RG-EG

RGOS 10.3(4b8)p2

V1.0

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4008-111-000
http://www.ruijie.com.cn

- http://www.ruijie.com.cn/

- http://webchat.ruijie.com.cn

  8:30 6 “ ”

- http://www.ruijie.com.cn/service.aspx

- 7×24 4008-111-000

- http://support.ruijie.com.cn

- service@ruijie.com.cn

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RGOS®10.3 (4b8)p2

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2

2.1

2.1.1 layer23 deny-mode enable

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[no] layer23 deny-mode enable

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G	í ł ˘ ˘ ╖ ώ ¨ ` è Â
w R	R 1 í ╖ Ruijie#**config** Ruijie(config)#**layer23 deny-mode enable** R 2 ˇΩ ╖ Ruijie#**config** Ruijie(config)#**no layer23 deny-mode enable**

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3.1

3.1.1 layer23 ad-mode enable

somethingЪ íˇ ʌЛЬ ƑƋ no somethingΩ ╖ Â

[no] layer23 ad-mode enable

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w R	R 1ˈ í Ъ ╖ ˈ Ruijie#**config** Ruijie(config)#**layer23 ad-mode enable** R 2ˈ somethingΩ Ъ ╖ ˈ Ruijie#**config** Ruijie(config)#**no layer23 ad-mode enable**

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4 vlan

4.1

4.1.1 vlan-group

У э vlan Â Л Љ G Ъ ҳ no ҭ vlan Â

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

no vlan-group *name*

ч	
name	vlan ¨ Â
vid-list	vlan ˆ ў vlan vlan id Â нг й :1-4094

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vlan ǯ vlan id a ă ˇ э vlan id ǯ л ˇ э vlan id Ų˚ У э vlan ˇ л ľ - Ł vlan id ņ vlan id э vlan id Â

G

ф У э vlan ľ any Ł˘ í ɣ Ь ҭ ⋮ ╖ ˇ ф ˜Ω Ю Ъ è ľ any Ł Ю Ъ è native vlan vlan ˇ native vlan vlan ˇ ‡ Ъ è ľ any Ł Â

1. a˚ vlan ǯ ¨ a ˚ Â
2. vlan ⋮ ф ˜Ω Ю Â
3. ф ą л Э vlan-enable Ъ ҳ˘ ą л vlan tag ˇ vlan ⋮ Â

w R

R 1˙ vlan ľ vlan-group1 Ł ˆ ў vlan 1 à vlan 3 à vlan7 à vlan8 à vlan9˙

```
Ruijie#config
Ruijie(config)# vlan-group vlan-group1 vlan 1,3,7-9
```

R 2˙ ҭ vlan ľ vlan-group1 ľ˙

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


```
----------   -----------     ---------    ------  ----------
any          9               0            0
vlan1        0               0            0        1
vlan2        0               0            0        3-5
vlan3        0               0            0        7,9
```

R 2 l' vlan1 L ə

```
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 Ъ ҳ ə

Vlan-group	vlan
Police_flow	Ω ‡
Police_url	Ω url ‡
Flow	Ω
Vlan id	vlan ^ ӱ vlan id

Ω Ъ ҳ

Ъ ҳ	
vlan-group *name* **vlan** *vid-list*	vlan Ъ ҳ

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5 Ђ ҳ

5.1

5.1.1 subscriber export

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subscriber export [***txt*** | ***csv***] *filename*

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	filename	˚ ¨
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w R	R 1˙ ˛ ˚ ľ userfile Ľ˙ Ruijie#**subscriber export txt** userfile	
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5.1.2 subscriber import

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subscriber import [***txt*** | ***csv***] *filename*

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filename	˚ ¨

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Ґ .txt Ł ˚ ĵ Ю ˚ Ҳ У э ˘ ⅃ э ĩ
ˋ à ¨ à ip ﻛ ﻫ à MAC ﻛ ﻫ Â è э ĩ Ґ˘ Ł ˘
ą Л Љ ˘ Л Ґ˘ Ł ć ˘ ˋ ł У ‟ a ﻓ˘ ж ć Ґ˘ Ł ﻓ
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G Ю Ґ .txt Ł ˚ è У w ᴿ ˋ

/ / 1, 1,192.168.197.1,

Ґ .csv Ł ˚ ﻓ Microsoft Excel è ł ⅃ й Ґ .csv Ł ¯ Л ˥
˚ Â ˚ è й ˋ У ˥ й 4 ‟˘ ˥ ⁞ й ˋ à ¨
à ip ﻛ ﻫ à mac ﻛ ﻫ Â

Ґ .csv Ł ˚ è w ᴿ ч Ґ LAYER23-CLASSIFY-SCG.doc Ł è Ґ ώ
Ł У Â

w ᴿ ᴿ 1ˋ ώ ˚ Ґ userfile Ł ˋ

Ruijie#**subscriber import txt** userfile

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subscriber static name *name* **parent** *parent* [[**ip-host** *ip-addr*] [**mac** *mac-addr*] **| ip-subnet** *subnet mask* **| ip-range** *start end*]

no subscriber static name *name*

show subscriber [**all** | **static** | **dynamic** | **parent** [*name* | **root**]]	ҷ Ъ ҳ
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	‡ Ъ ҳ

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Ruijie#**show subscriber all**

```
name                          mac            flow  fc  url dir dym av-fc av-con vip rel deny
ip
/                             0000.0000.0000  2    0   1   1   0   0    0     0   0   0
                              0000.0000.0000  0    0   0   1   0   0    0     0   0   0
 ^ ч                          0000.0000.0000  0    0   0   1   0   0    0     0   0   0
    1                         0000.0000.0000  4    0   0   0   0   0    0     1   0   0
192.168.1.3
    2                         0000.0000.0000  0    0   0   0   0   0    0     0   0   0
192.168.1.112
```

show subscriber Ƃ ҳ ə ‘

Name	¨
Mac	mac ѕ ѡ
Flow	˜Ω
Police_flow	˜Ω ‡
Police_url	˜Ω url ‡
Dir	
Dynamic	╟
Avoid	ȯ ˆ ˆ n ˝ ˜
Avoid-flow	ȯ
Avoid-content	ȯ ˝
Deny	
Ip	ip
White-list	ˆ ¨ release ˜

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subscriber static name *name* **parent** *parent* [[**ip-host** *ip-addr*] [**mac** *mac-addr*] **| ip-subnet** *subnet mask* **| ip-range** *start end*]	Ƃ ҳ

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6

6.1

6.1.1 network-group

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

no network-group name *name*

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name	¨
parent	ƒƌ ^ ل Л Ъ ľ / ľ Ø4{) `ÔƒÛäÉ –-D#P @

```
Ruijie(config)#
```

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6.2

6.2.1 show network-group

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

name	

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

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7.1

7.1.1 show auth-subs

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Show auth-subs [all | brief | parent [root | name]]

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name	¨

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```
Ruijie#show auth-subs all
name           mac           flow  fc  url dir dym ip
/             0000.0000.0000  16    0    1   1   0
Smp_root      0000.0000.0000  0     0    1   1   0
webauth_root  0000.0000.0000  0     0    1   1   0
```

show auth-subs all Ъ ɜ ə ˊ

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name	¨
mac	mac ﻙ ﻫ
flow	ˇΩ
fc	ˇΩ ‡
url	ˇΩ url ‡
dir	
dym	╟

	ip	ip

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8.1

8.1.1 app-add

8.1.2 app-del

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app-del *app-name*

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	app-name	¨

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w R	R 1' ÿ MYGAME HѪ è ǐ Â Ruijie#**config** Ruijie(config)#**identify-application custom-group** *MYGAME* Ruijie(config-custom-group)#**app-del**

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	identify-application custom-group	ǐ HѪ Ɓ ɤ

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8.1.3 identify-application app-db enable

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[no] identify-application app-db enable

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

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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*	‡ Ъ ҙ

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8.1.5 identify-application custom

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[**no**] **identity-application custom name** *software-name* **class** *class-name* {**tcp** | **udp | ip**} {{**sport** *sport-low sport-high* **dport** *dport-low dport-high*} | {**sip** *sip-low sip-high* **dip** *dip-low dip-high*} | {**sip** *sip-low sip-high* **sport** *sport-low sport-high* } | { **dip** *dip-low dip-high* **dport** *dport-low dport-high* }

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	software-name	

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group-name	¨

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```
Ruijie#config
Ruijie(config)#identify-application custom-group MYGAME
Ruijie(config-custom-group)#
```

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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*	‡ Ъ ҳ

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8.1.7 identify-application dfi enable

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[**no**] **identify-application dfi enable**

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

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8.1.8 identify-application dfi gather

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[no] **identify-application dfi gather**

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```
Ruijie#config
```

Ruijie(config)#**identify-application dfi gather**

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8.1.9 identify-application enable

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[**no**] **identity-application enable**

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Ruijie#**config**

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

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

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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*	‡ Ъ ҳ

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8.1.12 identify-application other

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identify-application other *app-name*

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app-name	‥

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G	Ɓ ҂ ʌ Ɲ ί ˜ ⁞ ╖ Â
w R	R 1˙ ί ˜ ⁞ ╖ ‘ Ruijie#**config** Ruijie(config)# **identify-application proto-detect enable**

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8.1.14 identify-application proto-expect enable

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[**no**] **identity-application proto-expect enable**

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G	Ɓ ҂ ʌ Ɲ ί ˜ ⁞ ╖ Â
w R	R 1˙ ί ˜ ⁞ ╖ ‘ Ruijie#**config** Ruijie(config)#**identify-application proto-expect enable**

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identify-application proto-expect timeout *seconds*	~ ◘
show identify-application proto-expect	~ ҷ

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8.1.15 identify-application proto-expect timeout

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seconds	◘ ˘ ч ѧ 10 - 3600

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Ruijie#config
Ruijie(config)#identify-application proto-expect timeout 180
```

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identify-application proto-expect enable	í ~ ⁞ ℸ

8.1.16 identify-application signature update

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identify-application signature update

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QQ- ˚ ΩM 1-7-4-0
QQ- 1-7-5-0
QQ- 1-7-14-0
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
ą 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

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8.2.2 show identify-application block

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show identity-application block

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Ruijie(config)#show identify-application block
PCANYWHERE
(group)

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8.2.3 show identify-application class

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show identity-application class

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Ruijie#**show identity-application class**
ˉ ˅ 1-0-0-0
IP 2-0-0-0
˅ 3-0-0-0
E ˅ 4-0-0-0
P2P ˅ 5-0-0-0
˅ 6-0-0-0

```
HTTP     7-0-0-0
ц        ˚ ·    8-0-0-0
      ˚ ~    9-0-0-0
       10-0-0-0
        ~    11-0-0-0
    ~    12-0-0-0
  ŏ~    13-0-0-0
         ˚  14-0-0-0
        15-0-0-0
RFC 16-0-0-0
    Ѭ     248-0-0-0
myp2p 249-0-0-0
```

241135.36 2re f4 536 /P EMC /P8.2yp4<</M0.1 Tw20 103.07EMC E[(show)-12(identity)11(-application custom-group)22

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```
Ruijie#show identity-application custom-group MYFTP
FTP
```

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8.2.5 show identify-application custom-rule

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show identify-application custom-rule

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```
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Ruijie(config)#show identify-application custom-rule
TYPE NAME                      CLASS                          SPL
SPH   DPL   DPH   SIPL          SIPH          DIPL
  DIPH
---- -------------------------- ------------------------------
----- ----- ----- ----- -------------- --------------
--------------
- ---------------
UDP  mymsn                     myim                           any
any   any   any   any           any           220.22.12.3
  220.22.12.10
TCP  myqq                      myim                           any
any   8000  8000  any           any           any
  Any
```

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8.2.6 show identify-application group-state

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show identify-application group-state

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8.2.7 show identify-application inhibitive

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show identity-application inhibitive

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8.2.8 show identify-application key

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show identity-application key

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```
Ruijie#show identity-application other
IP        (group)
          ˅  (group)
        E ˅  (group)
       ˅  (group)
WEB     (group)
ц       ˅ ·    (group)
       ˅ ~    (group)
        (group)
         ~    (group)
```

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```
Ruijie#show identity-application proto-expect
protocol proto-expectation state: on
protocol proto-expectation timeout: 180
```

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identify-application proto-expect enable	́ ~ ⁞ ℸ
identify-application proto-expect timeout *seconds*	~ ◘

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8.2.11 show identify-application routable

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show identity-application routable

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```
Ruijie#show identity-application routable
˚ 3-0-0-0
```

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	3-14-0-0
	3-16-0-0
ѽ	3-18-0-0
	3-20-0-0
·	3-23-0-0
˚	6-0-0-0
ҽ_	6-26-0-0
_	6-27-0-0
˚ _	6-28-0-0
_	6-29-0-0
è ҽ ⁿ	6-30-0-0
è ҽ ж н	6-30-1-0
ŋ	6-31-0-0
	19-0-0-0
ى	19-1-0-0
ὰ н	19-2-0-0
è ҽ	19-3-0-0
″I	19-4-0-0
″Ң н	19-5-0-0
Ң	19-6-0-0
è ىى	19-7-0-0
~	19-8-0-0
	19-9-0-0

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	10.3(4b8)	Ɓ ३

8.2.12 show identity-application version

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show identify-application version

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w R	R 1 ǀ ə ' Ruijie(config)#show identify-application ver Version:2012.02.11.01.01.11	

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8.3

8.3.1 identify-application clear key-inhibitive-block group

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identify-application clear key-inhibitive-block group

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˘ ╗ ώ ʗΩ ʎ ╗ ώ ⁸ ˘ Ɓ ɂ ʌ ɅЂ ʗΩ ˘ ⁸
ŋ è ĵ Â

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```
Ruijie#config
Ruijie(config)#identify-application clear key-inhibitive-block group
```

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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*	‡ Ɓ ɂ

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10.3(4b7)	Ɓ ɂ

ᴿ 1ˈ ľ P2P Ю ˇ Ł ǰ ⅄ ľ GigabitEthernet 0/1 Łǰ

```
Router(config)#app route P2P Ю ˇ interface GigabitEthernet 0/1
```

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ᴿ 2ˈ ľ HTTP ᴇ Ł ˇ ⅄ ľ inhibitive_intf_group Ł ǰ ˘
ɜ ﬓ ľ no_midnight Ł ϙ

```
Router(config)#app route HTTP ᴇ interface-group
inhibitive_intf_group time-range no_midnight
```

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app route enable	ί ᴎ ╖

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	app route	

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Ƃ ҳ ϒ ʌ	10.3(4b8)	Ƃ ҳ

9.1.3 app route priority

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app route *app-name* **priority** { **increase** | **decrease** } [*1-1999*]

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10.3(4b8)	Ъ ҳ

9.1.4 clear app route statistics

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clear app route statistics [*app-name*]

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app-name	ّشخ

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interface-group-name	۸ ¨

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interface-name	⅄

	load
	IP hash ﹾ Â
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LAN ˘ ˜Ω ˚ ╟ Â

Router#show app route HTTP E session

```
SIP             SPORT  DIP              DPORT    PRO-NUM  INTF                  SUM DATA(byte)
--------------  ------ ---------------- -------  -------  --------------------  --------------
172.18.33.77    1090   192.168.58.112   39088    6        GigabitEthernet 0/6   8153/29799
172.18.33.17    1090   192.168.58.102   20024    6        GigabitEthernet 0/6   1153/21919
172.18.33.76    1090   192.168.58.10    12345    6        GigabitEthernet 0/6   8053/2979
172.18.33.73    1090   192.168.58.20    22364    6        GigabitEthernet 0/6   8173/12799
172.18.33.72    1090   192.168.58.11    15621    6        GigabitEthernet 0/6   4153/56321
```

SIP	IP
SPORT	⁄
DIP	IP
DPORT	⁄
PRO-NUM	~ ⁄
INTF	⁄
SUM DATA(byte)	˘ ˆ ŭ Э /Ю

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9.2.2 show interface-group

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show interface-group

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```
Router#show  interface-group
GROUP-NAME              INTERFACE INCLUDED      POLICY     STATE
inhibitive_intf_group   di1,di2,di3             load       UP

Router#show  interface-group
rrrr
```

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10.1

˚ ^ ЪЮ Ф ҳ'

- 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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w R	ᴿ ˙ ˇΩ ˚ … ⁸ б ╖ Â 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*

ϒ	ϒ	
	rule-id1	‡ ʎ˘ ϒ ḣ ˙ 1~50
	rule-id2	‡ ʎ˘ ϒ ḣ ˙ 1~50

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G	2 à Ъ ҂ſ ч ‡ . ˝I ’ 3 à rule-id1 p̲ rule-id2 ˚ ˘ ‡ a ṁ˙ ı Â

w R	R ‘ 2 ‡˘ ł ƒſ ъ . ˝I Â
	`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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	10.3(4b8)	Ъ ҂

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

ᴿ 2′ Í ą̈ IP ẁ 192.168.1.0/24 ᵵ ɷ ą̈ IP …
˚ ˘ è м 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 #ɖ
```

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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*

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per-limit-number	/ Ю IP ˚ ⁸ ḣ˘ ∧ ḣ ﻧ б ˝ ℧˘ a Ұ *total-limit-numbeŕ* è è 0 a ṁ` ⁸ Â

Ƀ ϟ ŏ Â

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2 à action ˘ block a ĭ ˚ ą᾽ by-pass a … ˚ ˘
℧ ∧ ^ Ƀ ϟ ℧ /I ﻫ ą̃ Ю ˚ ˘
℧ Ю a˚ Ƀ ϟ ℧ ~ ᾽ trust ĭ /
⁸ Ⱡъ ↓ IP ˚ ⁸˘ ˚ ⁸ ḣ ł a Ą ĭ ˚
ą Â ˚ б ˝ ℧˘ Ƀ ϟ ˘ ĭ ώ
ḣ¯ ѝ ĭ … ˚ Â

3 à ℧ Ю˘ Ұ Э У ﻭ ˘ ъ a ṁ ⁸ Â

R᾽ Ľ UserGroupA Ł ĭ … 5000 ˚ ˘ з Ľ UserGroupA Ł Ю
э IP ĭ … ˚ ѝ 300˘ ⁸ ḣ ł

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limit-number	ŏ 8 ḣ ч ḣ ѕ б ǫ Ѿ è è 0 a 8 Â

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```
Ruijie#config terminal
Ruijie(config)# flow-pre-mgr total-limit 200000
```

