RG-EG

RGOS 10.3(4b10)

V2.0

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ʼĄ	ʼĄ ╗ WEB ˘ Â

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1 CLI

1.1 alias

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alias *mode command-alias original-command*
no alias *mode original-command*

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mode Â
command-alias Â
original-command Â

ð Ô

```
aaa-gs                AAA server group mode
acl                   acl configure mode
bgp                   Configure bgp Protocol
config                globle configure mode
```

command-alias=original-command

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

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

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

```
Ruijie(config-if)# ia ?
A.B.C.D  IP address
dhcp     IP Address via DHCP
Ruijie(config-if)# ip address
```

”ip address”

show aliases

ð Ô

```
Ruijie# configure terminal
Ruijie(config)# alias config def-route ip route 0.0.0.0
0.0.0.0 192.168.1.1
Ruijie(config)# def-route?
*def-route="ip route 0.0.0.0 0.0.0.0 192.168.1.1"
```

```
Ruijie(config)# def-route?
% Unrecognized command.
Ruijie(config)# end
Ruijie# show aliases config
globle configure mode alias:
def-route          ip route 0.0.0.0 0.0.0.0 192.168.1.1
```

ð Ô

show aliases	

1.2 privilege

privilege Â **no** Â

privilege *mode* **all** **level** *level* **| reset** *command-string*
no privilege *mode* **all** **level** *level* *command-string*

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mode Â

all Â

level *level* Â

reset Â

command-string Â

ð Ô

exec	
interface	
ip-dhcp-pool	
keychain	
keychain-key	
time-range	

ð Ô

ЉЮ ˘ ʒ ѝ ˘ **reload** ʒ ˘ /ЛЉ Æ Â

```
Ruijie(config)# enable secret level 1 0 test
Ruijie(config)# privilege exec level 1 reload
```

˘ ˘ /ЛЉ **reload** ʒ˙

```
Ruijie> reload ?
<cr>
```

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```
Ruijie(confifig)# 4(reload)Tjr/Tf3 reload privil
```

˘ ˘ /ЛЉ **reload**

0.21 w 1 M /1Tf-021 096Tr 10.ʒg)#

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

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alias	ʒ ¨

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2.1

2.1.1 disable

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disable Ú¼! Üãe4„r àuB–uA^ cK AeA^) TB•D$ 4 ƒ³E•(;4 Q Ae%D cK se'1D$ 4 ™ ðÄã #& ÐÏÂ„’ ´B

2.1.2 enable password

a ˇ ʅ ˘ ʅ **enable password** Â ʅ **no** ʅ Â

enable password level *level* *password* **0** **7** *encrypted-password* **no enable password**

Password	ʅ Â
Level	Â
0|7	ʅ ╗ ˘ ╗ ˘ ╗ Â
encrypted-password	ʅ Â

ʅ

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ʅ Ж Ю̒

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2.1.3 enable secret

a enable secret no

enable secret **level** *level* *secret* **0 | 5** *encrypted-secret*

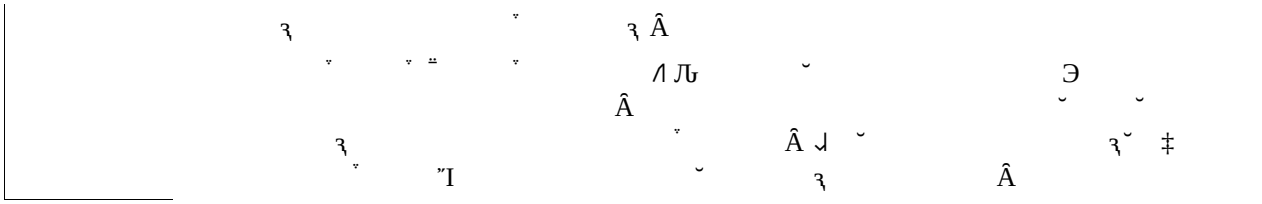
no enable secret

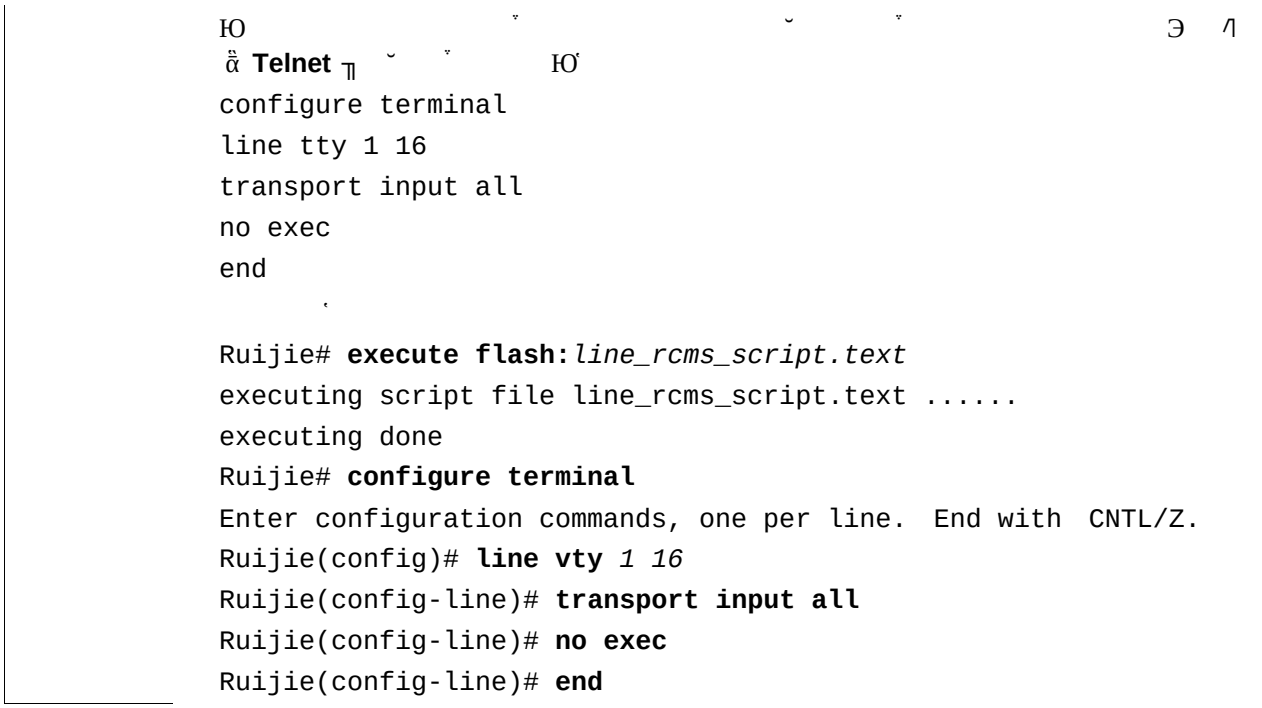
Secret	
Level	
0|5	
encrypted-password	

enable service ssh-sesrver telnet-server web-server snmp-agent

ssh-sesrver	б ˘ ʒ˚ ⊾’
telnet-server	б ˘ ʒ˚ ⊾’
web-server [http | https | all]	б ˘ ʒ˚ ⊾’
snmp-agent	б ˘ ʒ˚ ⊾’

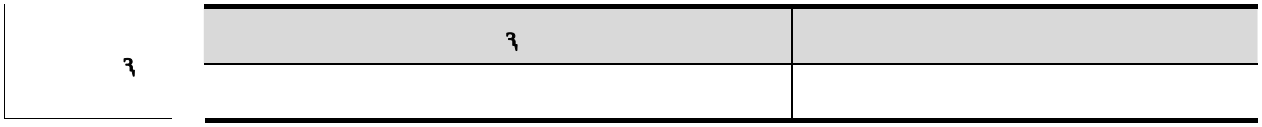
filename	

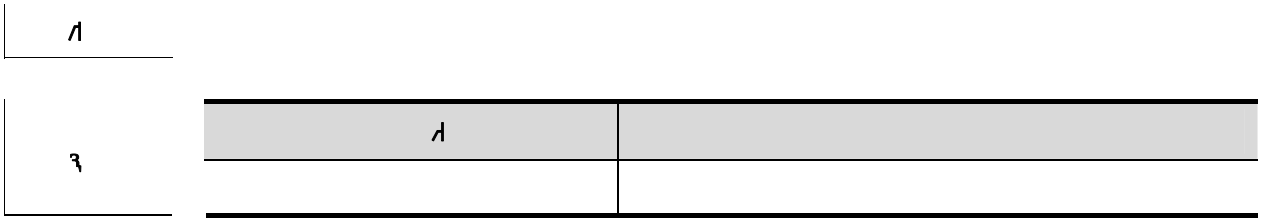




```
configure terminal
line tty 1 16
transport input all
no exec
end
```

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





2.1.6 ip http authentication

ip http authentication enable local

enable	
local	

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2.1.9 lock

Э ʒ˘ ʒ **lock** Â

lock

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˛ **lock** ʒ˘ ʒ˛
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ɨ˘ ˘ l' Ɛ ˛
˘ ʒ Â
Э в ˥ ˘ Ю **lockable** ʒ˘
Э в Â

Ю й в ˛
Ruijie(config-line)# **lockable**
Ruijie(config-line)# **end**
Ruijie# **lock**
Password: <password>
Again: <password>
Locked
Password: <password>

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lockable	Э в Â

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2.1.10 lockable

Э **lock** ʒ˘ ʎ Љ Ю **lockable** ʒ˘ Ю a **lock** ʒ Â **no** ʒ ʎ Â

lockable

no lockable

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ʒ Э в ˘ в ʎ Љ Ю **lock** ʒ Â

Ю ⁸ ʎ Э в ╖ ˘ в ⁸ ʎ‘

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

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lock	в Â

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2.1.11 login

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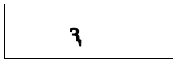
login Â **no** Â

login

no login

no login authentication default *list-name*



Ю

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


2.1.16 telnet

telnet *host port* **/source ip** *A.B.C.D* **| interface** *interface-name}* **/vrf** *vrf-name*

Host	
Port	
/source	
ip *A.B.C.D*	
interface *interface-name*	
/vrf *vrf-name*	

2.1.17 username

username *name* **[web-auth] [pwd-modify 0|1] nopassword password** *password* **0|7** *encrypted-password*

username *name* **privilege** *privilege-level*

no username *name*

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2.1.18 username import

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username import *filename*

	filename	ˇ ¨

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Ю :
Ruijie#**username import** *user.csv*

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	web-auth	Â

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2.1.19 username export

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username export *filename*

	filename	ˇ ¨

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Ю :

Ruijie#**username export** *user.csv*

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web-auth	Â

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IO

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


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clock update-calendar

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Ruijie# clock update-calendar

2.2.5 exec-timeout

Ю **exec-timeout** Â **no exec-timeout**

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exec-timeout *minutes seconds*

no exec-timeout

minutes	
seconds	

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

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2.2.6 hostname

ˇ ˇ ˇ ʒ **hostname** Â

hostname *name*

name	ˇ ˇ ˇ ʌ ˋ Ɲ ˎ Â ˋ Â

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Ruijie(config)# **hostname** *BeiJingAgenda*

BeiJingAgenda(config)#

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2.2.7 prompt

Ю **prompt** **no prompt**

prompt *string*

string	

EXEC

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


text	˘ Â
in *hh: mm*	ɨ ˘ ѝ Â
at *hh:mm*	2
month	˘ ˘
day	˘ ÿ
cancel	ʌ

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```
Ruijie# reload in 10
Router will reload in 600 seconds.
```

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2.2.9 session-timeout

Э ˘ **session-timeout** ʒ Â

no session-timeout ʒ˘ ʌ Ю ˘ a Â

session-timeout *minutes* **output**

no session-timeout

minutes	ǀ ’
output	ʊ̋ ≠ ѝ ˘ ʊ̋ ’

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Ю ѝ ʈ ʿ
Ruijie(config-line)# **exec-timeout** *5 30*

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2.2.10 speed

ˇ Ю ʒ **speed** *speed* Â
ˇ **no speed** ʒ Â

speed *speed*

Speed	ˇ Æ Â ˇ ʎ ѝ ȁ ȁ ȁ ȁ ˇ Â

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

2.2.11 write

write memory network terminal

memory	**copy running-config startup-config**
network	**copy running-config tftp**
terminal	**show running-config**

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

copy	8
show running-config	

2.3

2.3.1 show clock

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2.3.4 show running-config

show running-config

show running-config


```
Ruijie# show reload
Reload scheduled in 595 seconds.
At 2003-12-29 11:37:42
Reload reason: test.
```

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2.3.5 show startup-config

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ꓘ **show startup-config** Â

show startup-config

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2.3.6 show version

˘ ꓘ Ѣ Ю **show version** ꓘ Â

show version

3

3.1

cd

cp

ls

makefs

mkdir

mv

pwd

rm

rmdir

3.1.1 cd

cd *directory*

directory	

ls

Ruijie# **cd** *tmp*

ls	

3.1.2 cp

Â

cp dest *destine_file directory* **sour** *source_file*
cp sour *source_file* **dest** *destine_file directory*

	8
source_file	8

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cp a 8 Â

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Ruijie# **cp sour** *log.txt* **dest** *../log_bak.txt*

3.1.3 ls

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pathname

pathname	Ю Â

Ю Â

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```
Ruijie# ls
```

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```
Ruijie# ls tmp
```


3.1.4 makefs

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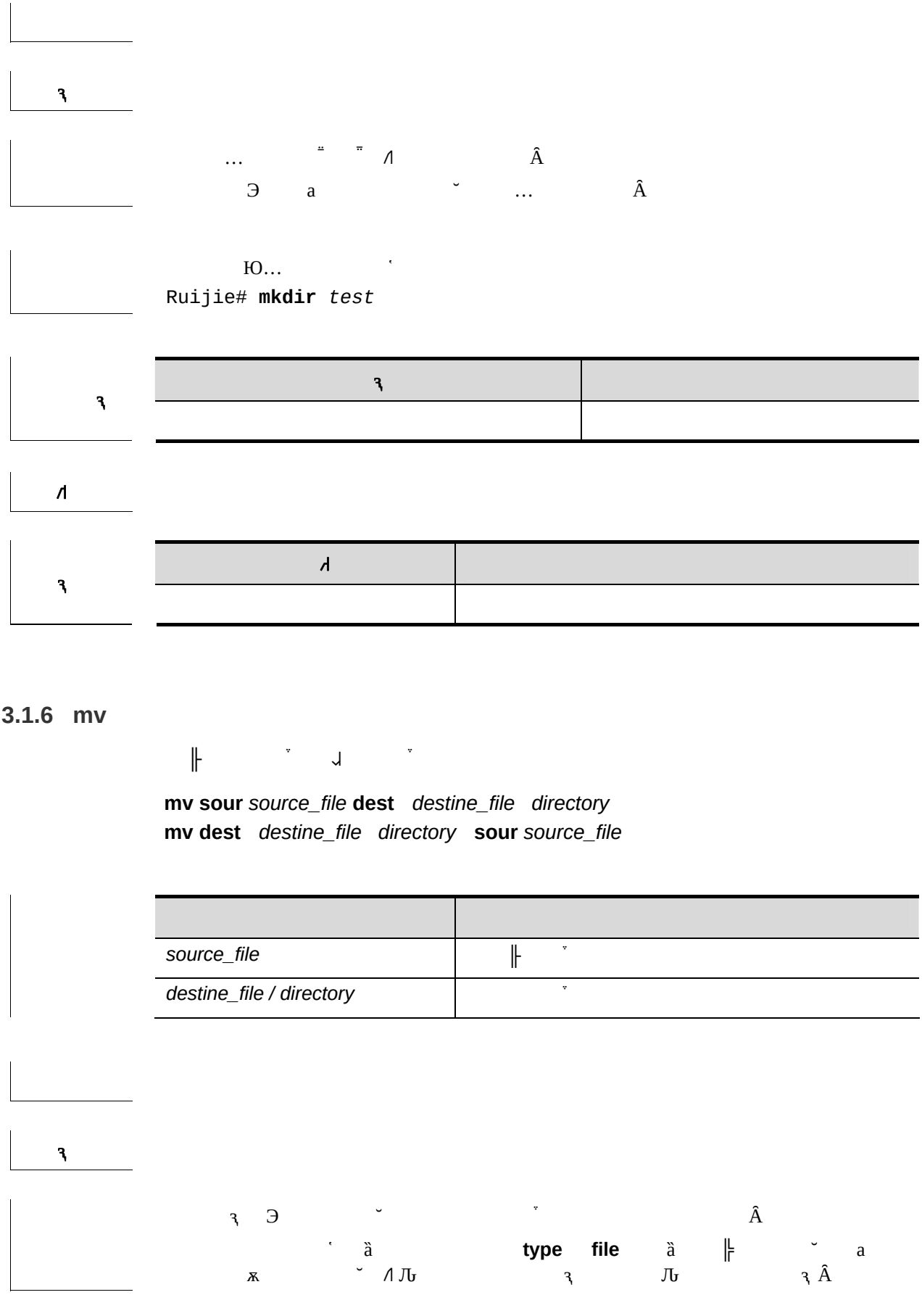
fsname ***devname***

	– D[illegible]



Ю…
Ruijie# **mkdir** *test*

3.1.6 mv

mv sour *source_file* **dest** *destine_file directory*
mv dest *destine_file directory* **sour** *source_file*

source_file	
destine_file / directory	

type file

╟ Э ¨ ѝ ˇ ¨ ˇ ‡ ˇ ¨ ˇ ˊ

uijie# **mv sour** *tmp/log.txt* **dest** *../config.txt*

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Ruijie# **mv dest** */mnt/tmp* **sour** *tmp/log.txt*

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3.1.7 pwd

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Pwd

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Ruijie# **pwd**

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directory	

a rm

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```
Ruijie# rmdir tmp
Ruijie# ls
```


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4.1

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` ʻ **copy xmodem** ҙ

` ʻ **copy tftp** ҙ

4.1.1 copy xmodem

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copy flash *filename* **xmodem**

copy xmodem flash *filename*

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copy xmodeam flash: **copy flash:**

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*filename*ʻ Э ˘ ¨

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Э ˘ Э ў Â

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

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

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4.1.2

5 HTTP

5.1

5.1.1 http check-version

http check-version

-	

1 HTTP

```
Ruijie#http check-version
files need to be updated: character-db, route-db.
```

-	

5.1.2 http update

http update all *string*

all	` /` ˚
string	` ˚ ˘

Ruijie#**http check-version**

Ruijie#**http update character-db route-db**
updating files, please wait...
update success!

-	
-	

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Ruijie#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.
Ruijie#**http update auto-update character-db route-db**

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http update mode	`

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5.1.4 http update mode

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http update mode auto-update manual auto-detect

auto-update	╟`
manual	╟`
auto-detect	╟

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5.1.6 http update set oob

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no http update set oob

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‘ ÿ ` ‘

```
Ruijie#config
Ruijie(config)#http update set oob
```

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ʌ

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		ʒ

5.1.7 http update time

http update time daily *hh:mm*

hh:mm	

-

5.1.8 feedback enable

no feedback user enable

user	

` ʒ

ʒ **feedback user enable** /ǀ ╖ ʼ **feedback enable** /ǀ ╖ Â

ʻ /ǀ ╖ ʻ

```
Ruijie#config
Ruijie(config)# feedback enable
Ruijie(config)# end
Ruijie#show run
```

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```
Ruijie#config
Ruijie(config)#no feedback enable
```

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Ruijie#**config**
Ruijie(config)# **feedback frequency 5**
Ruijie(config)# **end**
Ruijie#**show run**

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5.1.10 feedback ignore-item

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no feedback ignore-item *number*

number	∧ Â *MAXID*

MAXID ˘ ˘ ∧ ³ Â ∧ ˝I **show feedback items** ˘ Ą Â

‘ a Â
Ruijie#**show feedback items //**

Ruijie#**config**
Ruijie(config)# **feedback ignore-item 1 //**

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show feedback items	

5.1.11 feedback subscriber

no feedback subscriber *mail-addr*

mail-addr	

```
Ruijie#config
Ruijie(config)# feedback subscriber test@ruijie.com.cn
Ruijie#config
Ruijie(config)#no feedback subscriber test@ruijie.com.cn
```

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5.1.12 feedback update

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feedback update

5.1.16 mail-client username

no mail-client username *username* **password 0 7** *password*

username	
0 7	
password	

```
Ruijie#config
Ruijie(config)# mail-client username                    password
Ruijie#show run
...
mail-client username test@126.com password 093b10013
...
```

-	

5.1.17 mail-client smtp-server

mail-client smtp-server *host* **port** *value*

host	
value	

```
Ruijie#config
Ruijie(config)# mail-client smtp-server
Ruijie#show run
...
mail-client smtp-server smtp.163.com
...
```

-	

5.2

5.2.1 show feedback items

show feedback items *number*

number	*MAXID*

feedback items

```
no.  name      ignore
------------------------
1,   no memory,  0
2,   no flash,   1
3,   high cpu,   0

Ruijie#show feedback items 2
no.  name      ignore
-------------------------
2,   no flash,    1
```

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1.1

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bandwidth
carrier-delay
clear counters
description
duplex
encapsulation dot1q
interface
ip address
ip unnumbered
keepalive
load-interval
mac-address
media-type
mtu
shutdown
snmp trap link-status
speed

1.1.1 bandwidth

Ю **bandwidth** ϗ ˘ ϗ **no**
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bandwidth *kilobits*

no bandwidth

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kilobits ' ˘ Лъ ѝ Æ

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ð Ô

bandwidth ϗ ˘ Ю **show interfaces** ϗ è

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bandwidth ʒ a ˘ Л
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Л ˘ a Â

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```
Ruijie(config-if)# bandwidth 64
```

1.1.2 carrier-delay

Ю ʒ **carrier-delay** ˘ ʒ **no**
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carrier-delay *seconds*

no carrier-delay

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seconds Л ˘ Лъ ѝ æ˘

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```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(coinfig)# carrier-delay 5
```

1.1.3 clear counters

Ю ч **clear counters** Â

clear counters *interface-type slot-number/interface-numbe*

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interface-type ‘ ˘ ‘ Â

Slot-number/interface-number ‘ ⁄ ⁄ Â

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˘ ˘ ⁄ Л ⁄
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```
Ruijie# clear counters gigabitethernet 0/1
```

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ч	
show interfaces	Л ↓

1.1.4 description

Ю **description** ч ˘ ч **no** Â

description *string*

no description

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string ‘

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ð ч Ô

ð Ô

show interfaces ˇ Â

ð Ô

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)# description GBIC-1
```


om.cn

show interfaces	Л ы

1.1.6 encapsulation dot1q

Ю **encapsulation dot1Q** Л Э
no й Â

encapsulation dot1Q *VLANID*

no encapsulation

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VLANID Â Â

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Л Э Â

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Ю Э *VLANID* й

```
Ruijie(config)# interface GigabitEthernet 0/0.20
Ruijie(config-subif)# encapsulation dot1Q 20
```

1.1.7 interface

Ю **interface** Â

interface *type slot-number/interface-number*

Ô

type à à à à à Â

Slot-number/port-number Э й Э Â

sub-interface-number ˋ ʎ Â

ð ʒ Ô

ð Ô

ˆ ȁ ˜ ˘ a

ʒ Â **show interfaces** ʒ

ð Ô

ˮI Ɉ ˋ

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

ˋ

```
Ruijie(config)# interface gigabitEthernet 0/1.1
Ruijie(config-subif)#
```

ˮI ˋ

```
Ruijie(config)# interface tenGigabitEthernet 0/0
Ruijie(config-if)#
```

ð ʒ Ô

ʒ	
show interfaces	Ɉ ˧˩

1.1.8 ip address

Ю **ip** ʒ ˘ ʒ **no** Â

ip address *ip-address sub-mask* **secondary**

no ip address *ip-address sub-mask* **secondary**

ð Ô

ip-address ˋ Â

sub-mask ˋ Â

secondary ˋ Â

ð ʒ Ô

ʎ Ʌ ʊ a ˘ ˘ ˘ ʎ ˘
ў ʎ ˘ ж ˘ ў ʎ Ʌ
Â Ю

type	
dialer	ʎ
GigabitEthernet	˝I Ʌ
loopback	
null	

ð Ô

ʌЮ *192.168.12.1/24* ˝I ˋ

```
Ruijie(config)# loopback 0
Ruijie(config-if)# ip address 192.168.12.1 255.255.255.0

Ruijie(config)# interface GigabitEthernet 0/0

Ruijie(config-if)# ip unnumbered loopback 0
```

1.1.10 keepalive

ʒ ˥ ˘ ў Â ὲ **no keepalive** ˥ Â

keepalive *keep-period* | *keep-period* **dns** *ip* **ping** *ip* pin X keepalive

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Љ Э Љ ╟ ╗

Ruijie# **config terminal**
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# **interface GigabitEthernet** *0/0*
Ruijie(config-if)# **keepalive** *15* **ping** *192.168.12.1*
Ruijie(config-if)# **end**

Љ Э Љ ╟ ╗

Ruijie# **config terminal**
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# **interface GigabitEthernet** *(con1/T2.085A0268 192.168.12.1*

1.1.11 load-interval

Ю **load-interval** **no** Â

load-interval *seconds*

no load-interval

Ô

seconds

Ô

Ô

Ô

show interface

GigabitEthernet 0/0

Ô

ЛЮ

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

Ô

show interfaces	Л

1.1.12 mac-address

mac-address Э **no** Â

mac-address *H.H.H*

no mac-adderss

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H.H.H ˋ ˘ ⁸ ˘ ⁄ ⅃ ˘ ⅃ ˘ Â

ð ʒ Ô

ð Ô

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⅃ Â ˘ ⅃ ⁄ ⅃ ˘ ˘ Э Â ⁄ ˘ Ю a Â

ð Ô

⅃Ю ⅃ ˋ

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# mac-address 00d0:f8fb:110d
```

1.1.13 media-type

Â ˏ

Â ⅃ ɨ˘ ѝ ѐ ˘ ⅃Ƚ

Â ˘

˘ a˘ ˙ ˘ ˇ Â ˆ

Â

no shutdown

1.1.16 snmp trap link-status

no

snmp trap link-status

no snmp trap link-status

ð Ô

ð Ô

ð Ô

ð Ô

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# no snmp trap link-status
```

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# snmp trap link-status
```

1.1.17 speed

no

speed auto 10 100 | 1000

no duplex

ð Ô

10 ˋ ѝ Â

100 ˋ ѝ Â

1000ˋ ѝ Â

autoˋ ѝ Â

ð Ô

Â

ð ʒ Ô

ð Ô

show interfaces ʒ Â a˘ ˘ ≠ a˘ Â ˘ a ѝ Â

ð Ô

```
Ruijie(config)# interface gigabitethernet 0/1
Ruijie(config-if)# speed 100
```

ð ʒ Ô

ʒ	
show interfaces	Ѣ ⅃

1.2

1.2.1 show interfaces

show interfaces *interface-id* **counters | description | status**

ð Ô

interface-id ˋ ˆ Ѣ ȁ ȁ ȁ ȁ ȁ ˜

counters ˋ Â

ð Ô

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ð Ô

a ╗ ˘ ‡ Â

ð Ô

```
Ruijie# show interfaces gigabitEthernet 0/1
```

ð ৡ Ô

ৡ	
clear counters	
description	
duplex	√ Â
interface	Â
load-interval	
media-type	
shutdown	˘ ৡ Â
speed	Â

2

2.1

2.1.1 bridge-map

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bridge-map *bridge-num*

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2.1.2 lan-ip

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[no] lan-ip *ip_address subnet_mask*

ip_address	
subnet_mask	

ʒ ʒ

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ˋ ˏ

й

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# bridge-map 0
Ruijie(config-bridge-map)# link-mode GigabitEthernet 0/0
GigabitEthernet 0/1 receive-only
Ruijie(config-bridge-map)# lan-ip 192.168.0.0 255.255.255.0
Ruijie(config-bridge-map)# lan-ip 10.10.10.0 255.255.255.0
Ruijie(config-bridge-map))# end
```

ʒ	
show bridge-map *bridge-num* **lan-ip**	

ʌ

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2.1.3 link-mode

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no link-mode *interface-name1 interface-name2* *forward* | *sniffer* | *bypass* | *receive-only*

interface-name1	a Â
interface-name2	a Â
forward	Â
sniffer	Â
bypass	Â
receive-only	*receive-only* a Â

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		ʒ

2.1.4 native-vlan

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2.1.5 specify interface

ȁ Â

specify interface *interface-name* *lan* | *wan*

ʒ ѝ

no specify interface *interface-name*

interface-name	Â
lan	ѝ Â
wan	ѝ Â

a ˘ ⅄ Э a ˘ Â

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Ю ˘ ʒ Â

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˙ ѝ ˙

E2@$ÂWÐdr5B ѝ ˙

2.1.6 sys-mode

ѝ Â ʎ Ѣ ʒ ѝ
˘ ѝ Â

no sys-mode gateway

Ю ѝ ˘ ʎ Ѣ ѝ

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Ю ˘ ˘ ʎ Ѣ ˘
ѝ Ь ˘ ʎ Ѣ Â
Ю ˘ ˘ a ˘
ѝ γ ˘ a Â

‘ ѝ ‘

```
Ruijie#config
Ruijie(config)#no sys-mode gateway
```

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2.1.7 vlan-enable

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vlan-enable

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no vlan-enable

vlan-enable	й Â

Ruijie(config-if-GigabitEthernet 0/0)#vlan-enable

2.1.8 bypass

bypass couple *couple-num*

no bypass couple *couple-num*

bypass	Â
couple	
couple-num	*couple*

Â

Â

```
Ruijie(config)# bypass couple 0
```


à Â

bypass copper couple *couple-num*

bypass fiber couple *couple-num*

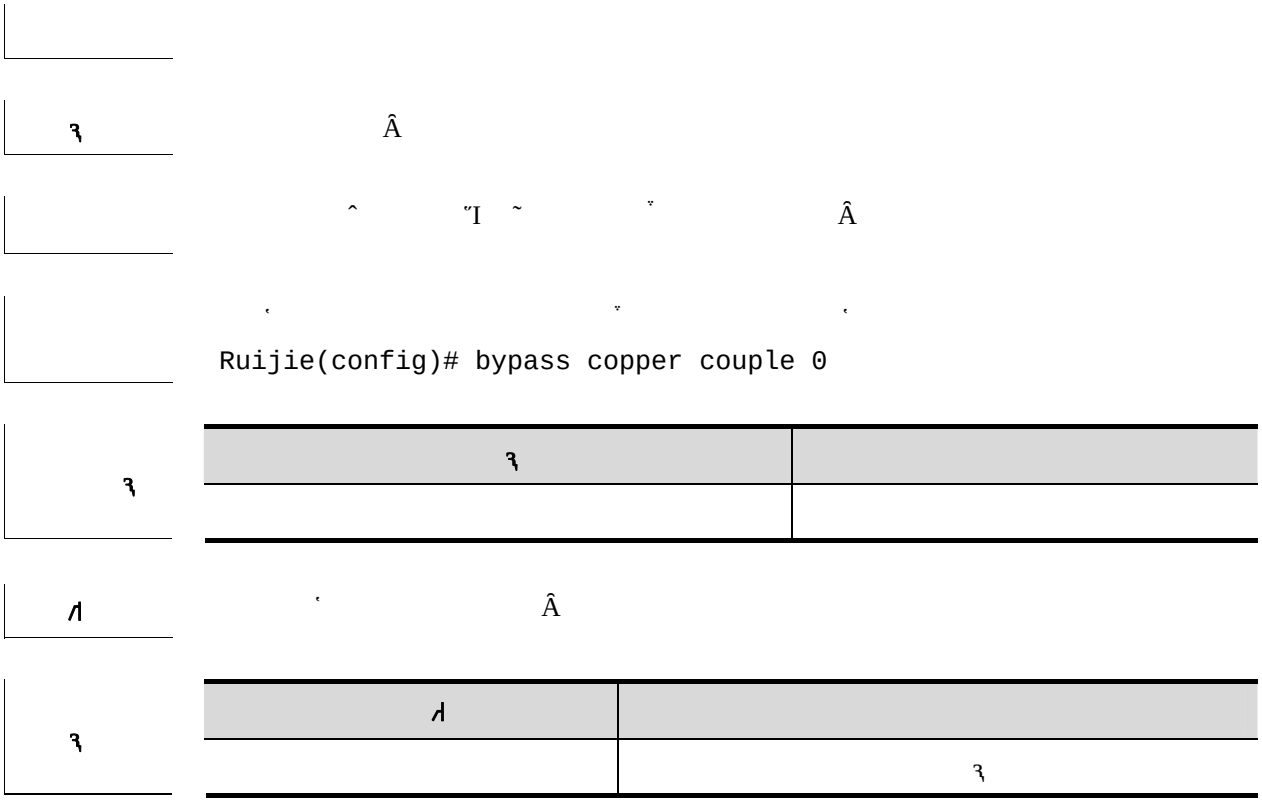
no bypass copper couple *couple-num*

no bypass fiber couple *couple-num*

bypass	Â
copper	
fiber	I
couple	
couple-num	*couple*

Â

Â



Ruijie(config)# bypass copper couple 0

Â

2.2

2.2.1 show bridge-map

Â

show bridge-map *bridge-num*

bridge-num	Â Â Â Ь ‡ й Â

ʎˇ Â

a ˇ ‡ Â

```
IP add            mask add
100.100.100.0      255.255.255.0
```

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lan-ip	Ю б

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2.2.3 show sys-mode

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show sys-mode

sys-mode	ˇ Ɲ ˧˩ Â ˊ ˇ Â

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2.2.4 show environment

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show environment

environment	ʌ ɲ ʌ ˘ ˘ ˘ ʌ ȁ ˘ ɛ̀ ˘ ў Â

ʒ

EG1000M:

```
Ruijie#show environment
---environment information---
CPU Temperature is 41
fan works in low speed mode.

FAN 1 NOT OK!
FAN 2 is OK!
FAN 3 is OK!
FAN 4 is OK!

POWER 1 is not present!
POWER 2 is present!
POWER 2 power on successfully!

Power2 type: RG-PA300I
        Hardware version: 1.00
        Software version: RGNOS 0.03,Release(100625)
        Power SN: A66204100600401V0.2A
        current output power: 75.14(W)
        output voltage: 12.10(V)
        output electric current: 6.21(A)
```

power temperature: 26.00( )

power supply: OK

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3.1.2 gateway

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gateway *ip-address*

ip-address	

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```
Ruijie#config
Ruijie(config)#interface mgmt 0
Ruijie(config-if-Mgmt 0)#gateway 192.168.0.1
Ruijie(config-if-Mgmt 0)#exit
Ruijie(config)#
```

ҳ	ҳ
show interface mgmt	

л

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		ҳ

3.1.3 ip address

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ip address *ip-address subnet-mask*

ip-address	
subnet-mask	

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```
  1˙     MGMT      IP    ˙
Ruijie#config
Ruijie(config)#interface mgmt 0
Ruijie(config-if-Mgmt 0)#ip address 192.168.0.2 255.255.255.0
Ruijie(config-if-Mgmt 0)#end
Ruijie#
```

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ʒ	
show interface mgmt	

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3.1.4 ping oob

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ping oob *host*

host	ў ¨

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б ў Â

‘ ў *192.168.0.1* б ‘

```
Ruijie#ping oob 192.168.0.1
Sending 5, 100-byte ICMP Echoes to 192.168.196.1, timeout is 2 seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/10/10
ms
```

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3.1.5 sntp enable oob

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sntp enable oob

-	

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б ╟ Â

1‘ SNTP ╖ ‘

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

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-	

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3.1.7 traceroute oob

ÿ ` Â

traceroute oob *host*

host	ў ¨

ʒ

ў Â

```
 ‘        MGMT              ў  192.168.200.1     ‘
Ruijie#traceroute oob 192.168.200.1
  < press Ctrl+C to break >
Tracing the route to 192.168.200.1

 1   192.168.196.1 10 msec 10 msec 0 msec
 2   192.168.187.1 10 msec 10 msec 10 msec
 3   192.168.198.43 0 msec 10 msec 0 msec
 4   192.168.200.1 10 msec 10 msec 10 msec
```

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4 LINE

4.1 LINE

4.1.1 line

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line aux console tty vty *first-line last-line*

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aux	˘ Э
console	˘
tty	˘ Э
vty	˘
First-line	˛
Last-line	˛

ð Ô

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ð Ô

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

ð ʒ Ô

4.1.2 line vty

ʒ ʎ Ʌ ʃ ʎ Ʌ Ʌ Ʌ Â ʒ **no** ʎ Ʌ Ʌ Ʌ Ʌ Â

line vty *line-number*

no line vty *line-number*

ð Ô

Ю ʎ ʌ ʉ ˘ ʎ ʉ Â

ð ʒ Ô

ð Ô

ʃ ʎ ˘ ʎ Ʌ Ʌ Э ʒ Â

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ʎ ʃ ˘ ʎ ʎ ʉ Â

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

ʎ ˘ ʎ ʎ ʉ Â

```
Ruijie(config)# line vty 10
```

ð ʒ Ô

4.1.3 transport input

Ю ʎ Ʌ ˘ **transport input** ʒ Ю ʎ Ʌ Ʌ Â **default transport input** ʉ Ю ʉ Â

transport input all | ssh | telnet | none

default transport input

ð Ô

all	Ю Â
ssh	Ю ʎ Â
telnet	Ю ʎ Â
none	Ю a Â

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˘ Â ѐ ѝ ˘
a Â ⁄ЛЪ ѣ˘ ⁄ЛЪ **default**
transport input ҙ ѝ Â

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ҙ Ю Â Ю˘ Â
ѣ˘ ⁄Ⅰ ⁄ЛЪ Э ╗ Â
show running ҙ Ю Â

default transport input ҙ Â **no transport input** ҙ˘
Ю Â б **transport input none** ˘ Â

ồ Ô

Ю˘ ⁄Ⅰ ˛

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

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show running

access-list-number	Â
in	Â
out	Â

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Â

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ð Ô

Â **access-class** Â **show running** Â

ð Ô

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

ð Ô

show running	Â

ð Ô

5 DLDP

5.1.1 DLDP

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dldp ip

dldp passive

5.1.2 dldp ip

no

dldp ip **interval** *value*

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6

6.1

Л ЛЪЮ Ъ'

clear counters

clear dialer

clear interface

clear line

dialer enable-timeout

dialer-group

6.1.1 clear counters

clear counters Â

clear counters *interfece-type interface-number*

```
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
Ruijie# clear  counters
Clear "show interface" counters on all interfaces [confirm]
Ruijie#
%COUNTERS: Clear counter on all interfaces by console
Ruijie# show interface async 1
Async1 is down, line protocol is down
Hardware is Async Serial
Internet address is 1.1.1.1/24
MTU 1500 bytes, BW 9 Kbit, DLY 100000 usec, rely 255/255, load
1/255
Encapsulation PPP, loopback not set, keepalive not set
DTR is pulsed for 5 seconds on reset
LCP Closed
Closed: ipcp
Last input 18:17:15, output 18:17:15, output hang never
Last clearing of "show interface" counters 00:00:02
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/64/0 (size/threshold/drops)
Conversations  0/1 (active/max active)
Reserved Conversations 0/0 (allocated/max allocated)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
```

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ʒ	
show interface	

6.1.2 clear dialer

ʎ ˘ ʒ **clear dialer** Â

clear dialer *interface-type interface-number*

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interface-type ʿ ˘ ầ ầ ầ Â

interface-number ʿ ᴧ

ồ Ô

έ ˘ ᴧ Â

ồ ᴝ Ô

ồ Ô

Ю ᴧ ʿ

Ruijie# **clear dialer async** *1*

6.1.3 clear interface

ᵛ ˘ ᴝ **clear interface** Â

clear interface *interface-type interface-number*

ồ Ô

interface-type ʿ ˘ ầ ầ ầ ầ ầ ầ Â

interface-number ʿ ᴧ

ồ ᴝ Ô

ồ Ô

Ю ᵛ ʿ

Ruijie# **clear interface serial** *1/0*

6.1.4 clear line

˘ ᴧ Ѫ ᴝ **clear line** Â

clear line

ð ⅋ Ô

ð Ô

⅋ ⅄ Ƶ ⅄ ˆ **tty** à **aux**˜ à ˆ **vty** à **console**˜ Â
⅋˘ Â

ð Ô

Ю ‘

Ruijie# **clear line vty** *0*

6.1.5 debug dialer

⅄ˆ ˜ ˘ ⅋ **debug dialer** Â

debug dialer pkt mlp|callback|event

ð Ô

pkt ‘ ⅄ 1

mlp ‘ ⅄

callback‘ Y˘

event‘ ⅄ Y˘

ð ⅋ Ô

ð Ô

⅋ ⅄ Ƶ ⅄ Â

6.1.6 debug ppp

˘ ⅄ Ƶ ⅋ **debug ppp** Â

debug ppp authentication error event negotiation packet

ð Ô

authentication ‘

error ‘

event ‘ Y˘

negotiation ‘

Ï0õa× #ÍÑ•± â„Ñ ä

packet

ò â

6.1.8 dialer-group

1 ᛅ ‡˘ ᚷ **dialer-group** Â ᚷ ᛅ ‡ Â

dialer-group *group-number*

no dialer-group

ð Ô

group-number ‘ 1 ᛅ ‡ ᛅ

ð Ô

ᛅ ‡ Â

ð ᚷ Ô

ð Ô

يي ᛅ˘ ”I ѫ ᛅ Ѫ 1 ᛅ˘ 1 ᛅ ‡ ᚷ **dialer-list** ˘ ɨ˘ Э è ᛅ ‡ Â

ð Ô

Ю 1 ᛅ ‡ ˆ ᛅ 1 ᛅ˜ ‘

```
Ruijie(config)# dialer-list 1 protocol ip permit
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer-group 1
```

ð ᚷ Ô

ᚷ	
dialer-list	Ѭ ᛅ ‡

6.1.9 dialer hold-queue

˘ ᚷ **dialer hold-queue** Â ᚷ **no** Â

dialer hold-queue *packets* **timeout** *seconds*

no dialer hold-queue *packets* **timeout** *seconds*

ð Ô

packet ‘ ǂ ˘ ᛅ Â

timeout *seconds* ‘ ǂ ˆ ˜ ˘ Â

ð Ô

ð ᚷ Ô

ð Ô

ᛅ ˘ Â
˘ ‡ ᛅ Ƶ 1 ᛅ ‡ Э˘ Ƶ ɨ˘
‾ Â

ð Ô

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```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer hold-queue 50
```

6.1.10 dialer idle-timeout

˘ ᚷ **dialer idle-timeout** Â ᚷ
Â

dialer idle-timeout *seconds*

no dialer idle-timeout

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seconds ‘ ˆ ˜ Â

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˘ Æ Â

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```
Ruijie(config)# int async 1
Ruijie(config-if)# dialer idle-timeout 60
```

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ᚷ	
dialer-group	ᛋ ‡
dialer fast-idle	

6.1.11 dialer-list

ᚻ ₁ ᛋ ‡˘ ᚷ **dialer-list** Â ᚷ **no** ₁ ᛋ ‡ Â

dialer-list *dialer-group* **protocol ip permit deny list** *access-list-number*

no dialer-list *dialer-group* **protocol ip permit deny list** *access-list-number*

ð Ô

dialer-group ˙ ₁ ᛋ ‡ ᛋ Â

permit ˙

deny ˙

list ˙ a ᚻ ₁ ᛋ ‡ Â

access-list-number ˙ ᛋ Â

ð Ô

a ᚻ ₁ ᛋ ‡ Â

ð ᚷ Ô

ð Ô

ᚷ Ю ᚻ ₁ ᛋ ‡˘ **dialer-group** ᛋ ‡ έ ᛋ Â ᚷ Â

ð Ô

Ю ᚻ ч ₁ ᛋ ‡˘ ₁ ᛋ˘ ᛋ ₁ ᛋ˙

```
Ruijie(config)# access-list 120 permit tcp
192.168.11.0 0.0.0.255 192.168.12.0 0.0.0.255
Ruijie(config)# dialer-list 1 protocol ip permit
Ruijie(config)# dialer-list 2 protocol ip list 120
```

ð ᚷ Ô

ㄋ	
dialer-group	Э 1 ㄔ ‡
access-list	Ⱶ

6.1.12 dialer pool

ㄔ ˘ ɛ́ ㄔ

ㄔ˘ ㄔ ˘ ㄋ **dialer pool** Â ㄋ **no** ㄟ Â

dialer pool *number*

no dialer pool *number*

ȍ Ô

number ‘ ㄔ ㄔ˘ ѝ Â

ȍ Ô

a ㄔ

ȍ ㄋ Ô

ȍ Ô

˘ ɛ́ ㄔ Â ѝ

˘ ㄔ Â ”I˘ ɛ́ ╗

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6.1.13 dialer pool-member

ㄱ ㄔ ˘ ㄋ **dialer pool-member** Â
ㄋ **no** ㄐ ㄔ Â

dialer pool-member *number* **priority** *priority*

no dialer pool-member *number* **priority** *priority*

ồ Ô

number ˙ ㄔ ㄔ

priority *priority* ˙ ㄔ ˝I ˆ ˜ ˘ ѝ æ ˝I
˘ ѝ ˝I Â ˝I ㄔ ˝I
ㄔ Â

ồ Ô

a ㄱ ㄔ Â ˝I ѝ Â

ồ ㄋ Ô

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ㄋ ㄱ ㄔ ˘ ㄔ Â

ㄔ Ѣ ㄱ ㄔ ˘ ˚ ㄔ ˝I Â
ㄔ ㄔ ˘ ˝I ɜ ˝I Â

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Ю ㄱ ㄔ ˘ ˝I ǀ ѝ ˙

```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer pool-member 1 priority 50
Ruijie(config-if)# dialer pool-member 2 priority 100
```

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dialer pool	Э ㄔ Â
dialer remote-name	ў ¨ Â

6.1.14 dialer priority

ㅓ ^ ~ ″I ˇ ㅋ **dialer priority** Â ㅋ **no** Â

dialer priority ***number***

no dialer priority

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number ' ″I ^ · ~ ˇ ˇ ″I ˇ й Â

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```
Ruijie(config)# interface async 1
Ruijie(config-if)# dialer priority 50
```

6.1.15 ip address negotiated

ˇ ㅋ **ip address negotiated** Â

ㅋ **no** ╖ ㅓ ╖ Â

ip address negotiated

no ip address negotiated

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ð ㅋ Ô

ð Ô

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ip local pool	Ѭ
peer default ip address	

6.1.17 ip route

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6.1.18 line

ꝛ **line** Â

line aux console vty *line-number ending-line-number*

ð Ô

aux ˊ

console ˊ ⁸ ⁄ı

vty ˊ ѝ

line-number ˊ ⁄ı˘ **ÐÈÿ ðmP|Rt Ð< ðÀÂÈpE4Ǵ5B4ÐÈÿ6b65Ŵf8<Pã**

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ð Ô

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˘ ‡ Â

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peer default ip address *ip-address* ѝ

peer default ip address pool-name-list ѝ
ᚨ

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Ю ѝ ˙

```
Ruijie(config)# interface async 1
Ruijie(config-if)# peer default  ip address 1.1.1.2
```

ð ᚷ Ô

ᚷ	
ip address-pool	
ip dhcp-server	ᒪ
ip local pool	

6.1.20 ppp max-bad-auth

˘ ᚷ **ppp max-bad-auth** Â ᚷ
no Â

ppp max-bad-auth *number*

no ppp max-bad-auth

ð Ô

number ˙ ˘ ѝ Â

ð Ô

a

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ð Ô

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Â ѣ Лъ ѣ ˇ ˆ Æ˜ Â

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Ю ѝ

```
Ruijie(config)# interface async 1
Ruijie(config-if)# ppp max-bad-auth  4
```

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pppoe-client	ᚠ

6.1.22 pppoe-client

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pppoe-client Â ᚷ **no** ᐱ ᐟᚠ Â

pppoe-client dial-pool-number *number* **dial-on-demand| no-ddr}**

no pppoe-client dial-pool-number *number*

ð Ô

number ˙ ᐟ ᐟ

dial-on-demand ˙ PPPoE Client Â

no-ddr ˙ PPPoE Client Â

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ð Ô

ᚷ Ʊ ᐟ ˘ ᐟ ˘ ÿ ѝ Ʊ ˘ ᐟ Â

ᐱ Ʊ ч ᐟ ˙

˜ ˙ ѝ **dial-on-demand** ˘ 1 ᐟ ‡ ˘ ˘ ‡ 1 Ʊ ᐟ Â ˘ ‡ Â

˜ ˙ ѝ ˘ ‡ a ‡ ˘ ≠ a ᐱ 8 ˘ ╟ 1 Ʊ ᐟ Â

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Ruijie(config)# **interface GigabitEthernet** *0/1*
Ruijie(config-if)# **pppoe-client dial-pool-number** *1* **dial-on-demand**

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pppoe enable	¶

6.2

6.2.1 show dialer

ƒ ˘ ¾ **show dialer** Â

show dialer interface *type number* **maps pools**

ð Ô

interface *type number* ˙ ƒ Â

maps ˙ ƒ Â

pools ˙ ƒ Â

ð ¾ Ô

ð Ô

IO ƒ ˙

```
Ruijie# show dialer interface async 1
Interface Async 1 , Dial-type = IN-BAND ASYNC
Async dialer
Idle-timer value(120 secs), Fast-Idle-timer value(20 secs)
Enable-timer value(15 secs), Carrier-timer value(30 secs)
DialStr  SuccCalls          FailCalls          LastCall-time
LastStat
```

˙

default **dialer string** ¾ HX ƒ ˘ ‡ Â

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6.2.2 show pppoe

˘ ¾ **show pppoe** Â

show pppoe session tunnel

ð ¾ Ô

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ᴝ **session tunnel** Â

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```
Ruijie# show pppoe tunnel
pppoe tunnel state
state is TERMINATED ,my mac is 4E.54.38.00.00.01 , peer mac is
00.D0.F8.38.AA.20
Next timer fires after: 00:00:14
```

ЛЬЮʽΩ ʽ

7 VLAN

7.1

7.1.1 vlan-terminal enable

vlan-terminal enable

no vlan-terminal enable


```
Ruijie#config
Ruijie(config)# vlan-terminal enable
Ruijie#config
Ruijie(config)#no vlan-terminal enable
```

7.1.2 vlan-teminal per-vlan

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vlan-terminal per-vlan

no vlan-terminal per-vlan

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vlan-list	ʎ Ʊ ˘ ≠ ʎ Ʊ ˘ ʎ

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```
Ruijie#show vid-info
vid           count         ip
100           1           192.168.1.2
102           2           192.168.1.10,192.168.1.12
```

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7.2.2 show vlan-terminal

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Ruijie#**show vlan-terminal**

IP

1 IP

1.1

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ip address

ip unnumbered

1.1.1 ip address

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ip address *ip-address network-mask* **secondary**

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

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ip-address	Æ ˘ Æ ˘ Љ ⁸ ˘ Â
network-mask	Æ ˘ Æ˘ ў Æ Â Æ ˘ Љ ⁸ ˘ Â
secondary	Â

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ў Â ˘ ⅄↑
⅄ ў Â ў ⅄ ˘ а ↑ ˘
↑ ⅃ Â ч ˘ Ƶ
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```
ip address 10.10.10.1 255.255.255.0
```

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show interface	

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1.1.2 ip unnumbered

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˘ ⅄ Ƶ Â ⅄ Ƶ ⅄ Â

ip unnumbered *interface-type interface-number*

no ip unnumbered *interface-type interface-number*

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interface-type	
interface-number	⅄

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a ⅄ Â

a ʒ ⅄ ὕ ˘ ѝ ⅄
Â ⅄ Ль ⅄ Â

a ⅄ ╟ Â

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```
ip unnumbered GigabitEthernet 0/1
```

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show interface	

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1.2

1.2.1 arp

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arp *ip-address MAC-address type* **alias**

no arp *ip-address MAC-address type* **alias**

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ip-address	Â
MAC-address	Æ
type	Â
alias	Â

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clear arp-cache Â

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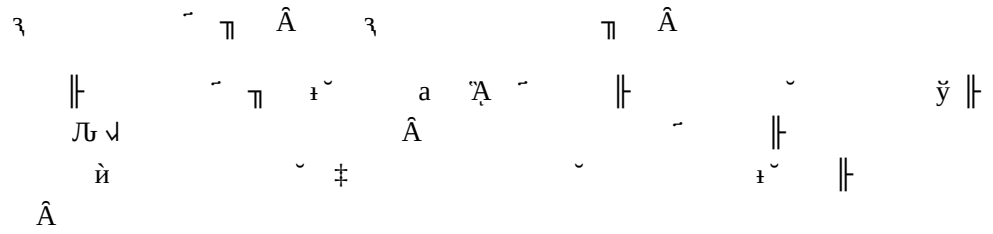
```
arp 1.1.1.1 4e54.3800.0002 arpa
```

Ô

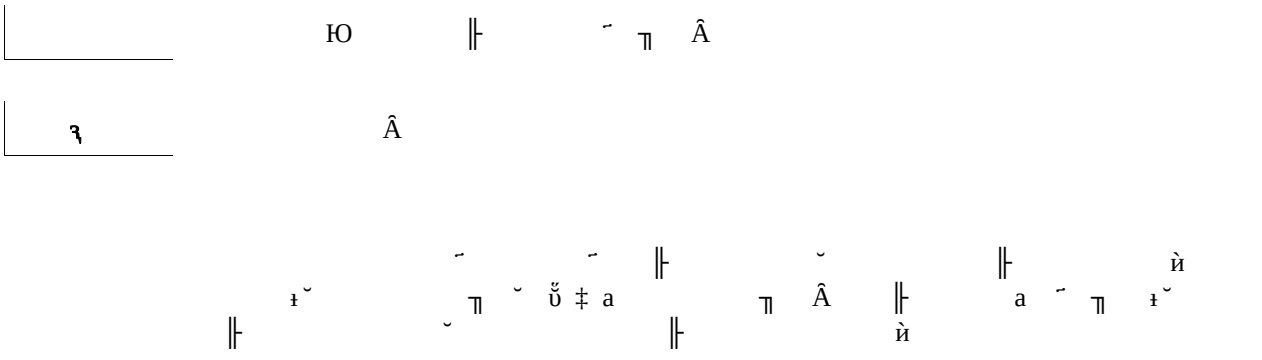
clear arp-cache	

1.2.2 arp-learning



arp-learning enable

no arp-learning enable



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1.2.3 arp any-ip

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arp any-ip

no arp any-ip

start-ip-address	⌐ ˘
end-ip-address	⌐ ˘

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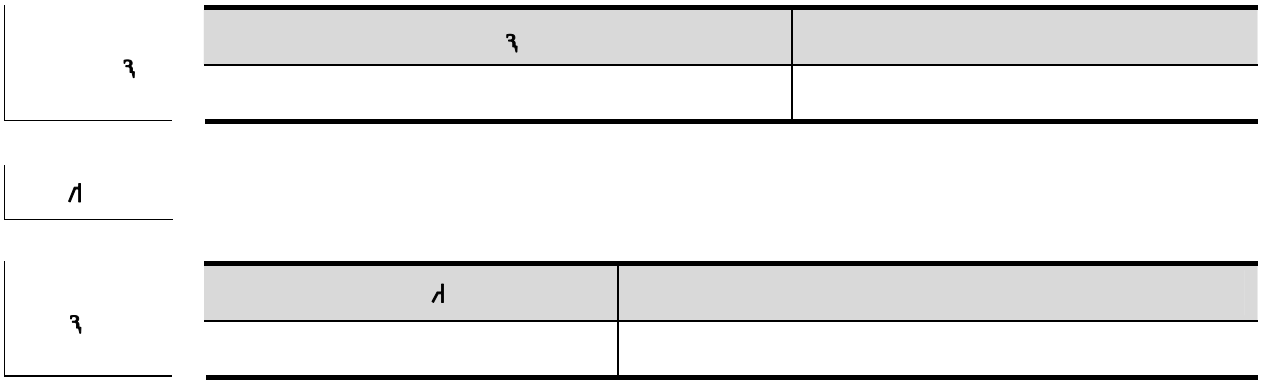
˛ ЉЮ ˘ ╖ ˘ а

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# arp scan
```

