â a ˘ Â

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

ȝ	
show interfaces	Â

/

-	-

5.1.3 clear interface

Æ

clear interface *interface-id*

interface-id	Â

Switch Port,L2 Aggregrate port ,Routed port,L3 Aggregate port

shutdown **no shutdown**

```
Ruijie# clear interface gigabitethernet 1/1
```


shutdown

ʒ

ʒ

ʎ Ʌ ˘ ὲ ╗ aggregate port Âaggregate port ὴ ˘ aggregate port ᾱ Â **show interfaces** **show interfaces aggregateport** ʒ Â

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

ʒ

ʒ	
show interfaces	Â

ʎ

ʒ

ʒ ʒ˘ ╟ ˆ switch virtual interface˘ SVI˜ ˘
Â ʒ **no** SVI Â

interface vlan *vlan-id*

no interface vlan *vlan-id*

vlan-id	VLAN ID˘ ᾱ Â

ʒ

show interfaces **show interfaces vlan** ʒ Â

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

ʒ

ʒ	
show interfaces	Â

ʎ

ʒ

-	-

5.1.11 line-detect

line-detect ʒ˘ ʎ Ɉ Â

line-detect

ʒ

line-detect ʒ ў ˘ ˆ ˜ ˘ Æ
Æ Â

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

```
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state     length(meters)
---- ---------- --------------
A   Ok        1
pair state     length(meters)
---- ---------- --------------
B   Ok        2
pair state     length(meters)
---- ---------- --------------
C   Short     1
pair state     length(meters)
---- ---------- --------------
D   Short     1
```

pairs	˘ √ Â
state	˘ Ь ‘ OK˜ ˜ ˘ Short˜ ˜ ˘ Open ˆ ˜ Â Ю˘ ”I √ A ầ B ч ѝ OK˜ C ầ D ч ѝ Short Â ”I √ A ầ B ầ C ầ D ѝ OK Â
length	˘ æ ѝ Â /ǀ state ѝ OK Â ˩ ˘ ˘ Ль /ǀ Â ѝ Short Open length Â

ʒ	
-	-

fiber	˝I
copper	

Â

ʒ

ˆ ˘ a Ap SVI˜

˘ ⁄ Л Ъ ˝I ч ˘ ⁄ ὲ Â
ɨ˘ ˘ ầ √ ầ ⁸ ˘
Â ⁄ ɨ˘ ὶ ὲ ˘ ⁄ Л Ъ
Â

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

ʒ

ʒ	
show interfaces	Â

⁄

24SFP/12GT . 12 SFP 12 10/100/1000M BASE-T ╟ ⌈ Â
SFP 0

ꝛ		
	-	-

5.1.17 switchport access

ꝛ ѝ **access port˘** ѝ VLAN Â
ꝛ no VLAN Â

switchport access vlan *vlan-id*

no switchport access vlan

vlan-id	╗ VLAN ID Â

switch port ѝ access˘ VLAN ѝ VLAN 1

ꝛ

VLAN ID Â VLAN ID˘ VLAN˘
ѝ VLAN Â VLAN ID˘ ╗ VLAN
Â trunkport˘ Â

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

ꝛ	
switchport mode	Y ˆ switch port˘ Â
switchport trunk	ѝ trunkport native VLAN Trunk /l VLAN Â

/l

ꝛ		
	-	-

5.1.18 switchport mode

```
Acsess vlan is 1,Native vlan is 1
Protected is disabled
Vlan lists is
1,3-4094
```

ʒ	
show interfaces	Â
switchport access	ѝ statics accessportʹ ѝ VLAN Â

-	-

5.2

5.2.1 show interfaces

ˇ Лъ ʺI Â

show interfaces [*interface-id*] [**counters | description | status | switchport | trunk | transceiver [alarm | diagnosis]]**

interface-id	ˆ Лъ ѣ aggregateport ѣ SVI ѣ loopback ˜ Â
counters	Â ˇ link Â

diagnosis	˝I	Â

Â

ʒ

a ╗ ˘ Â

Ruijie# **show interfacesgigabitEthernet** *0/1* **switchport**

6 Aggregate Port

6.1

6.1.1 aggregateport load-balance

AP Â ३ no ѝ Â

aggregateport load-balance {

/।

३

-	-

6.2

6.2.1 show aggregateport

aggregateport Â

aggregate-port-number	Aggregate Port Â
load-balance	aggregaye port Â
summary	aggregate port Â

३

7 VLAN

7.1

7.1.1 name

VLAN ¨ Â ¾ **no** Â

name *vlan-name*

no name

vlan-name	VLAN ¨

VLAN ¨ й VLAN¯ VLAN ID˘ VLAN 2 ¨ й ”VLAN0002”

¾ VLAN

show vlan ¾ vlan

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

¾	
show vlan	VLAN Â

switchport access vlan *vlan-id*

no switchport access vlan

vlan-id	╗ VLAN ID Â

switch port ѝ access˜ VLAN ѝ VLAN 1

ৡ

VLAN ID Â VLAN ID˜ VLAN˜
ѝ VLAN Â VLAN ID˜ ╗ VLAN
Â
trunk port˜ a

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

ৡ	
switchport mode	ϒ ˆ switch port˜ Â
switchport trunk	ѝ trunk port native VLAN Trunk Л VLAN Â

Л

-	-

7.1.3 switchport mode

ৡ ϒ ˆ switch port˜ ˘ Л Лъ ѝ access port ä trunk port ä hybrid port ä uplink port˜ ѝ 802.1Q Â ৡ no ѝ Â

switchport mode {**access** | **trunk | hybrid | uplink | dot1q-tunnel**}

no switchport mode

ʒ	ʒ	
	show interfaces	Â
	switchport access	ѝ access port˘ ѝ VLAN Â

/l

ʒ		
	-	-

7.1.5 vlan

ʒ VLAN Â ʒ no VLAN Â

vlan *vlan-id*

no vlan *vlan-id*

	vlan-id	VLAN ID Â ‘ VLAN˘ VLAN 1˜ a Â

ʒ

	-	-

7.2

7.2.1 show vlan

VLAN Â

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

vlan-id	VLAN ID Â

-	-

Ruijie(config-if)# **protocol vlan ipv4**

३	
no protocol vlan ipv4	-

RGOS10.1 Л Э

-	-

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

Л profile

num	profile
type	Л

Ruijie(config)# **protocol-vlan profile** *1* **frame-type** *ETHERII* **ether-type** *aarp*

	-	-

8.2

8.2.1 show protocol-vlan

Protocol VLAN

show vlan protocol-vlan

	-	-

ৡ

```
Ruijie# show protocol-vlan
```

ৡ	ৡ	
	-	-

/ RGOS10.1 Л Э

ৡ		
	-	-

9 Private VLAN

9.1

9.1.1 private-vlan association

secondary VLAN б primary VLAN ҳ

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

no private-vlan association

svlist	ѝ secondary VLAN list
no	ʌ primary VLAN б secondary VLAN

ҳ Primary VLAN

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

ҳ

ҳ	
show vlan private-vlan	-

ʌ RGOS10.1 Лъ Э

ҳ

-	-

9.1.2 private-vlan mapping

ৡ VLAN

```
Ruijie(config)# vlan 22
Ruijie(config-vlan)# private-vlan primary
```

ৡ

ৡ	
show vlan private-vlan	-

/ RGOS10.1 Л Э

ৡ

-	-

9.1.4

show vlan private-vlan	-

/I RGOS10.1 Л Э

ʒ

-	-

9.1.5 switchport private-vlan host-association

private VLAN ў primary VLAN secondary VLAN

switchport private-vlan host-association *p_vid s_vid*

no switchport private-vlan host-association

p_vid	primary VID
s_vid	secondary VID
no	ÿ VLAN ў

ʒ

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

ʒ

ʒ	
show vlan private-vlan	-

/I RGOS10.1 Л Э

ʒ

-	-

9.1.6 switchport private-vlan mapping

private VLAN secondary VLAN

switchport private-vlan mapping *p_vid* {*svlist*|**add** *svist* |**remove** *svlist*}

no switchport private-vlan mapping

p_vid	primary VID
svlist	secondary VLAN list
no	৸ secondaryVLAN

secondary VLAN

ৡ VLAN

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan promiscuous
Ruijie(config-if)# switchport private-vlan mapping 22 add 23-25
```

ৡ	
show vlan private-vlan	-

৸ RGOS10.1 Л Э

-	-

9.2

9.2.1 show vlan private-vlan

private VLAN

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

primary	primary VLAN
community	community VLAN
isolated	isolated VLAN

private VLAN

ৡ

```
Ruijie# show vlan private-vlan
```

ৡ	
-	-

/ RGOS10.1 Л Э

ৡ

-	-

9.3 Hybrid

9.3.1 switchport hybrid allowed vlan

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

no switchport hybrid allowed vlan

hybrid

no	hybrid

ৡ

9.3.3 switchport mode hybrid

switchport mode hybrid

no switchport mode

ѝ hybrid

no	hybrid

ৡ

Ruijie(config-if)# **switchport mode hybrid**

ৡ	
-	-

/ RGOS10.1 Лъ Э

-	-

10 QinQ

10.1

10.1.1 dot1q outer-vid vid register inner-vid v_list

tunnel Ɔ˘ vid ╕

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

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

v_list	vlan id

-	-

10.1.2 dot1q relay-vid vid translate local-vid v-list

access˘ trunk˘ hybrid˘ uplink Э˘ vid

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

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

v_list	vid
vid	ł tag vid
no	٨

٣

Ю tag vid ѝ 10-20 ˘ vid ѝ 100

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode access
ruijie(config-if)# dot1q relay-vid 100 translate local-vid 10-20
ruijie(config-if)# end
```

٣

٣	
show translation-table [**interface** *intf-id*]	-

٨ RGOS10.3 Лъ Э

٣

-	-

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

access˘ trunk˘ hybrid˘ uplink Э˘ vid

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

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

v_list	vid
vid	ɨ tag vid
no	ʌ

ꓘ

Ю tag vid ѝ 10-20 ˘ vid ѝ 100

```
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode access
ruijie(config-if)# dot1q relay-vid 100 translate inner-vid 10-20
ruijie(config-if)# end
```

ꓘ

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

ʌ RGOS10.4 ЛЪ Э

ꓘ

-	-

10.1.4 dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value

/ ʌ tag ”I tag

dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value

no dot1q-Tunnel cos inner-cos-value remark-cos outer-cos-value

no	ʌ ”I

Ю tag ″I tag

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

३	
show interface intf-name remark	-

RGOS10.4 Л Э

-	-

10.1.5 frame-tag tpid tpid

tpid

frame-tag tpid <*tpid*>

no frame-tag tpid

no	tpid

(5760 Ю)

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

ꓘ

ꓘ	
show frame-tag tpid	-

ꓘ RGOS10.1 ЛЬЭ

ꓘ

-	-

10.1.6 inner-priority-trust enable

/ ꓘ tag ”I tag 8

inner-priority-trust enable

no inner-priority-trust enable

no	ꓘ tag ”I tag 8

ꓘ

	show inner-priority-trust	-

/I RGOS10.1 Л Э

[redacted]		
३	-	-

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

vlan ‾ ╟ mac ⁸ vlan

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

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

-

```
ruijie(config)#end
```

ꓘ

ꓘ	
show interface dot1q-tunnel	-

ꓕ RGOS10.3 ⅃Ɔ

ꓘ

-	-

10.1.12 traffic-redirect access-group acl outer-vlan

access,trunk,hybrid, uplink ˘ vid

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

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

acl	ɔ̄ acl
vd	ɨ vid
no	ꓕ vid

ꓘ

Ю й 1.1.1.1 vid й 3

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

ꓘ

ꓘ	
show traffic-redirect	-

ꓕ RGOS10.3 ⅃Ɔ

ꓘ

-	-

10.1.14 traffic-redirect access-group acl nested-vlan

dot1q-tunnel ˘ vid ╗

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

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

acl	ɔ̄ acl
vid	╗ vid
no	ꓘ vid ╗

ꓘ

Ю й 1.1.1.3 ╗ vid й 9

```
ruijie# configure
ruijie(config)# ip access-list standard 20
ruijie(config-acl-std)# permit host 1.1.1.3
ruijie(config-acl-std)# exit
ruijie(config)# interface gigabitEthernet 0/1
ruijie(config-if)# switchport mode dot1q-tunnel
ruijie(config-if)# traffic-redirect access-group 20 nested-vlan 10
in
ruijie(config-if)# end
```

ꓘ

ꓘ	
show traffic-redirect	-

ꓘ RGOS10.1 ꓶ Э

ꓘ

-	-

10.1.15 l2protocol-tunnel

dot1q-tunnel Y

l2protocol-tunnel {**stp|gvrp**}

no l2protocol-tunnel {**stp|gvrp**}

stp	stp
gvrp	gvrp
no	ꓘ

ꓘ

Ю Y gvrp stp ꓶ

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

ꓘ

ꓘ	
show l2protocol-tunnel {**gvrp|stp**}	-

ꓘ RGOS10.3 ꓶ Э

```
-----  ---------
Gi0/1   0x9100
```

-	-

10.2.4 show interface dot1q-tunnel

dot1q-tunnel

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

intf-id	

ৡ

```
ruijie# show interface dot1q-tunnel
Interface: Gi0/3
Native vlan: 10
Allowed vlan list: 4-6˜ 10˜ 30-60
Tagged vlan list: 4˜ 6˜ 30-60
```

ৡ	
-	-

/I RGOS10.3 Л Э

ৡ

-	-

10.2.5 show interface intf-name remark

”I

show interface intf-name remark

-	-

a

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

-	-

RGOS10.1

-	-

10.2.6 show interface mac-address-mapping x

MAC 8

show mac-address-mapping *x*

-	-

a 8

```
ruijie# show mac-address-mapping 1
Ports         Destination-VID  Source-VID-list
------------ ---------------- ---------------
```

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

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RGOS10.3

-	-

11 GVRP

11.1

11.1.1 gvrp applicant state

३ ५ ०

no gvrp dynamic-vlan-creation enable

-	-

╟ vlan

ʒ

show gvrp configuration ʒ

```
Ruijie(config)# gvrp dynamic-vlan-creation enable
```

ʒ

ʒ	
show gvrp configuration	GVRP

/l

ʒ

-	-

11.1.3 gvrp enable

ʒ GVRP ╖ ˘ ʒ no Â

gvrp enable

no gvrp enable

-	-

GVRP

ʒ

show gvrp configuration ʒ

```
Ruijie(config)# gvrp enable
```

ৡ	
show gvrp configuration	GVRP

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11.1.4 gvrp registration mode

ৡ ˘ ⁸ ╟ à Э VLAN Â

ৡ no

gvrp registration mode {**normal** | **disabled**}

no gvrp registration mode

-	-

╟ à Э VLAN

ৡ

show gvrp configuration ৡ

```
Ruijie(config-if)# gvrp registration mode normal
```

ৡ	
show gvrp configuration	GVRP

ʌ

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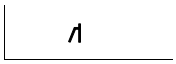
11.1.5 gvrp timer

11.2

11.2.1 clear gvrp statistics

GVRP ˘ è

clear gvrp statistics



/

address-bind install

no address-bind install

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˘ ʒ /l Â

Ю fa 0/1 й

```
Ruijie(config)# address-bind uplink fa0/1
Ruijie(config)# address-bind install
```

ʒ

ʒ	
show address-bind uplink	

/l RGOS10.1 ЛЬЭ

ʒ

-	-

12.1.3 address-bind ip-address

ip mac .

address-bind *ip-address mac-address*

no address-bind *ip-address*

ip-address	IP Â
mac-address	mac Â

ʒ

IP MAC ˘ IP ѝ IP
˘ MAC а ѝ IP MAC ˘
Â

Ю ip ѝ 3.3.3.3 mac 00d0.f811.1112

```
Ruijie(config)# address-bind 3.3.3.3 00d0.f811.1112
```

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ʒ	
show address-bind	

/I

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12.1.4 address-bind uplink

ip mac .

address-bind uplink *intf-id*

no address-bind uplink *intf-id*

intf-id	ѝ

ʒ

IP MAC ˘ IP ѝ IP
˘ MAC а ѝ IP MAC ˘
˘ ѝ ˘ з (address-bind install)˘
а Â

Ю fa 0/1 ѝ

```
Ruijie(config)#address-bind uplink fa0/1
```

12.1.6 clear mac-address-table filtering

Â

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

filtering	Â
address *mac-addr*	Â
vlan *vlan-id*	VLAN

ৡ

/ Л Ъ **show mac-address-table filtering** ৡ Â

00d0.f800.0c0c

```
Ruijie# clear mac-address-table filtering address 00d0.f800.0c0c
```

ৡ	
mac-address-table filtering	Â
show mac-address-table filtering	Â

/

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12.1.7 clear mac-address-table static

Â

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

static	Â
address *mac-addr*	Â

show mac-address-table dynamic

```
Ruijie(config)# mac-address-table aging-time 150
```

show mac-address-table aging-time	
show mac-address-table dynamic	

-	-

12.1.9 mac-address-table filtering

no

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

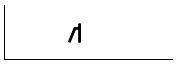
no mac-address-table filtering *mac-address* **vlan** *vlan-id*

mac-address	
vlan *vlan-id*	VLAN ID

show mac-address-table filtering

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

clear mac-address-table filtering	
show mac-address-table filtering	



12.1.12 snmp trap mac-notification

MAC ¶ Â ¾ **no** ¶ Â

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

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

added	¶ Â
removed	Â

¶ Â

¾

show mac-address-table notification *interface* ¾ Â

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

¾	

mac-address-learning

a MAC a

1

Ruijie(config-if)# no mac-address-learning

12.2

12.2.1 show address-bind

Â

show address-bind


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

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address-bind	Â

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12.2.2 show address-bind uplink

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12.2.4 show mac-address-table aging-time

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

clear mac-address-table dynamic	╟ Â

-	-

12.2.7 show mac-address-table filtering

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

mac-addr	MAC Â
vlan-id	VLAN Â

MAC ३

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show mac-address-table static	Â
show mac-address-table filtering	Â
show mac-address-table dynamic	╟ Â
show mac-address-table address	Â
show mac-address-table interface	Â
show mac-address-table count	Â

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12.2.12 show mac-address-learning

1‘

Ruijie# show mac-address-learning

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13 IGMP

13.1

13.1.1 ip igmp access-group

ꝛ Э ⁸ Â ꝛ no ⺈ ⺁ ⺈ ╖ Â

ip igmp access-group *access-list*

no ip igmp access-group

access-list	⁸ ¨ ˘ <1-199>|<1300-2699> | WORD

ꝛ

```
Ruijie(config-ext-nacl)# permit ip host 1.1.1.1 host 233.3.3.3
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp access-group ext_acl
```

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13.1.4 ip igmp last-member-query-count

last-member-query-count

ip igmp last-member-query-interval *interval*

no ip igmp last-member-query-interval

interval	й <1-255>˘ æ й 0.1s

1s

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IGMPv2 ˘ **ip igmp last-member-query-count**

╗ Э ˘ ˘

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ЛЬЮ 20 ˙

```
Ruijie# configure terminal
Ruijie(config)# interface eth 0
Ruijie(config-if)# ip igmp last-member-query-interval 200
```

ꓘ ˘ ⅄ Ⅎ no ѝ Â

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

no ip igmp query-max-response-time

seconds	˘ Æ s˘ 1 25

10s

ꓘ Â

ꓘ ⅄ IGMPv2 Â ꓘ 8
Â

1ʻ Ethernet 0 ˘ ѝ 20s Â

```
Ruijie(config-if)# ip igmp query-max-response-time 20
```

2ʻ Ethernet 0 ˘ ѝ Â

```
Ruijie(config-if)# no ip igmp query-max-response-time
```

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IGMP ३

ЛЬЮ 1 й З

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp robustness-variable 3
```

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13.1.14 ip igmp ssm-map enable

꞉ Ю ╟ **igmp ssm-map** ╖ ˘ ꞉ й ‘

ip igmp ssm-map enable

no ip igmp ssm-map enable

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╖ a ╟ Â

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꞉ ˘ ╟ ˜ 8 ╗ Â ꞉

꞉ **ip igmp ssm-map static** Â

igmp ssm-map ╖ Â

```
Ruijie(config)# ip igmp ssm-map enable
```

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igmp ˘ ɨ˘ igmp ╟ Â

ЛЮ й 2ʹ

```
Ruijie# configure terminal
Ruijie(config)# interface ethernet 0
Ruijie(config-if)# ip igmp version 2
```

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13.2

13.2.1 clear ip igmp group

ʒ IGMP ╟ Â

clear ip igmp group[*group-address* | *interface-type interface-number*]

	Â
group-address	32 æ IP D ˘ 8 æ ˘ Љ ⁸ ˘ Â
interface-type	Â
interface-number	Â

ʒ Â

IGMP ˘ й ὲ ў ╗ ʼ

≠ ╗ ˘ ≠ Â ÿ IGMP ˘ Л
Лъ a **clear ip igmp group** Â

Ruijie# **clear ip igmp group**

show ip igmp groups	-
show ip igmp interface	-

-	-

13.2.2 clear ip igmp interface

IGMP Â

clear ip igmp interface *ifname*

ifname	

Э IGMP Â Л Лъ a ifname Â

Ruijie# **clear ip igmp interface eth1**

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13.2.3 show ip igmp groups

ৡ б ÿ IGMP ˝ Â

show ip igmp groups [*group-address* | *interface-type interface-number*] [*detail*]

group-address	32 Æ IP D ˘ 8 Æ ˘ Л Ʊ 8 ˘ Â
interface-type	Â
interface-number	Â
detail	Â
	Â

ৡ Â

ৡ a à Э Â
Â

1˙ Ю ‘