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10.3(4b8)	Ѣ ҙ

10.2

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- show flow-pre-mgr ip-info
- show flow-pre-mgr rule-info

10.2.1 show flow-pre-mgr ip-info

ṁ IP 8 IP ą

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

↓	
ip-address	IP ˙ ą ˘ a ˘ IP ˙ ą ˘ ˙ ÿ ĺ Â

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R ' m IP ˙ 8 IP ˙ ą

```
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

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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)

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11.1.1 active-limit

TCP ņ UDP ў ╠ ˘ Л Ъ G Ъ ҳ no ў ╠

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

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

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tcp-enable	TCP ў ╠ ˜Ω
udp-enable	UDP ў ╠ ˜Ω

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Ъ ҳ **flow-control**

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	10.3(4b8)	Ƃ ҳ

11.1.2 auto-pir

G PIR ╟ ╖ ˘ G **no** Ƃ ҳ ʗ ╖ Â

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

no auto-pir enable

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ϔ	*NUM*	˘ ` æ‘ ˘ a ѝ 1 ˘ ѧ ѝ 1· 3600
	Percentage	PIR ϒ ⁸ ḣ‘ ¯ ˘ Ю✧ ɣ ḣ ϗ PIR ϒ ⁸ ˘ . ʺI ÿ æ∫ ˘ ƒ CIR ‡ ϒ ⁸ è PIR’ ✧ æ ɣ ḣ 10 ə ∫ ϗ PIR ˘ . ʺI ÿ ∫ æ ’ ✧ Ȳ ɣ ɣ ч ǯ a ṁ a ѝ 90 ѧ ѝ 1· 99 Â Â Лъ ḣ 90 ѝ R˘ æ ɣ 80% ϗ PIR ˘ ɣ 90% ϗ PIR ϒ ⁸ ˘ Ȳ ɣ 80% ɒ 90% ǯ a ṁ Â
	exclude-pass	**root-rate** ḣ ˘ ώ **exclude-pass** ʗ ł a ˆ pass Â

EG ӈ ث í Â

Ƃ ҳ **channel-tree** Â

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G *group1* **inbound** **PIR** ╖ ‘

```
Ruijie# config
Ruijie(config)# flow-control group1
Ruijie(config-flow-control)# channel-tree inbound
Ruijie(config-channel-tree)# auto-pir enable
```

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show flow-control	Ⴍ Ⴎ Ƀ ҂ **Inbound** **Outbound** PIR ҈

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11.1.3 change-priority

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no ˚ Ҋ ṁ . ″I ˘ Ҋ ṁ . ″I ˘ Ӓ ᴳ Ҋ Ƀ ҂ Â

change-priority rule1 *rule1-num* **rule2** *rule2-num* [**by-rule-number**]

Ⴍ	
rule1 -num	Ҋ У ‡ Ⴍ˘ ѝ. ″I Ⴍ
rule2-num	Ҋ ү ‡ Ⴍ˘ ѝ. ″I Ⴍ
by-rule-number	ώ Ղ

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	10.3(4b7)	Ъ ҳ

11.1.4 channel-default

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channel-default *channel-name*

no channel-default

ч	ч	
	channel-name	¨

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Ъ ҳ	**channel-tree** Â
G	Ъ ҳ˘ Ъ ф̇ ώ
w R	ľ test Ł Ю ą̈ Э ľ depart5 Ł ѝ Ruijie(config)#**flow-control** *test* Ruijie(config-flow-control)#

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	…
parent_name	…
cir *cir_num*	10000000 kbps 100
pir *pir_num*	**cir** 100 10000000 kbps 0

		4	7	2	1	3	5	4	2	2	3	1

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11.1.7 comment

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[**no**] **comment** *Comment_String*

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Comment_String	s ˘ 127 ɜ ˘ è a

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Ъ ҳ	**flow-control**
ᴳ	Â
w ᴿ	ɔ́ ľ Gi0/1 Ł ‘ Ruijie(config)#**flow-control** *Gi0/1* Ruijie(config-flow-control)# **comment** *Dianxin-10M*

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flow-control	ⁿ

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10.3(4b8)	Ъ ҳ	

11.1.8 flow-control

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no ҭ ɜ ⁿ Â

flow-control {global | *name* **[update bandwith**_*In_bandwith Out_bandwith* **[perpir-update]] }**

no flow-control *name*

Log ˜Ω n ˜Ω Ъ ҳ Ю˙

[no] flow-control log on

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global	ŏ ˘ ¥ ŏ n ˘ wan ˄
name	⁸ ¨ Â
In_bandwith	Ю ˘ ώ ˙ 500~ 10000000˙ ` æ˙ kbps
Out_bandwith	Э ˘ ώ ˙ 500~ 10000000˙ ` æ˙ kbps
perpir-update	ώ ‡ Per-PIR ᴿ ˘ a ώ ϙ Ю ¥ ي ñ 10M a ᴿ

ϙ Ю˙ è ˄¸ ف ˘ global Â

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G 2 à **update** ˜Ω ¥ Â è è˘ ط˚ ˝Ω м n ˘ ھ¸ ᴿ Â

3 à ŏ ˄ Action и Drop Л Ъ ˥ a ώ Pass ˘

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

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flow-control	[8]

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11.1.10 flow-rule

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flow-rule *num* **[vlan-group** *vlan-group-name***]** **[subscriber** *subscriber-name***]** **[auth-group** *auth-group-name***]** **[network-group** *network-group-name***]** **[app-group** *app-group-name***]** **time-range** *time-rang-name* **[vpn]**

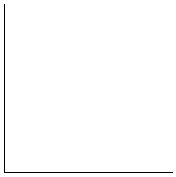
flow-rule *num* **[session-limit** *session-num*] **action** {**drop** | **log-drop** | **pass** [**in-channel** *in-channel-name*] [**out-channel** *out-channel-name*]} **[default]** [**commet** *string*]

[no] flow-rule *num* **disable**

no flow-rule *num*

time-rang-name	‡ ˇΩ time-rang ¨
session-num	‡ ˛ ˘ ĭ Ƌ ˘ ώ ˜ 0˙ 4000000Ơ 0 a ⁸
in-channel-name	‡ ˇΩ in-channel ¨
out-channel-name	‡ ˇΩ out-channel ¨
string	‡
disable	‡ˇ
vpn	VPN ˘ ⁄ Ƌ VPDN ˘ VPN
default	˘ . ˝I æˇ Ǯ ﺝ ¥ . ˝I ↰ ‡

α



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w R 1 à Gi0/0 Gi0/2 ˘ з и 15Ḿ

```
Ruijie#config
Ruijie(config)# flow-template copy Gi0/0 Gi0/2 bandwith 15000 15000
```

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flow-control	8

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10.3(4b8)	Ƃ ҂

11.1.12 share-pool

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share-pool *Name* **rate** *num1* [**type** { **normal** | **per-ip [limit** *num2***l**}]

no share-pool *Name*

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share-pool *Name*	╗ ̄ ‴Ω м ¨
rate *num1*	… ‴Ω м
type	… ‴Ω м ҕ̆ a ώ и **normal** ҕ
normal	**normal** ҕ̆
per-ip	**per-ip** ҕ̆
limit *num2*	**per-ip** ҕ‴Ω м 8

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Ƃ ϧ	**channel-tree**	Â

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w R Gi0/2 ə ˙

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

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

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10.3(4b8)	Ъ ч

11.2.2 show flow-control

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

ə ˙

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

ЎΩ м ə ˙

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

Auto-pir ə ˙

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

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flow-control *Name*	¨
inbound	Ю ă
outbound	Э ă
channel-group *channel-nam*	˘ ╗ Э **detail** Ўω ¥ FIFO ă SFQ n Per-net ‟ ə

share-pool [*pool-name*]	˝Ω ɱ ˜Ω ˘ a ώ Name Pooŕ ώ ‡ Pool

```
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
```

Group-name	
CIR	ą
PIR	ḣ ą
Pri	. ˝I
Schedule	‟ ĵ
CIDR/CIR/PIR/Limit/Sess-limit/ Share-pool	¥ Per-net ĵ ↓ ˘ Ль ↓ ╗ ώ ˝Ω м

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```
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
```

Global pool	ŏ ˝Ω м
Global red obj	ŏ ∫ ⁸ ˝Ω м ˘ Normal ĵ˝Ω м ņ Per-IP ĵ˝Ω м л э
Tree pool	Channel-tree ˝Ω м э
Share-pool	˝Ω м
Rate	˝Ω м
Type	˝Ω м ĵ
Limit	Per-IP ĵ˝Ω м ˘ й ⁸
Child	Ц ˘ ∧ ╗ ώ Pool ˘ Ь э л ╗ ώ ˝Ω м ḣ ∧ ╗ 1

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```
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
```

Pool	″Ω м ¨
Rate	″Ω м
Type	″Ω м ڜ
Limit	Per-IP ڜ″Ω м ˘ й 8
State	Normal ڜ″Ω м ˘ Green ∫ 8 ḣ˘ Red ∫ Э ḣ˘ Per-IP ڜ й NA
Child	Ԉ ˘ Л ╗ ώ Pool ˘ Ь э Л ╗ ώ ″Ω м ḣ Л ╗ 1
Active	╟ ˘ Per-IP ڜ″Ω м
Kill flow	˘ Per-IP ڜ″Ω м ˘ Per-IP ڜ″Ω м Limit 8
Group-name	″Ω м Ԉ ¨
Cir	″Ω м Ԉ
Pir	″Ω м Ԉ ḣ
Type	″Ω м Ԉ ڜ
Pri	″Ω м Ԉ . ″I
Limit	″Ω м Ԉ 8˘ Per-net ڜ
Share-pool	╗ ώ ″Ω м ¨ ‘ ″Ω м ف Ԉ й Л ˘ Л ≠ ¸ Ъ ҳ ˘ è ╗ ώ ↓ ″Ω м ‡ Share-pool ¨ ˘ ŭ ‡ й NA

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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
```

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group-name	⁸ ¨ Â
group-id	⁸ ﾉ Â
apply_ifx	⁸ ﾉ ḣ˘ ѝ 0 ˆ ˙ ¡ ﾉ Э Â
policy_entries	⁸ Ю ‡ Â

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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
```

è ⁸ group1 ə ‘

```
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
```

Pri-num	‡ . ˝I ﾉ Â
grp_id	⁸ ﾉ Â
rule_num	‡ ﾉ Â
ifx	‡ ﾉ ḣ˘ ѝ 0 ‡ ѯ ⁸ ˆ ﾉ Â
vlan_id	‡ ˇΩ vlan-group id˝ ѝ 0 vlan-group Â
subs_id	‡ ˇΩ subscriber id˝ ѝ 0 subscriber Â
	‡ ˇΩ

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state	Down ˘ up
effec	‡ ˘ ѝ 0 ˘ ѝ 1 ֍ Â

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12.1

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

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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 month-report 12
```

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

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12.1.4 flow-audit data-store week-report

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

no flow-audit data-store week-report

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n	ɖ Ƣ ˘ ʌ ḣ ɲɪ ѝ 1~52 Ƣ Â

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w R	R 1˙ Ω ф Ω ѝ 12 Ω Ruijie#**config** Ruijie(config)#**flow-audit data-store week-report** *12* R 2˙ Ω ф Ω ѝ ф Ω Ruijie#**config** Ruijie(config)#**no flow-audit data-store week-report**

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	10.3˙ 4b8˜	

12.1.5 flow-audit enable

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flow-audit enable

no flow-audit enable

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w R	R 1˙ í ╗ ‘ Ruijie#**config** Ruijie(config)#**flow-audit enable** R 2˙ ˝Ω ╗ ‘ Ruijie#**config** Ruijie(config)#**no flow-audit enable**

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VPN

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

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	α Ю VPN ﻱ Ұ IP Â
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G	Ъ ъ Л Љ ɡ VPN ˘ Л Љ Â
w R	R 1 Ω л э й VPN Ь ˘ Л э ˆ VPN л Э ˜ IP α ˘ ‡ Ю Ruijie# **configure terminal** Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# **flow-audit vpn outside-ip** R 2 Ω л э й VPN ˘ Ω л ά э Ц VPN α ˘ ‡ ɡ й ﻱ Ұ ά IP ˘ Ю Ruijie# **configure terminal** Enter configuration commands, one per line. End with CNTL/Z. Ruijie(config)# **flow-audit vpn inside-ip**

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12.2

12.2.1 show flowrate application

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show flowrate application {**global** | **interface** *interface-name* **| bridge** *bridge-name*} [[**subscriber** *subscriber-name*] [**subscriber-group**

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**} | **application**} {**desc** | **asc**}[**top** *n*]] [**detail**]

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interface-name	Ь ٧ ˘ فخ ̃Ω Ю G
bridge-name	˘ فخ Ю G
subscriber-name	
subscriber-group	
auth-group-name	
auth-subs	
Ip-address	IP هم كم
application-group	
application-type	شخ
application-name	
hour	
begin-year	
begin-month	

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✓ ЎΩ global м à ҷш ғ

ϙ à à ҷш ғ ’ ЎΩ interface bridge

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’ a ώ· ı ¨ ғ ’ ЎΩ by-group

ғ ’ ЎΩ by-type ҷш ғ

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eg: show flowrate application global ^ м ғ ~

show flowrate application interface gi0/3 ^ ¨ и ”gi0/3”Ю Л

м ғ ~ show flowrate application interface gi0/3 by-group ^

¨ и ”gi0/3”Ю м ғ ~

show flowrate application interface gi0/3 by-type^ ¨ и ”gi0/3”Ю

ҷш м ғ ~

✓ ЎΩ minute-interval n Л begin-year begin-month begin-day begin-hour begin-minute end-year end-month end-day end-hour:end-minute

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eg: show flowrate application interface gi0/3 minute-interva 2012 2 1 9:20 to 2012 2 1 9:50 ^ ˘ ¨ и ”gi0/3”Ю 2012 2 1 9 20†

2012 2 1 9 50† Л ғ ~

✓ ЎΩ month n week Ω ˘ и ѓ ò t90 Ъ ҳ˘ a

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з à Ω à Л ˇΩ hour-interval 1 э 2 э Â

R 1˙ ˇΩ Ю˝ Л gigabitEthernet 0/1 ɱ ’

```
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                  ¨                  ˚                  è
62597              65955                 15                17
 0                  0                    0                 0
```

R 2˙ Ю˝ bridge 0˝ ə ˘ ’

```
Ruijie# show flowrate application bridge 0 by-group
path:bridge-map 0
Application_group
PASS:         Upload(bps)         Download(bps)       Upload(pps)
Download(pps)
DROP:         Upload(bps)         Download(bps)       Upload(pps)
Download(pps)
App_group1
  211              249               0                 0
  0                0                 0                 0
```

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R 3˙ ˘ Л gi0/3 ˝ 2012 1 6 Л 2 ˆ 3
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```
Ruijie#show flowrate application interface gi0/3 by-group minute
-interval 2012 1 6 2:0 to 2012 1 6 3:0
path:GigabitEthernet 0/3
minute-interval: 2012-1-6 2:0 ~ 2012-1-6 3:0
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
```

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202 637 479 634
0 0 0 0
ᵀ ᵛ
131 231 721 614
0 0 0 0

R 4 ˘ ⁄ gi0/3 ƒ 2012 1 6 ⁄ ə
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```
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
```

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202 637 479 634
0 0 0 0
ᵀ ᵛ
131 231 721 614
0 0 0 0

R 5 Ю˘ bridge 0 ƒ 2010 1 9 ⁄ 2010 1
15 ⁄ ə ˘ ,

```
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
```

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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

R 6 ˘ ⁄ gi0/3 2012 1 6 ⁄ 2012 1 20 ⁄ ə ˘

```
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
Ц
  2020           6370             4790           6340
  0               0               0               0
  1310           2310            7210            6140
  0               0               0               0
```

R 7 ˘ ⁄ gi0/3 2012 1 5 ⁄ 2012 1 13 ⁄ 1 5 ə

```
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
time-interval(min): 240
Application       Pass_up^ KB~      Pass_down^ KB~
                  Drop_up(KB)       Drop_down(KB)     time
360   ώ    -UPDATE        2              41
                           1              2           2012-1-5 4
BQQ                       12              12
                           1              0           2012-1-6 4
IT                        0               1
                           2              1           2012-1-7 4
360   ώ    -UPDATE        2              40
                           3              0          2012-1-8 4
BQQ                        12             12
                           1               2          2012-1-9 4
IT                         0               1
                           0               1          2012-1-10 4
360   ώ    -UPDATE        2              60
                           1               2          2012-1-11 4
BQQ                        12             12
                           1              0           2012-1-12 4
IT                        5               1
                           0               1          2012-1-13 4
============================================================
Total                     47              180
                          10              10
```

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10.3(4b8)	ˇΩ ˇΩ ɲ ɻ minute-interval à week à month à day ˇΩ

0 , 0
channel_groupC/ channel_nameC
down 39632 , 61
0 , 0

R 2 ˘ ¨ ù NBR ˘ 2012 1 6 ʌ 12 ˘ ʃ 12 40ʃ

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

R 3 ˘ ¨ ù NBR ˘ 2012 1 6 ʌ

Ruijie# show flowrate channel channel-name “NBR ” *day* **2012 1 6**
channel_group: channel_groupA
channel_name: channel_nameA
type: down
PASS: 121190 KB, 1281800 Packets
DROP: 0 KB, 0 Packets
channel_group: channel_groupB
channel_nam: channel_groupB
type: up

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

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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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10.3(4b8)	minute-interval ã week ã month ã day ʖΩ

begin-month begin-day}[**hour-interval** *begin-hour* **to** *end-hour* [*begin-hour2* **to** *end-hour2*]] } [**detail**]]