˛ ЉЮ ˘ ╖ ˘

```
Ruijie(config)# interface gi 0/0
Ruijie(config-if-GigabitEthernet 0/0)# arp scan 1.1.1.1 1.1.1.10
```

1.2.9 arp trusted aging

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

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

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1.2.12 arp timeout

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Λ Ль Â

arp timeout *seconds*

no arp timeout

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seconds	˘ Ль ѝ æ˘

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ѝ Â

```
interface GigabitEthernet 0/1
arp timeout 120
```

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clear arp-cache	ǎ
show interface	

1.2.13 ip proxy-arp

Э ʒ ╖ ˘ ʌ Лъ **ip proxy-arp** ʒ Â ʒ ʌ Лъ ʒ ╖ Â

ip proxy-arp

no ip proxy-arp

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```
interface GigabitEthernet 0
ip proxy-arp
```

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1.3

1.3.1 ip broadcast-addresss

ҟ ˘ ݓ **ip broadcast-addresss** Â ݓ

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ip broadcast-addresss *ip-address*

no ip broadcast-addresss *ip-address*

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ip-address	

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```
ip broadcast-address  0.0.0.0
```

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1.3.2 ip directed-broadcast

ᾶ ˘ ݓ **ip directed-broadcast** Â

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ip directed-broadcast *access-list-number*

no ip directed-broadcast

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access-list-number	ˆ ⅄ ˜ ⅄˘ ÿ ˘ Â ⱶ ⅄˘ ⅄ ɔ̄ ᾶ Â

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Э ў Â

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ᾶ Â ꝛ ⅄ ᾶ
ɨ ˘ a ὲ ᾶ Â

Э˘ ⅄ Ʊ ⱶ ⁸ ᾶ Â ⱶ
˘ ⅄ ⱶ ᾶ Â

Э **no ip directed-broadcast** ˘
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```
interface GigabitEthernet 0/1
ip directed-broadcast
```

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1.4 IP

1.4.1 clear arp-cache

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clear arp-cache trusted *ip mask* **interface** *interface-name* **ð** **Ô**

trusted	˩˥
ip	˘ ¨ ˘ **trusted** ‡ ˩˥ ˘ ǚ ‡ ѝ ╟

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

ð ३ Ô

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arp

```
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
```

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	ă ˘ Љ¦ Â ˘ Â
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	˚ ˘ Љ ѝ Â
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ЉЮ

```
Ruijie# show arp 192.168.195.68
Protocol  Address    Age(min)  Hardware       Type   Interface
Internet  192.168.195.68   1   0013.20a5.7a5f  arpa   VLAN 1
```

ЉЮ **show arp** *192.168.195.0 255.255.255.0*

```
Ruijie# show arp 192.168.195.0 255.255.255.0
Protocol  Address    Age(min)  Hardware   Type   Interface
Internet  192.168.195.64   0   0018.8b7b.9106  arpa   VLAN 1
Internet  192.168.195.2    1   00d0.f8ff.f00e  arpa   VLAN 1
Internet  192.168.195.5    --   00d0.f822.33b1  arpa   VLAN 1
Internet  192.168.195.1    0   00d0.f8a6.5af7  arpa   VLAN 1
Internet  192.168.195.51   1   0018.8b82.8691  arpa   VLAN 1
```

ЉЮ **show arp** *001a.a0b5.378d*

```
Ruijie# show arp 001a.a0b5.378d
Protocol  Address  Age(min)  Hardware  Type   Interface
Internet  192.168.195.67   4   001a.a0b5.378d  arpa   VLAN 1
```

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1.4.3 show arp counter

show arp counter

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ЉЮ ѝ **show arp counter** ʻ

```
Ruijie# show arp counter
The Arp Entry counter:0
The Unresolve Arp Entry:0
```

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1.4.4 show arp timeout

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show arp timeout

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ЉЮ ѝ **show arp timeout** ʻ

```
Ruijie# show arp timeout
Interface            arp timeout(sec)
---------------------  ----------------
VLAN 1               3600
```

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show arp trusted

1.4.5 clear ip route

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clear ip route ʒ Â

clear ip route * *network* *netmask*

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ЉЮ ѝ **show ip arp** ʿ

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

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1.4.7 show ip interface

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show ip interface *interface-type interface-number*

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Interface-type	
Interface-number	ʎ

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```
Help address is: 0.0.0.0
Proxy ARP is: ON
Outgoing access list is not set.
Inbound access list is not set.
```

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1.4.8 show ip redirects

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show ip redirects

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Ю ѝ **show ip redirects** Â

```
Ruijie# show ip redirects
Default Gateway: 192.168.195.1
```

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ip default-gateway	˘ Y Â

2 IP

2.1 IP

2.1.1 ip default-gateway

Y Э ˘ ʒ **ip default-gateway** Â ʒ Â

ip default-gateway

no ip default-gateway

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a ˘ Â /ı **show ip redirects** ʒ Â

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```
ip default-gateway 192.168.1.1
```

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show ip redirects	˘ Y Â

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2.1.2 ip mask-reply

ʒ **ip mask-reply** Â ʒ Â

ip mask-reply

no ip mask-reply

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```
interface GigabitEthernet 0/1
ip mask-reply
```

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2.1.3 ip mtu

ĩˆ ˜ ˘ ʒ **ip mtu** Â ʒ ʌ Љ Â

ip mtu *bytes*

no ip mtu

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bytes	ĩ ˘ Љ й æ ˘ Â

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```
interface GigabitEthernet 0/1
no ip redirects
```

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2.1.5 ip source-route

ˇ ˘ ʒ **ip source-route** Â ʒ ╖ Â

ip source-route

no ip source-route

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```
no ip source-route
```

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2.1.6 ip unreachables

ˇ a ʌ ˘ ʒ **ip unreachables** Â ʒ ʌ Љ a ʌ Â

ip unreachables

no ip unreachables

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interface GigabitEthernet 0/1
no ip unreachables

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3 IPv4 REF

3.1

3.1.1 ip ref load-sharing original

no ip ref load-sharing original

-	

```
Ruijie(config)# ip ref load-sharing original

Ruijie(config)# no ip ref load-sharing original
```


3.1.2 ip ref load-sharing original-only

no ip ref load-sharing original-only

-	

3.1.3 ref parameter

ref parameter *{20-95} [200-1000]*

{20-95}	Â
[200-1000]	Â

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```
Ruijie(config)#ref parameter 50 500
Ruijie(config)#ref parameter 80
Ruijie(config)#no ref parameter
Ruijie(config)#default ref parameter
```


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3.2 IPv4 REF

3.2.1 show ip ref packet-statistic

show ip ref packet-statistic clear


```
Ruijie #show ip ref packet-statistic
ref packet statistic:
total recved    : 5
 bad head     : 0
lookup fib fail   : 0
drop adj       : 0
local adj       : 5
glean adj      : 0
forward        : 0
no ip routing    : 0
```


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3.2.2 show ip ref adjacency

show ip ref adjacency glean | local | *ip* | interface *interface_type interface_number* | statistic

interface_type	
interface_number	

```
Ruijie#show ip ref adjacency
id     state      type     ip    rfct  chg  vid  tid    len  l2add
interface
1      unresolve  local    0.0.0.0         3    0    0    0      0
0000.0000.0000
4      resolved   forward 192.168.52.58   1    0    0    800    14
001a.a0b4.ce5c  FastEthernet 0/0
```

```
3     unresolve   glean   0.0.0.0          1     0    0    0      0
0000.0000.0000  FastEthernet 0/0
```


show ip ref route	REF

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3.2.3 show ip ref exact-route

show ip ref exact-route vrf *vrf_name source-ipaddress dest_ipaddress*

source-ipaddress	
dest_ipaddress	

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```
Ruijie#show ip ref exact-route 20.1.1.1 192.168.52.5
20.1.1.1 --> 192.168.52.5 (vrf global):
id    state      type    ip            rfct chg vid tid   len l2add
interface
2     unresolve   glean   0.0.0.0         1    0   0   0     0
0000.0000.0000  FastEthernet 0/0
```

show ip ref route	REF

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3.2.4 show ip ref route

show ip ref route vrf *vrf_name* **default** *ip mask* **statistic**

ip	IP
mask	

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```
Ruijie#show ip ref route
Codes: * - default route
# - zero route
 ip       mask       adj-id   next-hop          weight   interface
224.0.0.0      224.0.0.0      1      0.0.0.0         1
```

4

4.1

4.1.1 ip session timeout

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icmp-closed | icmp-connected | icmp-started | rawip-closed | rawip-connected | rawip-established | rawip-started | tcp-close-wait | tcp-closed | tcp-establish tcp-time-wait | udp-closed | udp-connected | udp-established | udp-started *num* **no ip session time rawip-connected | tcp-time-wait | udp**

icmp-closed	ѝ ѝ ˘
icmp-connected	ѝ ѝ ˘
icmp-started	ѝ ѝ ˘
rawip-closed	ѝ ѐ ѝ ˘
rawip-connected	ѝ ѐ ѝ ˘
rawip-established	ѝ ѐ ѝ ˘
rawip-started	ѝ ѐ ѝ ˘
tcp-close-wait	ѝ ѝ ˘
tcp-closed	ѝ ѝ ˘

tcp-established	ѝ ѝ ˘
tcp-fin-wait	ѝ ѝ ˘
tcp-last-ack	ѝ ѝ ˘
tcp-syn-receive	ѝ ѝ ˘
tcp-syn-sent	ѝ ѝ ˘
tcp-time-wait	ѝ ѝ ˘
udp-closed	ѝ ѝ ˘
udp-connected	ѝ ѝ ˘
udp-established	ѝ ѝ ˘
udp-started	ѝ ѝ ˘
num	

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4.2

4.2.1 show ip fpm counters

/! Â

show ip fpm counters

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IO **show ip fpm counters** /! Â

```
Ru Ruijie#show ip fpm counters
Droped packet counters:
Count     Reason
0         Non-IPv4 packet
0         Bad IPv4 header length
0         Bad IPv4 total length
0         IPv4 fragment with DF bit set
0         Too small IPv4 fragment
0         Bad IPv4 fragment offset
0         IPv4 fragment timeout
0         Bad IPv4 checksum
0         Invalid IPv4 address
0         Invalid TCP flags
0         Invalid TCP initial flags
0         Invalid TCP initial ACK number
0         Invalid TCP initial window
0         Invalid TCP sequence
0         Invalid ICMP message type
0         Invalid ICMP initial message type
0         Exceptional connection state
0         Droped by policy
0         Out of capability
<end>
Rejected or terminated connection counters:
Count     Reason
0         Out of life time
0         Exceptional TCP connection
0         Exceptional UDP connection
0         Exceptional ICMP connection
0         Exceptional RawIP connection
0         Rejected by policy
```

```
1   192.168.52.68    192.168.52.67     5          2048        0
100       100       2
Ruijie#show ip fpm flows filter 1 192.168.52.0 24 192.168.52.67 24
Pr  SrcAddr          DstAddr          SrcPort     DstPort     Vrf
SendBytes  RecvBytes  St
1   192.168.52.68    192.168.52.67     5          2048        0
100       100       2
```


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4.2.3 show ip fpm statistics

show ip fpm statistics

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Ю **show ip fpm statistic** Â

```
Ruijie#show ip fpm statistics
The capacity of the flow table:32000
Number of active flows:0
Number of the defragment contexts:0
Number of the buffers hold by FPM:0
Event count (%256):3
```


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Ю **show ip fpm users** Â

```
Ruijie#sho ip fpm users
Active Users:
IP address       Active time  Connections
19 192.168.52.68    1
```

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interface

ace *interface*

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address 192.168.100.1 192.168.100.50

ip nat pool	

-

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5.1.2 ip nat

ip nat **no**

ip nat inside outside

no ip nat inside outside


```
!
interface GigabitEthernet 0/0
ip address 192.168.12.6 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.168.12.17 255.255.255.240
ip nat outside
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat inside source list 1 pool net200
!
```

```
access-list 1 permit 192.168.12.0 0.0.0.255
```

address	Â
ip nat inside destination	Â
ip nat inside source	Â
ip nat outside source	Â
ip nat pool	Â
show ip nat translations	Â

-	

5.1.3 ip nat application

Â **ip nat application** Â **no** Â

ip nat application source list *list-num* **destination** *dest-ip*

dest-change **src-change** *ip-addr* **vrf** *name*

ip nat application source list *list-num* **destination** **tcp** **udp**

dest-ip port-num **dest-change** *ip-addr port-num* **src-change**

ip-addr **vrf** *name*

no ip nat application source list *list-num* **destination** *dest-ip*

dest-change **src-change** *ip-addr* **vrf** *name*

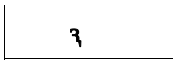
no ip nat application source list *list-num* **destination** **tcp** **udp**

dest-ip port-num **dest-change** *ip-addr port-num* **src-change**

ip-addr **vrf** *name*

list-num	

dest-ip	
tcp *dest-ip port-num*	
udp *dest-ip port-num*	
dest-change *ip-addr port-num*	
src-change *ip-addr*	
vrf *name*	



ip nat	Â
ip nat inside destination	Â
ip nat inside source	Â
ip nat outside source	Â
show ip nat translations	Â

-	

5.1.4 ip nat inside destination

ip nat inside destination Â **no** Â

ip nat inside destination list *access-list-number* **pool** *pool-name* **vrf** *name*

no ip nat inside destination list *access-list-number* **pool** *pool-name* **vrf** *name*

list	Â
pool	Â
vrf	

Â

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```
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!
interface GigabitEthernet 0/0
ip address 10.10.10.254 255.255.255.0
ip natB01n.6dei
interface GigabitEthernet 0/01
ip address 1200168 136.17255.255.255.024
ip natB0out.6dei!i!(accss -list10.0 permiB01 adny host10.10.10.210)]j0 -c 1
```
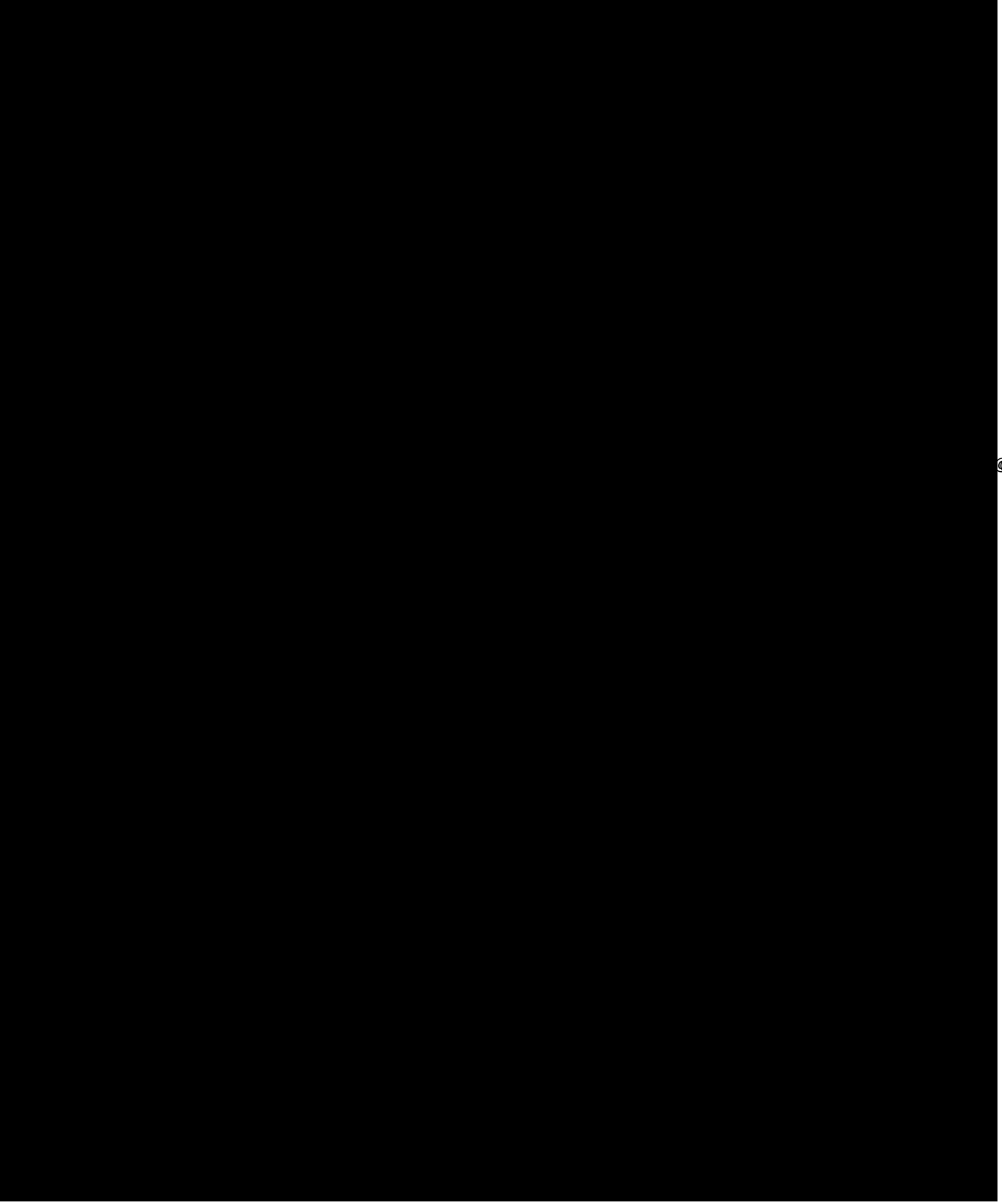
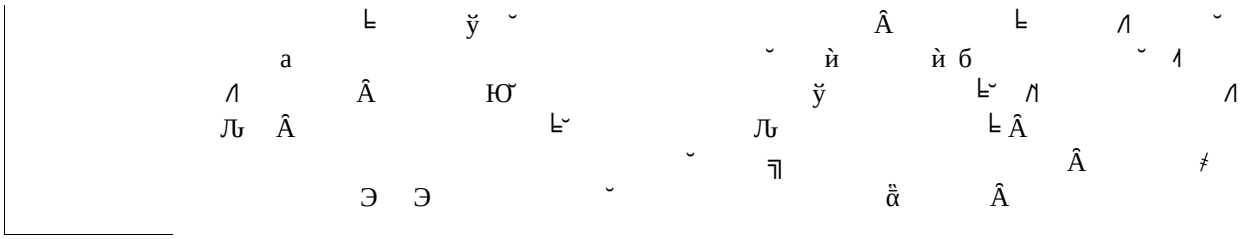
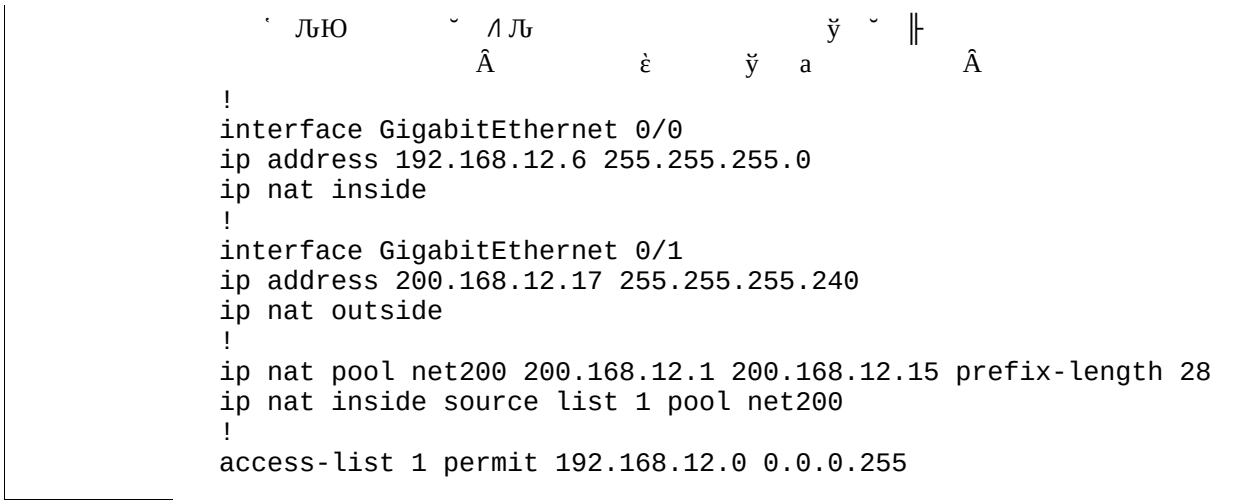
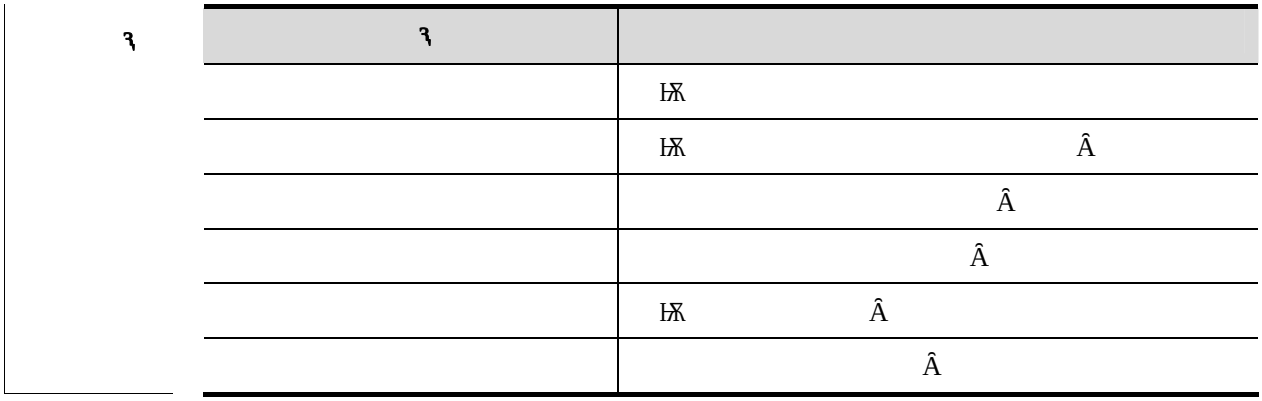
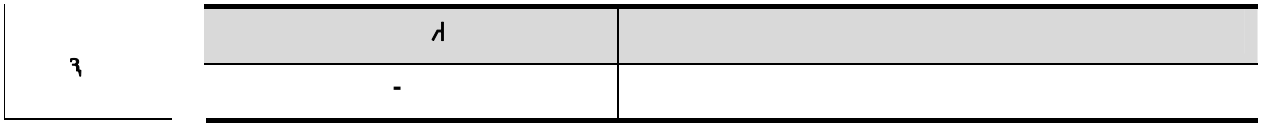







```
!
interface GigabitEthernet 0/0
ip address 192.168.12.6 255.255.255.0
ip nat inside
!
interface GigabitEthernet 0/1
ip address 200.168.12.17 255.255.255.240
ip nat outside
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat inside source list 1 pool net200
!
access-list 1 permit 192.168.12.0 0.0.0.255
```





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5.1.6 ip nat outside source

ip nat outside source **no**

ip nat outside source list *access-list-number* **pool** *pool-name* **vrf** *name*

no ip nat outside source list *access-list-number* **vrf** *name*

```
!
interface Serial0/1
ip address 92.168.100.1 255.255.255.0
ip nat outside
encapsulation ppp
!
ip nat pool net200 200.168.12.1 200.168.12.15 prefix-length 28
ip nat pool net192 192.168.12.1 192.168.12.254 prefix-length 24
ip nat inside source list  1 pool net200
ip nat outside source list 1 pool net192
access-list 1 permit 92.168.12.0 0.0.0.255
!
ip route 192.168.12.0 255.255.255.0 92.168.100.2
```

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pool-name	Â
start-ip	Â
end-ip	Â
netmask *netmask*	Â
prefix-length *prefix-length*	Â

Â

type

	Â
	Â
	Â
	Â

Â

verbose Â

```
Ruijie# show ip nat translations verbose
Pro Inside global     Inside local      Outside local     Outside
global timeout vrf
tcp   192.168.5.103:1987   192.168.211.21:1987   211.67.71.7:80
211.67.71.7:80 timeout=85139 1
udp  192.168.5.103:1041  192.168.211.183:1041  202.101.98.55:53
202.101.98.55:53 timeout=38 1
```

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6

6.1

6.1.1 load-monitor

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load-monitor

no load-monitor

6.1.2 mllb enable

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mllb enable

no mllb enable

no	

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```
Ruijie(config)# mllb enable
```


6.1.3 mllb first-choice

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mllb first-choice *interface-type interface-number*

no mllb first-choice

interface-type interface-number	Ь
no	

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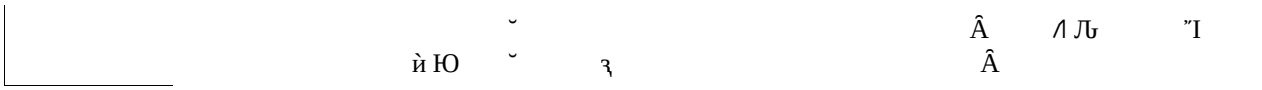
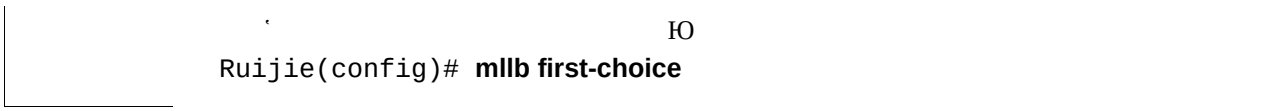
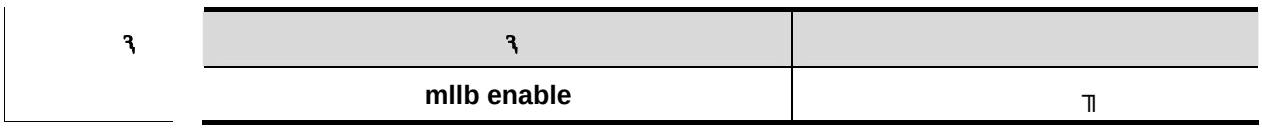




Ruijie(config)# **mllb first-choice**



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	mllb enable	╖

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Ruijie(config)# **mllb load-interval** *10*

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mllb enable	╥
mllb policy	

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6.1.5 mllb load-sharing original

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mllb load-sharing original

no mllb load-sharing original

original	ˇ ʎ ˇ
no	

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Ruijie(config)# **mllb load-sharing original**

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mllb enable	╥
mllb policy	

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6.1.6 mllb policy

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mllb policy bandwidth load

no mllb policy

bandwidth

6.1.7 mllb threshold

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mllb threshold {*percent-upper* *percent-lower* **|** *percent-lower*

no mllb threshold

percent-upper	Э
percent-lower	Ю
no	й Э Ю

lower

no	

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Ruijie(config)#**over-load-protect enable**

Ruijie(config)#**no over-load-protect enable**

over-load-protect interaface-group	

6.1.9 over-load-protect interface-group

over-load-protect interface-group *interface-group-name* **increase decrease** *num*

no over-load-protect interface-group *interface-group-name*

interface-group-name	
num	
no	

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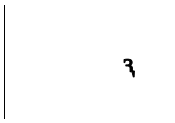
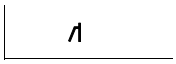
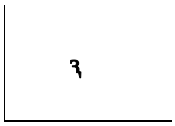
Ruijie(config)#**over-load-protect interface-group** *1*

Ruijie(config)#**no over-load-protect interface-group** *1*



interaface-group	





6.1.10 over-load-protect load-interval

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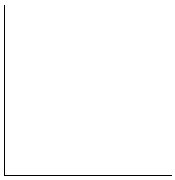
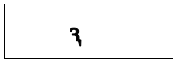
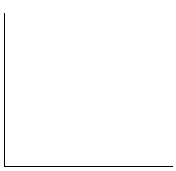
over-load-protect load-interval *seconds*

no over-load-protect load-interval



seconds	
no	





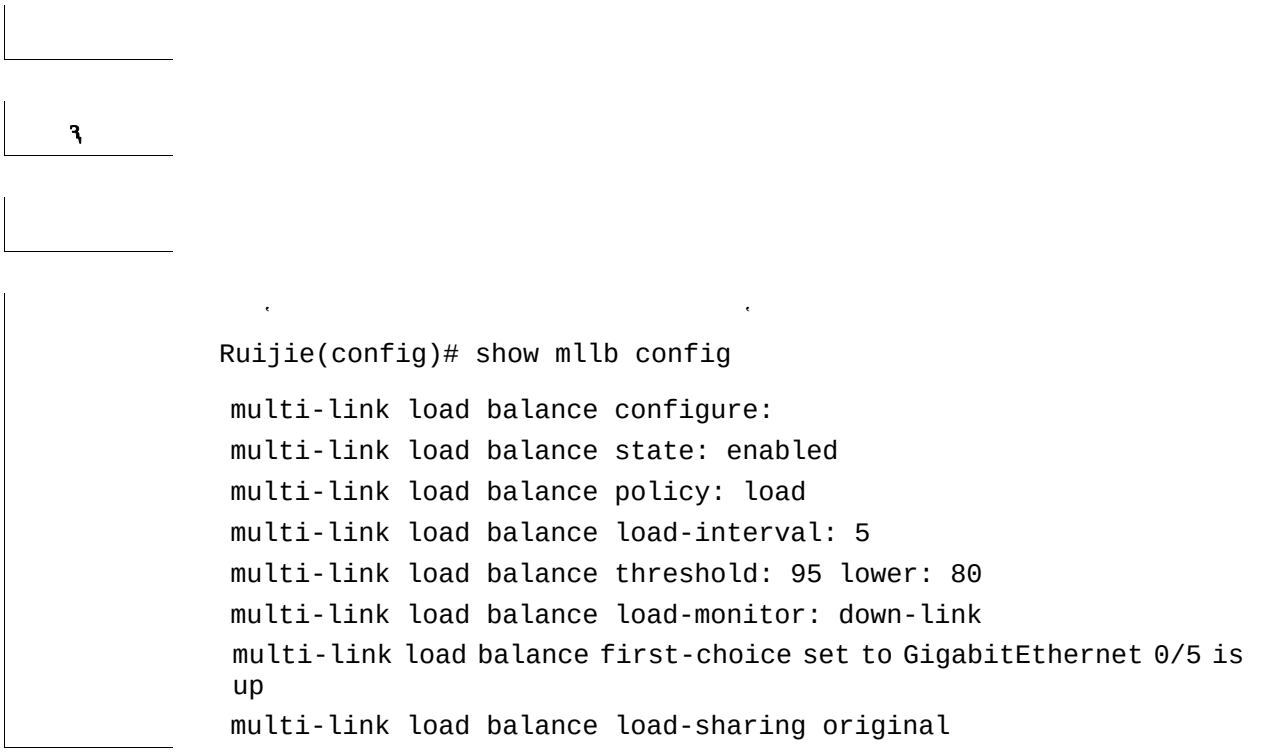
Ruijie(config)#**over-load-protect load-interval**

Ruijie(config)#**no over-load-protect load-interval**

6.2

6.2.1 show load-monitor configure

show load-monitor configure



```
Ruijie(config)# show mllb config
 multi-link load balance configure:
 multi-link load balance state: enabled
 multi-link load balance policy: load
 multi-link load balance load-interval: 5
 multi-link load balance threshold: 95 lower: 80
 multi-link load balance load-monitor: down-link
 multi-link load balance first-choice set to GigabitEthernet 0/5 is up
 multi-link load balance load-sharing original
```

mllb enable	╥
mllb policy	

6.2.3 show mllb statistics

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show mllb statistics

load-over-protect interface-ge.c 250eA]TJ/C2_0 1 Tf0 Tc 0 Tw24.6171 -0.006 Td<472135445

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1.1.1 layer23 classify enable

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[no] layer23 classify enable

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```
Ruijie#config
Ruijie(config)#layer23 classify enable
```

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```
Ruijie#config
Ruijie(config)#no layer23 classify enable
```

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2.1.1 layer23 deny-mode enable

[illegible] Â

[no] layer23 deny-mode enable

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[illegible] Â

[illegible] Â

[illegible]

```
Ruijie#config
Ruijie(config)#layer23 deny-mode enable
```

[illegible]

```
Ruijie#config
Ruijie(config)#no layer23 deny-mode enable
```

[illegible]

[illegible]	

[illegible]

[illegible]

[illegible]	
	[illegible]

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3.1

3.1.1 layer23 ad-mode enable

[no] layer23 ad-mode enable

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```
Ruijie#config
Ruijie(config)#layer23 ad-mode enable
Ruijie#config
Ruijie(config)#no layer23 ad-mode enable
```



```
Ruijie(config)#no vlan vlan-group1
```

```
vlan2          0                0              0         3-5
vlan3          0                0              0         7,9
```

```
Ruijie#show vlan-group vlan1
vlan-group    police_flow     police_url    flow     vlan id
----------    -----------     ----------    ------  ----------
any           9               0             0
vlan1         0               0             0        1
```

show vlan-group

	‡
	‡

vlan-group *name* **vlan** *vid-list*	

5

5.1

5.1.1 subscriber

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subscriber *obj* **move to parent** *par_str*

Obj	¨
Par_str	╠ ɨ ɛ̀ ¨

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subscriber allow name privilege {none | { [webauth] [vpn] [login] }}

Name	

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a **subscriber allow name privilege none**

a Ь

```
Ruijie#config
Ruijie(config)# subscriber allow 1 privilege vpn login
Ruijie(config)#subscriber allow 1 privilege webauth vpn login
Ruijie#config
subscriber allow 1 privilege none
```

show subscriber all static dynamic parent *name* | **root**	

5.1.3 subscriber export

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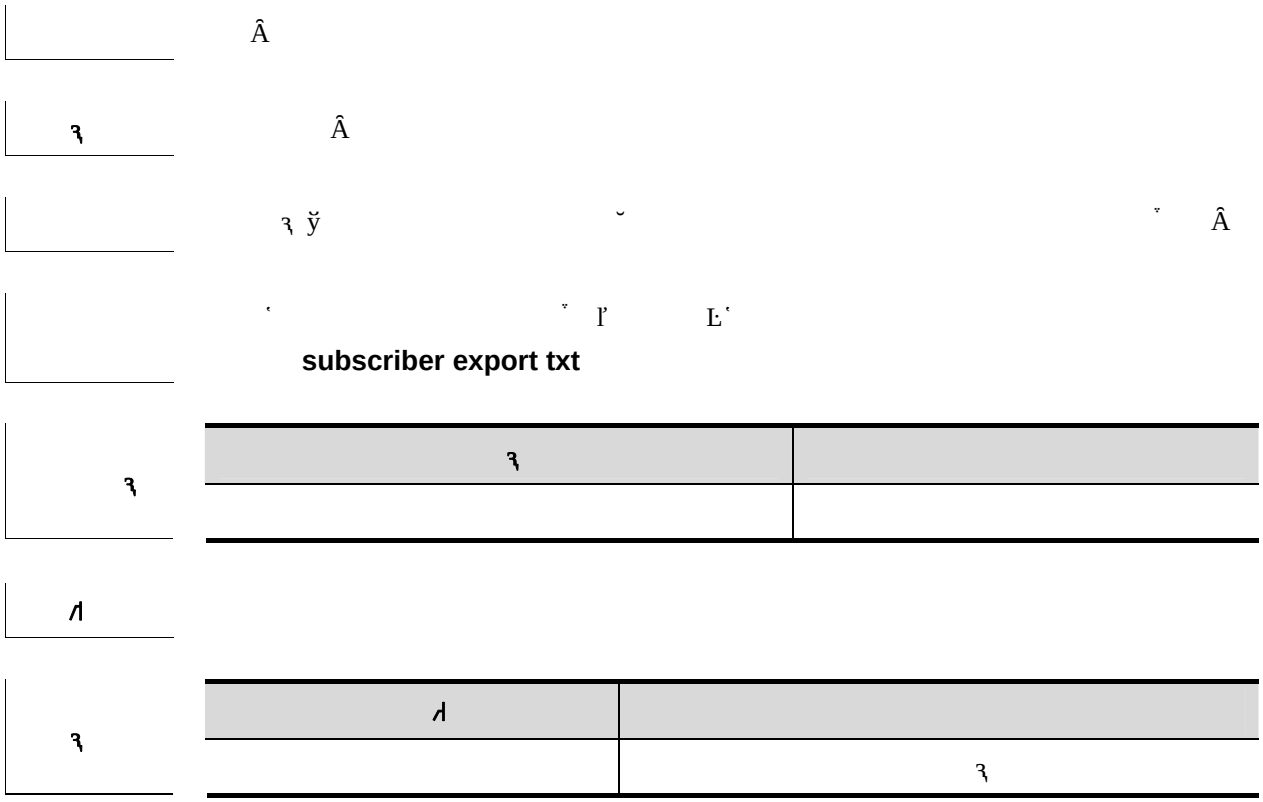
subscriber export ***txt*** \| ***csv*** *filename*

filename	



subscriber export txt

5.1.4 subscriber import

subscriber import *txt* | *csv* *filename*

filename	

5.1.6 subscriber set

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no subscriber set *name* **attribute avoid-monitor [flow-monitor] deny | release | vip | auth-deny | pwd-edit**

Name	

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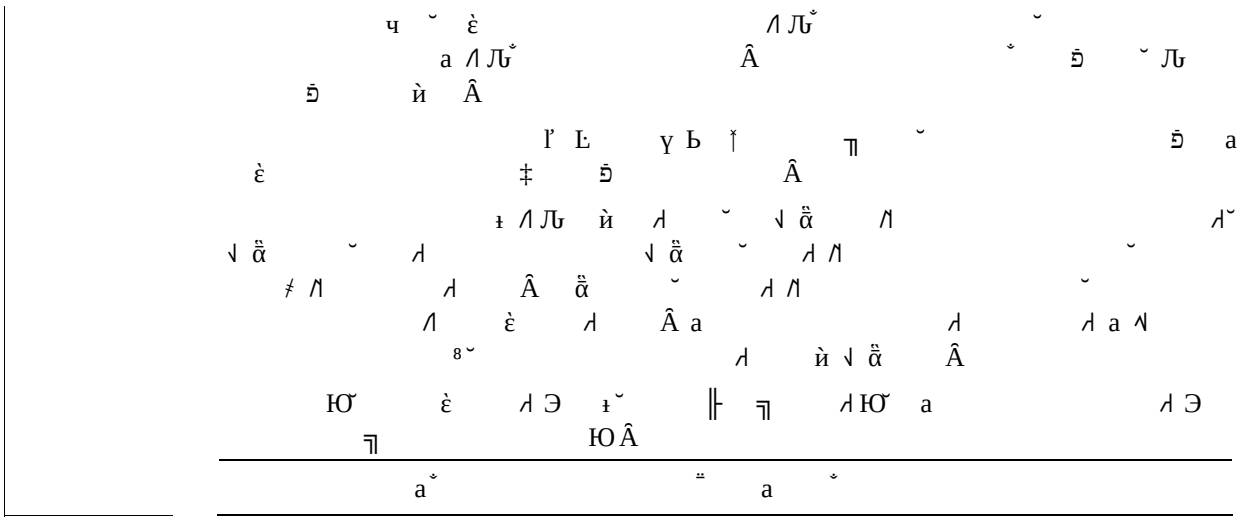

Ruijie#**config**

Ruijie(config)# **subscriber static name** *1* **parent** / / *1* **ip-host** *192.168.196.156*

Ruijie#**config**

Ruijie(config)#**no subscriber static name** *1*

show subscriber all static dynamic parent *name* | **root**

5.2

5.2.1 show subscriber

show subscriber all static dynamic parent *name* | **root**

name	

```
Ruijie#show subscriber all
name mac            flow  fc  url  beh dir dym  av-fc  av-con vip rel
deny pwd-e au-deny login  vpn vbr webauth bind h-pwd on-line on-del
ip
/    0000.0000.0000  0    0    0    0   1    0   0      0      0   0
0    0     0       0      0    0   0       0   0      0      0
```

show subscriber

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ʒ	**subscriber static name** *name* **parent** *parent* **ip-host** *ip-addr* **mac** *mac-addr* **| ip-subnet** *subnet mask* **| ip-range** *start end* **password** *pwd_str* *bind-type*	

6

6.1

6.1.1 network-group

network-group *obj* **move to parent** *par_str*

Obj	
Par_str	

show network-group brief

network-group export *txt* | *csv* *filename*

filename	

networkg-group export txt

6.1.3 network-group import

network-group import *txt* | *csv* *filename*

filename	

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network-group import txt

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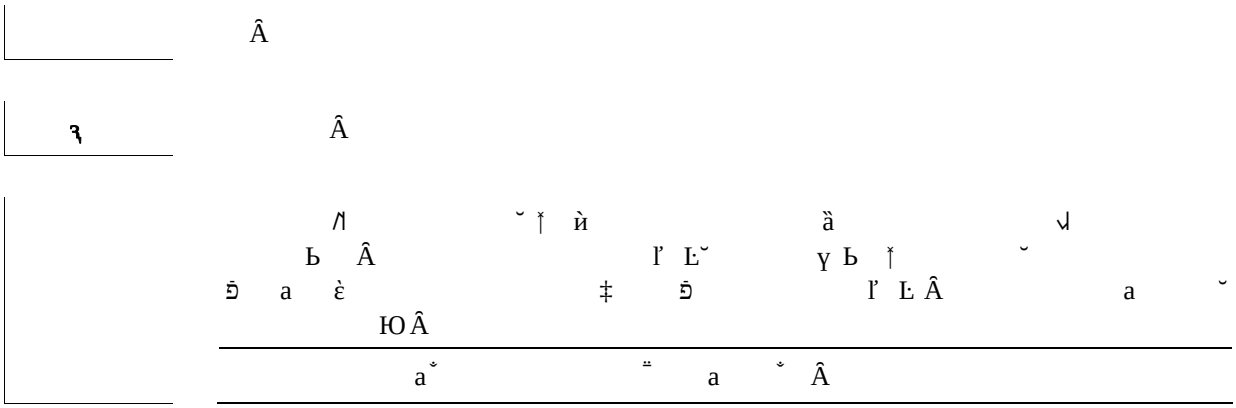
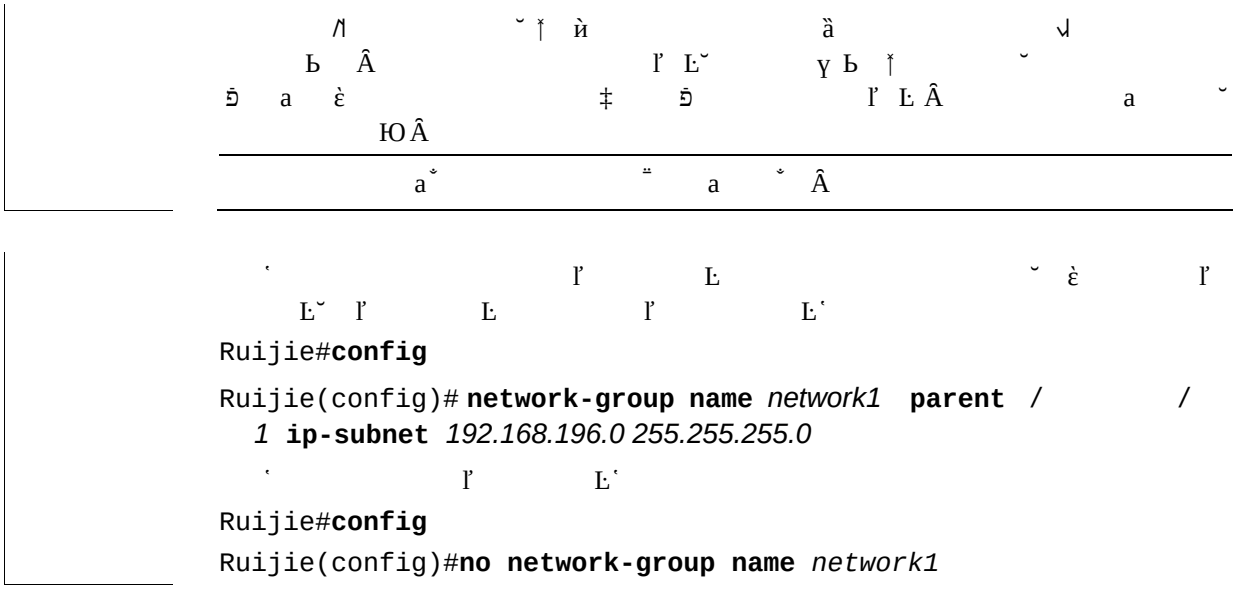
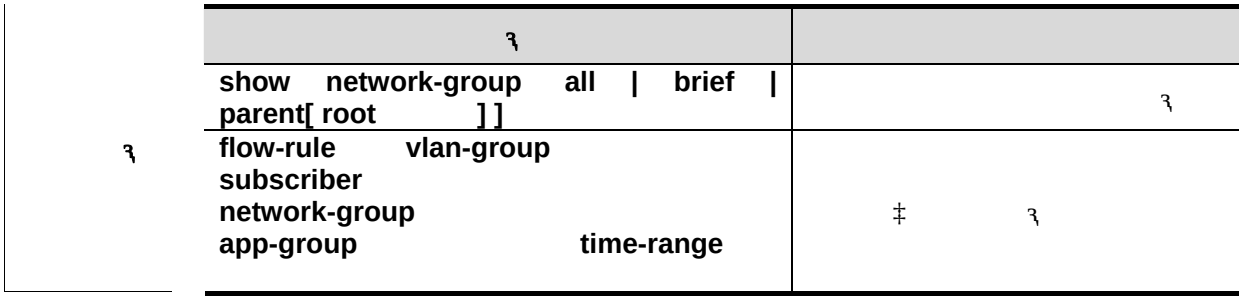
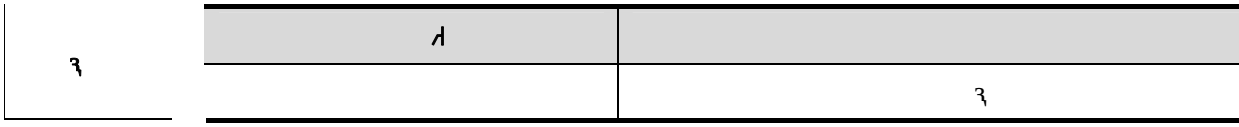





```
Ruijie#config
Ruijie(config)# network-group name network1  parent /        /
  1 ip-subnet 192.168.196.0 255.255.255.0
Ruijie#config
Ruijie(config)#no network-group name network1
```



show network-group all | brief | parent[root]]	
flow-rule vlan-group subscriber network-group app-group time-range	



6.1.5 network-group rename

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network-group rename *oldname newname*

Oldname	

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network-group rename *xx yy*

6.2

6.2.1 show network-group

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Show network-group [all | brief | parent [root]]

name	

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```
Ruijie#show network-group all
name   flow police_flow police_url dir  ip
/       0       0        0          1
```

```
    1   3        0        0          0     192.168.196.101
    2   0        0        0          0     192.168.196.102
```

IO

```
Ruijie#show network-group parent network1
name   flow police_flow police_url dir  ip
    1   3        0        0          0     192.168.196.108
```

show network-group

	‡
	‡

network-group static name *name* **parent** *parent* **{ip-host** *ip-addr* **| ip-subnet** *subnet mask* **| ip-range** *start end***] }**	

7

7.1

7.1.1 auth-subs

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sam-online recycle *time*

sam-offline recycle {off| *time}*

Time	^ † ~

```
Ruijie#show auth-subs all
```

8

8.1

8.1.1 app-add

app-add *app-name*


```
Ruijie#config
Ruijie(config)#identify-application app-group MYGAME
Ruijie(config-app-group)#app-add
```

8.1.2 app-del

app-del *app-name*

Ruijie#config
Ruijie(config)#identify-application app-group *MYGAME*
Ruijie(config-app-group)#app-del

8.1.3 identify-application app-db enable

[no] identify-application app-db enable

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```
Ruijie#config
Ruijie(config)#identify-application app-db enable
```

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8.1.4 identify-application app-group

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[no] identify-application app-group *group-name*

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Ruijie#**config**
Ruijie(config)#**identify-application app-group** *MYGAME*
Ruijie(config-app-group)#

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	‡

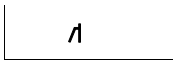
8.1.5 identify-application block

identify-application block *app-name*

app-name	

Ruijie#**config**
Ruijie(config)#**identify-application block** *MSN*

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	‡



Ruijie#**config**

Ruijie(config)# **identify-application custom name** *myxunlei* **class** *myp2p* **udp sport** *any any* **dport** *200 200*

Ruijie#**config**

Ruijie(config)# **identify-application custom name** *myqq* **class** *im* **udp sport** *111 111* **dport** *2020 2020*

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	

8.1.7 identify-application dfi enable

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8.1.8 identify-application dfi gather

no identify-application dfi gather

no identity-application enable

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Ruijie#config
Ruijie(config)#identify-application enable

flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	‡

8.1.10 identify-application http route enhance enable

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no identify-application http route enhance enable

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Ruijie#**config**

Ruijie(config)#**identify-application http route enhance enable**

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8.1.12 identify-application key

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identify-application key *app-name*

app-name	¨

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Ruijie#**config**

Ruijie(config)#**identify-application key** *FTP*

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flow-rule *num* **vlan-group** *vlan-group-name* **subscriber** *subscriber-name* **network-group** *network-group-name* **app-group** *app-group-name* **time-range** *time-rang-name*	‡ ʒ

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8.1.13 identify-application proto-detect drop

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no identify-application proto-detect drop


```
Ruijie#config
Ruijie(config)# identify-application proto-detect drop
```


8.1.14 identify-application proto-detect enable

no identify-application proto-detect enable

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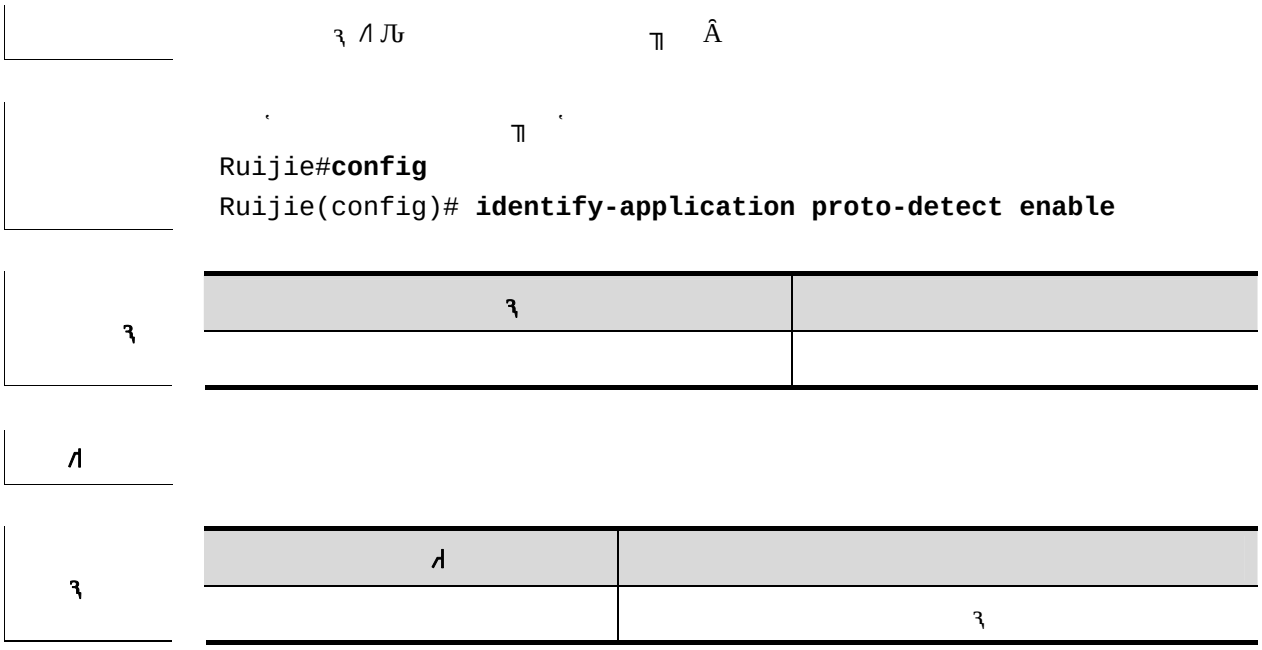

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```
Ruijie#config
Ruijie(config)# identify-application proto-detect enable
```

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8.1.15 identify-application proto-expect enable

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no identity-application proto-expect enable

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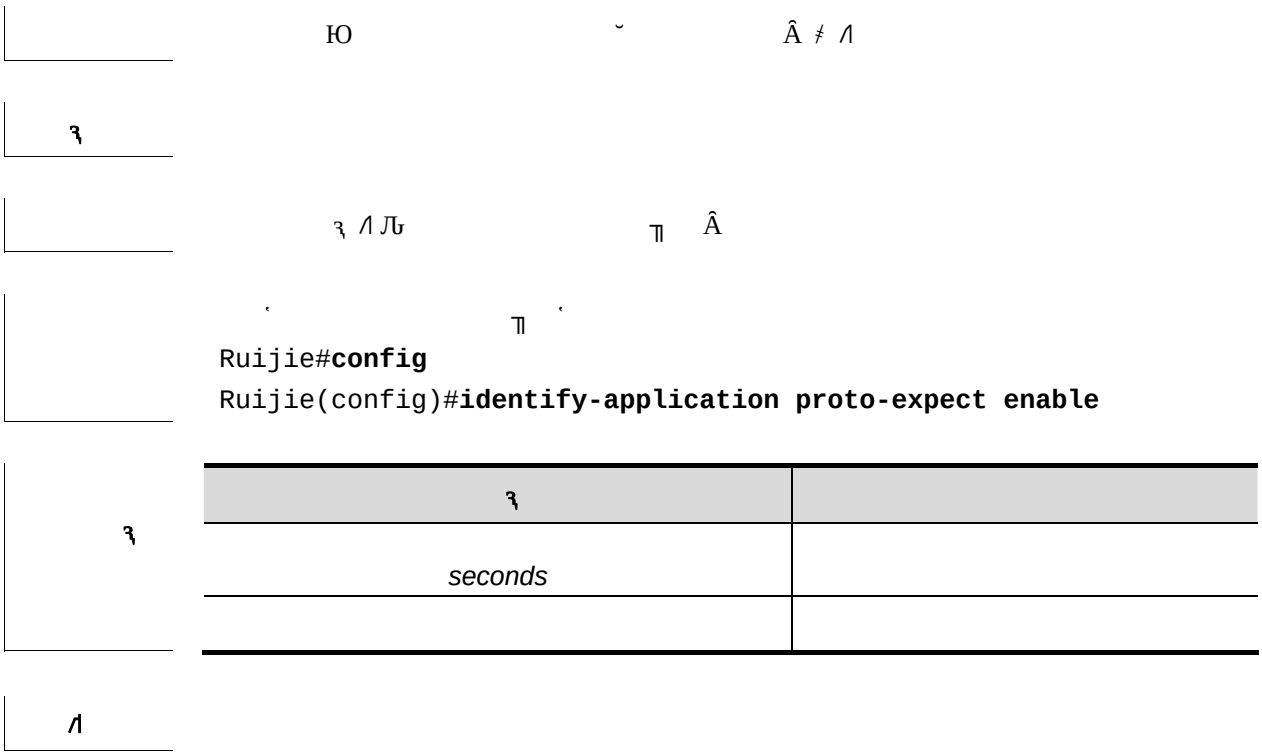

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```
Ruijie#config
Ruijie(config)#identify-application proto-expect enable
```