```
Ruijie# show ip igmp groups
IGMP Connected Group Membership
Group Address Interface Uptime Expires  Last Reporter
224.0.1.1       eth2  00:00:09  00:04:17  10.10.0.82
224.0.1.24      eth2  00:00:06  00:04:14  10.10.0.84
224.0.1.40      eth2  00:00:09  00:04:15  10.10.0.91
224.0.1.60      eth2  00:00:05  00:04:15  10.10.0.7
239.255.255.250 eth2  00:00:12  00:04:15  10.10.0.228
239.255.255.254 eth2  00:00:08  00:04:13  10.10.0.84
```

2˙ Ю ‘

```
Ruijie# show ip igmp groups 224.1.1.1 detail
Interface: eth1
Group: 224.1.1.1
```

```
Uptime: 00:00:42
Group mode: Include
Last reporter: 192.168.50.111
TIB-A Count: 2
TIB-B Count: 0
Group source list: (R - Remote, M - SSM Mapping)
Source Address Uptime v3 Exp Fwd Flags
192.168.55.55 00:00:42 00:03:38 Yes R
192.168.55.66 00:00:42 00:03:38 Yes R
```

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13.2.4 show ip igmp interface

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show ip igmp interface [*interface-type interface-number*]

interface-type	
interface-number	

¾

Ю й

```
Ruijie# show ip igmp interface
Interface vlan 1(Index 4294967295)
```

```
IGMP Active, Non-Querier, Version 3 (default)
IGMP querying router is 0.0.0.0
IGMP query interval is 125 seconds
IGMP querier timeout is 255 seconds
IGMP max query response time is 10 seconds
Last member query response interval is 1000 milliseconds
Group Membership interval is 260 seconds
IGMP Snooping is globally enabled
IGMP Snooping is enabled on this interface
IGMP Snooping fast-leave is not enabled
IGMP Snooping querier is not enabled
IGMP Snooping report suppression is enabled
```

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13.2.5 show ip igmp ssm-mapping

३ IGMP ssm-map ˘ ३ IO˙

show ip igmp ssm-mapping (

14 DHCP Snooping

14.1 DHCP snooping

14.1.1 ip dhcp snooping

DHCP Snooping ¶ ˘ Ю ¾ Â ¾ no ˘ DHCP Snooping ¶ Â

[**no**] **ip dhcp snooping**

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¶

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DHCP Snooping ¶ ł˘ Л Ц **show ip dhcp snooping** ¾ DHCP snooping ¶ Â

a DHCP Snooping б Private VLAN ¶ a Â

Ю DHCP snooping ¶ ‘

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

¾M £EÄ 0

show ip dhcp snooping	DHCP snooping Â

/I

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14.1.2 ip dhcp snooping bootp-bind

DHCP Snooping Bootp ╖ ˘ ЮО ¾ Â
¾ no ˘ DHCP snooping Bootp ╖ Â

[**no**] **ip dhcp snooping bootp-bind**

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ЮО DHCP Snooping ╖ Bootp Â ╖ ł˘ DHCP Snooping ╖ Bootp Â Bootp ╖ ł˘ DHCP Snooping Bootp ╖ Â

ЮО

DHCP Snooping Bootp ‘

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

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14.1.5

DHCP ˘ Ю ३ Â ३

no ˘ ฬ ⁸ Â

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

rate-value	˘ PPS[Packet Per Second]

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14.2.2 ip dhcp snooping suppression

ѝ suppression ˘ Ю ३ Â ३ no ˘
ѝ no suppression Â

[no] ip dhcp snooping suppression

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	╖ Â

14.3 DHCP snooping

14.3.1 show ip dhcp snooping

DHCP Snooping ˘ Ю ৡ Â

show ip dhcp snooping

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ৡ˘ Л Љ DHCP Snooping Â

Ю DHCP Snooping ˙

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

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ৡ	
ip dhcp snooping	DHCP snooping Â
ip dhcp snooping verify mac-address	DHCP snooping mac Â
ip dhcp snooping write-delay	flash Â
Ip dhcp snooping information option	DHCP ╗ option82 Â
ip dhcp snooping bootp-bind	DHCP Snooping Bootp ╗ Â
ip dhcp snooping trust	и DHCP snooping trust Â

14.4 DHCP snooping

14.4.1 clear ip dhcp snooping binding

DHCP Snooping ╟ ˘ Ю ৡ Â

clear ip dhcp snooping binding

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ৡ˘ Л Л Ъ DHCP snooping ╟ Â

Ю DHCP snooping ╟ ˙

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


15 IGMP Snooping

15.1

15.1.1 deny

profile ˘ profile Ю ٩ deny Â

deny

deny	profile

profile deny Â

٩ profile Â

″I profile Ю range ٩ Â↓ ˘ й profile ˘
profile Э Â

Ю 224.2.2.2 profile

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

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٩	
ip igmp profile	profile
range	

/I

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15.1.2 permit

profile ˘ profile Ю ҳ permit profile
/I Â

permit

permit	profile Â

profile deny Â

ҳ profile Â

″I profile Ю range ҳ Â↓ ˘ ѝ profile ˘
profile ҳ Э Â

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

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ҳ	
ip igmp profile	profile
range	

/I

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15.1.3 range

profile ˘ profile Ю ҳ range˘ /I Ћъ
˘ ≠ /I Ћъ Â ҳ no Â

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

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

low-ip-address	

high-ip-address	

Â

ʒ profile Â

ɨ˘ ѝ˘ profile ѝ deny Â ˩ ˘ ѝ profile ˘ profile Э Â

Ю ѝ 224.2.2.2~224.2.2.244 profile ‘

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

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ʒ	
ip igmp profile	profile
deny	profile ѝ ѝ deny
permit	profile ѝ ѝ permit

/ı

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15.1.4 ip igmp profile

IGMP profile ⁸ Â profile ˘ ”I Ю profile Â ʒ ʒ˘ profile-number˘ igmp profile Â

ip igmp profile *profile-number*

no ip igmp profile *profile-number*

profile-number	profile ˘ 1-65535

Ю vlan 2 Э igmp snooping˙

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

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ʒ	
ip igmp snooping ivgl	igmp snooping ivgl Â
ip igmp snooping ivgl-svgl	igmp snooping Â

/ı

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15.1.7 ip igmp snooping svgl vlan

vlan ѝ SVGL vlan˘ ʒ **ip igmp snooping svgl vlan** Â ʒ no ѝ Shared VLAN ѝ vlan 1 Â

ip igmp snooping svgl vlan vid

no ip igmp snooping svgl vlan

vid	vlan id

Ю Shared VLAN ѝ vlan 1 Â

ʒ Â

ʒ /ı SVGL IVGL-SVGL Ю Â

Ю vlan 2 ѝ igmp snooping svgl vlan˙

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

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ip igmp snooping svgl	igmp snooping svgl Â
ip igmp snooping ivgl-svgl	igmp snooping Â

/ı

Ю ╟ ˜ й 100sˊ

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

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15.1.12 ip igmp snooping suppression enable

igmp snooping Report ⁸ ╗ ˘ ʒ **ip igmp snooping suppression enable** Â ʒ no igmp snooping suppression Â

ip igmp snooping suppression enable

no ip igmp snooping suppression enable

-	-

disable Â

ʒ Â

IGMP ⁸ ╗ ɨ˘ /l vlan IGMP Report ˘ ɨ IGMP Report a ˘ /l Љ Â ʒ ɨ˘ suppression ╗ ╟˘ IGMPv1/v2 report ⁸˘ a IGMPv3 report ⁸ Â

Ю Э **igmp snooping suppression**ˊ

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

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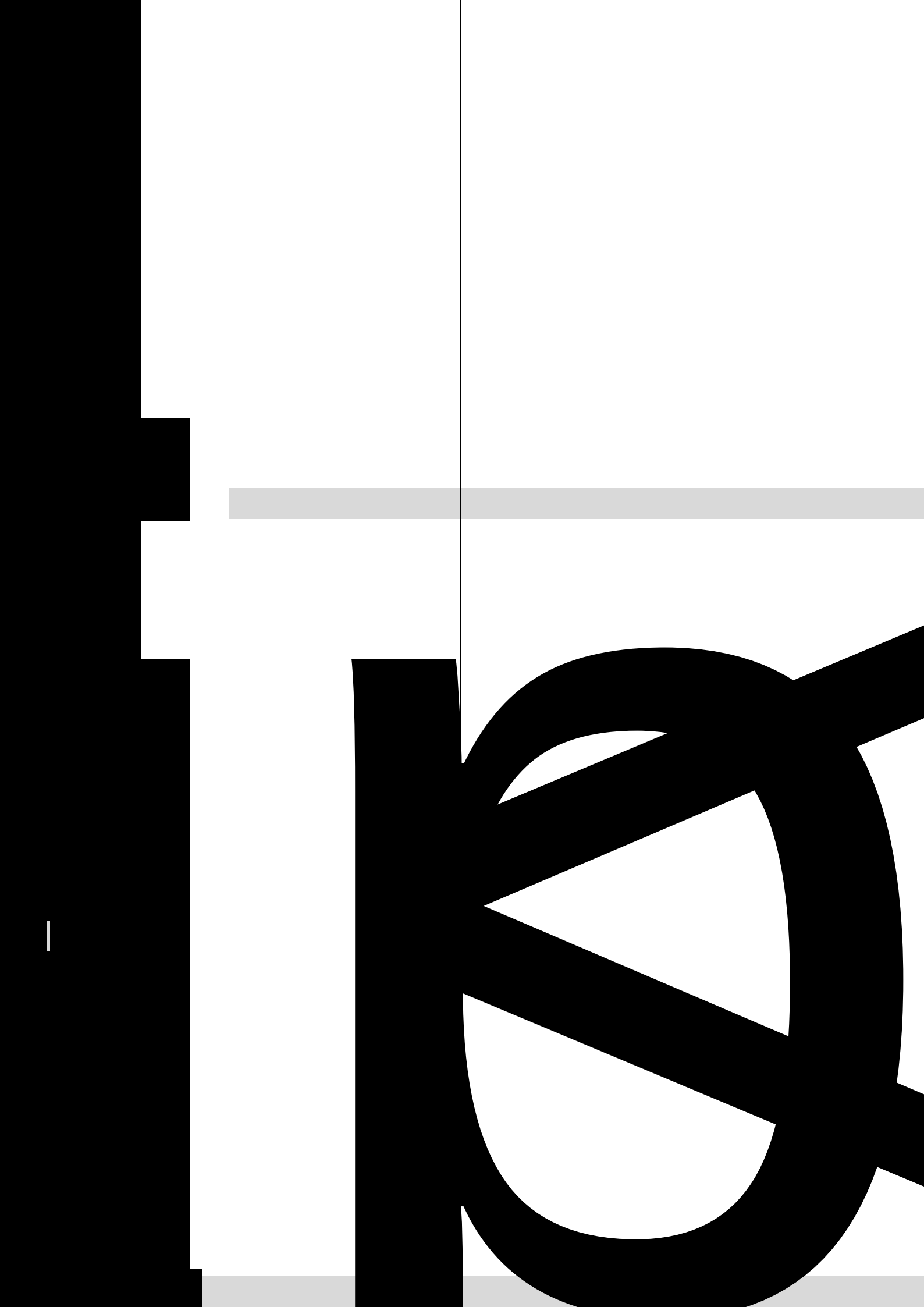

15.1.15 ip igmp snooping vlan mrouter learn pim-dvmrp

IGMP Query/Dvmrp/PIM Hellp **ip igmp snooping vlan mrouter learn** no

ip igmp snooping vlan *vid* **mrouter learn pim-dvmrp**

no ip igmp snooping vlan *vid* **mrouter learn pim-dvmrp**

vid	vlan id

igmp snooping

,V/!G5—T%e

profile-number	profile ˘ ʌ <1-65536>

Â

ʒ Â

IGMP Profile Ю˘ IGMP Report ˘
˥ IGMP Profile Â ˘ ˥ ˘
ɨ ɨ Â ”I profile˘ ɨ filter Â

Ю ”I 0/1 Э profile 1˙

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

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ip igmp profile	profile

ʌ

ʒ

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15.1.18 ip igmp snooping max-groups

╟ ˥ , ʒ **ip igmp snooping max-groups** ʒ Â ʒ no ʌ ⁸ Â

ip igmp snooping max-groups *number*

no ip igmp snooping max-groups

number	ѝ <0 – 1024>

a ʌ ⁸ Â

ʒ Â

˙ ˘ Э˘ ╟ ˙

	˘ a ˝Ą ˝ IGMP Report Â

	Ю ˝I 0/1 Э /ˈ 100 ˛
	`Ruijie(config)# interface fastEthernet 0/1`
	`Ruijie(config-if)# ip igmp snooping max-group 100`

ʒ	
ip igmp snooping filter	Â

/ˈ	

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15.2

15.2.1 show ip igmp snooping

igmp snooping Â

show ip igmp snooping [**gda-table** | **interfaces** | **mrouter**| **statistics** [**vlan**

debug igmp-snp event

debug igmp-snp packet

debug igmp-snp msf

debug igmp-snp warning

undebug igmp-snp

undebug igmp-snp event

undebug igmp-snp packet

undebug igmp-snp msf

undebug igmp-snp warning

	IGMP Snooping
event	IGMP Snooping Y
packet	IGMP Snooping
msf	IGMP Snooping б
warning	IGMP Snooping

३ EXEC

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16 MSTP

16.1

16.1.1 bpdu src-mac-check

bpdu mac Â /l Љ ʒ no bpdu mac ╖ Â

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

no bpdu src-mac-check

H.H.H	/l mac ѝ bpdu Â
no	bpdu Â

Â

ʒ Â

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

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/l

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16.1.2 clear spanning-tree detected-protocols

८ RSTP BPDU BPDU ८ Â

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

interface-id	

Â

३

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

३	
show spanning-tree interface	STP Â

/

-	-

16.1.3 spanning-tree

MSTP / MSTP MSTP Â ३
no spanning-tree ˘ no ३ / ८ ˘
a spanning tree Â

spanning-tree [**forward-time** *seconds* | **hello-time** *seconds* | **max-age** *seconds*]

ʒ Â

forward-time ȁ hello-time ȁ max-age Ь ˘ ὲ
ὲ ч Â Ь ȣ ʿ
2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay – 1.0snd)
a ≠ a ╖ Â

1ʿ spanning-tree ╖ ʿ
Ruijie(config)# **spanning-tree**
2ʿ BridgeForwardDelayʿ
Ruijie(config)# **spanning-tree forward-time** *10*

ʒ

ʒ	
show spanning-tree	STP Â
spanning-tree mst cost	STP PathCost Â
spanning-tree tx-hold-count STP	TxHoldCount Â

ʎ

ʒ

-	-

16.1.4 spanning-tree autoedge

Autoedge Â ʎ Ʊ ʒ disabled Autoedge
Â

spanning-tree autoedge [**disabled**]

disabled	Autoedge Â

Â

ʒ Â

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

ʒ

ʒ	
show spanning-tree interface	STP Â

ʌ

ʒ

-	-

16.1.5 spanning-tree bpdufilter

BPDU filter Â ʌ Ɉ ʒ enabled disabled
BPDU filter Â

spanning-tree bpdufilter [**enabled** | **disabled**]

enabled	BPDU filter Â
disabled	BPDU filter Â

Â

ʒ Â

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

ʒ

ʒ	
show spanning-tree interface	STP Â

ʌ

ʒ

-	-

३

Ruijie(config-if)#**spanning-tree compatible enable**

root guard Â ३ no root guard Â root guard ╖
Æ ⁄ Â

spanning-tree guard root

no spanning-tree guard root

-	-

root guard ╖ Â

३ Â

Ruijie(config-if)# **spanning-tree guard root**

३	
-	-

⁄

-	-

३

gigabitethernet *1/1*

g-tree link-type point-to-point

	STP

-

efault

o loop guard Â loop guard ╖
/ Â

-

2934269 0 TdEMC /P <</MCID 36 >>BDC -0.0 reET2D1>6<01C4

ʎ

ʒ

-	-

16.1.13 spanning-tree max-hops

Ю ʒ ʎ Љ BPDU ˆ Max-hops Count˜ ˘ BPDU Region ʎ ɨ ˘ Instance Â no ʎ Љ ʒ Â

spanning-tree max-hops *hop-count*

no spanning-tree max-hops

hop-count	BPDU ʎ Љ ˘ ѝ 1 ˙ 40

hop-count ѝ 20

ʒ

Region ˘ Root Bridge BPDU Hot Count ˘ ÿ Root Bridge ˘ ˘ Hop Count 1˜ ѝ 0 BPDU ˘ Hops ѝ 0 BPDU Â

ʎ max-hops Instance Â

Ю MST Instance Max-hops ѝ 10˙

Ruijie(config)# **spanning-tree max-hops** *10*

ɨ ʎ Љ **show spanning-tree mst** ʒ Э

ʒ

ʒ	
show spanning-tree	MSTP

ʎ

ʒ

-	-

instance vlan Vlan Instance 0 Â

name ѝ Â

revision ѝ 0Â

ҳ .

˘ end ҳ˘ Ctrl+C Â

˘ exit ҳ Â

MST ѣ˘ Л Љ ЉЮ ҳ ˙

instance *instance-id* v**lan** *vlan-range*˙ Vlan ╗ MST Instance Â

instance-id ѝ 0˙ 64 Âvlan ѝ 1˙ 4095 Âvlan-range Л Љ vlan

˘ VLAN ID ˘ VLAN ID Л Љ ļ˙ Ľ ч VLAN ID

˘ A instance 10 vlan 2,3,6-9 Ня VLAN 2˝ 3˝ 6˝ 7˝ 8˝ 9 ╗ Instance 10 Â VLAN Instance 0 Â VLAN ÿ Instance

no ҳ˙ **no instance** *instance-id* [**vlan** *vlan-range*] Â(no ҳ Instance ѝ 1˙ 64)

name *name*˙ MST¨ ˘ Л Љ Л Љ 32 Â Л Љ no name è Â

revision *version*˙ MST ˘ 0˙ 65535 Â Л Љ no revision è Â

show˙ MST region Â

ЮMST ˘ VLAN 3, 5-10 MST Instance 1.

```
Ruijie(config)# spanning-tree mst configuration
Ruijie(config-mst)# instance 1 vlan 3˘ 5-10
Ruijie(config-mst)# name region 1
Ruijie(config-mst)# revision 1
Ruijie(config-mst)# show
MST configuration
Name [region1]
Revision 1
Instance  Vlans Mapped
----------  --------------------
0       1-2,4,11-4094
1       3,5-10
---------------------------------
Ruijie(config-mst)# exit
Ruijie(config)#
```

.

Ю Instance 20 ”I й 8192˙

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

ʌ Љ **show spanning-tree mst instance interface interface-id** ʒ Э Â

ʒ

ʒ	
show spanning-tree mst	MSTP Â
spanning-tree mst cost	Â
spanning-tree mst port-priority	a˘ Instance ”I Â

ʌ

ʒ

-	-

16.1.19 spanning-tree pathcost method

Â ʒ no Â

spanning-tree pathcost method [**long** | **short**]

no spanning-tree pathcost method

long	802.1t path-cost Â
short	802.1d path-cost Â

802.1T Path-cost Â

ʒ Â

Ruijie(config-if)# **spanning-tree pathcost method long**

ʒ

ʒ	

	show spanning-tree interface	STP Â

ʌ

ৡ		
	-	-

16.1.20 spanning-tree portfast

Portfast Â ʌ Л৳ ৡ disabled Portfast Â

spanning-tree portfast [**disabled**]

	disabled	Portfast Â

Â

ৡ Â

-

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

ৡ	ৡ	
	show spanning-tree interface	STP Â

ʌ

ৡ		
	-	-

16.1.21 spanning-tree portfast bpdufilter default

BPDU filter Â ʌ Л৳ ৡ no BPDU filter Â

spanning-tree portfast bpdufilter default

no spanning-tree portfast bpdufilter default

Ruijie(config)# **spanning-tree portfast bpduguard default**

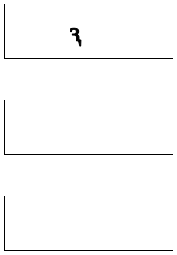
३	
show spanning-tree interface	STP

/

-	-

16.1.23 spanning-tree portfast default

Portfast Â ३ no Portfast


३

ʒ		
	-	-

16.1.27 spanning-tree tc-protection tc-guard

tc- guard Â ʒ no tc- guard Â tc-guard ╖
˘ tc Â

spanning-tree tc-protection tc-guard

no spanning-tree tc-protection tc-guard

	-	-

tc- guard Â

ʒ Â

Ruijie(config)# **spanning-tree tc-protection tc-guard**

ʒ	ʒ	
	-	-

/ı

tx-hold-count	TxHoldCount Â ÿ 1 10 Â

3 Â

३ Â