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✓ ʖΩ recent n ⊀ hour 0~24 ϕ ə ˘ recent ʖΩ
/ ¥ Ƨ ˘ /
eg: show flowrate interface gi0/3 recent 1 ˆ Ƨ ˘ У э
и ”gi0/3” ə ˜
✓ ʖΩ day n ⊀ begin-year begin-month begin-day ı У
eg: show flowrate interface gi0/3 day 2012 2 12 ˆ ˘ 2012 2 12
и ”gi0/3” ə ˜
ʖΩ detail / ʖΩ ə
è è Ƨ n /Л ˘ Ƨ ï ˘ ‡ / ĭ У Â
з à Ƨ à / ʖΩ hour-interval 1 э 2 э Â

R 1 / gigabitEthernet 0/1 ɱ

```
Ruijie# show flowrate interface gigabitEthernet 0/1
Interface: GigabitEthernet 0/1
Pass input rate: 979685 bits/sec, 114 packets/sec
Pass output rate: 107233 bits/sec, 60 packets/sec
Drop input rate: 130 bits/sec, 5 packets/sec
Drop output rate: 210 bits/sec, 4packets/sec
```

R 2 / gigabitEthernet 0/1 2011 1 8 / 2 ˘ ⌈ 2011 1 14 / 11

```
Ruijie# show flowrate interface gigabitEthernet 0/1 time-interval 2011 1 8 2 to 2011 1 14 11
Interface:GigabitEthernet 0/1
PASS upload: 14478835 KB, 30655170 Packets
PASS download: 6342862 KB, 22501788 Packets
DROP upload:  1 KB, 200 Packets
DROP download: 5 KB, 1020 Packets
```

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R 3 ˘ 2011 12 23 / 10 ⌈ 11

```
Ruijie# show flowrate global minute-interval 2011 12 23 10:0 to 2011 12 23 11:0
PASS upload: 7478835 KB, 1655170 Packets
PASS download: 3342862 KB, 12501788 Packets
DROP upload:  2 KB, 200 Packets
DROP download: 5 KB, 1020 Packets
```

R 4 ˘ 2011 12 23 / 10 ⌈ 12

```
Ruijie# show flowrate global day 2011 12 23 hour-interval 10 to 12
PASS upload: 14478835 KB, 30655170 Packets
PASS download: 6342862 KB, 22501788 Packets
DROP upload:  1 KB, 200 Packets
DROP download: 3 KB, 1120 Packets
```

R 5 ˘ 2011 12 10 2011 12 19

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

begin-hour2	2
end-hour2	2
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✓ ˇΩ global ɱ ə ʘ ə

’ ˇΩ interface bridge ˄ Ю ɱ ə

ʘ ə ’

eg: show flowrate ip global ^ ɱ ə ~

show flowrate ip interface gi0/3 ^ ¨ ѝ ”gi0/3”Ю ɱ ə ~

✓ ˇΩ minute-interval n ˄ begin-year begin-month begin-day begin-hour begin-minute end-year end-month end-day end-hour:end-minute

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Ðjie# **showflowrateinterfacegi0/3** month**day-interval** 2011 12 10 **to** 2011 12 19 **hour-interval**

Ðjie# **showflowrateinterfacegi0/3** month**day-interval** 2011 12 10 **to** 2011 12 19 **hour-interval**

Ðjie# **showflowrateinterfacegi0/3** month**day-interval** 2011 12 10 **to** 2011 12 19 **hour-interval**

Ðjie# **showflowrateinterfacegi0/3** month**day-interval** 2011 12 10 **to** 2011 12 19 **hour-interval**

NSSA-external Link States (Area 0.0.0.1 [NSSA])

External Route Tag	˘ э 32 э Â OSPF a G ˘ ƒ è ∫ OSPF ˚ ∫ Â

ЛЬЮ й **show ip ospf database external** Ъ ъ

```
Ruijie# show ip ospf database external
OSPF Router with ID (1.1.1.1) (Process ID 1)
AS External Link States
LS age: 1290
Options: 0x2 (*|-|-|-|-|-|E|-)
LS Type: AS-external-LSA
Link State ID: 20.0.0.0 (External Network Number)
Advertising Router: 1.1.1.1
LS Seq Number: 8000000a
Checksum: 0x7627
Length: 36
Network Mask: /24
Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 20
Forward Address: 0.0.0.0
External Route Tag: 0
```

show ip ospf database external Ъ ъ Л ЮÂ

OSPF Router with ID	ЛЬЮ ę б OSPF л Â
	ЛЬЮ ę й Ц ж ę Â
	ƒ Â

Network Mask	Â
Metric Type	شخ Â

4.2.4 show ip ospf interface

б OSPF ЎΩ л ә ˘ G Ъ ч **show ip ospf interface** Â

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

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interface-type	^ л ~ л л ъш Â
interface-number	^ л ~ л л л Â

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Ъ ч˘ л Лъ ы ф л OSPF˘ Лъ ч ф л OSPF ЎΩ ә Â

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ЛЬЮ ы **show ip ospf interface GigabitEthernet** *1/0* Ъ ч

```
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
```

show ip ospf interface serial *1/0* Ъ ъ Л ЮÂ

GigabitEthernet 0/0 State	Л ˘ UP ↄ˘ Down Â
Internet Address	Л IP كھ Â
Area	Л OSPF ٹ مھ Â
MTU	MTU

Matching network config OSPF

LS-Upd received send	↑ б Л LS Â
LS-Ack received send	↑ б Л LS ط Â
Discard	x OSPF Â

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4.2.5 show ip ospf neighbor

OSPF ˘ G Ъ ъ **show ip ospf neighbor** Â

show ip ospf [*process-id*] **neighbor** [[**detail**] | [[*interface-type interface-number*] [*neighbor-id*]]]

ð Ч Ô

```
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
Thread Database Description Retransmission off
Thread Link State Request Retransmission off
Thread Link State Update Retransmission off
Thread Poll Timer on
```

show ip ospf neighbor Ъ ъ Л Ю

Neighbor ID	Â
Pri	. ”I ^ w DR ~
State	
Dead Time	¦ Dead ⅓ м
Address	ﻫ ﻛ ﻣ
Interface	ﻣ
interface address	ﻣ ﻛ ﻫ
In the area	¯ ¦ ﻧ ﻫ
via interface	¦ ﻣ Â
Neighbor priority	OSPF. ”I ḣ Â
State	OSPF ÂFULL Ұ ’ DR ѝ ’ BDR ѝ ` ’ DROTHER a DR/BDR Â ¦ ﺵﺥ DR BDR Â
State changes times	ﻣ ◘

Dead Time	˙
DR	w DR ﻝ ﻙ ﻫ (Hello DR)
BDR	w BDR ﻝ ﻙ ﻫ (Hello BDR)
Options	Hello E ά ˘ 0 ﻛ ﻫ й STUB' ˘ ﻛ ﻫ a STUB ﻛ ﻫ Â
Dead timer due in	ъ Â
Neighbor up time	ﻥ ﺃ ﻓﺦ
Database Summary List	DD
Link State Request List	LS
Link State Retransmission List	.
Crypt Sequence Number	ﻛ ﻫ MD5
Thread Inactivity Timer	ﺋﻮ
Thread Database Description Retransmission	ﻝ DD ﺋﻮ
Thread Link State Request Retransmission	ﻝ LS ﺋﻮ
Thread Link State Update Retransmission	ﻝ LS ﺋﻮ
Thread Poll Timer	˘ Poll Timer í ╟

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4.2.6 show ip ospf route

ospf Â

show ip ospf [*process-id*] **route**[**count**]

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ﻉ	
process-id	ospf ﻥ˘ ﻉ ospf Â
count ﻝ ospf ﻩ Â	

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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 Ъ ҳ Л Ю

codes	ӵшЛъ Л ђ̃
100.0.0.0/24	ɱ Â
[1]	cost
via	Ю У б Л

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ð Ƃ ɂ Ô

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ɱ Ƃ ɂ ʎ ƒ NSSA ABR Ɔ ˘ ɜ ʎ ƒ ƙ ṁ ɔ
Â

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ЉЮ ѝ **show ip ospf summary-address** Ƃ ɂ ʻ

```
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#
```

Summary Address	ƙ ƕ
Summary Mask	ɲ Â
Advertise	ŭ Ω ƚ
Status	ɲ ŭ
Aggregated subnets	ɲ ƒ

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4.2.8 show ip ospf virtual-link

OSPF ə ˘ ɢ Ƃ ɂ **show ip ospf virtual-link** Â

show ip ospf [*process-id*] **virtual-link**

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˘ ʌ Ƃ ɂ ˘ Ɽʊ ɻ è ˜Ω ə Â**show ip ospf neighbor** Ƃ ɂ a˛ Â

ð w ʀ Ô

ɅЬЮ ѝ **show ip ospf virtual-links** Ƃ ɂ

```
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
```

ɻ ЮÂ

Virtual Link VLINK0 to router	Ɽʊ ɻ
Virtual Link state	.
Transit area	ɴ ѫ Â
via interface	˜Ω ʌ Â
Local address	ʌ ѫ ѫ
Remote Address	ʌ ѫ ѫ
Transmit Delay	. Â
State	ʌ
Time intervals configured	ʌ Hello˘ Dead˘ Wait˘ Retransmit
Adjacency State	Â FULL ѝ Â

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5

5.1

5.1.1 distribute-list in

8 ˘ Л Ъ ˘ G Ъ ҳ **distribute-list in** Â Ъ ҳ **no** ĩ HXÂ

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*]

ð ↓ Ô

↓	
access-list-number	“ ↓ ñ “ ↓ ↓ 1-99˘ 1300-1999 “ ↓ ↓ 100-199˘ 2000-2699
access-list-name	“ ¨
prefix *prefix-list-name*	G ɱ “
gateway *prefix-list-name*	G ɱ “
i*nterface-type interface-number*	(↓) ĭ “ ˘ ↓ ↓ ↓

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Â ‰ ‹ OSPF ~ ˇ ˛ ì OSPF ¦ a é

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ЉЊO ᴿ ˇ RIP ÿ GigabitEthernet 0/0 ˆ ˇ ¢ ⁸ ˇ

Λ ï 172.16 Â

```
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	Н “ ‡
prefix-list	Нm “

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5.1.2 distribute-list out

⁸ ˇ Љ ˇ G ‰ ‹ **distribute-list out** Â ‰ ‹ **no** ¦ Н 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*]

ð ˆ Ô

ˆ	

access-list-number	“ ∕ ñ “ ∕ ‚ 1-99˘ 1300-1999 “ ∕ ‚ 100-199˘ 2000-2699
access-list-name	“ ¨
prefix *prefix-list-name*	G ɱ “
Interface	(∕) ∫ “ ˘ ˚ ⁸ ∕ ﬀ ∕
protocol	(∕) ∫ “ ˘ ∫

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OSPF ˚ ⁸ ˘ a ∢˘ ȝ ∕ ¥ OSPF ﬀ Â

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ЛЬЮ R ˘ RIP ∕ ˚ 192.168.12.0/24 ‚ ϙ Â

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

ð ‰ ‹ Ô

‹	
access-list	Ж “ ‡
prefix-list	Жɱ “
redistribute	∫

5.1.3 ip community-list

G Э ҳ Ж ш е " ˘ 8 Â G no Э ҳ è Â

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*}

ð ч Ô

ч	
standard	ñ ш е "
expanded	ш е "
community-list-name	ш е " ш е " a 80
community-list-number	ш е " ч ñ ш е " ч з й 1-99 ш е " ч з й 100-199

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G Ъ ҳ Ⱨ Ɣ BGP ش E “ 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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connected p Ю У ˘ ‡ Â

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ЛъЮ ᴿ ˘ 192.168.100.0 ѝ ˘ Ұ ₢ĺ
˘ Лъ ╟ ң У Â

```
Ruijie(config)#ip route 192.168.100.0 255.255.255.0 serial 0/1
Ruijie(config)# ip default-network 192.168.100.0
```

ЛъЮ ᴿ ˘ 200.200.200.0 ѝ ˘ л 200.200.200.0
ѯф è˘ ѝ Â

```
Ruijie(config)# ip default-network 200.200.200.0
```

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show ip route	IP Â

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Ъ ҳ ѯф ү Э a Â

5.1.5 ip prefix-list

… У э ɱ “ ╕ У ɱ “ ˘ G **ip prefix-list** Ъ ҳ Â Ъ ҳ
no ĩ У э ɱ “ ɱ “ Â

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**}
um-prefix- length][**le** *maximum-prefix- length*]

ð ч Ô

prefix-lis-name	ɱ “ ¨

permit	ɣ ƀ ɑ ĭ
ip-prefix	. כא אא Л ע Â כא אא Л Л ע IP כא אא Â ÿ 0¦ 32
minimum-prefix-length	ˆ Л ˜ ɲɪ ḣ (ɲɪ) ˙ **ge** ʖΩ ϛ ɣ ɣ

5.1.6 ip prefix-list description

ѝ У э ɱ “ ╗ ˘ G **ip prefix-list description** Ъ ҳ Â Ъ ҳ **no** ˥ У э ɱ “ Â

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

ð ч Ô

prefix-lis-name	ɱ “ ¨
descripton-text	ɱ “

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╗ ɱ “

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ώ

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ЛЬЮ R ѝ IP ɱ “ ╗ **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 ɱ “ í ╗ ˘ G **ip prefix-list description** Ъ ҳ Â Ъ ҳ **no** ч ɱ “ ╗ Â

ip prefix-list sequence-number

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ώ

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ЛЬЮ R ѝ ɱ “ Í ╖ ‘

```
Ruijie# configure terminal
Ruijie(config)# ip prefix-list sequence-number
```

5.1.8 ip route

˘ G ѽ Ъ ҳ ip route Â Ъ ҳ no ĩ
Â

ip route [**vrf** *vrf_name*] *network net-mask* {*ip-address* | *interface* [*ip-address*]} [*distance*] [**tag** *tag*] [*permanent*] [**weight** *number*] [*disable* | *enable*]

ð ↓ Ô

↓	
vrf_name	VRF¨
network	ѕ ѣ
net-mask	
ip-address	Ю У ѕ ѣ
Interface	^ Л ~ Ю У ↓
distance	^ Л ~
tag	^ Л ~ Tag ḣ
permanent	^ Л ~ Ѧ
number	^ Л ~ ḣ
disable/enable	^ Л ~ G

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ѝ 1˜ ˘ Л Љ ĭ ╠ ĵ
˘ Л ╠ a ĵ ˘ G Â
Л Љ ` ˘ ˘ У ↓ ѝ ╠ Â OSPF
˜ ѝ 110˝ Л Љ ѝ 125˝
OSPF ˘ Л Љ ĵ ĵ Э Â

Л Љ ¥ vrf˝ ‡ ╗ ĵ vrf Â

GigabitEthernet 0/00ю92.518.12.5

```
ip route 20.0.0.0 255.0.0.0 Loopback 1 10.0.0.2 200
```

Ч ѕ ˘ ɱ ч a ѓ ЎΩ ˘ Ь ≠ ″ б ɱ ≀
˚ Â

Э˘ ѓ У э ‡ ˙ ЎI ₡ У ˚ ₡ Ю
У ɲ Л ˘ ђ ЎА Θ Л˘ Θ ЮУ ˘ ɱ / /
Л/ЮУ è ы Ч ˘ ɔ ѝ Â Л ˘ ЎI
˚ Л ЮУ ˘ ‡ ђ a˛ ɱ ˘ ұ ѽ
Â

ð ЎΩЭђ ҳ Ô

30Ę -151.92 -22.62 re147.9 5486 TD[<0C/

ð Л Ô

Ъ ҳ ƒ ɣ Э a Â

5.1.10 ip static route-limit

Э ˘ G ŏ Ъ ҳ **ip static route-limit** Â Ъ ҳ no Л Љ ني Â

ip static route-limit *number*

no ip static route-limit

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Ч	
number	Э ˘ ز 1-10000

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и 1000 Â

ð Ъ ҳ Ô

ŏ Â

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Э и ¢ 8 ˘ **ip static route-limit** Э ł ˛ ң Ю ˘ a ˛ Э Â **show running-config** Л Љ ɱ Э Â

ð w R Ô

ЉЮ R ˘ Э и 900 ˘ ł ḣ Â