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seconds	

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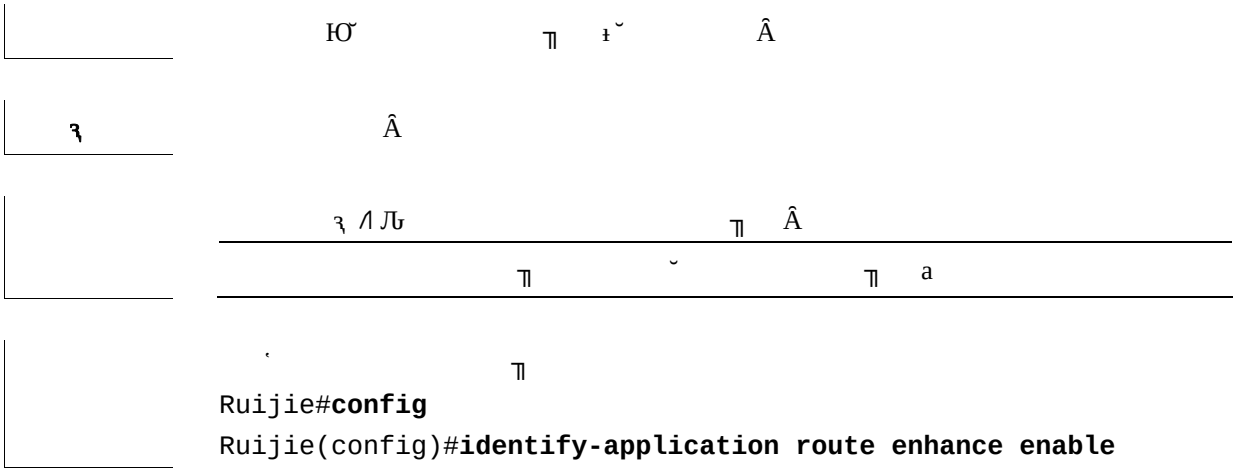

Ruijie#**config**
Ruijie(config)#**identify-application route enhance enable**

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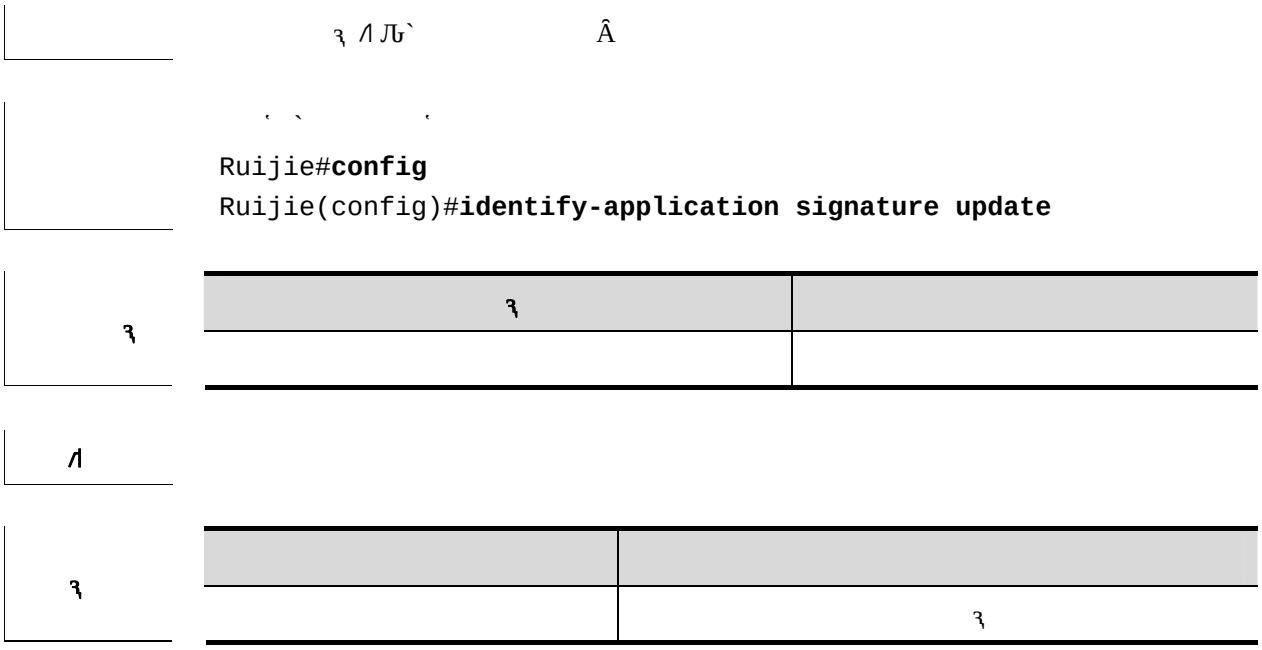

‘ ` ‘

```
Ruijie#config
Ruijie(config)#identify-application signature update
```

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8.1.19 identify-application web-cache enable

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no identify-application web-cache enable

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8.2

8.2.1 show identify-application

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show identity-application

-	

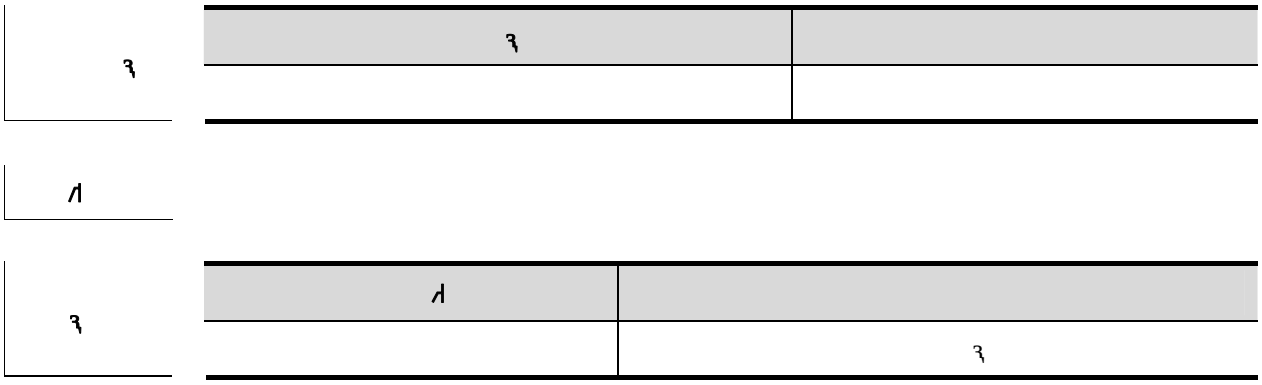
```
Ruijie#show identity-application
any 255-4095-63-48
    1-0-0-0
        1-1-0-0
MSN 1-6-0-0
    MSN-CHAT 1-6-1-0
    MSN-AUDIO 1-6-2-0
    MSN-FILE 1-6-3-0
QQ 1-7-0-0
QQ-CHAT 1-7-1-0
QQ- 1-7-2-0
WEBIM 1-9-0-0
    MSN-WEBIM 1-9-1-0
    YAHOO-WEBIM 1-9-2-0
    AIM 1-9-3-0
1-12-0-0
```

1-14-0-0
IP 2-0-0-0
SKYPE 2-7-0-0
h232 2-12-0-0
H323-HOSTCALLSC 2-12-4-0
CALL-SIG-TRANS 2-12-5-0
RTCP 2-12-6-0
RTP 2-12-7-0
IMTC-MCS 2-12-10-0

8.2.2 show identify-application block

show identity-application block

-	



8.2.3 show identify-application class

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15-0-0-0
RFC 16-0-0-0
248-0-0-0
myp2p 249-0-0-0

8.2.4 show identify-application group-state

show identify-application group-state

-	

Ruijie#**show identity-application group-state**
app group state: on //on 8 IP

-	

Ruijie#**show identity-application key**
IP
QQ
MSN
FTP

8.2.7 show identify-application proto-expect

show identity-application proto-expect

Ruijie#**show identity-application proto-expect**

```
protocol expectation state: on
protocol expectation timeout: 180
```


seconds

8.2.9 show identify-application route enhance table

show identify-application route enhance table


```
Ruijie#show identify-application route enhance table
..route enhance enable application list..
                                          4-0-0-0
          PPFilm                           4-14-0-0
    PPTV|PP                                4-15-0-0
    PPSTREAM                               4-16-0-0
          |       Web                      4-17-0-0
    UUSEE_PC|IPad                          4-33-0-0
    QVOD                                   4-48-0-0
                                           4-50-0-0
                                           4-52-0-0
                                           4-71-0-0
                                           4-73-0-0
P2P                                        5-0-0-0
    BITTORRENT                             5-3-0-0
                                           5-5-0-0
    QQ                                     5-22-0-0
       |                                   5-28-0-0
    FLASHGET                               5-34-0-0
    P2P-FTP                                5-50-0-0
    P2P-HTTP                               5-51-0-0
                                           5-52-0-0
```


8.2.11 show identify-application userdef-rule

show identity-application userdef-rule

-	

Ruijie#**show identity-application userdef-rule**

TYPE	NAME	CLASS	SPL	SPH	DPL	DPH
TCP			1	10	1	100
TCP	myqq		any	any	200	888
UDP	myxunlei	myp2p	18	18	any	any

8.2.12 show identity-application version

show identify-application version

9

9.1

9.1.1 app route

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	app route	

9.1.3 app route priority

app route *app-name* **priority increase decrease** *1-1999*

9.1.4 clear app route statistics

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clear app route statistics *app-name*

app-name	

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show app route statistics	

-group

.5 .Enterface-group( )Tj/C2_0 1 Tf0 Tc 0 Tw 10.5 0 0 10.5 204.34 752.1003 Tm<

interface-name	

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show app route statics Â

show app route *app-name* **session** Â

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```
Router#show  app  route
CLASS          INTERFACE(GRPUP)              TIME-RANGE    STATE
------------- ---------------------------  ------------ -----
HTTP           inhibitive_intf_group(group)  no_midnight   UP
```

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	¨
	¨

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```
Router#show  app  route  statistics
CLASS         INTERFACE(GROUP)
HIT DATA(byte) HIT RATE(Bps)
SUM DATA(byte)  SUM RATE(Bps)
-------------- ----------------------------
-------------- ---------------
--------------- ---------------
HTTP          inhibitive_intf_group(group)
81535/297997   0.5/3.75
101918/342496   0.6/4.68
```

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10.1

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flow-pre-mgr priority-swap

flow-pre-mgr *rule-id* access-list

flow-pre-mgr rule-id subscriber

flow-pre-mgr total-limit

10.1.1 flow-pre-mgr enable

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[no] flow-pre-mgr enable

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# no flow-pre-mgr enable
```

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10.1.2 flow-pre-mgr priority-swap

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flow-pre-mgr priority-swap *rule-id1 rule-id2*

rule-id1	‡ ᴧˇ ᴧ ‘
rule-id2	‡ ᴧˇ ᴧ ‘

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```
Ruijie#config terminal
Ruijie(config)# flow-pre-mgr 1 subscriber UserGroupA action trust
total-limit 5000 per-ip-limit 300
Ruijie(config)# flow-pre-mgr 2 access-list 120 action trust
total-limit 30
Ruijie(config)# flow-pre-mgr priority-swap 1 2
```

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10.1.3 flow-pre-mgr *rule-id* access-list

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flow-pre-mgr *rule-id* **access-list** ac1 TTumbe

Ruijie(config)#**flow-pre-mgr** *2* **access-list** *120* **action trust total-limit** *30*

2′ IP ѝ 192.168.1.0/24˝ IP …
˘ è by-pass Â

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#ip access-list standard 2
Ruijie(config-std-nacl)#deny 192.168.1.0 0.0.0.255
Ruijie(config-std-nacl)#permit any
Ruijie(config-ext-nacl)#exit
Ruijie(config)# flow-pre-mgr 1 access-list 1 action by-pass #
```

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10.1.4 flow-pre-mgr *rule-id* subscriber

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flow-pre-mgr *rule-id* **subscriber** *subs_name* **action {block | by-pass | {trust total-limit** *total-limit-number* **per-ip-limit** *per-limit-number* **}}**

no flow-pre-mgr *rule-id*

	{ 220.4 318 1803 Tc Tf10.010.02 168

per-limit-number	Ю ⁸ ˘ ⅄ б ˘ a *total-limit-number*˘ ὲ a ⁸ Â

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… й ˘ ⁸ ɨ Â

Ruijie#**config**

Ruijie(config)# **subscriber static name** *UserGroupA* **parent /**

Ruijie(config)# **subscriber static name** *UserA* **parent** */UserGroupA* **ip-host** *192.168.5.10*

Ruijie(config)# **subscriber static name** *UserB* **parent** */UserGroupA* **ip-host** *192.168.5.11*

Ruijie(config)# **flow-pre-mgr** *1* **subscriber** *UserGroupA* **action trust total-limit** *5000* **per-ip-limit** *300*

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10.1.5 flow-pre-mgr total-limit

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flow-pre-mgr total-limit *limit-number*

no flow-pre-mgr total-limit

limit-number	8 ˘ ∧ б ˘ è a 8 Â

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ip-address	˘ a ˘ ˘ ÿ Â

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```
Ruijie#show flow-pre-mgr ip-info
IP-ADDRESS           flow-cnt   flow-limit
=========================================
192.168.10.4         203        0
192.168.10.1         100        500
192.168.10.2         35         500
192.168.10.3         2          0
Ruijie#
```

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10.2.2 show flow-pre-mgr rule-info

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show flow-pre-mgr rule-info

[illegible]

[illegible]

[illegible]

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Ruijie#**show flow-pre-mgr rule-info**

flow-pre-mgr total-limit 200000

(active)flow-pre-mgr 1 subscriber UserGroupA action trust total-limit 5000 per-ip-limit 300 (230 flows)

(inactive)flow-pre-mgr 2 access-list 120 action block (0 flows)

[illegible]

[illegible]	

[illegible]

[illegible]

[illegible]	
	[illegible]

11

11.1

11.1.1 active-limit

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active-limit {tcp-enable | udp-enable}

no active -limit {tcp-enable | udp-enable}

tcp-enable	ў ╟
udp-enable	ў ╟

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ʒ **flow-control**

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group1 ў ╟ ╖ ˛

```
Ruijie# config
Ruijie(config)# flow-control group1
Ruijie(config-flow-control)# no active-limit udp-enable
```

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11.1.2 auto-pir

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auto-pir enable [interval *NUM* **[root-rate** *Percentage***]] [exclude-pass]**

no auto-pir enable

NUM	
Percentage	

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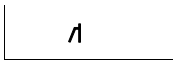

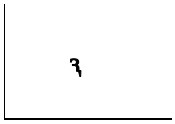

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11.1.4

channel-group *name* **parent NULL** *parent_name* **[cir** *cir_num***] pir** *pir_num* **pri** *pri_num* **schedule-type fifo sfq per-net [per-mask** *mask***] [per-cir** *pcir_num***] per-pir** *ppir_num* **[limit** *limit_num***] session-limit** *session_limit_num* **auto reverse**

no channel-group *name*

no channel-group *name* **pool** *pool_name*

name	…
parent	…
NULL	a ‡ … й
parent_name	… й …
cir *cir_num*	Æ a й

pool *pool_name*	╗ ̈
auto	⁄ a ˘ **per-cir** **limit** **cir**˘ ‡ a ˘ ў ╟
reverse	⁄ ⁄ ᾶ ˘ ˘ Ю ǂ ʼΩ ˘ ѝ ᾶ

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11.1.6 channel-tree

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no channel-tree {inbound | outbound}

inbound	… Ю
outbound	… Э

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ʒ **flow-control**

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```
Ruijie(config)#flow-control test
Ruijie(config-flow-control)#channel-tree inbound
Ruijie(config-channel-tree)#exit
Ruijie(config-flow-control)#channel-tree outbound
Ruijie(config-channel-tree)#exit
```

11.1.7 comment

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no comment *Comment_String*

Comment_String	

[no] flow-control log on

global	
name	
In_bandwith	
Out_bandwith	
perpir-update	

```
Ruijie#config
Ruijie(config)#flow-control group1
Ruijie(config-flow-control)#
```

```
Ruijie#config
Ruijie(config)# flow-control group2
Ruijie(config-flow-control)#
```

```
Ruijie#config
Ruijie(config)#no flow-control group1
```

```
Ruijie#config
Ruijie(config)#flow-control Gi0/0 update bandwith 20000 20000
```

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11.1.9 flow-policy

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```
Ruijie#config
Ruijie(config)#interface gi 0/1
Ruijie(config-if-GigabitEthernet 0/1)#no flow-policy
```

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11.1.10 flow-rule

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flow-rule *num* **[vlan-group** *vlan-group-name***]** **[subscriber** *subscriber-name*

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	‡ ¨
	‡ ¨
	‡
disable	‡˘
vpn	˘ /ǀ ɔ̄ ˘
default	˘ ˝I æ˘

Ruijie#**config**
Ruijie(config)#**flow-control** *group1*
Ruijie(config-flow-control)#**no flow-rule** *1*

time-range *name*	
vlan-group *name*	
subscriber static name	
network-group name	
identify-application custom name	

	disable

11.1.11 flow-template

flow-template copy *Src_name Dst_name* **[bandwith**_*In_bandwith Out_bandwith* **[perpir-update]] [force]**

Src_name	
Dst_name	… а б *Src_name*
In_bandwith	Ю æ а Ю
Out_bandwith	Э æ а Э
perpir-update	а Ю а
force	а

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Ruijie# **clear flow-control** *Gi0/2* **statistics**

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show flow-control *Name* **[inbound | outbound] auto-pir**	˧˩

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11.2.2 show flow-control

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show flow-control [*Name***]**

ˑ

show flow-control *Name* **{inbound | outbound} [channel-group** *channel-name* **detail]**

ˑ

show flow-control *Name* **{inbound | outbound} [share-pool [***pool-name***]]**

ˑ

show flow-control *Name* **[inbound | outbound] auto-pir**

flow-control *Name*	¨
inbound	Ю ǟ
outbound	Э ǟ
channel-group *channel-nam*	ˇ ╗ Э **detail** ȁ

share-pool [*pool-name*]	˘ a ˘ ‡

channel-group *channel-name* ˘ ‡ /ǀ ˘ ǚ ‡ Э

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```
Ruijie#show flow-control test inbound channel-group root
Group-name          CIR          PIR          Pri          Schedule
CIDR/CIR/PIR/Limit/Sess-limit/Share-pool
----------  --    --   --   -------- ----------------------------
root        100   100   4    per-net  32/10/10/10/100/test
```

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```
Ruijie#show flow-control test inbound
Group-name          CIR          PIR          Pri          Schedule
```

```
CIDR/CIR/PIR/Limit/Sess-limit/Share-pool
---------- --   --   --   -------- ------------------------
root       100  100  4    per-net  32/10/10/10/100/test
part1      100  100  4    fifo     /////test1
```


```
Ruijie#show flow-control test outbound share-pool
Global pool:    14          Global red obj:  0
Tree pool:      3

Share-pool     Rate       Type        Limit      Child
-------------- ---------- ---------- ---------- ----------
tcp            200        Normal     NA         1
udp            150        Normal     NA         1
p1             100        Normal     NA          2
```


```
Ruijie#show flow-control test3 outbound share-pool p1
Pool:     p1
Rate:     100       Type:     Normal    Limit:    NA
State:    Green     Child:    2         Active:   NA
Kill flow: 0

Group-name  Cir     Pir      Pri  Type      Limit     Share-pool
----------- ------ ------- ---- -------- -------- ----------
p1-tcp      150     500      4    fifo      NA        p1
p1-udp      100     500      4    fifo      NA        p1
```


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11.2.3 show flow-control-policy group

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show flow-control-policy group

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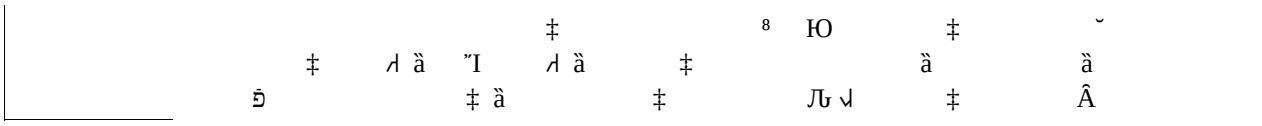
Ruijie#**show flow-control-policy group**

```
group_name                    group_id  apply_ifx    policy_entries
group1                        0         6            14
group2                        1         0            4
```


11.2.4 show flow-control-policy rule

show flow-control-policy rule [group *name***]**



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Ruijie#**show flow-control-policy rule**

```
Pri_num grp_id rule_num ifx   vlan_id    subs_id    net_wk_id  app_id
ichl_id ochl_id ses_num ses_lim state effec
1       0       1        0      0          814695740  0          0
NA      2       0        2000   up   0
2       0       2        0      18661884    18577704   18577496  0
1       NA      0        2000   0
3     1    3         6     18661884    18577704   18577496  4294967290
1       1       0        2000   up   1
```

8 group1 ‘

Ruijie#**show flow-control-policy rule group** *group1*

```
Pri_num grp_id rule_num ifx   vlan_id    subs_id    net_wk_id  app_id
ichl_id ochl_id ses_num ses_lim state effec
1       0       1        0      0          814695740  0          0
NA      2       0        2000   up   0
2       0       2        0      18661884    18577704   18577496  0
1       NA      0        2000   up   0
```

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12.1.1 flow-audit data-store

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flow-audit data-store *n*

no flow-audit data-store

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```
Ruijie#config
Ruijie(config)#flow-audit data-store 12
```

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```
Ruijie#config
Ruijie(config)#no flow-audit data-store
```

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12.1.2 flow-audit data-store day-report

flow-audit data-store day-report *n*

no flow-audit data-store day-report

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```
Ruijie#config
Ruijie(config)#flow-audit data-store day-report 12
```

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```
Ruijie#config
Ruijie(config)#no flow-audit data-store day-report
```

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12.1.3 flow-audit data-store month-report

flow-audit data-store month-report *n*

no flow-audit data-store month-report

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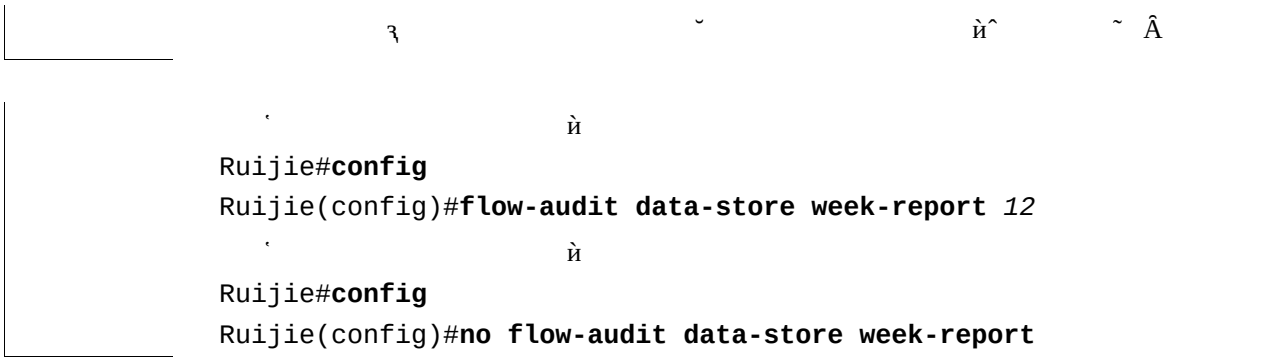

```
Ruijie#config
Ruijie(config)#flow-audit data-store week-report 12
```

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```
Ruijie#config
Ruijie(config)#no flow-audit data-store week-report
```

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12.1.5 flow-audit enable

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flow-audit enable

no flow-audit enable

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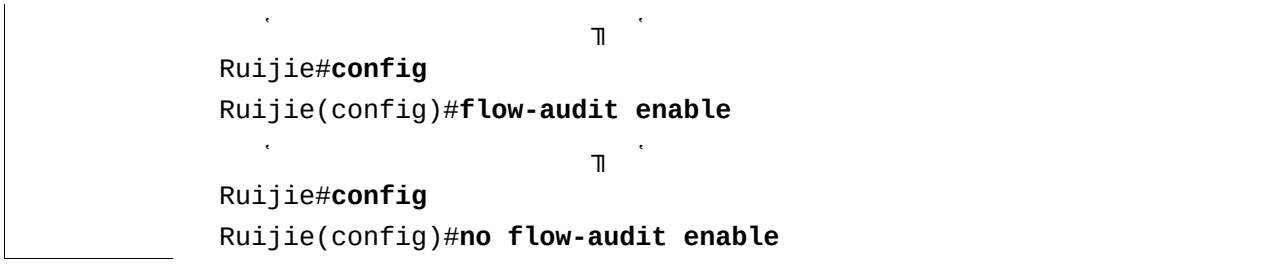

```
Ruijie#config
Ruijie(config)#flow-audit enable
```

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```
Ruijie#config
Ruijie(config)#no flow-audit enable
```

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12.1.6 flow-audit generate-report

flow-audit generate-report *hour*

no flow-audit generate-report

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flow-audit vpn {inside-ip | outside-ip}

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flow-audit vpn outside-ip

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subscriber-group **auth-subs-group** *auth-group-name* **auth-subs** *auth-name* **ip** *ip-address* **application-group** *application-group* **by-group** **application-type** *application-type* **by-type** **application** *application-name* **recent** *hour* **|** **minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute* **|** **month** **week** **day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-day* **hour-interval** *begin-hour1* **to** *end-hour1 begin-hour2* **to** *end-hour2* **order-by** **pass** **drop** **upload** **download** **applicatio**

	interface-name
	bridge-name
	subscriber-name
	subscriber-group
	auth-group-name
	auth-subs
	Ip-address
	application-group

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1ʻ Ю gigabitEthernet 0/1 ʼ

Ruijie#show flowrate application interface gigabitEthernet 0/1

path:GigabitEthernet 0/1

Application Application-group Application-type

PASS: Upload(bps) Download(bps) Upload(pps) Download(pps)

DROP: Upload(bps) Download(bps) Upload(pps) Download(pps)

App1 ̄ ̇ ὲ

62597 65955 15 17

0 0 0 0

2ʻ Ю bridge 0

202 637 479 634
0 0 0 0

131 231 721 614
0 0 0 0

4 gi0/3 2012 1 6

```
Ruijie#show flowrate application interface gi0/3 by-group day 2012
1 6
path:GigabitEthernet 0/3
day-interval: 2012-1-6 ~ 2012-1-6
Application_group
PASS:  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
DROP:  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
IP
  59              84              702             384
  0               0               0               0
WEB
  27              349             231             393
  0               0               0               0
```

202 637 479 634
0 0 0 0

131 231 721 614
0 0 0 0

5 bridge 0 2010 1 9 2010 1 15

```
Ruijie# show flowrate application bridge 0 by-group day-interval 2010
1 9 to 2010 1 15
path:bridge-map 0
day-interval: 2010-1-9 ~ 2010-1-15
Application_group
PASS:  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
DROP:  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
P2P
  0               6               24              24
  0               0               0               0
```

5229 116742 59983 89151
0 0 0 0

220 135 1349 1290
0 0 0 0

27684236 159994 363431164 226927
0 0 0 0

793 772 5327 4766
0 0 0 0

32 252 567 635
0 0 0 0

0 2 0 4
0 0 0 0

6 gi0/3 2012 1 6 2012 1 20

Ruijie#show flowrate application interface gi0/3 by-group month day-interval 2012 1 6 to 2012 1 20

path:GigabitEthernet 0/3

day-interval: 2012-1-6 ~ 2012-1-20

Application_group

PASS: Upload(KB) Download(KB) Upload(packets) Download(packets)

DROP: Upload(KB) Download(KB) Upload(packets) Download(packets)

IP

590 840 7020 3840
0 0 0 0

WEB

270 3490 2310 3930
0 0 0 0

2020 6370 4790 6340
0 0 0 0

1310 2310 7210 6140
0 0 0 0

7 gi0/3 2012 1 5 2012 1 13 1 5

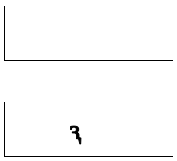
```
Ruijie#show flowrate application interface gi0/3 by-group month
day-interval 2012 1 5 to 2012 1 13 hour-interval 1 to 5 detail
path:GigabitEthernet 0/3
day-interval: 2012-1-5 ~ 2012-1-13
hour-interval: 1 ~ 5, 0 ~ 0
```

12.2.2 show flowrate channel

show flowrate channel channel-group *channel-group* **minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute]* **month week day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* |**day** *begin-year begin-month begin-day* **hour-interval** *begin-hour* **to** *end-hour begin-hour2* **to** *end-hour2* **order-by pass drop desc asc top** *n*

show flowrate channel channel-name *channel-name* **channel-group** *channel-group* **order-by pass drop desc asc top** *n* **recent** *hour* **| minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute* **| month week time-interval** *begin-year begin-month begin-day begin-hour* **to** *end-year end-month end-day end-hour* **month week day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-day* **hour-interval** *begin-hour* **to** *end-hour begin-hour2* **to** *end-hour2* **detail order-by pass drop desc asc top** *n*

channel-name	
channel-group	
begin-year	
begin-month	
begin-day	
begin-hour	
begin-minute	
end-year	
end-month	
end-day	
end-hour	
end-minute	
begin-hour	
hour	
begin-hour2	
end-hour2	
n	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0 , 0
channel_groupC/ channel_nameC
down 39632 , 61
0 , 0

2ˆ ˇ ¨ ѝ NBR ˇ 2012 1 6 ⅄ 12 ˇ 12
40↑

Ruijie# show flowrate channel channel-name “NBR ” minute
-interval 2012 1 6 12:0 to 2012 1 6 12:40

channel_group: channel_groupA

channel_name: channel_nameA

type: down

PASS: 21190 KB, 281800 Packets

DROP: 0 KB, 0 Packets

channel_group: channel_groupB

channel_name: channel_nameB

type: up

PASS: 16640 KB, 90220 Packets

DROP: 0 KB, 0 Packets

3ˆ ˇ ¨ ѝ NBR ˇ 2012 1 6 ⅄

Ruijie# show flowrate channel channel-name “NBR ” *day* **2012** 1 sho82315>096

```
channel_group: channel_groupB
channel_name: channel_nameB
type:  up
PASS:  616543 KB, 1890126 Packets
DROP:  0 KB, 0 Packets

  5ʿ          ˘        ̈ ѝ NBR     ˘ 2012   1   6 ʎ˘    2012   1
18 ʎ
Ruijie# show flowrate channel channel-name “NBR     ” month
 day-interval 2012 1 6 to 2012 1 18
channel_group: channel_groupA
channel_name: channel_nameA
type:  down
PASS:  821000 KB, 2280120 Packets
DROP:  0 KB, 0 Packets

channel_group: channel_groupB
channel_name: channel_nameB
type:  up
PASS:  616000 KB, 1790456 Packets
DROP:  0 KB, 0 Packets
```

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12.2.3 show flowrate interface

show flowrate global interface *interface-name* **recent** *hour* **| minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute* **| month week time-interval** *begin-year begin-month begin-day begin-hour* **to** *end-year end-month end-day end-hour* **| month**

begin-month begin-day **hour-interval** *begin-hour* **to** *end-hour begin-hour2* **to**

Ruijie# show flowrate interface gi0/3 *month* day-interval *2011 12 10* to *2011 12 19* hour-interval *1 to 5 detail*

```
Interface:GigabitEthernet 0/3
Time Slice:240 min
ID     Pass_upload(KB)     Pass_download(KB)     Drop_upload(KB)
       Drop_download(KB)    time
1       2817                 873                  12
        10                  2011-12-10 4
2      7963                   1539                 10
       10                   2011-12-11 4
3      13062                  2290                 9
       12                   2011-12-12 4
4      956                    785                  5
       42                   2011-12-13 4
5      2817                   125                 8
        5                   2011-12-14 4
6      7960                   1630                 6
        4                  2011-12-15 4
7      13089                   2290                2
       9                    2011-12-16 4
8      957                    785                  5
       1                   2011-12-17 4
9      13089                  2290                 3
       1                   2011-12-18 4
10     957                    785                 5
1                                                    2011-12-19   4
============================================================
Total  49621                  14140                65
       95
```


EG & show

12.2.4 show flowrate ip

show flowrate ip global interface *interface-name* **| bridge** *bridge-name* **by-vpn subscriber-group** *subscriber-group* **by-group** | **subscriber-group** *subscriber-group* **subscriber** *subscriber-name* **vip by-auth auth-subs-group** *auth-group-name* **auth-subs** *auth-name* **ip** *ip-address* **application** *application-name* **application-group** *application-group* **application-type** *application-type* **recent** *hour* **| minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour: end-minute* **month week day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-day* **hour-interval** *begin-hour1* **to** *end-hour1 begin-hour2* **to** *end-hour2* **order-by pass drop upload download ip | subscriber-group subscriber auth-subs-group auth-subs desc asc top** *n* **detail detail by-user}**

interface-name	
bridge-name	
subscriber-group	
subscriber-name	
auth-group-name	
auth-name	
Ip-address	
application-name	
application-group	
application-type	
hour	
begin-year	
begin-month	
begin-day	
begin-hour	
begin-minute	
end-year	
end-month	
end-day	
end-hour	
end-minute	
begin-hour1	
end-hour1	

begin-hour2	
end-hour2	
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Subscriber ip
PASS: Upload(bps) Download(bps) Upload(pps) Download(pps)
DROP: Upload(bps) Download(bps) Upload(pps) Download(pps)
/User_groupA/User_nameA 2.2.2.92
230 134 0 0
0 0 0 0
/User_groupB/User_nameB 172.18.3.67
259 153 0 0
0 0 0 0

2 IO gigabitEthernet 0/1 2010 1 8 2010 1 12

Ruijie#show flowrate ip *interface gifabitEthernet 0/1* day-interval *2010 1 8* to *2010 1 12*

path: GigabitEthernet 0/1
day-interval: 2010-1-8 ~ 2010-1-12
Subscriber ip
PASS Upload(KB) Download(KB) Upload(packets) Download(packets)
DROP Upload(KB) Download(KB) Upload(packets) Download(packets)
/User_groupA/User_nameA 172.18.3.34
0 2871 0 16161
0 0 0 0
/User_groupB/User_nameB 172.18.3.50
153987 0 2022024 0
0 0 0 0
/User_groupC/User_nameC 172.18.3.64
153986 0 2022024 0
0 0 0 0
/User_groupD/User_nameD 172.18.3.65
213285 0 2800725 0
0 0 0 0
/User_groupE/User_nameE 172.18.33.50
161994 0 2127179 0
0 0 0 0

3 2011 11 22 10 10 5

Ruijie(config)# show flowrate ip global minute-interval 2011 11 22 10:0 to 2011 11 22 10:5 detail
minute-interval: 2011-11-22 10:0~ 2011-11-22 10:5
time-interval(min): 1
Subscriber
ip pass_up(KB) pass_down(KB) drop_up(KB) drop_down(KB) time

```
/User_groupA/User_nameA
192.168.1.3   191       283                0            0
2011-11-22 10:1
/User_groupA/User_nameA
192.168.1.3   351      986                 0            0
2011-11-22 10:2
/User_groupA/User_nameB
192.168.1.4   180      275                 0            0
2011-11-22 10:3
/User_groupA/User_nameB
192.168.1.4     330     966               0           1
2011-11-22 10:4
/User_groupA/User_nameC
192.168.1.5     300      470               1           2
2011-11-22 10:5
============================================================
Total           1352    2980               1           3
```

4˙ ˘ 2011 12 22 ⅄ 10 12

```
Ruijie(config)#show flowrate ip global day 2011 12 22 hour-interval
10 to 12 detail
day-interval: 2011-12-22 ~ 2011-12-22
hour-interval: 10 ~ 12, 0 ~ 0
time-interval(min): 10
Subscriber
ip         pass_up(KB)  pass_down(KB) drop_up(KB) drop_down(KB)
 time
/User_groupA/User_nameE
192.168.1.3   191          283        1               2
2011-12-22 10:00
/User_groupA/User_nameA
192.168.1.3        191    283        2               3
2011-12-22 10:10
/User_groupA/User_nameA
192.168.1.3        351    986        3                2
2011-12-22 10:20
/User_groupA/User_nameB
192.168.1.4        180    275        3                1
2011-12-22 10:30
/User_groupA/User_nameB
192.168.1.4        312   960         2                2
2011-12-22 10:40
/User_groupA/User_nameC
192.168.1.5        300   470         3               4
```

```
2011-12-22 11
/User_groupA/User_nameA
192.168.1.3   330        966          1           3
 2011-12-23 11
/User_groupA/User_nameA
192.168.1.3    300       470           3           4
2011-12-24 11
/User_groupA/User_nameA
192.168.1.3     501       1305          1           4
2011-12-25 11
/User_groupA/User_nameA
192.168.1.3     456      1205          2           5
2011-12-26 11
/User_groupA/User_nameA
192.168.1.3     567      1305          1           6
2011-12-27 11
/User_groupA/User_nameA
192.168.1.3     564       825          3           5
2011-12-28 11
/User_groupA/User_nameA
192.168.1.3      367      800          7           3
2011-12-29 11
============================================================
Total            3807    8420         30          38

  6˙            ˘         2011   12   12 ⅄   2011   12   22 ⅄ 9     13

Ruijie(config)#show flowrate ip global month day-interval 2011 12
12 to 2011 12 22 hour-interval 9 to 13 detail
day-interval: 2011-12-12 ~ 2011-12-22
hour-interval: 9 ~ 13, 0 ~ 0
time-interval(min): 240
Subscriber
ip        pass_up(KB)    pass_down(KB)  drop_up(KB) drop_down(KB)
time
/User_groupA/User_nameA
192.168.1.3   191          285          2                3
2011-12-12 12
/User_groupA/User_nameA
192.168.1.3   191          183          1                3
2011-12-13 12
/User_groupA/User_nameA
192.168.1.3     191     583          5                3
2011-12-14 12
```

```
/User_groupA/User_nameA
192.168.1.3    191     383          2               3
2011-12-15 12
/User_groupA/User_nameA
192.168.1.3    351     286          1               3
2011-12-16 12
/User_groupA/User_nameB
192.168.1.4   180      275          2               3
2011-12-17 12
/User_groupA/User_nameB
192.168.1.4    330     966          4               3
2011-12-18 12
/User_groupA/User_nameC
192.168.1.4     330    980          2               2
2011-12-19 12
/User_groupA/User_nameC
192.168.1.4     330    960          3               3
2011-12-20 12
/User_groupA/User_nameC
192.168.1.4     330    966          1               3
2011-12-21 12
/User_groupA/User_nameC
192.168.1.4     230    800          6               1
2011-12-22 12
============================================================
Total          2845   6667          29              30
```

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subscriber-group **vip** **by-auth** **auth-subs-group** *auth-group-name* **auth-subs** *auth-name* **ip** *ip-address* **application** *application-name* **application-group** *application-group* **application-type** *application-type* **order-by pass drop upload download ip application subscriber-group subscriber auth-subs-group auth-subs } desc asc top** *n*

interface-name	
bridge-name	
subscriber-name	
auth-group-name	
auth-name	
Ip-address	
application-name	
application-group	
application-type	
n	

```
Ruijie#show flowrate ip-application interface gigabitEthernet 0/1
ip 172.18.36.102
path:GigabitEthernet 0/1
Subscriber  ip   Application  Application-group  Application-type
```

```
PASS  Upload(bps)    Download(bps)   Upload(pps)    Download(pps)
DROP: Upload(bps)    Download(bps)   Upload(pps)    Download(pps)
/user_groupA/user_nameA       172.18.36.102          applicationA
application_groupA
  46003            2093107          93              173
  0                0                0               0
/user_groupB/user_nameB       172.18.36.102        applicationB
application_groupB
  46001            2093102          193              173
  0                0                0               0
/user_groupC/user_nameC       172.18.36.102         applicationC
application_groupC
  4003            1093107          63               73
  0                0                0               0
```


12.2.6 show online ip

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show online ip global interface *interface-name* **| bridge** *bridge-name* **subscriber** *subscriber-name* **subscriber-group** *subscriber-group* **vip by-auth auth-subs-group** *auth-group-name* **auth-subs** *auth-name* **ip** *ip-address* **minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute* **| month week day-interval** *begin-year begin-month begin-day* **to** *end-year end-month end-day* | **day** *begin-year begin-month begin-day* **hour-interval** *begin-hour* **to** *end-hour begin-hour2* **to** *end-hour2* **order-by pass drop download ip subscriber-group subscriber auth-subs desc asc top**

interface-name	Ь Ю

bridge-name	¨ ˘ Ю
subscriber-name	¨
subscriber-group	¨
auth-group-name	¨
auth-name	¨
Ip-address	
begin-minute	ǂ
end-minute	ǂ
begin-day	
begin-month	
begin-year	
end-day	
end-month	
end-year	
begin-hour	
end-hour	
begin-hour2	
end-hour2	
n	

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192.168.196.72 2010-1-7 9:37 1922
274249 396572 0 0
/User_groupG/User_nameG
192.168.203.48 2010-1-7 9:37 1922
55562 380214 0 0
/User_groupH/User_nameH
192.168.196.70 2010-1-7 9:37 1922
105615 285195 0 0
/User_groupI/User_nameI
192.168.196.55 2010-1-7 9:37 1922
33071 205676 0 0
/User_groupJ/User_nameJ
192.168.203.40 2010-1-7 9:37 1922
15904 160891 0 0

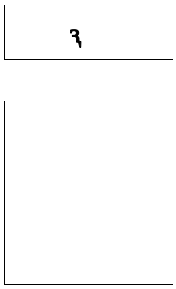
Ruijie# show online ip interface *gigabitEthernet 0/1* day-interval 2010 1 8 to 2010 1 11 hour-interval 1 to 3 order-by pass download desc

path:GigabitEthernet 0/1

Subscriber IP OnlineTime(min) PASS-Upload(KB) PASS-Download(KB) DROP-Upload(KB) DROP-Download(KB)

/User_groupC/User_nameC
192.168.196.37 180
75381 1193654 0 0
/User_groupD/User_nameD
192.168.203.36 180
381 3120 0 0
/User_groupE/User_nameE
192.168.196.53 180
206 1457 0 0
/User_groupF/User_nameF
192.168.196.63 135
142 1437 0 0

```
/User_groupF/User_nameF
192.168.196.63     75
  76              360             0               0
```



Ruijie#**show online ip-application bridge** *0*

count:3

```
path:bridge-map 0
Subscriber
IP               Application  Application-group  Application-type
LoginTime        OnlineTime(min)
PASS-Upload(KB)            PASS-Download(KB)            DROP-Upload(KB)
DROP-Download(KB)
/User_groupA/user_nameA
 192.168.196.14           UDP         app-groupA           è
  2010-1-8 19:7         0
   24              0              0              0
/user_groupB/user_groupB
 192.168.196.15           UDP         app-groupA           è
  2010-1-8 19:7         0
   24              0              0              0
/User_groupC/User_nameC
 192.168.196.16           UDP         app-groupA           è
  2010-1-8 19:7         0
   24              0              0              0
```

2 gigabitEthernet 0/1 IP 192.168.196.70 IP

Ruijie#show online ip-application interface *gigabitEthernet 0/1*

```
path:bridge-map 0
Subscriber
IP                AuthType     LoginTime       LogoutTime
PASS  Upload(KB)    Download(KB)     Upload(packets)   Download(packets)
DROP  Upload(KB)    Download(KB)     Upload(packets)   Download(packets)
/User_groupA/User_nameA
 192.168.196.61                  2010-1-8 16:52       2010-1-8 18:6
   8662            0              113726           0
  0               0              0               0
/User_groupB/User_nameB
 192.168.196.131                 2010-1-8 16:52       2010-1-8 18:6
   8662            0              113726           0
  0               0              0               0
/User_groupC/User_nameC
 192.168.196.38                  2010-1-8 16:52       2010-1-8 18:6
   8662            0              113726           0
  0               0              0               0
/User_groupD/User_nameD
 192.168.196.93                  2010-1-8 16:52       2010-1-8 18:6
   8662            0              113726           0
  0               0              0               0
/User_groupE/User_nameE
 192.168.196.245                 2010-1-8 16:52       2010-1-8 18:6
   8662            0              113726           0
  0               0              0               0
```

2 IO gigabitEthernet 0/1 IP

```
Ruijie#show online ip history interface gigabitEthernet 0/1
path:GigabitEthernet 0/1
Subscriber
IP                AuthType     LoginTime       LogoutTime
PASS  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
DROP  Upload(KB)         Download(KB)           Upload(packets)
Download(packets)
/User_groupA/User_nameA
 192.168.203.41                   2010-1-2 2:12        2010-1-2
2:25
   1               3              16              14
  0               0              0               0
/User_groupB/User_nameB
 192.168.196.39                   2010-1-2 2:17        2010-1-2
2:25
   3               25             34              29
  0               0              0               0
```

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12.2.9 show online statistic

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,

show online statistics global interface *interface-name* **| bridge** *bridge-name* **detail offset limit | recent** *hour* **| minute-interval** *begin-year begin-month begin-day begin-hour:begin-minute* **to** *end-year end-month end-day end-hour:end-minute* **| month week time-interval** *begin-year begin-month begin-day begin-hour* **to** *end-year end-month end-day end-hour* **| day** *begin-year begin-month begin-day* **hour-interval** *begin-hour1* **to** *end-hour1 begin-hour2* **to** *end-hour2*

interface-name	Ь ¨ ˘ Ю
bridge-name	

begin-hour2

end-hour2

```
Ruijie#show online statistic bridge 0
path: bridge-map 0
online ip count: 251
online session: 254
Ruijie#show online statistic bridge 0 detail
path: bridge-map 0
id       ip           subscriber          session
```

```
1   192.168.196.70  /User_groupA/User_nameA  5
2   192.168.203.127 /User_groupB/User_nameB  2
3   192.168.196.77  /User_groupC/User_nameC  1
4   192.168.196.26  /User_groupD/User_nameD  1
5   192.168.196.150 /User_groupE/User_nameE  1
```

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Ruijie# show online statistics interface *gigabitEthernet 0/1* recent *1*

path: GigabitEthernet 0/1

recent hour: 1

Time slice: 60 min

count:1

ID	Online-IP	Online-Session	time
1	95	522	2012-1-5 10:00

4ʻ ˘ 2011 12 22 ⅄ 10 10↑ 10 20↑

Э IP

Ruijie# show online statistics global minute-interval *2011 12 22 10:10 to 2011 12 22 10:20*

Time slice: 1 min

5	96	598	2011-12-22 10:40
6	95	598	2011-12-22 10:50
7	96	598	2011-12-22 11:00

6 ˇ ˇ 2011 12 20 ʌ 9 2011 12 28 ʌ 9
Э IP

Ruijie# show online statistics global *month* time-interval *2011 12 20 9 to 2011 12 28 9*

Time slice: 240 min

count: 49

ID	Online-IP	Online-Session	time
1	95	522	2011-12-20 12
2	56	522	2011-12-20 16
3	80	522	2011-12-20 20
4	95	522	2011-12-21 0
5	105	588	2011-12-21 4
6	125	320	2011-12-21 8
7	75	486	2011-12-21 12
8	75	486	2011-12-21 16
9	200	460	2011-12-21 20
10	95	522	2011-12-22 0
11	56	522	2011-12-22 4
12	80	522	2011-12-22 8
13	95	522	2011-12-22 12
14	105	588	2011-12-22 16
15	125	320	2011-12-22 20
16	75	486	2011-12-23 0
17	75	486	2011-12-23 4
18	200	460	2011-12-23 8
19	95	522	2011-12-23 12
20	56	522	2011-12-23 16
21	80	522	2011-12-23 20
22	95	522	2011-12-24 0
23	105	588	2011-12-24 4
24	125	320	2011-12-24 8
25	75	486	2011-12-24 12
26	75	486	2011-12-24 16
27	200	460	2011-12-24 20
28	95	522	2011-12-25 0
29	56	522	2011-12-25 4
30	80	522	2011-12-25 8
31	95	522	2011-12-25 12
32	105	588	2011-12-25 16
33	125	320	2011-12-25 20

34	75	486	2011-12-26 0
35	75	486	2011-12-26 4
36	200	460	2011-12-26 8
37	75	486	2011-12-26 12
38	75	486	2011-12-26 16
39	200	460	2011-12-26 20
40	95	522	2011-12-27 0
41	56	522	2011-12-27 4
42	80	522	2011-12-27 8
43	95	522	2011-12-27 12
45	105	588	2011-12-27 16
46	125	320	2011-12-27 20
47	95	522	2011-12-28 0
48	56	522	2011-12-28 4
49	80	522	2011-12-28 8

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URL ३

13.1.3 regexp

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no regexp *url-regexp*

url-regexp	‡ ˘ ʥ

url-string	
remove	*url-string*

13.1.5 url-audit

no url-audit only-get

[no] url-audit exact-filter

url-audit except-regexp *[regexp]*

no url-audit except-regexp

[no] url-audit except-postfix

url-audit optimize-cache *[time]*

[no] url-audit optimize-cache

regexp	‡ ˘ ╖ ɨ ˘ ɔ̄ ‡ a Â
time	Æ ˘ ╖ ɨ ˘ a ˘ Ʌ ˧˩ ÿ Э

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ȁ **url-audit except-regexp** ‡ ˘ ‡ ѝ ľ Ɛ

ȁ **url-audit except-postfix** ˘ a Ю ɨ ˘ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ ȁ

ȁ **url-audit optimize-cache** ˘ ѝ

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```
Ruijie# configure terminal
Ruijie(config)# url-audit only-get
Ruijie(config)#end
Ruijie# show running
```

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# url-audit except-regexp
Ruijie(config)# end
```

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

```
Ruijie(config)# url-audit except-postfix
Ruijie(config)# end
```

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# url-audit optimize-cache 60
Ruijie(config)# end
```


13.1.6 url-class

no url-class *class-name*

class-name	

URL

```
Ruijie# configure terminal
Ruijie(config)# url-class CLASSA
Ruijie(url-cls-config)#end
Ruijie# show running
```


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13.1.7 url-filter-notice

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url-filter-notice display *text*

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no url-filter-notice

text	ǟ Э Â a Â

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```
1 ȁ    url    ǟ    ʿ
Ruijie# configure terminal
Ruijie(config)# url-filter-notice display                ˘    б

Ruijie(config)#end
Ruijie# show running
```

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13.1.8 url-object

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no url-object *obj-name*

obj-name	¨

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```
1 ȁ          URL    -OBJA
Ruijie# configure terminal
Ruijie(config)# url-object OBJA
Ruijie(url-obj-config)#end
Ruijie# show running
```

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13.1.9 url-redirect-rule

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url-redirect-rule *rule-id* **subscriber** *subs-name* **any** **auth-subscriber** *auth-subs-name* **any** **subscriber** *subs-name* **any** **auth-subscriber**

auth-subs-name **any** **time-range** *time-name* **any** **from** *url_a* **to** *url_b* **comment** *comment-string]*

no url-redirect-rule *rule-id*

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url-redirect-rule priority-swap *rule-id1 rule-id2*

rule-id	⁸ ‡ ˘ ∧ ^ ~
subs-name	‡
auth-subs-name	‡
time-name	‡
url_a	Љ ‡ ˘ ļ Ľ ļ Ľ ʒ
url_b	Љ ‡ ˘ ļ Ľ ļ Ľ ʒ
comment-string	‡ ʒ

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13.1.10 url-rule

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[no] url-rule audit-default-enable

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url-rule *rule-id* **url-object** *obj-name* **time-range** *time-name* **any action deny permit audit comment** *comment-string]*

no url-rule *rule-id*

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url-rule priority-swap *rule-id1 rule-id2*

no

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# url-rule 2 subscriber USERA url-object
OBJA time-range any action permit audit
Ruijie(cont-plcy-config)# exit
Ruijie(config)#url-rule apply-referer
Ruijie(config)#end
```


13.2

13.2.1 show url-audit detail

show url-audit detail {recent time-range from to

USERA Gi 0/1 URL ˘ URL Â

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hh:mm:ss	ǂ
hour1	ˇ ˊ
hour2	ˇ ˊ
hour3	ˇ ˊ
hour4	ˇ ˊ
intf-name	¨
bridge-num	ʎ
subs-name	ˇ ˊ ¨ ˘ ɒ̄
auth-subs-name	ˇ ˊ ¨ ˘ ɒ̄
class-name	ˇ ˊ ǂ ¨ ˘ ɒ̄
obj-name	ˇ ˊ ¨ ˘ ɒ̄
host-string	ˇ ˊ ˘ ɒ̄

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```
#    2010-1-11   2010-1-17    Э    ˆ 9  ~12  ˘ 13  ~18  ˜   URL
         ˘      ¨      Âˆ  a      ˜
Ruijie#show url-audit stat day-interval 2010 1 11 to 2010 1 17
hour-interval 9 to 12 13 to 18 order-by subscriber

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USERB                          23990
```

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13.2.3 show url-audit top

show url-audit top *n* **{recent** **time-range from** **to**

www.w3c.org 30032 class2 obj2

13.2.4 show url-class system

show url-class system class id *class-id* **name** *class-name*

show url-class system comment [class id *class-id* **name** *class-name*

show url-class system custom class id *class-id* **name** *class-name*

show url-class system exact

class-name	*class-name* **class**
class-id	*class-id*

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13.2.6 show url-class user-cfg

show url-class user-cfg *[class-name]*

class-name	

url:ietf.org

13.2.7 show url-object

show url-object *[obj-name]*

obj-name	

13.2.8 show url-rule content-policy

show url-rule content-policy *policy-name* **[subscriber** *subs-name***] [auth-subscriber** *auth-subs-name***]**

policy-name	
subs-name	
auth-subs-name	

content-policy

	subs-name *auth-subs-name*

14

14.1.2 app-audit optimize-deny

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app-audit optimize-deny

no app-audit optimize-deny

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# no app-audit optimize-deny
Ruijie(config)# end
```

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1˙ POLICYA 8 ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# app-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.4 app-rule priority-swap

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app-rule priority-swap *rule-id1 rule-id2*

rule-id1	‡
rule-id2	‡

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```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# app-rule priority-swap 10 20
```

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Ruijie(cont-plcy-config)# end

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14.1.5 app-rule rule-id

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app-rule *rule-id* **time-range** *time-name* **app-group** *app-group-name* **action permit | deny audit vpn comment** *comment-string*

no web-search-rule *rule-id*

rule-id	⁸ ‡ ˘ ꙋ ˆ ˜
time-name	⁸ ‡
app-group-name	⁸ ‡ ⁸ ¨
comment-string	⁸ ‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# app-rule 2 time-range any direction double
app-group VideoAndP2PGroup action deny audit comment DenyVideoAndP2P
```

```
Ruijie(cont-plcy-config)# end
```