```
Ruijie(config)# spanning-tree tx-hold-count 5
```

link-type	linktype

३ Â

Ruijie# **show spanning-tree interface gigabitethernet** *1/5*

३	
spanning-tree bpdufilter	BPDU filter Â
spanning-tree portfast	portfast Â
spanning-tree bpduguard	BPDU guard Â
spanning-tree link-type	a “ ”Â

-	-

16.2.3 show spanning-tree mst

Ю ३ Л Лъ MST ˇ Instance Â

show spanning-tree mst { **configuration** | *instance-id* [**interface** *interface-id*] }

configuration	mst
instance-id	*Instance*
interface-id	

Instance Â

३ .

MSTP ३

17 SPAN

17.1

17.1.1 monitor session

SPAN ˆ ˜ ˆ ˜ . ʒ no
Â

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

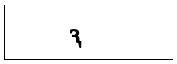
no monitor session *session_number* [**source interface** *interface-id* [**both** | **rx** | **tx**] | **destination interface** *interface-id* **switch**] | [**acl** *name*]

no monitor session all

session_number	SPAN Â
source interface *interface-id*	Â *interface-id* ˘ /ˈ ѝ ˘ a /ˈ Ѣ ѝ SVI Â
destination interface *interface-id*	Â *interface-id* ˘ /ˈ ѝ ˘ a /ˈ Ѣ ѝ SVI Â
mac source *mac-addr*	MAC
mac destination *mac-addr*	MAC
both **acl** *name*	˘ Â **acl** *name/id*
rx	/ˈ Â
tx	/ˈ Â
all	
switch	˥ ˘ ѝ a

ʒ

switch port à routed port AP /ˈ Ѣ ѝ ÂSPAN Ƶ a ʻ - ɟ



IO **show monitor** ३ SPAN 1

```
1/2                                                    // a    /l
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/3 switch                   //    /l
Ruijie(config)# monitor session 2 destination remote vlan 7
reflector-port interface gigabitEthernet 1/1 switch
  2˙
Ruijie(config)# monitor session 2 remote-destination
Ruijie(config)# monitor session 2 destination remote vlan 7
interface gigabitEthernet 1/1 switch
```

ʒ

ʒ	
show monitor	Â

/l

ʒ

-	-

18.1.2 remote-span

ʒ RSPAN VLAN

[**no**] **remote-span**

-	-

ʒ VLAN

˘ **end** ʒ˘ Ctrl+C Â

˘ **exit** ʒ

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

ʒ

ʒ	

	show vlan	Vlan Â

/I

३		
	-	-

19 ERSPAN

19.1

19.1.1 monitor session

ERSPAN Â ৡ no Â

monitor session *session_num* {**erpsan-source** }

-	-

no shutdown

ERSPAN

˘ **end** ৡ˘ Ctrl+C Â

˘ **exit** ৡ Â

1˙

```
Ruijie(config)# monitor session 2 erspan-source
Ruijie(config-mon-erspan-src)#shutdown
```

ৡ	
show monitor	Â

/I

-	-

19.1.3 source

ERSPAN Â

source interface single-interface

1

```
Ruijie(config)# monitor session 2 erspan-source
Ruijie(config-mon-erspan-src)#source interface gigabitethernet
0/1 both
```

1

ʒ		
	-	-

19.1.5 origin ip address

GRE IP Â

origin ip address *ip_address*

–AŸR„RApÑ.å E5%ÉÜÄ

64

¾ ERSPAN

˘ **end** ¾˘ Ctrl+C Â
˘ **exit** ¾ Â

1˙

```
Ruijie(config)# monitor session 2 erspan-source
Ruijie(config-mon-erspan-src)#ip ttl 65
```

¾

¾	
show monitor	Â

/I

¾

-	-

19.1.7 ip dscp

IP dscp

ip dscp *dscp-value*

dscp-value	IP dscp

0

¾

20 IP

20.1

20.1.1 ip address

ꝛ IP ˘ Л Ћ no IP Â ꝛ Ю

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

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

ip-address	32 Æ IP ˘ 8 Æ ˘ Ћ 8 ˘ Â

ARP ă Â

ҙ Â

RGOS ARP ă ˘ 32 æ IP 48 æ MAC Â
ў ╟ ARP ˘ Љ a ARP Â **clear**
arp-cache ҙ ⋀ Љ ╟ ˝ ARP Â

ЉЮ ˘ ѝ Љ Э ў ARP Â
arp 1.1.1.1 4e54.38012. 12 Td( )32 T3 a/P <</MCID 16 >>BDC 7TT0 1 Tf0.0015

1˙ ЉЮ ˘ SVI 1 ARP Â

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# arp gratuitous-send interval 1
```

2˙ ЉЮ ˘ SVI 1 ARP

```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp gratuitous-send
```

ʒ

ʒ	
-	-

/ı

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-	-

20.2.3 arp retry interval

ʒ˘ /ı Љ arp ˘ ˚ IP ˘ 2 ARP Â ʒ no /ı Љ 1 ARP Â

arp retry interval *seconds*

no arp retry interval

seconds	<1-3600>,ARP /ı Љ ѝ 1 —— 3600 ˘ ѝ 1

ARP ѝ 1 Â

ʒ Â

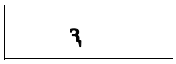
ARP ARP

	-	-

20.2.5 arp timeout

ARP ă ARP ˘ Л ३ Â ३ M- 6 ã¹ 7Æ †Ð@Ñ³âc`î ,

10.2(3) ɨ (10.2(3)) ˘ Ь ʒ ARP˝ ʒ
ARP Â



ʒ Â

mask	mask ѝ ˘ ARP ˘ IP ; trusted /ʌ ARP ˘ ╟ ARP Â
interface *interface-name*	╟ ARP

ʒ

/ʌ Ʌь ʒ ⁹ ARP Â

a	NFPP(Network Foundation Protection Policy ,) Э˘ mac (IP) /ʌ ARP ˘ ч clear arp 1s ˘ /ʌ ɣ ARP a Â

1ʻ ЛЬЮ ˘ ARP ╟ ă Â

```
clear arp-cache
```

2ʻ ЛЬЮ ˘ ╟ ARP 1.1.1.1

```
clear arp-cache 1.1.1.1
```

3ʻ ЛЬЮ ˘ SVI1 Ю ╟ ARP

```
clear arp-cache interface Vlan 1
```

ʒ

ʒ	
arp	ARP ╗ Â

/ʌ

ʒ

-	-

20.3.2 show arp

ˆ ARP˜ ă Â

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

vrf *vrf_name*	VRF ˘ VRF ARP Â
trusted	/ı ARP ˘ /ı VRF /ı ARP Â
ip	IP ˘ IP ARP ’ ***trusted*** ˘ /ı /ı ARP ˘ /ı ARP Â
mask	IP ARP ; trusted ˘ /ı /ı ARP ˘ /ı ARP Â
static	arp Â
mac-address	mac ARP Â
complete	╟ arp Â
incomplete	╟ arp Â
oob	(interface of mgmt) ARP Â

३ Â

1˙ ЛЬЮ ѝ show arp ‘

```
Ruijie# show arp
Total Numbers of Arp: 7
Protocol  Address         Age(min)  Hardware
Type   Interface
Internet  192.168.195.68   0        0013.20a5.7a5f  arpa   VLAN 1
Internet  192.168.195.67   0        001a.a0b5.378d  arpa   VLAN 1
Internet  192.168.195.65   0        0018.8b7b.713e  arpa   VLAN 1
Internet  192.168.195.64   0        0018.8b7b.9106  arpa   VLAN 1
Internet  192.168.195.63   0        001a.a0b5.3990  arpa   VLAN 1
Internet  192.168.195.62   0        001a.a0b5.0b25  arpa   VLAN 1
Internet  192.168.195.5    --       00d0.f822.33b1  arpa   VLAN 1
```

ARP α ЬЖ Ю˙

IP 3

20.3.6 show ip arp

ˆ ARP˜ ă ˘ ꝛ Â

show ip arp

-	-

ꝛ

ЛЬЮ ѝ **show ip arp** ‘

```
Ruijie# show ip arp
Protocol Address      Age(min)Hardware       Type
Interface
Internet 192.168.7.233  23   0007.e9d9.0488  ARPA FastEthernet 0/0
Internet 192.168.7.112  10   0050.eb08.6617  ARPA FastEthernet 0/0
Internet 192.168.7.79   12   00d0.f808.3d5c  ARPA FastEthernet 0/0
Internet 192.168.7.1    50   00d0.f84e.1c7f  ARPA FastEthernet 0/0
Internet 192.168.7.215  36   00d0.f80d.1090  ARPA FastEthernet 0/0
Internet 192.168.7.127  0    0060.97bd.ebee  ARPA FastEthernet 0/0
Internet 192.168.7.195  57   0060.97bd.ef2d  ARPA FastEthernet 0/0
Internet 192.168.7.183  --   00d0.f8fb.108b  ARPA FastEthernet 0/0
```

ARP ă ЊЖ Ю

Protocol	˘ ѝ Internet Â
Address	б IP Â
Age (min)	ARP ă ˘ Љў Â ˘ “-” Â
Hardware	б IP Â
Type	˘ Љ ѝ ARPA Â
Interface	б IP Â

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-	-

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-	-

20.3.7 show ip interface

ʒ ʎ Љ IP Â ʒ Ю

show ip interface [*interface-type interface-number*]

Interface-type	
Interface-number	

ʒ

ʎ ˘ RGOS Â ʎ RGOS ʎ Љ Â ÿ ʎ ʎ ѝ a ʎ ˘ RGOS ÿ Â

ʎ ˘ ˧ ˘ ľ UP Ľ ʼ ʎ ˘ ľ UP Ľ Â a ˘ ˘ ʎ a ˘ ѝ Â

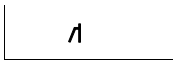
ЉЮ ѝ **show ip interface** Â

```
Ruijie# show ip interface FastEthernet 0/1
IP interface state is: UP
IP interface type is: BROADCAST
IP interface metric is: 0
IP interface MTU is: 1500
IP address is:
192.168.5.133/24 (primary)
IP address negotiate is: OFF
```

```
Forward direct-boardcast is: ON
ICMP mask reply is: ON
Send ICMP redirect is: ON
Send ICMP unreachabled is: ON
DHCP relay is: OFF
Fast switch is: ON
Route horizontal-split is: ON
Help address is: 0.0.0.0
Proxy ARP is: ON
Outgoing access list is not set.
Inbound access list is not set.
```

Ю

IP interface state is:	/ı ˘ è ѝ “UP” Â
IP interface type is:	˘ ˘ Â
IP interface MTU is:	MTU Â
IP address is:	IP Â
IP address negotiate is:	IP Â
Forward direct-boardcast is:	Â
ICMP mask reply is:	ICMP Â
Send ICMP redirect is:	ICMP Â
Send ICMP unreachabled is:	



21 DHCP

21.1 DHCP

DHCP ЛЬЮ ३ʻ

- ip address dhcp

21.1.1 ip address dhcp

Лъ PPP à HDLC à FR DHCP IP ˘
३ **ip address dhcp** Â ३ **no** ∧Лъ∧ Â

ip address dhcp

no ip address dhcp

-	-

a DHCP IP Â

३

RGOS DHCP

ꝛ	-	-

21.2

- debug ip dhcp client
- show dhcp lease

21.2.1 debug ip dhcp client

DHCP Client ˘ **debug ip dhcp client** ꝛ Â

debug ip dhcp client

no debug ip dhcp client

	-	-

21.2.2 show dhcp lease

DHCP

22 DNS

22.1

22.1.1 ip domain-lookup

ip name-server {*ip-address* }

no ip name-server [*ip-address*]

ip-address	¨ Ł IP

¨ Ł Â

ৡ Â

╗ DNS Server IP Â ৡˇ ╗ DNS Server Â
ÿ Server ∧ ¨ ˇ ł Server DNS ˇ
ѝ Â
6 Ł Â DNS Server ˇ ip-address ˇ ∧
Ł ˇ DNS Ł Â

```
Ruijie(config)# ip name-server 192.168.5.134
Ruijie(config)# ip name-server
2001:0DB8::250:8bff:fee8:f800 2001:0DB8:0:f004::1
```

ৡ	
show hosts	DNS Â

∧

-	-

22.1.3 ip host

ৡ ў ¨ IP Â ৡ no ў Â

ip host *host-name ip-address*

no ip host *host-name ip-address*

host-name	ў ¨
ip-address	IP

23 SNTP

23.1

23.1.1 sntp enable

ৡ SNTP ╖ ˘ ৡ **no** ѝ —Disable Â

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

-	-

SNTP Disable

ৡ

show sntp ৡ SNTP

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

ৡ	
show sntp	SNTP
clock update-calendar	˘
clock set	

ѧ RGOS10.0 Л Э

ৡ

-	-

23.1.2 sntp interval

ৡ SNTP Client NTP/SNTP Server˘ Â

sntp interval *seconds*

no sntp interval

seconds	˘ ˘ æ ѝ ľ Ł ѝ 60 --65535 Â

ѝ 1800s

ʒ

show sntp ʒ SNTP Â	
a	a ˘ ˘ ł sntp enable ʒ Â

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

ʒ

ʒ	
sntp enable	SNTP
show sntp	SNTP
clock update-calendar	˘

ʎ RGOS10.0 Ѣ Э

ʒ

-	-

23.1.3 sntp server

ʒ SNTP Serverˇ SNTP NTP ˘ Ѣ Server ʎ Ѣ internet Э ʼΩ NTP Server Â

sntp server ip-addr

no sntp server

ip-addr	NTP/SNTP ╘ IP

NTP/SNTP ╘

¾

show sntp ¾ SNTP

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

¾	
show sntp	SNTP
sntp enable	SNTP

/I RGOS10.0 ЛЪЭ

-	-

23.2

23.2.1 show sntp

¾ SNTP Â

-	-

¾

show sntp ¾ SNTP

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

३

ntp access-group { **peer** | **serve** | **serve-only** | **query-only** }*access-list-number* | *access-list-name*

no ntp access-group{**peer** | **serve** | **serve-only** | **query-only**}*access-list-number* | *access-list-name*

peer	NTP Ь ⁸ ˘ ≠ б ˚ ^ ~ Â
serve	NTP Ь ⁸ ˘ а б ˚ Â
serve-only	NTP Ь Â
query-only	NTP Ь ⁸ Â
access-list-number	IP ⁸ ’ ѝ 1 99 1300 1999
access-list-name	IP ⁸ ¨ Â

Ю NTP ⁸ Â

३ Â

NTP Ь ⁸ Â ˘
NTP ⁸ Â
˘ NTP Ь ÿ ⁸ ⁸ ѕ
˘ Љ ѕ ѝ Â ѕ ѝ peer ѣ serve ѣ serve-only ѣ query-only Â
⁸ ╗ Â Э ѕ ˘
б ⁸ ˝ ľ ў

NTP

ѝ NTP ⊾ NTP Â

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

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

key-id	ID’
key-string	’
enc-type	ˆ ⁄ ˜ ╗ ˘ 0 ╗ ˘ 7 ╗ ’

Â

ʒ Â

˘ md5 ╗ ˘ key-id ˘ ⁄ Љ **ntp trusted-key** key-id ѝ Â Э ѝ 1024 ˘ ⊾ Â

ЉЮ ID ѝ 6

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

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ʒ	
ntp authenticate	8
ntp trusted-key	
ntp server	NTP ⊾

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24.1.5 ntp disable

NTP ╗ Â

ntp disable

NTP

NTP "1@#"Y Q U ¸ Q ¸

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Ĺ ˘ ˚ Ĺ Э ѝ 20 Â

б Ĺ ╗ ˘ ”I ╗ Љ ˘ ł

ѝ Ĺ ˘ Л Љ Ĺ ╗ ˘ б Ĺ ╗

Ĺ ˚ ╗ б

˚ ˆ ˜ Ю˘ ”I prefer ˚

NTP Ą Ю˘ ѝ IP Л

Љ NTP Ĺ Â

ЉЮ ˘ Э ѝ NTP server

╟˘ ˘ ˘ ˘ ⅄ Ль ʒ Â

ЛЬЮ ˘ NTP ˘ Â

```
Ntp synchronize
```

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ʒ	
ntp server	NTP ╘ ˘

⅄

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24.1.9 ntp trusted-key

ID ѝ

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

key-id	ID Â

Ю Â

ʒ Â

NTP √ ˘ ˘ ID ˘ a ˘ Ль ,

ЛЬЮ ˘ ѝ ╘ Â

```
ntp authentication-key 6 md5 wooooop
ntp trusted-key 6
ntp server 192.168.210.222 key 6
```

ʒ

ʒ	

ntp authenticate	⁸ Â
ntp authentication-key	NTP Â
ntp server	NTP ⊾ Â

ʌ

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24.1.10 ntp update-calendar

NTP ÿ ˘ Â ʒ
no ʌ ╖ Â

ntp update-calendar

no ntp update-calendar

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╖ Â

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╖ ʌ Љ NTP ÿ ˘
Â Æ Ю Ÿ ╟ Â
Ю NTP Â ɨ˘ NTP б
˘ ╖ ≠˘ Â

ЉЮ NTP ˛
Ruijie(config)# **ntp update-calendar**

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25 FTP Server

25.1

25.1.1 debug ftpserver

FTP ┺ ˘ ३ no Â

debug ftpserver

no debug ftpserver

-	-

Â

३ Â

debug ftpserver ३ Л Лъ FTP ┺ Â

1' ЛъЮ ┺ ‘
Ruijie#

ftp-server password [*type*] *password*

no ftp-server password

type	Ѭ ╗ ‘ 0 7 Â0 ҙ ╗ ˆ ˜ ’ 7 ҙ ѝ ╗ Â
password	╘

Â

ҙ Â

FTP ╘ ¨ Љ ˘ ⁄ Â ˘ ⁄ Љ ˘ ’ ѝ ⁄ Â ѝ 1 ѐ ѝ 25 ’ ѝ 4 ѐ ѝ 52 Â

a	FTP ╘ a ˘ ╘ Â

1‘ ЉЮ ѝ pass‘

```
Ruijie(config)# ftp-server password pass
```

‘

```
Ruijie(config)# ftp-server password 0 pass
```

2‘ ЉЮ ѝ 8001‘

```
Ruijie(config)# ftp-server password 7 8001
```

3‘ ЉЮ ⁄ ‘

```
Ruijie(config)# no ftp-server password
```

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25.1.4 ftp-server topdir

8 FTP Â ʒ no
FTP ╘ Э Â

ftp-server topdir *directory*

no ftp-server topdir

directory	FTP

^ a ~ Â

ʒ Â

FTP ╘ ɨ ʎ Ʌ Â
FTP FTP ╘ Э Â
ʒ˘ FTP ╘ Э Â

1˙ ЛЮ ╟ FTP ╘ 8 syslog ˙
Ruijie(config)# **ftp-server topdir** */syslog*
Ruijie(config)# **ftp-server enable**
2˙ ЛЮ ʌ ˙
Ruijie(config)# **no ftp-server topdir**

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25.1.5 ftp-server timeout

FTP ^ Session idle timeout˜ ˘ ʒ no ѝ
^ 30˥ ~ Â

ftp-server timeout *time*

no ftp-server timeout

time	^ Æ' ¦ ' ' 1-3600˜

ѝ 30¦ Â

ع Â

FTP Â ^ ~~
FTP Ł Л ѝ ˇ б Â

FTP ÿ Э FTP ł Ю
FTP Â Ł FTP ع Ł ł^
a ł˜ ÿ 0 ' Ю ع
Ą Â a
Â

1' ЛЬЮ ѝ 5¦ '
```
Ruijie(config)# ftp-server timeout 5
```
2' ЛЬЮ ѝ ^ 30¦ ˜ '
```
Ruijie(config)# no ftp-server timeout
```

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25.1.6 ftp-server username

FTP Ł ¨ ˇ ع no Л ¨ Â

ftp-server username *username*

no ftp-server username

username	¨

	¨ Â
ʒ	Â
	FTP ⊾ ¨ Â ˘ ¨ Â ¨ ѝ 64 ˘ a Â ¨ ⋀ Ѣ ȁ Â FTP ⊾ ⋀ ¨ Â
a	FTP ⊾ a ¨ ˘ ¨ ⊾ Â

1ʻ ЉЮ ¨ ѝ userʻ

```
Ruijie(config)# ftp-server username user
```

2ʻ ЉЮ ⋀ ¨ ʻ

```
Ruijie(config)# no ftp-server username
```

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	)TiEMC	/R

no snmp-server chassis-id

text	˘ /I Ʌ Â

aclnumber	ˆ 1-99˜ ˘ ˘ MIB ipv4 NMS Â
aclname	¨ ˘ ˘ MIB ipv4 NMS Â
ipaddr	NMS ˘ MIB NMS Â

ѝ /ǀ

ʒ

ʒ ѝ SNMP ʒ ╥ ʒ˘ ȁ MIB NMS Â

SNMP ʒ ╥ ˘ **no snmp-server** ʒ /ǀ Â

Ю ⁸ MIB ˘ /ǀ ѝ 192.168.12.1 NMS MIB ‘

```
Ruijie(config)# access-list 2 permit 192.168.12.1
```

й Â

Ю SNMP й i-net800@i-net.com.cn ‘

```
Ruijie(config)# snmp-server contact i-net800@i-net.com.cn
```

show snmp-server	SNMP
no snmp-server	SNMP

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Ю ʿ

```
Ruijie(config)# snmp-server group mib2user v2 priv read mib2
```

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show snmp group	SNMP

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26.1.7 snmp-server host

SNMP ў ˆ NMS˜ ˘ ʒ **snmp-server host** Â

ʒ no ʌ SNMP ў Â

snmp-server host {*host-addr* } **traps** [**vrf** *vrfname*] [**version** {**1** | **2c** | [**auth** | **noauth** | **priv**]] *community-string* [**udp-port**

port-num][*notification-type*]

no snmp-server host {host-addr }

host-addr	SNMP ў
vrfname	vrf ¨
version	snmp ˘ V1 ȁ V2C ȁ V3
auth | **noauth** | **priv**	V3 Â
community-string	¨ ˆ V3 ˜ Â
port-num	snmp ў
notification-type	ў ╟ ˘ snmp Â

Ю˘ SNMP ў Â

˘ Â

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ҳ б ҳ **snmp-server enable traps** ˘ ў ╟ NMS
Â
Л Љ a˚ SNMP ў ˘ ў Л Љ a˚
˘ a˚ ˘ a˚ vrf ˘ ˚ ў [˚ à ˚ vrf] ł