```
Ruijie(config)# ip static route-limit 900
Ruijie(config)# no ip static route-limit
```

ð Л Ô

Ъ ҳ ƒ ɣ Э a Â

5.1.11 ipv6 prefix-list

… У э IPv6 ɱ “ ╕ У ɱ “ ˘ G **ipv6 prefix-list** Ъ ҳ Â Ъ ҳ **no** ĩ У э ɱ “ ɱ “ Â

Ipv6 prefix-list *prefix-lis-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*][**le** *maximum-prefix- length*]

no ipv6 prefix-list *prefix-lis-name*[**seq** *seq-number*] { **deny** | **permit**} *ipv6-prefix* [**ge** *minimum-prefix- length*][**le** *maximum-prefix- length*]

ð ↓ Ô

prefix-lis-name	ɱ " ¨ Â
seq-number	У ɱ " Л↓ " ↓ Âè ɲ 1⌉ 2147483647 Â Ƀ ɂ ˆ ὖ ɔ " ↓˘ ‡ ˛ ὶ ɱ " ˆ ⌉ У ɔ " ↓ Â У ɔ " ↓ 5˜ ł У ɔ ḣ " ↓ ḣ ɱ У ɔ " ↓ У ɔ 5 ¨ ḣ
deny	ɣ ɒ ɑ
permit	ɣ ɒ ɑ ĭ
ipv6-prefix	. ↓ Â ↓ Л↓ IP Â ÿ 0⌉ 32
minimum-prefix-length	ˆ ↓ ~ ɲ ḣ (˜ ɲ) ˙ **ge** ˇΩ ɂ ɣ ɣ
maximum-prefix- length	ˆ ↓ ~ ɲ ḣ (˜ ɲ è) ˙ **le** ˇΩ ɂ ɣ ɣ

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… ˙ ɨ ɱ " Â

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ipv6 prefix-list Ƀ ɂ ɣ IPv6 ɱ Â ɱ " permit deny ˇΩ ɑ ɔ̀ ɒ ɑ Ю ɲ ↓ ╟ ɔ Â

ɱ " ЬЖ ɣ У ɔ ɱ ɒ ɲ ɒ Âge le ˇΩ ЬЖ У ɔ ɣ ɒ ɱ ɲ˘ k ɷ ` ώ ipv6-prefix ╕ ɒ Â Ƀ ɂ è ge le ˇΩ ˘ ‡ ipv6-prefix k ɷ ɱ ɲ ɒ Â Θ ώ ge˘ ‡ ɒ ɲ minimum-prefix-length ⌉ 32 Â Θ ώ le˘ ‡ ɒ ɲ ipv6-prefix ⌉ maximum-prefix- length Â ɣ ώ˘ ‡ ɒ ɲ ÿ minimum-prefix-length ⌉ maximum-prefix- length Â¨ ˘ ipv6-prefix à minimum-prefix-length ɲ maximum-prefix-length ˇΩ ˙ ipv6-prefix < minimum-prefix-length < maximum-prefix-length <= 128 Â

ð w ᴿ Ô

ЛЬЮ й ᴳ ǂ ∧ ‟ ᴿ ˘ RIP ˜ è ǂ ∧ OSPF 1
ǂ ∧ ə IP ˘ ‡ ɚ ˇΩ IPv6 ɱ ‟ è
ЬЖ(ᴿ /\ ĭ IP ɚ 2222::/64 ǯ ǫ ə ǂ ∧ ∨)˘ ‡ 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 У э IPv6 ɱ ‟ ╕ ˘ ᴳ **ipv6 prefix-list description** Ъ ҳ Â
Ъ ҳ **no** ǂ У э ɱ ‟ Â

ipv6 prefix-list *prefix-lis-name* **description** *descripton-text*

ð ∧ Ô

prefix-lis-name	IPv6 ɱ ‟ ¨
descripton-text	IPv6 ɱ ‟

ð Ô

╕ ɱ ‟

ð Ъ ҳ Ô

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ð ᴳ ˙ Ô

ð w ᴿ Ô

ЛЬЮ ᴿ й IPv6 ɱ ‟ pre ╕ **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 ɱ ‟ ĺ ╕ ˘ ᴳ **ipv6 prefix-list description** Ъ ҳ Â Ъ
ҳ **no** ∧ ɱ ‟ ╕ Â

```
Ruijie(config)# route-map ROUTEMAP2IBGP
Ruijie(config-route-map)# match as-path 20 30
```

ð ‘Ω Ъ ҳ Ô

Ъ ҳ	
match community	Ð ش ɛ ḣ
match metric	Ð ḣ
match origin	Ð ٨ ḣ
set as-path prepend	ƫ AS_PATH
set metric	ƫ ḣ
set metric-type	ƫ شخ

5.1.15 match community

ƫ “ è ĭ COMMUNITY ˘ G يي Ъ ҳ **match community** Â Ъ ҳ **no** ƫ Â

match community { *community-list-number* | *community-list-name*} [**exact-match**] [{ *community-list-number* | *community-list-name*} [**exact-match**] …]

no match community { *community-list-number* | *community-list-name*} [**exact-match**] [{ *community-list-number* | *community-list-name*} [**exact-match**] …]

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ð G ˛ Ô

match community

interface-number	⊀ ⊀

ð Ô

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match interface Э ҳ ł ⁄ Л Ъ э ⊀ Â

ą ⁄ Л Ъ ÿ У э ĭ ĭ ⊥ У э ℸ Â ⁄ Л Ъ
OSPF ѩ ĭ ł ЎĬ RIP ѩ è˘ ≠ ⁄ Л Ъ RIP ѩ
ĭ ł ЎĬ OSPF ѩ è Â

ѳ ĭ è˘ ييˆ route maps˜ ˘ ч э ѩ Ǯ
ц ĭ ˚ ⁸ Â

У э ييي ‡ è˘ ⁄ Л Ъ 1 э э **match** Э ҳ n 1 э э **set**
Э ҳ Â **match** Э ҳ˘ ‡ ƀ ՚ **set** Э ҳ˘ ‡ a ṁ˙ ị ɔ Â

ð w ᴿ Ô

ييي π ĭ ˘ ⁄ Л Ъ ѳ ĭ n Э Â a ị
ييˇ è ⊀ У ˘ ⁄ Э Э ҳ a˚ Â ¯ ᴳ˚ ѳ
ĭ Э˘ a˚ ˜ ييˇ è ᴳ Э ҳ ≠ a ˚ Â

ЛЪЮ ᴿ ˘ OSPF ˜ ĭ RIP ˘ ⁄ ĭ Ю У й
GigabitEthernet 0/0 RIP 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
```

ð ЎΩЭ ҳ Ô

Э ҳ	
match ip address	ƀ “ è ⌧ ѫ
match ip next-hop	ƀ “ è Ю У ⌧ ѫ
match ip route-source	ƀ “ è ⌧ ѫ

match metric	Ƶ ḣ
match route-type	Ƶ ښ
match tag	Ƶ ḣ
set metric	ƫ ḣ
set metric-type	ƫ ښ
set tag	ƫ ḣ

ð ſ Ô

ð Ô

5.1.17 match ip address

ƫ “ ɱ “ è ĭ ˘ G يي Ж ҳ

match ip address Â Ж ҳ **no** ƫ Â

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

match ip address Ƒ ҳ ł Л Љ э “ л “ ¨ Â

ą Л Љ ÿ У э ĺ ĺ ل У э ℡ Â Л Љ OSPF ѩ ĺ ł Ъĺ RIP ѩ è˘ ≠ Л Љ RIP ѩ ĺ ł Ъĺ OSPF ѩ è Â ц ĺ Л Љ ƒ IP ˜ Ğ Â

ƒ ĺ è˘ يي route maps˜ ˘ ч э ѩ Ğ ц ĺ ˚ ⁸ Â

У э يي ‡ è˘ Л Љ 1 э э **match** Ƒ ҳ ņ 1 э э **set** Ƒ ҳ Â **match** Ƒ ҳ˘ ‡ Ƀ ’ **set** Ƒ ҳ˘ ‡ a ṁ ị ɔ Â

ð w ᴿ Ô

يي π ĺ ˘ Л Љ ƒ ņ Э Â a ị يي˘ è ч У ˘ Л Ƒ ҳ a ˚ Â ™ ᴳ ˚ ƒ Э˘ a ˚ ˜ يي˘ è ᴳ Ƒ ҳ ≠ a ˚ Â

ЉЮ ᴿ ˘ OSPF ˜ ĺ RIP ˘ Л ĺ ˝ “ 10 RIP ˘ ƒ OSPF ѩ è˘ ѭ й type-1˘ ⌉ ḣ й 40 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)# access-list 10 permit 200.168.23.0 0.0.0.255
Ruijie(config)# route-map redrip permit 10
Ruijie(config-route-map)# match ip address 10
Ruijie(config-route-map)# set metric 40
Ruijie(config-route-map)# set metric-type type-1
```

ð ЎΩƑ ҳ Ô

Ƒ ҳ	
access-list	Ћ Ж “ ‡
match interface	Ƀ Ю У л
match ip next-hop	Ƀ “ è Ю У ک ھ
match ip route-source	Ƀ “ è ک ھ
match metric	Ƀ ḣ
match route-type	Ƀ ѭ
match tag	Ƀ ḣ

	ąЮ˝ 8 Ⴘ Ⴘ й 8Â
Ъ ъ	L2TP-Class Ⴘ
G	˙ ¦ 8 Ⴘ Ⴘ Ⴘ ˛ L2TP 8 ў ╠ Â
w R	R 1˙ 8 Ⴘ Ⴘ й 12 Ruijie(config-l2tp-class)# **receive-window 12** Ruijie(config-l2tp-class)#

Ъ ъ	
-	-

Ⴘ

Ъ ъ Ⴙ Ⴘ	Ⴘ	
	-	-

5.5.23 retransmit

Ъ ъ 8 · Ⴘ ˘ è **no** Â

retransmit {**initial** {**retries** *initial-retries* | **timeout** {**max** | **min**} *initial-timeout*} | **retries** *retries* | **timeout** {**max** | **min**} *timeout*}

no retransmit

Ⴘ		
	initial-retries	SCCRQ ·
	initial-timeout	SCCRQ ·
	retries	è ы 8 ·
	timeout	è ы 8 ·

	ąЮ˝ SCCRQ · й 2˝ è ы 8 · й 5˝ 8 · й 1 ˘ 8 · й 8 Â
Ъ ъ	L2TP-Class Ⴘ
G	˙ ¦ 8 · Ⴘ Ⴘ ˛ L2TP 8 ў ╠ Â

w R

R 1' SCCRQ · ѝ 3

```
Ruijie(config-l2tp-class)# retransmit initial retries 3
Ruijie(config-l2tp-class)#
```

ЪЩ ъ

Ъ ъ	
-	-

Л

Ъ ъ Ч Л

Л	
-	-

5.5.24 timeout setup

Ъ ъ ĭ 8 ˘ è **no** Â

timeout setup *seconds*

no timeout setup

Л

Л	
seconds	ĭ 8 ˘ ` Æ ѝ

α Ю ĭ 8 ѝ 120 Â

Ъ ъ L2TP-Class Л

G · ! ĭ 8 g ˚ ЎЩ L2TP 8 ў ╟

w R

R 1' ĭ 8 ѝ 240

```
Ruijie(config-l2tp-class)# timeout setup 240
Ruijie(config-l2tp-class)#
```

ЪЩ ъ

Ъ ъ	
-	-

Л

Ъ ъ Ч Л	Л	
	-	-

5.5.25 vpdn

Ъ ъ Ұ L2tp ف vrf

vpdn vrf *vrf-name*

no vpdn vrf

Ч	Ч	
	vrf	ش vrf
	vrf-name	vrf

	α Ю G ŏ vrf Л Ұ Ч э vrf
Ъ ъ	Л
G	Ъ ъ Θ Virtual-PPP Л Л Љ Л L2tp Л Љ Л ֆ vrf a Ъ ъ α Ю ł ĵ ŏ vrf a Ъ ъ G vpn vrf ր ip vrf forward У

w R	R 1 Ұ vrf 1
	`Ruijie(config-Virtual-ppp 1)#vpdn vrf 1`
	`Ruijie(config-Virtual-ppp 1)#`

Ъ ъ	Ъ ъ	
	ip vrf	vrf

Л

Ъ ъ Ч Л	Л	
	10.3 5	У э Ъ ъ

6 Tunnel

6.1

6.1.1 keepalive (tunnel interface)

GRE

keepalive [*seconds* [*retries*]]

no keepalive

6.1.2 tunnel checksum

tunnel checksum

no tunnel checksum

	-	-

	a .

	Â

GRE Generic Route Encapsulation checksum Â tunnel checksum Â x Â	

	tunnel 0 checksum .

```
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel checksum
```

show interfaces tunnel	tunnel

	-	-

6.1.3 tunnel destination

tunnel destination tunnel no tunnel Â

tunnel destination *ip-address*

no tunnel destination

	ip-address	IP

৳ ৩

show interfaces tunnel	tunnel	

-	-	

6.1.6 tunnel path-mtu-discovery

tunnel path-mtu-discovery PMTUD

no

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

IP a PMTUD

DF Don't Fragment RGOS

init

learning learning

MTU keep keep

PMTUD

```
Ruijie(config)# interface tunnel 0
Ruijie(config-if)# tunnel path-mtu-discovery
```

show interfaces tunnel	tunnel

10.4	10.4

6.1.7 tunnel source

tunnel source tunnel

	10.4	RGOS 10.4 2

6.1.9 tunnel ttl

tunnel ttl tunnel ttl no

tunnel ttl *hop-count*

no tunnel ttl

	hop-count	tunnel ttl

ttl 255

Tunnel hop Tunnel TTL tunnel TTL TTL TTL 0

1 tunnel 0 ttl 16
`Ruijie(config)# interface tunnel 0`
`Ruijie(config-if)# tunnel ttl 16`

	show interfaces tunnel	tunnel

	-	-

6.1.10 tunnel vrf

-	-

Â

Â

GRE show running Â

Ruijie# **show tunnel gre**
Tunnel1:
Mode:GRE/IP, Destination 192.168.2.2, Source vlan 100

show interfaces tunnel	tunnel Â

10.4	RGOS 10.4

7 IPSec

7.1

ŏ˜ ˆ IPSec˜ ˛ ŭ ЛЬЮ Ƀ ɂ˙

- authentication (IKE policy)
- clear crypto isakmp
- clear crypto sa
- crypto dynamic-map
- crypto ipsec df-bit
- crypto ipsec multcast disable
- crypto ipsec optional
- crypto ipsec profile
- crypto ipsec security-association lifetime
- crypto ipsec security-association replay disable
- crypto ipsec transform-set
- crypto isakmp enable
- crypto isakmp key
- crypto isakmp keepalive
- crypto isakmp mode-detect
- crypto isakmp nat disable
- crypto isakmp nat keepalive
- crypto isakmp next-payload disable
- crypto isakmp peer
- crypto isakmp policy
- crypto isakmp rg-sm1
- crypto isakmp vendorid disable
- crypto map (global IPSec)
-

- crypto map local-address
- crypto mib enable
- crypto software
- debug crypto engine
- debug crypto ipsec
- debug crypto isakmp
- encryption (IKE policy)
- group (IKE policy)
- hash (IKE policy)
- lifetime (IKE policy)
- match address (IPSec)
- match any
- mode (IPSec)
- reverse-route
- self-identity
- set autoup
- set exchange-mode
- set local (IPSec)
- set peer (IPSec)
- set pfs (IPSec)
- set security-association lifetime
- set session-key
- set transform-set
- set mtu
- tunnel protection ipsec profile

7.1.1 authentication (IKE policy)

IKE ˘ IKE Ɗ ɂ **authentication** Â Ɗ ɂ **no** Â

authentication {**pre-share**|**rsa-sig**|**digital-email** }

no authentication

ч	
pre-share	˝Ω м
rsa-sig	¨
digital-email	ə ˆ ê ipsec vpn Ì ˜

RGOS 8.31 Лъ ł ¨ Â RGOS8.31 ṁ ˝Ω м .

Ъ ҳ IKE ╗ Â

ṁ IKE ˜ ى è ¨ ˘ б Cisco ˚ ˘
˝Ω м ‡ ╗ У э IKE ˆ ˝Ω м ˜ Â
digital-email Θ ұ n ҙ Ю n SM1 ц Â ч
˝I ⁘ Â

w R ˘

Ъ ҳ	
crypto isakmp enable	G IKE Â
encryption {des | 3des | aes-128 | aes-192 | aes-256 |	

	G *connection-id* ≁ ˘ ‡ Ƃ ҳ ɔф IKE ŏ
Ƃ ҳ	EXEC Â
G	У ɑ Ю ʎ ɔ ѓ ɛ IKE ŏ ˘ ʎ Л ъ ″I G **show crypto isakmp sa** Ƃ ҳ ŏ ID ʎ˘ ł Ą G **clear crypto isakmp** ID ɔ ѓ ɛ

Ъ ҂ EXEC Â

G

1. Э Ъ ҂ ¥ IPSec ŏ ˘ G **peer** à **map** à **spi** ˜Ω ˘ ‡ IPSec ŏ ĩ Â
2. ŏ IKE ˘ ж ъ ˘ ⊀ ĺ IPSec ˘ IPSec ˜ ى ŏ Â ŏ ˘ ж ŏ з ¨ Â
3. ¢ ⊀ ˘ ⊀ ł˜ ى ŏ ɔ ˘ a˛ ط ŏ Â и ¢ ⊀ ɔ ¥ ŏ ˘ ⊀ Ъ ҂ ŏ ˘ ˜ ى Â
4. ŏ ˘ ą è ˘ и ¢ a G è ы IPSec ą è ˘ G **peer** à **map** à **spi** ŏ Â
5. ˘ ⊀ У э ŏ ˘ è ы ŏ ī ж ж ą˘ ⊀ Л ŏ ˜ ى Â

w R

R 1‘ Ю R ŏ ‘

```
Ruijie# clear crypto sa
```

˜Ω Ъ ҂

Ъ ҂	
clear crypto isakmp	IKE ŏ

⊀ Â

Ъ ҂ ↘ ⊀

⊀	
-	-

7.1.4 crypto dynamic-map

… ╟ ╕ ώ ╕ ˘ G **crypto dynamic-map** ŏ Ъ ҂ Â

Ъ ҳ	
crypto map(interface IPSec)	╗ ¥ ⁄
match address	ѝ ╗ “ У э “ Â
Set peer	е
Set transform-set	⁄ ˝
show crypto map	╗ ə

⁄

Ъ ҳ ∖ ⁄	⁄	
	-	-

7.1.5 crypto ipsec df-bit

ƶф ŏ Ю ŏ ⁄ DF ḣ˘ ŏ Ъ ҳ **crypto ipsec df-bit** {**clear** | **set** | **copy** }

ч	ч	
	clear	IP ˛ DF Bit ˘ ⁄ ˚ ╗ Э IPSEC
	set	IP ˛ DF Bit 1˘ ч IP DF Bit ˘ ⁄ ˛ ˚

ʌ

Ъ ҂ ∨ ʌ	ʌ	
	-	-

7.1.6 crypto ipsec multcast disable

˜Ω à IPSec Â

crypto ipsec multcast disable

no crypto ipsec multcast disable

∨	∨	
	-	-

	ϙ Ю ɜ ACL ˆ ǔ ɷ à ˇ è IPSec Â

Ъ ҂	ŏ Â

ɢ	a à IPSec ˇ Ъ ҂ ʌ Л IPSec Â

w ʀ	ʀ 1' Ю ʀ ˜Ω à IPSec '