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14.1.6 content-object

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no content-object *object-name*

object-name	¨

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-object name1
Ruijie(content-obj-config)# keyword hello
Ruijie(content-obj-config)# regexp .*\.163\.com
Ruijie(content-obj-config)# end
```

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14.1.7 content-policy

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no content-policy *policy-name*

policy-name	¨

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# end
```

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14.1.8 content-policy-config disable-all

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Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# content-policy-config disable-policy POLICYA
Ruijie(config)# end

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14.1.10 content-policy-config priority-swap

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content-policy-config priority-swap *policy-name1 policy-name2*

policy-name1	˝I ¨
policy-name2	˝I ˛ ¨

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy-config policy-swap POLICYA POLICYB
Ruijie(config)# end
```

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy-relate disable subscriber USER1
policy POLICYA
Ruijie(config)# end
```

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14.1.12 content-policy-relate no-inherit

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no content-policy-relate no-inherit subscriber *subs-name1* **any auth-subscriber** *subs-name2* **any**

subs-name1	
subs-name2	

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy-relate no-inherit subscriber USER1
Ruijie(config)# end
```

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14.1.13 content-policy-relate relate

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14.1.14 ftp-rule audit-default-enable

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ftp-rule audit-default-enable

no ftp-rule audit-default-enable

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1 FTP

```
Ruijie# configure terminal
Ruijie(config)# content-policy _AUDIT_DEFAULT
Ruijie(cont-plcy-config)# ftp-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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14.1.15 ftp-rule delete-all

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```
  1         POLICYA        FTP   ‡
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# ftp-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.16 ftp-rule priority-swap

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ftp-rule priority-swap *rule-id1 rule-id2*

rule-id1	‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# ftp-rule 2 time-range any direction out
relation or file-name FileB action deny audit comment
DenyAllUserUpload
Ruijie(cont-plcy-config)# end
```

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14.1.18 im-rule audit-default-enable

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im-rule audit-default-enable

no im-rule audit-default-enable

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1 IM

```
Ruijie# configure terminal
Ruijie(config)# content-policy _AUDIT_DEFAULT
Ruijie(cont-plcy-config)# im-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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14.1.19 im-rule delete-all

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1 POLICYA IM ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# im-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.20 im-rule priority-swap

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im-rule priority-swap *rule-id1 rule-id2*

rule-id1	‡
rule-id2	‡

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```
  1    IM          ‡ 10    ‡ 20    ˝I
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# im-rule priority-swap 10 20
Ruijie(cont-plcy-config)# end
```

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14.1.21 im-rule rule-id

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im-rule *rule-id* **time-range** *time-name* **action permit | deny audit comment** *comment-string*

no im-rule *rule-id*

rule-id	⁸ ‡ ˘ ʌ ˆ ˜
time-name	‡

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14.1.22 im-rule rule-id relation

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im-rule *rule-id* **im-type** *im-name* **relation and or account** *content-object-name1* **message** *content-object-name2*

no im-rule *rule-id*

rule-id	⁸ ‡ ˘ ᴧ ˆ ˜
im-name	˙ Â ˘ ѝ ‡ ᴧ ˙ , ѝ ‡ ᴧ ˙ ˙ Â
content-object-name1	ᴧ˘ a ᵹ Â

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14.1.23 keyword

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no keyword *string*

string	

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-object name1
Ruijie(content-obj-config)# keyword hello
Ruijie(content-obj-config)# regexp .*\.163\.com
Ruijie(content-obj-config)# end
```

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14.1.24 mail-rule audit-default-enable

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mail-rule audit-default-enable

no mail-rule audit-default-enable

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1 POLICYA MAIL ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule delete-all
Ruijie(cont-plcy-config)# end
```

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```
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule priority-swap 10 20
Ruijie(cont-plcy-config)# end
```

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14.1.27 mail-rule rule-id

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mail-rule *rule-id* **time-range** *time-name* **direction in | out | double action permit | deny audit comment** *comment-string*

no mail-rule *rule-id*

rule-id	⁸ ‡ ˘ ʌ ˆ ˜
time-name	‡
comment-string	‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule 1 time-range any action permit
```

```
audit comment mail-audit-1
Ruijie(cont-plcy-config)# mail-rule 1 relation or from OBJ-F subject
OBJ-S attachement-size less 20000
Ruijie(cont-plcy-config)# end
```

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# mail-rule 1 subscriber any time-range any
action permit audit comment mail-audit-1
Ruijie(cont-plcy-config)# mail-rule 1 relation or from OBJ-F subject
OBJ-S mail-size less 20000
Ruijie(cont-plcy-config)# end
```

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-object name1
Ruijie(content-obj-config)# keyword hello
Ruijie(content-obj-config)# regexp .*\.163\.com
Ruijie(content-obj-config)# end
```

14.1.32 telnet-rule delete-all

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1 POLICYA TELNET ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# telnet-rule delete-all
Ruijie(cont-plcy-config)# end
```

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1 TELNET ‡ 10 ‡ 20 ″I
Ruijie# configure terminal
Ruijie(config)# **content-policy** POLICYA
Ruijie(cont-plcy-config)# **telnet-rule priority-swap** 10 20
Ruijie(cont-plcy-config)# end

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14.1.34 telnet-rule rule-id

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# telnet-rule 2 time-range any  action
permit audit comment PermitUserTELNET
Ruijie(cont-plcy-config)# end
```

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14.1.35 web-bbs-rule audit-default-enable

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web-bbs-rule audit-default-enable

no web-bbs-rule audit-default-enable

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1 WEB BBS

```
Ruijie# configure terminal
Ruijie(config)# content-policy _AUDIT_DEFAULT
Ruijie(cont-plcy-config)# web-bbs-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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14.1.36 web-bbs-rule delete-all

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1 POLICYA WEB-BBS ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-bbs-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.38 web-bbs-rule rule-id

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web-bbs-rule *rule-id* **time-range** *time-name* **content** *content-object-name* **action**
permit | deny audit comment *comment-string*

no web-rule *rule-id*

rule-id	⁸ ‡ ˘ ⅄ ˆ ˜
time-name	‡
content-object-name	ɔ̄ ‡ Â
comment-string	‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-bbs-rule 2 time-range any direction
in content ZhengZhiCiHui action deny audit comment
DenyUserAInvalidWebView
Ruijie(cont-plcy-config)# end
```

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14.1.39 web-mail-rule audit-default-enable

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web-mail-rule audit-default-enable

no web-mail-rule audit-default-enable

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```
  1         POLICYA        WEB-MAIL   ‡
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-mail-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.41 web-mail-rule priority-swap

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web-mail-rule priority-swap *rule-id1 rule-id2*

rule-id1	‡
rule-id2	‡

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```
  1    WEB MAIL          ‡ 10    ‡ 20    ”I
Ruijie# configure terminal
```

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```
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-mail-rule priority-swap 10 20
Ruijie(cont-plcy-config)# end
```

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14.1.42 web-mail-rule rule-id

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web-mail-rule *rule-id* **time-range** *time-name* **direction in | out | double action permit | deny audit comment** *comment-string*

no web-mail-rule *rule-id*

rule-id	⁸ ‡ ˘ ʎ ˆ ˜
time-name	‡
comment-string	‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
```

```
Ruijie(cont-plcy-config)# web-mail-rule 1 time-range any action
permit audit comment mail-audit-1
Ruijie(cont-plcy-config)# web-mail-rule 1 relation or from OBJ-F
subject OBJ-S attachement-size less 20000
Ruijie(cont-plcy-config)# end
```

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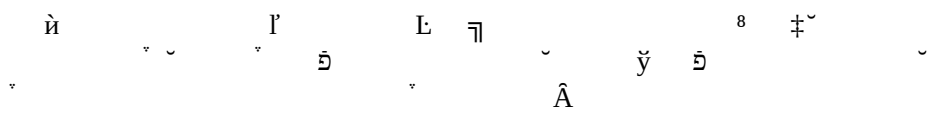

```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-mail-rule 1 subscriber any time-range
any action permit audit comment mail-audit-1
Ruijie(cont-plcy-config)# web-mail-rule 1 relation or from OBJ-F
subject OBJ-S mail-size less 20000
Ruijie(cont-plcy-config)# end
```

[redacted]	

1 WEB ‡ 10 ‡ 20

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-rule 2 time-range any direction in
content-object WEB_OBJ  action deny audit comment
DenyUserAInvalidWebView
Ruijie(cont-plcy-config)# end
```

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14.1.46 web-rule delete-all

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```
  1         POLICYA        WEB   ‡
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.47 web-search-rule audit-default-enable

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web-search-rule audit-default-enable

no web-search-rule audit-default-enable

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```
  1    WEB
Ruijie# configure terminal
Ruijie(config)# content-policy _AUDIT_DEFAULT
Ruijie(cont-plcy-config)# web-search-rule audit-default-enable
Ruijie(cont-plcy-config)# end
```

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14.1.48 web-search-rule delete-all

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1 POLICYA WEB ‡

```
Ruijie# configure terminal
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-search-rule delete-all
Ruijie(cont-plcy-config)# end
```

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14.1.49 web-search-rule priority-swap

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web-search-rule priority-swap *rule-id1 rule-id2*

rule-id1	‡
rule-id2	‡

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```
Ruijie# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# content-policy POLICYA
Ruijie(cont-plcy-config)# web-search-rule 2 time-range any
direction in content ZhengZhiCiHui action deny audit comment
DenyUserAInvalidWebView
Ruijie(cont-plcy-config)# end
```

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14.2

14.2.1 show app-audit stat

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show app-audit stat recent *hours* **time-range from** *yyyy mm dd hh:mm:ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **ip** *addr* **app-group** *app-group-name* **rule-name** *rule-name* **permit | deny**

hours	
yyyy mm dd	
hh:mm:ss	ǰ
hour1	˚ ‘
hour2	˚ ‘
hour3	˚ ‘
hour4	˚ ‘
intf-name	¨
bridge-num	ʎ
subs-name1	˚ ‘ ¨ ˘ ɒ
subs-name2	˚ ‘ ¨ ˘ ɒ
addr	˚ ‘ ˘ ɒ ’ l’ Ł
app-group-name	˚ ‘ ¨
rule-name	˚ ‘ ɒ ‡¨

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show app-audit stat day-interval to hour-interval

to subscriber

```
Ruijie# 50
```

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14.2.2 show app-audit detail

8

show app-audit detail recent *hours* **time-range from** *yyyy mm dd hh:mm:ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge**

integer2	Æ

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show app-audit stat day-interval to hour-interval to subscriber

show app-audit detail day-interval to hour-interval to subscriber order-by time desc start-item end-item

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14.2.3 show content-policy

show content-policy stat policy *name* **policy** *policy-name*

stat	Ѭ Â ⸗ ˘ ‡ Â
policy	⸝ ⸗ Â ‡ ⸜ Â
policy-name	*policy-name* ˛ ⸗ Â ⸗ ѝ *name* Â

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```
Ruijie# show content-policy policy-name
content-policy POLICYA
content-policy POLICYB
content-policy POLICYC
#        Ѭ                ˛
Ruijie# show content-policy stat
disable-all: yes
#          POLICYA  ǔ  ˛
Ruijie# show content-policy stat policy POLICYA
exist: no
```

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14.2.4 show content-policy-relate

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show content-policy-relate user-view subscriber *subs-name1* **any auth-subscriber** *subs-name2* **any detail**
show content-policy-relate policy-view policy *policy-name* **subscriber** *subs-name1* **any auth-subscriber** *subs-name2* **any**

subs-name1	"
subs-name2	"
policy-name	"

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```
Ruijie# show content-policy-relate user-view subscriber USER1
content-policy-relate relate subscriber USER1 policy POLICYA
content-policy-relate relate subscriber USER1 policy POLICYB
!
Ruijie# show content-policy-relate policy-view policy POLICYA
content-policy-relate relate subscriber USER1 policy POLICYA
content-policy-relate relate subscriber USER2 policy POLICYA
!
```

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14.2.5 show ftp-audit stat

show ftp-audit stat recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **direction in out double file-name** *keyword* **file-size greater greater-equal less less-equal rule-name** *rule-name* **ip** *ip-address* **permit | deny**

hours	
yyyy mm dd	
hh:mm:ss	ǀ
hour1	ˇ ˂
hour2	ˇ ˂
hour3	ˇ ˂
hour4	ˇ ˂
intf-name	¨
bridge-num	ʎ
subs-name1	ˇ ˂ ¨ ˘ ɒ̄
subs-name2	ˇ ˂ ¨ ˘ ɒ̄
keyword	ˇ ˂ ˇ ¨
file-size	ˇ ˂ ˇ
rule-name	ˇ ˂ ɒ̄ ‡¨
Ip-address	ˇ ˂

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show ftp-audit stat day-interval to hour-interval to

subscriber **direction out**

Ruijie# 50

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14.2.6 show ftp-audit detail

show ftp-audit detail **recent** *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2* *hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **direction in out** **double** **file-name** *keyword* **file-size** **greater** **greater-equal** **greatofess** **| ulfesam** **order-by** **time** **subscriber** **file-name | file-size** **asc** **des**

hours	
yyyy mm dd	
hh:mm:ss	ᒉ
hour1	ˇ ‘
hour2	ˇ ‘
hour3	ˇ ‘
hour4	ˇ ‘
intf-name	¨
bridge-num	ᒋ
subs-name1	ˇ ‘ ¨ ˘ ɔ̄
subs-name2	ˇ ‘ ¨ ˘ ɔ̄
keyword	ˇ ‘ ˇ ¨
file-size	ˇ ‘ ˇ
rule-name	ˇ ‘ ɔ̄ ‡¨

Integer1	Æ
integer2	Æ

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2010-5-1 2010-5-7 ÿ 09 18 ˘ USERA FTP Э
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show ftp-audit stat day-interval to hour-interval to subscriber direction out order-by time desc start-item end-item

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show im-audit stat day-interval to hour-interval to subscriber type msn

```
Ruijie# 50
```

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14.2.8 show im-audit detail

show im-audit detail recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num*

subs-name2	ˇ ˛ ¨ ˘ ϑ
keyword	ˇ ˛
account-string	ˇ ˛ ⁄
rule-name	ˇ ˛ ϑ ‡¨
Integer1	Æ
integer2	Æ

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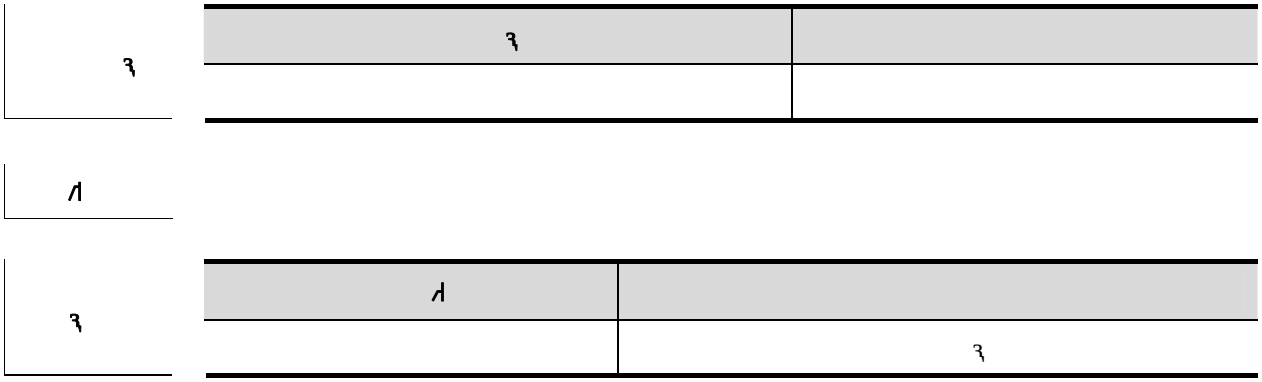
2010-5-1 2010-5-7 ÿ 09 18 ˘ USERA MSN Â

show im-audit detail day-interval to hour-interval to subscriber type msn order-by time desc start-item end-item



14.2.9 show mail-audit stat

show mail-audit stat recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *to*

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show mail-audit stat day-interval to hour-interval to hou 0 Tw -w 5.11to

hour4	˚ ‘
intf-name	¨
bridge-num	∧
subs-name1	˚ ‘ ¨ ˘ Ð
subs-name2	˚ ‘ ¨ ˘ Ð
addr	˚ ‘ ˘ Ð ’ l’ Ł
keyword1	˚ ‘ ˚
Keyword2	˚ ‘ ˚
Keyword3	˚ ‘ ˚ ў
rule-name	˚ ‘ Ð ‡¨
Integer1	Æ
integer2	Æ

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‘

```
#    2010-10-10   2010-10-14    ÿ 09    18 ˘      USERA    ˚
  Â
```

show mail-audit detail day-interval to hour-interval to subscriber order-by time desc start-item end-item

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14.2.11 show mail-audit attachment-info

show mail-audit attachment-info timestamp *timestamp* **rand-id** *rand-id*

timestamp	
rand-id	

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ʼI ʒ **show mail-audit detail**

timestamp ѝ ˘ **rand-id** ѝ ˚ ˚ Â

show mail-audit attachment-info timestamp rand-id

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bridge-num	⺈
subs-name1	ˇ ˊ ¨ ˘ ɔ̄
subs-name2	ˇ ˊ ¨ ˘ ɔ̄
addr	ˇ ˊ ˘ ɔ̄ ʼ ľ Ł
keyword	ˇ ˊ
rule-name	ˇ ˊ ɔ̄ ‡¨

deny order-by time subscriber auth-subscriber | internal-ip | external-ip direction asc desc start-item *integer* **end-item** *integer*

hours	
yyyy mm dd	
hh:mm:ss	
hour1	
hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name1	
subs-name2	
addr	
keyword	
rule-name	
Integer1	
integer2	

```
#    2010-10-1   2010-10-15     ÿ 09     18 ˇ      USERA    TELNET
     Â
```

show telnet-audit detail day-interval to hour-interval to subscriber order-by time desc start-item end-item

hour1	
hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name1	
subs-name2	
keyword	
rule-name	
Ip-address	

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show web-audit stat day-interval to hour-interval to subscriber

```
Ruijie# 50
```


14.2.15 show web-audit detail

show web-audit detail recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **keyword** *keyword* **rule-name** *rule-name* **ip** *ip-address* **permit | deny order-by time subscriber auth-subscriber | internal-ip | url asc desc start-item** *integer* **end-item** *integer* **}}**

hour4	˚ ‘
intf-name	‥
bridge-num	ﾊ
subs-name1	˚ ‘ ‥ ˘ Ƀ
subs-name2	˚ ‘ ‥ ˘ Ƀ
ip-list	˚ ‘ ˘ ˘ a˚ Ɲ ﾊ
keyword	˚ ‘ ˘ ˘ a˚ Ɲ ﾊ
rule-name	˚ ‘ Ƀ ‡‥ ˘ ‡‥ ˘ a˚ ‡‥ Ɲ ﾊ

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hour-interval *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **ip** *ip-list* **content** *keyword* **rule-name** *rule-name* **permit | deny order-by time subscriber auth-subscriber | internal-ip | url asc desc start-item** *integer* **end-item** *integer*

hours	
yyyy mm dd	
hh:mm:ss	†
hour1	˚ ‹
hour2	˚ ‹
hour3	˚ ‹
hour4	˚ ‹
intf-name	‡
bridge-num	≠
subs-name1	˚ ‹ ‡ ˘ Ð
subs-name2	˚ ‹ ‡ ˘ Ð
ip-list	˚ ‹ ˘ ˘ a˚ Л≈ ≠
keyword	˚ ‹ ˘ ˘ a˚ Л≈ ≠
rule-name	˚ ‹ Ð ‡‡ ˘ ‡‡ ˘ a˚ ‡‡ Л≈ ≠
Integer1	Æ
integer2	Æ

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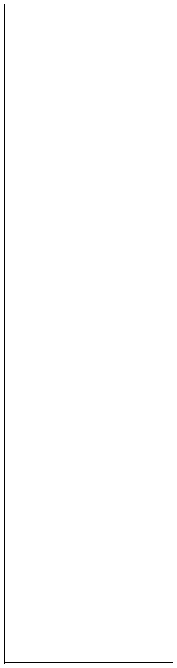

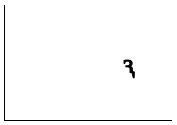

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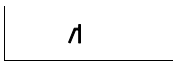

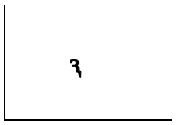

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14.2.18 show web-mail-audit stat

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show web-mail-audit stat recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **direction in out double from** *keyword* **to** *keyword* **subject** *keyword* **rule-name** *rule-name* **permit | deny**

hours	
yyyy mm dd	
hh:mm:ss	˟
hour1	˟ ‘

hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name1	
subs-name2	
keyword1	
Keyword2	
Keyword3	
rule-name	

show web-mail-audit stat day-interval to hour-interval to subscriber

```
Ruijie# 50
```


14.2.19 show web-mail-audit detail

show web-mail-audit detail recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **direction in out double from** *keyword* **to** *keyword* **subject** *keyword* **rule-name** *rule-name* **permit | deny order-by time subscriber auth-subscriber | internal-ip direction send-mail-addr | mail-size asc desc start-item** *integer* **end-item** *integer*

hours	
yyyy mm dd	
hh:mm:ss	
hour1	
hour2	
hour3	
hour4	
intf-name	
bridge-num	
subs-name1	
subs-name2	
keyword1	
Keyword2	
Keyword3	
rule-name	
Integer1	
integer2	

end-item

14.2.21 show web-search-audit stat

show web-search-audit stat recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **ip** *addr* **keyword** *keyword* **rule-name** *rule-name* **permit | deny**

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14.2.22 show web-search-audit detail

show web-search-audit detail recent *hours* **time-range from** *yyyy mm dd hh:mm::ss* **to** *yyyy mm dd hh:mm:ss* **day-interval** *yyyy mm dd* **to** *yyyy mm dd* **hour-interval** *hour1* **to** *hour2 hour3* **to** *hour4* **interface** *intf-name* **| bridge** *bridge-num* **subscriber** *subs-name1* **auth-subscriber** *subs-name2* **ip** *addr* sub

[illegible]

[illegible] ЛЮ [illegible]

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1.1

1.1.1 access-list

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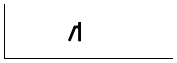
access-list *acl-num*

no access-list *acl-num*



1.1.3 compress enable

source-port	Â ╟ ¯ ù Â ˘
dest-address	
dest-port	Â ˘
any	ù Â ╟ ˘ Â
bw	ˆ ˜ Â Â
no	Â

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

Ruijie(vwan-channel)#end

Ruijie#**configure terminal**
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# **vwan channel** active AAA // й AAA,
б
Ruijie(vwan-channel)# **link** gigabitEthernet 0/1 1.1.1.1//

Ruijie(vwan-channel)#**end**

1.1.6 loss-recover

Â **no** Â

loss-recover enable

no loss-recover enable

num	Â
no	Â

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Ruijie#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# **vwan channel active** AAA //
Ruijie(vwan-channel)# **loss-recover enable** //

vwan channel *channel-name*	

1.1.7 server

server *address* **tcp udp** *port*

no server *address* **tcp udp** *port*

address	

tcp/udp

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Ruijie#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Ruijie(config)# **vwan channel** passive AAA //

Ruijie(vwan-channel)# **server 2.2.2.2**

Ruijie(vwan-channel)# **server 2.2.2.3**

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vwan channel *channel-name*	¨ ˘ Â

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1.1.8 vwan channel

¨ Â ʎ Ʊ ʒ **no** Â

vwan channel active passive *channel-name*

no vwan channel active passive *channel-name*

channel-name	¨ Â a ˆ ˜ Â
no	Â

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Ruijie#configure terminal

```
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# vwan channel active AAA
Ruijie(vwan-channel)# end
```


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1.1.9 vwan enable

Â Ʌ Ʊ **no** Â

vwan enable

no vwan enable

no	Â

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```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# vwan enable
Ruijie(config)# end
```


1.2

1.2.1 show vwan channel

show vwan channel *channel-name*

channel-name	

```
Ruijie#show vwan channel
ID          name           state    acl       refer      link_num
sched_num  chn_num    base_pid   rs_pid     head_pid   order_pid
tail_pid   ring_head  ring_order order_time local_num  peer_num
peer_id       comment       send_bytes     recv_bytes     up_rate
down_rate     recv_pkt       drop_pkt       loss_b         loss_a
est_time
```

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```
Ruijie#show vwan link
ID          Channel          Local IP         Peer IP          Bw
State      Derive    FID       Timer     Refer child  send_bytes
recv_bytes send_pkts  recv_pkts  Bytes_rate Pkts_rate  peer-lid
peer-pid   Intf_name
e60865     www             44.1.1.6        172.18.3.19     4096
established 0          61a7e      10         0     0      10872
10468      266         260         9919        9919        e62e33
667e85    GigabitEthernet 0/6
```

Child	
send_bytes	
recv_bytes	
send_pkts	
recv_pkts	
Bytes_rate	
Pkts_rate	
peer-lid	
peer-pid	
Intf_name	


```
Ruijie#show vwan buffer
channel:
  pool free: 255, total: 256
  ch_num:    1
  name_num:  1
  id_num:    1
  serv free: 128
  delay_num: 0
  timer_num: 1
link:
  pool free: 2047, total: 2048
  link_num:  1
  id num:    1
  intf_num:  1
  listen num:0
  delay_num: 0
  timer_num: 1
efbuf:
  free:     2048, total: 2048
blk:
  free:     230000, total: 230000
```


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```
Ruijie#show vwan stat
no buffer      : 0    no vwanbuf     : 0    no next-hop    : 0
no adj         : 0    wrong adj      : 0
err create flow : 0    err update flow : 0    err get fpriv   : 0
err get fevent  : 0    vw used flow   : 0
reused flow    : 3    err format     : 0    err version    : 0
err length     : 0    err cksum      : 0
err syn        : 0    err ssyn       : 0    err rst        : 0    err
ping       : 0    err pong       : 0
err data pkt   : 0    err data block  : 0    err ssyn echo   : 0
unexpect pkt   : 0    unexpect state  : 1
no channel node : 0    no link node   : 0    err compress   : 0
compress rate   : 0
Ruijie#


Ruijie#show vwan stat channel www
get_link          put_link          create_link      delete_link
free_link
send_syn          send_ssyn         send_ping         send_pong
send_data      send_rst
recv_syn          recv_ssyn         recv_ping         recv_pong
recv_data      recv_rst


channel name:www
link id:  e60865
0             0             1             0             0
334           4             24409         24403         25823
13401
1             3             24403         24404         106873
1


stat of channel:www
receive_pkt:28963
send_pkt:13637
reassem_fail:1602
```


2

2.1

2.1.1 ping

ping vrf *vrf-name* **ip** *ip-address* **length** *length* **ntimes** *times* **timeout** *seconds* **data** *data* **source** *source*

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

Ruijie# **ping** *192.168.5.197* **length** *1500* **ntimes** *100* **timeout** *3* **data** *ffff* **source** *192.168.4.10*

Sending 100, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3 seconds:
  < press Ctrl+C to break >
!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 2/2/3 ms

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2.1.2 Traceroute

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

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vrf-name ¨

Ip-address	Â
number	
source-address	
seconds	
minimum maximum	

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```
Ruijie# traceroute 61.154.22.36
< press Ctrl+C to break >
Tracing the route to 61.154.22.36

1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2     4 msec  4 msec 4 msec
3     192.168.9.1     8 msec  8 msec  4 msec
4     192.168.0.10    4 msec  28 msec  12 msec
5     202.101.143.130    4 msec  16 msec  8 msec
6     202.101.143.154   12 msec  8 msec  24 msec
7     61.154.22.36    12 msec  8 msec  22 msec
Ruijie#
```

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```
Ruijie# traceroute 202.108.37.42
< press Ctrl+C to break >
Tracing the route to 202.108.37.42
```

```
1     192.168.12.1    0 msec  0 msec  0 msec
2     192.168.9.2      0 msec  4 msec 4 msec
3     192.168.110.1    16 msec  12 msec  16 msec
4     *  *  *
5     61.154.8.129     12 msec  28 msec  12 msec
6     61.154.8.17      8 msec  12 msec  16 msec
7     61.154.8.250     12 msec  12 msec  12 msec
8     218.85.157.222   12 msec  12 msec  12 msec
9     218.85.157.130   16 msec  16 msec  16 msec
10     218.85.157.77   16 msec  48 msec  16 msec
11     202.97.40.65    76 msec  24 msec  24 msec
12     202.97.37.65    32 msec  24 msec  24 msec
13     202.97.38.162   52 msec  52 msec  224 msec
14     202.96.12.38     84 msec  52 msec  52 msec
15     202.106.192.226   88 msec  52 msec  52 msec
16     202.106.192.174   52 msec  52 msec  88 msec
17     210.74.176.158   100 msec  52 msec  84 msec
18     202.108.37.42    48 msec  48 msec  52 msec
Ruijie#
```

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```
Ruijie# traceroute www.ietf.org

Translating " www.ietf.org "...[OK]
< press Ctrl+C to break >
Tracing the route to 64.170.98.32

1     192.168.217.1  0 msec  0 msec  0 msec
2     10.10.25.1       0 msec  0 msec  0 msec
3     10.10.24.1       0 msec  0 msec  0 msec
4     10.10.30.1       10 msec 0 msec  0 msec
5     218.5.3.254      0 msec  0 msec  0 msec
6     61.154.8.49      10 msec 0 msec  0 msec
7     202.109.204.210   0 msec  0 msec  0 msec
8     202.97.41.69     20 msec 10 msec 20 msec
9     202.97.34.65     40 msec 40 msec 50 msec
10    202.97.57.222     50 msec 40 msec 40 msec
11    219.141.130.122   40 msec 50 msec 40 msec
12    219.142.11.10     40 msec 50 msec 30 msec
13    211.157.37.14     50 msec 40 msec 50 msec
14    222.35.65.1      40 msec 50 msec 40 msec
15    222.35.65.18     40 msec 40 msec 40 msec
16    222.35.15.109     50 msec 50 msec 50 msec
17    *      *      *
```

18 64.170.98.32 40 msec 40 msec 40 msec

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3 DHCP

3.1.1 bootfile

3.1.2 client-identifier

client-identifier *unique-identifier*

no client-identifier

unique-identifier	

hardware-address	Ѭ ˚ Â
host	Ѭ Â Â
ip dhcp pool	Ѭ ¨ ˘ Â

3.1.3 client-name

Ѭ ¨ ˘ ¨ Â ʒ **client-name** Â ʒ

client-name *client-name*

no client-name

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client-name	Ѭ ¨ Â ⁄ Ѣ Â¨ a ɨ ¨ ˘ Ѭ ѝ ¨ ˘ a Ѭ ѝ Â

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3.1.4 default-router

default-router Â **no**

default-router *ip-address ip-address2…ip-address8*

no default-router

ip-address	Â Â
ip-address2…ip-address8	Â

ð Ô

ip-address	Â
ip-address2…ip-address8	Â
use-dhcp-client *interface-type* *interface-number*	Â

ð Ô

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ð Ô

```
dns-server 192.168.12.3
```

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domain-name	Â
ip address dhcp	Â
ip dhcp pool	Â

3.1.6 domain-name

domain-name Â

type	˘ /ˈ ˘ /ˈ Љ ЊÂ ˛ ˛ ˆ ˜ ˆ ˜

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/ˈ Њ ˘ /ˈ Љ ʒ Â

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hardware-address 00d0.f838.bf3d

ð ʒ Ô

ʒ	
client-identifier	Њ ˆ Љ ʻΩ ˢ ˜ Â
host	Њ Â Â
ip dhcp pool	Њ ¨ ˘ Â
ip dhcp excluded-address	ѝ
default-router	Њ

3.1.8 host

Њ ў ˘ ʒ **host** Â
ʒ **no** /ˈ Љ ЊÂ

host *ip-address netmask*

no host

ð Ô

ip-address	Ѭ ў Â
netmask	Ѭ ў Â

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host 192.168.12.91 255.255.255.240

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ʒ	
client-identifier	Ѭ ˆ Ѭ ‘Ω ⁸ ˜ Â
hardware-address	Ѭ ˚ Â
ip dhcp pool	Ѭ ¨ ˘ Â
ip dhcp excluded-address	ѝ
default-router	Ѭ

3.1.9 update arp

˥ ˘ ʒ **update arp** Â ʒ **no**
/ Ѭ ˥ Â

update arp

no update arp

ð Ô

ð Ô

```
ip dhcp refresh arp
```

ð Ô

update arp	

3.1.11 ip address dhcp

ip address dhcp

no ip address dhcp

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ð Ô

```
interface GigabitEthernet 0
ip address dhcp
```

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ᄒᆞ	
dns-server	ᄇᆞᆫ ᄂᆞᆫ
ip dhcp pool	ᄇᆞᆫ ᄡᆞ ᄒᆞ Â
ip dhcp excluded-address	ѝ
default-router	ᄇᆞᆫ

3.1.12 ip dhcp excluded-address

ᄇᆞᆫ ᄒᆞ ᄂᆞᆫ a ὲ ᄒᆞ ᄒᆞ

ᄒᆞ **ip dhcp excluded-address** Â ᄒᆞ **no** ᄉᆡ ᄅᆞᆫ ᄉᆡ ᄇᆞᆫ Â

ip dhcp excluded-address *low-ip-address* *high-ip-address*

no ip dhcp excluded-address *low-ip-address* *high-ip-address*

ȍ Ô

low-ip-address	ᄒᆞ Â
high-ip-address	Â

ȍ Ô

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ȍ Ô

ip dhcp pool	Â
network	Â

3.1.13 ip dhcp ping packet

ip dhcp ping packet Â **no** Â

ip dhcp ping packet *number*

no ip dhcp ping packet

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number	Â

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ip dhcp ping timeout	⊾ Â ˘ ⋀† ’ ǖ ‡ ă Â
show ip dhcp conflict	⊾ † ˘ ă Â

3.1.14 ip dhcp ping timeout

⊾ ă ˘ ˘

ʒ **ip dhcp ping timeout** Â ʒ **no** ⋀ Ƶ Â

ip dhcp ping timeout

3.1.15 ip dhcp pool

3.1.16 lease

lease **no**

lease *days* *hours* *minutes* **infinite**

no lease

ip dhcp pool	Â

3.1.17 netbios-name-server

netbios-name-server Â

netbios-name-server *ip-address ip-address2…ip-address8*

no netbios-name-server

Ô

ip-address	Â Â
ip-address2…ip-address8	Â
netbios-node-type	Â

Ô

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```
netbios-name-server 192.168.12.3
```

Ô

ip address dhcp	Â
ip dhcp pool	Â Â

3.1.18 netbios-node-type

netbios-node-type **no**

netbios-node-type *type*

no netbios-node-type

type	

```
netbios-node-type h-node
```

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ʒ	
ip dhcp pool	⌧ Â
netbios-name-server	L | Â

Љ Ю ˘ Ѭ ⅄ ѝ ˘ ѝ
Â

network 192.168.12.0 255.255.255.240

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ꝛ	
ip dhcp excluded-address	Ѭ ⊾ a ⅂ Â
ip dhcp pool	Ѭ ¨ ˘ Â

3.1.20 next-server

Ѭ ╟ ╟ ⊾ ˘
ꝛ **next-server** Â ꝛ **no** ⅄ Љ ╟ ⊾ Ѭ Â

next-server *ip-address ip-address2…ip-address8*

no next-server

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ip-address	Ѭ ╟ ⊾ ˘ ѝ ⊾ Â Â
ip-address2…ip-address8	ˆ ⅄ ˜ ⅄ Љ ╟ ⊾ Â

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╟ ⊾ ˘ Ю ╟ ⊾ Â

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next-server 192.168.12.4

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bootfile	
ip dhcp pool	
ip help-address	
option	

3.1.21 option

option *code* **ascii** *string* **hex** *string* **ip** *ip-address*

no option

code	
ascii *string*	
hex *string*	
ip *ip-address*	

option 19 hex 1

option 33 ip 172.16.12.0 192.168.12.12 172.16.16.0 192.168.12.16

ip dhcp pool	

3.1.22 service dhcp

service dhcp

no service dhcp

```
service dhcp
```

ꝛ ⅄ ╟ ˘ ⅄ ⅂ **no ip dhcp pool**

ip dhcp ping packets	Ĥ ╚ ╡ ˘ ă Â
show ip dhcp conflict	╚ ╡ ˘ ă Â

3.2.3 clear ip dhcp server statistics

Æ ╚ ˘ **clear ip dhcp server statistics**

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debug ip dhcp client

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3.2.5 debug ip dhcp server

˘ **debug ip dhcp server** ʒ Â
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debug ip dhcp server events packet

no debug ip dhcp server events packet

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events	
packet	

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debug ip dhcp server packet

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3.2.6 show dhcp lease

˘ ъ **show dhcp lease** Â

show dhcp lease

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ЉЮ ѝ **show dhcp lease** Â

```
Ruijie# show dhcp lease
Temp IP addr: 192.168.5.71 for peer on Interface:
GigabitEthernet0/0
Temp sub net mask: 255.255.255.0
DHCP Lease server: 192.168.5.70, state: 3 Bound
DHCP transaction id: 168F
Lease: 600 secs, Renewal: 300 secs, Rebind: 525 secs
Temp default-gateway addr: 192.168.5.1
Next timer fires after: 00:04:29
Retry count: 0  Client-ID: redgaint-00d0.f8fb.5740-Fa0/0
```

3.2.7 show ip dhcp binding

˘ ъ **show ip dhcp binding** Â

show ip dhcp binding *ip-address*

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ip-address	ˆ /\ ˜ /\ Â

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ЉЮ ѝ **show ip dhcp conflict** ʒ Â

```
Ruijie# show ip dhcp conflict
IP address    Detection Method
192.168.12.1    Ping
```

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ЉЮ й **show ip dhcp server statistics** ҳ Â

```
Ruijie# show ip dhcp server statistics
Address pools           4
Automatic bindings       4
Manual bindings         0
Expired bindings        0
Malformed messages 2

Message                Received
BOOTREQUEST             216
DHCPDISCOVER            33
DHCPREQUEST             25
DHCPDECLINE             0
DHCPRELEASE             1
DHCPINFORM              150

Message                Sent
BOOTREPLY               16
DHCPOFFER               9
DHCPACK                 7
DHCPNAK                 0
```

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clear ip dhcp server statistics	∟ Â

4 DHCP Relay

4.1 DHCP Relay

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service dhcp

ip helper-address

4.1.1 service dhcp

Э **ervice dhcp**Â

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service dhcp

no service dhcp

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service dhcp

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4.1.2 ip helper-address

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```
ip helper-address 61.154.26.49
ip helper-address vrf local 192.168.197.1
```

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service dhcp	

4.1.3 ip dhcp relay information option dot1x

dhcp option dot1x **dhcp option dot1x** Â

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Ip dhcp relay information option dot1x

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ʒ	
service dhcp	ʒ
ip dhcp relay information option dot1x access-group	

4.1.4 ip dhcp relay information option dot1x access-group

ʒ **dhcp option dot1x acl˝** ʒ **dhcp option dot1x acl** Â

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Ip dhcp relay information option dot1x access-group acl-name

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ʒ	
service dhcp	ʒ
ip dhcp relay information option dot1x	╖

4.1.5 ip dhcp relay information option82

ʒ **ip dhcp relay information option82** ╖ ˘ ʒ **ip dhcp relay information option82** ╖ Â

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```
Ip dhcp relay information option82
```

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Service dhcp	
ip dhcp relay information option dot1x	

4.1.6 ip dhcp relay check server-id

ip dhcp relay check *server-id* **ip dhcp relay information check** *server-id* Â

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```
Ip dhcp relay check server-id
```

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Service dhcp	३

4.1.7 ip dhcp relay suppression

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```
Ruijie#
Ruijie# configure terminal
Ruijie(config)# interface GigabitEthernet 0/1
Ruijie(config-if)# ip dhcp relay suppression
Ruijie(config-if)# exit
Ruijie(config)#
```

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३	
service dhcp	३

5 DNS

5.1

5.1.1 ip domain-lookup

ip domain-lookup

no ip domain-lookup

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```
Ruijie(config)# ip domain-lookup
```

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show hosts	

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5.1.2 ip name-server

ip name-server *ip-address*

no ip name-server *ip-address*

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ip-address	¨ ⊾

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```
Ruijie(config)# ip name-server 192.168.5.134
```

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show hosts	Â

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5.1.3 ip host

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ip host *host-name ip-address*

no ip host *host-name ip-address*

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ip-address	

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ð Ô

ў ˘ ʌ Љ **no ip host host-name ip-address** ʒ

ð Ô

```
Ruijie(config)# ip host switch 192.168.5.243
```

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show hosts	Â

ð Ô

5.1.4 clear host

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clear host *host-name*

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host-name	ʌ Љ ╟ ў ¨ ă Â ʒ ╟ ў ¨ ă Â

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```
clear host *
```

6 NTP

6.1 NTP

ЛЪЮ

no ntp

ntp access-group

ntp authenticate

ntp authentication-key

ntp disable

ntp master

ntp server

ntp synchronize

ntp trusted-key

ntp update-calendar

6.1.1 no ntp

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no ntp

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no ntp

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ntp server	ᄂᆞ

6.1.2 ntp access-group

ᄂᆞ ᄋᆞ ˘ ᄀᆞ ᄉᆡ ᄋᆞ Â

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

no ntp access-group peer serve

३

ʒ

ntp authentication-key ȁ **ntp trusted-key** Â

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ɛ̀ ѝ ɨ˘ ⁸ Â

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

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ʒ	
ntp authentication-key	
ntp trusted-key	Â

6.1.4 ntp authentication-key

ѝ ⊾ Â ʒ Ѣ ⋀ Â

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

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

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key-id	’ ⋀
key-string	’
enc-type	ˆ ⋀ ˜ ŭ ╗ ˘ ╗ ˘ ╗ ’

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˘ ╗ ˘ ˘

⋀ Ѣ **ntp trusted-key** ѝ Â

Э ѝ ˘ ⊾

ð Ô

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

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6.1.6 ntp master

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ʒ ѝ ʌ ў Â

ntp master *[stratum]*
no ntp master

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stratum	˘ ѝ ˙ ˛ a ‡ ѝ Â

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б ˇ ˘ ʌ Љ ʒ
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ЉЮ ʌ ˘ ѐ ѝ Â

Ruijie(config)# **ntp master** *12*

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6.1.7 ntp server

ѝ ⊨ Â ʒ Ѣ ⊨ Â

ntp server *ip-addr* **version** *version* **source** *if-name* **key** *keyid* **prefer**

no ntp server *ip-addr*

ð Ô

ip-addr	⊨ ˘ ’
version	ˆ ⋀ ˜ ˆ ˜˘ ’
if-name	ˆ ⋀ ˜ ˆ Ь ˜’
keyid	ˆ ⋀ ˜ б ⊨ ╗
prefer	ˆ ⋀ ˜ ⊨ ѝ ⊨

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б ⊨ ╗ ˘ ”I ╗ Ѣ ⋊ ˘ ł

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```
‘ Ruijie(config)# ntp server 192.168.210.222
‘ Ruijie(config)# ntp server 10::2
```

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no ntp	

6.1.8 ntp synchronize

ntp synchronize

no ntp synchronize

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Ntp synchronize

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ntp server	

6.1.9 ntp trusted-key

ntp trusted-key *key-id*

no ntp trusted-key *key-id*

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key-id	Â ٨

ð Ô

ð Ô

```
Ruijie(config)# ntp update-calendar
```

ð Ô

6.2

debug ntp

show ntp status

6.2.1 debug ntp

debug ntp

no debug ntp

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debug ntp

Â

6.2.2 show ntp status

Â

show ntp status

7 SNTP

7.1

sntp enable

sntp server

sntp interval

7.1.1 sntp enable

no

no sntp enable

show sntp

```
RedGiant(config)# sntp enable
```

show sntp	
clock update-calendar	
clock set	

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7.1.2 sntp server

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sntp server ip-addr

no sntp server

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ip-addr ˋ ⊾

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seconds ˙ ˘ ˘ æ ѝ ľ Ľ ѝ Â

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show sntp ʒ Â

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

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sntp enable	
show sntp	
clock update-calendar	˘ ˘ ˘

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show sntp

7.2.1 show sntp

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show sntp ¦

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

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sntp enable	
show sntp	

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8.1.2 ip helper-address

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ip helper-address *address*

no ip helper-address *address*

ip forward-protocol udp *port* **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**

no ip forward-protocol udp *port* **tftp | domain | time | netbios-ns | netbios-dgm | tacacs**

ð Ô

port	˘ a ‡ Â
tftp	˘ ʌ ù Â
domain	˘ ʌ ù Â
time	˘ ʌ ù Â
netbios-ns	˘ ʌ ù ˘ ʌ ù

udp-helper enable	
ip forward-protocol	

ð Ô

9 DDNS

9.1

9.1.1 peanut username

no peanut username *name* **password** *word*

name	
word	

Ruijie#**config**
Ruijie(config)# **peanut username test password test**

10 DNS

10.1

10.1.1 smartdns

‡ Â ⁄ Ѣ ҂ ‡ Â

no smartdns *A.B.C.D interface* **map** *X.X.X.X*

A.B.C.D	⊨ Â
Interface	Â
X.X.X.X	ł Â

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҂ ⁄ Ѣ ╗ ‡ Â

‘ ч ‡˘ ⊨ ˘ Э ˘ Э ‘

```
Ruijie#config
Ruijie(config)# smartdns 192.168.1.100 gigabitethernet 0/1
```


10.1.2 smartdns enable

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no smartdns enable

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```
Ruijie#config
Ruijie(config)#smartdns enable
```

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Smartdns	‡

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11 DNS-Proxy

11.1

11.1.1 blacklist

blacklist domain-ip *start-ip [end-ip]*
no blacklist domain-ip *start-ip [end-ip]*

start-ip	
end-ip	

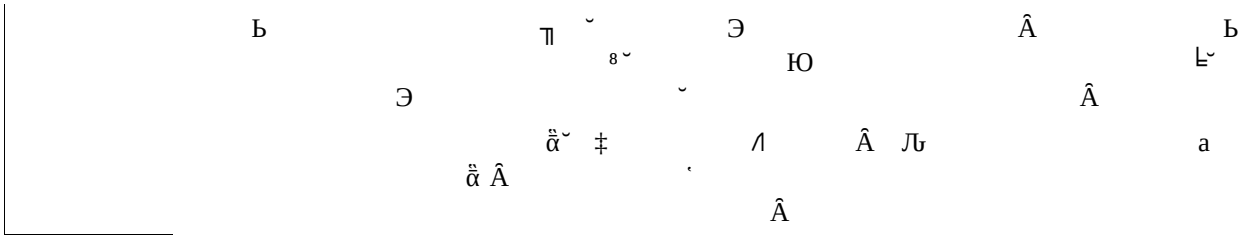
dns-proxy

Â

Â

```
Ruijie(config)#dns-proxy
Ruijie(config-dns-proxy)#exit
Ruijie(config)#
```

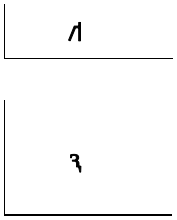
dns-proxy enable	
ip name-server	



```
Ruijie(config)#int gi0/1
Ruijie(config-if-GigabitEthernet 0/1)#dns-proxy enable
```

2C5CC0747A5104B8>Tj /TT1 1 Tf 0 Tr 20.5 0 0 10.5 148.85762.5463 Tm ( )Tj /TT0 1 Tf 50.52 0 0 10.02 135.36 640

```
Ruijie(config)#int gi0/1
Ruijie(config-if-GigabitEthernet 0/1)#ip name-server 218.85.157.99
Ruijie(config-if-GigabitEthernet 0/1)#ip name-server 218.85.152.99
track 1
```



11.2

11.2.1 show dns-proxy configure

dns-proxy enable	
dns-proxy	

dns-proxy enable	
blacklist	

11.2.3 show dns-proxy configure whitelist

show dns-proxy configure whitelist

11.2.4 show dns-proxy name-server

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show dns-proxy name-server

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Ю 1 Tf1DB9>c 1.856 0 Td189Tf 08750C3C>6<05B51643>]TJ /TT0

11.2.5 show dns-proxy statistics

IO

show dns-proxy statistics

IO

dns-proxy enable	
dns-proxy	

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1.1

1.1.1 ip policy route-map

ˇ Ю ʒ **ip policy route-map** Â ˆ ʒ Â

ip policy route-map *route-map*

no ip policy route-map

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route-map	¨ يي Â

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ip local policy route-map

ip local policy route-map Â

ip local policy route-map *route-map*

no ip local policy route-map

route-map	Â

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serial *2/0* Â

```
access-list 1 permit 192.168.217.10
route-map lab1 permit 10
match ip address 1
                 2/0
exit
```

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ʒ	
access-list	Ѭ ‡
route-map	Ѭ يي
set ip next-hop	Ѭ Ю
set ip default next-hop	Ѭ Ю
set interface	Ѭ
set default interface	Ѭ
set ip tos	
set ip dscp	
set ip precedence	˝I
match ip address	‡
match length	ϧ

‘ ʒ ê ʒ Ì

1.1.2 ip policy

set ip nexthop ˘

Ю **ip policy** Â ʒ **no** Â

ip policy load-balance|redundance

no ip policy

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load-balance|redundance	

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يي **set ip next-hop** ˘ /ʌ Ʌ ʹY

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```
access-list 1 permit 10.0.0.1
access-list 2 permit 20.0.0.1
route-map lab1 permit 10
match ip address 1
set ip next-hop 196.168.4.6
set ip next-hop 196.168.4.7
set ip next-hop 196.168.4.8
exit
route-map lab1 permit 20
match ip address 2
set ip next-hop 196.168.5.6
set ip next-hop 196.168.5.7
set ip next-hop 196.168.5.8
exit
interface GigabitEthernet 0/0
ip policy route-map lab1
exit
ip policy redundance
```


2.1.2 route-auto-choose update

route-auto-choose update


```
Ruijie#config
Ruijie(config)#route-auto-choose update
```


3 RIP

3.1

3.1.1 address-family RIP

address-family **no**

address-family ipv4 vrf *vrf-name*

no address-family ipv4 vrf *vrf-name*


```
255.255.255.0
Ruijie(config)# router rip
Ruijie(config-router)# address-family ipv4 vrf vpn1
Ruijie(config-router-af)# network 192.168.1.0
Ruijie(config-router-af)# exit-address-family
```

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exit-address-family	Â
ip vrf	… Â

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ð Ô

3.1.2 auto-summary (RIP)

╠ ╖ ˘ ꝛ **auto-summary** Â ꝛ **no** ╠ ╖ Â

auto-summary

no auto-summary

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╠ ˘ ˘ ╠ Â Ю ╠ Â

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╟ ╖ Â ʌ ˘ ʌ Љ ╟ ╖ ˘
╟ Â

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```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

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version	Ѭ ˘ Â ч ˘ ˘ Â

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ð Ô

3.1.3 default-metric (RIP)

Ѭ ˘ ʒ **default-metric** Â ʒ **no**
Â

default-metric *metric*
ð ѫ
no default-metric

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˘ | ɳ ˘ ɒ
metric

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ЊЖ Â a ʒ ‡ ѝ Â

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ǂ ѝ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# default-metric 3
Ruijie(config-router)#  redistribute ospf 100
```

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ʒ	
redistribute	ÿ ǂ ˩ Â

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3.1.4 default-information originate(RIP)

˘ ʌ Љ ʒ
default-information originate ʒ˘ ʒ **no** ʌ Â

default-information originate always metric *metric-value* **route-map** *map-name*

no default-information originate always metric route-map *map-name*

ð Ô

always	ˆ ʌ ˜ ˙ ˘ a ʊ̆ Â
metric *metric-value*	ˆ ʌ ˜ ˘ *metric-value* ʌ ˛ Â
route-map *map-name*	ˆ ʌ ˜ ¨

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˘ a ᾶ ˘
default-information originate ʒ ˘ ᾶ
Â

always ˘ a ʊ̆ ˘ ᾶ
˘ a Â ʊ̆ ˘
ʌ ʊ **show ip rip database** Â

8˘ ʌ ʊ **route-map** ˘ ‘
set metric ‡ Â

ʌ ʊ **metric** ˘ ”I æ **route-map**
set metric ‡’ **metric** ˘ ‡
Â

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distance	˘
ip-address	
wildcard	ЬЖ Æ˘ ° Ƀ ˘ ˝ a Â

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```
Ruijie(config)# router rip
Ruijie(config-router)# distance 160
Ruijie(config-router)# distance 123 192.168.12.1
0.0.0.0
```

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3.1.6 distribute-list in RIP

8 ˘ Лъ ˘ ҁ **distribute-list in** Â ҁ **no** ЬЖ Â

distribute-list *access-list-number name* **prefix** *prefix-list-name* **gateway** *prefix-list-name* **in** *interface-type interface-number*

no distribute-list *access-list-number name* **prefix** *prefix-list-name* **gateway** *prefix-list-name* **in** *interface-type interface-number*

ð Ô

access-list-number	Â /ǀ ˘ /ǀ Љ Â
prefix *prefix-list-name*	Â
gateway *prefix-list-name*	Â
interface-type interface-number	/ǀ ǂ ˘ /ǀ Â

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```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
Ruijie(config-router)# distribute-list 10 in
GigabitEthernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config)#access-list 10 permit 172.16.0.0
0.0.255.255
```

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access-list	ЊЖ ‡ Â
prefix-list	ЊЖ Â

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3.1.7 distribute-list out RIP

distribute-list *access-list-number name* **prefix** *prefix-list-nam* **out** *interface protocol process-id process-name*

no distribute-list *access-list-number name* **prefix** *prefix-list-nam* **out** *interface protocol process-id process-name*

ð Ô

access-list-number	Â
prefix *prefix-list-name*	Â
interface	Â
protocol	Â
process-id	*protocol* Â
process-name	*protocol* Â

ð Ô

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```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.4.4.0
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# distribute-list 10 out
```

```
Ruijie(config-router)# version 2
Ruijie(config)# access-list 10 permit 192.168.12.0
0.0.0.255
```

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access-list	ЬЖ ‡ Â
prefix-list	ЬЖ Â
redistribute	¦ Â

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3.1.8 exit-address-family

˘ Ю **exit-address-family** ʒ Â

exit-address-family

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ʒ Л Љ ѝ **exit** Â

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```
Ruijie(config-router)# address-family ipv4 vrf vpn1
Ruijie(config-router-af)# exit-address-family
```

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address-family	Â

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3.1.9 ip rip authentication key-chain

ˇ ˇ ʒ **ip rip authentication key-chain** Â ʒ **no** Â

ip rip authentication key-chain *name-of-keychain*

no ip rip authentication key-chain

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name-of-keychain	¨ ˇ Â

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ˇ **key chain** ʒ

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Ruijie(config)# **interface serial** *0/0*
Ruijie(config-if)# **ip rip authentication key-chain** *ripchain*

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key chain	… ˘ Â

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3.1.10 ip rip authentication mode

HX ˘ ¦ **ip rip authentication mode** Â

¦ **no** Â

ip rip authentication mode text md5

no ip rip authentication mode

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text ù ÂRI6Aq ã â [A@‡E Ä

ip rip authentication key-chain	˘ Â /ǀ Â
ip rip authentication text-password	Â

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3.1.11 ip rip authentication text-password

˘ ʒ **ip rip authentication text-password** Â ʒ **no** Â

ip rip authentication text-password *password-string*

no ip rip authentication text-password

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password-string	˘ · Â

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```
Ruijie(config)# interface serial 0/0
Ruijie(config-if)# ip rip authentication text-password ruijie
```