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26.1.10 snmp-server queue-length

˘ ʒ **snmp-server queue-length** Â

snmp-server queue-length *length*

length	˘ ÿ 1 1000 Â

10

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˘ ʎ Љ ʒ 8
Â
ѝ 4 Â

Ю ѝ 4 ʿ
Ruijie(config)# **snmp-server queue-length** *4*

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	snmp-server packetsize	SNMP

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26.1.11 snmp-server system-shutdown

SNMP ╗ ˘ ʒ **snmp-server system-shutdown** Â
ʒ no ʎ SNMP ╗ Â

snmp-server system-shutdown

no snmp-server system-shutdown

Ю Љ 0 IP й SNMP ʻ

```
Ruijie(config)# snmp-server trap-source fastethernet 0
```

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ʒ	
snmp-server enable traps	ў ╟
snmp-server enable host	NMS ў

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26.1.13 snmp-server trap-timeout

Ѭ ˘ ʒ **snmp-server trap-timeout** Â ʒ no Â

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

seconds	˘ æ й ˘ ʌ ʻ 1 – 1000 Â

30

ʒ

Ю й 60 ʻ

```
Ruijie(config)# snmp-server trap-timeout 60
```

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ʒ	
snmp-server queue-length	
snmp-server enable host	NMS ў

```
Ruijie# show snmp
Chassis: 60FF60
0 SNMP packets input
0 Bad SNMP version errors
0 Unknown community name
0 Illegal operation for community name supplied
0 Encoding errors
0 Number of requested variables
0 Number of altered variables
0 Get-request PDUs
0 Get-next PDUs
0 Set-request PDUs
0 SNMP packets output
0 Too big errors (Maximum packet size 1500)
0 No such name errors
0 Bad values errors
0 General errors
0 Response PDUs
0 Trap PDUs
SNMP global trap: disabled
SNMP logging: disabled
SNMP agent: enabled
```

३

३	
snmp-server *chassis-id*	SNMP

/।

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27 RMON

27.1

27.1.1 rmon alarm

MIB ¼ ¾ Â no ¼ Â

rmon alarm *number variable interval* {**absolute** | **delta** } **rising-threshold** *value*] } fallining-thr

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ЛЬЮ ˘ Л Л Л 1 Â

```
Ruijie(config)# interface fast-Ethernet
```

ЛЬЮ ˘ ЬЖ Y ╟ ‘ Y à trap Â

```
Ruijie(config)# rmon event 1
```

```
Event type : log-and-trap
Community : public
Last time sent : 0d:0h:0m:0s
Owner : zhangsan
Log : 1
Log time : 0d:0h:37m:47s
Log description : ipttl
```

```
Ruijie#  show rmon event
Alarm : 1
Interval : 1
Variable : 1.3.6.1.2.1.4.2.0
Sample type : absolute
Last value : 64
Startup alarm : 3
Rising threshold : 10
Falling threshold : 22
Rising event : 0
Falling event : 0
Owner : zhangsan
```


ven #ber [#patio-strlin

ЛЬЮ ˘ ˛

```
Ruijie#  show rmon history
Entry : 1
Data source : Gi1/1
Buckets requested : 65535
Buckets granted : 10
Interval : 1
Owner : zhangsan
Sample : 198
Interval start : 0d:0h:15m:0s
DropEvents : 0
Octets : 67988
Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
```

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ʒ	
rmon collection history *index* [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]	╗ 8

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27.2.4 show rmon statistics

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show rmon statictics

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JЬHO

```
Ruijie# show rmon statistics
Statistics : 1
Data source : Gi1/1
DropEvents : 0
Octets : 1884085
Pkts : 3096
BroadcastPkts : 161
MulticastPkts : 97
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 1200
Fragments : 0
Jabbers : 0
Collisions : 0
Pkts64Octets : 128
Pkts65to127Octets : 336
Pkts128to255Octets : 229
Pkts256to511Octets : 3
Pkts512to1023Octets : 0
Pkts1024to1518Octets : 1200
Owner : zhangsan
```

rmon collection stats *index* [**owner** *owner-string*]	╕

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TCP

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29.2

29.2.1 show ip route

IP ˘ **show ip route**

2ˆ ЉЮй **show ip route** *network* ʒ ˆ

```
Ruijie# show ip route 30.0.0.0
Routing entry for 30.0.0.0/8
Distance 110, metric 20
Routing Descriptor Blocks:
*192.1.1.1, 00:01:11 ago, via VLAN 1, generated by OSPF, extern 2
```

Routing Descriptor Blocks	Ю IP ầ ầ ầ ầ ầ ầBGP

3ˆ ЉЮй **show ip route count** ʒ ˆ

```
Ruijie# show ip route count
--------- route info ----------
the num of active route: 5
```

4ˆ ЉЮй **show ip route weight** ʒ ˆ

```
Ruijie# show ip route weight
------------[distance/metric/weight]-----------
S   23.0.0.0/8 [1/0/2] via 192.1.1.20
S   172.0.0.0/16 [1/0/4] via 192.0.0.1
```

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30.1

30.1.1 strom-control

8 Â ३ **no** 8 ╗ Â

storm-control {**broadcast** | **multicast** | **unicast**} [{

Ю GigabitEthernet 1/1 Э 8 ╗ ˘ з
й 4M Â

```
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 1/1
Ruijie(config-if)# storm-control multicast 4096
Ruijie(config-if)# end
```

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ʒ	
show storm-control	8 Â

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30.1.2 switchport protected

ʒ й Â ʒ **no** Â

switchport protected

no switchport protected

-	-

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й ɨ˘ Ю а ɣ Л Љ
З ˘ б Л Љ Â **show interfaces** ʒ
Â

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

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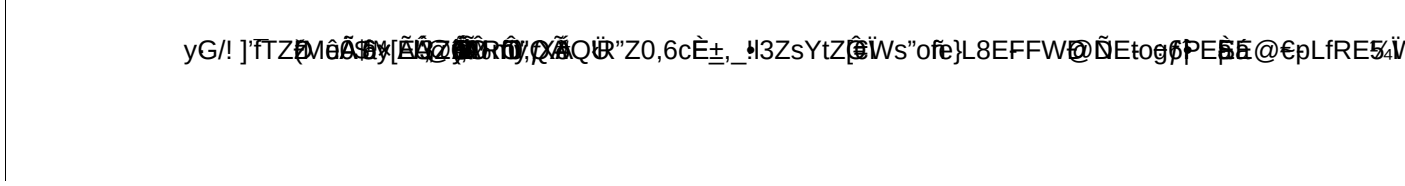
30.1.3 switchport port-security

no

switchport port-security [**violation** {**protect** | **restrict** | **shutdown**}]

no switchport port-security [**violation**]

port-security	
violation protect	
violation restrict	trap
violation shutdown	Trap



	show port-security	Â

/I

show port-security	Â

/ı

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30.1.5 switchport port-security binding

Ю ˘ /ı Љ IP+ MAC IP ˘ ɨ ˘ /ı Љ ˘ a Â no /ı ‘

[**no**] **switchport port-security binding** *mac-address* **vlan** *vlan_id ipv4-address* | *ipv6-address*

[**no**] **switchport port-security binding** *ipv4-address* | *ipv6-address*

mac-address	MAC
Vlan_id	MAC VID

1 10 2

```
Ruijie(config)#inter g0/10
Ruijie(config-if)# switchport port-security maximum 2
```

switchport port-security	
switchport port-security binding	
Switchport port-security mac-address	
switchport port-security aging	
show port-security	

-	-

30.1.8 switchport port-security mac-address

no

[**no**] **switchport port-security mac-address** ***mac-address*** [*vlan vlan-id*]

mac-address	
vlan-id	MAC VID TRUNK vlan-id

1' TRUNK 10 00d0.f800.5555 VID=2'

```
Ruijie(config)#inter g0/10
Ruijie(config-if)# switchport port-security mac-address 00d0.f800.5555 vlan 2
```

३	
switchport port-security	
switchport port-security binding	
switchport port-security mac-address interface	IO
switchport port-security aging	
show port-security	

-	-

30.1.9 switchport port-security mac-address interface

IO ˘ no ‘

[**no**] **switchport port-security interface** i*nterface-id* **mac-address** *mac-address* [*vlan*

1' TRUNK 10 00d0.f800.5555 VID=2'

```
Ruijie(config)# switchport port-security interface g0/10
mac-address 00d0.f800.5555 vlan 2
```

३	
switchport port-security	
switchport port-security binding	
Switchport port-security mac-address	IO
switchport port-security aging	
show port-security	

-	-

30.2

31 802.1X

31.1 dot1x

31.1.1 dot1x auto-req

802.1X ў ╠ ╖ ˘ ৡ **dot1x auto-req** Â ৡ **no** ʌ ў ╠ ╖ Â

[**no**] **dot1x auto-req**

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a ў ╠

ৡ Â

ў ╠ 802.1x ˘ ʌ Ћ **show dot1x auto-req** ৡ ╖ Â

Ю ў ╠ 802.1x ‘

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31.1.3 dot1x auto-req req-interval

ў ╠ ˘ **no** и

dot1x auto-req req-interval *interval*

no dot1x auto-req req-interval

interval	ў ╠ ˘ Æ S

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31.1.4 dot1x auto-req user-detect

ў ╟ ˘ no й Â

dot1x auto-req user-detect

no dot1x auto-req user-detect

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ў ╟ ˘ ʌ Љ **show dot1x auto-req** ʒ ╖ Â

Ю ў Э ɨ ʿ

```
Ruijie# configure terminal
Ruijie(config)# dot1x auto-req user-detect
Ruijie(config)# end
Ruijie# show dot1x auto-req
Auto-Req: Enabled
User-Detect : Enabled
Packet-Num  : 0
Req-Interval: 60 Second
```

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ʒ	
show dot1x auto-req	ў ╟ Â

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31.2 dot1x

31.2.1 dot1x timeout quiet-period

ৡ ^ ৡ ~ ł ^
~ Â ৡ **no** ѝ Â

dot1x timeout quiet-period *seconds*

no dot1x timeout quiet-period

seconds	ł Â 0 65535 Â æ s

10 Â

ৡ Â

ł ˘ a ˘ ÂЛ Лъ **show dot1x**
ৡ Â

Ю ѝ 1000ś

```
Ruijie# configure terminal
Ruijie(config)# dot1x timeout quiet-period 1000
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     3600 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   3 sec
Server Timeout:       5 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

३	
show dot1x	802.1x Â


```
Ruijie(config)# dot1x timeout server-timeout 10
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   3 sec
Server Timeout:       10 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

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Л Л **show dot1x** ৡ 802.1x Â

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31.2.5 dot1x timeout tx-period

ь ч Â

ч no й Â

dot1x timeout tx-period *seconds*

no dot1x timeout tx-period

seconds	Â 0 65535 Â

3 Â

ч Â

Л Љ **show dot1x** ч 802.1x Â

Ю й 10s

```
Ruijie# configure terminal
Ruijie(config)# dot1x timeout tx-period 10
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      10 sec
Supplicant Timeout:   10 sec
Server Timeout:       10 sec
Re-authen Max:        3 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
```

ʒ	
show dot1x	802.1x Â

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31.3 dot1x

31.3.1 dot1x re-authentication

ʒ Â ʒ no Â

[**no**] **dot1x re-authentication**

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show dot1x ʒ 802.1x Â

Ю ˥ ˊ

```
Ruijie# configure terminal
Ruijie(config)# dot1x re-authentication
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Enabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
```

```
Tx Timer Period:     10 sec
Supplicant Timeout:   10 sec
Server Timeout:      10 sec
Re-authen Max:       3 times
Maximum Request:     3 times
```

```
Ruijie(config)# end
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Enabled
Re-authen Period:     1000 sec
Quiet Timer Period:   1000 sec
Tx Timer Period:      10 sec
Supplicant Timeout:   10 sec
Server Timeout:       10 sec
Re-authen Max:        5 times
Maximum Request:      3 times
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
```

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ৡ	802.1x Â

interval	hello
alive	
interval	

Hello ѝ 20 ’
ѝ 250 Â

ৡ Â

˘ Л Љ **show dot1x** ৡ 802.1x Â

hello ѝ 30 , ѝ 120 ‘

```
Ruijie# configure terminal
Ruijie(config)# dot1x probe-timer interval 30
Ruijie(config)# dot1x probe-timer alive 120
Ruijie(config)# end
Ruijie# show dot1x probe-timer
Hello Interval: 30 Seconds
Hello Alive: 120 Seconds
```

q

ৡ 802.1X Â ৡ **no** /I Â

dot1x auth-address-table address *mac-addr* **interface** *interface*

no dot1x auth-address-table address *mac-addr* **interface** *interface*

mac-addr

eap-md5	802.1x EAP-MD5 Â
chap	802.1x CHAP Â
pap	802.1x PAP Â

EAP-MD5

ৡ Â

ʌ Л৳ **show dot1x** ৡ 802.1x Â

Ю 802.1x

```
Ruijie# configure terminal
Ruijie(config)# dot1x auth-mode chap
Ruijie(config)# end
Ruijie#
```

ৡ	
show dot1x	802.1x Â

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31.5.4 dot1x default

802.1x ↑ Â

dot1x default

-	-

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count	Â

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```
Ruijie# configure t
Ruijie(config)# dot1x private-supplicant-only
Ruijie(config)# end
Ruijie#
```

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ʒ	
show dot1x private-supplicant-only	Â

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31.5.11 dot1x port-control auto

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Ю 802.1x б

```
Ruijie# configure terminal
```

1 ruijie.net/web

```
Ruijie(config)# dot1x redirect url http://ruijie.net/web
```

dot1x redirect for special tcp-destination port	web
dot1x redirect time-out	
dot1x redirect num for special source-ip	
show dot1x	dot1x

-	-

31.5.15 dot1x redirect for special tcp-destination port

ip web 80 8080 16 TCP no dot1x redirect for special tcp-destination port port_mum

[**no**] **dot1x redirect for special tcp-destination port** *port num*

port num	TCP

tcp 80 8080

TCP 1-65535

1 TCP 8443

```
Ruijie(config)#dot1x redirect for special tcp-destination port
8443
```

ʒ	
dot1x redirect url	
dot1x redirect time-out	
dot1x redirect num for special source-ip	˘
show dot1x	dot1x

ʌ

ʒ	
-	-

31.5.16 dot1x redirect time-out

(æ˙), ѝ 3 ʼ ʌ ѝ 1-10 Â no ʌ Ѫ ʒ ˙

dot1x redirect time-out port *time-out-interval*

no dot1x redirect time-out port

time-out-interval	

3

ʒ

1˙ ѝ 5 ˙

```
Ruijie(config)# dot1x redirect time-out 5
```

ʒ	
dot1x redirect url	ѝ ˘ ip ѝ ip web

dot1x redirect for special tcp-destination port	
dot1x redirect num for special source-ip	
show dot1x	dot1x

-	-

31.5.17 dot1x redirect num for special source-ip

1 no

dot1x redirect num for special source-ip *num*

no dot1x redirect num for special source-ip

num	

1

1 3

```
Ruijie(config)# dot1x redirect num for special source-ip 3
```

show dot1x	dot1x

/I

-	-

ৡ

31.6 dot1x

31.6.1 show dot1x

802.1x Â

show dot1x

-	-

ৡ Â

IO ‘

```
Ruijie# show dot1x
802.1X Status:       Enabled
Authentication Mode:  EAP-MD5
Authed User Number:   0
Re-authen Enabled:    Disabled
Re-authen Period:     3600 sec
Quiet Timer Period:   10 sec
Tx Timer Period:      3 sec
Supplicant Timeout:   3 sec
Server Timeout:       5 sec
Re-authen Max:        3 times
Maximum Request:      3 times
```

```
Filter Non-RG Supp:   Disabled
Client Oline Probe:   Disabled
Eapol Tag Enable:     Disabled
Authorization Mode:   Group Server
Ruijie#
```

ৡ	
dot1x auth-mode	802.1x Â
dot1x max-req	Â
dot1x port-control auto	╗ Â
dot1x reauth-max	
dot1x re-authentication	Â
dot1x timeout quiet-period	ɨ Â
dot1x timeout re-authperiod	Â
dot1x timeout server-timeout	┗ Â
dot1x timeout supp-timeout	Â
dot1x timeout tx-period	˘ Â

ʌ

ৡ

-	-

31.6.2 show dot1x auth-address-table

ৡ 802.1X Â

show dot1x auth-address-table[*addressmac-addr*][*interface interface*]

mac-addr	ʌ

dot1x timeout supp-timeout	Â
dot1x timeout tx-period	Â

31.6.10 show dot1x summary

৩ 802.1X

show dot1x summary

```
Authorization ip address is 192.168.217.64
Start accounting
Permit proxy user
Permit dial user
IP privilige is 2
```

ʒ

ʒ	
dot1x auth-mode	802.1x Â
dot1x max-req	Â
dot1x port-control auto	╗ Â
dot1x reauth-max	
dot1x re-authentication	Â
dot1x timeout quiet-period	ɨ Â
dot1x timeout re-authperiod	Â
dot1x timeout server-timeout	╘ Â
dot1x timeout supp-timeout	Â
dot1x timeout tx-period	˘ Â

ʎ

ʒ

-	-

31.6.12 show dot1x timeout

ʒ 802.1X

show dot1x timeout quiet-period

show dot1x timeout re-authperiod

show dot1x timeout server-timeout

show dot1x timeout supp-timeout

31.7

31.7.1 dot1x redirect

IO ╖ ˘ ৡ **dot1x redirect** Â ৡ **no** IO ╖ Â

dot1x redirect

no dot1x redirect

-	-

ৡ

IO IO ╖ ‘

```
Ruijie# configure terminal
Ruijie(config)# dot1x redirect
```

ৡ	

/I

10.2(5)	ৡ

31.7.2 http redirect

HTTP IP ╖ ˘ ৡ **http redirect** Â ৡ **no** HTTP IP Â

http redirect *ip-address*

३	
show http redirect	HTTP

३	
10.2(5)	३

31.7.8 show http redirect

HTTP Â

show http redirect

218.30.66.101 255.255.255.255 Off

http redirect	HTTP IP
http redirect direct-site	
http redirect homepage	IO ŭ
http redirect port	HTTP
http redirect session-limit	HTTP
http redirect timeout	

10.2(5)	

AAA @€ S*Ð

-	-

local	

	default	‘ ˘ ɨ ⱶ ⱶ й Network Â

ৡ Э˘ ৡ **authorization commands** Â ৡ no ৸ Э ৡ ╖ Â

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

no authorization commands *level*

level	ৡ ˘ 0~15˜ ᾱ ৡ ɬ Â
default	˘ ৡ Â
list-name	Ⱨ ৡ Â

AAA ৡ ╖ Â

ৡ Â

ৡ ˘ ╠ Э Â Э ৡ ˘ ৸ ৡ Â Ⱨ ˘ ˘ Э ৡ a ˘ Ⱨ ৡ Â

Ю ¨ ѝ cmd ৡ ˘ 15 ৡ ˘ TACACS+ ѝ Ь ˘ Ь none Â ɬ VTY 0 – 4 Э˙

```
Ruijie(config)# aaa authorization commands 15 cmd group tacacs+ none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization commands 15 cmd
```

ৡ	
aaa new-model	AAA Ь
aaa authorization commands	Ⱨ AAA ৡ

৸

-	-

32.2.7 authorization exec

Exec Э˘ ৡ **authorization exec** Â
ৡ no ৲ Э Exec ╖ Â

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

no authorization exec

default	˘ Exec Â
list-name	ЬЖ Exec Â

AAA Exec ╖ Â

ৡ Â

Exec ˘ ╟ Э Â Э
Exec ˘ ৲ ৡ Â ЬЖ ˘
˘ Э Exec a ˘ ЬЖ Exec
Â

Ю ¨ ѝ exec-1 Exec ˘ RADIUS ѝ Ь ˘
Ь none Â ѣ VTY 0 – 4 Э˙

```
Ruijie(config)# aaa authorization exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# authorization exec exec-1
```

ৡ	
aaa new-model	AAA Ь
aaa authorization commands	ЬЖ AAA Exec

৲

-	-

32.3

AAA

aaa new-model	AAA ⊾
aaa authentication	Ᵽⱪ AAA
accounting commands	Э Exec

ⱷ

ꝛ

-	-

32.3.3 aaa accounting network

ꝛ **aaa accounting network** Â ⊩ ꝛ no ⱷ ⊩ ⊤ Â

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

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


```
Ruijie(config)# aaa accounting network default start-stop group
radius
```

aaa new-model	AAA
aaa authorization network	AAA
aaa authentication	AAA

-	-

32.3.6 accounting commands

accounting commands Â no Э Â

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

no accounting commands *level*

level	0~15 Â
default	Â
list-name	Â

Â

Э Â Э Â a Â

Ю

-	-

32.3.7 accounting exec

Exec Э˘ ৡ **accounting exec** Â
ৡ no ৸ Э Exec ╖ Â

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

no accounting exec

default	˘ Exec Â
list-name	Ьж Exec Â

╖

ৡ Â

Exec ˘ ╟ Э Â Э
Exec ˘ ৸ ৡ Â Ьж ˘
˘ Э Exec a ˘ Ьж Exec
Â

Ю ¨ ѝ exec-1 Exec ˘ RADIUS ѝ Ь ˘
Ь none Â ł VTY 0 – 4 Э˙