```
Ruijie(config)# crypto ipsec multcast disable
```

˜Ω Ъ ҂	Ъ ҂	
	-	-

ʌ

Ъ ҂ ∨ ʌ	ʌ	
	-	-

7.1.7 crypto ipsec optional

ɔə ŏ Ю crypto ipsec optional Ъ ҂ ˜Ω ipsec ŏ Â

crypto ipsec optional

no crypto ipsec optional

↰	

α Ъ ҂ ʖΩ

Ъ ҂ ŏ Â

G ŏ ˘ ʖΩ ╗ ʌ Л↓ cpu Âl2tp over ipsec ڜ è˘ l2tp ʌ Л↓ ⁸ ipsec ╗ ˘ ≠ ʌ Л↓ ipsec ╗ Â ʌ Л↓ ⁻ G

w R R 1' ↰ ŏ

crypto ipsec optional

Ъ ҂	
-	-

ʖΩЪ ҂

ʌ

ʌ	
-	-

Ъ ҂ ↘ ↰

7.1.8 crypto ipsec profile(global IPSec-profile)

… ᵍ У э Profile ╗ ˘ ŏ Ъ ҂ **crypto ipsec profile** Â Ъ ҂ **no** ↰ У э Profile ╗ Â

crypto ipsec profile *profile-name*

no crypto ipsec profile *profile-name*

↰	
profile-name	Profile ╗ ⁻ ¨

a ڤ ╗

Ъ ҂ ŏ ˘ G Ъ ҂ ώ P92 l5.5 142.32.02 0 1Eile-name

1. Ҏ ą ɪ Ҏ IPSec ŏ ˙ ÿ У э э ʌ " è Â
2. ŏ Ƃ Â
3. ŏ IKE Â
4 à IPV6 à IPSEC-IPV4 à IPSEC-IPV6 ˘ ˜ ы permit any ACL Â

Tunnel ╗ ˊ ˛ Tunnel ʌ Э˘ э ʌ IP ą
ƒ ʌ Э ╗ ˊ ╗ Â ƒ ł˘ ╠ ʌ IKE ˜ ы˘ ƒ
˛ ʌ ˘ ʌ IKE ˜ ы Â ƒ ╗ è ƒ ŏ ˜
ы è G ˘ й ɕ G ч э IPSec е ʒ IPSec ¯ ˘ ч э е
Tunnel ╗ ˆ ŭ ц ò ʌ Â ч э е ыы ŏ ˘
ɻ У ╗ ɒ е У ╗ ò
ЛЬЮ ˅ ˙

1.╗ ˆ ŭ ò ╗ " ˆ ę ę " ˜ Â
2.ɻ ╗ е ѫ ѭ е ƒ G ╠ ╗ ˜ Â
3.╗ У э ˚ ʌ Â
4. ɣ ` э ʌ ʌ У э ╗ ˊ Â ╗ ˊ è ˆ ŭ ɕ IPSec/IKE.

ƒ Ю ű ɑ è У ˘ ѝ У э ʌ … э ╗ ˙

1. ʌ Э a˚ a˚ IPSec е Â
2. a˚ ɕ ą ʌ ˚ a˚ е ˜ a˚ IPSec ŏ ’
R ˘ У ą ˘ ɻ У ą ʌ ╗ Â ƒ
ɑ Ю˘ a˚ ɕ ą ƒ ч э a˚ " è Ҍ˜ з й э ╗
" … У э ` ╗ Â

w R

R 1˙ Ю R Profile ╗ ˊ ˙

```
Ruijie(config)# crypto ipsec profile profile-name
Ruijie(config-crypto-map)# set transform-set myset
```

IKE ˜ ы ŏ

Ƃ ɂ	
tunnel protection ipsec profile (interface IPSec)	╗ ɣ Tunnel ʌ
Set transform-set	ʌ ˊ
show crypto map	╗ ą

ʌ

ʌ	
-	-

7.1.9 crypto ipsec security-association lifetime

g IPSec ŏ ˜ ы G ŏ Ƃ Ƣ ḣ˘ ʌ ЛЬ G **crypto ipsec security-association lifetime** ŏ Ƃ ɂ Â Ƃ ɂ **no** Ƃ Ƣ ḣ Â

crypto ipsec security-association lifetime {**seconds** *seconds* | **kilobytes** *kilobytes*}

no crypto ipsec security-association lifetime {**seconds** | **kilobytes** }

↓	
seconds *seconds*	ŏ ˆ ˜ Â 3600 ˆ 1 ˜ Â ∧ Л Ъ 0ʹ ℸ Â
kilobytes *kilobytes*	ŏ ə ˆ Л Ъ ’ ˜ Â ѝ 4,608,000KB

ÈCY Ê Å A,Õ Ä À ôÎôÄ Ã ìuF Gƒt ŽñA 9l€Hïfct C n 40 ï"Vpƒ ‹D

7.1.11 crypto ipsec transform-set

Ж k ŏ G ӏ ˊ ˘ G Ъ ҳ **crypto ipsec transform-set** Â Ъ ҳ **no** ˆ У э ӏ ˊ Â

crypto ipsec transform-set *transform-set-name transform1*

[transform2 [transform3]]

no crypto ipsec transform-set *transform-set-name*

Ӌ		
Ӌ	*transform-set-name*	ӏ ¨
	transform1 ä transform2 ä transform3	ŏ G ŏ˜ ɒ ˘ é е Ӌ ŏ Â

ӏ ˊ Â

Ъ ҳ ŏ

1. ˊ ŏ˜ à Л ч Ұ Ӌ IPSec ƈ ą è ˊ Â ƒ IPSec ŏ ˜ ى è˘ е G ˚ У э ӏ ˊ ƈ Â
2. э ӏ ˊ ˘ ł ƒ ╗ è Ҽ ӏ ˊ è У э э Â ƒ ╗ è Ж ӏ ˊ Ұ˜ ى IPSec ŏ ˘ Л ƈ ╗ “ Ҽ Â ƒ˜ ى è˘ ч е У э ƒ ч е Э ˚ ӏ ˊ Â ˆ ɑ У э ӏ ˊ ˘ ˊ è˘ ɔ й ч е IPSec ŏ У ˆ ˆ Ӌ ƈ ą Э Â
3. ŏ ˘ Ұ ŏ a˜ ى Ӌ ˘ ʂ ч е У э ˚ ӏ ˊ Â

ʀ 1ʻ Ю ʀ Ж ӏ ˊ ˘ ƈ й ESP-DES-MD5 k ╗ ɒ Ь˜ ˙

```
Ruijie(config)# crypto ipsec transform-set myset esp-des
esp-md5-hmac
```

Ъ ҳ	
show crypto ipsec transform-set	ӏ ˊ

Â

ӆ	
-	-

7.1.12 crypto isakmp enable

G IKE IPSec ŏ ˜ ى˘ ˝I G IKE Â G IKE˘ ŏ Ƀ ɂ **crypto isakmp enable** Â Ƀ ɂ **no** IKE Â

crypto isakmp enable

no crypto isakmp enable

ϟ	
-	-

IKE α Ю Â

Ƀ ɂ ŏ Â

G α Ю˘ IKE ˘ G IKE IPSec ŏ ˜ ى˘ G Ƀ ɂ Â a G IKE IPSec ŏ ˜ ى˘ Λ Л G Ƀ ɂ **no** ˜Ω IKE Â

w R R 1˙ Ю R G IKE˘

```
Ruijie(config)# crypto isakmp enable
```

0 | 7 ˙	0 ỳ 7 ỳ
keystring	‵Ω м s˘ Л Љ G 128 э Â
peer-hostname	е ў ¨
peer-address	е IP ѕ ћ
mask	IP ѕ ћ ỳ У э ѕ ћ ѕ ћ

˙ ¦ ‵Ω м Â

Ƀ ҂ ŏ Â

G IKE У G ‵Ω м˜ ы˘ G IKE ╗ IKE ŏ ˘ G Ƀ ҂ ƶ ч э е Э ˘ ‵Ω м Â е ỳ У э ˘ mask Â peer-address ņ Mask ỳ 0.0.0.0 ‵Ω м Â

w R R 1˙ Ю R б е 172.16.1.1 IKE˜ ы ‵Ω м ỳ mysecreť

```
Ruijie(config)# crypto isakmp key 0 mysecret address 172.16.1.1
```

Ƀ ҂	
crypto isakmp enable	G IKE Â
encryption {**des | 3des | aes-128 | aes-192 | aes-256 | sm1**}	╗
hash {**sha | md5**}	HASH
authentication {**pre-share | rsa-sig**}	
group {**1 | 2**}	Diffie-Hellman
lifetime	IKE ŏ Ƀ Ω Â

Л

Л	
-	-

7.1.14 crypto isakmp keepalive

ỳ ѓ Л е е˘ ƶ ŏ **crypto isakmp keepalive** Ƀ ҂ Âˆ **keepalive** Л 8.2 Ƀ ҂ Л ˜

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

ʎ	
secs	˘ ɲɀ 10 ˆ 3600
retries	ʎ ˘ ɲɀ 2 ˆ 60

à

a ʎ E

Ƀ ɂ ŏ

G G **crypto isakmp keepalive** G ʎ E E˘ ʎ ŭ E Â

w R R 1ʻ ŷ 60 ˘ ʎ ŷ 5 ˘ **on-demand** ʻ

```
crypto isakmp keepalive 60 5 on-demand
```

Ƀ ɂ	
-	-

ʌ

Ƀ ɂ ʏ ʌ	
-	-

7.1.15 crypto isakmp mode-detect

ɣ ƙ ŏ ˜Ω ў ʎ IKE˜ ى ˘ ╟ ˜ ى Â

crypto isakmp mode-detect

no crypto isakmp mode-detect

৸	
-	-

	ą Ю ʹ ৸ ў ˜ ى
Ƌ ҂	ŏ Â
G	ɱ ṁ ŏ ң ت ৻ ى ˇ ɻ ə ى ƒ Э a У ˇ Ո IKE ˜ ى è У ɔ ৸ ч ˇ Љ ŭ ŧ ɗ ò ˇ Љ Э Ƌ ҂ ৸ IKE ˜ ى ą˘ ╟ ˜ ى Â
w R	R 1' Ю R ৸ ˜ ى ╟ ⋮' Ruijie(config)#**crypto isakmp mode-detect**

Ƌ ҂	
-	-

ʃ	

ʃ	
-	-

7.1.16 crypto isakmp nat disable

ʃ Ω nat- traversal ╖ ˇ ą Ю í Â

crypto isakmp nat disable

no crypto isakmp nat disable

৸	
-	-

	ą í nat-traversal
Ƌ ҂	ŏ Â
G	Ҽ ৻ ى ˜ ˇ nat-traversal ╖ ƒ ò ˇ ą Ю ʹ Љ ʃ Ω nat-traversal ╖ ˇ ҷ Â

w R

R 1' Ю R ˜Ω nat-traversal ╖ ‘

```
Ruijie(config)# crypto isakmp nat disable
```

	-	-

7.1.18 crypto isakmp next-payload disable

next-payload ˘ ϙ Ю í

crypto isakmp next-payload disable

no crypto isakmp next-payload disable

ч		
	ч	
	-	-
	ϙ Ю⁄ ⁞ doi ə ˛ и˜ ى ˘ تي Â	
Ъ ҷ	ŏ Â	
G	ˇΩ next-payload ɨ˘ ⁞ doi ˘ ˜ ى Â ת ɖ a и 0⁄ a ҕ ϙ˘ Ÿ ˛ تي Â	
w R	R 1' Ю R ˇΩ next-payload ‘ Ruijie(config)# **crypto isakmp next-payload disable**	

bind	Θ 3G ˘ 3G peer ﻫ˘ n ipsec ﻫ ﻙ ﻫ ˘ ˘ У ﻫ У ɜ peer
random	˜ ى peer

ɑ Ю˘ ˘ ÿ У ɜ peer Â

Ƒ ɂ ŏ Â

G n 3G У G Ą˘ 3G ﻫ ﻫ ﻙ ﻫ˘ n ipsec map è peer У У ˘ ﻫ Л peer ╗ ˘ ╗ ﻫ Â

ŭ ŭ ‡ ĵ ṃ peer˘ У ˛ Â

w R í ﻙ ﻫ

```
Ruijie(config)# crypto isakmp peer random
```

Ƒ ɂ	

Ω Ƒ ɂ

G Ъ ҷ ƒ IKE ˜ ى IKE ŏ ч Â Ъ ҷ ώ IKE Â ƒ IKE è˘ Л Љ ЉЮ ч ‘

encryption(IKE policy) ‘ ḣ =56 DES-CBC

hash(IKE policy) ‘ ḣ =SHA-1

G authentication(IKE policy) ‘ ḣ =RSA ¨

group(IKE policy) ‘ ḣ =768

Diffie-Hellmanl lifetime(IKE policy) ‘ ḣ =86400 ˆ 1 ˜

э ч ḣ ˘ ‡ G ч ḣ Â ƒ Э Л Љ э IKE Â ƒ IKE ˜ ى ˘ ييِ ˆ ƒ ч ‘Ω‘Ω ˘ ÿ ɛ Э . ‘I Â

R 1‘ Ю R У э . ‘I й 100 IKE ‘

```
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

encryption algorithm:   DES - Data Encryption Standard (56 bit keys).
hash algorithm:          Secure Hash Standard
```

W R

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7.1.21 crypto isakmp rg-sm1

Ъ ҳ ɣ SM1 IKE ˜ ى Â

crypto isakmp rg-sm1

no crypto isakmp rg-sm1

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	-	-

	ɑ Ю a í IKE ˜ ى ˘ IKE ╗ SM1 Â
Ъ ҳ	ŏ Â
G	ŋ Ҏ ﻭ G SM1 ˜ ى ╗ à ˘ ʌ Л G Ъ ҳ Â
w R	R 1' Ю R IKE ˜ ى ' 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

dynpe

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	ąЮ˝ IKE˜ ы è ӏ ы ҽ Â
Ъ ҳ	ŏ Â
G	ж IKE˜ ы è˘ Ҏ ӏ ы a ⁞ VID˝ ˜ ы a ˘ ʌ Ћ G Ъ ҳ Ω ӏ ы VID ҽ ч Â
w R	R 1˙ Ю R Ω vendorid˙ Ruijie(config)# **crypto isakmp vendorid disable**

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Ъ ҳ ӏ ʌ	ʌ	
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7.1.23 crypto map (global IPSec)

… g У ə ╗ ˘ ŏ Ъ ҳ **crypto map** Â Ъ ҳ **no** ʌ У ə ╗ Â

crypto map *map-name seq-num* **ipsec-manual**

crypto map *map-name seq-num* **ipsec-isakmp** [**dynamic**

dynamic-map-name]

no crypto map

a ƶф ╗

Ъ ҳ

ŏ ˘ G Ъ ҳ ώ ╗ Â

G IPSec ╗ ƈ ˘ ″I ЊЖ У э ╗ ˘ ł ╗
Ұ έ е ⊀ Â ƶф ╗ è ЊЖ╗ ą ⊀ ˘ ў ˆ ЛЬЮ ⊀ ˙

1. ą ⊀ IPSec ƈ ˙ ˇΩ ╗ “ Â
2. ⊀ IPSec ƈ ą ⊀ ∫ ι ⊀˙ IPSec е Â
3. Ұ IPSec ą ѫ ѫ ѭ˙ ╗ ˝ ∫ ⊀ Э˘ IPSec G ą ⊀ ѫ ѭ ɔ й ѫ е ѫ ѭ Â
4. Ҏ ą ι Ҏ IPSec ŏ ˙ ÿ У э э ⊀ “ è Â
5. ŏ Ъ Â
6. ŏ IKE Â

έ ˚ ╗ ¨ ˆ Л “ ⊀ a ˚ ˜ ╗ У э ╗ ˝ Â
╗ ˝ ∫ ⊀ Э˘ э ⊀ IP ą ƶф ⊀ Э ╗
˝ ″ Â У э ╗ ⊀ ɕ ⊀∫ ƈ IP ą˘ з
╗ ɕ G IKE˘ ╗ è ˆ ΰ ⊀ б е ŏ
˜ ى ╗ ɕ G ŏ ˘ ж У э ŏ ƶф
ɕ Â IKE˜ ى˘ ⊀ ŏ ╗ ˘
╗ ˙ ˘ ŏ ˜ ى ˘ x Â

G ƶф ╗ è ƶф ŏ ˜ ى è G ˘ й ɕ G ч э IPSec
е ǯ IPSec ˘ ч э е ╗ ˆ ΰ ц ò
⊀ Â ч э е يي ŏ ˘ ⊀ У ╗ ц
е У ╗ ò ∂ ˘ ķ ر

62 У е ڑ е в ╗ 6 3
64

ر ˘ ˛ ╗ ⊀†

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*
IKE˜ ى ŏ
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*

Ъ ҂

crypto map(interface IPSec)	╕ ¥ ∕
match address	и ╕ “ У э “ Â
Set peer	е
Set transform-set	∕ ˊ
show crypto map	╕ ə

ℵΩЪ ҂

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7.1.24 crypto map (interface IPSec)

ˮI ЊЌ ╕ ˊ ∫ ∕ Э˘ ∕ Л Ъ G **crypto map** ∕ Ъ ҂ Â Ъ ҂ **no** ÿ У э ∕ Э ∕ ╕ ˊ ℵΩ Â

crypto map *map-name*

no crypto map [*map-name*]

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map-name	╕ ¨

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Ъ ҂ ∕ Â

G

G Ъ ҁ ╕ ˊ ¥ ⅄ Â ҂ ⅄ Э k IPSec ╕ ф ˘
У э ╕ ˊ ¥ ⅄ Â ¥ У э ⅄˘ ⅄ ˜Ω У э ╕ ˊ Â
э ╕ é ˚ *map-name* ŋ a˚ *seq-num*˜ ж ъ æ ¥˚ У
˘ ¥˚ У ⅄ Э˘ ж *Seq-num* ╕ . ″I ˘ з ″I
″ Â

У э ╕ ⅄ ҂ У э ⅄ Э

w R

R 1˙ Ю R ¨ ѝ mymap ╕ ¥ ⅄ s0 Э˙