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ip rip authentication mode	Ħ Â
ip rip authentication key-chain	Â /ǀ Â

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3.1.12 ip rip default-information

ÿ ˘ ʒ **ip rip default-information** Â ʒ **no** ^ǀ Â

ip rip default-information ¸ **only** ¸ **originate** ʾ **metric** *metric-value*

no ip rip default-information

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only

à Э **ip rip default-information** a Ю

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```
Ruijie(config)# interface ethernet 0/0
Ruijie(config-if)# ip rip default-information only
```

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default-information originate	

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3.1.13 ip rip receive enable

Э **ip rip receive enable** Â **no** Э Â

ip rip receive enable

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip receive enable
```

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ip rip send enable	
passive-interface	╟

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3.1.14 ip rip receive version

Ю Э ˘ ¦ **ip rip receive version** Â ¦ **no** Â

ip rip receive version 1 2

no ip rip receive version

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1	ˆ / ˜ / Â
2	ˆ / ˜ / Â

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и / ± **version** ¦ Â

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip receive version 1 2
```

version	

3.1.15 ip rip send enable

ip rip send enable **no**

ip rip send enable

no ip rip send enable

default

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# no ip rip send enable
```


ip rip receive enable	
passive-interface	╟

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ð Ô

3.1.16 ip rip send version

ЊЖ Э ˘ ʒ **ip rip receive version** Â ʒ **no** Â

ip rip send version 1 2

no ip rip send version

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1	ˆ /ˈ ˜ /ˈ Â
2	ˆ /ˈ ˜ /ˈ Â

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ѝ ˄ ᾱ **version** ʒ Â

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ʒ ˘ /ˈ Љ **vesion** ʒ Â ʒ /ˈ ѝ˘ /ˈ Љ ˘ Â ʒ a ‡ ѝ ˄ ᾱ Â

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip send version 1 2
```

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version	ЊЖ Â

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3.1.17 ip rip v2-broadcast

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ip rip v2-broadcast Â Â

ip rip v2-broadcast

no ip rip v2-broadcast

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version Â

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip rip v2-broadcast
```

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version	Â

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3.1.18 ip split-horizon (RIP)

˘ **ip split-horizon** Â

Â

ip split-horizon

no ip split-horizon

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[illegible]

ip summary-address rip *ip-address ip-network-mask*

no ip summary-address rip *ip-address ip-network-mask*

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ip-address	
ip-network-mask	ù

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ip summary-address rip Ю Â
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```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip summary-address rip 172.16.0.0
255.255.0.0
Ruijie(config-if)# ip address 172.16.1.1 255.255.255.0
Ruijie(config)# router rip
Ruijie(config-router)# network 172.16.0.0
Ruijie(config-router)# version 2
Ruijie(config-router)# no auto-summary
```

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auto-summary	

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3.1.20 network (RIP)

network Â

no Â

network *network-number wildcard*

no network *network-number wildcard*

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network-number	Â Â Â
wildcard	Â Â

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network-number *wildcard*

Â

wildcard

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```
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# network 172.16.0.0 0.0.0.255
```

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3.1.21 neighbor (RIP)

Ѭ ˘ Л Ѣ ҙ **neighbor** Â ҙ **no**

Ѭ Â

neighbor *ip-address* Â Â

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passive-interface default ʒ ѝ ˘ ʌ Љ **no passive-interface** *intface-type interface-num* ʒ ѝ Â

ip rip send enable ʒ **ip rip receive enable** ʒ ѝ Ю̆ ʒ ѝ ˘ a Ą̈ ˘ ʌ Љ ʼ ŭ̆ ˘ **ip rip send enable** ʒ **ip rip receive enable** ʒ ⁸ Â

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```
Ruijie(config-router)# passive-interface default
Ruijie(config-router)# no passive-interface ethernet 0/0
```

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ʒ	
ip rip receive enable	
ip rip send enable	

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3.1.25 redistribute RIP

ǂ ˘ Ю **redistribute** ʒ Â ʌ ǂ ˘ ʒ **no** Â

redistribute bgp isis *process-name* **ospf** *<1-65535>* **connected static metric** *value* **route-map** *route-map-name* **match internal external**

connected static metric *value* **route-map** *route-map-name* **match i nternal external** *type* **nssa-external** *type*

ð Ô

bgp isis ospf connected static	¦
metric	¦
route-map	¦ ‡
match	¦
process-name	¨
<1-65535>	⁄

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¦ **isis** ˘ a ˘ ⁄ ¦ ˘

¦ ˘ ˘ ‡ ¦ Â

˘ ù ˘ ˚ ˘ ù Â

¦ **ospf** ˘ a ˘ ¦

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¦ , ¦ ù Â

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Ruijie(config-router)# **redistribute static**

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default-metric *metric*	ǀ

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3.1.26 router rip

… ˘ ʒ **router rip** Â ʒ **no** Â

router rip

no router rip

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˘ ЬЖ ⁄ Â Э ╟ ˘ **async default routing** Â

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Ruijie(config)# **router rip**

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network (RIP)	ЬЖ ⁄ Â

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3.1.27 timers basic

˘ ʒ **timers basic** Â ʒ
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timers basic *update invalid flush*

no timers basic

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update	˘ Љ Â*update* Ѭ ˘ ˘ *invalid* *Flush* Æ Â Â
invalid	˘ Љ ˘ ÿ Â*invalid* Ѭ ˧ ѝ Â ѝ Ь ˘ ˘ ˧ ѝ ˘ *invalid* ʼ *invalid* ˘ Æ Â *Invalid* ѝ Â
flush	˘ Љ ˘ ÿ *invalid* Â *flush* ˘ *invalid* Â *Flush* ѝ Â

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Љ Э ˘ ˧ ╗ Љ ˧ Â ˘
Э ˘ Â a ˘
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˘ ˧ Љ **show ip rip** ʒ Â

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ɨ˘ ˘ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# timers basic 10 30 90
```

ʒ	
ip split-horizon	ǀ Â
ip unnumbered	Ѭ ⅄ Â
neighbor (RIP)	Ѭ Â

ð ⅄ Ô

ð Ô

3.1.29 version (RIP)

Ѭ ⅄˘ ʒ **version** Â ʒ **no**

Â

version 1 2

no version

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1	Ѭ ⅄ ѝ Â
2	Ѭ ⅄ ѝ Â

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Ѭ ⅄ Â ⅄ Ѣ **ip rip receive version** ȁ**ip rip send version** ʒ˘ Ѭ Â

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ѢЮ ˘ ⅄ ѝ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# version 2
```

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ip rip receive version	ЊЖ Э Â
ip rip send version	ЊЖ Э Â
show ip rip	**rip** Â

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3.2

3.2.1 show ip rip

˘ **show ip rip** Â

show ip rip vrf *vrf-name*

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vrf *vrf-name*	ˆ /ı ˜

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```
Ruijie# show ip rip
Routing Protocol is "rip"
Sending updates every 10 seconds
Invalid after 20 seconds, flushed after 10 seconds
Outgoing update filter list for all interface is: not set
Incoming update filter list for all interface is: not set
```

```
Default redistribution metric is 2
Redistributing: connected
Default version control: send version 2, receive version 2
Interface            Send  Recv
GigabitEthernet 1/1      2    2
GigabitEthernet 1/0      2    2
Routing for Networks:
192.168.26.0 255.255.255.0
192.168.64.0 255.255.255.0
Distance: (default is 50)
```

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```
Ruijie(config-router)# sh ip rip vrf 1
VRF 1  VRF-id:1
Routing Protocol is "rip"
Sending updates every 30 seconds
Invalid after 180 seconds, flushed after 120 seconds
Outgoing update filter list for all interface is: not set
Incoming update filter list for all interface is: not set
Default redistribution metric is 1
Redistributing:
Default version control: send version 1, receive any version
Routing for Networks:
Distance: (default is 120)
```

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3.2.2 show ip rip database

˘ **show ip rip database** Â

show ip rip database vrf *vrf-name network-number network-mask*

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vrf *vrf-name*	ˆ /ˈ ˜
network-number	ˆ /ˈ ˜ /ˈ Â
network-mask	Â /ˈ ˘

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```
Ruijie# show ip rip database
192.168.1.0/24   auto-summary
192.168.1.0/30   directly connected, Loopback 3
192.168.1.8/30   directly connected, GigabitEthernet 0/0
192.168.121.0/24   auto-summary
192.168.121.0/24   redistributed
[1] via 192.168.2.22, GigabitEthernet 0/1
```

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```
Ruijie# show ip rip database 192.168.121.0 255.255.255.0
192.168.121.0/24   redistributed
[1] via 192.168.2.22, GigabitEthernet 0/1
```

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show ip rip	**-** ʒ

bgp | connected | isis | ospf | static	ˆ Л ~ ¦
vrf *vrf-name*	ˆ Л ~
process-name	¨
<1-65535>	л

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```
Ruijie# show ip rip external connected
Protocol connected route:
[connected] 1.0.0.0/8 metric=0
nhop=0.0.0.0, if=2
[connected] 3.0.0.0/8 metric=0
nhop=0.0.0.0, if=16391
[connected] 4.4.0.0/16 metric=0
nhop=0.0.0.0, if=16388
[connected] 5.0.0.0/8 metric=0
nhop=0.0.0.0, if=16386
[connected] 192.168.195.0/24 metric=0
nhop=0.0.0.0, if=1
```

ð ٩ Ô

٩	
show ip rip	Â

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ð Ô

3.2.4 show ip rip interface

˘ **show ip rip interface** Â

show ip rip interface vrf *vrf-name*

ð Ô

```
  Receive RIPv1 and RIPv2 packets
  Send RIPv1 packets only
  Receive RIP packet: Enabled
  Send RIP packet: Enabled
  Send RIP supernet routes: Enabled
  Passive interface: Disabled
  Split horizon: Enabled
  BFD: Enabled
  V2 Broadcast: Disabled
  Multicast registe: Registed
  Interface Summary Rip:
    Not Configured
  IP interface address:
    2.2.2.111/24, next update due in 24 seconds
```

show ip rip	Â

4 OSPF2

4.1

4.1.1 area

no

area *area-id*

no area *area-id*

area-id	OSPF IP

area authentication **area default-cost** **area filter-list** **area nssa**

network area

```
Ruijie(config)# router ospf 2
```

Ruijie(config)# **no area** *2*

ð Ô

network area	OSPF OSPF

ð Ô

ð Ô

4.1.2 area authentication

area authentication **no**

area *area-id* **authentication message-digest**

no area *area-id* **authentication**

ð Ô

area-id	
message-digest	

ð Ô

ð Ô

ð Ô

message-digest **message-digest**

ip ospf **authentication-key** **ip ospf** **message-digest-key**

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ѝ Â

```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip address 192.168.12.1
255.255.255.0
Ruijie(config-if)# ip ospf message-digest-key 1 md5 backbone
```

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 192.168.12.0
0.0.0.255 area 0
Ruijie(config-router)# area 0 authentication
message-digest
```

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ip ospf authentication-key	Ѭ ʒ Â
ip ospf message-digest-key	Ѭ ʒ Â
area virtual-link	Ѭ Â

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4.1.3 area default-cost

Ѭ ˇ ˆ ˜ ˘
ʒ **area default-cost** Â ʒ **no** Â

area *area-id* **default-cost** *cost*

no area *area-id* **default-cost**

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area-id	ˇ ˇ ʎ Â
cost	ˇ Â

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ʒ Л ^ Ѵ ~ Э ˇ з
Ѵ ^ ѝ ~ Â ˇ
Ѵ ˇ Ы Ѵ Â

Ѵ ѝ ч Ь ʒ **area stub**ˇ **area nssa area default-cost** Â Эˇ **area stub** ʒˇ Ѵ **area nssa** ʒˇ **area default-cost** ʒ Л Э Â

ð Ô

ЛЬЮ ʒˇ ѝ Â

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255 area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 1
Ruijie(config-router)# area 1 stub
Ruijie(config-router)# area 1 default-cost 50
```

ð ʒ Ô

ʒ	
area stub	OSPF Ѵ ѝ Â
area nssa	OSPF Ѵ ѝ NSSA Ѵ

ð Л Ô

ð Ô

4.1.4 area filter-list

Э ˇ a˚ Ѵ ˚ Â

area *area-id* **filter-list access** *acl-name* **prefix** *prefix-name* **in out**

no area *area-id* **filter-list access** *acl-name* **prefix** *prefix-name* **in out**

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area-id	Â
acl-name	
prefix-name	
access prefix	
in out	

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```
Ruijie# configure terminal
Ruijie(config)# access-list 1 permit 172.22.0.0/8
Ruijie(config)# router ospf 100
Ruijie(config-router)# area 1 filter-list access 1 in
```

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4.1.5 area nssa

area nssa Â **no** Â

area *area-id* **nssa no-redistribution default-information-originate metric** *0-16777214* **metric-type** *1-2* **no-summary**

no area *area-id* **nssa no-redistribution default-information-originate no -summary**

ð Ô

area-id	NSSA
no-redistribution	nssa ABR a nssa
default-information-originate	7 LSA nssa NSSA ABR ASBR
no-summary	nssa (ABR) LSA nssa

ð Ô

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ð Ô

default-information-originate

no-redistribution a

area default-cost

ð Ô

```
Ruijie(config)# router ospf 1
Ruijie(config-router)# network 172.16.0.0 0.0.255.255area 0
Ruijie(config-router)# network 192.168.12.0 0.0.0.255area 1
Ruijie(config-router)# area 1 nssa
```

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ʒ	
area default-cost	Ѭ ˆ ˜ Â

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4.1.6 area range

ʻ ˘ ʒ **area range** Â ʒ **no** ˘ **no** б **cost** ⁄ Ѣ ˘ a Â

area *area-id* **range** *ip-address net-mask* **advertise** **not-advertise** **cost** *cost*

no area *area-id* **range** *ip-address net-mask* **cost**

ð Ô

area-id	ʻ ⁄ Â ʻ ⁄ Ѣ ⁸ ˘ ≠ ⁄ Ѣ Â
ip-address	Ѭ Â
advertise **not-advertise**	Ѭ ŭ ʼΩ ˘ ʼΩ
cost *cost*	Â

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б ŭ ˘ ˘ ˘ ŭ ‡

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ʒ ⁄ Э ˘ ʻ ˘ ɨ ɛ ʻ Â ѝ ⁄ ʻ ˘ ʻ

˘ Â ÿ ˘ /ǀ ˊ

˘ Â a ˊ

Â

˘ /ǀ Э **area stub** ʒ ˘

Â /ǀ ˋ ˘ Љ ˧˩

Â

ˋ ѝ ч ʒ **area stub** **area default-cost** Â

Э˘ **area stub** ʒ˘ **area default-cost** ʒ /ǀ

Э Â **area default-cost**

router-id	Â / Љ ҙ Â
dead-interval *seconds*	ˆ /ˆ ˜ Ѭ ˘ Љ ѝ æ˘ ѝ Â б Â *seconds* ѝ

ð Ô

˘ ⸗ б ˘ ˘
˘ ŭ ‡ Â ч ⸗
ˆ ˜ … ˘ ч ˘ ⸗ ѝ ⸗ Â
ˆ ˜ а ѝ ⸗ Â ≠ ⁄ Ѭ ѐ
⸗ Â

router-id ѝ ˘ а ˘ **show ip ospf neighbor** ҙ Â ⁄ Ѭ ˝Н

4.1.9 auto-cost

no Â

auto-cost reference-bandwidth *ref-bw*

no auto-cost reference-bandwidth

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4.1.10 clear ip ospf process

Â

clear ip ospf *process-id* **process**

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process-id	˘ Â ʎ ˘ Â

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Ruijie# **clear ip ospf** *1* **process**

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4.1.11 compatible rfc1583

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˝I ‡ ˝I ‡ Â

commpatible rfc1583

no commpatible rfc1583

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```
Ruijie(config)# router  ospf 1
Ruijie(config-router)# no commpatible rfc1583
```

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show ip ospf	

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4.1.12 default-information originate OSPF

˘

default-information originate Â **no** Â

default-information originate always metric *metric* **metric-type** *type* **route-map** *map-name*

no default-information originate always metric *metric* **metric-type** *type* **route-map** *map-name*

ð Ô

always	^ Л ~ ˚ ˘ a ŭ Â
metric *metric*	^ Л ~ ˘ ѝ Â
metric-type *type*	^ Л ~ Â ч ‘ ˘ a˚ Э a ’ ˘ Â Л Â ѝ Â

route-map *map-name*	¨

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redistribute **default-information** ʒ ˘ ╟ ⅃
ѝ ˆ ˜ Â a ╟ ˘
Â ˘ **default-information**
originate ʒ Â

˘ a ŭ ˘ ᾱ
Â a ˘ ŭ
˘ ⅃ Ƨ **show ip ospf database** ˘ ѝ
Â **show ip route** ʒ˘
⅃ Ƨ Â

˘ ⅃ **default-information originate** ʒ ⅄˘
a ʒ **default-metric** Â

ч ˘ ⅃˘
a ⅃ Â ч ˘ ˘ ˘
˝I ˘ Ƨ **show ip route** ⅃ Â êF•ä * Å••A°T í°> Ìá À ’Íð

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4.1.13 default-metric

ǂ ˘ ҙ **default-metric** Â

ҙ **no** Â

default-metric *metric*

no default-metric

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metric	Ѭ ǂ Â

ѝ Â

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default-metric ҙ б **redistribute** ҙ ˘ Л Љ ǂ Â

default-metric ҙ ˘ Љ **default-information originate** а Â

ЉЮ ˘ ǂ ѝ Â

```
Ruijie(config)# router rip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# version 2
Ruijie(config-router)# exit
Ruijie(config)# router  ospf
Ruijie(config-router)# network 172.16.10.0 0.0.0.255 area 0
Ruijie(config-router)# default-metric 50
Ruijie(config-router)#redistribute rip subnets
```

redistribute	¦ è Â
show ip ospf	

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4.1.14 distance ospf

a˘

distance ospf intra-area *1-255* **inter-area** *1-255* **external** *1-255*
no distance ospf

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intra-area *1-255*	ˇ ˘ й
inter-area *1-255*	ˇ ˘ й
external *1-255*	˘ й

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```
Ruijie(config)# router ospf 1
Ruijie(config-router)# distance ospf external 160
```

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4.1.15 distribute-list in

distribute-list *listname* **gateway** *plist-name* **prefix** *plist-name* **in** **interface-type** *num*

no distribute-list *listname* **http596.06 T93**

4.1.16 distribute-list out

redistribute

distribute-list *listname* **gateway** *plist-name* **prefix** *plist-name* **out bgp connected isis** *area-tag* **ospf** *process-id* **rip static**

no distribute-list *listname* **gateway** *plist-name* **prefix** *plist-name* **out bgp connected isis** *area-tag* **| ospf** *process-id* **rip static**

Ô

listname	‡
gateway *plist-name*	‡
prefix *plist-name*	‡
bgp connected isis *area-tag* **| ospf** *process-id* **rip static**	

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4.1.17 enable mib-binding

enable mib-binding ʒ Э Â ʒ **no** Â

enable mib-binding

no enable mib-binding

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ʒ ʌ snmp-server ʒ ˘ ˇI snmp-server enable traps ospf Љ ɨ˘ ʒ ʌ Љ Â

ʒ a ʌ ˘ a˘ ˘ Â

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```
Ruijie(config)# router ospf 100
Ruijie(config)# enable traps
```

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show ip ospf	
enable mib-binding	

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4.1.19 ip ospf authentication

ʒ ˘ **no** ʌ Љ ѝ Â

ip ospf authentication message-digest null

no ip ospf authentication

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message-digest	Э ╗ Â
null	a Â

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Э Э ⅄ Â

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ʒ ɨ a **no**

˘ ŭ ˋ Э

ᾱ ˘ ѝ **nullʼ** ‡ ⁸ ѝ a Э

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ip ospf authentication-key ʒ ˘ Â
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Â

a˘ ⋀ Љ a ˘ ˘ Э ˘
Â

⋏ ǔ ˘ ʒ **area authentication**
Â

Э ≠ ⋀ Љ Ю ʒ **ip ospf authentication**
⋏ ˝I ⋀

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip address 172.16.10.0
255.255.255.0
Ruijie(config-if)# ip ospf authentication-key ospfauth
```

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area authentication	⋏ ЊЖ Â
Ip ospf authentication	Э ЊЖ

ð ⋀ Ô

ð Ô

4.1.21 ip ospf cost

ˆ ˜ ˘ ʒ **ip ospf cost** Â ʒ **no** Â

ip ospf cost *cost*

no ip ospf cost

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4.1.22 ip ospf database-filter all out

ʒ a ᾶ ˘ a Э

ʒ **no** Λ Ʌ

ip ospf database-filter all out

no ip ospf database-filter

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seconds	ЊЖ ˘ Љ ѝ æ Â

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ѝ **ip ospf hello-interval** " Â

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf dead-interval 30
```

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ip ospf hello-interval	Â

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4.1.24 ip ospf disable all

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ip ospf disable all

no ip ospf disable all

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network area

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# ip ospf disable all
```

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4.1.25 ip ospf hello-interval

ip ospf hello-interval Â **no** Â

ip ospf hello-interval *seconds*

no ip ospf hello-interval

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seconds	Â

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip address 172.16.10.1
255.255.255.0
Ruijie(config-if)# encapsulation ppp
Ruijie(config-if)# ip ospf hello-interval 15
```

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ip ospf dead-interval	Â

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4.1.26 ip ospf message-digest-key

˘ ʒ **ip ospf message-digest-key** Â ʒ Â

ip ospf message-digest-key *key-id* **md5** *key*

no ip ospf message-digest-key

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Key	˘ ˧ Љ Â
Key-id	˘ ÿ˝ Â

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ip ospf message-digest-key ʒ ˘ Â
a ˘ ч ⅄ a ˘ ≠ a
Â

a˘ ⅄ Ʊ a ˘ ˘ Э ˘
Â ˘ Â

⅄ ʊ̆ ˘ ʒ **area authentication**
Â Э ≠ ⅄ Ʊ Ю ʒ **ip ospf authentication** ⅄ ˝I ⅄

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‡ Â ╗ ˘ ѝ ὲ
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Â ɨ˘ ⅄ Ʊ
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⅄ ѝ˝ ˘ ѝ Â

Ruijie(config)# **interface Serial** *1/0*
Ruijie(config-if)# **ip address** *172.16.24.2 255.255.255.0*
Ruijie(config-if)# **ip ospf authentication message-digest**
Ruijie(config-if)# **ip ospf message-digest-key** *10* **md5 hello10**
Ruijie(config-if)# **ip ospf message-digest-key** *5* **md5 hello5**

╗ ɨ˘ Â

Ruijie(config)# **interface Serial***1/0*
Ruijie(config-if)# **no ip ospf message-digest-key** *10* **md5 hello10**

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area authentication	⅄ Ѫ Â

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ip ospf authentication	Э Ѭ

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4.1.27 ip ospf mtu-ignore

ɨ **mtu** ⁄ Љ ʒ Â ʒ **no** Â

ip ospf mtu-ignore

no ip ospf mtu-ignore

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf mtu-ignore
```

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4.1.28 ip ospf network

˘ ʒ **ip ospf network** Â ʒ **no** Â

ip ospf network broadcast non-broadcast point-to-multipoint non-broadcast point-to-point

no ip ospf network broadcast non-broadcast point-to-multipoint non-broadcast point-to-point

broadcast	
non-broadcast	
point-to-multipoint non-broadcast	
point-to-point	

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```
Ruijie(config)# interface GigabitEthernet 0/0
Ruijie(config-if)# ip ospf priority 0
```

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ip ospf network	Â

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4.1.30 ip ospf retransmit-interval

ЊЖ ˆ ˜ ˘ ʒ **ip ospf retransmit-interval** Â ʒ **no** Â

ip ospf retransmit-interval *seconds*

no ip ospf retransmit-interval

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Seconds	˘ Љ ѝ æ Â ч Â ѝ Â

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˘ ă ˘ **ip ospf retransmit-interval** ʒ ЊЖ ˘ ˘ Â

˘ Љ a ˘ Э˘ ʎ Љ Â ʒ ЊЖ Â

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip ospf retransmit-interval 10
```

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area virtual-link	ЊЖ Â

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4.1.31 ip ospf transmit delay

ЊЖ ˘ ʒ **ip ospf transmit delay** Â ʒ **no** Â

ip ospf transmit delay *seconds*

no ip ospf transmit delay

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Seconds	ЊЖ ˘ Љ ѝ æ Â ѝ Â

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˘ ˆ ˜ ╗˘ ╗ ʒ **ip ospf transmit delay**

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4.1.33 max-concurrent-dd

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max-concurrent-dd *1-65535*

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1-65535	

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```
Ruijie(config)# router ospf 10
Ruijie(config-router)# max-concurrent-dd 4
```

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ip-address	Â
poll-interval *seconds*	ˆ ⁄ ˜ ˘ Љ ѝ æ˘ Â Â
priority *priority*	ˆ ⁄ ˜ ”I ˘ ѝ° Â
Cost *cost*	ˆ ⁄ ˜ ˘ Ѭ Э Â Â

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Э ⁄ ѝ а ˘ ˘ ˘

ѝ Â ˘ ⁄ ⁄ ¨ ”I а ѝ ˘ ”I ѝ а б Â Љ ѣ˘ ¨ Â

Э ѝ а έ Љ ╟ ҙ ѝ ѐ ⁄ ⁄ Љ

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```
Ruijie(config)# router ospf 20
Ruijie(config-router)# network 172.16.24.0 0.0.0.255 area 0
Ruijie(config-router)#  neighbor  172.16.24.2  priority  1
poll-interval 150
```

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ip ospf priority	˝I Â
ip ospf network	

ð ʌ Ô

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4.1.35 network area

ЊЖ ˘ Љ ˧ ˇ ˘ ʒ
network area Â ʒ **no** ˇ ЊЖ Â

network *ip-address wildcard* **area** *area-id*

no network *ip-address wildcard* **area** *area-id*

ð Ô

ip-address	Â
wildcard	ЊЖ æ˘ ° ɔ̄ ˘ ˝ a Â
area-id	ˇ Â ˇ ˘ ѝ ˘ ≠ ʌ Љ ѝ ˇ Â

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ip-address wildcard ч ЊЖ˘ ʒ ʌ Љ
ˇ Â Э ˘ ў
ЊЖ Â **network area** ЊЖ ˘ ʌ
˘ a Â

˘ б **network** ʒ ЊЖ ɔ̄ ˘
ɔ̄ ˘ б Â

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ЛЬЮ ˘ ЬЖ ˈ ˇ˂ ˊ ˘ ˘ Â

ЬЖ ˇ˂ ˘

ЬЖ ˇ˂ ˘ ὲ ЬЖ ˇ˂ Â

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# network 172.16.16.0
0.0.15.255 area 172.16.16.0
Ruijie(config-router)# network 192.168.12.0
0.0.0.255 area 1
Ruijie(config-router)# network 0.0.0.0 255.255.255.255 area 0
```

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router ospf	… Â

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4.1.36 overflow database

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overflow database *0-4294967294* **hard soft**

no overflow database

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1-4294967294	
hard soft	ˊ ˘ ˈ ˊ ˘ Â

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Â

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˘ **hard** ˘ a ˘ /ˈ ˘ **soft**

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```
Ruijie# config terminal
Ruijie(config)# router ospf 10
Ruijie(config-router)# overflow database 10 hard
```

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4.1.37 overflow database external

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overflow database external *max-dbsize wait-time*

no overflow database external

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Ruijie(config-router)# **overflow database external** *10 3*

4.1.38 overflow memory-lack

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overflow memory-lack

no overflow memory-lack

	show ip protocols ospf	

4.1.39 passive-interface

no

passive-interface default *type number*

no passive-interface default *type number*

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show ip ospf interface	

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ǀ **ospf** ˘ a ˘ ǀ
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```
Ruijie(config-router)# redistribute static subnets
Ruijie(config)# router ospf 1
Ruijie(config-router)# redistribute ospf 2 subnets
Ruijie(config-router)# redistribute ospf 2 match
external 1 internal
Ruijie(config-router)# redistribute isis isis-001
Ruijie(config-router)# redistribute isis isis-001 level-1
```

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```
router ospf 1
redistribute ospf 2 match external 1 internal subnets
redistribute isis isis-001 level-1-2
```

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4.1.41 router ospf

… ˘ ʒ **router ospf** Â ʒ **no**
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router ospf *process-id* **vrf** *vrf-name*

no router ospf *process-id*

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process-id	⁄
vrf-name	˘

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router-id	Л Â

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ЛЮ ˘ router-id ù 0.0.0.36 Â

```
Ruijie(config)# router ospf 20
Ruijie(config-router)# router-id 0.0.0.36
```

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show ip protocols	Â

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4.1.43 summary-address

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summary-address Â **no** Ж Â

summary-address *ip-address net-mask* **not-advertise | tag** *<0-4294967295>* **|**

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ip-address	Â
net-mask	Â
not-advertise	a Ѽ ˘ ‡ ѝ Ѽ Â

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б **area rang** a ˘ ˘ Ҝ ˘

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Ҝ˘ **summary-address** Л Э ˘

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```
redRuijie(config)# router ospf 20
Ruijie(config-router)#summary-address100.100.0.0255.255.0.0
Ruijie(config-router)# redistribute static subnets
Ruijie(config-router)# network 200.2.2.0 0.0.0.255 area 1
Ruijie(config-router)# network 172.16.24.0 0.0.0.255 area 0
Ruijie(config-router)# area 1 nssa
```

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area range	Ҝ Э Â

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4.1.44 timers lsa-group-pacing

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timers lsa-group-pacing *seconds*

no timers lsa-group-pacing

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seconds	˘ ˘ Â

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```
Ruijie(config)#router ospf  20
Ruijie(config-router)#timers lsa-group-pacing 120
```

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show ip ospf	

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process-id	ʎ

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ЉЮ ѝ **show ip ospf** ʒ ʿ

```
Ruijie# show ip ospf
Routing Process "ospf 1" with ID 1.1.1.1
Process uptime is 4 minutes
Process bound to VRF default
Conforms to RFC2328, and RFC1583Compatibility flag isenabled
Supports only single TOS(TOS0) routes
Supports opaque LSA
This router is an ASBR (injecting external routing information)
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
LsaGroupPacing: 240 secs
Number of incomming current DD exchange neighbors 0/5
Number of outgoing current DD exchange neighbors 0/5
Number of external LSA 4. Checksum 0x0278E0
Number of opaque AS LSA 0. Checksum 0x000000
Number of non-default external LSA 4
External LSA database is unlimited.
Number of LSA originated 6
Number of LSA received 2
Log Neighbor Adjency Changes : Enabled
Number of areas attached to this router: 1
Area 0 (BACKBONE)
Number of interfaces in this area is 1(1)
Number of fully adjacent neighbors in this area is 1
Area has no authentication
SPF algorithm last executed 00:01:26.640 ago
SPF algorithm executed 4 times
Number of LSA 3. Checksum 0x0204bf
Area 1 (NSSA)
Number of interfaces in this area is 1(1)
```

```
Number of fully adjacent neighbors in this area is 0
Number of fully adjacent virtual neighbors through this area is
0
Area has no authentication
SPF algorithm last executed 02:09:23.040 ago
SPF algorithm executed 4 times
Number of LSA 6. Checksum 0x028638
NSSA Translator State iselected
```

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4.2.2 show ip ospf border-routers

show ip ospf border-routers

show ip ospf *process-id* **border-routers**

process-id	ʎ

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a˘ **show ip route** ˘

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4.2.3 show ip ospf database

show ip ospf database

show ip ospf *process-id area-id* **database**

show ip ospf *process-id area-id* **database adv-router** *ip-address*

show ip ospf *process-id area-id* **database self-originate max-age**

show ip ospf *process-id area-id* **database router** *link-state-id*

show ip ospf *process-id area-id* **database router adv-router** *ip-address*

show ip ospf *process-id area-id* **database router self-originate**

show ip ospf *process-id area-id* **database network** *link-state-id*

show ip ospf *process-id area-id* **database network** *link-state-id* **adv-router** *ip-address*

show ip ospf *process-id area-id* **database network** *link-state-id* **self-originate**

show ip ospf *process-id area-id* **database summary** *link-state-id*

show ip ospf *process-id area-id* **database summary** *link-state-id* **adv-router** *ip-address*

show ip ospf *process-id area-id* **database summary** *link-state-id* **self-originate**

show ip ospf *process-id area-id* **database asbr-summary** *link-state-id*

show ip ospf *process-id area-id* **database asbr-summary** *link-state-id* **adv-router** *ip-address*

show ip ospf *process-id area-id* **database asbr-summary** *link-state-id* **self-originate**

show ip ospf *process-id area-id* **database external** *link-state-id*

show ip ospf *process-id area-id* **database external** *link-state-id* **adv-router** *ip-address*

show ip ospf *process-id area-id* **database external** *link-state-id* **self-originate**

show ip ospf *process-id area-id* **database nssa-external**

link-state-id

show ip ospf *process-id area-id* **database nssa-external** *link-state-id* **adv-router** *ip-address*

show ip ospf *process-id area-id* **database nssa-external** *link-state-id* **self-originate maxage**

show ip ospf *process-id area-id* **database database-summary**

Area-id	
adv-router	
link-state-id	
self-originate	
maxage	
router	
network	
summary	
asbr-summary	
external	
nssa-external	
opaque-area	
opaque-as	
opaque-link	
database-summary	

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ЛЬЮ й **show ip ospf database** ˜ ˆ

```
Ruijie# show ip ospf database
        OSPF Router with ID (1.1.1.1) (Process ID 1)

             Router Link States (Area 0.0.0.0)
Link ID        ADV Router     Age  Seq#      CkSum  Link count
1.1.1.1        1.1.1.1        2    0x80000011 0x6f39 2
3.3.3.3        3.3.3.3        120  0x80000002 0x26ac 1

            Network Link States (Area 0.0.0.0)

Link ID        ADV Router     Age  Seq#      CkSum
192.88.88.27    1.1.1.1        120  0x80000001 0x5366

            Summary Link States (Area 0.0.0.0)

Link ID        ADV Router     Age  Seq#      CkSum  Route
10.0.0.0          1.1.1.1           2     0x80000003  0x350d
10.0.0.0/24
100.0.0.0         1.1.1.1           2     0x8000000c  0x1ecb
100.0.0.0/16

          Router Link States (Area 0.0.0.1 [NSSA])

Link ID        ADV Router     Age  Seq#      CkSum  Link count
1.1.1.1        1.1.1.1        2    0x80000001 0x91a2 1

         Summary Link States (Area 0.0.0.1 [NSSA])

Link ID        ADV Router     Age  Seq#      CkSum  Route
100.0.0.0         1.1.1.1           2     0x80000001  0x52a4
100.0.0.0/16
192.88.88.0       1.1.1.1           2     0x80000001  0xbb2d
192.88.88.0/24

      NSSA-external Link States (Area 0.0.0.1 [NSSA])

Link ID         ADV Router      Age  Seq#       CkSum  Route
Tag
20.0.0.0         1.1.1.1          1     0x80000001  0x033c  E2
20.0.0.0/24    0
100.0.0.0        1.1.1.1          1     0x80000001  0x9469  E2
100.0.0.0/28   0
```

AS External Link States

```
Link ID         ADV Router      Age  Seq#       CkSum  Route
Tag
20.0.0.0         1.1.1.1          380  0x8000000a 0x7627 E2
20.0.0.0/24    0
100.0.0.0        1.1.1.1          620  0x8000000a 0x0854 E2
100.0.0.0/28   0
```

show ip ospf database

show ip ospf database asbr-summary

```
Ruijie# show ip ospf database asbr-summary
OSPF Router with ID (1.1.1.35) (Process ID 1)
ASBR-Summary Link States (Area 0.0.0.1)
LS age: 47
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: ASBR-summary-LSA
```

```
Link State ID: 3.3.3.3 (AS Boundary Router address)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0xbe8c
Length: 28
Network Mask: /0
TOS: 0  Metric: 1
```

show ip ospf database asbr-summary ЮÂ


```
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external ʒ ЮÂ

```
OSPF Router with ID (1.1.1.1) (Process ID 1)
Network Link States (Area 0.0.0.0)

LS age: 572
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: network-LSA
Link State ID: 192.88.88.27 (address of Designated Router)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x5366
Length: 32
Network Mask: /24
Attached Router: 1.1.1.1
Attached Router: 3.3.3.3
```

show ip ospf database network ʒ ЮÂ

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```
Flags: 0x3 : ABR ASBR
LS Type: router-LSA
Link State ID: 1.1.1.1
Advertising Router: 1.1.1.1
LS Seq Number: 80000012
Checksum: 0x6d3a
```

ЉЮй **show ip ospf database summary** ʒ ʻ

```
Ruijie# show ip ospf database summary
OSPF Router with ID (1.1.1.1) (Process ID 1)
Summary Link States (Area 0.0.0.0)
LS age: 499
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: summary-LSA
Link State ID: 10.0.0.0 (summary Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 80000004
Checksum: 0x330e
Length: 28
Network Mask: /24
TOS: 0  Metric: 11
```

show ip ospf database summary ʒ ЮÂ

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ЉЮй **show ip ospf database nssa-external** ʒ ʻ

```
Ruijie# show ip ospf database nssa-external
OSPF Router with ID (1.1.1.1) (Process ID 1)
```

NSSA-external Link States (Area 0.0.0.1 [NSSA])

```
LS age: 1
Options: 0x0 (*|-|-|-|-|-|-|-)
LS Type: AS-NSSA-LSA
Link State ID: 20.0.0.0 (External Network Number For NSSA)
Advertising Router: 1.1.1.1
LS Seq Number: 80000001
Checksum: 0x033c
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
NSSA: Forward Address: 100.0.2.1
External Route Tag: 0
```

show ip ospf database nssa-external ЮÂ

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ЉЮ ѝ **show ip ospf database external** ҙ ‘

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.1) (Process ID 1)
AS External Link States
     : 1290
      : 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
            : 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external ҙ ЮÂ

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4.2.4 show ip ospf interface

б ˘ ʒ **show ip ospf interface** Â

show ip ospf interface *interface-type interface-number*

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interface-type	ˆ /ˆ ˜ Â
interface-number	ˆ /ˆ ˜ ˆ Â

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ЉЮ ѝ **show ip ospf interface GigabitEthernet** *1/0* ʒ ˙

Ruijie# **show ip ospf interface fa** *1/0*

```
GigabitEthernet 1/0 is up, line protocol is up
Internet Address 192.88.88.27/24, Ifindex 4, Area 0.0.0.0, MTU
1500
Matching network config: 192.88.88.0/24
Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost:
1
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 1.1.1.1, Interface Address 192.88.88.27
Backup Designated Router (ID) 3.3.3.3, Interface Address
192.88.88.72
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit
5
Hello due in 00:00:03
Neighbor Count is 1, Adjacent neighbor count is 1
Crypt Sequence Number is 70784
Hello received 1786 sent 1787, DD received 13 sent 8
```

```
LS-Req received 2 sent 2, LS-Upd received 29 sent 53
LS-Ack received 46 sent 23, Discarded 1
```

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```
Ruijie# show ip ospf neighbor detail
Neighbor 3.3.3.3, interface address 192.88.88.72
In the area 0.0.0.0 via interface GigabitEthernet 1/0
Neighbor priority is 1, State is Full, 11 state changes
DR is 192.88.88.27, BDR is 192.88.88.72
Options is 0x52 (*|O|-|EA|-|-|E|-)
Dead timer due in 00:00:32
Neighbor is up for 05:11:27
Database Summary List 0
Link State Request List 0
Link State Retransmission List 0
Crypt Sequence Number is 0
Thread Inactivity Timer on
```

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```
Ruijie# show ip ospf route
OSPF process 1:
Codes: C - connected, D - Discard, O - OSPF,
IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF
NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
E2 100.0.0.0/24 [1/20] via 192.88.88.126, GigabitEthernet 1/0
C  192.88.88.0/24 [1] is directly connected, GigabitEthernet 1/0,
Area 0.0.0.1
```

show ip ospf route Ю

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4.2.7 show ip ospf summary-address

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show ip ospf summary-address

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ЉЮ й **show ip ospf summary-address** ʒ ˙

Ruijie# **show ip ospf summary-address**

Summary Address Summary Mask Advertise Status Aggregated subnets

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

202.101.0.0 255.255.0.0 advertise Inactive 0

Ruijie#

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ЉЮ ѝ **show ip ospf virtual-links** ҙ ˛

```
Ruijie# show ip ospf virtual-links
Virtual Link VLINK0 to router 1.1.1.1 is up
Transit area 0.0.0.1 via interface GigabitEthernet 0/1
Local address 10.0.0.37/32
Remote address 10.0.0.27/32
Transmit Delay is 1 sec, State Point-To-Point,
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit
5
Hello due in 00:00:05
Adjacency state Full
```

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5.1

5.1.1 distribute-list in

distribute-list *access-list-number access-list-name* **prefix** *prefix-list-name* **gateway** *prefix-list-name* **in** *interface-type interface-number*

no distribute-list *access-list-number access-list-name* **prefix** *prefix-list-name* **gateway** *prefix-list-name* **in** *interface-type interface-number*

access-list-number

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```
Ruijie(config)# router rip
Ruijie(config-router)# network 200.168.23.0
Ruijie(config-router)# distribute-list 10 in
GigabitEthernet 0/0
Ruijie(config-router)# no auto-summary
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit 172.16.0.0 0.0.255.255
```

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access-list	ЊЖ ‡
prefix-list	ЊЖ

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5.1.2 distribute-list out

⁸ ˘ Ъ ˘ ҷ **distribute-list out** Â ҷ **no** ЊЖ Â

distribute-list *access-list-number access-list-name* **prefix** *prefix-list-name* **out** *interface protocol process-id*

no distribute-list *access-list-number name* **prefix** *prefix-list-name* **out** *interface protocol process-id*

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access-list-number	
access-list-name	
prefix *prefix-list-name*	
Interface	
protocol	

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5.1.3 ip community-list

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ip community-list **standard** **expanded** *community-list-name* *community-list-number* **permit** **deny** *community-number..*

no ip community-list **standard** **expanded** *community-list-name* *community-list-number*

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standard	
expanded	
community-list-name	¨ ¨ a
community-list-number	⅄ ʻ ⅄ ѝ ʻ ⅄ ѝ
permit	
deny	
community-number	Â ѝ ⅄ʻ ˘ ˘ ˘ ЉЮ ЊЖ ʻ ˘ ˘ Â ˘ a ˘ ˘ a ὲ Â ˘ a Â ˘ a Â ʻ Â ʻ Â

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```
Ruijie(config)# ip community-list standard test deny 100:20
200:20
Ruijie(config)# ip community-list standard test2 permit internet
```

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match community	
set comm-list delete	
show ip community-list	
show ip bgp community-list	

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5.1.4 ip default-network

ip default-network

ip default-network *network*

no ip default-network *network*

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network	

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default-network

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```
Ruijie(config)#ip route 192.168.100.0 255.255.255.0 serial 0/1
Ruijie(config)# ip default-network 192.168.100.0
```

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```
Ruijie(config)# ip default-network 200.200.200.0
```

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show ip route	Â

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5.1.5 ip prefix-list

… ╗ ˘ **ip prefix-list** ʒ Â ʒ
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ip prefix-list *prefix-lis-name* **seq** *seq-number* **deny** **permit** *ip-prefix* **ge** *minimum-prefix-length* **le** *maximum-prefix- length*

no ip prefix-list *prefix-lis-name* **seq** *seq-number* **deny** **permit** *ip-prefix* **ge** *minimum-prefix- length* **le** *maximum-prefix- length*

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prefix-lis-name	¨
seq-number	Лъ ⅄ Âὲ Â ʒ ⅄˘ ‡ ѝ ǂ ⅄ Â ⅄ ˘ ɨ ⅄ ⅄
deny	ɔ̄

permit	
ip-prefix	
minimum-prefix-length	**ge**
maximum-prefix-length	**le**

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ip prefix-list

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```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre1 permit 201.1.1.0/24
Ruijie(config)# router ospf
Ruijie(config-router)# distribute-list prefix pre1 out rip
Ruijie(config-router)# end
```

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5.1.6 ip prefix-list description

ѝ ╗ ˘ **ip prefix-list description** ҙ Â ҙ **no** Â

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

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prefix-lis-name	¨
descripton-text	

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ЉЮ ѝ ╗ **Deny routes from Net-A‘**

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list pre description Deny
routes from Net-A
```

5.1.7 ip prefix-list sequence-number

ѝ ╗ ˘ **ip prefix-list description** ҙ Â ҙ **no** ᴧ ╗ Â

ip prefix-list sequence-number

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```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list sequence-number
```

5.1.8 ip route

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ip route vrf *vrf_name network net-mask ip-address interface*

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```
ip route 20.0.0.0 255.0.0.0 Loopback 1 10.0.0.2 200
```

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show ip route	Â

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5.1.9 ip routing

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Љ ˝ Â

ip routing

no ip routing

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```
Ruijie(config)# no ip routing
```

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5.1.10 ip static route-limit

no ipv6 prefix-list *prefix-lis-name* **seq** *seq-number* **deny** **permit** *ipv6-prefix* **ge** *minimum-prefix- length* **le** *maximum-prefix- length*

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prefix-lis-name	̈ Â
seq-number	Ꮭ ʎ Âἐ Â ʅ ʎ˘ ‡ ӣ ᛏ ʎ Â ʎ ˘ ƚ ʎ ʎ
deny	ҕ
permit	ҕ
ipv6-prefix	Ꮭ ᛘ Â ʌ Ꮭ Â ÿ
minimum-prefix-length	ˆ ʌ ˜ ̄ ʿ **ge** ʅ
maximum-prefix- length	ˆ ʌ ˜ ̄ ʿ **le** ʅ

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ipv6 prefix-list ʅ Â ᾱ ҕ Ю ᛘ ╟ Â

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ð Ô

ЛЬЮ й 2222::/64 Ю

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre permit 2222::/64
Ruijie(config)# ipv6 router rip
Ruijie(config-router)# redistribute ospf 1
Ruijie(config-router)# distribute-list prefix pre out
Ruijie(config-router)# end
```

5.1.12 ipv6 prefix-list description

й **ipv6 prefix-list description** **no**

ipv6 prefix-list *prefix-lis-name* **description** *descripton-text*

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prefix-lis-name	
descripton-text	

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ЛЬЮ й **Deny routes from Net-A**

```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list pre description Deny
routes from Net-A
```

5.1.13 ipv6 prefix-list sequence-number

й **ipv6 prefix-list description** **no**

ʒ

ipv6 prefix-list sequence-number

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```
Ruijie# configure terminal
Ruijie(config)# ipv6 prefix-list sequence-number
```

5.1.14 match as-path

ǐ ˘ يي ʒ **match as-path** Â ʒ **no** Â

match as-path *as-path-acl-list-num* *as-path-acl-list-num…..*

no match as-path *as-path-acl-list-num……*

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as-path-acl-list-num	⅄ Â ⅄

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match as-path ʒ ɨ ⅄ Ѣ ⅄ Â

يي ‡ ˘ ⅄ Ѣ **match** ʒ **set** ʒ Â **match** ʒ˘ ‡ ɔ̄ ʼ **set** ʒ˘ ‡ a Â

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match community ʒ ɨ ʌ Ʌ ʌ ¨ ˘ ч
a Â

exact-match ˘ a ɔ̄ Â

يي ‡ ˘ ʌ Ʌ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ʼ **set** ʒ˘ ‡ a Â

ð Ô

```
Ruijie(config)# ip community-list 1 permit 100:2 100:30
Ruijie(config)# route-map set_lopref
Ruijie(config-route-map)# match community 1 exact-match
Ruijie(config-route-map)# set  local-preference 20
```

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ʒ	
ip community-list	
match as-path	ɔ̄
match metric	ɔ̄
match origin	ɔ̄
set as-path prepend	ʎ Â

interface-number	⅄

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match interface ʒ ɨ ⅄ Ƶ Â

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ǀ ˙ ⁸ Â

يي ‡ ˘ ⅄ Ƶ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ʼ **set** ʒ˘ ‡ a Â

ð Ô

يي ǀ ˘ ⅄ Ƶ ǀ Э Â a
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ǀ Э˘ a˚ ˘يي è ʒ ≠ a ˚ Â

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Â

```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match interface GigabitEthernet 0/0
```

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ʒ	
match ip address	ɔ̄
match ip next-hop	ɔ̄ Ю
match ip route-source	ɔ̄

match metric	
match route-type	
match tag	
set metric	
set metric-type	
set tag	

5.1.17 match ip address

match ip address **no**

match ip address *access-list-number access-list-number...* |
access-list-name... |*access-list-name access-list-number...*|
access-list-name | **prefix-list** *prefix-list-name prefix-list-name...*

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

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

match ip address

set metric	†
set metric-type	†
set tag	†

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5.1.18 match ip next-hop

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ي ‡ ˘ ʌ Ʊ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ’ **set** ʒ˘ ‡ a Â

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```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# access-list 10 permit host 192.168.10.1
Ruijie(config)# access-list 20 permit host 172.16.20.1
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip next-hop 10 20
```

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ʒ	
access-list	Ѭ ‡
match ip address	ɔ̄
match interface	ɔ̄ Ю
match ip route-source	ɔ̄
match metric	ɔ̄
match route-type	ɔ̄
match tag	ɔ̄
set metric	ǂ
set metric-type	ǂ
set tag	ǂ

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5.1.19 match ip route-source

match ip route-source **no**

match ip route-source *access-list-number access-list-number...* | *access-list-name... |access-list-name access-list-number...|* *access-list-name* | **prefix-list** *prefix-list-name prefix-list-name...*

no match ip route-source *access-list-number access-list-number...* | *access-list-name... access-list-name access-list-number...|* *access-list-name* **prefix-list** *prefix-list-name prefix-list-name...*

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match ipv6 route-source	Ð
match metric	Ð
match route-type	Ð
match tag	Ð
set metric	†
set metric-type	†
set tag	†

يي ‡ ˘ ⁄ ⁄ Ѣ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ’ **set** ʒ˘ ‡ a Â

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يي˘ è ˘ ⁄ ⁄ ʒ a˚ Â¯ ˚
ǀ Э˘ a˚ يي˘ è ʒ ≠ a ˚ Â

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˘ ˘ ѝ ˘
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```
Ruijie(config)# ipv6 router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 2720::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 next-hop v6acl
Ruijie(config-route-map)# set metric 40
```

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ʒ	
ipv6 access-list	ЖЖ ‡
match interface	ɔ̄ Ю
match ipv6 address	ɔ̄ Ю
match ipv6 route-source	ɔ̄
match metric	ɔ̄
match route-type	ɔ̄
match tag	ɔ̄
set metric	ǀ
set metric-type	ǀ
set tag	ǀ

ð ⁄ Ô

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5.1.22 match ipv6 route-source

ǂ Ю ‡ ˘

يي ʒ **match ipv6 address** Â ʒ **no** Â

match ipv6 route-source *access-list-name* **prefix-list** *prefix-list-name*

no match ipv6 route-source

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access-list-name	¨
prefix-list *prefix-list-name*	ɔ̄ ¨

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```
Ruijie(config-router)# exit
Ruijie(config)# ipv6 access-list v6acl
Ruijie(config-ipv6-acl)# 10 permit ipv6 5200::/64 any
Ruijie(config-ipv6-acl)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ipv6 route-source v6acl
Ruijie(config-route-map)# set metric 50
```

ipv6 access-list	
match interface	
match ipv6 address	
match ipv6 route-source	
match metric	
match route-type	
match tag	
set metric	
set metric-type	
set tag	

5.1.23 match length

match length *min-length max-length*

no match length *min-length max-length*

min-length	
max-length	

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```
Ruijie(config)# interface GigabitEthernet 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)# set interface GigabitEthernet 0/0
```

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३	
route-map	ЊЖ ي
match ip address	ƀ
set default interface	˘
set interface	
set ip default next-hop	Ю ˘
set ip next-hop	Ю
set ip precedence	”I

5.1.24 match metric

ɔ̄ ˘ يي ʒ **match metric** Â ʒ **no**

Â

match metric *metric*

no match metric

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ʒ	
access-list	Ѭ ‡
match ip address	ɔ̄
match interface	ɔ̄ Ю
match ip next-hop	ɔ̄ Ю
match ip rout5ssource	ɔ̄
match rout5stype	ɔ̄
match tag	ɔ̄
set metric	ǀ
set metric-type	ǀ
set tag	ǀ

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5.1.25 match origin

ǀ ˘ يي ʒ **match origin** Â

ʒ **no** Â

match origin egp igp incomplete

no match origin egp igp incomplete|

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egp	

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```
Ruijie(config)# route-map MY_MAP 10 permit
Ruijie(config-route-map)# match origin egp
Ruijie(config-route-map)# set community 109
Ruijie(config-route-map)# exit
Ruijie(config)# route-map MAP20 20 permit
Ruijie(config-route-map)# match origin incomplete
Ruijie(config-route-map)# set community no-export
```

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ٱ	
match as-path	٥
match metric	٥
match origin	٥
set as-path prepend	ٱ
set metric	ٱ
set origin	ٱ

5.1.26 match route-type

٥ ˘ يي ٱ **match route-type** Â ٱ **no** Â

match route-type local | internal | external type-1 | type-2 | level-1 | level-2

no match route-type local | internal | external type-1 | type-2 | level-1 | level-2

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local	
Internal	
external	
type-1 type-2	

level-1 level-2	

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يي ‡ ˘ ʌ Ʊ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ’ **set** ʒ˘ ‡ a Â

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```
Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match route-type internal
```

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ʒ	
access-list	Ѫ ‡
match ip address	ɔ̄
match interface	ɔ̄ Ю
match ip next-hop	ɔ̄ Ю
match ip route-source	ɔ̄
match metric	ɔ̄
match tag	ɔ̄

set metric	
set metric-type	
set tag	

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5.1.27 match tag

match tag

```
Ruijie(config)# router rip
Ruijie(config-router)# redistribute ospf 100 route-map redrip
Ruijie(config-router)# network 192.168.12.0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match tag 50 80
```

access-list	
match ip address	
match interface	

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ⴰ ⴰ ⴱ ⴰ ˘ **maximum-paths**

ⴰ ⴰ Ю ˘ Ю˘ ⴾ a

ⴰ Â **show running config** ⴷ Ⴓ ⴰ Â

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```
Ruijie(config)# maximum-paths 10
Ruijie(config)# no maximum-paths
```

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5.1.29 route-map

ⴼⴽ ˘ي ي ˘ ⴳ **route-map** Â ⴳ **no** ي ⴼⴽ Â

route-map *route-map-name* **permit** **deny** *sequence-number*

no route-map *route-map-name* **permit** **deny** *sequence-number*

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route-map-name	ي ⴼⴽ ⵛ Â ⴾ ⴳ ⵛ ي Â ي ⴷ Ⴓ ⴼⴽ ي ˘ ي ⴷ

ˆ ⴷ ˜ ⴼⴽ ˘ ⴷ

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ⴱ ’

permit

deny	ˆ ⅄ ˜ Ƕ ˇ ⅄ Ƕ ɔ̄ ‡ Â ‡ a ˇ ييي a ǂ ˇ ɜ ييي Â Ƕ ˇ a Ƕ ɔ̄ ‡ Â ‡ Ю ييي Â ʒ Â
sequence-number	ييي ⅄ Â æ ⅄ ˝I ˇ ⅄ Â

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ييي ‡ ˇ ⅄ Л **match** ʒ **set**

ʒ Â **match** ʒˇ ‡ ɔ̄ ’ **set** ʒˇ ‡ a Â

ييي ˇ ييي ⅄ ЛЮ ‘

… ييي ˇ *sequence-numberˇ* й ’

P ⅄ ييي ˇ S *sequence-numberˇ* a ..RIP OSPFO