```
Ruijie(config)# aaa accounting exec exec-1 group radius none
Ruijie(config)# line vty 0 4
Ruijie(config-line)# accounting exec exec-1
```

ৡ	
aaa new-model	AAA Ь
aaa accounting commands	Ьж AAA Exec

৸

ৡ

	-	-

32.4 AAA

32.4.1 aaa domain

˘ Â ३ no ४ ३ Â

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

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

default	˘

¨

32.4.2 aaa domain enable

ⁿ AAA ⊾ ˘ Ю й Â Ą˘ ”I
ⁿ AAA ⊾ Â ʒ no Â

aaa domain enable

no aaa domain enable

-	-

ⁿ AAA ⊾ Â

ʒ Â

ⁿ AAA ⊾ ˘ Â

ⁿ AAA ⊾ ‘

Ruijie(config)# **aaa domain enable**

ʒ	
aaa new-model	AAA ⊾
show aaa domain	

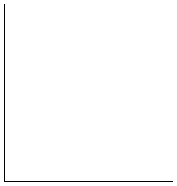
ʎ

-	-

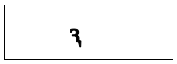
32.4.3 access-limit

⁸˘ ʎ IEEE802.1x ’ ʒ no ʌ ʒ Â

access-limit *num*



default Â



३ Â

aaa new-model	AAA ╘
aaa domain enable	¨ AAA ╘
show aaa domain	

/1

¾	
-	-

32.4.8 show aaa domain

Â

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

default	˘
domain-name	¨

¾ Â

a ¨ ˘ Â

Ю ¨ й domain.com Â

```
Ruijie# show aaa domain domain.com

=============Domain domain.com=============
State: Active
Username format: Without-domain
Access limit: No limit
802.1X Access statistic: 0

Selected method list:
 authentication dot1x default
```

¾	¾	

aaa new-model	AAA Ь
aaa domain enable	¨ AAA Ь

/I

-	-

३

32.4.9 username-format

Ю NAS б Ь ¨ ˘ ३ no
Â

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

no username-format

without-domain	
with-domain	a

Ю a Â

Â

Ю NAS б Ь ˘ ¨ Â

ʒ		
	-	-

32.5 AAA

32.5.1 aaa group server

AAA ⊾ Â ʒ no ⊾ Â

aaa group server {**radius** | **tacacs+**} *name*

no aaa group server {**radius** | **tacacs+**} *name*

name	⊾ ⅄ ˘ a ѝ ľ radius Ľ ľ tacacs+ Ľ ѝ RADIUS TACACS+ ⊾ Â

ʒ Â

ʒ AAA ⊾ ˘ RADIUS TACACS+ ⊾ Â

Ю Â

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:   1
Server List:
```

ʒ	
show aaa group	aaa ⊾

ʌ

३		
	-	-

32.5.2 ip vrf forwarding

ѝ AAA

-	-

32.5.4 show aaa group

AAA ┗ Â

show aaa group

-	-

ৡ Â

ৡ AAA ⁸ ┗ Â

Ю Â

```
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
IP Address: 192.168.217.64
Authentication Port: 1812
Accounting Port: 1813
Referred:  1
```

ৡ	
aaa group server	AAA ┗

/I

-	-

32.6 AAA

ৡ Â

login ˘

IO ‘

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication lockout-time 5
```

ৡ	
Show running-config	
Show aaa lockout	login

ৡ

-	-

32.6.3 aaa new-model

RGOS AAA ┗╖ ˘ ৡ **aaa new-model** AAA Â
ৡ **no** AAA ┗ Â

aaa new-model

no aaa new-model

-	-

AAA ┗

ৡ Â

ৡ AAA ৡ˘ AAA ┗˘ **aaa new-model**
AAA ┗ Â AAA˘ AAA ৡ a ⁄ Â

IO AAA ┗ Â

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

ʒ	
aaa authentication	ȞȜ
aaa authorization	ȞȜ
aaa accounting	ȞȜ

ʎ

-	-

32.6.4 clear aaa local user lockout

clear aaa local user lockout {**all** | **user-name** <*word*>}

<*word*>	ID

ʒ Â

˘ ʎ Ɯ ≠ ʎ Ɯ

Ю ʻ

```
Ruijie# clear aaa local user lockout all
```

ʒ	
show running-config	
show aaa lockout	login

ʎ

-	-

32.6.5 debug aaa

AAA ┗ Â ३ **no** Â

debug aaa event

no debug aaa event

-	-

३ EXEC Â

33 SSH

33.1 SSH

33.1.1 crypto key generate

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

-	-

33.1.2 crypto key zeroize

SSH ╚ ʼΩ ˘ Ю˘ ʒ˙

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

rsa	RSA
dsa	DSA

ʒ

ʒ ╚ ʼΩ Â ɨ˘ SSH Server ѝ ѝ DISABLE Â SSH Server˘ **no enable service ssh-server** ʒ Â

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

ʒ	
show ip ssh	SSH Server Â
crypto key generate {**rsa**|**dsa**}	DSA б RSA Â

/l RGOS10.1 Љ Э

-	-

33.1.3 ip ssh authentication-retries

SSH Server Â ʒ no ѝ Â

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

retry times	Â

Ю ѝ 3 Â ѣ˘ **no ip ssh authentication-retries** ৡ ≠ Л Љ ѝ Â

ৡ

ৡ SSH Server Â SSH Server ˘ Ў ╖˘ ѝ Â **show ip ssh** ৡ SSH Server Â

ѝ 2ʹ

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

ৡ	
show ip ssh	SSH Server Â

Л RGOS10.1 Љ Э

ৡ

-	-

33.1.4 ip ssh time-out

SSH Server Â ৡ **no** ѝ Â

ip ssh time-out *time*

no ip ssh time-out

time	Â

Юʹ ѝ 120s Â ѣ˘ **no ip ssh time-out** ৡ˘ ѝ Â

३

é

ɗ

/ı 2˙

```
Ruijie# configure terminal
Ruijie(config)# ip ssh version 2
```

ʒ

ʒ	
show ip ssh	SSH Server Â

/ı RGOS10.1 ЛЬЭ

ʒ

-	-

33.2

33.2.1 disconnect ssh

SSH Â

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

session-id	SSH Â

ʒ

SSH ˘ SSH Â VTY
˘ SSH Â /ı SSH Â

```
Ruijie# disconnect ssh 1

Ruijie# disconnect ssh vty 1
```

ʒ

ʒ	
show ssh	SSH Â

show ip ssh

-	-

ʒ

SSH Server Â ʻ ầ SSH Server ầ ầ Â	
a	SSH ˘ ⊾ ˘ ÿ SSH ѝ a ⁄ Â

Ruijie# **show ip ssh**

ʅ

SSH Â ʻ . VTY ȁ SSH ȁ ╗
ȁ ȁ ȁ ¨ Â

Ruijie# **show ssh**

ʅ	
-	-

H*ǖ Û RGOS10.1 ЛЬ Э

[redacted]

34 CPU

34.1

34.1.1 cpu-protect type packet-type pps pps_value

CPU Â

cpu-protect type { **arp** | **bpdu** | **dhcp** | **ipv6mc** | **igmp** | **rip** | **ospf** | **vrrp** | **pim** | **ttl1** | **unknown-ipmc** | **dvmrp** | …} **pps** *pps_value*

pps_value	Â

CPU ѝ 1000 Â

ʒ Â

Ю CPU BPDU ʻ

```
Ruijie(config)# cpu-pr type bpdu pps 100
Set packet type bpdu pps 100 .
```

ʒ

ʒ	
cpu-protect type packet-type pri *pri_num*	CPU "I Â

/ı

ʒ

-	-

34.1.2 cpu-protect type packet-type pri pri_num

Â

CPU Â

IO S9610 CPU Â

```
Ruijie# show cpu-protect mboard
ype        Pps      Total    Drop
------------ --------- --------- ---------
arp         500       19       0
bpdu        200       24       0
dhcp        0         0        0
gvrp        0         0        0
ipv6-mc     0         0        0
dvmrp       0         0        0
igmp        0         0        0
ospf        0         0        0
pim         0         0        0
rip         0         0        0
vrrp        0         0        0
unknow-ipmc  0         0        0
ttl1        0         0        0
...
```

show cpu-protect slot *slot-num*	CPU Â

/I

-	-

34.2.2 show cpu-protect type

show cpu-protect type { **arp** | **bpdu** | **dhcp** | **ipv6mc** | **igmp** | **rip** | **ospf** | **vrrp** | **pim** | **ttl1** | **unknown-ipmc** | **dvmrp | ...**} *dvmrp*

35 DoS

35.1

35.1.1 ip deny invalid-l4port

¶ Â ¾ **no** ¶ Â

ip deny invalid-l4port

no ip deny invalid-l4port

-	-

Ю ¶ Â

¾ Â

1' Э ¶ '

```
Ruijie(config)# ip deny invalid-l4port
```

2' Э ¶ '

```
Ruijie(config)# no ip deny invalid-l4port
```

¾	
show ip deny invalid-l4port	

-	-

35.1.2 ip deny invalid-tcp

TCP ¶ Â ¾ **no** TCP ¶ Â

ip deny invalid-tcp

no ip deny invalid-tcp

-	-

Ю TCP ╖ Â

ʒ Â

1ʿ Э TCP ╖ ʿ

```
Ruijie(config)# ip deny invalid-tcp
```

2ʿ Э TCP ╖ ʿ

```
Ruijie(config)# no ip deny invalid-tcp
```

ʒ

ʒ	
show ip deny invalid-tcp	TCP

4	

1ʿ Ɔ Land ╖ ʿ

```
Ruijie(config)# ip deny land
```

2ʿ Ɔ Land ╖ ʿ

```
Ruijie(config)# no ip deny land
```

ʒ

ʒ	
show ip deny land	Land

ʒ

-	-

35.2

35.2.1 show ip deny invalid-l4port

Â

show ip deny invalid-l4port

-	-

ʒ Â

```
Ruijie# show ip deny invalid-l4port
 DoS Protection Mode                  State
-------------------------------       -----
 protect against invalid l4port attack  Off
```

ʒ

ʒ	
-	-

ʎ

-	-

Â

```
Ruijie# show ip deny land
DoS Protection Mode              State
-------------------------------  -----
protect against land attack      On
```

(**no**) **ip deny land**	Land

-	-

36 DAI

36.1 VLAN DAI

36.1.1 ip arp inspection vlan

ʒˇ ʎ Ʊ *vlan-id* VLAN DAI ╗ Â ʒ no ʎ Ʊ *vlan-id* VLAN DAI ╗ ˇ *vlan-id*ˇ VLAN Э DAI ╗ Â

ip arp inspection vlan *vlan-id*

no ip arp inspection vlan [*vlan-id*]

[illegible]

36.2

36.2.1 ip arp inspection trust

Y /ˆ ˘ ʒ **ip arp inspection trust** Â ʒ **no**
Y ѝ a Â

ip arp inspection trust

no ip arp inspection trust

-	-

a Â

ʒ Â

ARP DAI ˘ /ˆ Љ è ˆ
˘ a ARP ˘ Â

NFPP( ) ˘ ⁸ NFPP ˘ a Ą
DAI ˘ ʒ **show ip arp inspection interface**
/ˆ Â

ЉЮ ˘ gigabitEthernet 0/19 ˆ Â

```
Ruijie(config)# interface gigabitEthernet 0/19
Ruijie(config-if)# ip arp inspection trust
```

ʒ

ʒ	
show ip arp inspection interface	DAI ˘ Â

/ˆ

ʒ

-	-

36.3 DHCP Snooping

VLAN DAI ╥ ˘ ɜ ARP ɣ a ʌ ˘ ARP ˘ DHCP Snooping . ˘ ÂDHCP Snooping ê DHCP Snooping Ì Â

Ю arp Â

show anti-arp-spoofing

¾

Ruijie#**show** anti-arp-spoofing

port	ip
-------	----------
Fa0/1	192.168.1.1

¾	
anti-arp-spoofing ip	arp ¾

/I

-	-

38 IP Source Guard

38.1 IP Source Guard

38.1.1 ip source binding

IP ╗ ˘ **no** Â

[**no**] **ip source binding** *mac-address* **vlan** *vlan-id ip-address* **interface** *interface-id*

mac-address	╗ MAC ’
vlan-id	╗ vlan id’
ip-address	╗ IP ’
interface-id	╗ Â

╗ Â

ʒ Â

ʒ ⁄ı Ʊ ǀ ⁄ı Ʊ IP Source Guard ˘ a DHCP ⁸ Â

Ю 1 ‘

```
Ruijie# configure terminal
Ruijie(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1
interface FastEthernet 0/1
Ruijie(config)# end
Ruijie# show ip source binding
MacAddress    IpAddress  Lease(sec)   Type     VLAN  Interface
------------- --------- ----------   ----     ----  ------------
0000.0000.0001 1.1.1.1   infinite    static    1  FastEthernet 0/1
```

show ip source binding	IP

ʌ

-	-

38.2 IP Source Guard

38.2.1 ip verify source

Э IP Source Guard ╖ ˘ **no** ╖ Â

[**no**] **ip verify source** [**port-security**]

port-security	IP Source Guard ╖ IP+MAC Â

Â

Â

३ IP Source Guard ╖ ˘ ʌЛъ IP ˘ IP+MAC ’

IP Source Guard ╖ DHCP Snooping Э ˘ ≠ ˘ Trust Лъ DHCP Snooping ⁸ Э IP Source Guard ╖ ˘ IP Source Guard ╖ a Â

Ю 1 Э IP Source Guard ╖ ‘

```
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip verify source
Ruijie(config-if)# end
```

३	
show ip source binding	IP Source Guard

ʌ

¾	
-	-

38.3 IP Source Guard

38.3.1 show ip source binding

¾ IP Â

show ip source binding [*ip-address*] [*mac-address*] [**dhcp-snooping**] [**static**] [**vlan** *vlan-id*] [**interface** *interface-id*]

ip-address	ip ’
mac-address	mac ’
dhcp-snooping	╟ ’
static	’
vlan-id	vlan ’
interface-id	Â

Â

¾ Â

Â

IO ‘

```
Ruijie# show ip source binding static
MacAddress    IpAddress  Lease(sec)   Type    VLAN  Interface
------------- --------- ----------   ----    ----  ------------
0000.0000.0001 1.0.0.1   infinite    static    1  FastEthernet 0/1
Total number of bindings: 1
```

¾	
ip source binding	IP Â

/ı

ʒ

-	-

38.3.2 show ip verify source

ʒ IP Source Guard

show ip verify source [**interface** *interface-id*]

interface-id	Â

Â

ʒ

interface IP Source Guard ╗ ˘

Ю ‘ “IP source guard is not configured on the interface FastEthernet 0/10” Â

IP Source Guard (**mode**) Ю‘

- **inactive-no-snooping-vlan** ‘ DHCP Snooping 8 ’
- **inactive-trust-port** ‘ DHCP Snooping 8 Э’
- **active** ‘ DHCP Snooping 8 Э Â

Ю ‘

```
Ruijie # show ip verify source
Interface Filter-type Filter-mode Ip-address Mac-address   VLAN
--------- ----------- ----------- ---------- -------------- ----
FastEthernet 0/3   ip        active      3.3.3.3                   1
FastEthernet 0/3   ip        active      deny-all
FastEthernet 0/4   ip+mac    active       4.4.4.4   0000.0000.0001  1
FastEthernet 0/4   ip+mac    active       deny-all
```

ʒ

ʒ	
ip verify source	IP Source Guard ╗ Â

/1

३

-	-

39 NFPP

39.1

39.1.1 cpu-protect sub-interface {manage|protocol|route} pps

ꓘ Â

cpu-protect sub-interface {*manage*|*protocol*|*route*} pps *pps_vaule*

pps_vaule	˘ ʌ 1-8192

(Manage) 3000˘
(Route) 3000˘
#A2O (Protocol) 3000 Â

ꓘ

G!5B_

```
Ruijie(config)# cpu-protect sub-interface manage pps 200
```

ÌGQ.

ꓘ	
cpu-protect sub-interface { *manage* | *protocol* | *route* } **percent**	G!5B!pO_y[#Gfi

/ı

ꓘ

-	-

39.2

39.2.1 cpu-protect sub-interface {manage|protocol|route} percent

¾ . ¦ Â

cpu-protect sub-interface {*manage*|*protocol*|*route*} **percent** *percent_vaule*

	pps	˘ Æ ˘ ∧ [1,9999] Â

IP MAC 8 ˘
200 Â

३ NFPP

a Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# arp-guard attack-threshold per-src-mac 3
Ruijie(config-nfpp)# arp-guard attack-threshold per-port 50
```

Ruijie(config)# **nfpp**
Ruijie(config-nfpp)# **arp-guard enable**

ৡ	
nffp arp-guard enable	Э ARP ╖
show nfpp arp-guard summary	

-	-

39.3.3 arp-guard isolate-period

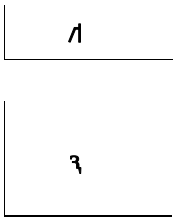
arp-guard isolate-period {*seconds* | **permanent**}

seconds	0 [30, 86400]
permanent	

NFPP

Ruijie(config)# **nfpp**
Ruijie(config-nfpp)# **arp-guard isolate-period** 180

ৡ	
nfpp arp-guard isolate-period	Э
show nfpp arp-guard summary	



39.3.4 arp-guard monitor-p

३ Â

arp-guard monitor-period *seconds*

39.3.5 arp-guard monitored-host-limit

३ ʎ ў Â

arp-guard monitored-host-limit *number*

number	ʎ ў ˘ ʎ ѝ 1 4294967295

ʎ ў ѝ 1000 Â

३ NFPP

ʎ ў 1000 ˘ ʎ ў 1000˙ a ʎ ў ˘ ľ %ERROR˙ The value that you configured is smaller than current monitored hosts 1000˙ ʎ ў ~ ˘ please clear a part of monitored hosts. Ł ˘ ĺ ў Â

ʎ ў ˘ ľ % NFPP_ARP_GUARD-4-SESSION_LIMIT: Attempt to exceed limit of 1000˙ ʎ ў ~ monitored hosts. Ł Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard monitored-host-limit 200
```

३	
show nfpp arp-guard summary	

ʌ

-	-

39.3.6 arp-guard rate-limit

Â

arp-guard rate-limit {per-src-ip | per-src-mac | per-port} *pps*

ʒ NFPP

10 15 ЛЬЭ ARP ˘ MAC IP ˦ ˘ MAC IP IP a ˦ ˘ й Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# arp-guard scan-threshold 20
```

ʒ

ʒ	
nfpp arp-guard scan-threshold	Э
show nfpp arp-guard summary	
show nfpp arp-guard scan	ARP
clear nfpp arp-guard scan	ARP

˦

ʒ

-	-

39.3.8 clear nfpp arp-guard hosts

˦ ў ˘ ў ˘ Â

clear nfpp arp-guard hosts [**vlan** *vid*] [**interface** *interface-id*] [*ip-address* | *mac-address*]

vid	
interface-id	¨
ip-address	IP
mac-address	MAC

ʒ

a ˘ ў Â

VLAN 1 g 0/1 ў Â

```
Ruijie# clear nfpp arp-guard hosts vlan 1 interface g0/1
```

ʒ

ʒ	
arp-guard attack-threshold	
nfpp arp-guard policy	
show nfpp arp-guard hosts	ʌ ў

ʌ

	seconds	˘ Æ ˘ ∧ 0 [30, 86400]ˇ 0 a Â
	permanent	

˘ Â

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp arp-guard scan-threshold 20
```

३	
nfpp dhcp-guard policy	
show nfpp dhcp-guard summary	
show nfpp dhcp-guard hosts	∧ ў
clear nfpp dhcp-guard hosts	∧ ў

-	-

39.4.2 dhcp-guard enable

DHCP ╖ Â

dhcp-guard enable

-	-

DHCP ˘ Â

NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard enable
```

३	
nffp dhcp-guard enable	Э DHCP ╖
show nfpp dhcp-guard summary	

-	-

39.4.3 dhcp-guard isolate-period

ʒ Â

dhcp-guard isolate-period {*seconds* | **permanent**}

seconds	˘ Æ ˘ ʌ 0 [30, 86400]˜ 0 a Â
permanent	

0˜ a Â

ʒ NFPP

˘ ˇ ѝ ˆ ˜ Â ˘ ˘ ж , ˘ Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard isolate timeout 180
```

ʒ

ʒ	
nfpp dhcp-guard isolate-period	Э
show nfpp dhcp-guard summary	

ʌ

ʒ

-	-

39.4.4 dhcp-guard monitor-period

ʒ Â

dhcp-guard monitor- period *seconds*

seconds	˘ æ ˘ ˆ [180, 86400] Â

600 Â

꞉ NFPP

- Ą˘ ѝ 0˝ ˘ ѝ Â ˘ ѝ ˘ ╟ ˆ ˘ з ѝ Â ѝ 0 Ю Ѭ Â
- ÿ ˘ ˘ a Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitor-period 180
```

꞉

꞉	
show nfpp dhcp-guard summary	
show nfpp dhcp-guard hosts	ˆ ў
clear nfpp dhcp-guard hosts	ў

ˆ

꞉

-	-

39.4.5 dhcp-guard monitored-host-limit

꞉ ˆ ў Â

dhcp-guard monitored-host-limit *number*

number	ˆ ў ˘ ˆ ѝ 1 4294967295

ˆ ў ѝ 1000

ʒ

NFPP

ʌ ў 1000 ˘ ʌ ў 1000˜ a ʌ ў ˘ l' %ERROR˙ The value that you configured is smaller than current monitored hosts 1000˜ ʌ ў ˜ ˘ please clear a part of monitored hosts. Ł ˘ ǂ ў Â

ʌ ў ˘ l' % NFPP_DHCP_GUARD-4-SESSION_LIMIT: Attempt to exceed limit of 1000˜ ʌ ў ˜ monitored hosts. Ł Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard monitored-host-limit 200
```

ʒ

ʒ	

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# dhcp-guard rate-limit per-src-mac 8
Ruijie(config-nfpp)# dhcp-guard rate-limit per-port 100
```