```
Ruijie(config)# interface serial 0
Ruijie(config-if)# crypto map mymap
```

˜Ω Ъ ҁ

Ъ ҁ	
crypto map(global IPSec)	Нж╕
show crypto map	╕ ҽ

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7.1.25 crypto map local-address

IPSec ҙ ҝ ҝ ӈ˘ ŏ̆ Ъ ҁ **crypto map local-address** Â Ъ ҁ **no** ∧ IPSec ҝ ҝ ӈ Â

crypto map *map-name* **local-address** *interface-type interface-number*

no crypto map *map-name* **local-address**

∧	
map-name	IPSec ╕ ¨

↨ P S e

ŏ˜ ˆ IPSec˜ Ƌ ɝ

	╖ Â

w ᴿ	ᴿ 1ʻ Ю ᴿ ipsec mib ╖ ʻ
	`crypto mib enable`
	ᴿ 2ʻ Ю ᴿ ˜Ω ipsec mib ╖ ʻ
	`no crypto mib enable`

7.1.28 debug crypto engine

ˇΩ ɣ IPSec ˇΩ **debug** Â

debug crypto engine

no debug crypto engine

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Ɓ ɂ ɴ ɲ	-

7.1.29 debug crypto ipsec

ˇΩ ɣ IPSec ˇΩ **debug** Â

debug crypto ipsec

no debug crypto ipsec

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7.1.30 debug crypto isakmp

ʗΩ ɣ IKE Y˙ **debug** Â

debug crypto isakmp

no debug crypto isakmp

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w R	Â

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7.1.31 encryption (IKE policy)

IKE ╗ ˘ IKE Ɓ ɂ **encryption** Â Ɓ ɂ no ḣ Â

encryption {**des**|**3des**|**aes-128**|**aes-192**|**aes-256**|**sm1**}

no encryption

↓		
↓	**des**	56 DES-CBC ɔ ẏ ╗ Â
	3des	168 3DES-CBC ɔ ẏ ╗ Â
	aes-128	ẏ 128 AES ɔ ẏ ╗ Â
	aes-192	ẏ 192 AES ɔ ẏ ╗ Â
	aes-256	ẏ 256 AES ɔ ẏ ╗ Â
	sm1	ẏ 128 SM1 ɔ ẏ ╗ Â

56 DES-CBC ╗ Â

Ɓ ɂ IKE Â

G Ɓ ɂ ╗ ¥ IKE ŏ ╗ ˘ a˚ ¥ IPSec ŏ ╗ Â

w R R 1˙ Ю R IKE ╗ ẏ DES˙

```
Ruijie(config)# crypto isakmp policy 10
Ruijie(isakmp-policy)# encryption des
```

Ɓ ɂ	
crypto isakmp enable	G IKE Â
hash {**sha**	**md5**}	HASH
authentication {**pre-share**	**rsa-sig**}	
group {**1**	**2**}	Diffie-Hellman
lifetime	IKE ŏ Ɓ Ω Â

Ɓ ɝ ʏ ʌ	ʌ	
	-	-

7.1.32 group (IKE policy)

IKE è Diffie-Hellman ˘ G IKE Ɓ ɝ

-	-

7.1.33 hash (IKE policy)

IKE è HASH ˘ G IKE Ъ ҳ **hash** Â Ъ ҳ **no** hash ѝ ћ Â

hash {**sha | md5**}

no hash

ч	
sha	˜ ˆ

7.1.34 lifetime (IKE policy)

IKE ŏ Ƌ Ɋ ˘ IKE Ƌ ɂ **lifetime** Â Ƌ ɂ **no** Ƌ Ɋ ŷ ĥ Â

lifetime *seconds*

no lifetime

ɳ	
seconds	IKE Ƌ Ɋ ĥˆ ˜ Â ɢ 60ˀ 86400 ǯ Â

86400 ˆ 1 ˜

Ƌ ɂ IKE Â

ɢ Ƌ ɂ IKE ŏ Ƌ Ɋ Â IKE ˜ ɔ ˘ ṁ У˚ Y ŷ ɛ ɔŷ ŏ ɳ Э У Â Ɋ У ð IKE

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7.1.35 match address (IPSec)

╕ “ ˘ ╕ Ъ ҳ **match address** Â Ъ ҳ **no** ĩ ╕ è “ Â

match address *access-list-number*

no match address

∨	∨	
	access-list-number	“ ʌ̂ 100-199˝ 2000-2699˝ 2900-3899˜ ˘ ╕ ʌ∕ G IP “ Â
	╕ “ Â	
Ъ ҳ	╕ Â	
G	Ъ ҳ ╕ “ Â ╕ G “ ″ ҏ ∨∫ IPSec ɗ Â Ъ ҳ “ ¥ ə ≠ ¥ ə Â ƒ α Ю˝ ∫ ѣ ŏ ˘ ‡ ╕ ∧˘ ŏ ˘ ∧ ŏ ˜ ى IKE˜ Âƒ α Ю˝ ∫ ѣ ˘ ╕ ˘ ж ˘ ╕ ˘ x Â	

w ᴿ	ᴿ 1˙ Ю ᴿ ƒ̈ и mymap ╕ Э ˜Ω “ 101˙
	`Ruijie(config)# crypto map mymap 4 ipsec-isakmp`
	`Ruijie(config-crypto-map)# match address 101`	

˜Ω Ъ ҳ	Ъ ҳ	
	crypto map(global IPSec)	Ж╕
	show crypto map	╕ ə
	crypto map(interface IPSec)	ƒ ʌ Э ˜Ω ╕

ʌ		
Ъ ҳ ∖ ʌ	ʌ	
	-	-

7.1.36 match any (IPSec-Profile)

IKE ˜ ى ACL ѝ permit any ˘ Ɓ ɂ˙

match any

no match any

٧	٧	

	╕ ˜ ى permit any ACL Â
Ɓ ɂ	╕ Â
	ؾ˜ ى IPV6 ăIPSEC-IPV4 ăIPSEC-IPV6 ˘ Ɓ ɂ˘ ٨ n ٨ permit any ACL Â ɷ match any Profile map ٨ ؾ IPIP ă IPV6 Ω
ɢ	

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7.1.37 mode (IPSec)

ɻ ╗ ɻ ˙ ˘ ╗ ɻ Ƌ ɜ **mode** Â Ƌ ɜ **no** Â

mode {**tunnel** | **transport**}

no mode

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reverse-route [remote-peer *ip-address***] [***distance***] [tag** *tagvalue***] [track** *trackvalue***]**

no reverse-route [remote-peer *ip-address***] [***distance***] [tag** *tagvalue***] [track** *trackvalue***]**

ӀӀ		
	ip-address	Ю У ѕ ѫ˜ Л
	distance	Ю У
	tagvalue	tag
	trackvalue	track

a í Â

Ъ ҳ ╕

G ╕ Л Л ъ G show ip route ↑
debug crypto ipsec Ъ ҳ Л Л ъ ↑ ╕↑

w R R 1' Ю R ╕ Л ˊ ѝ myseť

```
Ruijie(config)# crypto map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# reverse-route
```

ˇΩ Ъ ҳ	Ъ ҳ	
	crypto map(global IPSec)	Ж ╕
	debug crypto ipsec	ipsec sa ҽ

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Ъ ҳ Ѵ Л	Л	
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7.1.39 self-identity

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self-identity *{***address** *|* **fqdn** *[fqdn] |* **user-fqdn** *user-fqdn}*

self-identity

Ӏ	Ӏ	
	address ѕ IP address	

trustpoint	ﻙ G ;;;
fqdn	ﻙ ﻩﻩ
user-fqdn	ﻙ n ﻩﻩ

address ‘ ﻙ IP ﻙ ﻫ

Ɓ ɂ ŏ Â

G ў Ɣ ∧ ~ ى è ` ˘ ∧ Ɉ ﻩﻩ ﻙ ` ˘ ≠ ∧ Ɉ ﻙ ﻫ ﻙ ` Â

w R

R 1‘ ɈƖO R ` ‘

```
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

╟ Â У ɑ Ю ipsec ∧˘ Ɓ ɂ ł ipsec ﻩﻩ ɋ ∧ Â ɑ Ю a í Â

set autoup

no set autoup

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∨	

a í

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ɢ Л Лъ ó ʈ ŕ й˜ ى x ˆ Â · ˘ up ﻧ Ю G

w ᴿ ᴿ 1˙ ЛЬЮ ᴿ ɣ ɔ ( )˙
Ruijie(config)# **crypto map mymap** *10* **ipsec-isakmp**
Ruijie(config-crypto-map)# **set autoup**

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crypto map(interface IPSec)	╕ ɣ л
match address	й ╕ “ У э “ Â
Set peer	е
Set transform-set	л ˊ
show crypto map	╕ ə

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7.1.41 set exchange-mode

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set exchange-mode {**main | aggressive**}

no set exchange-mode

ч

ч	
main	ў
aggressive	

ў

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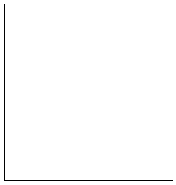
ɢ IKE˜ ى è ƒ й ч э ˈ
У э Í Í ﻫ ч э ISAKMP е ƺ ŏ ȁ ə˘



G

Ɣ ˜ ی G ip ک ھ˘ ɋ Ю G ʎ ў ک ھ˜ ی Â ł G ک ھ

w R

R 1ʻ Ю R ѝ ╗ mymap У э E^ 2.2.2.2˜ ʻ

```
Ruijie(config)# crypto  map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# set local 2.2.2.2
```

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crypto map(global IPSec)	Ѫ╗
show crypto map	╗ ə
crypto map(interface IPSec)	ƒ ʎ Э ˜Ω ╗

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ʎ ɋ	₥ Ɋ ɯ

w R

ᴿ 1ʻ Ю ᴿ ѝ ╗ mymap У э ᴇˆ 2.2.2.2˜ ʻ

```
Ruijie(config)# crypto  map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# set peer 2.2.2.2
```

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Ъ ҷ	
crypto map(global IPSec)	Нж╗
show crypto map	╗ ҽ
crypto map(interface IPSec)	ҙф ⁄ Э ˜Ω ╗

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Ъ ҷ ∖ ⁄

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7.1.44 set pfs (IPSec)

ipsec G Diffie-Hellman

set pfs {**group1 | group2**}

no set pfs

⁄

⁄	
group1	768 Æ
group2	1024 Æ

a G Diffie-Hellman

Ъ ҷ ╗ Â

G ipsec G Diffie-Hellman

w R

ᴿ 1ʻ Ю ᴿ ѝ ╗ mymap j/TT1 1 Tf0 T</MCID 48 200.1736-TT1 1 245<18DB112AFC>Tj

show crypto map	╗ ə
crypto map(interface IPSec)	ƶϕ ʌ Э ˜Ω ╗

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7.1.45 set security-association lifetime

э ╗ IPSec ŏ ˜ ى ŏ Ƌ Ω ˇ ╗ Ƌ ɂ **set security-association lifetime** Â Ƌ ɂ **no** ḣ Â

set security-association lifetime {**seconds** *seconds* | **kilobytes** *kilobytes*]}

no set security-association lifetime {**seconds** | **kilobytes**}

∢		
∢	**seconds** *seconds*	ŏ ˆ ˜ Â
	kilobytes *kilobytes*	ŏ ə ˆ Љ ’ ˜ Â

	╗ ŏ ŏ Ƌ Ω ḣ ˜ ى Â
Ƌ ɂ	╗ Â
G	Ƌ ɂ ʌ G IKE IPSec ŏ ╗ Â ŏ ╗ Ƌ ɂ Â ƶϕ ąЮ IPSec ŏ ŏ Ƌ Ω ḣ ˜ ىˇ э ﻛ ﷺ a ˚ ų ŏ Ƌ Ω ḣ Ƌ Ω ˜ ىˇ ʌ Љ ƶϕ б ﻛ ﷺ ˜ ى ╗ è G Ƌ ɂ g Ƌ Ω ḣ Â Ƌ ɂ g Ƌ Ω ḣ ʌ ∢ э έ ɛ IPSec ŏ ˜ ى Ƌ Ω ḣˇ a ﻁ ŏ Ƌ Ω ḣ Â

w R	R 1ˈ Ю R g ╗ mymap 5 Ƌ Ω й 2500 ˈ
	`Ruijie(config)# **crypto map mymap** *5* **ipsec-isakmp**`
	`Ruijie(config-crypto-map)# set security-association lifetime seconds *2500*`

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	Ƌ ɂ	
	crypto map(global IPSec)	Ж ╗

show crypto map	╗ ə
crypto map(interface IPSec)	ɚ ʎ Э ˜Ω ╗
crypto ipsec security-association lifetime	ŏ Ƃ Ω

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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

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	spi	ŏ ∧
	hex-key-data	У ɜ 16 8

a ˙ ı ˜Ω ŏ ∧ n

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G ʎ ɚ ipsec-manual è G Â

w R R 1˙ Ю R ѝ ╗ mymap esp ˘

```
Ruijie(config)# crypto map mymap 5 ipsec-manual
Ruijie(config-crypto-map)# set session-key inbound esp 301 cipher abcdef1234567890
Ruijie(config-crypto-map)# set session-key outbound esp 300 cipher abcdef1234567890
```

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crypto map(global IPSec) ipsec-manual	Нж╕
show crypto map	╕ ə
crypto map(interface IPSec)	ж ⁄ Э ˇΩ ╕

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Ъ ҳ ∖ ⁄	⁄	
	-	-

7.1.47 set transform-set

ѝ э ╕ G ∖ Ҷ ⁄ ˝ ˘ G ╕ Ъ ҳ **set transform-set** Â Ъ ҳ **no** ╕ п ⁄ ˝ ˇΩ Â

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*]	⁄ ˝ ˘ ⁄ Љ ѝ ╕ Ω э ⁄ ˝ Â

· ¡ ⁄ ˝ Â

Ъ ҳ ╕ Â

G ⁄ ˝ ŏ ╕ ˘ Â · ¡ ╕ G Ъ ҳ ⁄ ˝ Â

R 1' Ю R ╕ ⁄ ˝ ѝ myset

```
Ruijie(config)# crypto ipsec transform-set myset esp-des esp-sha-hmac
Ruijie(config)# crypto map mymap 5 ipsec-isakmp
Ruijie(config-crypto-map)# set transform-set myset
```

ˇΩ Ъ ҳ	Ъ ҳ	

crypto map(global IPSec)	⊮╗
show crypto map	╗ ə

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7.1.49 tunnel protection ipsec profile (interface IPSec for IPSec-Profile)

ˮI ⱵⱾ ╗ Profile ˊ ˆ Tunnel ㄓ Ǝ˘ ㄓ Ⱡʊ G **tunnel protection ipsec profile** ㄓ Ƌ ɂ Â Ƌ ɂ **no** ÿ У ɜ ㄓ Ǝ ㄟ ╗ ˊ ˇΩ Â

tunnel protection ipsec profile [*profile-name*]

no tunnel protection ipsec profile [*profile-name*]

ㄟ	
profile-name	Profile ╗ ¨

˙ ! ╗ ˆ Tunnel ㄓ Ǝ

Ƌ ɂ ㄓ Â

ÿG5B Ƌ ɂ ╗ ˊ ɣ ㄓ Â Tunnel ㄓ Ǝ IPSec ╗ ɗ ˘ У ɜ ╗ ˊ ɣ ㄓ Â ɣ У ɜ ㄓ˘ ㄟ ˇΩ У ɜ ╗ ˊ Â

G

˙ Profile map ㄟ P rofv ⁸

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)

╟ ╕ ə ˘ EXEC Ɓ ɤ **show crypto dynamic-map** Â

show crypto dynamic-map [*map-name*]

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map-name	╕ ¨ Â

	╕ ¨ ˘ ‡ Э ╟ ╕ ə Â
Ɓ ɤ	EXEC Â
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w R	R 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

ɱ ╟ IPSec ŏ έ ɐ ˘ EXEC Ъ ҳ **show crypto ipsec sa** Â

show crypto ipsec sa

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Ъ ҳ	EXEC Â
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ᴿ 1ˈ Ю ᴿ Ъ ҳ У ɜ ˈ
Interface: GigabitEthernet 1/0/0
Crypto map tag:mymap, local addr 2.2.2.3
// ɱ ╕ ¨ mymap˘ G ѕ ѕ ѡ 2.2.2.3
media mtu 1500
==========
sub_map type:static, seqno:7, id=0
local ident (addr/mask/prot/port): (2.2.2.3/0.0.0.0/0/0))
remote ident (addr/mask/prot/port): (2.2.2.2/0.0.0.0/0/0))
PERMIT// ɖ 2.2.2.3 ɲ 2.2.2.2 ǯ ɐ
#pkts encaps: 0, #pkts encrypt: 0, #pkts digest 0
#pkts decaps: 0, #pkts decrypt: 0, #pkts verify 0
#send errors 0, #recv errors 0
// ˘ ŋ и˙ ˆ ˘ ╕ ˆ ˘ ˆ ˘ ˆ ˘ ╕ ˆ ˘ ˆ ˘
ϗ ˘
Inbound esp sas: // ώ ˆ ŏ ˘ ˜ и ESP
spi:0x79b8e4bb (2042160315) //spi ḣ и 2042160315
transform: esp-3des // ϟ ˊ и esp-3des
in use settings={Tunnel,} //
crypto map mymap 7
sa timing: remaining key lifetime (k/sec): (4607000/3505)
// ŏ Ъ Ϙ ˛ ˈ 4607000 ’ /3505

w ᴿ

IV size: 8 bytes //IV ă ѝ 8
max reply windows size: 0
Replay detection support:Y //

Outbound esp sas: // ˆ ŏ ˘ ˜ ѝ ESP
spi:0x293b8b55 (691768149) //spi ḣ ѝ 691768149
transform: esp-3des // ɻ ˊ ѝ esp-3des
in use settings={Tunnel,} //
crypto map mymap 7
sa timing: remaining key lifetime (k/sec): (4607000/3505)
// ŏ Ɓ Ƣ ˛ ˋ 4607000 ’ /3505
IV size: 8 bytes //IV ă ѝ 8
max reply windows size: 0
Replay detection support:Y //

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7.2.3 show crypto ipsec transform-set

ɻ ə ˘ EXEC Ɓ ɂ **show crypto ipsec transform-set** Â

show crypto ipsec transform-set

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Ɓ ɂ EXEC Â

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Ruijie#show crypto ipsec transform-set

transform set myset3: { esp-des,}

will negotiate = {Tunnel,}

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7.2.4 show crypto isakmp policy

IKE ə ˘ EXEC Ɓ ɂ **show crypto isakmp policy** Â

show crypto isakmp policy

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Ɓ ɂ EXEC Â

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```
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 ɱ ╟ IKE ŏ ˘ EXEC Ъ ҳ **show crypto isakmp sa** Â

show crypto isakmp sa

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Ъ ҳ EXEC Â

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```
ᴿ 1' Ю ᴿ Ъ ҳ У э '
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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8.1

ˆ ӳ ЛЬЮѢ ҳ

- ce <</icate
- crypto pki authenticate
- crypto pki ce <</icate chain
- crypto pki crl request
- crypto pki crl url
- crypto pki enroll
- „ crypto pki key generate rsa

certificate [**ca**] *certificate-serial-number*

no certificate [**ca**] *certificate-serial-number*

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8.1.2 crypto pki authenticate

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crypto pki authenticate Ƀ ҂ Â

crypto pki authenticate *ca_name*

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ca_name	*ca_name* ѝ ę̇ CA Ѽ ̈

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	ca_name	*ca_name* ѝ ѧ CA Ѽ
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Ѣ ҳ	ѽ Â	
G	Л Лъ G Ѣ ҳ ѡ ; ˘ ѯ э è˘ Л Лъ ĩ У э ; Â **no crypto pki certificate chain** *ca_name* Ѣ ҳ˘ ĩ ; è ; Â	
w R	˚ certificate Ѣ ҳ Â	
	Ѣ ҳ	
Ѽ Ѣ ҳ	**certificate** ; Ѣ ҳ	

import peer certificate success.