```
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match metric 4
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
Ruijie(config-route-map)# set tag 40
```

Redistribute	

5.1.30 set aggregator as

set aggregator as **no**

set aggregator as *as-num ip_addr*

no set aggregator as *as-num ip_addr*

as-number	
ip_addr	

ð Ô

```
Ruijie(config)# route-map set-as-path
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set aggregator as 3 2.2.2.2
```

ð Ô

match as-path	
match community	
match metric	
match origin	
set community	
set metric	
set metric-type	

5.1.31 set as-path prepend

set as-path prepend **no**

set as-path prepend *as-number*

no set as-path prepend *as-number*

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as-number	

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```
Ruijie(config)#
```

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```
Ruijie(config)# router bgp 100
Ruijie(config-router)# neighbor 172.16.233.33 remote-as 120
Ruijie(config-router)#  neighbor  172.16.233.33  route-map
ROUTEMAPIN in
Ruijie(config-router)#  neighbor  172.16.233.33  route-map
ROUTEMAPOUT out
Ruijie(config-router)# exit
Ruijie(config)# ip community-list 500 permit 100:10
Ruijie(config)# ip community-list 500 permit 100:20
Ruijie(config)# ip community-list 120 deny 100:50
Ruijie(config)# ip community-list 120 permit 100:.*
Ruijie(config)# route-map ROUTEMAPIN permit 10
Ruijie(config-route-map)# set comm-list 500 delete
Ruijie(config-route-map)# exit
Ruijie(config)# route-map ROUTEMAPOUT permit 10
Ruijie(config-route-map)# set comm-list 120 delete
```

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ৡ	
ip community-list	
match as-path	৳
match community	৳

no set community *community-number community-number …* **additive** **none**

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community-number	Â ѝ ⅄ ˘ ˘ ˘ ЉЮ Ѭ ˘ ˘ Â ˘ a ˘ ˘ a ѐ Â ˘ a Â ˘ a Â
additive	Э ╗
none	ѝ

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```
Ruijie(config)# route-map SET_COMMUNITY 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set community 109:10
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_COMMUNITY 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set community no-export
```

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ʒ	
match as-path	ɔ̄

match community	ɒ̄
match metric	ɒ̄
match origin	ɒ̄
set as-path prepend	ǀ
set origin	ǀ
set metric-type	ǀ

5.1.34 set dampening

ɒ̄ ‡ ˘ يي ʒ **set dampening** Â ʒ **no** Â

set dampening *half-life reuse suppress max-suppress-time*

no set dampening

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half-life	ʎ a ʎ Â ǀ ˘ ѝ ǀ
reuse	æ ˘ ⁸ Â ˘ ѝ Â
suppress	˘ ⁸ Â ˘ Â
max-suppress-time	⁸ Â ǀ ˘ ѝ

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```
Ruijie(config)# route-map tag
Ruijie(config-route-map)# match as path 10
Ruijie(config-route-map)# set dampening 30 1500 10000 120
Ruijie(config-route-map)# exit
Ruijie(config)# router bgp 100
Ruijie(config-router)# neighbor 172.16.233.52 route-map tag in
```

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ৡ	
match as-path	ɒ
match community	ɒ
match metric	ɒ
match origin	ɒ
set as-path prepend	ɨ
set metric	ɨ
set local-preference	ɨ I˝

5.1.35 set default interface

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ﻲﻲ ৡ **set default interface** Â ৡ **no** Â

set default interface *interface-type interface-number*

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set default interface ʒ ɨ ʌ Ʌ Â

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```
Ruijie(config)# interface serial 1/0
Ruijie(config-if)# ip policy route-map smallpak
Ruijie(config-if)# exit
Ruijie(config)# route-map smallpak permit 10
Ruijie(config-route-map)# match length 0 500
Ruijie(config-route-map)# set default interface GigabitEthernet
1/0
```

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5.1.36 set extcommunity

ɔ̄ ‡ ˘ يي ʒ **set extcommunity** Â ʒ **no** Â ʒ Â

set extcommunity rt *extend-community-value* **soo** *extend-community-value*

no set extcommunity rt soo

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rt	
soo	
extend-community-value	

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```
Ruijie(config)# access-list 2 permit 192.168.78.0 255.255.255.0
Ruijie(config)# route-map MAP_NAME permit 10
Ruijie(config-route-map)# match ip-address 2
Ruijie(config-route-map)# set extcommunity rt 100:2
```

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match as-path	
match community	
match metric	
match origin	
set as-path prepend	
set metric	
set metric-type	

5.1.37 set interface

set interface

no

set interface *interface-type interface-number …interface-type interface-number*

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

interface-type	
interface-number	

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Ruijie(config)#

no set ip default next-hop *ip-address weight …ip-address weight*

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dscp_value	

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[illegible]

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

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ip-address	Ю
weight	Ю

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set ip next-hop ʒ ɨ ʌ Ʌ ˘ a Â

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```
Ruijie(config-if)#ip policy route-map load-balance

Ruijie(config)#access-list 10 permit 10.0.0.0 0.255.255.255
Ruijie(config)#access-list 20 permit 172.16.0.0 0.0.255.255

Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#set ip next-hop 192.168.100.1

Ruijie(config)#route-map load-balance permit 20
Ruijie(config-route-map)#match ip address 20
Ruijie(config-route-map)#set ip next-hop 172.16.100.1

Ruijie(config)#route-map load-balance permit 30
Ruijie(config-route-map)#set interface Null 0
```


no set ip next-hop verify-availability *ip-address* **track** *track-obj-num*

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ip-address	Ю
track-obj-num	ʌ

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```
Ruijie(config)#interface serial 1/0
Ruijie(config-if)#ip policy route-map load-balance

Ruijie(config)#access-list 10 permit 10.0.0.0 0.255.255.255
Ruijie(config)#access-list 20 permit 172.16.0.0 0.0.255.255

Ruijie(config)#route-map load-balance permit 10
Ruijie(config-route-map)#match ip address 10
Ruijie(config-route-map)#
```

match ip address	
set default interface	
set default interface	
set interface	
set ip default next-hop	
set ip precedence	

5.1.42 set ip precedence

set ip precedence **no**

set ip precedence *0-7 critical flash flash-override immediate internet network priority routine*

no set ip precedence *0-7 critical flash flash-override immediate internet network priority routine*

```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
```

```
Ruijie(config-route-map)#set ip precedence 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map name
```

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match interface	ɔ Ю
match ip address	ɔ
match ip next-hop	ɔ Ю

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```
Ruijie(config)#access-list 1 permit 192.168.217.68 0.0.0.0
Ruijie(config)#route-map name
Ruijie(config-route-map)#match ip address 1
Ruijie(config-route-map)#set ip tos 4
Ruijie(config)#interface GigabitEthernet 0/0
Ruijie(config-if)#ip policy route-map name
```

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```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set level backbone
```

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ʒ	
match interface	ɔ̄ Ю
match ip address	ɔ̄
match ip next-hop	ɔ̄ Ю
match ip route-source	ɔ̄
match metric	ɔ̄
match route-type	ɔ̄
match tag	ɔ̄
set metric-type	ǂ
set tag	ǂ

5.1.45 set local-preference

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ʒ **set local-preference** Â ʒ **no** Â

set local-preference *number*

no set local-preference

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number	˝I Â ˋ

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```
Ruijie(config)# route-map SET_PREF permit 10
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set local-preference 6800
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_PREF permit 20
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set local-preference 50
```

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match as-path	ٓ
match metric	ٓ
match origin	ٓ
set as-path prepend	ˇ
set metric	ˇ
set metric-type	ˇ

ic

ٓ ‡ ˘ يي ٓ **set metric** Â

ٓ **no** Â

set metric *metric-value* **-** *metric-value* *metric-value*

no set metric

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يي ‡ ˘ Λ Ƶ **match** ʒ **set**
ʒ Â **match** ʒ˘ ‡ ɔ̄ ʼ **set** ʒ˘ ‡ a Â

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```
Ruijie(config)# router ospf
Ruijie(config-router)# redistribute rip subnets route-map redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set metric 40
```

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ʒ	
match interface	ɔ̄ Ю
match ip address	ɔ̄
match ip next-hop	ɔ̄ Ю
match ip route-source	ɔ̄
match metric	ɔ̄

match route-type	ɔ
match tag	ɔ
set metric-type	ɨ
set tag	ɨ

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5.1.47 set metric-type

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```
Ruijie(config)# router ospf
Ruijie(config-router)#  redistribute  rip  subnets  route-map
redrip
Ruijie(config-router)# network 192.168.12.0 0.0.0.255 area 0
Ruijie(config-router)# exit
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# set metric-type type-1
```

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يي ‡ ˘ ʎ Ʌ **match** ʒ **set**

ʒ Â **match** ʒ˘ ‡ ɔ̄ ʼ **set** ʒ˘ ‡ a Â

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```
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip address 1
Ruijie(config-route-map)# set next-hop 192.168.1.2
```

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ʒ	
match interface	ɔ̄ Ю
match ip address	ɔ̄
match ip next-hop	ɔ̄ Ю
match ip route-source	ɔ̄
match metric	ɔ̄
match route-type	ɔ̄
match tag	ɔ̄
set metric-type	ǀ
set tag	ǀ

5.1.49 set origin

ɔ̄ ‡ ˘ يي ʒ **set origin** Â ʒ **no** Â

set origin egp igp incomplete

no set origin

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egp	
igp	
incomplete	a

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```
Ruijie(config)# route-map SET_ORIGIN 10 permit
Ruijie(config-route-map)# match as-path 1
Ruijie(config-route-map)# set origin igp
Ruijie(config-route-map)# exit
Ruijie(config)# route-map SET_ORIGIN 20 permit
Ruijie(config-route-map)# match as-path 2
Ruijie(config-route-map)# set origin egp
```

5.1.50 set originator-id

ð ‡ ˘ يي ʒ **set originator-id** Â ʒ **no** Â

set originator-id *ip-addr*

no originator-id *ip-addr*

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5.1.51 set tag

ɔ̄ ‡ ˘ يي ʒ **set tag** Â ʒ

no Â

set tag *tag*

no set tag

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match metric	ɔ̄
match route-type	ɔ̄
match tag	ɔ̄
set metric	ǀ
set metric-type	ǀ

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5.1.52 set weight

ɔ̄ ‡ ˘ يي ʒ **set weight** Â

ʒ **no** Â

set weight *number*

no set weight

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number	Â ،

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```
Ruijie(config-router)# neighbor 1.1.1.1 route-map nei-rmap-in
in
Ruijie(config-router)# exit
Ruijie(config)# route-map nei-rmap-in permit 10
Ruijie(config-route-map)# set weight 100
```

match as-path	
match community	
match metric	
match origin	
set community	
set metric	
set metric-type	

5.2

5.2.1 show ip community-list

show ip community-list *community-list-number community-list-name*

community-list-number	

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```
Ruijie# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

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match community	
set comm-list delete	

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5.2.2 show ip prefix-list

show ip prefix-list Â

show ip prefix-list *prefix-name*

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prefix-name	

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```
Ruijie# show ip prefix-list
ip prefix-list pre: 2 entries
seq 5 permit 192.168.64.0/24
seq 10 permit 192.2.2.0/24
```

5.2.3 show ip route

show ip route

show ip route **vrf** *vrf_name* *network mask* **count** **protocol** *process-id* **weight**

vrf *vrf_name*	
network	
mask	
count	
protocol	**connected static** **bgp isis ospf rip**
process-id	
weight	

show ip route

```
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2
ia - IS-IS inter area, * - candidate default

Gateway of last resort is no set
S    20.0.0.0/8 is directly connected, VLAN 1
S    22.0.0.0/8 [1/0] via 20.0.0.1
O E2 30.0.0.0/8 [110/20] via 192.1.1.1, 00:00:06, VLAN 1
R    40.0.0.0/8 [120/20] via 192.1.1.2, 00:00:23, VLAN 1
B    50.0.0.0/8 [120/0] via 192.1.1.3, 00:00:41
C    192.1.1.0/24 is directly connected, VLAN 1
C    192.1.1.254/32 is local host.
```

show ip route


```
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
```

show ip route *network*

show ip route count

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

show ip route weight

```
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
```

5.2.4 show ipv6 prefix-list

show ipv6 prefix-list

show ipv6 prefix-list *prefix-name*

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Ruijie# **show ipv6 prefix-list**

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access-list

ip access-list

mac access-list

expert access-list

ip access-list resequence

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deny

permit

list-remark text

no sn

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ip access-group

mac access-group

expert access-group

1.1.1 access-list

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access-list *id* **deny** **permit** *source source-wildcard* **host** *source*

any

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access-list *id* **deny** **permit** **protocol** *source source-wildcard* **host** *source* **any** *destination destination-wildcard* **host** *destination* **any** **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

^ ~

access-list *id* **deny** **permit** **any** **host** *source-mac-address* **any** **host** *destination-mac-address ethernet-type* **cos** *out* **inner** *in*

^ ~

access-list *id* **deny** **permit** **protocol** *ethernet-type* **cos** *out* **inner** *in* **VID** *out* **inner** *in source source-wildcard* **host** *source* **any** **host** *source-mac-address* **any** *destination destination-wildcard* **host** *destination* **any** **host** *destination-mac-address* **any** **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

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access-list *id* **deny** **permit** *ethernet-type*| **cos** *out* **inner** *in* **VID** *out* **inner** *in* **s***ource 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*

‘

access-list *id* **deny** **permit** **protocol** **VID** *out* **inner** *in source source-wildcard* **host** *source* **any** **host** *source-mac-address* **any** *destination destination-wildcard* **host** *destination* **any** **host** *destination-mac-address* **any** **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

‘

Internet Control Message Protocol

access-list *id* **deny** **permit** **icmp** **VID** *out* **inner** *in source source-wildcard* **host** *source* **any** **host** *source-mac-address* **any** *destination destination-wildcard* **host** *destination* **any** **host** *destination-mac-address* **any** *icmp-type icmp-type icmp-code icmp-message* **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

Transmission Control Protocol

access-list *id* **deny** **permit** **tcp** **VID** *out* **inner** *in* *source source-wildcard* **host** *Source* **any** **host** *source-mac-address* **any** **operator** *port* *destination* *destination-wildcard* **host** *destination* **any** **host** *destination-mac-address* **any** **operator port** *port* **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name* **match-all** *tcp-flag*

User Datagram Protocol

access-list *id* **deny** **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* **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

access-list *list-remark text*

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id ˙ ˛ Â ˛ ˆ ˘ ˘ ˘ ˘
˘ ˜ Â

Deny ˙ ɔ̄ ˘ ‡ Â

Permit ˙ ɔ̄ ˘ ‡ Â

Source ˙ ˆ ў ˜

source-wildcard ˙ Â ˛ Љ a ˘

protocol

operator ˋ ˆ ˘ ˘ ˘ a ˘ ˜

port *port* ˋ ˅ˇ *range* ч ˅ ˘ è ˅ˊ ˅ Â

host *source-mac-address* ˋ ў Â

host *destination-mac-address* ˋ ў Â

VID *vid* ˋ ɔ̄

ethernet-type ˋ Ʊ

match-all ˋ ɔ̄ *tcp flag* Æ

tcp-flag ˋ

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priority

routine

max-reliability

max-throughput

min-delay

min-monetary-cost

normal

administratively-prohibited

dod-host-prohibited

dod-net-prohibited

echo

echo-reply

fragment-time-exceeded

general-parameter-problem

host-isolated

host-precedence-unreachable

host-redirect

host-tos-redirect

host-tos-unreachable

host-unknown

host-unreachable

information-reply

information-request

mask-reply

mask-request

mobile-redirect

net-redirect

net-tos-redirect

net-tos-unreachable

net-unreachable

network-unknown

no-room-for-option

option-missing

packet-too-big

parameter-problem

port-unreachable

precedence-unreachable

protocol-unreachable

redirect

router-advertisement

router-solicitation

source-quench

source-route-failed

time-exceeded

timestamp-reply

timestamp-request

ttl-exceeded

unreachable

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bgp

chargen

cmd

daytime

discard

domain

echo

exec

finger

ftp

ftp-data

gopher

hostname

ident

irc

klogin

kshell

ldp

login

nntp

pim-auto-rp

pop2

pop3

smtp

sunrpc

syslog

tacacs

talk

telnet

time

uucp

whois

www

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biff

bootpc

bootps

discard

dnsix

domain

echo

isakmp

mobile-ip

nameserver

netbios-dgm

netbios-ns

netbios-ss

ntp

pim-auto-rp

rip

snmp

snmptrap

sunrpc

syslog

tacacs

talk

tftp

time

who

xdmcp

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aarp

appletalk

decnet-iv

diagnostic

etype-6000

etype-8042

lat

lavc-sca

mop-console

mop-dump

mumps

netbios

vines-echo

xns-idp

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```
Ruijie(config)# access-list 1 permit 192.168.1.64
0.0.0.63
```

```
Ruijie(config)# access-list 702 deny host 00d0f8000c0c any aarp
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in
```

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```
Ruijie(config)# access-list 2702 deny tcp host
192.168.12.3 mac 00d0.f800.0044 any any
Ruijie(config)# access-list 2702 permit any any any any
Ruijie(config)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.12.3 mac 00d0.f800.0044 any any
10 permit any any any any
```

ð ҂ Ô

҂	
show access-lists	
mac access-group	Э

ð Л Ô

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1.1.2 ip access-list

҂ … ˅ Â ҂ **no**

ip access-list extended standard *id name*

no ip access-list extended standard *id name*

ð Ô

id Л˅ ˆ ˅

deny **permit** **show access-lists**

ð Ô

…

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

…

```
Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#
```

ð Ô

show access-lists	

ð Ô

1.1.3 expert access-list

… **no**

expert access-list extended *id name*

no expert access-list extended *id name*

ð Ô

Id

Name

ð Ô

ð Ô

ð Ô

ʒ Â **show access-lists** ʒ Â

ð Ô

… ж ʻ

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

… ж ʻ

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

ð ʒ Ô

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show access-lists	ж

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1.1.4 ip access-list resequence

ʒ Â ʒ **no**

ip access-list resequence *id name* **start-sn inc-sn**

no ip access-list resequence *id name*

ð Ô

Idʻ ʎ

Nameʻ ¨

start-snʻ ʎ

inc-snʻ ʎ

ð Ô

start-snʻ

inc-snʻ

ð ʒ Ô

ð Ô

show access-lists

ð Ô

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

ð Ô

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

sn **deny tcp** *source source-wildcard* **host** *Source* **any** *operator* **port** *port destination destination-wildcard* **host** *destination* **any** *operator* **port** *port* **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name* **match-all** *tcp-flag*

User Datagram Protocol

sn source source –wildcard **host** *source* **any** *operator* **port** *port destination destination-wildcard* **host** *destination* **any** *operator* **port** *port* **precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

sn **deny any host** *source-mac-address* **any host** *destination-mac-address ethernet-type* **cos** *out* **inner** *in*

sn **deny protocol** *ethernet-type* **cos** *out* **inner** *in* **VID** *out* **inner** *in source source-wildcard* **host** *source* **any host** *source-mac-address* **any** *destination destination-wildcard* **host** *destination* **any host** *destination-mac-address* **any precedence** *precedence* **tos** *tos* **fragments** **time-range** *time-range-name*

sn **deny** *ethernet-type* **cos** *out* **inner** *in* **VID** *out* **inner** *in source source-wildcard* **host** *source* **any host** *source-mac-address* **any** *destination destination-wildcard* **host** *destination* **any host** *destination-mac-address* **any time-range** *time-range-name*

sn **deny 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 time-range** *time-range-name*

Internet Control Message Protocol

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

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** **time-range** *time-range-name* **match-all** *tcp-flag*

User Datagram Protocol

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** **time-range** *time-range-name*

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ЛЬЮ **access-list**

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dscp

dscp

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```
Ruijie(config)# expert access-list extended 2702
Ruijie(config-exp-nacl)# deny tcp  host
```

```
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# permit any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2702
10 deny tcp  host  192.168.4.12 host 0013.0049.8272 any any
20 permit any any any any
Ruijie(config-exp-nacl)#
```

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```
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)#
```

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ѝ Лъ ˘ Â

```
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
```

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```
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
```

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User Datagram Protocol

sn **permit udp** *source source -wildcard* **host** *source* **any** *operator* **port** *port destination destination-wildcard* **host** *destination* **any operator port** *port* **precedence** *precedence* **tos** *tos* **fragments time-range** *time-range-name*

sn **permit any host** *source-mac-address* **any host** *destination-mac-address ethernet-type* **cos** *out* **inner** *in*

sn **permit protocol** *ethernet-type* **cos** *out* **inner** *in* **VID** *out][***inner** *in] source source-wildcard* **host** *source* **any [**

sn **permit tcp VID** *ou* **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 time-range** *time-range-name* **match-all** *tcp-flag*

User Datagram Protocol

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* **precedence precedence tos** *tos* **fragments time-range** *time-range-name*

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```
Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# permit tcp host 192.168.4.12 host
0013.0049.8272 any any
Ruijie(config-exp-nacl)# deny any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
10 permit tcp host 192.168.4.12 host 0013.0049.8272 any any
20 deny any any any any
Ruijie(config-exp-nacl)#
```

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```
Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100 any
```

```
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#
```

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ѝ Лъ ˘ Â

```
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)#
```

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1.1.7 list-remark text

и ╕ ˘ **no**

list-remark *text*

ð Ô

Text ˊ

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и ╕

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```
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)#
```

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show access-lists	
ip access-list	Н

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1.1.8 no sn

no *sn*

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```
Ruijie(config)# ip access-list extended 100
Ruijie(config-ext-nacl)# permit ip host 192.168.4.12
```

id ‘ ʌ^ ˘ ~

name ‘ ¨

in ‘

out ‘ ÿ

unreflect ‘ ʌ

reflect ‘ ʌ

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ð Ô

ð Ô

ip access-group ˘ ¨ Â

ð Ô

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out ˙ ÿ

unreflect ˙ Л

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Э˘ è ⁸ Â **show**

access-group

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id ʻ ʎ

name ʻ ¨

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ð Ô

˘ *id* *name*˘ ‡

ð Ô

```
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
```

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ip access-list	ЊÂ
mac access-list	Њ
expert access-list	Њ

ð ʎ Ô

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1.2.2 show ip access-group

show ip access-group interface *interface*

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interface ʻ

ð ʒ Ô

ð Ô

ˇ ˇ ‡

ð Ô

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

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ip access-list	HX Â

ð Ô

˚ ЛЪ Э

1.2.3 show expert access-group

Â

show expert access-group interface *interface*

ð Ô

interface ˙

ð Ô

ð Ô

ˇ ˇ ‡

ð Ô

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

ð Ô

1.2.4 show access-group

Э

show access-group interface *interface*

ð Ô

interface

ð Ô

ð Ô

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ð Ô

```
Ruijie# show access-group
ip access-list standard ipstd3
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.
```

ð Ô

ip access-group	
mac access-group	
expert access-group	

ð Ô

Э

2 RPL

2.1

2.1.1 reverse-path

Ю **reverse-path** ꓘ ˘ ὲ ⁄ ᾶ
˘ ꓘ ⁄ Â

reverse-path

no reverse-path

-	

a ⁄ ᾶ ⁸ ╥

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```
Ruijie(config)# interface gigabitEthernet 0/0
Ruijie(config-if)# reverse-path
```

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10.3(3b7)	

3.1.2 anti-arp-spoof

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```
Ruijie(config-cp)#anti-arp-spoof scan 30
```

```
Ruijie(config-cp)#no anti-arp-spoof scan
```


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3.1.4 arp-car

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arp-car *packet_rate_per_group* **log**

no arp-car

packet_rate_per_group	

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3.1.6 clear attack-info history

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```
Ruijie#clear attack-info history
The history attack record has been cleared!
```


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3.1.7 control-plane

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control-plane protocol manage data

	8
	⊾

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```
Ruijie(config)# control-plane protocol
Ruijie(config-cp)#
```

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3.1.8 ef-rnfp

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ef-rnfp enable

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ꓘ ЛЬЮ ꓘ

```
Ruijie(config)# control-plane
```

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```
Ruijie(config)# control-plane
Ruijie(config-cp)# no ef-rnfp enable
```

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3.1.9 glean-car

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glean-car *packet_rate_per_group* **log**

no glean-car

packet_rate_per_group	ˆ æ й ˜

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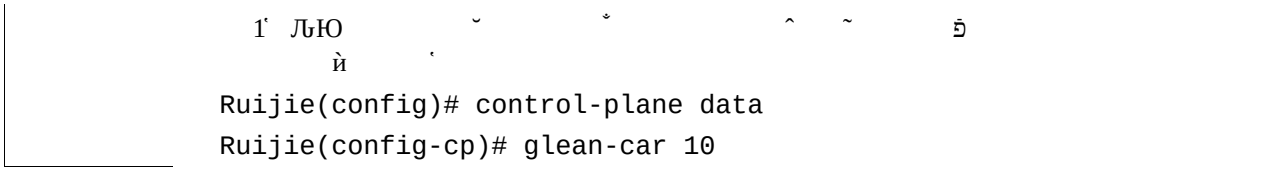

```
Ruijie(config)# control-plane data
Ruijie(config-cp)# glean-car 10
```

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control-plane protocol manage data	˘ /ʌ Љ

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3.1.10 management-interface

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management-interface *interface* **allow ftp http https ssh snmp telnet tftp log**

no management-interface *interface*

Interface	

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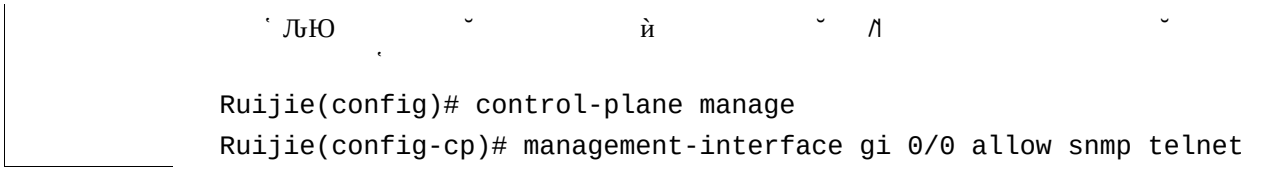

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# management-interface gi 0/0 allow snmp telnet
```


-	

3.1.11 port-filter

Â Ю

port-filter log

no port-filter

-	

```
Ruijie(config)# control-plane manage
Ruijie(config-cp)# port-filter
```


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3.1.13 security deny


```
Ruijie(config-cp)#security deny lan-ping
```

```
Ruijie(config-cp)#security deny wan-ping
```

```
Ruijie(config-cp)#security deny lan-web
```

```
Ruijie(config-cp)#security deny wan-web
```


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3.1.14 security web permit

low-ip-address high-ip-address

-	

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```
Ruijie#show arp-suspect
IP address    724MAC address
192.168.1.5    00d0.f800.3355
```

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3.2.2 show attack-info current

show attack-info

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System currently not in attack!

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There is no attack record!

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3.2.4 show ef-rnfp

show ef-rnfp acpp scpp glean-car arp-car port-filter mpp | all

-	

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```
Ruijie# show ef-rnfp all
Aggregate control plane protection information:  //ACPP

  Data subinterface: enable
    RULE:
      bandwidth rate limit: 20(pps), burst: 30(pps)
      log: off
    STATISTIC:
      dropped 0 packets
  Manage subinterface: enable
    RULE:
      bandwidth rate limit: 1000(pps), burst: 2000(pps)
      log: off
    STATISTIC:
      dropped 0 packets
  Protocol subinterface: disable
Segregate control plane protection information:  //SCPP

  Data subinterface: disable
  Manage subinterface: enable
    RULE: acl: 1, id: 1011a4f
      bandwidth rate limit: 20(pps), burst: 300(pps)
      log: off
    STATISTIC:
      bandwidth rate limit dropped 0 packets
```

```
    TOTALLY droped 0 packets
  Protocol subinterface: disable
ARP CAR information: //ARP-CAR
  Manage subinterface: enable
    RULE:
      allow packet rate per source: 30(pps)
      log: off
    STATISTIC:
      dropped 181 packets
Glean CAR information:   //Glean-CAR
  Data subinterface: disable
Port Filter information:
  Manage subinterface: disable
Management plane protection information:  //MPP
  Manage subinterface: disable
```

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4

4.1

4.1.1 ip inspect name

‡ Â ‡ Â

ip inspect name *inspection_name protocol*

no ip inspect name *inspection_name protocol*

ð Ô

inspection_name ‡

protocol ˇ Л Ъ Ю ftpˇ mmsˇ rtspˇ sipˇ h323, tcp

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```
Ruijie(config)# ip inspect name abc ftp
Ruijie(config)# ip inspect name abc mms
Ruijie(config)# ip inspect name 123 mms
Ruijie(config)# ip inspect name 123 h323
```

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4.1.2 show ip inspect

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show ip inspect *parameter*

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parameter: Λ **name** *inspection_name* ˙ 8 Λ ‡

interface ˙ Э ‡

all ˙

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```
Ruijie# show ip inspect name abc
Inspection name abc
    ftp
    mms
```

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4.1.3 ip inspect

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ip inspect *inspection_name* **in out**

no ip inspect *inspection_name* **in out**

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inspection_name ‡ ¨

in out: Э ¨α

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```
Ruijie(conf)# interface ethernet 1/0
Ruijie(conf-if)# ip inspect abc in
```

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4.2 IP MAC

4.2.1 ipmacbind

‡ Â ʒ **no** ‡ Â

ipmacbind *A.B.C.D H.H.H* **log**

no ipmacbind *A.B.C.D H.H.H* **log**

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A.B.C.D

H.H.H

log ǚ

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```
Ruijie(config)# ipmacbind 192.168.52.66 52e1.5d33.aa21 log
```

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4.2.2 ipmacbind auto

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ipmacbind auto log

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log ǚ

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```
Ruijie(config)# ipmacbind auto
```

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4.2.3 ipmacbind default1C-C

permit ɒ Э ‡

deny ɒ Э ‡

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Ruijie(config)# **ipmacbind**

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clear ipmacbind

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clear ipmacbind dynamic all

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dynamic ÿ ╟ ‡’

all ‡

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Ruijie# **clear ipmacbind dynamic**

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4.2.4 show ipmacbind

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show ipmacbind table | hash | statistic

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table ‡

hash ‡

statistic ˆ ˜

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```
Ruijie# show ipmacbind table
No.    Type   IP address    MAC address          Log
1      static 192.168.52.66    52e1.5d33.aa21   on
2      auto   192.168.52.50    112e.3ca4.3381   off
<-- output omitted -- >
```

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4.3

4.3.1 ip ingress-filter

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ip ingress-filter log
no ip ingress-filter

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log ŭ̃

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interface ethernet 1/0

Ruijie(conf-if) **ip ingress-filter log**

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4.3.2 show ip ingress-filter

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show ip ingress-filter

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Ruijie# **show ip ingress-filter**
Firewall Network-ingress-filter is enable, blocked 0 flows
Interface GigabitEthernet 1/0: log is on, blocked 0 flows

4.4 TCP SYN

4.4.1 ip tcp-intercept list

ip tcp-intercept list *extended_ACL_#* **in out log**

no ip tcp-intercept list *extended_ACL_#* **in out log**

extended_ACL_#

in out:

log:

```
Ruijie(config)# access-list 100 tcp permit any any
Ruijie(config)# interface ethernet 1/0
Ruijie(config-if)# ip tcp-intercept list 100 in log
```

4.4.2 show ip tcp-intercept

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‡ Э˘ **ip inspect** ʒ Â

‡ ˘ **show ip inspec** ʒ Â

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Ruijie(config)# **ip inspect name** tcp_inspec **tcp**

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ip inspect name ʒ ˧ Â ≠ **ip inspect** ʒ
Э˘ **show ip inspect** ˩ Ʌ Â

4.6

4.6.1 session-limit

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session-limit access-group *acl_no* **rate** *rate* **concurrent** *session_no* **in|out log**

no session-limit access-group *acl_no* **rate** *rate* **concurrent** *session_no* **in|out log**

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acl_no

```
session-limit access-group 1 rate 100 concurrent 10000 in log
```

4.7

4.7.1 ip rate-control

ip rate-control *acl_no* **bandwidth both|up|down** *rate* **<session total** *session_no***> <rate** *rate_no***>**

no ip rate-control *acl_no* **bandwidth both|up|down** *rate* **<session total** *session_no***> <rate** *rate_no***>**

acl_no

rate

session_no

rate_no

```
ip rate-control 1 bandwidth both 200 session total 500 rate 100
```

4.8

4.8.1 ip session log-on

ip session log-on

no ip session log-on

```
Ruijie(config)#ip session log-on
```

4.8.2 ip session timeout

ip session timeout icmp-closed *timeout_value*

ip session timeout icmp-started *timeout_value*

ip session timeout icmp-connected *timeout_value*

ip session timeout tcp-established *timeout_value*

ip session timeout tcp-syn-sent *timeout_value*

ip session timeout tcp-syn-receive *timeout_value*

ip session timeout tcp-fin-wait *timeout_value*

ip session timeout tcp-time-wai13 ( )T94 0 Td( )Tj-0.0001 Tc 0.0T Ttmeout

no ip session timeout rawip-started

no ip session timeout rawip-connected

no ip session timeout rawip-established

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timeout value ˘ æ ѝ

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```
Ruijie(config)#ip session timeout icmp-connected 10
```

4.8.3 ip session threshold

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ip session threshold icmp-closed *threshold_value*

ip session threshold icmp-started *threshold_value*

ip session threshold tcp-syn-sent *threshold_value*

ip session threshold tcp-syn-receive *threshold_value*

ip session threshold tcp-closed *threshold_value*

ip session threshold udp-closed *threshold_value*

ip session threshold rawip-closed *threshold_value*

no ip session threshold icmp-closed

no ip session threshold icmp-started

no ip session threshold tcp-syn-sent

no ip session threshold tcp-syn-receive

no ip session threshold tcp-closed

no ip session threshold udp-closed

no ip session threshold rawip-closed

threshold_value

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Ruijie(config)#**ip session threshold icmp-started** 10

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4.8.4 ip session track-state-strictly

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ip session track-state-strictly

no ip session track-state-strictly

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Ruijie(config)#**ip session track-state-strictly**

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5 VPDN

5.1

5.1.1 vpdn authorize

no

vpdn authorize domain [split]

no vpdn authorize domain

domain	
split	

1

```
Ruijie(config)# vpdn authorize domain split
```

Ruijie(config)#

vpdn domain-delimiter	
domain	

Â

10.3 5	

5.1.2 vpdn domain-delimiter

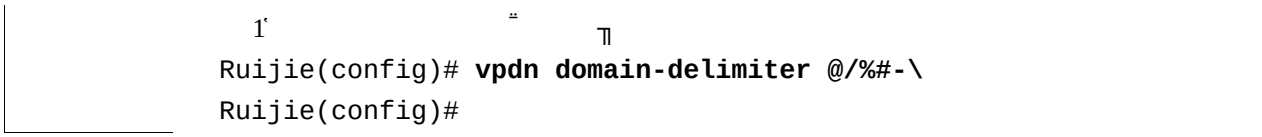
è **no** Â

vpdn domain-delimiter *LINE* **prefix | suffix**

no vpdn domain-delimiter

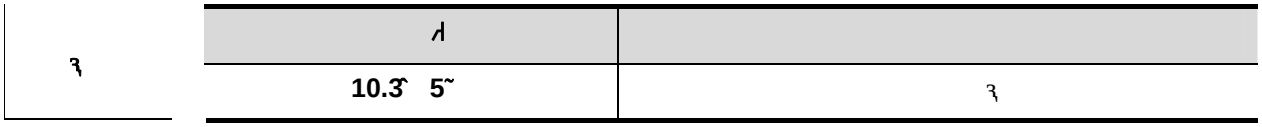
LINE	
prefix	
suffix	

a Â



```
Ruijie(config)# vpdn domain-delimiter @/%#-\
Ruijie(config)#
```

vpdn authorize	
domain	



10.3 5	

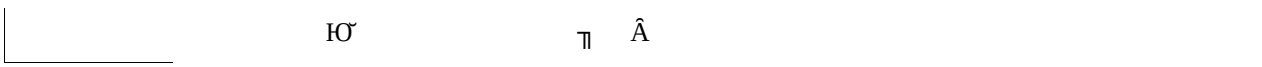
5.1.3 vpdn enable

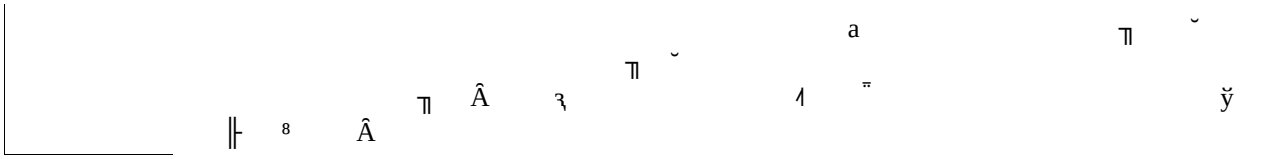
no

vpdn enable

no vpdn enable

-	





```
Ruijie(config)# vpdn enable
Ruijie(config)#
```

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5.1.4 vpdn ignore_source

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vpdn ignore_source

no vpdn ignore_source

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```
Ruijie(config)# vpdn ignore_source
Ruijie(config)#
```

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5.1.5 vpdn limit_rate

no

vpdn limit_rate *rate_num*

no vpdn limit_rate

rate_num	

```
Ruijie(config)# vpdn limit_rate 50
Ruijie(config)#
```

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5.1.6 vpdn session-limit

no

vpdn session-limit *sessions*

no vpdn session-limit

sessions	

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```
Ruijie(config)# vpdn session-limit 100
Ruijie(config)#
```

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```
Ruijie(config)# vpdn source-ip 192.168.12.223
Ruijie(config)#
```

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```
Class/
VPDN Group
1    1    BLIZZARD   est    192.168.12.213  1701  1  1
LocID     RemID     TunID     Username, Intf/
State  Last Chg                    Vcid, Circuit
1        1        1        ms,Vi1            est
00:46:30
%No active PPTP tunnels
Ruijie# clear vpdn tunnel l2tp
Ruijie#
```

l2x-packets	8
packet	

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‘ … **debug vpdn event** Ю

```
VPDN: Pptp recv start-control-connection-request from host
192.168.200.114
PPTP: New tunnel socket id =9
VPDN: Pptp get tunnel info for 192.168.200.114 ok!
VPDN: Pptp send start-control-connection-reply, ok
VPDN: Pptp tunnel id 0 state change: idle --> estbed
PPTP: Add send-echo-request timer, interval = 60
VPDN: Pptp tunnel id 0 recv outgoing-call-request!
Pptp: Tunnel to 192.168.200.114 get config para. from vpdn-group pptp!
VPDN: Must process using ACCEPT_DIALIN parameters
Pptp: Session va0 get config para. from vpdn-group pptp!
VPDN: Pptp session va0 state change: idle --> connected
PPTP: Receive outcall request,process ok!assign local call id = 1
VPDN: Pptp tunnel id 0 send out-call reply
%LINK CHANGED: Interface virtual-access 0, changed state to up
VPDN: Pptp tunnel to 192.168.200.114 peer callid 1 recv set-linkinfo
VPDN: Pptp tunnel to 192.168.200.114 peer callid 1 recv set-linkinfo
%LINE PROTOCOL CHANGE: Interface virtual-access 0, changed state to
UP
```

‘ **debug vpdn packet** Ю

```
PPTP: I Start-Control-Connection-Request len 156 Magic Cookie
0x1A2B3C4D
Protocol Version 0x100
Framing Type 0x1
Bearer Type 0x1
Maximum Channels 0x0
Firmware Revision 0x893
Host Name:
endor String: Microsoft Windows NT
PPTP: O Start-Control-Connection-Reply len 156 Magic Cookie
0x1A2B3C4D
Protocol Version 0x100
```

```
Framing Type 0x2
Bearer Type 0x3
Maximum Channels 0x0
Firmware Revision 0x100
Host Name: Dingjs
Vendor String: Ret-Giant Network Operating System
PPTP: I Outgoing-Call-Request len 168 Magic Cookie 0x1A2B3C4D
Call Id 0x4000
Call Serial Number 0x96A5
Min BPS 0x12C
Max BPS 0x5F5E100
Bearer Type 0x3
Framing Type 0x3
Rec Window Size 0x40
Proc Delay 0x0
Phone Number Length 0x0
Phone Number:
Subaddress:
PPTP: O Outgoing-Call-Reply len 32 Magic Cookie 0x1A2B3C4D
Call Id 0x1
Peer Call Id 0x4000
Result Code 0x1
Error Code 0x0
Cause Code 0x0
Connect Speed 0xFA00
Rec Window Size 0x10
Physical Channel Id 0x0
PPTP: I Set-Link-Info len 24 Magic Cookie 0x1A2B3C4D
Peer Call Id 0x1
Send ACCM 0xFFFFFFFF
Recv ACCM 0xFFFFFFFF
%UPDOWN: Interface Virtual-Access1, changed state to up
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 64 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
PPTP: I Set-Link-Info len 24 Magic Cookie 0x1A2B3C4D
Peer Call Id 0x1
Send ACCM 0xFFFFFFFF
Recv ACCM 0xFFFFFFFF
Vi1 VPDN PROCESS Into tunnel: Sending 45 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 46 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 187 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 56 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 64 byte pak
```

```
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
Vi1 VPDN PROCESS Into tunnel: Sending 52 byte pak
```

й **debug vpdn error**

```
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait seq=37,
ack=36), decrease send window to half of current = 33!
VPDN: PPTP session Virtual-Access1 adjust ATO to 220 ms!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait seq=38,
ack=36), decrease send window to half of current = 16!
VPDN: PPTP session Virtual-Access1 adjust ATO to 280 ms!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait seq=39,
ack=36), decrease send window to half of current = 8!
VPDN: PPTP session Virtual-Access1 adjust ATO to 400 ms!
VPDN: Pptp EGRE encap fail, err=-4!
VPDN: PPTP session Virtual-Access1 wait pak ack timeout(wait seq=40,
ack=36), decrease send window to half of current = 4!
VPDN: PPTP session Virtual-Access1 adjust ATO to 640 ms!
```

```
Ruijie# debug vpdn error
vpdn protocol errors debugging is on
Ruijie# debug vpdn event
vpdn events debugging is on
Ruijie# debug vpdn packet
vpdn packet debugging is on
Ruijie# show debug
VPDN:
vpdn events debugging is on
vpdn protocol errors debugging is on
vpdn packet debugging is on
Ruijie#
VPDN PROCESS From tunnel: Received 158 byte pak
L2X: UDP socket write 168 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 70 byte pak
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 76 byte pak
Get virtual-access from free queue: Virtual-Access1
Clone virtual-access from interface Virtual-Template1
L2X: UDP socket write 56 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
```

```
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 76 byte pak
L2X: UDP socket write 40 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
Vi1 Tnl/Sn 3/1 L2TP: Virtual interface created for unknown, bandwidth
1024 Kbps
Vi1 Tnl/Sn 3/1 L2TP: VPDN session up
VPDN PROCESS From tunnel: Pak consumed
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
%UPDOWN: Interface Virtual-Access1, changed state to up
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 255.255.255.255(1701) to
4.83.68.68(1701)
VPDN PROCESS From tunnel: Received 50 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 14 byte pak to ppp parse and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
Vi1 VPDN PROCESS Into tunnel: Sending 50 byte pak
L2X: UDP socket write 50 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
Vi1 VPDN PROCESS Into tunnel: Sending 54 byte pak
L2X: UDP socket write 54 bytes, 192.168.12.217(1701) to
192.168.12.242(1701)
VPDN PROCESS From tunnel: Received 54 byte pak
Vi1 VPDN PROCESS From tunnel: Queue 18 byte pak to ppp parse and iqueue
Vi1 VPDN PROCESS From tunnel: Pak send successful
```

```
L2X: Framing Cap 0x3
L2X: Parse  AVP 4, len 10, flag 0x8000 (M)
L2X: Bearer Cap 0x3
L2X: No missing AVPs in SCCRQ
L2X: I SCCRQ, flg TLS, ver 2, len 130, tnl 0, ns 0, nr 0 contiguous
pak, size 130
C8 02 00 82 00 00 00 00 00 00 00 80 08 00 00
00 00 00 01 80 08 00 00 00 02 01 00 00 08 00 00
00 06 11 30 80 0B 00 00 00 07 43 33 36 34 30 00
19 00 00 00 08 43 69 73 63 6F 20 53 79 73 74 65
6D 73 2C 20 49 6E 63 2E ...
```

```
Tnl 22 L2TP: Bearer Type 0
Tnl 22 L2TP: No missing AVPs in ICRQ
Tnl 22 L2TP: I ICRQ, flg TLS, ver 2, len 48, tnl 22, ns 2, nr 1 contiguous
pak,size 48
C8 02 00 30 00 16 00 00 00 02 00 01 80 08 00 00
00 00 00 0A 80 0A 00 00 00 0F 99 CD C7 86 80 08
00 00 00 0E 05 00 80 0A 00 00 00 12 00 00 00 00
Tnl/Sn 22/1 L2TP: O ICRP to C3640 18889/1280
Tnl/Sn 22/1 L2TP: O ICRP, flg TLS, ver 2, len 28, tnl 18889, lsid
1, rsid 1280,ns 1, nr 3
C8 02 00 1C 49 C9 05 00 00 01 00 03 80 08 00 00
00 00 00 0B 80 08 00 00 00 0E 00 01
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889, ns
2, nr 3
C8 02 00 0C 49 C9 00 00 00 02 00 03
Tnl/Sn 22/1 L2TP: I ICCN from C3640 tnl 18889, cl 1280
Tnl/Sn 22/1 L2TP: Parse  AVP 0, len 8, flag 0x8000 (M)
Tnl/Sn 22/1 L2TP: Parse ICCN
Vi1 Tnl/Sn 22/1 L2TP: Parse  AVP 24, len 10, flag 0x8000 (M)
Vi1 Tnl/Sn 22/1 L2TP: Connect Speed 0
Vi1 Tnl/Sn 22/1 L2TP: Parse  AVP 19, len 10, flag 0x8000 (M)
Vi1 Tnl/Sn 22/1 L2TP: Framing Type 1
Tnl/Sn 22/1 L2TP: No missing AVPs in ICCN
Tnl/Sn 22/1 L2TP: I ICCN, flg TLS, ver 2, len 48, tnl 22, lsid 1,
rsid 1280, ns 3, nr 2 contiguous pak, size 48
C8 02 00 30 00 16 00 01 00 03 00 02 80 08 00 00
00 00 00 0C 80 0A 00 00 00 18 00 00 00 00 80 0A
00 00 00 13 00 00 00 01 00 08 00 00 00 1D 00 04
Tnl 22 L2TP: O ZLB ctrl ack, flg TLS, ver 2, len 12, tnl 18889, ns
2, nr 4
C8 02 00 0C 49 C9 00 00 00 02 00 04
%UPDOWN: Interface Virtual-Access1, changed state to up
%UPDOWN: Line protocol on Interface Virtual-Access1, changed state
to up
```

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5.2.3 show vpdn

show vpdn session | tunnel l2tp pptp *locid*

session	
tunnel	
l2tp *locid*	
pptp *locid*	

```
Ruijie# show vpdn
L2TP Tunnel and Session Information Total tunnels 1 sessions 1
LocID RemID Remote Name   State  Remote Address  Port  Sessions L2TP
Class/
VPDN Group
4     77    BLIZZARD     est    192.168.12.213  1701  1        1
LocID      RemID      TunID      Username, Intf/      State  Last Chg
                                 Vcid, Circuit
1          1          4          ms,Vi1               est    00:33:58
%No active PPTP tunnels
Ruijie#
```

```
Ruijie# show vpdn tunnel
L2TP Tunnel Information Total tunnels 1
LocID RemID Remote Name   State  Remote Address  Port  Sessions L2TP
Class/
VPDN Group
4     77    BLIZZARD     est    192.168.12.213  1701  1        1
%No active PPTP tunnels
```

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5.3 VPDN-Group

5.3.1 accept dialin

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accept-dialin

no accept-dialin

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```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn)#
```

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5.3.2 dns

Â **no**

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dns *A.B.C.D A.B.C.D*

no dns

A.B.C.D	

domain-name	¨
vrf	
vrf-name	¨

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```
Ruijie(config-vpdn)# domain ruijie.net vrf 1
Ruijie(config-vpdn)#
```

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vpdn authorize	¨

internet	˝I ѝ
network	˝I ѝ
priority	˝I ѝ
routine	˝I ѝ

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```
Ruijie(config-vpdn)# ip precedence 7
Ruijie(config-vpdn)#
```

min-monetary-cost	ѝ
normal	ѝ
reflect	ѝ

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ʿ ѝ **min-delay** Â

```
Ruijie(config-vpdn)# ip tos min-delay
Ruijie(config-vpdn)#
```

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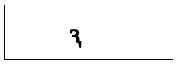
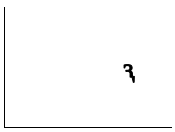


lcp renegotiation always

```
Ruijie(config-vpdn)#
```



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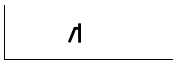

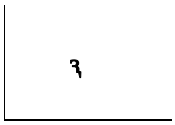

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5.3.8 local name

local name *local-hostname-string*

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5.3.10 protocol

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protocol any l2tp pptp

no protocol

any	ɔ̄ ʎ
l2tp	ɔ̄
pptp	ɔ̄

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[redacted]

5.3.11 source-ip

no Â

source-ip *A.B.C.D*

no source-ip

A.B.C.D	

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```
Ruijie(config-vpdn)# source-ip 202.101.92.73
Ruijie(config-vpdn)#
```

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5.3.12 terminate-from

no Â

terminate-from hostname *remote-hostname-string*

no terminate-from

remote-hostname-string	

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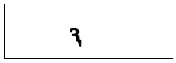

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```
Ruijie(config-vpdn)#
```

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```
Ruijie(config-vpdn-acc-in)# virtual-template 1
Ruijie(config-vpdn-acc-in)#
```

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5.3.14 vpdn-group

a … Â

vpdn-group *vpdn-group-name*

no vpdn-group *vpdn-group-name*

vpdn-group-name	

vpdn-group Â

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… Â

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```
Ruijie(config)# vpdn-group 1
Ruijie(config-vpdn)#
```

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5.4 PPTP

5.4.1 pptp flow-control receive-window

ˇ è **no** Â

pptp flow-control receive-window *packets*

no pptp flow-control receive-window

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5.4.2 pptp flow-control static-rtt

no Â

pptp flow-control static-rtt *timeout-interval*

no pptp flow-control static-rtt

packets	Â

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protocol pptp **protocol any**

accept-dialin
protocol pptp
exit
pptp flow-control static-rtt *32*

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5.4.3 pptp tunnel echo

ʒ ў ╟ ˘ ὲ **no** Â

pptp tunnel echo *echo-packet-interval*

no pptp tunnel echo

echo-packet-interval	˘ Љ ѝ æ Â ʌ Â

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ж ʒ˘ Љ ˝I **protocol pptp** **protocol any** ʒ ɨ˘ ʒ Â *echo-packet-interval* ѝ ˘ a ў ╟ Â

echo-packet-interval a ѝ ˘ *echo-packet-interval* ˘ ‡ ў ╟ Љ ˘ **echo reply** Â ѝ ˘ ˘ ‡ ¯ Y **echo request** Э ˘ Â a **echo reply** ‡ ѝ ˘ ˧ ὲ Â

ʻ ѝ ʻ

```
Ruijie(config-vpdn)# accept-dialin
Ruijie(config-vpdn-acc-in)# protocol pptp
Ruijie(config-vpdn-acc-in)# exit
Ruijie(config-vpdn)# pptp tunnel echo 30
```

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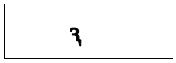

```
Ruijie(config-l2tp-class)#
```

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5.5.4 hostname (L2TP)

ʒ ў ¨ ˘ ὲ **no** Â

hostname *local-hostname-string*

no hostname

local-hostname-string	ў ¨

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```
Ruijie(config-l2tp-class)# hostname LAC
Ruijie(config-l2tp-class)#
```

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5.5.5 ip dfbit set

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ip dfbit set

no ip dfbit set

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```
Ruijie(config-pw-class)# ip dfbit set
Ruijie(config-pw-class)#
```

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```
Ruijie(config-pw-class)# ip local interface serial 0
Ruijie(config-pw-class)#
```

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5.5.7 ip ttl

ʒ ˘ ὲ **no** Â

ip ttl *ttl-value*

no ip ttl

ttl-value	˘ ʌ ѝ

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```
Ruijie(config-pw-class)# ip ttl 253
Ruijie(config-pw-class)#
```

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5.5.8 l2tp-class

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l2tp-class *l2tp-class-name*

no l2tp-class *l2tp-class-name*

l2tp-class-name	¨

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```
Ruijie(config)# l2tp-class l2x
Ruijie(config-l2tp-class)#
```

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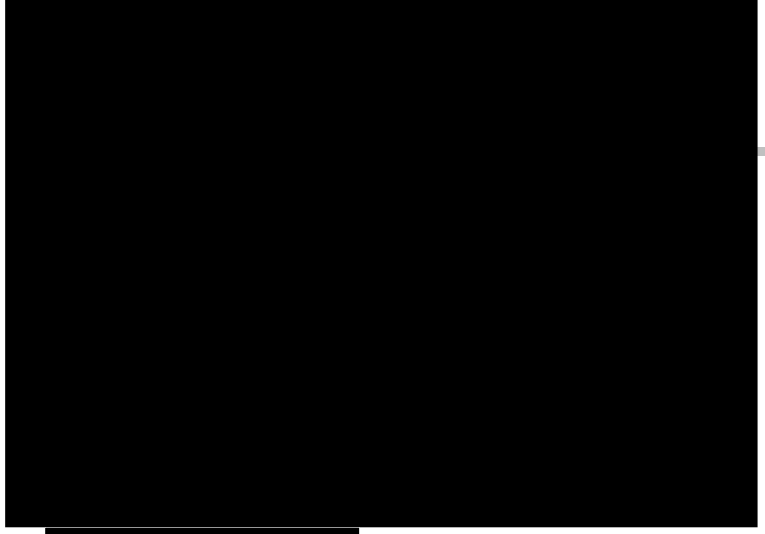

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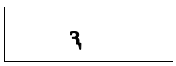

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```
Ruijie(config-vpdn)# l2tp tunnel authentication
Ruijie(config-vpdn)#
```

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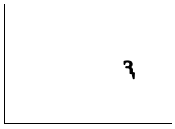

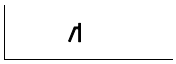

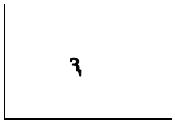

5.5.11 l2tp tunnel avp-hidden-compatible

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è **no** Â

l2tp tunnel avp-hidden-compatible

no l2tp tunnel avp-hidden-compatible

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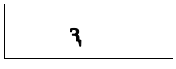

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```
Ruijie(config-vpdn)# l2tp tunnel avp-hidden-compatible
Ruijie(config-vpdn)#
```

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5.5.12 l2tp tunnel force_ipsec