¾	
nfpp dhcp-guard policy	
show nfpp dhcp-guard summary	

/1

-	-

39.4.7 clear nfpp dhcp-guard hosts

˘ Â

clear nfpp dhcp-guard hosts [*vlan vid*] [**interface** *interface-id*] [*mac-address*]

vid	
interface-id	¨
mac-address	MAC

a ˘ Â

VLAN 1 g 0/1 Â

```
Ruijie# clear nfpp dhcp-guard hosts vlan 1 interface g0/1
```

¾	
dhcp-guard attack-threshold	
nfpp dhcp-guard policy	

	show nfpp dhcp-guard hosts	ў

३

a Â

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp dhcp-guard policy per-src-mac 3 10
Ruijie(config-if)# nfpp dhcp-guard policy per-port 50 100
```

३	
dhcp-guard attack-threshold	
dhcp-guard rate-limit	
show nfpp dhcp-guard summary	
show nfpp dhcp-guard hosts	ʎ ў
clear nfpp dhcp-guard hosts	ў

ʎ

10.4	३

39.5 ICMP

39.5.1 icmp-guard attack-threshold

˘ Ą˚ ѝ ѝ Â

icmp-guard attack-threshold { **per-src-ip** | **per-port**} *pps*

per-src-ip	IP Â
per-port	Â
pps	˘ Æ ˘ ʎ [1,9999] Â

IP 1200 ˘ 1500 Â

-	-

39.5.4 icmp-guard monitor-period

३ Â

icmp-guard monitor-period *seconds*

seconds	˘ Æ ˘ ४ [180, 86400] Â

ʌ ў a ˘ ў ˘ ʌ Ʊ ʒ Â
ʌ ў CPU ICMP CPU˘ a Â
ʌ Ʊ ў a Â
500 ʌ ў Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# icmp-guard trusted-host 1.1.1.0 255.255.255.0
```

ʒ

ʒ	
show nfpp icmp-guard trusted-host	

ʌ

ʒ

-	-

39.5.8 clear nfpp icmp-guard hosts

ʌ ў ˘ ў ˘ Â

clear nfpp icmp-guard hosts [*vlan vid*] [**interface** *interface-id*] [*ip-address*]

vid	
interface-id	¨
ip-address	IP

ʒ

a ˘ ў Â

VLAN 1 g 0/1 ʌ ў Â

```
Ruijie# clear nfpp icmp-guard hosts vlan 1 interface g 0/1
```

ʒ

ʒ	
icmp-guard attack-threshold	

¾ Э Â

nfpp icmp-guard isolate-period {*seconds* | **permanent**}

[redacted]

˘ Â

३

a Â

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp icmp-guard policy per-src-ip 5 10
Ruijie(config-if)# nfpp icmp-guard policy per-port 100 200
```

३	
icmp-guard attack-threshold	
icmp-guard rate-limit	
show nfpp icmp-guard summary	
show nfpp icmp-guard hosts	∧ ў
clear nfpp icmp-guard hosts	ў

∧

10.4	३

39.6 IP

IP ЛЬЮ ३'

- ip-guard attack-threshold
- ■■

- nfpp ip-guard enable
- nfpp ip-guard isolate-period
- nfpp ip-guard policy
- nfpp ip-guard scan-threshold

a	˘ IP IP a IP IP Â IP IP IP ˘ CPP˘ CPU Protect Policy˜ Â ɣ a IP ˘ Ь IP Â

39.6.1 ip-guard attack-threshold

˘ Ą˚ ѝ ѝ Â

ip-guard attack-threshold {**per-src-ip** | **per-port**} *pps*

per-src-ip	IP Â
per-port	Â
pps	˘ Æ ˘ ∧ [1,9999] Â

IP 20 ˘ 200 Â

३ NFPP

a Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard attack-threshold per-src-ip 2
Ruijie(config-nfpp)# ip-guard attack-threshold per-port 50
```

३	
nfpp ip-guard policy	
show nfpp ip-guard summary	
show nfpp ip-guard hosts	∧ ў
clear nfpp ip-guard hosts	ў

/

ৡ

10.4	ৡ

39.6.2 ip-guard enable

ৡ IP ╖ Â

ip-guard enable

-	-

IP ╖

ৡ NFPP

Ruijie(config)# **nfpp**
Ruijie(config-nfpp)# **ip-guard enable**

ৡ	
nffp ip-guard enable	Э IP ╖
show nfpp ip-guard summary	

ﾉ

ৡ

10.4	ৡ

39.6.3 ip-guard isolate-period

ৡ Â

ip-guard isolate-period {*seconds* | **permanent**}

seconds	˘ Æ ˘ ﾍ 0 [30, 86400] Â

86400] Â

Â

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard monitor-period 180
```

ৡ	
show nfpp ip-guard summary	
show nfpp ip-guard hosts	ʎ ў
clear nfpp ip-guard hosts	ў

ʎ

10.4	ৡ

39.6.5 ip-guard monitored-host-limit

ৡ ʎ ў Â

ip-guard monitored-host-limit *number*

¾

```
Ruijie(config-nfpp)# ip-guard monitored-host-limit 200
```

¾

¾	
show nfpp ip-guard summary	

¼

¾

10.4	¾

39.6.6 ip-guard rate-limit

Â

ip-guard rate-limit {per-src-ip | per-port} *pps*

per-src-ip	IP
per-port	
pps	˘ ¼ [1,9999] Â

IP 20 ˘ 100 Â

¾ NFPP

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# ip-guard rate-limit per-src-ip 2
Ruijie(config-nfpp)# ip-guard rate-limit per-port 50
```

¾

¾	
nfpp ip-guard policy	
show nfpp ip-guard summary	

¼

¾

	10.4	३

39.6.7 ip-guard scan-threshold

Â

ip-guard scan-threshold *pkt-cnt*

	mask	IP

ʎ

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10.4	ʒ

39.6.11 nfpp ip-guard isolate-period

ʒ Э Â

nfpp ip-guard isolate-period {*seconds* | **permanent**}

seconds	˘ Æ ˘ ʎ 0 [30, 86400]˘ 0 a Â
permanent	

˘ Â

ʒ

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard isolate-period 180
```

ʒ

ʒ	
ip-guard isolate-period	
show nfpp ip-guard summary	

ʎ

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10.4	ʒ

39.6.12 nfpp ip-guard policy

Э Â

nfpp ip-guard policy {**per-src-ip** | **per-port**} *rate-limit-pps attack-threshold-pps*

per-src-ip	IP Â
per-port	Â
rate-limit-pps	˘ ∧ 1 9999 Â
attack-threshold-pps	˘ ∧ 1 9999 Â

˘ Â

३

a Â

```
Ruijie(config)# interface G 0/1
Ruijie(config-if)# nfpp ip-guard policy per-src-ip 2 10
Ruijie(config-if)# nfpp ip-guard policy per-port 50 100
```

३	
ip-guard attack-threshold	
ip-guard rate-limit	
show nfpp ip-guard summary	
show nfpp ip-guard hosts	∧ ў
clear nfpp ip-guard hosts	ў

३

∧

10.4	३

39.6.13 nfpp ip-guard scan-threshold

Э Â

nfpp ip-guard scan-threshold *pkt-cnt*

pkt-cnt	˘ ∧ [1,9999] Â

IP

```
32 log-buffer entries were cleared.
```

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ꓘ	
show nfpp log	NFPP ᾰ ᾽

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ꓘ

10.4	ꓘ

39.7.2 log-buffer entries

NFPP ᾰ ᾽ Â

log-buffer entries *number*

number	ᾰ ᾽ ˘ Æ ˘ ᴧ [0,1024]

NFPP VLAN Â

logging vlan *vlan-range*

logging interface *interface-id*

vlan-range	VLAN ˘ l' 1-3,5 Ł Â
interface-id	Â

Â

ʒ NFPP

ʒ /l Љ ˘ /l VLAN Â ч ˘ /l è ˘ ă ˋ Â

/l VLAN 1 à VLAN 2 à VLAN 3 VLAN 5 ˘ Ю'

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging vlan 1-3,5
```

/l G 0/1 ˘ Ю'

```
Ruijie(config)# nfpp
Ruijie(config-nfpp)# logging interface G 0/1
```

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ʒ	
show nfpp log summary	NFPP ă ˋ Â

/l

ʒ

10.4

NFPP ă ⺀ Â

show nfpp log buffer [**statistics**]

statistics	NFPP ă ⺀

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ă ⺀ ˘ ɨ ˘ ˘ ă ⺀
ѝ ”-” Â ╗ ă ⺀ Â
ÿ ă ⺀ ⺈ Y ˘ Ю ‘
%NFPP_ARP_GUARD-4-DOS_DETECTED: Host<IP=N/A,MAC=0000.0000.0004,port=Gi4/1,VLAN=1> was detected.(2009-07-01 13:00:00)

```
    NFPP          Â
Ruijie#show nfpp log summary
Total log buffer size : 10
Syslog rate : 1 entry per 2 seconds
Logging:
  VLAN  1-3, 5
  interface Gi 0/1
  interface Gi 0/2

    NFPP      ă ⺀        Â
Ruijie#show nfpp log buffer statistics
There are 6 logs in buffer.

    NFPP       ă ⺀ Â
Ruijie#show nfpp log buffer
Protocol VLAN  Interface IP address MAC address    Reason
 Timestamp
------- ----  --------   ---------  -----------    ------
 ---------
ARP    1     Gi0/1      1.1.1.1     -            DoS
2009-05-30 16:23:10
ARP    1     Gi0/1      1.1.1.1     -            ISOLATED
2009-05-30 16:23:10
```

ʌ ў Â

show nfpp arp-guard hosts [**statistics** | [[*vlan vid*] [**interface** *interface-id*] [*ip-address* | *mac-address*]]]

ʎ

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39.8.2 show nfpp arp-guard scan

ARP Â

show nfpp arp-guard scan [**statistics** | [[**vlan** *vid*] [**interface** *interface-id*] [*ip-address*] [*mac-address*]]]

statistics	ARP
vid	
interface-id	¨
ip-address	IP
mac-address	MAC

ʒ

```
Ruijie# show nfpp arp-guard scan statistics
ARP scan table has 4 record(s).
```

ʿ ľ ARP 4 Ł Â

```
Ruijie# show nfpp arp-guard scan
VLAN   interface   IP address   MAC address     timestamp
----   --------    ----------  -----------     ----------
1      Gi0/1      N/A         0000.0000.0001   2008-01-23
16:23:10
2      Gi0/2      1.1.1.1     0000.0000.0002   2008-01-23
16:24:10
3      Gi0/3      N/A         0000.0000.0003   2008-01-23
16:25:10
```

```
4       Gi0/4       N/A          0000.0000.0004   2008-01-23
16:26:10
Total' 4 record(s)
```

l' timestamp L ARP ˘ l' 2008-01-23 16:23:10 L
2008 1 23 16 23¦ 10 ARP Â

```
Ruijie# show nfpp arp-guard scan vlan 1 interface G 0/1
0000.0000.0001
VLAN    interface   IP address   MAC address     timestamp
----    --------    ----------    -----------     ----------
1       Gi0/1       N/A          0000.0000.0001   2008-01-23
16:23:10
Total' 1 record(s)
```

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ৡ	
arp-guard scan-threshold	
nfpp arp-guard scan-threshold	
clear nfpp arp-guard scan	ARP

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39.8.3 show nfpp arp-guard summary

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show nfpp arp-guard summary

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ৡ	
clear nfpp dhcp-guard hosts	ʌ ў

ʌ

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10.4	ৡ

39.9.2 show nfpp dhcp-guard summary

Â

show nfpp dhcp-guard summary

-	-

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ৡ ʌ ɲ Â

```
Ruijie# show nfpp dhcp-guard summary
ˆ Format of column Rate-limit and  Attack-threshold is per-src-ip
/per-src-mac/per-port.˜
Interface  Status  Isolate-period Rate-limit Attack-threshold
Global     Enable  300            -/5/150    -/10/300
Gi 0/1      Enable  180            -/6/-      -/8/-
Gi 0/2      Disable 200            -/5/30     -/10/50
```

Â

dhcp-guard attack-threshold	
dhcp-guard enable	DHCP
dhcp-guard isolate-period	
dhcp-guard monitor-period	
dhcp-guard monitored-host-limit	
dhcp-guard rate-limit	
nfpp dhcp-guard enable	DHCP
nfpp dhcp-guard isolate-period	
nfpp dhcp-guard policy	

10.4	

39.10 ICMP

39.10.1 show nfpp icmp-guard hosts

Â

show nfpp icmp-guard hosts [**statistics** | [[**vlan** *vid*] [**interface** *interface-id*] [*ip-addr ess*]]]

statistics	
vid	
interface-id	
ip-address	IP

24 0.48ef0BT/71.42 47/MCI26.7BDC 0 g0.

Ruijie#**show nfpp icmp-guard hosts statistics**

success fail total

--- --- ---

100 20 120

ʻ ľ 120 ʎ ў ˘ ὲ 100 ʎ ў ╖˘ 20 ʎ ў Ł Â

Ruijie# **show nfpp icmp-guard hosts**

If column 1 shows '*', it means "hardware failed to isolate host".

VLAN interface IP address remain-time(s)

--- --- --- ---

1 Gi0/1 1.1.1.1 110

2 Gi0/2 1.1.2.1 61

Totalʻ 2 host(s)

ʒ

ʒ	
clear nfpp icmp-guard hosts	ʌ ў

ʎ

ʒ

10.4	ʒ

39.10.2 show nfpp icmp-guard summary

Â

show nfpp icmp-guard summary

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ʒ ʎ Ɲ Â

```
Ruijie# show nfpp icmp-guard summary
ˆ Format of column Rate-limit and  Attack-threshold is per-src-ip
/per-src-mac/per-port.˜
Interface  Status  Isolate-period Rate-limit Attack-threshold
Global     Enable  300            4/-/60    8/-/100
Gi 0/1      Enable  180            5/-/-      8/-/-
Gi 0/2      Disable 200            4/-/60    8/-/100

Maximum count of monitored hosts: 1000
Monitor periodʻ 300s
    ʻ
ˆ 1˜        Interface ѝ Global          Â
ˆ 2˜        Status                ╗ Â
ˆ 3˜        Rate-limit     ѝˆ     IP          /     MAC          /
            ˜ ˘     Attack-threshold          Â ľ -Ł          Â
```

ʒ

ʒ	
icmp-guard attack-threshold	
icmp-guard enable	ICMP ╗
icmp-guard isolate-period	
icmp-guard monitor-period	
icmp-guard monitored-host-limit	ʌ ў
icmp-guard rate-limit	
nfpp icmp-guard enable	Э ICMP ╗
nfpp icmp-guard isolate-period	
nfpp icmp-guard policy	

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10.4	ʒ

39.10.3 show nfpp icmp-guard trusted-host

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show nfpp icmp-guard trusted-host

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¾

Á ÿ Â

```
Ruijie# show nfpp icmp-guard trusted-host
IP address     mask
---------      ------
1.1.1.0        255.255.255.0
1.1.2.0        255.255.255.0
Total 2 record(s)
```

¾	
icmp-guard trusted-host	a Á ÿ

Á

10.4	¾

39.11 IP

- show nfpp ip-guard hosts
- show nfpp ip-guard summary
- show nfpp ip-guard trusted-hos

39.11.1 show nfpp ip-guard hosts

[redacted]

ip-guard enable	IP ৠ
ip-guard isolate-period	
ip-guard monitor-period	
ip-guard monitored-host-limit	৲ ў
ip-guard rate-limit	
nfpp ip-guard enable	Э IP ৠ
nfpp ip-guard isolate-period	
nfpp ip-guard policy	

৲

ৡ

10.4	ৡ

३	
ip-guard trusted-host	a /l ў

/l

10.4	३

precedence precedence	”I ˆ 0-7˜
range	
time-range tm-rng-name	⅄˘ ¨ ѝ tm-rng-name
tos tos	⊾ ˆ 0-15˜
cos cos	cos (0-7)
cos inner cos	tag cos
icmp-type	ICMP ˆ 0-255˜
icmp-code	ICMP ʒ ˆ 0-255˜
icmp-message	ICMP ¨
operator port[port]	Operator ѝ ˆ lt- ˘ eq- ˘ gt- ˘ neq- a ˘ range- ˜ port ύ ta8.9DIB116Ed ч < ὲ

	B	MAC	6	P		35
	C		12	Q	IP	36
	D	VLAN tag	14	R	ip	38
	E	DSAP( ) ⊾	18	S	ip	42

Â ⁄ ˆ 1-9919.62 reW* nq0 841/-6<1B4441C8

match-all	ऊ *tcp flag* Æ
tcp-flag	tcp flag

ACL

३

- 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
- parag

„ h-unr(c)-3(h)6(able)856( )]TJEMC /P <<2MCID 18 >>BDC /C2_1 1 Tf0

■

- ttl-exceeded
- unreachable

Ю TCP ¨ ˘ TCP Л Љ ¨ έ ‘

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

■

- bootps
- discard
- dnsix
- domain
- echo
- isakmp
- mobile-ip
- nameserver
- netbios-dgm
- netbios-ns
- netbios-ss
- ntp
- pim-auto-rp
- rip
- ■

40.1.2 deny

(deny) Ʌ ᾱ Â

1˜ IP

[*sn*] **deny** {*source source-wildcard* | **host** *source* | **any**

destination-wildcard | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**time-range** *time-range-name*]

b) protocol

[*sn*] **deny protocol** [[**VID** [*out*][**inner** *in*]]] {*source source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } {*destinationdestination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*]

c) expert

- **Internet Control Message Protocol** (ICMP)

[*sn*] **deny icmp** [[**VID** [*out*][**inner** *in*]]] {*source source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

- **Transmission Control Protocol** (TCP)

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

- **User Datagram Protocol** (UDP)

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

- **Address Resolution Protocol** (ARP)] [

[*operator* **port** [*port*

```
20 permit any any any any
Ruijie(config-exp-nacl)#
```

2ʹ Ю IP ACL ˘ IP ѝ 192.168.4.12 ў TCP ѝ 100 ╘˘ 1Â

```
Ruijie(config)# ip access-list extended ip-ext-acl
Ruijie(config-ext-nacl)# deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended ip-ext-acl
10 deny tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group ip-ext-acl in
Ruijie(config-if)#
```

' ' Ю MAC ACL ˘ MAC ѝ 0013.0049.8272 ў ѝ 100 Лъ ˘ 1Â

```
Ruijie(config)# mac access-list extended mac1
Ruijie(config-mac-nacl)# deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended mac1
10 deny host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group mac1 in
```

" ' Ю IP ACL ˘ IP ѝ 192.168.4.12 ў ˘ 1Â '

```
Ruijie(config)# ip access-list standard 34
Ruijie(config-ext-nacl)# deny host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 34 in
```

` ' Ю IPV6 ACL ˘ IP ѝ 192.168.4.12 ў ˘ 1Â '

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
```

```
11 deny ipv6 host 192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

show access-lists	
ip access-group	IP ACL
mac access-group	MAC ACL
ip access-list	IP ACL
mac access-list	MAC ACL
expert access-list	ACL

```
Ruijie(config)# expert access-list extended 2704
Ruijie(config-exp-nacl)# show expert access-lists
expert access-list extended 2704
Ruijie(config-exp-nacl)#
```


३	
access-list	Ĥ Â
show access-lists	
show ip access-list	IP ˆ 1-199˜ 1300 – 2699˜ 3000˜ 3199˜

```
Ruijie(config-ext-nacl)# show ip access-lists
ip access-list extended 123
```

show ip access-lists	IP

```
Ruijie# config
Ruijie(config)# ip access-list resequence 1 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
```

ৡ

ৡ	
show access-lists	

/ৗ

ৡ

V10.0	V10.0 Л Э

40.1.8 list-remark text

ѝй ACL ╕ ˘ **no**

list-remark *text*

Text	

ৡ ACL

ѝй ACL ╕

```
Ruijie# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark this acl is to filter the host
192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
```

```
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

¾	
show access-lists	
ip access-list	IP ЬЖ

V10.0	V10.0 Л Ъ Э Â

40.1.9 MAC access-group

MAC ACL Â ¾ **no** Ч Â

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

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

id	MAC ^ 700-799˜
name	MAC ¨
in	
out	ÿ

V10.0	V10.0

40.1.10 MAC access-list

MAC ACL **no** ACL

mac access-list extended {*id* | *name*}

no mac access-list extended {*id* | *name*}

Id	MAC 700-799
name	MAC

MAC ACL

show mac access-lists

1 MAC ACL

```
Ruijie(config)# mac access-list extended mac-acl
Ruijie(config-mac-nacl)# show mac access-lists
mac access-list extended mac-acl
```

2 MAC ACL

```
Ruijie(config)# mac access-list extended 704
Ruijie(config-mac-nacl)# show mac access-lists
mac access-list extended 704
```

show mac access-lists	mac

V10.0	V10.0

40.1.11 no sn

ACL

no *sn*

sn	ACL

ACL

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# 12 deny ipv6 host any any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
12 deny ipv6 any any
Ruijie(config-ipv6-nacl)# no 12
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)#
```

show access-lists	
ip access-list	ip ACL
ipv6 access-list	IPV6 ACL
deny	ACL
permit	ACL

V10.0	V10.0 Л Э

40.1.12 permit

(**permit**) Л ã Â

1) IP

[*sn*] **permit** {*source source-wildcard* | **host** *source* | **any**}

2) IP

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

IP 8

- **Internet Control Message Protocol** (ICMP)

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

- **Transmission Control Protocol** (TCP)

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

- **User Datagram Protocol** (UDP)