Router(config)#crypto pki certificate peer address 192.168.50.203 // IP

% Enter PEM-formatted peer certificate.
% End with a blank line or "quit" on a line by itself.
-----BEGIN CERTIFICATE-----

MIIDLjCCAtigAwIBAgIQVq4HPBChfoxFro0/FVIzVzANBgkqhkiG9w0BAQUFADCB

rDEhMB8GCSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV0LmNuMQswCQYDVQQG
EwJD

TjEPMA0GA1UECBMGRnVKaWFuMQ8wDQYDVQQHEwZGdVpob3UxIDAeBgNVBA
oTF1Jl

Z2lhbnQgTmV0d29yayBDby4gTHRkMR0wGwYDVQQLExRSZXNlYXJjaCBBcGFydG
1l

bnQgNTEXMBUGA1UEAxMOQ0EgdGVzdCBzZXJ2ZXIwHhcNMDUwMjI1MDg0NjAy
WhcN

MDcwMzAxMDIzNjIzWjCBrDEhMB8GCSqGSIb3DQEJARYSZGluZ2pzQHN0YXItbmV
0

LmNuMQswCQYDVQQGEwJDTjEPMA0GA1UECBMGRnVKaWFuMQ8wDQYDVQQ
HEwZGdVpo

b3UxIDAeBgNVBAoTF1JlZ2lhbnQgTmV0d29yayBDby4gTHRkMR0wGwYDVQQLExR
S

ZXNlYXJjaCBBcGFydG1lbnQgNTEXMBUGA1UEAxMOQ0EgdGVzdCBzZXJ2ZXIwXD

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8.1.5 crypto pki crl request

Ю CRL ˅ ˘ ˙ ŏ Ю **crypto pki crl request** trustpoint Ъ ъ Â Ъ ъ **No** Â

crypto pki crl request *trustpoint*

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	trustpoint	*trustpoint* ˘
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Ъ ъ	ŏ Â	
G	Ъ ъ a Л ć Â RGOS CRL ˅ ŕ 1M˙ ‡ Ю Â RGOS http ˜ Ю CRL˘ è URL ك ه Л Љ ŭ ˘ . ˝I ‟ Ю˙ 1. Ъ ъ ˘ ˙ **crypto pki crl url** *http://www.myca.cn/CertEnroll/certcrl.crl* 2. Э CA ˙ CRL† Ч ą ’ 3. Э ű ˙ CRL† Ч ą Â URL ч **crypto pki crl url** Ъ ъ G ˃ Â	

w R	R 1˙ ЉЮ w R Ъ ъ n ˘ certcrl.crl ŕ CRL ˅ ˙
	`Ruijie# config t`
	`Enter configuration commands, one per line. End with CNTL/Z.`
	`Ruijie(config)# crypto pki crl request trustpoint`
	`%Crypto pki crl request command: start crl download task!`
	`Ruijie(config)#`
	`%Crl download and decode successfully!`
	`Ruijie(config)# exit`
	`Ruijie#dir`
	`Directory of flash:/`
	`5 an 68 0xdbc28957 Jan 1 2005 00:00:00 tftp_config.bin`
	`8 an 4301816 0x3e415b47 Jun 28 2005 15:03:46 RGOS.bin`
	`27 an 5331 0xaf1d58ec Jun 29 2005 10:05:20 config.text`
	`34 an 427 0x5bd43f32 Jun 29 2005 12:50:41 certcrl.crl`	

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	crypto pki crl url	Ю CRL URL ك ه

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8.1.6 crypto pki crl url

Ю CRL ˚ URL ѫ ѭ˘ ƶ ŏ Ю **crypto pki crl url** Ƃ ʒ ÂЛъ è **NO** ĩ ѫ ѭ Â Ƃ ʒ ɲ У э crl ˚ ˘ Ƃ ʒ ƶ ʌ ѝ ò Лъ ɱ Â

crypto pki crl url *url_string*

no crypto pki crl url

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url_string	Лъ http:// URL s˘ a 255

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Ƃ ʒ˘ RGOS ʌ ÿ CA ƀ ƀ CRLĭ ϒ ą è ϒ CRL Ю ѫ ѭ Â ɕ Ƃ ʒ ˘ Лъ Ƃ ʒ ˙ ˝Ĭ˘ ¯ a Ą G ƀ è ѫ ѭ Â

url_string Лъ http ʹ // ʾ Ю ʌ G 80 ʌ˘ ŭ ‡ ʌ ƶ ѭ ¯ ł ʌ ʌ˘ http://www.myca.cn:1020/ ¯ ѝ certsrv˘ ŭ ‡ ʌ ˘ http://www.myca.cn/CertDir/ CRL ˚ ¯ ѝ certcrl.crl˘ ŭ ‡ ≠ ʌ ˘

http://www.myca.cn/certsrv/mycertcrl.crl˘ url_string a ĭ ˆ ŭ ˘ è ˆ ŭ ˘ ʌ G ώ l ʹ %20 Ł ʒ ˘ ʻ http://www.myca.cn/CertEnroll/CA%20Server.crl Â

url_string ѭ ʌ Лъ G IP ѫ ѭ˘ http://202.101.211.123/ ≠ ʌ Лъ У э ą ў ¯ ˘ http://myserver/ Â a URL ÿ ƀ è ˘ ƶ Ю CRL ╟ ѭ ў ¯ ˘ ˜Ω Â ѭ ˘ ‡ DNS ┗ ѫ ѭ ѫ˘ ą ў ¯ ˘ ip host Ƃ ʒ ў IP ѫ ѭ Â

ᴿ 1ʹ ЛъЮ ˝ crypto pki crl url ʻ

```
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

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crypto pki crl request	Ю CRL ˅ Ъ ٹ

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8.1.7 crypto pki enroll

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crypto pki enroll *ca_name*

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ca_name	*CA_name* ѝ ə˙ CA Ѽ ˝

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router(config)#crypto pki enroll CA
%
%Start certificate enrollment ..
%Create a challenge password. You will need to verbally provide this password to the CA Administrator in order to revoke your certificate. For security reasons your password will not be saved in the configuration.Please make a note of it.

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Password:F4EEE4FEB3766007 // ώ ÿ CA
Re-enter password:F4EEE4FEB3766007
%The subject name in the certificate will include: router

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	crypto pki trustpoint	trustpoint

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8.1.8 crypto pki import crl

ÿ TFTP ώ CRL˘ ϑϕ ŏ Ю **crypto pki import** *ca_name* **crl** *tftp_url* Ƃ ҂ Â Ƃ ҂ **No** Â

crypto pki import *ca_name* **crl** *tftp_url*

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ϒ	
ca_name	*ca_name* ϧ ə˙ ^ trustpoint˜ CA Ώ ¨
terminal	⁘ p ÿ ⁸ ʌ ώ
tftp_url	CRL ˚ TFTP URL Â

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G Ƃ ҂ a ʌ ɖ Â ʌ ᴳ Ƃ ҂ ÿ PEM ˚ è ώ ⁘ p RSA Â Ҏ ˚ ʌ ɣ è PKI ˘ PC Â

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10.4(3b15)	10.4(3b15) ϒ è Л ɬ Ƃ ҂

8.1.9 crypto pki import pem

ÿ PEMˆ Privacy-enhanced Mail˜ ˚ è ώ ⵗ ņ RSA ˘ ﬡ ΰ
Ю **crypto pki** *ca_name* **import pem** *password* Ъ ҳ Â Ъ ҳ **No** Â

crypto pki import

```
L1xcemotcm91dGVyXENlcnRFbnJvbGxcQ0ElMjB0ZXN0JTIwc2VydmVyLmNybDAQ
BgkrBgEEAYI3FQEEAwIBATANBgkqhkiG9w0BAQUFAANBAH8ufRZ2tVYO3R7YC0IF
OzmnQrjgaBN4bpmSLkxYYKtK8ZNjo0FwUL11aq6nCGp6n8Ks0dijoMxnedB2zn0a
f0w=
-----END CERTIFICATE-----
quit
Certificate has the following attributes:
Fingerprint: B286A3F4 4930D46D 81D4A544 885D611C
//CA  ⁘
% Do you accept this certificate? [yes/no]: yes
//
% Certificate successfully imported
% Enter PEM-formatted encrypted private key.
//     ώ PEM
% End with "quit" on a line by itself.
//     ώ ľ quit Ł      ώ
//          ˘ ﬡ      ˘   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.//     ώ PEM          ﬩ ⁘

End with a blank line or the word "quit" on a line by itself
//      ώ          ľ quit Ł Ꭻ          ώ
//          ﬩ ⁘      ˘ ﬡ      ˘    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

	ca_name	*ca_name* ⴇ ⴁ ⴂ trustpoint CA ⴃ
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Ⴓ ⴄ	ⴅ Â	
G	ⴆ ⴇ Ⴓ ⴄ ⴈ trustpoint ⴉ ⴊ ⴋ ⴌ ⴍ ⴎ trustpoint ⴏ Â **no crypto pki trustpoint** *ca_name* Ⴓ ⴉ ⴐ ⴁ ⴑ ⴒ Â	
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ⴃⴈⴓ ⴄ	Ⴓ ⴄ	
ⴆ	Â	
Ⴓ ⴄ ⴑ ⴆ	ⴆ	
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8.1.11 enrollment offline subject

ⴕ ⴖ ⴆ ⴗ ⴘ ⴉ ⴊ ⴈ trustpoint ⴙ **enrollment offline subject** Ⴓ ⴄ Â

enrollment offline subject

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		Â
	ⴆ ⴗ ⴘ ⴇ Â	
Ⴓ ⴄ	trustpoint Â	
G	ⴚ ⴛ ⴜ dn ⴁ ⴉ ⴁ ⴝ ⴁ Common Name (eg, YOUR name) []: // ⴘ б Organizational Unit Name (eg, section) []: // ` Æ ⴘ Organization Name (eg, company) []: // ⴘ Locality Name (eg, city) []: // ⴈ ⴞ ⴗ ⴟ ⴘ State or Province Name (full name) []: // ⴈ ` ⴘ	

Country Name (2 letter code) [CN]: // ` Æ ч ىي ъ
show run è¸ Л dn

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crypto pki trustpoint	ώ trustpoint

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8.1.12 enrollment retry count

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enrollment retry count Ъ ъ Â Л è **NO** Â

enrollment retry count *number*

no enrollment retry count

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number	Number Ψ Ψ

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8.1.13 enrollment retry period

G SCEP ы trustpoint Ю **enrollment retry period** Ъ ъ Â Л ъ è **NO** Â

enrollment retry period *number*

no enrollment retry period

ы	ы	
	number	Number

	url_string	Л http:// URL s˘ a 255

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Ъ ҁ trustpoint Â

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crypto pki trustpoint	ώ trustpoint

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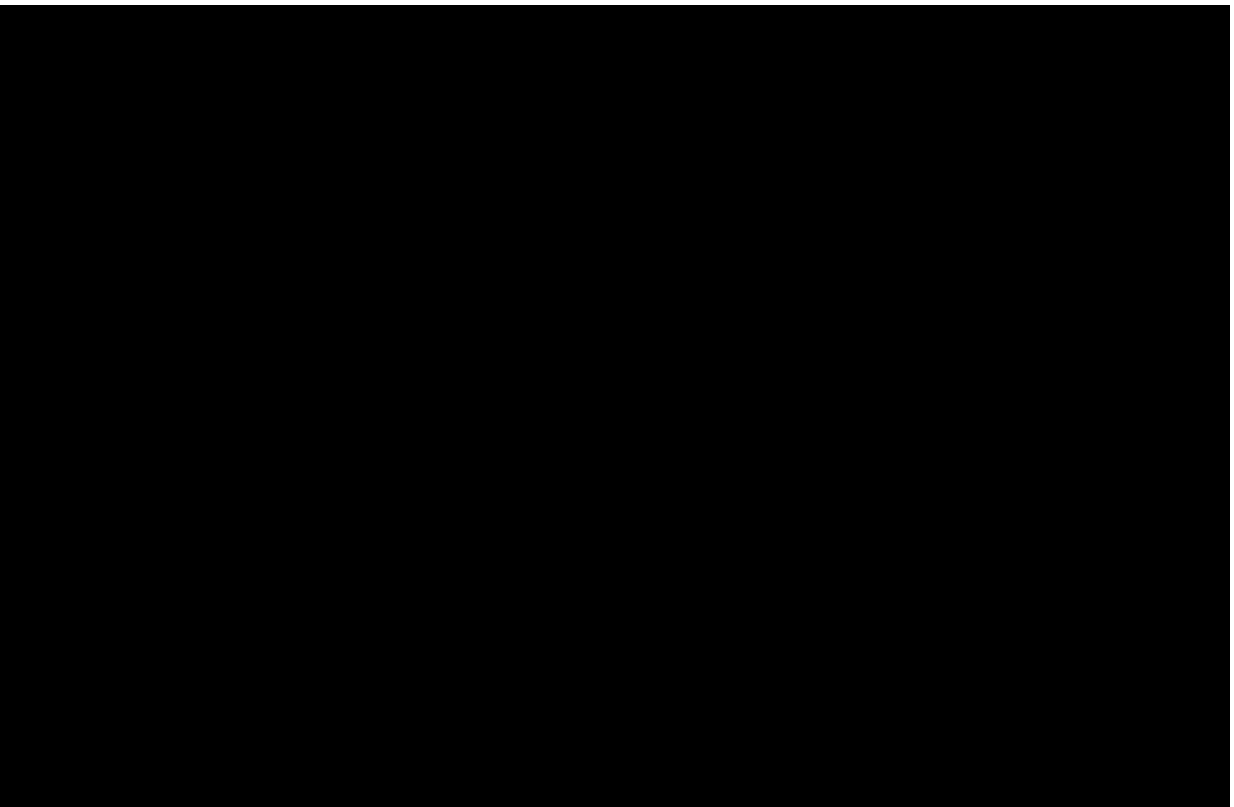

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crypto pki trustpoint	

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8.1.17 debug crypto pki

pki Ω Ω фж EXEC Ю **debug crypto pki** Ъ ч Â G è **no** Ω Ω Â

debug crypto pki {**event** | **error**}

no debug crypto pki {**event** | **error**}

н		
	event	pki ɔ Y˚ ə
	error	pki ɔ ə

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8.1.18 recursion-check

Ω CA ¨ ˘ фж trustpoint Ю **recursion-check** Ъ ч Â Ъ ч **No** ˆ Â

recursion-check {**none**}

no recursion-check {**none**}

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	none	Ω CA

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Ѣ ҁ	trustpoint Â
G	CA ⁖ ¨ ⁖ CA CA ⁖ Â Ѵ CA ⁖ a ⁖ ˘ Э ⁖ ˘ ł Ą Э У ⁖ ɱ G CA ⁖ Â Э ˚ CA Ѵ Ѵ Љ Ѵ Ь ą˙ ˘ CA ⁖ a ¨ ⁖ a ѣ Â Ѿ ł˘ Ѵ ˚ У э CA Ѵ ⁖ ¯ Ѵ Â
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8.1.19 revocation-check

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8.1.20 time-check

Ъ trustpoint Ю **time-check** Ъ ъ Â Ъ ъ **No** Â

time-check {**none**}

no time-check {**none**}

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none	Ъ

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8.1.21 interface

trustpoint ׀ ֻ à CRL ɢ ׁ֯ فذ trustpoint Ю **interface** Ъ ֽ Â Ъ ֽ **No** ׀ Â

interface *interface_name*

no interface

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	none	ֿΩ ֻ
	ѝ a ׁ֯	
Ъ ֽ	trustpoint Â	
ɢ	ׁ֯ ѣׁ֯ ׀ ֻ ׀ CRL˛ Л׀ ׁ֯ ў IP ڑ ѫ ɔ ѝ ѫ ѭ Â	
ᴡ ᴿ	Â	
ֿΩЪ ֽ	Ъ ֽ	
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ׁ	Â	
Ъ ֽ ׀ ׁ	ׁ	
	10.4(3b15)	10.4(3b15) ׀ Л׀ ѣ Ъ ֽ