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ὲ **no** Â

l2tp tunnel force_ipsec

no l2tp tunnel force_ipsec

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```
Ruijie(config-vpdn)# l2tp tunnel force_ipsec
Ruijie(config-vpdn)#
```

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5.5.13 l2tp tunnel hello

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l2tp tunnel hello *interval*

no l2tp tunnel hello

interval	˘ Ƶ ὶ Æ

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```
Ruijie(config-vpdn)# l2tp tunnel hello 30
Ruijie(config-vpdn)#
```

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5.5.14 l2tp tunnel password

no l2tp tunnel password

password-string	ʒ

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```
Ruijie(config-vpdn)# l2tp tunnel password share
Ruijie(config-vpdn)#
```

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5.5.15 l2tp tunnel receive-window

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l2tp tunnel receive-window *size*

no l2tp tunnel receive-window

size	⁸ ˧

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```
Ruijie(config-vpdn)# l2tp tunnel receive-window 12
Ruijie(config-vpdn)#
```

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5.5.16 l2tp tunnel retransmit

ʒ 8 ˘ ὲ **no** Â

l2tp tunnel retransmit retries *number* **timeout min max** *seconds*

no l2tp tunnel retransmit retries timeout min max

number	8
seconds	8

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```
Ruijie(config-vpdn)# l2tp tunnel retransmit retries 10
Ruijie(config-vpdn)#
```

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5.5.17 l2tp tunnel timeout

l2tp tunnel timeout no-session | setup *seconds*

no l2tp tunnel timeout no-session setup

no-session	
setup	
seconds	

```
Ruijie(config-vpdn)# l2tp tunnel timeout no-session 1200
Ruijie(config-vpdn)#
```

5.5.18 password (L2TP)

no Â

password *password-string*

no password

password-string	

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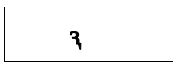
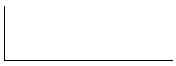
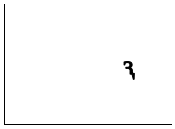
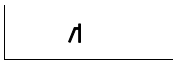
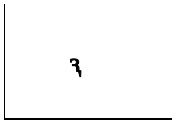




```
Ruijie(config-pw-class)# protocol l2tpv2 l2x
Ruijie(config-pw-class)#
```







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5.5.20 pseudowire

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pseudowire *peer-ip-address vcid* **encapsulation l2tpv2 pw-class** *pw-class-name* **pw-class** *pw-class-name*

no pseudowire

hostname pseudowire

pseudowire hostname *peer-hostname vcid* **encapsulation l2tpv2 pw-class** *pw-class-name* **pw-class** *pw-class-name*

no pseudowire

peer-ip-address	
peer-hostname	ˆ ˜ Э ”Ą ὲ

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‡ Л ⁸ ў ╟ Â

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```
Ruijie(config)# interface virtual-ppp 1
Ruijie(config-if)# pseudowire 192.168.12.213 33 pw-class pw
Ruijie(config-if)#
```

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```
ip domain-lookup
l2tp-class 1
pseudowire-class 1
 encapsulation l2tpv2
ip name-server 192.168.5.119
ip name-server 61.154.22.41
interface FastEthernet 0/0
 ip ref
 ip address 192.168.52.90 255.255.255.0
 duplex auto
 speed auto
interface Virtual-ppp 1
 pseudowire hostname mm.hxs.meibu.com 1 encapsulation l2tpv2
 ppp pap sent-username user1 password  11
 ip address negotiate
ip route 0.0.0.0 0.0.0.0 192.168.52.1
```

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5.5.21 pseudowire-class

pseudowire-class *pseudowire-class-name*

no pseudowire-class *pseudowire-class-name*

pseudowire-class-name	

```
Ruijie(config)# pseudowire-class pw
Ruijie(config-pw-class)#
```

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5.5.22 receive-window

receive-window *size*

no receive-window

size	8

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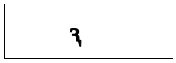

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```
Ruijie(config-l2tp-class)# retransmit initial retries 3
Ruijie(config-l2tp-class)#
```

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6 Tunnel

6.1

6.1.1 keepalive (tunnel interface)

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keepalive *seconds retries*

no keepalive

seconds	ˆ ⋀ ˜ ˘ æ Â ˙ Â Â
retries	Â ˘ ˘ ‡ Â ⋀ ˙ Â ѝ Â

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seconds‘ 10

retries‘ 3

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```
Ruijie(config)# interface tunnel 1
Ruijie(config)# keepalive 3 5
```

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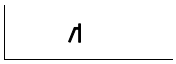
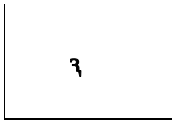
show interfaces tunnel	Â





6.1.2 tunnel checksum

Ю **tunnel checksum**

tunnel checksum

no tunnel checksum

tunnel destination *ip-address*

no tunnel destination

ip-address	

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```
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel destination 61.154.101.3
```

show interfaces tunnel	

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6.1.4 tunnel key

tunnel key

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tunnel key *value*

no tunnel key

value	tunnel 0-4294967295 Â

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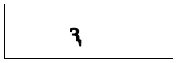

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show interfaces tunnel	

-	

6.1.6 tunnel path-mtu-discovery

tunnel path-mtu-discovery

tunnel path-mtu-discovery age-timer *aging-mins* **infinite**

min-mtu *mtu-bytes*

no tunnel path-mtu-discovery age-timer min-mtu

aging-mins	MTU MTU *aging-mins* 1-30 10 infinite MTU
mtu-bytes	PMTUD MTU MTU 92-65535 92

tunnel path-mtu-discovery

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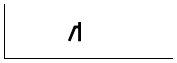

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7 IPSec

7.1

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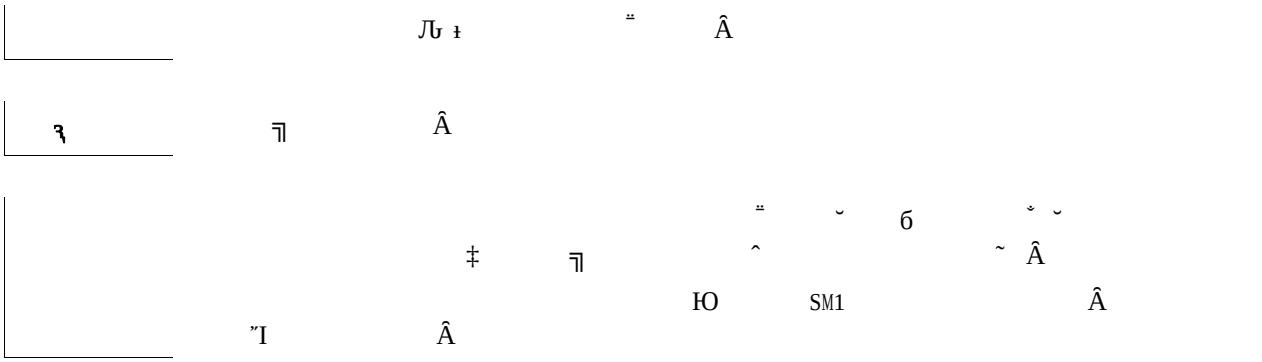
7.1.1 authentication (IKE policy)

authentication **no**

authentication pre-share rsa-sig|digital-email

no authentication

pre-share	
rsa-sig	
digital-email	



crypto isakmp enable	
encryption des 3des | aes-128 | aes-192 | aes-256 | sm1	
hash sha md5	
group 1 2	
lifetime	

-	

7.1.2 clear crypto isakmp

clear crypto isakmp *connection-id*

connection-id	

connection-id ˘ ‡ ʒ

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ʒ /ı˘ ɨ ‘Ą **clear crypto isakmp** é
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7.1.3 clear crypto sa

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clear crypto sa

clear crypto sa peer *ip-address peer-name*

clear crypto sa map *map-name*

clear crypto sa spi *destination-address* **ah esp** *spi*

ip-address	Â
Peer-name	ў ¨
Map-name	¶ ¨
Destination-address	
Spi	

a **peer** ȁ **map** ȁ **spi** ˘ ‡
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Э ʒ ˘ **peer** à **map** à **spi** ˘ ‡
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˘ /ˈ ʒ ˘ Â
˘ ˘ ѝ a ѐ ˘
peer à **map** à **spi** Â
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Ruijie# **clear crypto sa**

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clear crypto isakmp	

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7.1.4 crypto dynamic-map

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ʒ **no** ╗ Â

crypto dynamic-map *dynamic-map-name dynamic-seq-num*

no crypto dynamic-map *dynamic-map-name dynamic-seq-num*

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7.1.6 crypto ipsec multcast disable

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crypto ipsec multcast disable

no crypto ipsec multcast disable

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```
Ruijie(config)# crypto ipsec multcast disable
```

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7.1.7 crypto ipsec optional

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crypto ipsec optional

no crypto ipsec optional

crypto ipsec security-association lifetime seconds *seconds* **kilobytes** *kilobytes*

no crypto ipsec security-association lifetime seconds kilobytes

seconds *seconds*	ˆ ˜ Â ù ˆ ˜ Â Л Љ ˘ a ╗ Â
kilobytes *kilobytes*	ˆ Љ ˜ Â ù Â Л ù ˘ a ╗ Â

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Ruijie(config)# **Crypto ipsec security-association lifetime kilobytes** *2304000*

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7.1.10 crypto ipsec security-association replay disable

crypto ipsec security-association replay disable

no

crypto ipsec security-association replay disable

no crypto ipsec security-association replay disable

7.1.11 crypto ipsec transform-set

crypto ipsec transform-set **no**

crypto ipsec transform-set *transform-set-name transform1*

[transform2 [transform3]]

no crypto ipsec transform-set *transform-set-name*

transform-set-name	
transform1 *transform2* *transform3*	

7.1.12 crypto isakmp enable

crypto isakmp enable **no**

crypto isakmp enable

no crypto isakmp enable

-	

```
Ruijie(config)# crypto isakmp enable
```

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7.1.13 crypto isakmp key

crypto isakmp key **no**

crypto isakmp key **0 | 7** *keystring* **hostname** *peer-hostname* **address** *peer-address* *mask*

no crypto isakmp key **0 | 7** *keystring* **hostname** *peer-hostname* **address** *peer-address* *mask*

0 | 7 ˛	ѝ ѝ
keystring	˘ ⁄ Л Ъ Â
peer-hostname	ў ¨
peer address	
mask	ѝ

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ч Э ˘ Â ѝ ˘
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w<0 0 -0582D(sm1/C2_0 1 Rfi.jie.001[<02/#<>crypto isakmp key 0 mysecret address 0 1 72 f6 11 1 -04482C5

crypto isakmp keepalive *secs*

crypto isakmp keepalive *secs* **on-demand**

crypto isakmp keepalive *secs* **periodic**

crypto isakmp keepalive *secs retries*

crypto isakmp keepalive *secs retries* **on-demand**

crypto isakmp keepalive *secs retries* **periodic**

no crypto isakmp keepalive

secs	
retries	

crypto isakmp keepaliv


```
Ruijie(config)# crypto isakmp nat disable
```


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7.1.18 crypto isakmp next-payload disable

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crypto isakmp next-payload disable

no crypto isakmp next-payload disable

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```
Ruijie(config)# crypto isakmp policy 100
Ruijie(isakmp-policy)# authentication pre-share
Ruijie(isakmp-policy)# encryption des
Ruijie(isakmp-policy)# group 2
Ruijie(isakmp-policy)# hash sha
Ruijie(isakmp-policy)# ^Z
Ruijie# show crypto isakmp policy
Protection suite of priority 100
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Secure Hash Standard
authentication method:  Pre-Shared Key
Diffie-Hellman group:   #2 (1024 bit)
lifetime:               3600 seconds
Default protection suite
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Secure Hash Standard
authentication method:  Rsa-Sig
Diffie-Hellman group:   #1 (768 bit)
```

crypto isakmp enable	
encryption des | 3des | aes-128 | aes-192 | aes-256 | sm1	
hash sha md5	
authentication pre-share rsa-sig	
group 1 2	
lifetime	

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7.1.21 crypto isakmp rg-sm1

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crypto isakmp rg-sm1

no crypto isakmp rg-sm1

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˙ Ю ˙	

```
Ruijie(config)# crypto isakmp rg-sm1
```

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7.1.22 crypto isakmp vendorid disable

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crypto isakmp vendorid disable

no crypto isakmp vendorid disable

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```
Ruijie(config)# crypto isakmp vendorid disable
```

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7.1.23 crypto map (global IPSec)

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```
abcdef1234567890
Ruijie(config-crypto-map)# set sesession-key
outbound esp 300 cipher abcdef1234567890
Ruijie(config-crypto-map)# set transform-set myset
Ruijie(config-crypto-map)# match address 101

Ruijie(config)# crypto map mymap 4 ipsec-isakmp
Ruijie(config-crypto-map)# set peer 2.2.2.2
Ruijie(config-crypto-map)# set transform-set myset
Ruijie(config-crypto-map)# match address 101
```

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crypto map(interface IPSec)	╗
match address	ѝ ╗ Â
Set peer	
Set transform-set	⅄
show crypto map	╗

⅄

⅄	
-	

7.1.24 crypto map (interface IPSec)

ˇI Ѭ ╗ Ɔ˘ ⅄ Ѣ **crypto map** ʒ Â ʒ **no** ÿ Ɔ ⅄ ╗ Â

crypto map *map-name*

no crypto map *map-name*

map-name	╗ ¨

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Ю **loopback** й Â

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```
interface serial0
crypto map mymap
interface serial1
crypto map mymap
crypto map mymap local˙ address loopback0
```

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ʒ	
crypto isakmp enable	Â
encryption	╗
hash sha md5	
authentication pre-share rsa-sig	
group 1 2	
lifetime	Â

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7.1.26 crypto mib enable

ˇ ʒ **crypto mib enable** ʒ ╗ Â

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‘ Ю ╗ ‘
crypto mib enable
‘ Ю ╗ ‘
no crypto mib enable

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crypto mib enable	╗ ˘

7.1.27 crypto software

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7.1.28 debug crypto engine

debug Â

debug crypto engine

no debug crypto engine

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7.1.29 debug crypto ipsec

debug Â

debug crypto ipsec

no debug crypto ipsec

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7.1.30 debug crypto isakmp

Y˚ **debug** Â

debug crypto isakmp

no debug crypto isakmp

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7.1.31 encryption (IKE policy)

╗ ˘ ╖ **encryption** Â ╖ Â

encryption des 3des|aes-128|aes-192|aes-256|sm1

no encryption

des	56 DES-CBC ù ╗ Â
3des	168 3DES-CBC ù ╗ Â
aes-128	ù 128 AES ù ╗ Â
aes-192	ù 192 AES ù ╗ Â
aes-256	ù ù ╗ Â

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7.1.32 group (IKE policy)

group **no**

group 1|2

no group

1	
2	

```
Ruijie(config)# crypto isakmp policy 10
Ruijie(isakmp-policy)# group 2
```

crypto isakmp enable	
encryption des | 3des | aes-128 | aes-192 | aes-256 | sm1	
hash sha | md5	
authentication pre-share | rsa-sig	
lifetime	

7.1.36 match any (IPSec-Profile)

match any

no match any

Ruijie(config)# crypto map mymap *4* ipsec-isakmp
Ruijie(config-crypto-map)# match address *101*

crypto ipsec profile *profile-name* **(global IPSec-Profile)**	

	-	

7.1.37 mode (IPSec)

mode no

reverse-route [remote-peer *ip-address***] [***distance***] [tag** *tagvalue***] [track** *trackvalue***]**

no reverse-route [remote-peer *ip-address***] [***distance***] [tag** *tagvalue***] [track** *trackvalue***]**

ip-address	Ю ˘ ⅄
distance	Ю
tagvalue	
trackvalue	

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```
Ruijie(config)# crypto  map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# reverse-route
```

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crypto map(global IPSec)	Ѭ╗
debug crypto ipsec	

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trustpoint	
fqdn	¨
user-fqdn	¨

address ‘

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```
Ruijie(config)# self-identity fqdn www.vpdn.com
Ruijie(config)# self-identity user-fqdn
zj@www.vpdn.com
Ruijie(config)# self-identity address
```

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7.1.40 set autoup

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set autoup

no set autoup

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	⅄ Љ ѝ Â ˘ Ю
	ʻ ЉЮ ʻ Ruijie(config)# **crypto map mymap** *10* **ipsec-isakmp** Ruijie(config-crypto-map)# **set autoup**

ʒ	
crypto map(interface IPSec)	╗
match address	ѝ ╗ Â
Set peer	
Set transform-set	⅄
show crypto map	╗

⅄	

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⅄	
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7.1.41 set exchange-mode

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set exchange-mode main | aggressive

no set exchange-mode

main	ў
aggressive	

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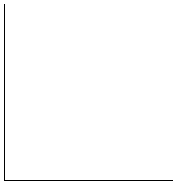
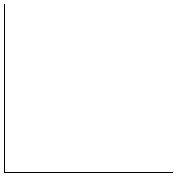
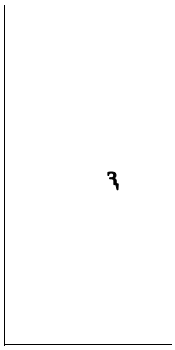
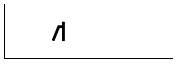


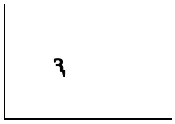


```
Ruijie(config)# crypto map mymap 10  ipsec-isakmp
Ruijie(config-crypto-map)# set exchange-mode
aggressive
```



crypto map(interface IPSec)	
match address	
Set peer	
Set transform-set	
show crypto map	





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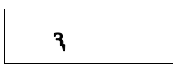
7.1.42 set local (IPSec)

set local Â **no**

set local *ip-address*

no set local *ip-address*

ip-address	



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```
Ruijie(config)# crypto  map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# set peer 2.2.2.2
```

crypto map(global IPSec)	Ж╖
show crypto map	╖
crypto map(interface IPSec)	Э ╖

show crypto map	╗
crypto map(interface IPSec)	Э ╗

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show crypto map	╗
crypto map(interface IPSec)	Э ╗
crypto ipsec security-association lifetime	

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7.1.46 set session-key

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set session-key { inbound | outbound} ah *spi hex-key-data*

set session-key { inbound | outbound} esp *spi* **cipher** *hex-key-data* **[authenticator** *hex-key-data***]**

no set session-key { inbound | outbound} ah

no set session-key { inbound | outbound} esp

spi	
hex-key-data	8

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crypto map(global IPSec) ipsec-manual	
show crypto map	
crypto map(interface IPSec)	

-	

7.1.47 set transform-set

set transform-set **no**

Set transform-set *transform-set-name1 transform-set-name2 transform-set-name3 transform-set-name4 transform-set-name5 transform-set-name6*

no set transform-set

transform-set-name1	
transform-set-name2	
transform-set-name3	
transform-set-name4	
transform-set-name5	
transform-set-name6	

crypto map(global IPSec)	Ѭ╗
show crypto map	╗
crypto map(interface IPSec)	Э ╗

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7.1.48 set mtu

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set mtu *length*

no set mtu

length	ǂ ˘ ѝ

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```
Ruijie(config)# crypto  map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# set mtu 1000
```

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crypto map(global IPSec)	Ѭ╗
show crypto map	╗
crypto map(interface IPSec)	Э ╗

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-	

7.1.49 tunnel protection ipsec profile (interface IPSec for IPSec-Profile)

tunnel protection ipsec profile **no** **tunnel protection ipsec profile**

tunnel protection ipsec profile *profile-name*

no tunnel protection ipsec profile *profile-name*

profile-name	

Profile map GRE IPIP IPV6 Tunnel Tunnel Profile Tunnel map

```
Ruijie(config)# interface tunnel 1
Ruijie(config-if-Tunnel 1) # tunnel protection ipsec profile profile-name
```

crypto map(global IPSec)	
show crypto map	

-	

7.2

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show crypto dynamic-map (IPSec)

show crypto ipsec sa

show crypto ipsec transform-set

show crypto isakmp policy

show crypto isakmp sa

show crypto map(IPSec)

7.2.1 show crypto dynamic-map (IPSec)

╠ ╗ ˘ ʒ **show crypto dynamic-map** Â

show crypto dynamic-map *map-name*

map-name	╗ ¨ Â

╗ ¨ ˘ ‡ Э ╠ ╗ Â

ʒ Â

```
1˙ Ruijie# show crypto dynamic-map
    Crypto Map Template "mydmap" 1
No matching address list set.
Security association lifetime: 4608000 kilobytes/3600 seconds(id=34)
PFS (Y/N): N
Transform sets = { }
```

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7.2.2 show crypto ipsec sa

show crypto ipsec sa

show crypto ipsec sa

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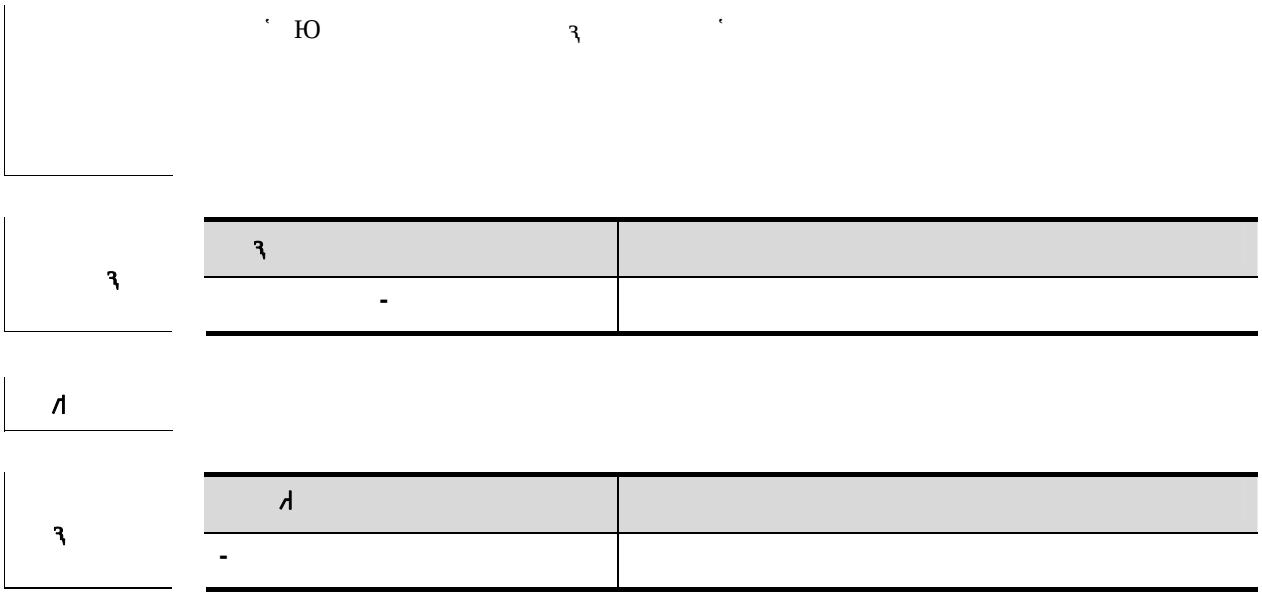

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7.2.4 show crypto isakmp policy

show crypto isakmp policy

show crypto isakmp policy

-	

```
Ruijie# show crypto isakmp p
Protection suite of priority 9
encryption algorithm:   3DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Message Digest 5
authentication method:  Pre-Shared Key
Diffie-Hellman group:   #2 (1024 bit)
lifetime:               1000 seconds
Protection suite of priority 10
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:         Message Digest 5
authentication method:  Pre-Shared Key
Diffie-Hellman group:   #2 (1024 bit)
```

```
lifetime:             1000 seconds
Default protection suite
encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:        Secure Hash Standard
authentication method:  Rsa-Sig
Diffie-Hellman group:   #1 (768 bit)
lifetime:             86400seconds
```

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7.2.5 show crypto isakmp sa

Э ╟ ˘ **show crypto isakmp sa** Â

show crypto isakmp sa

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```
Ruijie#!!show crypto  isakmp sa!
 destination   source    state     conn-id   lifetime(second)
 1.1.1.1       1.1.1.2  IKE_IDLE  59        32254
```

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7.2.6 show crypto map (IPSec)

show crypto map Â

show crypto map *map-name*

map-name	Â

Â

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```
Ruijie#show crypto map

Crypto Map:"mymap1" 1 ipsec-isakmp, (Complete)
       Extended IP access list 100
       Security association lifetime: 0 kilobytes/120 seconds(id=2)
       PFS (Y/N): N
       Transform sets = { myset3,  }

       Interfaces using crypto map mymap1:
              GigabitEthernet 1/1/0
```

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8.1

8.1.1 certificate

certificate **no**

certificate ca *certificate-serial-number*

no certificate ca *certificate-serial-number*

ca	
certificate-serial-number	╗ ╛

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```
Ruijie# show crypto pki certificate
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%Router certificate info:
Certificate:
Data:
Version: 3 (0x2)
Serial Number:
16:2a:7a:1d:00:00:00:00:00:02
Signature Algorithm: sha1WithRSAEncryption
Â Â Â˘ Â Â Â
Ruijie# config t
Ruijie(config)# crypto pki certificate chain ca_name
Ruijie(config-cert-chain)# no certificate 162a7a1d000000000002
Ruijie(config-cert-chain)# exit
Ruijie(config)#
```

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crypto pki certificate chain	ʒ

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8.1.2 crypto pki authenticate

crypto pki authenticate

crypto pki authenticate *ca_name*

ca_name	*ca_name*

crypto pki trustpoint *ca_name*

8.1.3 crypto pki certificate chain

crypto pki certificate chain

NO

crypto pki certificate chain *ca_name*

no crypto pki certificate chain *ca_name*

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ca_name	*ca_name* ѝ ʼΩ ¨

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no crypto pki certificate chain *ca_name* ʒ˘

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certificate	ʒ

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8.1.4 crypto pki certificate peer

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crypto pki certificate peer *ip_address*

ip_address	

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8.1.5 crypto pki crl request

Ю ˚ ˘ Ю **crypto pki crl request** ҂ Â
҂ **No** Â

crypto pki crl request *trustpoint*

trustpoint	*trustpoint* ˘

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8.1.6 crypto pki crl url

Ю ˇ ˘ Ю **crypto pki crl url** ʒ ÂЉ ѐ **NO** Â ʒ ˘ ˘ ʒ ʎ ѝ Ѣ Â

crypto pki crl url *url_string*

no crypto pki crl url

url_string	Ѣ ˘ a

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url_string Ѣ ˛ ˛ Ю ˘ ŭ ‡ ʎ ¨ ɨ ʎ˘ ˛ ¨ ѝ ˘ ŭ ‡ ʎ ˘ ˛ ˝ ¨ ѝ ˘ ŭ ‡ ≠ ʎ ˘ ˛ a ˘ ˘ ʎ ľ Ł ʒ ˘ ˛ Â

url_string ¨ ʎ Ѣ ˘ ˘ ≠ ʎ Ѣ ў ¨ ˘ Â a ÿ ˘ Ю ╟ ¨ ў ¨ ˘ Â ¨ ˘ ‡ ╞ ˛ ў ¨ ˘ ʒ ў Â

1˛ ЉЮ ˛

```
http://www.myca.cn/certsrv/certcrl.crl
http://www.myca.cn:1010/certsrv/
http://www.myca.cn:80/certsrv
http://www.myca.cn/certcrl.crl
http://www.myca.cn:80/
http://www.myca.cn:1220
```

```
http://www.myca.cn
http://www.myca.cn/CertEnroll/CA%20Server.crl
http://202.101.211.123/certsrv/certcrl.crl
```

crypto pki crl request	Ю

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8.1.7 crypto pki enroll

crypto pki trustpoint	

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8.1.8 crypto pki import crl

ÿ ˘ Ю **crypto pki import** *ca_name* **crl** *tftp_url*
ʒ Â ʒ **No** Â

crypto pki import *ca_name* **crl** *tftp_url*

ca_name	*ca_name* ѝ ˆ ˜ ʼΩ ¨
terminal	ÿ ⁸ ʎ
tftp_url	ˇ Â

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8.1.9 crypto pki import pem

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Ю **crypto pki** *ca_name* **import pem** *password* ҃ Â ҃ **No** Â

crypto pki import *ca_name* **pem terminal** *password*

ca_name	*ca_name* ѝ ^

```
L1xcemotcm91dGVyXENlcnRFbnJvbGxcQ0ElMjB0ZXN0JTIwc2VydmVyLmNybDAQ
BgkrBgEEAYI3FQEEAwIBATANBgkqhkiG9w0BAQUFAANBAH8ufRZ2tVYO3R7YC0IF
OzmnQrjgaBN4bpmSLkxYYKtK8ZNjo0FwUL11aq6nCGp6n8Ks0dijoMxnedB2zn0a
f0w=
-----END CERTIFICATE-----
quit
Certificate has the following attributes:
Fingerprint: B286A3F4 4930D46D 81D4A544 885D611C

% Do you accept this certificate? [yes/no]: yes

% Certificate successfully imported
% Enter PEM-formatted encrypted private key.

% End with "quit" on a line by itself.
        ľ    Ł
           ˘        ˘   Ю
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4,ENCRYPTED
DEK-Info: DES-EDE3-CBC,251F9D955610C376

GDG2s1mbs/MJCpo5w2bu972jK1OZYtv3RQunH4I29c9H5uq3LtyvNA9RwrlpRQ3t
iUmkvQrU3/6SBp4Rqx1EU2UWgv1KRqqYwRVbdPdBZYVJLrso3Ov/9eaS4TiD+4Dl
NfJ1sAA4OONdVKDCLcGZIB43Wq5rAlqzsyjcF6tx3fWsSankVjQfroTv7UvP+ijj
uGndmJwbXEiATxlt+Smvt2/CGjr8nIC55T1W+tW0itkBdZhnvBJekOFM4BdgoLZc
3vueTIHmTurHvvdLIytYjQHsxVsf3vRGMcQhohM98nAYsIDBil4OIh1hc+ZnhGsn
TFLPMmMuJnBWMYopfaMPNrcdbpu+n4Qj2QiRoVTEoI7P1IAY/Oa2uc+kDuUX3KlW
sQQPnFNiU0Q/T9BrsolxI2Wkak7cvaNxbmhuU+5wNUGybQfcfP3CWg==
-----END RSA PRIVATE KEY-----
quit
% RSA private key successfully imported
Enter the base 64 encoded certificate.//       PEM

End with a blank line or the word "quit" on a line by itself
//              ľ quit Ł Ль
//               ˘        ˘   Ю
-----BEGIN CERTIFICATE-----
MIIEsTCCBFugAwIBAgIKEffFFwABAAAAPjANBgkqhkiG9w0BAQUFADCBrDEhMB8G
CSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV0LmNuMQswCQYDVQQGEwJDTjEPMA0G
A1UECBMGRnVKaWFuMQ8wDQYDVQQHEwZGdVpob3UxIDAeBgNVBAoTF1JlZ2lhbnQg
TmV0d29yayBDby4gTHRkMR0wGwYDVQQLExRSZXNlYXJjaCBBcGFydG1lbnQgNTEX
MBUGA1UEAxMOQ0EgdGVzdCBzZXJ2ZXIwHhcNMDUwNDEyMDkyOTUzWhcNMDYwNDEy
MDkzOTUzWjCBpDEhMB8GCSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV0LmNuMQsw
CQYDVQQGEwJDTjEPMA0GA1UECBMGRnVKaWFuMQ8wDQYDVQQHEwZGdVpob3UxIDAe
```

```
BgNVBAoTF1JlZ2lhbnQgTmV0d29yayBDby4gTHRkMR0wGwYDVQQLExRSZXNlYXJj
aCBBcGFydG1lbnQgNTEPMA0GA1UEAxMGZGluZ2pzMFwwDQYJKoZIhvcNAQEBBQAD
SwAwSAJBAM0sOymB/5v35vnf/PlJX+aqZpH9drtevsNaHkj4i3XdaJ55rFo2wLT0
qpWTI0nu638ktUa4dEIfF0AQM67sP0ECAwEAAaOCAmMwggJfMA4GA1UdDwEB/wQE
AwIE8DATBgNVHSUEDDAKBggrBgEFBQgCAjAdBgNVHQ4EFgQUIWVn8+ciY7JJkOFN
7MIkcRWWpx8wgegGA1UdIwSB4DCB3YAUckOEHCsDRS2CWPWEQ3f1IapLLCGhgbKk
ga8wgawxITAfBgkqhkiG9w0BCQEWEmRpbmdqc0BzdGFyLW5ldC5jbjELMAkGA1UE
BhMCQ04xDzANBgNVBAgTBkZ1SmlhbjEPMA0GA1UEBxMGRnVaaG91MSAwHgYDVQQK
ExdSZWdpYW50IE5ldHdvcmsgQ28uIEx0ZDEdMBsGA1UECxMUUmVzZWFyY2ggQXBh
cnRtZW50IDUxFzAVBgNVBAMTDkNBIHRlc3Qgc2VydmVyghBWrgc8EKF+jEWujT8V
UjNXMH8GA1UdHwR4MHYwOKA2oDSGMmh0dHA6Ly96ai1yb3V0ZXIvQ2VydEVucm9s
bC9DQSUyMHRlc3QlMjBzZXJ2ZXIuY3JsMDqgOKA2hjRmaWxlOi8vXFx6ai1yb3V0
ZXJcQ2VydEVucm9sbFxDQSUyMHRlc3QlMjBzZXJ2ZXIuY3JsMIGsBggrBgEFBQcB
AQSBnzCBnDBLBggrBgEFBQcwAoY/aHR0cDovL3pqLXJvdXRlci9DZXJ0RW5yb2xs
L3pqLXJvdXRlcl9DQSUyMHRlc3QlMjBzZXJ2ZXIoMSkuY3J0ME0GCCsGAQUFBzAC
hkFmaWxlOi8vXFx6ai1yb3V0ZXJcQ2VydEVucm9sbFx6ai1yb3V0ZXJfQ0ElMjB0
ZXN0JTIwc2VydmVyKDEpLmNydDANBgkqhkiG9w0BAQUFAANBABSEeYlEi7fm06en
NDdkZMjYV8LZB1JjniePwy1sUEEDa2bH9ZrcpTnJ+CSkCkxXBTc5ZWZnFTiSH/Oc
uVyQ9D8=
-----END CERTIFICATE-----
quit
% Certificate successfully imported
Ruijie(config)#
```

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8.1.10 crypto pki trustpoint

ˆ ˜˘ Ю **crypto pki trustpoint**

ʒ Â Љ ѐ **NO** ʎ ʎ ѐ Â

crypto pki trustpoint *ca_name*

no crypto pki trustpoint *ca_name*

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8.1.12 enrollment retry count

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enrollment retry count ʒ Â Ƶ è **NO** Â

enrollment retry count *number*

no enrollment retry count

number	ѝ ˘ Æ ѝ Â Â

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8.1.13 enrollment retry period

enrollment retry period **NO**

enrollment retry period *numbe*

no enrollment retry period

number	

8.1.14 enrollment url

enrollment url **NO**

enrollment url *url_string*

no enrollment url

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url_string	Љ ˘ a

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8.1.15 enrollment auto-enroll

˘ Ю **enrollment auto-enroll** ʒ Â Љ ὲ **NO** Â

enrollment auto-enroll *percentage*

no enrollment auto-enroll

percentage	*percentage* ὶ ˘ ǂ Â

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8.1.17 debug crypto pki

Ю **debug crypto pki** Â

è **no** Â

debug crypto pki event error

no debug crypto pki event error

event	Y˚
error	

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8.1.18 recursion-check

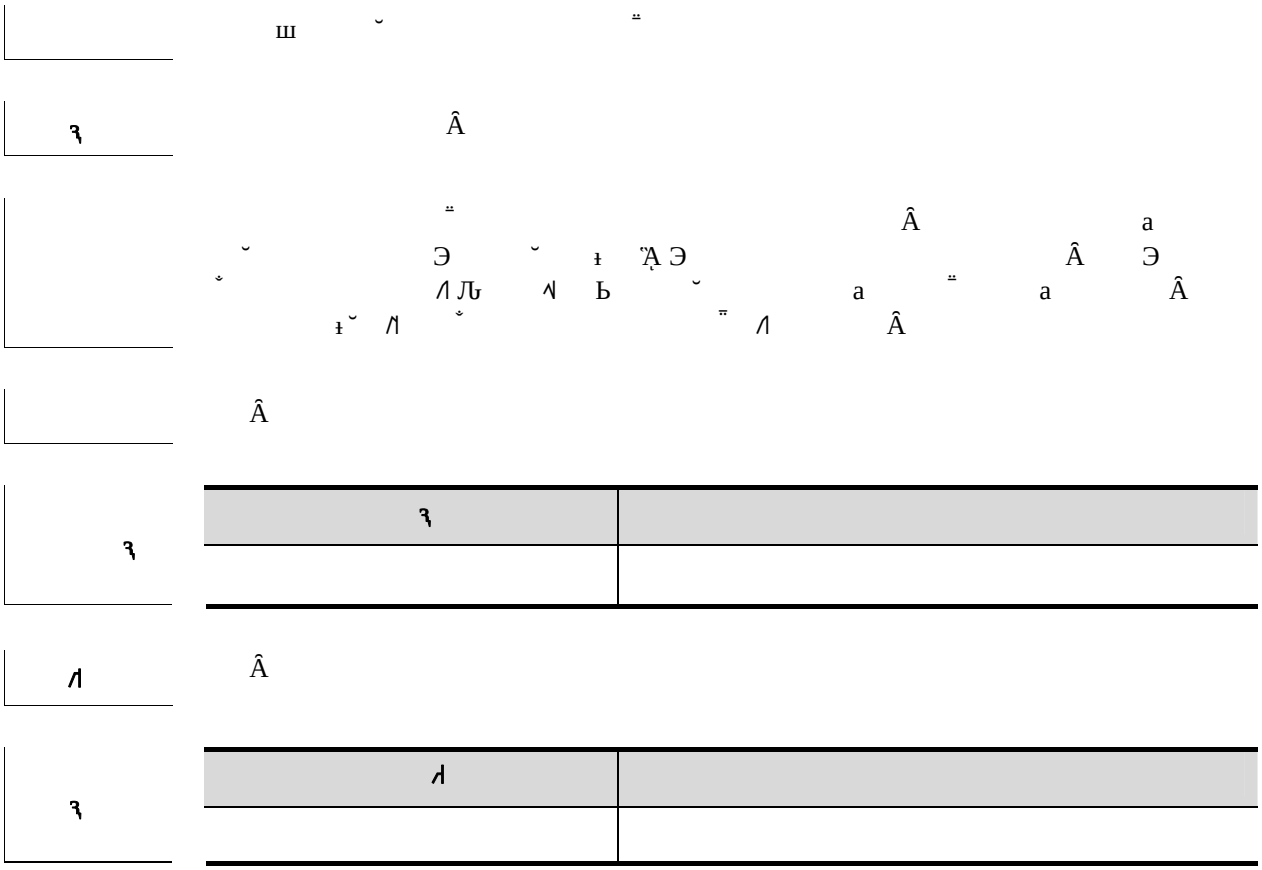
Ю **recursion-check** Â

No Â

recursion-check none

no recursion-check none

none	



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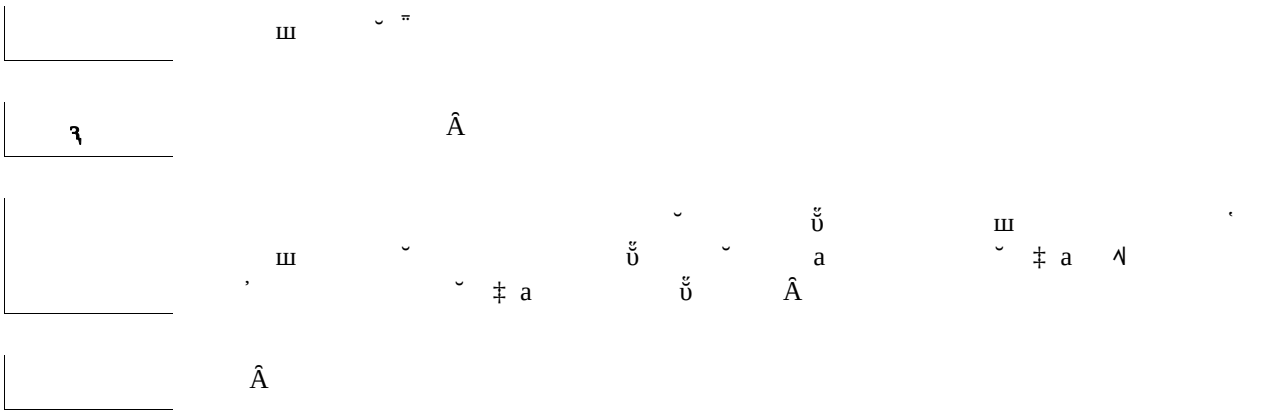
8.1.19 revocation-check

ŭ ˘ Ю **revocation-check** ʒ Â
ʒ **No** Â

revocation-check none

no revocation-check none

none	˘ ˘ ¯ a ŭ



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8.1.21 interface

ʌ ȁ ˘ Ю **interface**

ʒ Â ʒ **No** Â

interface *interface_name*

no interface

none	

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8.2

ЛЮ ʒ˙

show crypto pki certificate

show crypto pki crls

show crypto trustpoints

show crypto trustpoints name_string status

8.2.1 show crypto pki certificates

Ю **show crypto pki certificates**

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show crypto pki certificates *CA_name* **detail**

CA_name	

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```
Ruijie# show crypto pki certificates test detail
%CA certificate info:                          //CA
Certificate:
Data:
Version: 3 (0x2)                              //X.509 v3
Serial Number:                                  //
7f:ff:bb:39:97:39:b4:81:4b:e1:6b:4f:f9:06:7a:4b
Signature Algorithm: sha1WithRSAEncryption    //
```

Exponent: 65537 (0x10001)

X509v3 extensions: //

X509v3 Key Usage: //

Digital Signature, Non Repudiation, Certificate Sign, CRL Sign
// ¨ ˘ ˘ ¨ ˘ CRL ¨

X509v3 Basic Constraints: critical

CA:TRUE

X509v3 Subject Key Identifier: // ў
64:46:12:C0:27:A4:9E:01:0C:65:DA:F8:6E:E7:FE:C6:56:EC:AD:D4

X509v3 CRL Distribution Points: //CRL‡

URI:http://zj-router/CertEnroll/CA%20Server.crl

URI:file://\\zj-router\CertEnroll\CA%20Server.crl

1.3.6.1.4.1.311.21.1:

...

Signature Algorithm: sha1WithRSAEncryption
// ¨

34:2f:8d:93:68:43:60:7b:68:5f:f0:7e:91:0c:5c:e3:58:98:

7c:53:95:ae:c2:b8:1c:ff:82:a4:ae:95:a8:81:a8:8a:ff:f9:

6f:92:72:3e:fa:6f:84:7d:83:47:93:0f:85:76:48:ae:68:b9:

5a:72:cf:09:50:be:1b:a7:e1:87 // ¨

%Router certificate info: //ЛЬЮ и

Certificate:

Data:

Version: 3 (0x2) //X.509 v3

Serial Number: // л

16:2a:7a:1d:00:00:00:00:00:02

Signature Algorithm: sha1WithRSAEncryption
// ¨

Issuer: emailAddress=wlcpyjwb@star-net.cn, C=CN, ST=fj, L=fuzhou,
O=Red Giant, OU=Department 5, CN=CA Server

// DN¨

Validity //

Not Before: Jun 22 05:50:48 2005 GMT // UTC

Not After : Jun 22 06:00:48 2006 GMT //¯ UTC

Subject: emailAddress=zhaojun, C=CN, ST=fj, L=fuzhou, O=Red Giant,
OU=De partment 5, CN=zhaojun

// ў DN¨

Subject Public Key Info: //ў Ω

Public Key Algorithm: rsaEncryption //Ω : и RSA ╕

RSA Public Key: (2048 bit) //2048 Æ RSA Ω

Modulus (2048 bit):

00:c6:e2:7a:e8:8d:6d:d8:bb:56:a8:9c:03:62:14:

e5:2e:23:e5:a5:26:31:3d:b2:24:65:b1:f2:cc:07:

```
e3:ef:cc:02:3c:d0:6e:00:8d:fc:ce:3a:b6:45:7a:
cb:a0:87:94:1f:c3:92:43:36:6a:b2:7c:9c:d5:ca:
7e:83:ba:76:49:7f:be:f4:1f:4a:a1:0b:98:22:96:
e2:79:54:a0:ed:1c:62:30:b7:ee:6a:6e:cb:72:e9:
9c:d9:e8:b0:dc:f5:c6:19:8f:2b:2a:85:fa:bf:ff:
08:40:7e:f2:a1:df:d1:8b:ef:68:32:1e:1a:45:fa:
16:de:33:b0:62:90:bd:9c:8e:ec:7c:6e:49:48:75:
e6:5c:ce:b1:8e:1c:80:f3:5b:79:6c:a1:31:b2:a9:
48:37:9f:ed:45:95:85:ba:98:0f:42:c5:78:4c:3d:
a2:45:73:90:3d:0b:1a:7c:53:b5:97:1a:a6:43:2f:
44:54:0f:a1:51:3a:0e:9f:8b:2e:d1:70:cb:36:99:
91:57:d2:b7:9d:7c:ee:07:cf:4a:c7:cd:71:dc:ce:
72:dc:75:a0:03:b2:36:be:8e:af:ca:99:46:03:83:
27:d3:ff:24:1e:4c:0c:21:99:b4:fe:5a:4d:61:b5:
e9:b4:38:dc:59:2c:37:f3:93:02:fc:09:88:02:1b:
d0:45
Exponent: 65537 (0x10001)
X509v3 extensions:                          //
X509v3 Key Usage: critical    //          ˘ й
Digital Signature, Non Repudiation  //        ¨ à
X509v3 Extended Key Usage:                  //
1.3.6.1.5.5.8.2.2
X509v3 Subject Key Identifier:                  // ў
84:7E:33:A3:91:A5:26:1D:2D:BB:54:65:BF:C7:2A:2A:2E:87:D5:A9
X509v3 Authority Key Identifier:     //
keyid:64:46:12:C0:27:A4:9E:01:0C:65:DA:F8:6E:E7:FE:C6:56:EC:AD:D
4
DirName:/emailAddress=wlcpyjwb@star-net.cn/C=CN/ST=fj/L=fuzhou/O
=Red Giant/OU=Department 5/CN=CA Server
serial:7F:FF:BB:39:97:39:B4:81:4B:E1:6B:4F:F9:06:7A:4B
X509v3 CRL Distribution Points:         //CRL†
URI:http://zj-router/CertEnroll/CA%20Server.crl
URI:file://\\zj-router\CertEnroll\CA%20Server.crl
Authority Information Access:        //
CA Issuers - URI:http://zj-router/CertEnroll/zj-router_CA%20Serv
er.crt
CA Issuers - URI:file://\\zj-router\CertEnroll\zj-router_CA%20Se
rver.crt
Signature Algorithm: sha1WithRSAEncryption   // ¨
37:50:0c:d6:6c:23:6d:2d:81:37:02:6c:22:ef:e2:95:98:dc:
91:25:fe:0a:3b:b0:f2:48:69:2c:6b:98:66:be:6b:09:ef:de:
2f:db:ed:71:0e:04:a5:12:38:8b:30:2b:eb:c9:d9:88:1e:a2:
10:2c:86:d2:3d:25:fd:9c:df:b4/               //     ¨
Ruijie#
```

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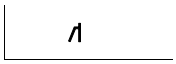

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```
Ruijie(config)#show crypto pki trustpoints
Trustpoint CA
  enrollment url http://192.168.50.203/certsrv/mscep/mscep.dll
  enrollment retry perriod 1
  enrollment retry count 60

Ruijie(config)#
```


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8.2.4 show crypto pki trustpoints *name_string* status

Ю **show crypto pki trustpoints** *name_string* **status** Â

show crypto pki trustpoints *name_string* **status**

name_string	

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```
Ruijie(config)#show crypto pki trustpoints CA status
Trustpoint CA Status:
  State:
```

```
    Keys generated ..... Not Generated
    Issuing CA authenticated ....... No
    Certificate request(s) ..... No

Ruijie(config)#
```

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9 AAA

9.1

9.1.1 aaa authentication dot1x

ˇ ʒ **aaa authentication dot1x**
Â ʒ Â

aaa authentication dot1x default *list-name method1 method2*

no aaa authentication dot1x default *list-name*

default	ˇ ‡ ɨ Ѭ ѝ Â
list-name	Ѭ ˇ ʎ Ѣ Â
method	ľ ȁ ȁ Ł ˇ
local	¨
none	a
group	⊾ ˇ ⊾

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Ruijie(config)# **aaa authentication enable default group radius local**

aaa new-model	
enable	
username	

9.1.3 aaa authentication login

aaa authentication login **default** *list-name method1 method2*

no aaa authentication login **default** *list-name*

default	Â
list-name	Â
method	
local	
none	a
group	

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aaa authentication login Â

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aaa authentication ppp ʒ ʌ Â

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Ruijie(config)# **aaa authentication ppp** *rds_ppp* **group radius local**

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aaa new-model	ʟ
ppp authentication	
username	Ѭ

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9.1.5 aaa authentication web

˘ ʒ **aaa authentication web**

Â ʒ Â

aaa authentication web default *list-name method1 method2*

no aaa authentication web default *list-name*

default	˘ ‡ ɨ Ѭ ѝ Â
list-name	Ѭ ˘ ʌ Ѫ Â
method	l’ ȁ ȁ L ˘
local	¨
none	a
group	ʟ ˘ ʟ

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aaa authentication web ʒ ⁄ ⁄ ˘ ⁄ ⁄ ˘ ɨ Â Â Â

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Ruijie(config)# **aaa authentication web** web_auth **group radius local**

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aaa new-model	⊾
username	ЊЖ
web-auth	ʒ

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9.1.6 aaa local

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aaa local user allow public account

no aaa local user allow public account

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Ruijie(config)# **aaa local user allow public account**

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9.1.7 login authentication

Э ˆ ˜ ╗ ˘ Ю **login authentication** Â Â Э Â

login authentication default *list-name*

no login authentication

default	˘ Â
list-name	Ѭ Â

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Ruijie(config)# **aaa authentication login** *list-1* **local**
Ruijie(config)# **line vty** *0 4*
Ruijie(config-line)# **login authentication** *list-1*

aaa new-model	
username	
login authentication	

9.2

9.2.1 aaa authorization commands

commands **aaa authorization**

aaa authorization commands *level* **default** *list-name method1 method2*

no aaa authorization commands *level* **default** *list-name*

level	
default	
list-name	
method	
none	
group	

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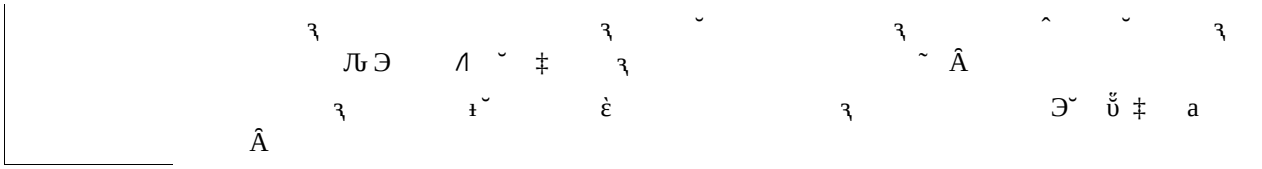
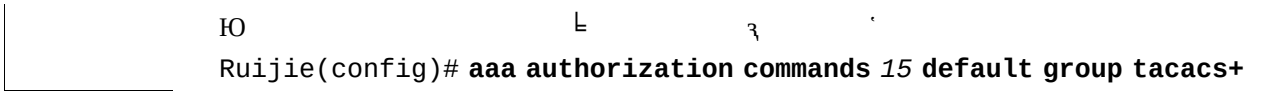
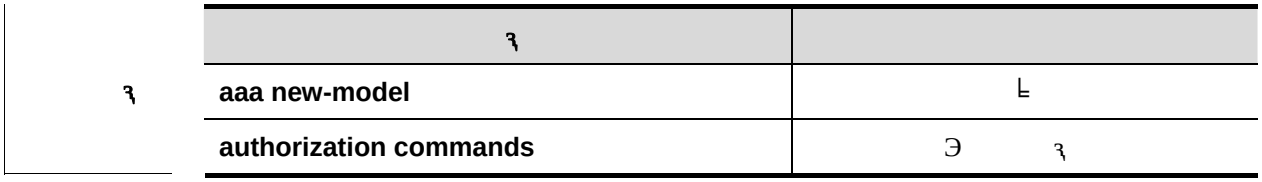
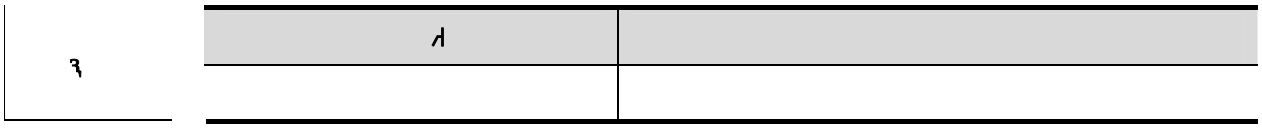




Ruijie(config)# **aaa authorization commands** *15* **default group tacacs+**



aaa new-model	
authorization commands	

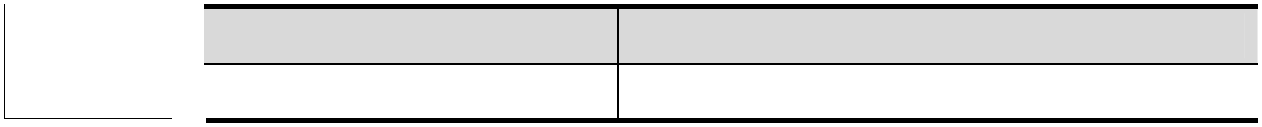


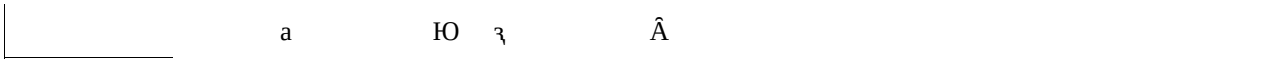
9.2.2 aaa authorization config-commands

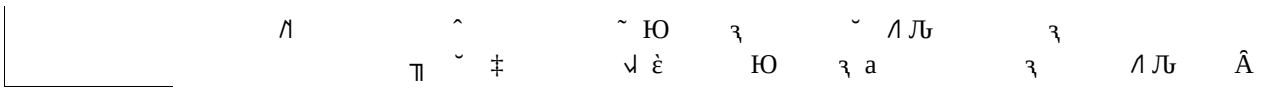
aaa authorization config-commands

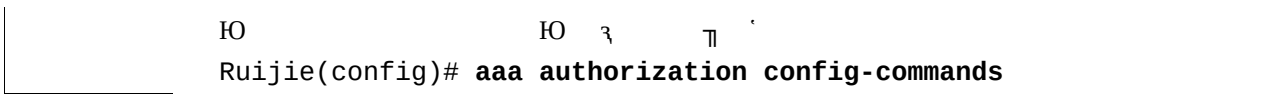
aaa authorization config-commands

no aaa authorization config-commands









Ruijie(config)# **aaa authorization config-commands**

aaa new-model	⊾
aaa authorization commands	⊠ ⅋

⅄	
⅋	

⅄	

9.2.3 aaa authorization console

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9.2.4 aaa authorization exec

aaa authorization exec Â

aaa authorization exec default *list-name method1 method2*

no aaa authorization exec default *list-name*

default	Â
list-name	Â
method	
local	
none	a
group	

Â

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```
Ruijie(config)# aaa authorization exec default group radius
```

aaa new-model	
authorization exec	
username	

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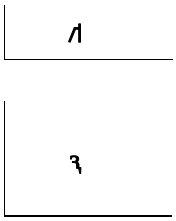