[*sn*] **permit udp** {*source source -wildcard*|**host** *source* |**any**} [*operator* **port** [*port*]] {*destination destination-wildcard* |**host**

[**precedence** *precedence*] [**tos** *tos*][**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*]

ℐ Ethernet-type cos

[*sn*] **permit** {*ethernet-type*| **cos** [*out*] [**inner** *in*]} [**VID** [*out*][**inner** *in*]] {*source source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**time-range** *time-range-name*]

Protocol

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

Expert

- **Internet Control Message Protocol** (ICMP)

[*sn*] **permit icmp** [**VID** [*out*][**inner** *in*]] {*source source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**}[*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

- **Transmission Control Protocol** (TCP)

[*sn*] **permit tcp** [**VID** [*out*][**inner** *in*]]{*source source-wildcard* | **host** *Source* | **any**} {**host** *source-mac-address* | **any** } [*operator* **port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [*operator* **port** [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag*]

- **User Datagram Protocol** (UDP)

[*sn*] **permit udp** [**VID** [*out*][**inner** *in*]]{*source source –wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any** } [*operator* **port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [*operator* **port** [*port*]] [**precedenceprecedence**] [**tos** *tos*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*]

- **Address Resolution Protocol** (ARP)

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

[*sn*] **permit icmp** {*source-ipv6-prefix* / *prefix-length* | **any** *source-ipv6-address* | **host**} {*destination-ipv6-prefix* / *prefix-length*| **host** *destination-ipv6-address* | **any**} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *flow-label*][**fragments**] [**time-range** *time-range-name*]

- **Transmission Control Protocol** (TCP)

[*sn*] **permit tcp** {*source-ipv6-prefix* / *prefix-length* | **host** *source-ipv6-address* | **any**} [*operator* **port** [*port*]] {*destination-ipv6-prefix* / *prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator* **port** [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag*]

- **User Datagram Protocol** (UDP)

[*sn*] **permit udp** {*source-ipv6-prefix* / *prefix-length* | **host** *source-ipv6-address* | **any**} [*operator* **port** [*port*]] {*destination-ipv6-prefix* / *prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator* **port** [**port**]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragments**] [**range** *lower upper*] [**time-range** *time-range-name*]

ЛЬЮ deny	-

ACL Ю

```
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#
  3ʹ Ю MAC ACL ˘ MAC ѝ 0013.0049.8272 ў
      ѝ 100 Љ ˘ 1Â
Ruijie(config)# mac access-list extended 702
Ruijie(config-mac-nacl)# permit host 0013.0049.8272 any aarp
Ruijie(config-mac-nacl)# show access-lists
mac access-list extended
10 permit host 0013.0049.8272 any aarp702
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in
  4ʹ Ю ip ACL ˘ IP ѝ 192.168.4.12 ў ˘
     1Â ʻ
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# permit host 192.168.4.12
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
10 permit host 192.168.4.12
Ruijie(config-std-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group std-acl in
  5ʹ Ю IPV6 ACL ˘ IP ѝ 192.168.4.12 ў ˘
      1Â ʻ
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 permit ipv6
host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

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```
Applied On interface GigabitEthernet 0/1.
ip access-list standard ipstd4
Applied On interface GigabitEthernet 0/2.
ip access-list extended 101
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
```

ip access-group	ip
mac access-group	MAC
expert access-group	Expert
ipv6 traffic-filter	IPV6

V10.0	V10.0

40.2.2 show access-lists

ACL ACL

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

id	
name	

acl *id* *name* ACL

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
```

```
Ruijie# show access-lists 102
ip access-list extended 102
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
mac access-list extended mac-acl
expert access-list extended exp-acl
ipv6 access-list extended v6-acl
```

¾

¾	
ip access-list	IP ACL HÆ Â
mac access-list	MAC ACL HÆ
expert access-list	Expert ACL HÆ
ipv6 access-list	IPv6 ACL HÆ

/1

¾

V10.0	V10.0 Л Э

40.2.3 show expert access-group

Expert Â

show expert access-group [**interface** <*interface*>]

<*interface*>	

¾

Expert ACL˘ ˘ Expert ACL Â

```
Ruijie# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

expert access-list	Expert ACL

V10.0	V10.0

40.2.4 show ip access-group

IP ACL

show ip access-group[**interface** <*interface*>]

<*interface*>	

IP ACL

```
Ruijie# show ip access-group interface gigabitethernet 0/1
ip access-group aaa in
Applied On interface GigabitEthernet 0/1.
```

ip access-list	IP ACL

V10.0	V10.0

40.2.5 show mac access-group

MAC

show mac access-group[**interface** <*interface*>]

<*interface*>	

MAC ACL MAC ACL

```
Ruijie# show mac access-group interface gigabitethernet 0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

mac access-list	MAC ACL

41 VACL

41.1

Vlan access map ч ˘ è *map_name* ў a Л ˘ *map_sn* ˘ Л Ъ Â ¨ ˚ mapˆ ~ Н ў map Â

1˜ **vlan access map** Э mapў a *map_sn* Ąˇ map з˚ ў map map *map_sn* Э ╗ *10*˙

2˜ a *map_sn* Ąˇ **vlan access mapˇ** ˚ *map_name* *Map_name* ˘ ў map ’

3˜ map_sn Ąˇ **vlan access mapˇ** mapˈ map ў map a map Ąˇ ў map ╟ ˘ a ’

4˜ ў map Л Ъ 6553 map Â

41.1.1 action forward/drop/redirect

map actions ╟ ˘ vacl Ю Ю ҳ Â ҳ no Н map actions ╟ ˘ ╟ forward Â

action forward

no action forward

map actions ╟ ˘ vacl Ю Ю ҳ Â ҳ no Н map actions ╟ ˘ ╟ forward Â

action drop

no action drop

map actions ╟ ˘ vacl Ю Ю ҳ Â ҳ no Н map actions ╟ ˘ ╟ forward Â

action redirect {

a	+ acl, 8 acl Â

📖	■ map /ǀ ip acl map acl˘ ч /ǀ ὲ ˘ a ’ ■ map /ǀ 8 acl’ ■ map a a acl’ ■ map a ace acl˘ acl’ ■ map ip acl (mac acl)˘ ‘Ą ip acl (mac acl)˘ ɨ ip acl (mac acl) ip acl (mac acl) ɨ ’ ■ map ip acl (mac acl)˘ ‘Ą mac acl (ip acl)˘ ”I ╟ ip acl (mac acl)˘ ɨ mac acl (ip acl)’

Ю ˘ map match ‘

```
Ruijie(config)# vlan access-map dd
Ruijie(config-access-map)# match ip address 10 20 sp1 30 sp2
Ruijie(config-access-map)# exit
Ruijie(config)# vlan access-map dd 20
Ruijie(config-access-map)# match mac address 710 720 m1 760
Ruijie(config-access-map)# exit
Ruijie(config)#
```

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-	-

/ǀ

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-	-

41.1.3 vlan access map

map˘ ʒ Â map˘ ʒ no Â

Vlan access map *map_name* [*map_sn*]

no Vlan access map *map_name* [*map_sn*]

vlan access map vlan Э ˘ ˘ vlan ˘ ˊ vlan
filter aa vlan-list 1-33˘ map 1-33 vlan Э Â

Ю ў map ѝ ff vlan access map vlan 5 Э Â
Ruijie(config)# **vlan filter ff vlan-list** *5*

1640 81.98 595.f4C /C2_0 1 Tf1/C2_0 1 Tf8lt3 0 Td<03DE0947185E 78.36 692.1803 Tm[<241.8EMC E

```
action: forward
Vlan access-map aa  20
match ip address:   10, 20, 30, sp1, sp2, 60, 50, 80,
action: drop
Vlan access-map dd  20
match mac address:   710, 720, m1, 760,
action: forward
Ruijie(config)#
```

2' Ю **show vlan access map** { *map_name* }

```
Ruijie(config)# show vlan access-map dd
Vlan access-map dd  20
match mac address:   710, 720, m1, 760,
action: forward
Ruijie(config)#
```

¾	
-	-

/I

-	-

41.2.2 show vlan filter

ў map vlan Э ˘ Ю ¾ Â

show vlan filter

-	-

Ю **Show vlan filter access-map** *aa*

```
Ruijie(config)# show vlan filter
VLAN Map aa
Configured on VLANs: 1,  5,  6,
Ruijie(config)#
```

¾	
show vlan filter *access-map map_name*	ў map vlan Э
show vlan filter vlan *vlan_id*	vlan Э ў map

-	-

42 QOS

42.1

QoS ˘ QoS ЉЮ ‘

- 1 policy-map’
- policy-map ⁄ Љ class-map’
- class-map 1 ACL˘ ACL ACE ɛ́ ˘ ’
- Э ACE ÿ “ ACL” ⁸ Â

Ю˘ QoS ╖ Â ˘ Â Policy Map Э˘ ˘ QoS ╖ Â QoS ╖ ˘ ᾱ Policy Map ˘ ѝ Off ⁄ Â ЉЮ ѝ QOS ‘

CoS	0
	8
	WRR
QueueWeight	1:1:1:1:1:1:1:1
WRR Weight Range	1:15
DRR Weight Range	1:15
	No Trust

Cos

Cos

CoS	
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8

CoS to DSCP

CoS to DSCP

CoS	DSCP
0	0
1	8
2	16
3	24
4	32
5	40
6	48
7	56

IP-Precedence to DSCP

IP-Precedence to DSCP

IP-Precedence	DSCP
0	0
1	8
2	16
3	24
4	32
5	40
6	48
7	56

DSCP to CoS

DSCP to CoS

DSCP	CoS
0	0
8	1
16	2
24	3
32	4
40	5
48	6
56	7

4. class-map, cm

```
Ruijie(config)# class-map cm
```

5. ACL

```
Ruijie(config-cmap)# match access-group me
```

6. class-map

```
Ruijie(config-cmap)# exit
```


show mls qos queueing	-

-	-

42.2.3 interface rate-limit

8

rate-limit {**input** | **output**} *bps burst-size*

no rate-limit

input	й
output	й
bps	8
burst-size	8 (Kbyte)dscp-list a a
no	

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# rate-limit input 1000000 4096
```

show mls qos interface	-

-	-

42.2.4 mls qos cos

CoS

mls qos cos *default-cos*

no mls qos cos

default-cos	ὴ 0 7
no	

CoS ὴ 0

ৡ

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mls qos cos 7
```

ৡ	
show mls qos interface *interface-id*	-

/l

-	-

42.2.5 mls qos map cos-dscp

CoS DSCP

mls qos map cos-dscp *dscp1...dscp8*

no mls qos map cos-dscp

dscp	ꓘ a˘ a˘
no	

ꓘ

Ruijie(config)# **mls qo map cos-dscp** *8 10 16 18 24 26 32 34*

ꓘ

ꓘ	
show mls qos maps	dscp-cos maps,dscp-cos maps ip-prec-dscp maps

ꓘ

-	-

42.2.6 mls qos map dscp-cos

DSCP CoS

mls qos map dscp-cos *dscp-list* to *cos*

no mls qos map dscp-cos

dscp-list	ꓘ a˘ a˘
cos	ꓘ 0 7
no	

ꓘ

QOS ३

no policy-map *policy-map-name*	policy map
class-map-name	class map ¨
no class *class-map-name*	†
new-dscp	DSCP ’ ∧ a˘ a˘
rate-bps	⁸ ˘ Æ kbps
burst-byte	⁸ ˘ Æ kbyte
drop	†
dscp-value	† DSCP ∧ a ˘ a˘

ৡ

1΄ policy map, ¨ po

```
Ruijie(config)# policy-map po
```

2΄ class-map cm

```
Ruijie(config-pmap)# class cm
```

3΄ dscp й 10

```
Ruijie(config-pmap-c)# set ip dscp 10
```

4΄ й 1M, й 4096k, ╠ й dscp 16

```
Ruijie(config-pmap-c)# police 1000000 4096 exceed-action dscp 16
```

ৡ

ৡ	
show policy-map	-

ৡ

-	-

42.2.11 priority-queue

[**no**] **priority-queue**

priority-queue	SP
no priority-queue	WRR

WRR

```
Ruijie(config)# no priority-queue
```

show mls qos queueing	-

-	-

42.2.12 priority-queue cos-map

CoS

priority-queue cos-map *qid cos0* [*cos1* [*cos2* [*cos3* [*cos4* [*cos5* [*cos6* [*cos7*]]]]]]]

no priority-queue cos-map

qid	id
cos7	*cos0 ...* CoS
no	

Ruijie(config)# **priority-queue cos-map** *1 0 1*

show mls qos queueing	-

a a

-	-

42.2.13 service-policy

policy map Э

service-policy {**input** | **output**} *policy-map-name*

no service-policy {**input** | **output**}

policy-map-name	policymap
no	policy map Э

Ruijie(config)# **interface fastEthernet** *0/1*
Ruijie(config-if)# **service-policy input po**

show	S

42.2.14 wrr-queue bandwidth

WRR

wrr-queue bandwidth *weight1 ... weightn*

no wrr-queue bandwidth

weight1...weightn	ѝ n ˘ n ʌ
no	

weight1: ...: weightn = 1:..:1

ꝛ

```
Ruijie(config)# wrr-queue bandwidth 1 2 3 4 5 6 7 8
```

ꝛ	
show mls qos queueing	-

ʌ a˘ a˘ ˘ Â

-	-

42.3

42.3.1 show class-map

class map

show class-map [*class-name*]

class map

Ruijie# **show class-map**

-	-

-	-

42.3.2 show policy-map

QoS policy map [class class-name]

show policy-map [*policy-name* [**class** *class-name*]]

policy-name	policy name
class-name	class map

policy name

Ruijie# **show policy-map**

-	-

43.1.3 voice vlan cos

Voice VLAN CoS Â Λ Ʊ ʒ **no** Â

voice vlan cos *cos-value*

no voice vlan cos

dscp-value	Voice VLAN DSCP Â

dscp-value и 46 Â

ч

Voice VLAN CoS б DSCP ″I ˘
Â

1' Voice VLAN ″I ˘ DSCP и 40 Â

```
Ruijie(config)# voice vlan dscp 40
```

ч

ч	
show voice vlan	Voice VLAN б Â

л

ч

10.4	ч

43.1.5 voice vlan enable

Ю ч Voice VLAN ╖ Â л Лъ ч **no** Voice VLAN ╖ Â

voice vlan enable

no voice vlan enable

Ю Voice VLAN ╖ Â

ч

ч Voice VLAN ╖ ˘ Voice VLAN ╖ л Э Â
Access Port ãTrunk Port ãHybrid Port ãPrivate VLAN ў ãPrivate VLAN

	б Uplink Э Voice VLAN ╖ Â
🕮	Voice VLAN Ю ≠ Voice VLAN ╖ ˘ a Â

1˙ FastEthernet 0/1 Voice VLAN ╖ Â

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# voice vlan enable
```

ʒ

ʒ	
show voice vlan	Voice VLAN б Â

ʌ

ʒ

10.4	ʒ

43.1.6 voice vlan mac-address

Voice VLAN ʌ OUI Â ʌ Љ ʒ **no** Э OUI Â

voice vlan mac-address *mac-addr* **mask** *oui-mask* **[description** *text***]**

no voice vlan mac-address *mac-addr*

mac-addr	ѝ *H.H.H* Â MAC Â
oui-mask	ѝ *H.H.H* Â OUI ˘ Â
text	OUI

Ю OUI Â

ʒ

Â MAC Ь ˘ Voice VLAN ʌ Љ MAC OUI б ʌ OUI˙ ÿ ѝ Â

🕮	Voice VLAN OUI a ˘ Â

1ˑ OUI 0012.3400.0000 ѝ Voice VLAN ˘ ѝ Company A Â

```
Ruijie(config)# voice vlan mac-address 0012.3400.0000 mask
ffff.ff00.0000 description Company A
```

ʒ

ʒ	
show voice vlan oui	OUI ȁ OUI Â

ʎ

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10.4	ʒ

43.1.7 voice vlan mode auto

Ю Voice VLAN ѝ ╟ Â ʎ Ѣ ʒ **no** Voice VLAN ѝ ╟ Â

voice vlan mode auto

no voice vlan mode auto

Voice VLAN ѝ ╟ Â

ʒ

Voice VLAN ǂ ѝ ╟ б ╟ ˘ Â Voice VLAN ˘ a˘ ʎ Ѣ ѝ a˘ Â a˘ Ю ╗ Voice VLAN a˘ ˘ ʎ Ю IP ȁ Voice VLAN Â

a	1˜ Voice VLAN ˘ ╗ Voice VLAN˘ Voice VLAN ╗ Â 2˜ ╟ ˘ ѝ ╗ ˘ a native VLAN ѝ Voice VLAN Â 3˜ Trunk Port/Hybrid Port ⁄ Љ VLAN ˘ ˝I Voice VLAN ÿ VLAN ⁄ ˘ ˝Ą Voice VLAN ╗ ˘ Љ a ╗ Voice VLAN˘ a Voice VLAN Â

🕮	1˜ Voice VLAN ╗ ѧ˘ a ╟ ╟ ⌈ ˘ ⌈ ˘ ˝I Voice VLAN ╗ Â 2˜ ╟ Ю˘ a ҙ ╗ Voice VLAN ÿ Voice VLAN Â

1˛ FastEthernet 0/1 Voice VLAN ѝ ╟ Â

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-vlan)# voice vlan mode auto
```

ҙ	

we vvoice lan

ʒ

й б ǂ ˘ ⅄ Ѫ Voice VLAN Â
ɨ MAC ˘ MAC ⅄
Voice VLAN OUI ˘ Voice VLAN ˘ Â

a a Voice VLAN ˘ ⊾ Â
˘ Voice VLAN Â

Ю untagged Voice VLAN tag
MAC ˘ ὲ Voice VLAN tag ˘
VLAN ˘ a ⅄ Voice VLAN /
Â

1ʻ Voice VLAN Â

```
Ruijie(config)# voice vlan security enable
```

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ʒ	
show voice vlan	Voice VLAN б Â

⅄

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10.4	ʒ

43.2

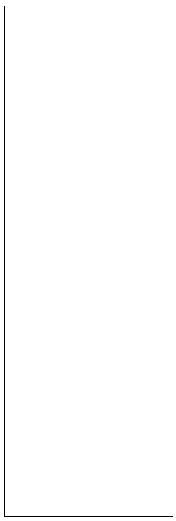
43.2.1 show voice vlan

Voice VLAN б ˘ Voice VLAN ╗ Â

show voice vlan

ʒ

ʒ˘ ʌ Voice VLAN б ˘ Voice VLAN ╗
Â



44

44.1

44.1.1 rgos-security compatible

Ю˘ ╗ ѝ RGOS ˘ ʒ **rgos-security compatible** ʼ RGOS ˘ no ʒ ʻ

rgos-security compatible

no rgos-security compatible

Ю˘ ╗ ѝ RGOS

ʒ

a	ʒ ɨ˘

1ʻ ╗ ѝ RGOS ʻ

Ruijie(config)#**no gos-security compatible**

ʒ	

/l

10.4	ʒ

45 RLDP

45.1

45.1.1 rldp detect-interval

ʒ RLDP Э Â

rldp detect-interval *interval*

no rldp detect-interval

interval	˘ ʌ ѝ 2-15

3 Â

ʒ Â

stp Ю˘ × ɨ stp Â

Ю ѝ 5s :

```
Ruijie(config)# rldp detect-interval 5
```

ʒ

ʒ	
rldp detect-max	

ʌ

ʒ

-	-

45.1.2 rldp detect-max

ʒ RLDP Э ˘ ˘ ÿ ˘ ѝ Â

rldp detect-max *num*

no rldp detect-max

num	, ৸ ù 2-10

2

ৡ Â

ৡ ˘ Â

Ю ù 5 ‘

```
Ruijie(config)# rldp detect-max 5
```

ৡ	
rldp detect-interval	

৸

-	-

ৡ

45.1.3 rldp enable

ৡ 8 RLDP ℸ Â

rldp enable

no rldp enable

Â

ৡ Â

/ RLDP ˘ RLDP Â

Ю

```
Ruijie(config)# rldp enable
```

३	
rldp port	RLDP ╖

/

-	-

45.1.4 rldp port

३ rldp ˘ ˚ Â

rldp port {**unidirection-detect | bidirection-detect | loop-detect** } {**warning | shutdown-svi | shutdown-port | block**}

no rldp port { **unidirection-detect | bidirection-detect | loop-detect** }

unidirection-detect	
bidirection-detect	√
loop-detect	
warning	
shutdown-svi	shutdown svi
shutdown-port	shutdown
block	˗

Â

३ Â

/ RLDP Ю RLDP Â

Ю fas 0/1 Э rldp ˘ й ˘ й

45.2

45.2.1 show rldp

rldp Â

show rldp [**interface** *interface-id*]

Interface-id	

EXEC

३	
-	-

-	-

45.2.2 debug rldp

rldp Â ३ no Â

debug rldp [**packet | event | error**]

undebug rldp [**packet | event | error**]

packet	rldp Â
event	Â
error	Â

EXEC

-	-

-	-

46 TPP

46.1

46.1.1 topology guard

ৡ Ю topology guard ৡ ╖ Â
ৡ no ╖ Â

[**no**] **topology guard**

-	-

╖ ѝ

ৡ ৡ

╖ ˘ Л Љ ˘ Љ Ч
Â б ৡ **cpu topology-limit** Â

Ю ╖ ‘
```
Ruijie(config)# topology guard
Ruijie(config)# no topology guard
```

ৡ	
tp-guard port enable	╖ Â
cpu topology-limit	CPU Â

Л

-	-

46.1.2 tp-guard port enable

╗ ˘ ३ no ╗ Â

[no] tp-guard port enable

-	-

ৡ ৡ

ৡ tpp Â

IO ℸ