9.2.5 aaa authorization network

ꝛ **aaa authorization network** Â ꝛ ╗ Â

aaa authorization network default *list-name method1 method2*

no aaa authorization network default *list-name*

default	‘ ˘ ‡ ɨ ЊЖ ѝ Â
method	ľ ȁ Ł ˘
none	a
group	╞ ˘ ╞

╗ Â

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╞ ȁ Â ˘ ‡ ╟ Â ʎ Ѣ Ь a ˘ ˘ б ˘ ʎ ˘ ɨ ˘ ˘ ‡ a ̓Ą ѐ ɨ Â ╞ Â Ѣ Э ˘ ʎ ʎ ʎ Â

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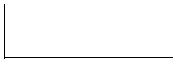
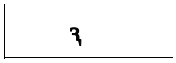
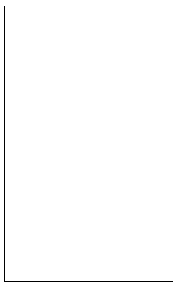
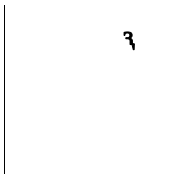






Ruijie(config)# **aaa authorization network default group radius**

ꝛ



ꝛ	
aaa new-model	╞
aaa accounting	ЊЖ

aaa authentication	
username	

9.2.6 authorization commands

authorization commands **commands**

authorization commands *level* **default** *list-name*

no authorization commands *level*

level	
default	
list-name	

Ю

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

aaa new-model	

	aaa authorization commands	

9.2.7 authorization exec

authorization exec

default -21.6 666.t10.006 Td6fB2 T61C81BE2>| -21.6 621

9.3

9.3.1 aaa accounting commands

aaa accounting commands Â

aaa accounting commands *level* **default** *list-name* **start-stop** *method1 method2*

no aaa accounting commands *level* **default** *list-name*

level	Â
default	Â
list-name	Â
method	**none** **group**
none	a
group	

Â

aaa new-model	
aaa authentication	
accounting commands	

9.3.2 aaa accounting exec

aaa accounting exec

aaa accounting exec default *list-name* **start-stop** *method1 method2*

no aaa accounting exec default *list-name*

default	
list-name	

Ю

Ruijie(config)# **aaa accounting exec default start-stop group radius**

aaa new-model	
aaa authentication	
accounting commands	

9.3.3 aaa accounting network

aaa accounting network Â Â

aaa accounting network default *list-name* **start-stop** *method1 method2*

no aaa accounting network default *list-name*

default	Â
list-name	Â
start-stop	Â
method	Ю
none	a
group	

Â

Â

start-stop

Â

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

aaa new-model	
aaa authorization network	
aaa authentication	
username	

9.3.4 aaa accounting update

aaa accounting update

no aaa accounting update

Â

Â

Â

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

aaa new-model	
aaa accounting network	

9.3.5 aaa accounting update periodic

aaa accounting update periodic

aaa accounting update periodic *interval*

no aaa accounting update periodic

interval	

```
Ruijie(config)# aaa new-model
Ruijie(config)# aaa accounting update
Ruijie(config)# aaa accounting update periodic 1
```

aaa new-model	

λ	

9.3.7 accounting exec

Э˘ ʒ **accounting exec** Â

ʒ ʌ Э ˥ Â

accounting exec default *list-name*

no accounting exec

default	˘ Â
list-name	ЮЖ Â

˥

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

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aaa new-model	╘
aaa accounting commands	ЮЖ

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9.4 AAA

9.4.1 aaa domain

˘ Â ३ ५ ३ Â

aaa domain default *domain-name*

no aaa domain default *domain-name*

default	˘

9.4.2 aaa domain enable

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ⁿ ⊨ Â ʒ Â

aaa domain enable

no aaa domain enable

ⁿ ⊨ Â

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ⁿ ⊨ ˘ Â

ⁿ ⊨ ‘

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

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ʒ	
aaa new-model	⊨
show aaa domain	

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9.4.3 access-limit

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access-limit *num*

no access-limit

num	8˘ ʎ 8

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⁸ Â

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```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# access-limit 20
```


IO

```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# accounting network default
```

aaa new-model	
aaa domain enable	

aaa domain enable	
show aaa domain	

9.4.6 authorization network

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authorization network default *list-name*

no authorization network

default	
list-name	

Â

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```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# authorization network default
```

aaa new-model	
aaa domain enable	
show aaa domain	

9.4.7 state

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state block active

no state

block	
active	

Ю ѝ Â

default	˘
domain-name	¨

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```
Ruijie# show aaa domain.0013 Tc -22.804102F0E±oT Td2( )Tj/TT3 1 Tf5-0.0013
```

without-domain	
with-domain	a

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```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)# username-domain without-domain
```

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

9.5 AAA

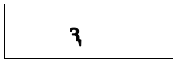
9.5.1 aaa group server

Ь Â Ь Â

aaa group server radius tacacs+ *name*

no aaa group server radius tacacs+ *name*

name	Ь ˘ a й ľ Ľ ľ Ľ й Ь ¨ Â



Ю Â

```
Ruijie(config)# aaa group server radius ss
```

aaa group server	
show aaa group	

```
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
IP Address: 192.168.4.12
Authentication Port: 6
Accounting Port: 5
Referred:  1
```

aaa group server	
show aaa group	

9.5.4 show aaa group

show aaa group


```
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

aaa group server	

9.6 AAA

9.6.1 aaa local authentication attempts

aaa local authentication attempts *max-attempts*

max-attempts	

Ю

```
Ruijie# configure terminal
Ruijie(config)# aaa local authentication attempts 6
```

Show running-config	
Show aaa lockout	

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9.6.2 aaa local authentication lockout-time

aaa local authentication lockout-time *lockout-time*

lockout-time	ˆ Æ ˙ ˇ ˜ ˘ ˄

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

ᛁ	
Show running-config	
Show aaa lockout	

ᛁ

ᛁ	

9.6.3 aaa new-model

ᛁ **aaa new-model** Â

ᛁ **no** ᛁ Â

aaa new-model

IO

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

show running-config	
show aaa lockout	

9.6.5 debug aaa

no

debug aaa event

no debug aaa event

9.6.6 show aaa method-list

Â

show aaa method-list

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```
Ruijie# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local  group angel group rain none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorizating network default group radius
```

aaa authentication	
aaa authorization	

9.6.7 show aaa user lockout

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show aaa user lockout all user-name *word*

10 RADIUS

10.1 RADIUS

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10.1.1 ip radius source-interface

ip radius source-interfaceÂ

no Â

ip radius source-interface *interface*

no radius source-interface

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Interface

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```
Ruijie(config)# ip radius source-interface
GigabitEthernet 0/0
```

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radius-server host	Ѭ ⊨
ip address	

10.1.2 radius-server host

⊨ ў ˘ ʒ **radius-server** Â ʒ **no** ⊨ ў Â

radius-server host *hostname* *ip-address* **auth-port** *port-number* **acct-port** *port-number*

no radius-server host *hostname* *ip-address*

ð Ô

Hostname: ⊨ ў ¨ Â

ip-address ⊨ ў Â

auth-port

port-number ⺈˘ ѝ ˘ ‡ ў a Â

acct-port:

port-number: ⺈˘ ѝ ˘ ‡ ў a Â

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ѝ ⊨˘ Ѭ ⊨ Â ⺈ Ѣ **radius-server** ʒ Ѭ ⊨ Â

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Ruijie(config)# **radius-server host** *192.168.12.1*

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radius-server retransmit	Ѭ
radius-server timeout	Ѭ

10.1.4 radius-server retransmit

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ʒ **radius-server retransmit** Â ʒ **no** Â

radius-server retransmit *retries*

no radius-server retransmit

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*retries*ʻ Â

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Ruijie(config)# **radius-server retransmit** *4*

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ʒ	
radius-server host	Ѭ ⊨ ў
radius-server key	Ѭ ʒ
radius-server timeout	Ѭ

10.1.5 radius-server timeout

⊨ ˘ ʒ

radius-server timeout Â ʒ **no** ˘ Â

radius-server timeout *seconds*

no radius-server timeout

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seconds ˋ ˆ æ ѝ ˜ Â ʌ ѝ Â

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Ruijie(config)# **radius-server timeout** *10*

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radius-server host	Ѭ ⊾ ў
radius-server retransmit	Ѭ

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Ruijie(config)# **radius-server deadtime** *10*

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radius-server host	Ж ⊨ Ж

radius set qos cos

no radius set qos cos

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Ruijie(config)# **radius set qos cos**

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radius vendor-specific extend	ѝ a ˂

10.1.9 radius vendor-specific extend

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radius vendor-specific extend

no radius vendor-specific extend

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```
Ruijie(config)# radius vendor-specific extend
```

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radius attribute ⁄

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```
Ruijie# show radius server
server ip : 192.168.4.12
acct  port: 23
authen  port: 77
server state: ready
server ip : 192.168.4.13
acct  port: 45
authen  port: 74
server state: ready
```

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radius-server host	⊾ ǰ
radius-server retransmit	⊾
radius-server key	⊾ ʒ
radius-server timeout	⊾

10.2.3 show radius parameter

⊾ Â

show radius parameter

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```
Ruijie# show radius parameter
Server Timout:   5 Seconds
Server Deadtime: 5 Minutes
Server Retries:  3
Server Key:      ******
```

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```
6    net ip               6
7    user name             7
8    password              8
9    file-diractory       9
10   file-count           10
11   file-name-0          11
12   file-name-1          12
13   file-name-2          13
14   file-name-3          14
15   file-name-4          15
```

11 Web

11.1

11.1.1 http redirect

ä ¶ ˘ ʒ **http redirect** Â ʒ **no**
ä Â

http redirect *ip-address*

no http redirect

11.1.2 http redirect direct-site

Â ⁄ Ѣ ꝛ **no** Â

http redirect direct-site *ip-address ip-mask*

no http redirect direct-site *ip-address ip-mask*

ip-address	Â
ip-mask	Â

Â

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˘ ≠ ⁄ Ѣ ˘ ꝛ Â
˘ ѫ ⁄ Ѣ Â

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```
Ruijie(config)# http redirect direct-site 172.16.0.1
```

[illegible]	[illegible]
show http redirect	[illegible] Â

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Ruijie(config)# **http redirect session-limit** *4*

ʒ	
show http redirect	ᾶ Â

ʌ

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-	

11.1.6 http redirect timeout

ᾶ Â ʌ Ƶ ʒ **no** ᾶ ѝ Â

http redirect timeout *seconds*

no http redirect timeout

seconds	ᾶ ʼ *seconds*ˇ ʌ Â

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ᾶ Â ѝ Ь ˥ ɨˇ ˇ ɨ ᾶ ɨ Â ⁸ ʌ Ƶ a ˇ ˅ . Â

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Ruijie(config)# **http redirect timeout** *4*

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11.1.7 web-auth direct-host

Â ʎ Ɉ ʒ **no** ʎ Â

web-auth direct-host *ip-address p-mask*

no web-auth direct-host *ip-address*

ip-address	Â
ip-mask	Â

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```
Ruijie(config)# web-auth direct-host 172.16.0.1
```

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show web-auth direct-host	Â

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11.1.8 web-auth enable

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web-auth enable

no web-auth enable

-	-

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Ruijie(config)# **web-auth enable**

show web-auth direct-host	Â

10.3(4t76)	

11.1.9 web-auth offline-detect flow

Ю Â **no**

Ю Â

web-auth offline-detect flow [interval *xx* flow *yy*]

no web-auth offline-detect flow

-	-

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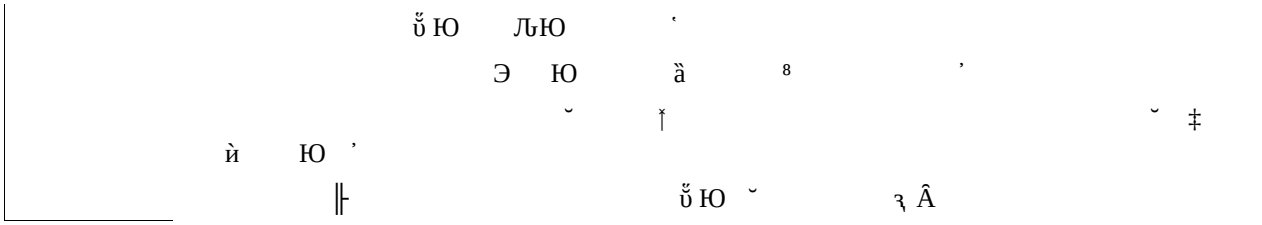
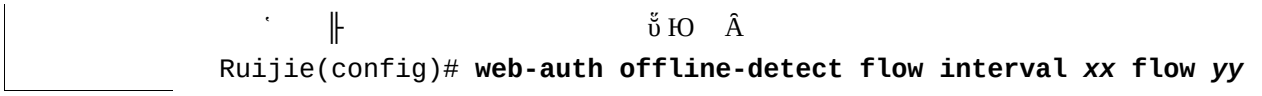
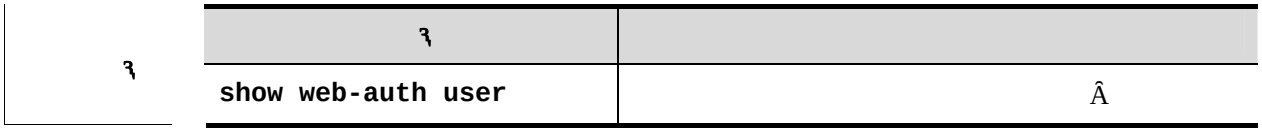




```
Ruijie(config)# web-auth offline-detect flow interval xx flow yy
```



show web-auth user	

http redirect	Â
http redirect homepage	Â
web-auth port-control	Â

-	

11.1.11 web-auth update-interval

Â **no**

Â

web-auth update-interval *seconds*

no web-auth update-interval

seconds	Â

Â

Â

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11.1.12 web-auth user-mode

web-auth user-mode {ip|mac-ip}

no web-auth user-mode

-	-

Ruijie(config)# **web-auth user-mode mac-ip**

10.3(4t76)	

11.1.13 web-auth webauth-type

web-auth webauth-type {internal | external}

no web-auth webauth-type

-	-

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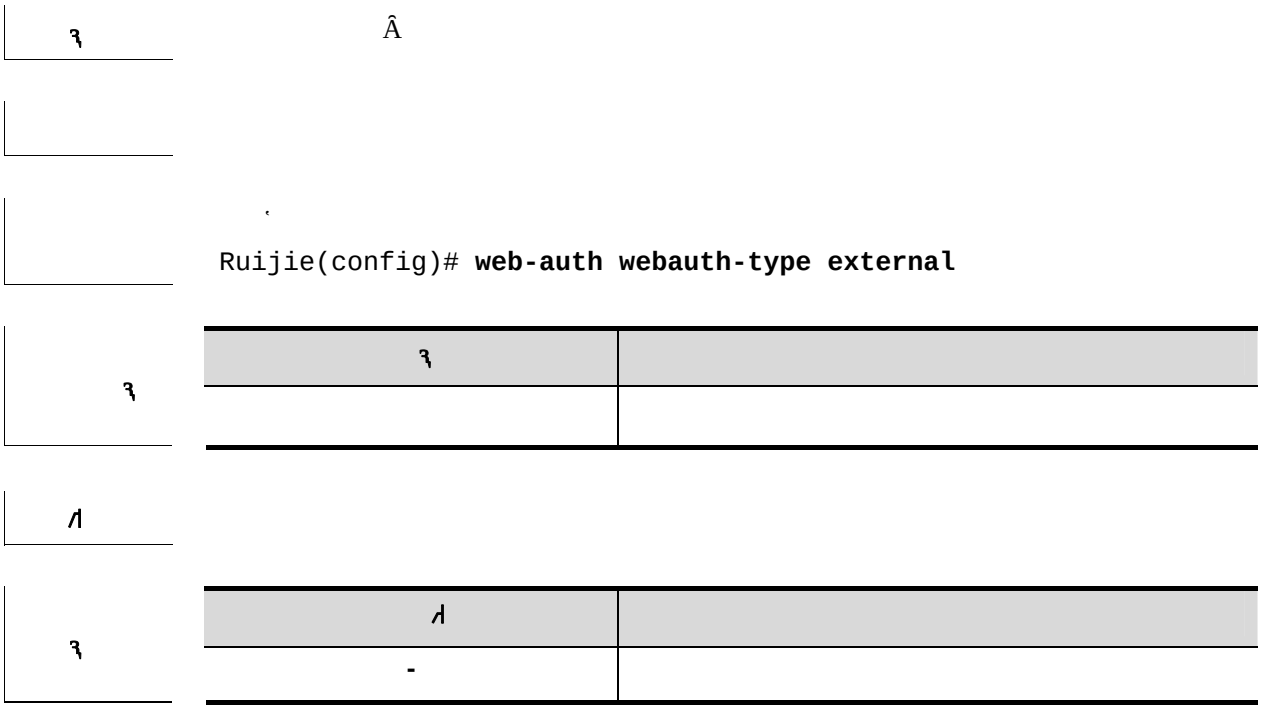
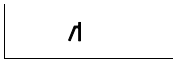


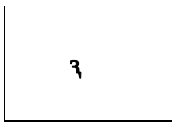
Ruijie(config)# **web-auth webauth-type external**

-	

11.1.14 web-auth redirect url

web-auth redirect url *url-string*





-	

11.2 portal

11.2.1 web-auth authentication

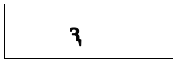
Â

web-auth authentication *method-list*

no web-auth authentication

-	-

Â



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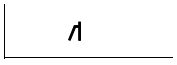
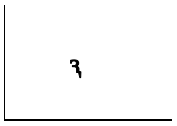
Ruijie(config)# **aaa authentication web** *portal* **group radius local**
Ruijie(config)#**web-auth authentication** *portal*





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-	

11.2.2 web-auth local-portal port

web-auth local-portal port *port*

no web-auth local-portal port

Ruijie(config)# **web-auth local-portal port 8000**

show web-auth	

10.3(4t76)	

11.3

11.3.1 clear web-auth user

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clear web-auth user {*name* *ip*}

name	
ip	

Â

Â

Ю Â

1 IP й 192.168.1.10 ip Ю :

```
Ruijie# clear web-auth user 192.168.1.10
```

web-auth authentication	
web-auth local-portal port	

10.3(4t76)	

11.3.2 debug portal

debug portal {detail | event | mib}

detail	
event	
mib	

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1 web Ю :

```
Ruijie# debug web-auth
```

web-auth	

-	

11.3.3 debug web-auth

debug web-auth

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1 web Ю :

```
Ruijie# debug web-auth
```

web-auth	

-	

11.3.4 show http redirect

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show http redirect

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```
Ruijie# show http redirect
HTTP redirection settings:
  server:        192.168.32.123
  port:           80  8000
  homepage:       http://192.168.32.123:8888/ePortal/index.jsp
  session-limit: 10
  timeout:        5
  user-mode       mac-ip

Direct sites:
  Address          MASK
  ---------------- ----------------
  61.233.3.215    255.255.255.255
  61.233.3.220    255.255.255.255
  192.168.5.140   255.255.255.255
  218.30.66.101   255.255.0.0
  218.30.66.101   255.255.255.255
```

```
Direct hosts:
  Address          Mask
```

-	-

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Ruijie# **show web-auth local-portal**
Local web-auth info:
Server-port: 8080
AAA method-list: portal
Public account : disable

Server-port	
AAA method-list	
Public account	

-	

10.3(4t76)	

11.3.7 show web-auth user

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show web-auth user *ip-address* | **{online | all}** *[pos count]*

ip-address	Â

Address	Â
Mac	Â
Online	ŭ̆ Â
Time Limit	ʎ ⁸˘ ⁸ Â
Time Used	Â
Time Start	ȁ Э Â
Status	˘ ˘ Create • … ȁ ˘ Destroy • ȁ Â

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10.3(4t76)	ꓘ

11.3.8

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1 VRRP

1.1

1.1.1 vrrp authentication

no

vrrp group authentication *string*

no vrrp *group* **authentication**

group

string a

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```
vrrp 1 authentication x30dn78k
```

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vrrp *group ip ipaddress* **secondary**	╖

1.1.2 vrrp delay

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vrrp delay **minimum** *min-seconds* **reload** *reload-seconds*

no vrrp delay

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min-seconds ʻ ⅃ ѝ ╟ ˘ *min-seconds* ɨ ╟ʼ

reload-seconds ʻ ╟ ╟ Â *min-seconds* *reload-seconds* ˘ ‡ ╟ *min-seconds* Â

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Ю Љ GigabitEthernet Э ╟ ѝ ʼ ж ⅃ ѝ ˘ Э ɨ ̈Ą ╟ʻ

```
interface GigabitEthernet 0/1
shutdown
ip address 10.0.1.1 255.255.255.0
vrrp delay minimum 10
vrrp 1 ip 10.0.1.20
```

```
no shutdown
show vrrp 1
```

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vrrp *group*
ipaddress **secondary**

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show vrrp brief | group	

1.1.5 vrrp preempt

1.1.6 vrrp priority

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vrrp *group* **priority** *level*

no vrrp *group* **priority**

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group ʻ ⅄

level ʻ ˝I

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vrrp 1 priority 254

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vrrp *group* **ip** *ipaddress* **secondary**	╗
vrrp *group* **preempt delay** *seconds*	.

1.1.7 vrrp timers advertise

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vrrp *group* **timers advertise** *interval*

no vrrp *group* **timers advertise**

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group ʻ ⅄

interval ʻ Љ ѝ Æ

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vrrp 1 timers advertise 4

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vrrp

a ʌ ˘ *retry-value* ˘ ‡
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priority ˙ ʌ ʌ ѐ ˝I ʌ Â
a ˘ ѝ

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vrrp 1 track GigabitEthernet 1/1 30

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#interface GigabitEthernet 0/1
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.1.1 255.255.255.0
Ruijie(config-if)#bfd interval 50 min_rx 50 multiplier 3
Ruijie(config)#interface GigabitEthernet 0/2
Ruijie(config-if)#no switchport
Ruijie(config-if)#ip address 192.168.201.17 255.255.255.0
Ruijie(config-if)#vrrp 1 priority 120
Ruijie(config-if)#vrrp 1 ip 192.168.201.1
Ruijie(config-if)#vrrp 1 track bfd GigabitEthernet 0/1 192.168.1.3
30
Ruijie(config-if)#end
```

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vrrp *group* **ip** *ipaddress* **secondary**	
vrrp *group* **priority**	

1.2 VRRP

VRRP

debug vrrp

debug vrrp errors

debug vrrp events

debug vrrp packets

debug vrrp state

1.2.1 debug vrrp

no

debug vrrp

no debug vrrp

```
Ruijie# debug vrrp
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Event - Advert higher or equal priority
```

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debug vrrp errors	
debug vrrp events	Y ˙

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```
Ruijie# debug vrrp events
Ruijie#
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
VRRP: Grp 1 Event - Advert higher or equal priority
```

1.2.4 debug vrrp packets

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debug vrrp packets

no debug vrrp packets

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```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
VRRP: Grp 2 sending Advertisement checksum DD4D
```

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```
Ruijie# debug vrrp packets
Ruijie#
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
VRRP: Grp 1 Advertisement priority 120, ipaddr 192.168.201.213
```

1.2.5 debug vrrp state

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debug vrrp state

no debug vrrp state

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```
Ruijie# debug vrrp state
Ruijie#
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Master ->
Backup
%VRRP-6-STATECHANGE: GigabitEthernet 0/0 Grp 2 state Backup ->
Master
```

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

```
Ruijie(config)# interIBacka8(confi4( )Tj5 1 Tf0 bitfig terminal
```

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```
Ruijie# show vrrp
GigabitEthernet 0/0 - Group 1
State is Backup
Virtual IP address is 192.168.201.1 configured
Virtual MAC address is 0000.5e00.0101
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 100
Master Router is 192.168.201.213 , pritority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
GigabitEthernet 0/0 - Group 2
State is Master
Virtual IP address is 192.168.201.2 configured
Virtual MAC address is 0000.5e00.0102
Advertisement interval is 3 sec
Preemption is enabled
min delay is 0 sec
Priority is 120
Master Router is 192.168.201.217 (local), priority is 120
Master Advertisement interval is 3 sec
Master Down interval is 9 sec
Ruijie#
```

```
Ruijie# show vrrp brief
Interface         Grp Pri Time  Own Pre State   Master addr
Group addr
GigabitEthernet  0/0     1     100     -      -     P   Backup
192.168.201.213 192.168.201.1
GigabitEthernet  0/0     2     120     -      -     P   Master
192.168.201.217 192.168.201.2
Ruijie#
```

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vrrp *group ip ipaddress* **secondary**	

1.3.2 show vrrp interface

show vrrp interface *type number* **brief**

```
Master Down interval is 9 sec
```

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३	
vrrp *group* **ip** *ip address* **secondary**	ℸ

2 MULTI-LDP

2.1

2.1.1 clear multi-ldp

Â

clear multi-ldp

UP/DOWN

```
Ruijie#config
Ruijie(config)#interface gigabitEthernet 0/1   f-Gterface gigabi7 0 e(confi
```

2.1.2 multi-ldp

no

multi-ldp icmp *dest-ip1 next-hop* **dns** *dest-ip2* **tcp** *dest-ip3* **port** *port-value* **interval** *value1* **retry** *value2* **resume** *value3*

no multi-ldp

dest-ip1	
next-hop	б *dest-ip1*

३	

/।

220.181.112.76:80

- **show multi-ldp interface gigabitEthernet** 0/3

```
Interface            State    Retry    UpCnt    ICMP
Next-hop
StartTime            Interval Resume   DownCnt  DNS           TCP
=================================================================
===============
GigabitEthernet 0/3   UP      5        1        192.168.198.1
192.168.78.1
2010-12-23 09:31:03   50      1        0        8.8.8.8
220.181.112.76:80
```

Network

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1.1

1.1.1 dev-audit enable

Â

no dev-audit enable

Â

```
Ruijie#config
Ruijie(config)#dev-audit enable
```


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1.2

1.2.1 show dev-audit

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show dev-audit cpu | memory | flash from *year month day hh:mm:ss* **to** *year month day hh:mm:ss*

cpu	
memory	
flash	
from	ɨ
to	ɨ
year	˘ ·
month	˘ ·
day	˘ ·
hh:mm:ss	ǂ ˘ ·

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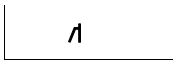
```
Ruijie#show dev-audit memory from 2009 12 18 04:20:00 to 2009 12 18 15:00:00
Date & Time           Memory
2009-12-18 04:22:10    61%
2009-12-18 04:27:10    61%
2009-12-18 04:32:10    61%
2009-12-18 04:37:10    61%
2009-12-18 04:42:10    61%
2009-12-18 04:47:10    61%
2009-12-18 04:52:10    61%
2009-12-18 04:57:10    61%
```

```
2009-12-18 05:02:10    61%
2009-12-18 05:07:10    61%
2009-12-18 05:12:10    61%
2009-12-18 05:17:10    61%
2009-12-18 05:22:10    61%
2009-12-18 05:27:10    61%
2009-12-18 13:32:10    61%
2009-12-18 13:37:10    61%
2009-12-18 13:42:10    64%
2009-12-18 13:47:10    64%
2009-12-18 14:02:29    61%
2009-12-18 14:07:29    61%
2009-12-18 14:18:45    61%
2009-12-18 14:23:45    61%
2009-12-18 14:28:45    61%
2009-12-18 14:33:45    61%
2009-12-18 14:38:45    61%
2009-12-18 14:43:45    61%
2009-12-18 14:48:45    61%
2009-12-18 14:53:45    61%
2009-12-18 14:58:45    61%
```

2、 CPU

```
Ruijie#show dev-audit cpu from 2010 1 14 12:00:00
Date & Time           CPU
2010-01-14 12:03:16    0%
2010-01-14 12:08:16    0%
2010-01-14 12:13:16    0%
2010-01-14 12:18:16    0%
2010-01-14 12:23:16    0%
2010-01-14 12:28:16    0%
2010-01-14 12:33:16    0%
2010-01-14 12:38:16    0%
2010-01-14 12:43:16    0%
2010-01-14 12:48:16    0%
2010-01-14 12:53:16    0%
2010-01-14 12:58:16    0%
2010-01-14 13:03:16    0%
2010-01-14 13:08:16    0%
2010-01-14 13:13:16    0%
2010-01-14 13:18:16    0%
2010-01-14 13:23:16    0%
2010-01-14 13:28:16    0%
2010-01-14 13:33:16    0%
```



2 CPU-LOG

2.1

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show cpu

cpu-log

show environment

2.1.1 show cpu

show cpuÂ

show cpu

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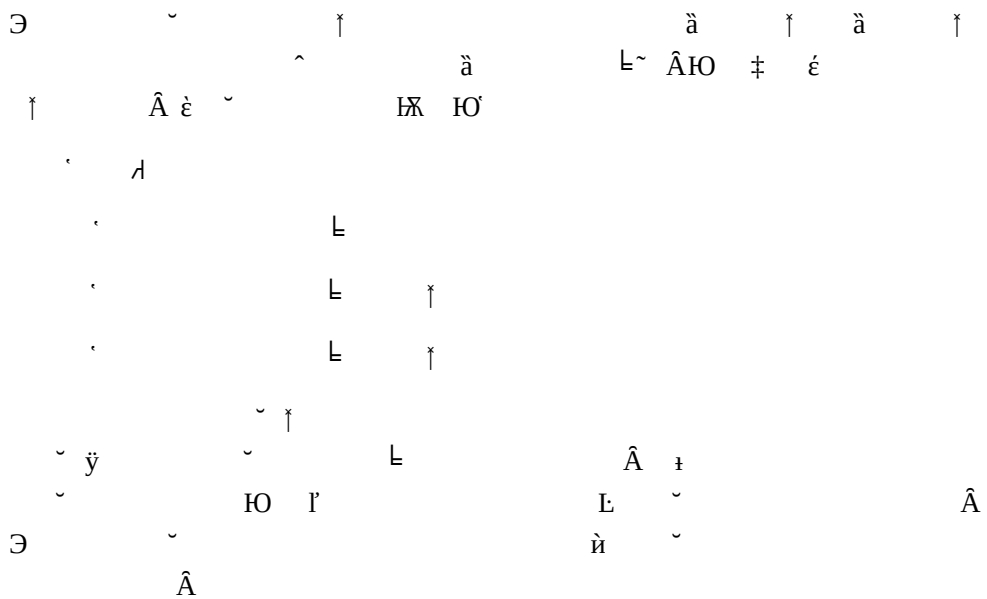
Ю **show cpu** Â

```
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
5	0%	0%	0%	waitqueue_process
6	0%	0%	0%	tasklet_task
7	0%	0%	0%	kevents
8	0%	0%	0%	snmpd
9	0%	0%	0%	snmp_trapd
10	0%	0%	0%	mtdblock
11	0%	0%	0%	gc_task
12	0%	0%	0%	Context
13	0%	0%	0%	kswapd
14	0%	0%	0%	bdflush
15	0%	0%	0%	kupdate
16	0%	3%	1%	ll_mt
17	0%	0%	0%	ll main process
18	0%	0%	0%	bridge_relay
19	0%	0%	0%	d1x_task
20	0%	0%	0%	secu_policy_task
21	0%	0%	0%	dhcpa_task
22	0%	0%	0%	dhcpsnp_task
23	0%	0%	0%	igmp_snp
24	0%	0%	0%	mstp_event
25	0%	0%	0%	GVRP_EVENT
26	0%	0%	0%	rldp_task
27	0%	2%	1%	rerp_task
28	0%	0%	0%	reup_event_handler
29	0%	0%	0%	tpp_task
30	0%	0%	0%	ip6timer
31	0%	0%	0%	rtadvd
32	0%	0%	0%	tnet6
33	2%	0%	0%	tnet
34	0%	0%	0%	Tarptime
35	0%	0%	0%	gra_arp
36	0%	0%	0%	Ttcptimer
37	8%	1%	0%	ef_res
38	0%	0%	0%	ef_rcv_msg
39	0%	0%	0%	ef_inconsistent_daemon
40	0%	0%	0%	ip6_tunnel_rcv_pkt
41	0%	0%	0%	res6t
42	0%	0%	0%	tunrt6

43	0%	0%	0%	ef6_rcv_msg
44	0%	0%	0%	ef6_inconsistent_daemon
45	0%	0%	0%	imid
46	0%	0%	0%	nsmd
47	0%	0%	0%	ripd
48	0%	0%	0%	ripngd
49	0%	0%	0%	ospfd
50	0%	0%	0%	ospf6d
51	0%	0%	0%	bgpd
52	0%	0%	0%	pimd
53	0%	0%	0%	pim6d
54	0%	0%	0%	pdmd
55	0%	0%	0%	dvmrpd
56	0%	0%	0%	vty_connect
57	0%	0%	0%	aaa_task
58	0%	0%	0%	Tlogtrap
59	0%	0%	0%	dhcp6c
60	0%	0%	0%	sntp_recv_task
61	0%	0%	0%	ntp_task
62	0%	0%	0%	sla_deamon
63	0%	3%	1%	track_daemon
64	0%	0%	0%	pbr_guard
65	0%	0%	0%	vrrpd
66	0%	0%	0%	psnpd
67	0%	0%	0%	igsnpd
68	0%	0%	0%	coa_recv
69	0%	0%	0%	co_oper
70	0%	0%	0%	co_mac
71	0%	0%	0%	radius_task
72	0%	0%	0%	tac+_acct_task
73	0%	0%	0%	tac+_task
74	0%	0%	0%	dhcpd_task
75	0%	0%	0%	dhcps_task
76	0%	0%	0%	dhcpping_task
77	0%	0%	0%	dhcpc_task
78	0%	0%	0%	uart_debug_file_task
79	0%	0%	0%	ssp_init_task
80	0%	0%	0%	rl_listen
81	0%	0%	0%	ikl_msg_operate_thread
82	0%	0%	0%	bcmDPC
83	0%	0%	0%	bcmL2X.0
84	3%	3%	3%	bcmL2X.0
85	0%	0%	0%	bcmCNTR.0

86	0%	0%	0%	bcmTX
87	0%	0%	0%	bcmXGS3AsyncTX
88	0%	2%	1%	bcmLINK.0
89	0%	0%	0%	bcmRX
90	0%	0%	0%	mngpkt_rcv_thread
91	0%	0%	0%	mngpkt_recycle_thread
92	0%	0%	0%	stack_task
93	0%	0%	0%	stack_disc_task
94	0%	0%	0%	redun_sync_task
95	0%	0%	0%	conf_dispatch_task
96	0%	0%	0%	devprob_task
97	0%	0%	0%	rdp_snd_thread
98	0%	0%	0%	rdp_rcv_thread
99	0%	0%	0%	rdp_slot_change_thread
100	4%	2%	1%	datapkt_rcv_thread
101	0%	0%	0%	keepalive_link_notify
102	0%	0%	0%	rerp_msg_recv_thread
103	0%	0%	0%	ip_scan_guard_task
104	0%	0%	0%	ssp_ipmc_hit_task
105	0%	0%	0%	ssp_ipmc_trap_task
106	0%	0%	0%	hw_err_snd_task
107	0%	0%	0%	rerp_packet_send_task
108	0%	0%	0%	idle_vlan_proc_thread
109	0%	0%	0%	cmic_pause_detect
110	1%	1%	1%	stat_get_and_send
111	0%	1%	0%	rl_con
112	75%	80%	90%	idle



2.1.2 cpu-log

cpu-log

cpu-*log* *log-limit low_num high_num*

log-limit

low_num

high_num

2.1.3 show environment

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show environment

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Ю **show environment** Â

```
Ruijie# show environment
---environment information---
CPU Temperature is 30
fan works in high speed mode.

FAN 1 is OK!
FAN 2 is OK!
FAN 3 is OK!
FAN 4 is OK!

POWER 1 is present!
POWER 1 power on successfully!
POWER 2 is not present!
```

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3

3.1

3.1.1 threshold set

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ˇ Â

⁄ˆ **no** Â

threshold set {cpu | memory | temperature} [M1 | M2 | slot *n* **| member** *n***]** *warning_value critical_value*

no threshold set {cpu | memory | temperature}

cpu | memory | temperature	.

Â

```
Ruijie(config)# threshold set memory M1 70 90
```

Â

```
Ruijie(config)# threshold set cpu member 2 70 90
```

show threshold	

10.3(4b3)	

3.2

3.2.1

Â

```
Ruijie# show threshold cpu M1
```

Â

```
Ruijie# show threshold memory
```

threshold set	

10.3(4b3)	

4

4.1

show memory
memory-lack exit-policy
show memory protocols

4.1.1 show memory

show memory

show memory

show memory

show memory

OSPF	24000000
RIP	10000000
PIM	50000000
LDP	20000000
Total	206000000

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show memory	

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5.1.2 usb remove

usb remove *Device_ID*

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*Device_ID*ˋ ⅄

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```
Ruijie# usb remove 778
OK, now you can pull out the device 778.
0:1:1:38 Ruijie: USB-5-USB_DISK_REMOVED: USB Device <USB Mass
Storage Device> Removed!
```

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6 SATA

6.1

ЛЬЮ

6.1.1 show sata

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show sata

sata	Â

size : 9549517824B(8G)

Total 274721406976 bytes (261994MB) in this device, 265138470912 bytes (252855MB) available.

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1.1

1.1.1 logging on

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logging on

no logging on

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

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logging buffered	
logging server	
logging file flash:	Э

logging console	8 Л Э
logging monitor	Э
logging trap	

1.1.2 terminal monitor

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terminal monitor

terminal no monitor

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```
Ruijie# terminal monitor
Ruijie#
```

1.1.3 logging buffered

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logging buffered *buffer-size level*

no logging buffered

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buffer-size ‘ ă ‘ ˘ ʌ ÿ Â

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Â ă ‘ ˘ ҙ **show logging** Â

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

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ʒ	
logging on	
show logging	ă ⅄
clear logging	ă ⅄

1.1.4 logging server

Syslog Sever˘ Ю ʒ Â

Syslog server **Syslog Server˘** ʒ Â

logging server *ip-address* **vrf** *vrf-name* **ipv6** *ipv6-address*

no logging server *ip-address* **vrf** *vrf-name* **ipv6** *ipv6-address*

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ip-address ў ’

vrf vrf-name ў ˆ ˜ Ⅵ ỗ ⅄ Â

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ҙ	
logging on	
show logging	ă ˋ˂ ˘ Ƶ ˧˩
logging trap	

1.1.5 logging file flash

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˘ ҙ Â

logging file flash:*filename max-file-size level*

no logging file

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filename ˊ ˇ ¨ Â a ˇ ˘ ѝ Â

max-file-size ˊ ˇ Â ÿ ˘ ѝ Â

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˩ ù ˘ ˘ ‡ ˇ Â ˘
ʒ˘ ˇ ’

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ù Â

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

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ʒ	
logging on	
show logging	ă ˋ˂ ˘ Ƶ ˧˩

more flash

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

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ʒ	
logging on	
show logging	ă ʽ˂ ˘ Ƶ ⅃

1.1.7 logging monitor

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Ю ʒ Â ʒ Э Â

logging monitor *level*

no logging monitor

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level ʻ ш Â ⁄ı Ƶ ¨ ˘ ≠ ⁄ı Ƶ Â

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ð Ô

Э ˘ ”I ʒ **terminal monitor**

Â ‡ **logging monitor**

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Logging monitor Ƶ Â

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Ruijie(config)# **logging monitor informational**

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logging on	

show logging	ă ˋ ˘ Ƶ ˧˩

1.1.8 logging trap

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logging trap *level*

no logging trap

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level ˋ ш Â ʌ Ƶ ¨ ˘ ≠ ʌ Ƶ Â

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Â ɨ˘ ш Â

show logging ʒ ʌ Ƶ Â

ð Ô

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

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logging on	
logging	
show logging	ă ˋ ˘ Ƶ ˧˩

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1.1.9 logging source interface

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logging source interface *interface-type interface-number*

no logging source interface

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interface-type ʿ

interface-number ʿ ᴧ

ð Ô

ð ʒ Ô

ð Ô

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˘ ᴧ Ѣ ʒ ѝ ˘
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ð Ô

ipv6-address ǟ ў ,

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ȍ ʒ Ô

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show logging count	
show logging	б ă ̀ʏ

1.1.13 logging rate-limit

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ʒ Â ᵃ ╥ ˘ ʒ Â

logging rate-limit *number all number console number all number except severity*

no logging rate-limit

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number ˘ ѝ ’

all ᵃ˘ ’

console ᵃ ⁄ Э ’

except ш ˘ а ᵃ’ ѝ ˘
а ᵃ’

severity ш ˘ ˘ ш ˘ ѝ

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Ruijie(config)#**logging rate-limit all** *10* **except warnings**

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show logging count	

show logging	б ă ˇ

1.1.14 logging synchronous

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logging synchronous

no logging synchronous

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

ʒ ˘ ˘ ‡ ʒ ˙

```
Ruijie#configue terminal
Oct  9 23:40:55 %LINK-5-CHANGED: Interface GigabitEthernet 0/1,
changed state to down
Oct  9 23:40:55 %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet 0/1, changed state to DOWN
Ruijie#configue terminal    ----
```

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ʒ	
show running-config	

1.1.15 service sequence-numbers

service sequence-numbers

no service sequence-numbers

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```
Ruijie(config)# service sequence-numbers
```

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logging on	

service timestamps

message-type ˈ ч ˘ ǂ Â ш
˙ ˘ ш ѝ Â

uptime ˈ ╟ ˘ ˈ ǂ ˘ ˈ

datetime ˈ ˘ ˈ ˈ ǂ ˈ ˘ ˈ

msec ˘ ˈ ǂ ˈ

year ˘ ˈ ǂ ˈ

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no service sysname

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```
Mar 22 15:28:02 %SYS-5-CONFIG: Configured from console by console
Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# service sysname
Ruijie(config)# end
Ruijie#
Mar 22 15:35:57 S3250 %SYS-5-CONFIG: Configured from console by
console
```

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show logging	б

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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

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logging file flash:	Э

1.1.19 clear logging

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clear logging

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Ruijie# **clear logging**

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logging on	
show logging	ă ˋ
logging buffered	ă ˋ

1.2

1.2.1 show logging

show logging

Ю **show logging**

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
Sequence log messages: enable
Trap logging: level debugging, 2 message lines logged, 0 reserved, 0
fail
logging to  202.101.11.22
logging to  192.168.200.112
Log Buffer (Total 4096 Bytes) : have written 680
00001 2004-11-17 10:20:59  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/0, changed state to up
00002 2004-11-17 10:20:59  Ruijie: %7:%LINE PROTOCOL CHANGE:
Interface FastEthernet 0/0, changed state to UP
00003 2004-11-17 10:57:18  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to administratively down
00004 2004-11-17 10:57:21  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to down
00005 2004-11-17 10:57:41  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to administratively down
00006 2004-11-17 10:57:43  Ruijie: %7:%LINK CHANGED: Interface
FastEthernet 0/1, changed state to down
```

	enabled **disabled**
	⁸

logging on	
clear logging	

1.2.2 show logging count

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show logging count

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и **logging count** Â
show logging count Â

show logging Â

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Ю **show logging count**

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

ð Ô

logging count	
show logging	б
clear logging	

2 RLOG

2.1

2.1.1 rlog export-rate

rlog export-rate *number*

no rlog export-rate


```
Ruijie(config)# rlog export-rate 10000
```

2.1.2 rlog filter

rlog filter *number*

no rlog filter

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```
Ruijie(config)# rlog filter 2000
```

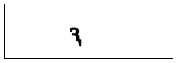

2.1.3 rlog server

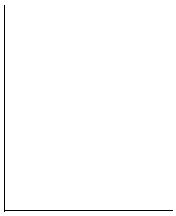
rlog server *server-ip* **vrf** *vrf-name* | **oob** **port** *port-num*

no rlog server *server-ip*

server-ip	

vrf-name	
port-num	





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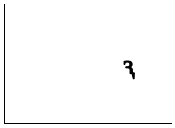
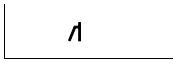
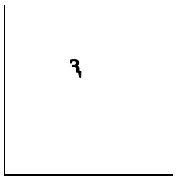
```
Ruijie(config)# rlog server 10.1.1.1 port 20001
```



	-

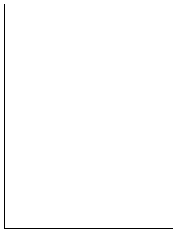




2.1.4 rlog type

rlog type *n* **server** *server-ip* **priority** *prio*

no rlog type *n* **server** *server-ip*



server-ip	

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Ruijie(config)# **nat-log enable**

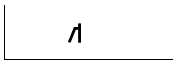
2.1.6 ip nat-log on

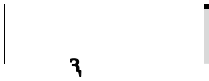
ip nat-log on

no ip nat-log on

Ruijie(config)#ip **nat-log on**

Ruijie(config)#no ip **nat-log on**





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show rlog-type

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Show rlog-type

show rlog-status

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Show rlog-status server *server-ip*

Server-ip	

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```
Ruijie(config)#show rlog-s server 192.168.195.52
server:192.168.195.52
type                        status    prio
XLOG_TYPE_FLOW               off
XLOG_TYPE_CPU_MEM            off
XLOG_TYPE_DISC               off
XLOG_TYPE_DEV_LOG            off
XLOG_TYPE_URL_AUDIT          off
XLOG_TYPE_SESSION            off
XLOG_TYPE_IP_APP             off
XLOG_TYPE_IP                 off
XLOG_TYPE_CHANNEL            off
XLOG_TYPE_INTERFACE          off
XLOG_TYPE_IP_OFFLINE         off
XLOG_TYPE_MAIL_AUDIT         off
XLOG_TYPE_TELNET_AUDIT       on       1
```

XLOG_TYPE_WEB_SEARCH_AUDIT off
XLOG_TYPE_WEB_BBS_AUDIT off
XLOG_TYPE_IM_AUDIT off
XLOG_TYPE_FTP_AUDIT off
XLOG_TYPE_WEB_AUDIT off

show nat-log

Show nat-log [username *user_name***] [ip-protocol** *p-protocol***] [source-ip** *source-ip***] [dst-ip** *dst-ip***] [src-port** *src-port***] [dst-port** *dst-port***] time-interval** *begin-year begin-mon begin-day begin-hour* **to** *end-year end-mon end-day end-hour*

user_name	
ip-protocol	
source-ip	
dst-ip	
src-port	
dst-port	
begin-year	
begin-mon	
begin-day	

end-hour	

```
Ruijie#show nat-log time-interval 2010 10 6 3 t 2010 10 6 5
count:427
Pr    SrcAddr                                          DstAddr
UserName
SrcPort     DstPort     Vrf       SendBytes  RecvBytes  time
17   192.168.122.62  (0.0.0.0)          192.168.122.255(0.0.0.0)
192.168.122.62
138  (0)     138  (0)     0         2028       0         2010-10-6
3:1
17   192.168.100.55  (0.0.0.0)          192.168.100.255(0.0.0.0)
192.168.100.55
138  (0)     138  (0)     0         732        0         2010-10-6
3:1
17   192.168.122.54  (0.0.0.0)          192.168.122.255(0.0.0.0)
192.168.122.54
137  (0)     137  (0)     0         864        0         2010-10-6
3:1
17    192.168.195.55                              192.168.195.255
192.168.195.55
138         138         0         705        0         2010-10-6 3:1
6    192.168.7.92    (0.0.0.0)          113.105.146.82  (0.0.0.0)
192.168.7.92
35942(0)     80   (0)     0         192        0         2010-10-6
3:2
17   192.168.122.54  (0.0.0.0)          192.168.122.255(0.0.0.0)
192.168.122.54
137  (0)     137  (0)     0         1386       0         2010-10-6
3:2
17   192.168.7.92    (0.0.0.0)          202.104.241.3   (0.0.0.0)
192.168.7.92
13528(0)     8000(0)     0         97         0         2010-10-6 3:2
17    192.168.195.202                             192.168.195.255
192.168.195.202
138         138         0         774        0         2010-10-6 3:3
17   192.168.7.97    (0.0.0.0)          192.168.7.255   (0.0.0.0)
192.168.7.97
138  (0)     138  (0)     0         732        0         2010-10-6
```

3:3

17 192.168.2.164 (0.0.0.0) 192.168.2.255 (0.0.0.0) 192.168.2.164

138 (0) 138 (0) 0 714 0 2010-10-6 3:3

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3 SNMP

3.1

3.1.1 no snmp-server

no snmp-server

no snmp-server

3.1.2 snmp-server chassis-id

snmp-server chassis-id *text*

no snmp-server chassis-id

text

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show snmp ʒ Â

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Ruijie(config)# **snmp-server chassis-id** *123456*

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ʒ	
show snmp	

3.1.3 snmp-server community

ˇ ʒ **snmp-server community** Â

ʒ ㅅ Â

snmp-server community *string* **view** *view-name* **ro** **rw** **host** *ipaddr number*

no snmp-server community *string*

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string ʻ

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```
Ruijie(config)# access-list 2 permit 192.168.12.1
Ruijie(config)# access-list 2 deny any
Ruijie(config)# snmp-server community public ro 2
```

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access-list	Нж

3.1.4 snmp-server contact

˘ **snmp-server contact** Â Â

snmp-server contact *text*

no snmp-server contact

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text

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

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show snmp-server	
no snmp-server	ℸ

3.1.5 snmp-server enable traps

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˘ ʒ **snmp-server enable trap** Â ʒ

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snmp-server enable traps snmp

no snmp-server enable traps

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snmp ‘ ف Ô **!m5,ÕU6EÕC !m<G5Bã !mAQ¸NOâG5BQ¸** ’ config)# **ß M 6 ¾/**

config)# *192.168.1 Tc19*

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snmp-server host	٧ ٧̈ ע÷ Â

ipv6-addr ‘ ў ^ ~

vrfname ‘ ¨

version ‘ ˘ à à

auth noauth priv ‘ Â

community-string ‘ ¨ ^ ~ Â

port-num ‘ ў

notification-type ‘ ў ╠ ˘ Â

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҂ б ҂ **snmp-server enable traps** ˘ ў ╠
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```
Ruijie(config)# snmp-server host 192.168.12.219 public snmp
```

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text Â

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ð Ô

Ruijie(config)# **snmp-server location** start-technology-city 4 F of A Buliding

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snmp-sever contact	

3.1.8 snmp-server packetsize

8 **snmp-sever packetsize** Â

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snmp-server packetsize *byte-count*

no snmp-server packetsize

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byte-count ÿ Â

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Ruijie(config)# **snmp-server packetsize** *1492*

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snmp-server queue-length	

3.1.9 snmp-server queue-length

snmp-server queue-length Â

snmp-server queue-length *length*

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length ÿ Â

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```
Ruijie(config)# snmp-server queue-length 4
```

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snmp-server packetsize	

3.1.10 snmp-server system-shutdown

snmp-server system-shutdown Â

snmp-server system-shutdown

no snmp-server system-shutdown

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Ruijie(config)# **snmp-server system-shutdown**

3.1.11 snmp-server trap-source

˘ ʒ **snmp-server trap-source** Â ʒ
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snmp-server trap-source *interface*

no snmp-server trap-source

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interface ˛ ѝ

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Ruijie(config)# **snmp-server trap-source GigabitEthernet** 0

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snmp-server enable traps	ў ╟

snmp-server enable host	ў

3.1.12 snmp-server trap-timeout

snmp-server trap-timeout Â

snmp-server trap-timeout *seconds*

no snmp-server trap-timeout

seconds

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

- -

[# ў

username ʻ ¨ Â

groupname ʻ ¨

v1 v2 v3 ʻ Â /ǀ ɨ Â

encrypted ʻ ˘ ˘ ‡ Â
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auth ʻ ŭ̈ Â **md5**

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v1 v2c v3 ‘ Â

auth‘ a ˘ Ñ Â

noauth‘ a ≠ a ˘ Ñ Â

priv‘ ˚ ˘ Ñ Â

readview‘ Ñ يي Â

writeview‘ يي Â

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IO ‘

```
Ruijie(config)# snmp-server group mib2user v3 priv read mib2
```

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show snmp group	

3.1.15 snmp-server view

ّيي **snmp-server view** Â

يي Â

snmp-server view *view-name oid-tree* **include exclude**

no snmp-server view *view-name oid-tree*

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view-name ‘ ّيي Â

oid-tree ‘ يي ˘ Â

include ‘ يي Â

exclude ‘ يي Â

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Ruijie(config)# **snmp-server view** *mib2 1.3.6.1* **include**

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show snmp view	يي

3.1.16 snmp-server if-index persist

˥ **snmp-server if-index persist** ʒ Â ʒ **no** ˥ Â

snmp-server if-index persist

no snmp-server if-index persist

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Ruijie(config)# **snmp-server if-index persist**

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show run	

3.2

3.2.1 show snmp

show snmp

show snmp mib user view group

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show snmp

show snmp mib

show snmp user

show snmp view

show snmp group

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```
Ruijie# show snmp
Chassis: 60FF60
```

```
SNMP agent: enabled
```

4

4.1

4.1.1

co-oper {enable|disable}


```
Ruijie# configure terminal
Ruijie(config)# co-oper entity center 192.168.1.2 0 admin
Ruijie(config)# co-oper entity branch 192.168.2.2 0 admin
Ruijie# co-oper enable
```

show co-operv2 entity	

б ╟ Â ⁄ Ѣ ʒ **no** Â

co-oper entity branch center *ip-address* **0|7** *line*

no co-oper entity branch center *ip-address*

ip-address	
line	

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```
Ruijie# configure terminal
Ruijie(config)# co-oper entity center 192.168.1.2 0 admin
Ruijie(config)# co-oper entity branch 192.168.2.2 0 admin
```

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show co-operv2 entity	

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4.2

4.2.1

show co-operv2 entity [switchport *ip-address***]**

ip-address	

```
Ruijie# show co-operv2 entity
type  hostname    ip             position    mode     state
----------------- -------------- ---------  ----     ----------
S5750   S5750     192.168.1.2    center     LAYER3   COOPER OK
S2924G  S2924G    192.168.2.2    branch     LAYER2   COOPER OK
S2924G  S2924G    192.168.3.2    branch     LAYER2   COOPER OK
```

type	
Hostname	
Ip	
Position	

State	COOPER OK UNCOOPER VERSION ERROR LINK ERROR web PASS ERROR EG EG 2 EG 0 7 EG

Ruijie# **show co-operv2 entity switchport** 192.168.2.2

interface	vlanmode	vid	state	gw-ip
GigabitEthernet 0/1	ACCESS	1	uplink	0.0.0.0
GigabitEthernet 0/2	ACCESS	1	--	192.168.2.1
GigabitEthernet 0/3	ACCESS	1	--	192.168.2.1
GigabitEthernet 0/4	ACCESS	1	--	192.168.2.1
GigabitEthernet 0/5	ACCESS	1	--	192.168.2.1
GigabitEthernet 0/6	ACCESS	1	--	192.168.2.1
GigabitEthernet 0/7	ACCESS	1	--	192.168.2.1

… …

interface	
vlan mode	ACEESS TRUNK
vid	VLAN ID
state	( )
gw-ip	PC IP arp IP

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co-oper {enable|disable}	‖

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