```
Ruijie# show tpp
```

ৡ	
topology guard	ℸ

/

ৡ

-

-

47

47.1

47.1.1 cd

Â

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

filesystem	Â ľ ʿ Ɛ
directory	

flash Ю

ʒ

cd ʒ ˧ Â è ʒ ˘ ˆ a Ʌ ľ / Ɛ ˜ ˘ Â ˘ pwd ʒ Â

1ʿ ѝ usb0

```
Ruijie# cd usb0:/
```

2ʿ ѝ sḍ

```
Ruijie# cd sd0:/
```

ʒ

ʒ	
pwd	

˧

ʒ

47.1.2 copy

ÿ Â

copy *source-url destination-url*

source-url	URL Â Э Ю ╟ ˘ Л Љ Â
destination-url	URL Â Э Ю ╟ ˘ Л Љ Â

copy Л Љ Љ Ь Â

URL

flash

Ruijie#**copy** *tftp://192.168.201.54/rgos.bin flash:/*

2 Э tftp Ł

Ruijie#**copy** *flash:/rgos.bin tftp://192.168.201.54/rgos.bin*

3 xmodem Ю

Ruijie# **copy** *xmodem: flash:/config.text*

4 U

Ruijie#**copy** *flash:/config.text usb0:/config.text*

5 ÿ

*Ruijie#**copy** flash:/config.text slave:/config.text*

6 ÿ flash sd

*Ruijie#**copy** flash:/rgos.bin sd0:/rgos.bin*

7 ÿ U sd

*Ruijie#**copy** usb0:/config.text sd0:/config.text*

8 ÿ sd U

*Ruijie#**copy** sd0:/config.text usb0:/config.text*

del	

ϡ

url Æ Â ϡ Э ˘ URL flash:/ usb0:/ usb1:/ slave:/ Â url a ˘ Э Â

a a .

1˙ Ю tmpfile

```
Ruijie# delete tmpfile
```

2˙ ÿ Э rgos.bin.bak

```
Ruijie# delete slave:/rgos.bin.bak
```

3˙ sd Э aaa.bin

```
Ruijie# delete sd0:/aaa.bin
```

ϡ

ϡ	
copy	
dir	Э

ʌ

ϡ

47.1.4 dir

Ю Â

dir [*filesystem:*][*directory*]

filesystem	˘ ”:”
directory	

Ю

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Ю ˘ Ю

Â

a	a	.

1ʹ ÿ Э

```
Ruijie# dir slave0:/
Directory of slave:/
   Mode Link     Size             MTime Name
-------- ---- --------- ------------------- ------------------
          1  10838016 2008-01-01 00:01:53 rgos.bin
          1      399 2008-01-01 00:01:37 config.text
          1      399 2008-01-01 00:17:58 cfg.txt
-------------------------------------------------------------
3 Files (Total size 11210782 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB)
available.
```

2ʹ Ю

```
Ruijie# dir
Directory of temp:/
   Mode Link     Size             MTime Name
-------- ---- --------- ------------------- ------------------
          1      399 2008-01-01 00:17:58 a.dat
-------------------------------------------------------------
1 Files (Total size 399 Bytes), 0 Directories.
Total 33030144 bytes (31MB) in this device, 20463616 bytes (19MB)
available.
```

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ʒ	
pwd	
cd	

ʌ

ꝛ

47.1.5 mkdir

mkdir *directory*

directory	¨

ꝛ

¨ /ı ( ) Â

˘ Â Э

a ˘ Â ˘

flash:/backup/temp ˘ flash:/backup

47.1.6 rename

╟ ¨

rename *url1 url2*

url1	╟ URL Â
url2	URL

ʒ

ʒ˘ ⁄ Ѣ ˘ Ю ¨ ˘ ʒ a˘
╟ Â ʒ ╟ Â a
╘ Э Â ˙ usb0/1, flash, slave Â

1˙ log.txt ╟ Э , ¨ ѝ config.txt˙

```
Ruijie# rename tmp/log.txt ../config.txt
```

2˙ ÿ log.txt ╟ usb0 ˙

```
Ruijie# rename slave:/log.txt usb0:/log.txt
```

3˙ log.txt ¨ ѝ log.txt.bak

```
Ruijie# rename log.txt log.txt.bak
```

4˙ sḍ Э rgos.bin ╟ flash Э

```
Ruijie# rename sd0:/rgos.bin flash:/rgos_bak.bin
```

5˙ U test.txt ╟ sd Э

```
Ruijie# rename usb0:/test.txt sd0:/test2.txt
```

ʒ

ʒ	
del	
copy	

⁄ı

ꝛ

47.1.7 rmdir

Â

rmdir *directory*

directory	¨ , ѝ

ꝛ

а , ѝ Â

Ю tmp ˘ з Â

Ruijie# **rmdir** *tmp*

ꝛ

ꝛ	
mkdir	

ꝛ

47.2

47.2.1 pwd

pwd

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ʒ˘ ⁄ Ʌ Ʊ Э ˘ Ʊ

Э ⁄ Â

1ʿ

Ruijie#**show file systems**

48

48.1 CPU

48.1.1 cpu-log

CPU , /I Љ **cpu-log** Â

cpu-*log* *log-limit low_num high_num*

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	-	-

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	-	-

48.1.2 show cpu

CPU ˘ ʒ **show cpu** Â

show cpu

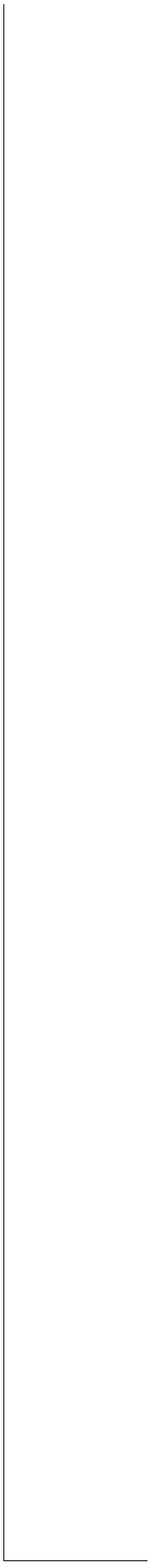
	-	-

ʒ Â

ʒ ʎ Ƶ CPU ˘ 5 à 1ǂ à 5 ǂ CPU ˘ Ƶ ǂ 5 à 1ǂ à 5 ǂ CPU Â

Ю **show cpu** Â

```
Ruijie# show cpu
========================================
    CPU Using Rate Information
CPU utilization in five seconds: 25%
CPU utilization in one minute  : 20%
CPU utilization in five minutes: 10%
  NO   5Sec   1Min   5Min   Process
  0     0%     0%     0%    LISR INT
  1     7%     2%     1%    HISR INT
  2     0%     0%     0%    ktimer
  3     0%     0%     0%    atimer
  4     0%     0%     0%    printk_task
```

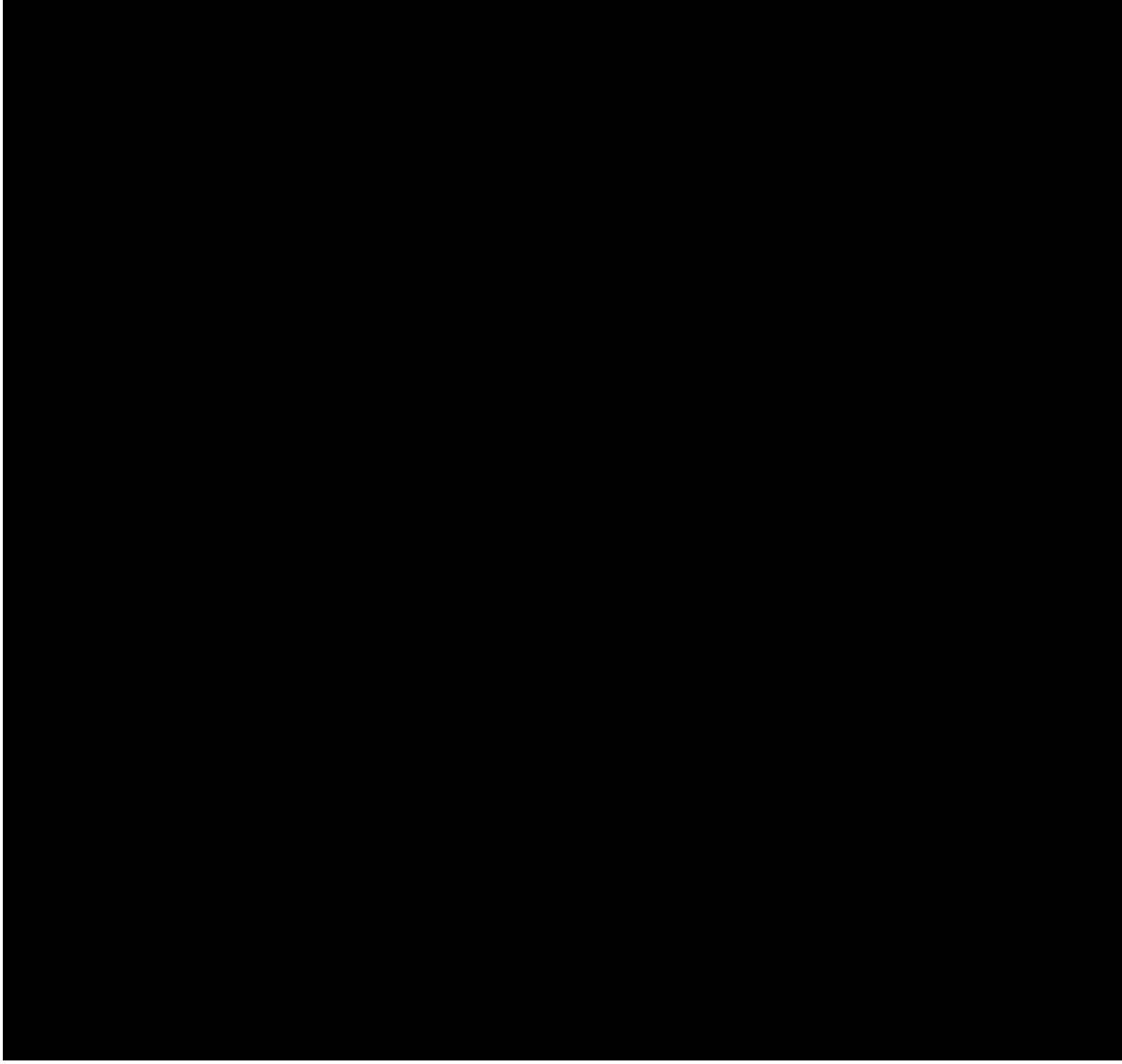


```
44     0%     0%     0%    ef6_inconsistent_daemon
45     0%     0%     0%    imid
46     0%     0%     0%    nsmd
47     0%     0%     0%    ripd
48     0%     0%     0%    ripngd
49     0%     0%     0%    ospfd
50     0%     0%     0%    ospf6d
51     0%     0%     0%    bgpd
52     0%     0%     0%    pimd
53     0%     0%     0%    pim6d
54     0%     0%     0%    pdmd
55     0%     0%     0%    dvmrpd
56     0%     0%     0%    vty_connect
57     0%     0%     0%    aaa_task
58     0%     0%     0%    Tlogtrap
59     0%     0%     0%    dhcp6c
60     0%     0%     0%    sntp_recv_task
61     0%     0%     0%    ntp_task
62     0%     0%     0%    sla_deamon
63     0%     3%     1%    track_daemon
6   0%     0%    bgpd
co_o x [0%     0%
co_m754 a  0%     0%
radiDC us     0%     28 ntp_task
```

```
 83    0%    0%    0%   bcmL2X.0
 84    3%    3%    3%   bcmL2X.0
 85    0%    0%    0%   bcmCNTR.0
 86    0%    0%    0%   bcmTX
 87    0%    0%    0%   bcmXGS3AsyncTX
 88    0%    2%    1%   bcmLINK.0
 89    0%    0%    0%   bcmRX
 90    0%    0%    0%   mngpkt_rcv_thread
 91    0%    0%    0%   mngpkt_recycle_thread
 92    0%    0%    0%   stack_task
 93    0%    0%    0%   stack_disc_task
 94    0%    0%    0%   redun_sync_task
 95    0%    0%    0%   conf_dispatch_task
 96    0%    0%    0%   devprob_task
 97    0%    0%    0%   rdp_snd_thread
 98    0%    0%    0%   rdp_rcv_thread
 99    0%    0%    0%   rdp_slot_change_thread
100    4%    2%    1%   datapkt_rcv_thread
101    0%    0%    0%   keepalive_link_notify
102    0%    0%    0%   rerp_msg_recv_thread
103    0%    0%    0%   ip_scan_guard_task
104    0%    0%    0%   ssp_ipmc_hit_task
105    0%    0%    0%   ssp_ipmc_trap_task
106    0%    0%    0%   hw_err_snd_task
107    0%    0%    0%   rerp_packet_send_task
108    0%    0%    0%   idle_vlan_proc_thread
109    0%    0%    0%   cmic_pause_detect
110    1%    1%    1%   stat_get_and_send
111    0%    1%    0%   rl_con
112   75%   80%   90%   idle
```

Э ˘ 3 ↑ 5 ȁ 1↑ ȁ 5↑
CPU ˆ LISR ȁ HISR ╘˜ ÂЮ έ CPU ↑
Â ὲ ˘ ЊЖ Ю

No	
5Sec	╘ 5 CPU
1Min	╘ 1↑ CPU
5Min	╘ 5↑ CPU



ѝ bgp Â

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1˙ ЉЮ ѝ BGP ѝ ˝I Â

Ruijie(config)# **memory-lack exit-policy bgp**

ò ʒ Ô

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show memory	

ò ʎ Ô

-

ò ʒ Ô

10.3(4b3)	ʒ

48.2.2 show memory

˘ ʒ **show memory** Â

show memory

-	-

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ʒ ʎ Љ ˘ ˘

Љ ȁ Â

Ю **show memory** Â

```
Ruijie#show memory
System Memory Statistic:
```

```
Free pages: 1079
  watermarks : min 379, lower 758, low 1137, high 1516
System Total Memory : 128MB, Current Free Memory : 5283KB
Used Rate : 96%
```

Э Ю ǂ ʻ

1. ʌ ˘ ѝ 4k Â

2. ˘ Ю ѝ Жʻ

min	a ˘ ˘ ˘ Э a ʌ Â
lower	ш a ˘ ˘ Э ╟ ˘ Â ⁸ memory-lack exit-policy ʒ Â
low	a ˘ ˘ Э OVERFLOW ˘ Ю˘ a ʻĄ ˘ Â a ˘ ⁸ ʌ a ʒ Â
high	ʻI ˘ Љ Э˘ ʻI ˘ ÿ OVERFLOW Â

3. ˘ ʌ ˘ Љ Â

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-	-

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-	-

48.2.3 show memory protocols

ʒ . Â

show memory protocols

ò Ô

more flash:filename

Filename	

FLASH ”//f2/” ”//f3/” a

Ю FLASH

```
Ruijie# more flash://f2/log.txt
look up file in the extended flash://f2/log.txt
00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by
Administrator. Reload Reason :Reload command
```

logging file flash:	FLASH Э

-	-

49.1.3 logging buffered

ш no default

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

no logging buffered

default logging buffered

buffer-size	4K 128K Bytes

-	-

49.1.4 logging console

no

logging console *level*

no logging console

level	Debugging (7)

show logging

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

logging on	
show logging	

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facility-type	Syslog ˘ é Â

Local7(23)

Ю ˆ 2˜ Syslog /ı ‘

Numerical Code	Facility
0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslogd
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon
10	security/authorization messages
11	FTP daemon
12	NTP subsystem
13	log audit
14	log alert
15	clock daemon
16	local use 0 (local0)
17	local use 1 (local1)
18	local use 2 (local2)
19	local use 3 (local3)
20	local use 4 (local4)
21	local use 5 (local5)
22	local use 6 (local6)
23	local use 7 (local7)

ѝ (local7) 23 Â

Ю Syslog ù kernel

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

logging console	8 Э

-

49.1.7 logging file flash

FLASH Ю no

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

no logging file

Filename	txt
max-file-size	128K 6M bytes 128K
level	FLASH 6 1

FLASH

Syslog Server FLASH

a	FLASH FLASH FLASH logging file flash a

Ю FLASH ˘ ¨ ѝ trace.txt˘ ѝ 64K, ѝ 6Â

Ruijie(config)# **logging file flash:trace**

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ʒ	
logging on	
show logging	ǎ ⅄ ˘ Ѣ
more flash	FLASH

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49.1.8 logging monitor

VTY ˆ telnet à SSH ˜ Э ˘ Ю ʒ Â ʒ no VTY Э Â

logging monitor *level*

no logging monitor

level	ш Â ʎ Ѣ ¨ ˘ ≠ ʎ Ѣ Â ш ˘ 1Â

Debugging (7)

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VTY Э ˘ ”I ʒ **terminal monitor** VTY Â **logging monitor** ЊÂ **Logging monitor** Њ VTY Â

Ю VTY Э ѝ 6˙

Ruijie(config)# **logging monitor informational**

ʒ	ʒ	
	logging on	
	show logging	ă ʎ ˘ Ƶ

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	-	-

49.1.9 logging on

a ˘ Э ˘ ʒ Â ˘ ʒ no Â

logging on

no logging on

	-	-

a ˘ Э Â

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a ʎ Ƶ Console ȁ VTY

logging console	8 л Э
logging monitor	VTY (telnet) Э
logging trap	Syslog Server

л

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49.1.10 logging rate-limit

8 Ш ў 8 ў Ю

Â 8 Ш ў no Â

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

no logging rate-limit

number	ў й 1—10000
all	8ў 0—7 ,
console	8 л Э ’
except	ш ў a 8’ й error(3)ў error a 8’
severity	ш ў ў ш ў й 0—7

Юў a 8 Â

Â 8 Â ўл Љ Â

ˆ debugў й 10 ў warning ш a 8‘

	show logging	ă ⺀ ˘ Ɲ
	logging trap	syslog server

⺀		
⺀	-	-

49.1.12

49.1.14 logging trap

Syslog Server Ю

no Syslog Server

logging trap *level*

no logging trap

level	1

Informational(6)

Syslog Server logging Syslog Server logging trap

show logging

Ю 6 202.101.11.22 Syslog Server

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

logging on	
logging	Syslog Server
show logging	

-	-

49.1.15 service sequence-numbers

╗ Э ˘ Ю ҙ Â ҙ no ᴧ Â

service sequence-numbers

no service sequence-numbers

-	-

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datetime	Jul 27 16:53:07
msec	Jul 27 16:53:07.299
year	2007 Jul 27 16:53:07

RTC

Uptime

Datetime

Log Debug Datetime

```
Ruijie(config)# service timestamps debug datetime msec
Ruijie(config)# service timestamps log datetime msec
Ruijie(config)# end
Ruijie(config)# Oct 8 23:04:58.301 %SYS-5-CONFIG_I: Configured from
console by console
```

logging on	
service sequence-numbers	

-	-

49.1.18 terminal monitor

VTY VTY

no

terminal monitor

Sequence log messages	
Trap logging	Syslog Server ˘ Л

logging count	
show logging	
clear logging	

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-	-

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10.4(1)	ʒ ╗ SḌ
10.4(2b4)	SḌ ʒ ÿ usb ʒ

50.1.2 usb remove

usb remove *device-id*

device-id	ѝ Â USB ID Â ʌ Љ show usb ʌ Â

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USB ˘ ʒ ˘ Љ Â
╗˘ ˘ ʌ Â ˘
USB ˘ Ą Â

Ю ѝ Э USB Â

```
Ruijie# usb remove 0
OK, now you can pull out the device 0.
*Jan  1 00:18:16: %USB-5-USB_DISK_REMOVED: USB Disk <Mass Storage>
has been removed from USB port 0!
```

Ą ʌ Љ USB Â

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	10.4(1)	३ ╗ SḌ
	10.4(2b4)	SḌ ३ ÿ usb ३

51

51.1

51.1.1 device-priority

device-priority [*member*] *priority*

member	ID Â /I Љ ˘ member 1
priority	˝I ˘ ʌ ѝ [1, 10]

ʒ

ʒ ˝I ˘ ˝I ʌ ѝ 1 10˘ ὲ 10 ˝I ˘ ѝ 1 Â ɨ write Â

2 ˝I ѝ 8

```
Ruijie(config)# device-priority 2 8
```

member *member*	ID Â /l Љ ˘ member 1 Â
description	˘ ѝ 31 Â

ʒ Â

ʒ ¨ ˘ ɨ write Â

2 ¨ ѝ red-giant

```
Ruijie(config)# device-description member 2 red-giant
```

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ʒ	
show member	Â

/l

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-	-

51.2

51.2.1 show member

show member [*member*]

member	ID˘ Â

ʒ

ʒ /l Љ Â

```
Ruijie# show member
Member  Mac Address    Priority  Software Version
HardwareVersion  Description
------ ---------  -------  ---------- ---------   --------
1  00d0.f810.3323  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
2  00d0.f822.33aa  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
3  00d0.f822.33ae  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
4  00d0.f822.33b0  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
5  00d0.f822.33b2  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
6  00d0.f824.23b4  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
7  00d0.f833.44b4  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
8  00d0.f855.33ae  1  RGOS 10.1.00(2),Release(12889) 1.0  SWITCH
```

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52

52.1

52.1.1 show version fans

show version fans

1' IO

```
Ruijie# show version fans
Fan information:
Type: M7806-FAN I
Item number: 9
   Hardware version : 1.00
   Software version : 1.00
```


10.4(2b)	