8.2

ˆ ӧ ЛЬЮЪ ֽ˙

- show crypto pki certificate
- show crypto pki crls
- show crypto trustpoints
- show crypto trustpoints name_string status

8.2.1 show crypto pki certificates

ъ ъ ˘ зф EXEC Ю **show crypto pki certificates**

Ъ ч Â

Exponent: 65537 (0x10001)

X509v3 extensions: // ⷭ ᦔ

X509v3 Key Usage: //

Digital Signature, Non Repudiation, Certificate Sign, CRL Sign

// ˆ ¨ ˘ ˘ ⷭ ¨ ˘ CRL ¨

X509v3 Basic Constraints: critical

CA:TRUE

X509v3 Subject Key Identifier: // ў ᴇ

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᧦ ᛊ ᦔ

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 ﹾ ⷭ ᦔ

Certificate:

Data:

Version: 3 (0x2) //X.509 v3

Serial Number: // ⷭ ‟ ᛁ

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

// ᛊ DN¨

Validity // ⷭ ᦔ

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 ᴇ DN¨

Subject Public Key Info: //ў ᴇ Ὼ ᦔ

Public Key Algorithm: rsaEncryption //Ὼ : и RSA ╗

RSA Public Key: (2048 bit) //2048 Æ RSA Ὼ

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: // ⁘ ҷ
X509v3 Key Usage: critical // ˘ ѝ ℨΩ
Digital Signature, Non Repudiation // ˆ ¨ ѣ
X509v3 Extended Key Usage: //
1.3.6.1.5.5.8.2.2
X509v3 Subject Key Identifier: MCID 4//

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CA_name	Trustpoint

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8.2.2 show crypto pki crls

CRL ә ˘ ж EXEC Ю **show crypto pki crl** Ъ ч Â

show crypto pki crls [*CA_name*] [**detail**]

```
4
1.3.6.1.4.1.311.21.1:...
Revoked Certificates:                  //ЛЬЮ ьй"     ;;;  "
Serial Number: 162A7A1D000000000002      //"     ;;;   " л
Revocation Date: Jun 22 06:19:53 2005 GMT    //"
CRL entry extensions:                     //CRL
X509v3 CRL Reason Code:                 //CRL"     ы ш ч
Key Compromise                                  //
Serial Number: 1635E5E3000000000003
Revocation Date: Jun 22 06:19:53 2005 GMT
CRL entry extensions:
X509v3 CRL Reason Code:
Key Compromise                                  //
Signature  Algorithm:  sha1WithRSAEncryption       //   "
5d:a2:ab:07:ff:7e:0e:9a:af:b2:25:11:7f:31:86:aa:21:48:
37:e7:22:99:e3:b2:15:e0:f9:80:63:66:5e:2f:f2:d6:c0:ea:
ef:46:7e:d1:c1:b2:66:0e:0b:d3:74:d1:55:bc:5c:13:46:e8:
56:ec:40:83:7b:1b:75:f2:68:87                  //  "  h
Ruijie#
```

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8.2.3 show crypto pki trustpoints

trustpoint ъ ˇ ф EXEC Ю **show crypto pki trustpoints** Ъ ч Â

show crypto pki trustpoints

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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

trustpoint m ə ˇ ж EXEC Ю **show crypto pki trustpoints** *name_string* **status** Ъ ҳ Â

show crypto pki trustpoints *name_string* **status**

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Ч	
name_string	trustpoint ¨

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G Â

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R 1' Ю R Ъ ҳ У э '

```
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

G AAA 802.1X ˘ ŏ Ъ ҷ **aaa authentication dot1x** 802.1X “ Â Ъ ҷ no ĩ 802.1X “ Â

aaa authentication dot1x {**default** | *list-name*} *method1* [*method2*...]

no aaa authentication dot1x {**default** | *list-name*}

ч	
default	G ч ˘ ‡ ł Ня “ ɔ ѝ 802.1X Â
list-name	Ня У ə 802.1X “ ˘ Л Љ ˙ ! s Â
method	ľ local à none à group Ł “ ˇΩ ǯ У˘ У ə “ 4 ə
local	G ك ¨
none	a
group	G Ł ŋ̇ ˘ ɱ RADIUS Ł ŋ̇

Ъ ҷ	ŏ Â ɋ Ч Ь Ч Ь
ɢ	í AAA 802.1X ŏ Ł˘ G AAA 802.1X ˜ ى Â Ȯ @D ȯ ɤ w

Ъ ҳ	
aaa new-model	G AAA ŏ Ŧ
dot1x authentication	ف 802.1X ˜ Ǝ ˇΩ “
username	Ⱨ ى

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ʌ	

ѕ ` Â

```
Ruijie(config)# aaa authentication enable default group radius local
```

Ъ ҳ

aaa new-model	G AAA ŏ Ŀ
enable	ĵ ⁞
username	Ħ ѕ

ʌ

Ъ ҳ ϒ ʌ

ʌ	
-	-

9.1.3 aaa authentication login

G AAA Loginĵ ~ ˘ ŏ Ъ ҳ **aaa authentication login** Login ‟ Â Ъ ҳ no ĵ ‟ Â

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

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

ф Login ы ш ф Login Э ў ‡ a Â

w R

Ю R НЖ У э ё й list-1 AAA Login “ Â “ ”I G RADIUS ŏ ы ю ш RADIUS ŏ ы ю ш ‡ G ы Â

```
Ruijie(config)# aaa authentication login list-1 group radius local
```

Ъ ч

aaa new-model	G AAA ŏ ы
username	НЖ ы
login authentication	ф Э Login

л

Ъ ч Ч л

л	
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9.1.4 aaa authentication ppp

G AAA PPP ш ŏ Ъ ч **aaa authentication ppp** PPP “ Â Ъ ч no ї “ Â

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

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G í AAA PPP ŏ Ĺ G AAA PPP ~ ى Â
G **aaa authentication ppp** Ъ ч Л " ¥ PPP Â
Л m ط ˇ G ł Â

w R Ю R ЊЖ У э ¨ й rds_ppp AAA PPP " Â " ¨I G
RADIUS ŏ Ł ŭ ˇ ف У ˆ ĵ RADIUS ŏ Ł ŭ
ˇ ˇ ‡ G ك Â

```
Ruijie(config)# aaa authentication ppp rds_ppp group radius local
```

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Ъ ч	
aaa new-model	G AAA ŏ Ĺ
ppp authentication	PPP ~ Ω "
username	ЊЖ ك

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Ъ ч Ч Л

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9.1.5 aaa authentication web

G AAA web ˇ ŏ Ъ ч **aaa authentication web** web
" Â Ъ ч no ĵ " Â

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

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

Ч

Ч	
default	G Ч ˇ ‡ ł ЊЖ " ɔ й web Â
list-name	ЊЖ У э web " ˇ Л Лъ ˙ ı s Â
method	ľ local à none à group Ł " Ω ğ У˘ У э " 4 э
local	G ك ¨
none	a ˜ è 5

w R

R 1' g ĭ ⁄ ′Ω м

```
Ruijie(config)# aaa local user allow public account
```

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′Ω Ъ ҳ	-

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¥ 14 Ћ Э /ˆ ‡ Ƃ ҂ ⁝ 14 ~ Â
ɷ Ƃ ҂ ɨ˘ è ƒƌ Ƃ ҂ Э˘ ŭ ‡ a
Â

w R

Ю R G TACACS+ ᒧ 15 Ƃ ҂ ‘
Ruijie(config)# **aaa authorization commands** *15* **default group tacacs+**

ʗΩƂ ҂

Ƃ ҂	
aaa new-model	G AAA ŏ ᒧ
authorization commands	ƒƌ Э Ƃ ҂

/

Ƃ ҂ ↘ /

/	
-	-

9.2.2 aaa authorization config-commands

G AAA ^ ^ ŏ ↓ è ~ Ю Ƃ ҂ ˘ ŏ
Ƃ ҂ **aaa authorization config-commands** Â Ƃ ҂ no ʗΩ AAA Ю Ƃ ҂ ℸ Â

aaa authorization config-commands

no aaa authorization config-commands

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-	-

a Ю Ƃ ҂ Â

Ƃ ҂ ŏ Â

G / ^ ~ Ю Ƃ ҂ ˘ /Ћ G Ƃ ҂ no ʗΩ
ℸ ˘ ‡ ↓ è Ю Ƃ ҂ a Ƃ ҂ /Ћ Â

w R

Ю R Ю Ƃ ҂ ℸ ‘
Ruijie(config)# **aaa authorization config-commands**

ʗΩƂ ҂

Ƃ ҂	

aaa new-model	G AAA ŏ Ь
aaa authorization commands	Ьж AAA Ъ ч

Л

Ъ ч Ч Л		
	Л	
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9.2.3 aaa authorization console

G AAA 8 Л ˘ Ъ ч ˘ ŏ Ъ ч **aaa authorization console** Â Ъ ч no ˇΩ AAA 8 Л Ъ ч ╖ Â

aaa authorization console

no aaa authorization console

Ч	Ч	
	-	-

	a 8 Л Ъ ч Â
Ъ ч	ŏ Â
G	RGOS ˇ‹ 8 Л Ц è ы ˘ Л Љ 8 Л ˘ ў Ъ ч Â ˇΩ ¢ 8 Л Ъ ч ╖ ˘ ‡ ˚ 8 Л Ъ ч “ a Â
w R	Ю R 8 Л Ъ ч ╖ ‘ Ruijie(config)# **aaa authorization console**

	Ъ ч	
	aaa new-model	G AAA

∧

Ъ ч Ч ∧	∧	
	-	-

9.2.5 aaa authorization network

G AAA Ь ^ PPP ä SLIP ~ ~ ˘ ŏ
Ъ ч **aaa authorization network** Â Ъ ч no ˇΩ AAA ╖ Â

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

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

ч	ч	
	default	‘ G ч ˘ ‡ ł ЊЖ “ ɔ ѝ Network Â
	method	l’ none ä group Ł “ ˇΩ ǯ У˘ У ɜ “ 4 ɜ
	none	a
	group	G Ь ŋ ˘ ɱ RADIUS ŋ TACACS+ Ь ŋ

	ˇΩ AAA Network ╖ Â
Ъ ч	ŏ Â
G	RGOS ˇΩ Ь PPP äSLIP ~ Â ɷ ˘ ‡ ∧ ╟ Â ∧ Лъ Ь a˚ ˘ б ` У ˘ ∧ ɱ ط ˘ G ł ˘ ɱ ˘ ‡ a Ą G è ы ł Â RADIUS TACACS+ Ь ŋ تي У “ Â Лъ فذ لجي Э ˘ ∧ ɷ ∧ ∧ Â
w R	Ю R G RADIUS Ь ŋ Ь ‘ Ruijie(config)# **aaa authorization network default group radius**

ˇΩЪ ч	Ъ ч	
	aaa new-model	G AAA ŏ Ь
	aaa accounting	ЊЖ AAA

aaa authentication	Ьѫ AAA `
username	Ьѫ ك

ѧ

Ъ ҳ Ч ѧ		
	ѧ	
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9.2.6 authorization commands

Ъ ҳ " فخ Э˘ Ъ ҳ **authorization commands** Â Ъ ҳ no ѧ Э Ъ ҳ ╖ Â

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

no authorization commands *level*

ч		
	level	Ъ ҳ ⁞˘ نز 0~15˘ ā ١ ə ⁞ Ъ ҳ ł Â
	default	G ч ˘ Ъ ҳ Â
	list-name	У ə Ьѫ Ъ ҳ " Â

AAA Ъ ҳ ╖ Â

Ъ ҳ Â

G Ъ ҳ " У ˘ ╟ ⁞ Э Â فخ Э Ъ ҳ " ˘ ч ҳ õ á Ÿ È

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9.3

9.3.1 aaa accounting commands

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Ъ ч	
aaa new-model	G AAA ŏ Ь
aaa authentication	Нж AAA `
accounting commands	ж Э Ъ ч

ЪЮ ч

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9.3.2 aaa accounting exec

Ұ ╠˘ NAS ╠ ˘ ŏ Ъ ч **aaa accounting exec** Â Ъ ч no л Exec ╖ Â

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

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

ч	
default	G ч ˘ ‡ ł Нж " э й Exec Â
list-name	Нж У э Exec " ˘ Л Љ ' ị s Â
method	ľ **none à group** Ł " ˇЮ ǯ У˘ У э " 4 э
none	a
group	G Ь ˘ ṁ RADIUS ņ TACACS+ Ь

ˇЮ ╖

Ъ ч ŏ Â

RGOS л ж ɕ ł˘ ˛ í Exec ╖ ˘ й

G

w R

Ruijie(config)# **aaa accounting exec default start-stop group radius**

aaa new-model	AAA
aaa authentication	AAA
accounting commands	Exec

	8 Â
w R	Ю R G RADIUS ᒪ ᵕ ڤ ɲ ᴧ Ruijie(config)# **aaa accounting network default start-stop group radius**

Ƌ ३	
aaa new-model	G AAA ŏ ᒪ
aaa authorization network	ⱵⱾ AAA
aaa authentication	ⱵⱾ AAA `
username	ⱵⱾ ᔕ

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ᴧ	
-	-

9.3.4 aaa accounting update

í ℸ ᵕ ŏ Ƌ ३ **aaa accounting update** Ƌ ३ᵕ Ƌ ३ ¥ G ŏ Â G Ƌ ३ no ˜Ω ℸ Â

aaa accounting update

no aaa accounting update

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	ℸ ˜Ω Â
Ƌ ३	ŏ Â
G	í AAA ŏ ᒫ ‡ a G Â í AAA ŏ ᒫ ‡ Ƌ ३ Â
w R	Ю R G Â Ruijie(config)# **aaa new-model** Ruijie(config)#

	Ѣ ҳ	
ѽѢ ҳ	**aaa new-model**	AAA ѿ Ŀ
	aaa accounting network	Ŧ “

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9.3.7 accounting exec

Exec " ف Э˘ Ъ ъ **accounting exec** Â
Ъ ъ no ٨ Э Exec ╖ Â

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

no accounting exec

٨		
٨	**default**	G ٨ ˘ Exec Â
	list-name	У э ЬЖ Exec " Â
	˜Ω ╖	
Ъ ъ	Â	
G	Exec " У ˘ ╟ ˆ Э Â ف Э Exec " ˘ ٨ ъ " Â يي ЬЖ " ˘ ‡ ˛ У э ъ ə ˘ Э Exec a ˛ ˘ ЬЖ ɕ Exec " ˛ Â

w R	Ю R У э ̈ ѝ exec-1 Exec " ˘ G RADIUS ↄ ѝ ŏ ┗ ˘ ┗ ˘ ط none Â ł ˆ VTY 0 – 4 Э˙
	`Ruijie(config)# aaa accounting exec exec-1 group radius none`
	`Ruijie(config)# line vty 0 4`
	`Ruijie(config-line)# accounting exec exec-1`	

Ъ ъ		
˜Ω Ъ ъ	**aaa new-model**	G AAA ŏ ┗
	aaa accounting commands	ЬЖ AAA Exec "
٨		

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Ъ ъ ٧ ٨	-	-

9.4 AAA

9.4.1 aaa domain

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

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

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default	G ∧ ˘ ⱺ
domain-name	ⱺ ⁼

˙ ¡ ⱺ Â

Ƃ ҂ ŏ Â

G ڇ Ɣ ⱺ⁼ AAA Ꞗ Âdefault ѝ ⱺ ˘ ≠ ⱺ ə ˘
G “ Â *domain-name* ѝ ⱺ⁼ ˘ ⱺ⁼ ˘ ‡
G ɔ ⱺ ˜Ω “ Â ɱ 32 ɔ ⱺ Â

Ю R ⱺ⁼ ˙

w R
```
Ruijie(config)# aaa domain ruijie.com
Ruijie(config-aaa-domain)#
```

Ƃ ҂	
aaa new-model	AAA ŏ Ꞗ
aaa domain enable	ڇ Ɣ ⱺ⁼ AAA Ꞗ ˜Ω
show aaa domain	ⱺ

∧

∧	

9.4.2 aaa domain enable

ججا ¥ ھھ AAA ⊧ ˜Ω α Ю ѝ ˜Ω Â ˜Ω Ą˘ . ˝I G ججا ¥ ھھ AAA ⊧ Â Ъ ҳ no ˜Ω ˜Ω Â

aaa domain enable

no aaa domain enable

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-	-

	ججا ¥ ھھ AAA ⊧ ˜Ω˜Ω Â
Ъ ҳ	ŏ Â
G	ججا ¥ ھھ AAA ⊧ ˘ ɔ ˜Ω Â
w R	ججا ¥ ھھ AAA ⊧ ˜Ω˙

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

Ъ ҳ	
aaa new-model	AAA ŏ ⊧
show aaa domain	ھھ

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Ъ ҳ ٧ ٨	٨	
	-	-

9.4.3 access-limit

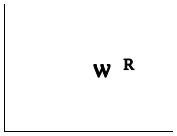
ھھ 8˘ ٨ IEEE802.1x ’ Ъ ҳ no ٧ Ъ ҳ Â

access-limit *num*

no access-limit

٧		
	num	ھھ 8˘ ٨ 8 IEEE802.1x

	α Ю a 8	Â
Ъ ҷ	ањ	Â
G	G Ъ ҷ ањ	8 Â


Ю
W R

aaa domain enable	ّ مخه ¥ لجي AAA ┺ ̃Ω
show aaa domain	مخه

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Ъ ҳ ∖ ᴎ		
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9.4.6 authorization network

مخه فخ Ю Network “ ˘ Ъ ҳ no ᴎ Ъ ҳ Â

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9.4.7 state

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state {**block** | **active**}

no state

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block	ѫ
active	ѫ

α Ю ҳ ѕ ч ч ч

ч	
default	G ч ˘ ѩ ҷ
domain-name	ѩ ¨ ѩ ҷ

Ъ ҳ Â

G a ѩ ¨ ˘ ‡ ѩ ҷ Â

Ю R ѩ ¨ ѝ domain.com ѩ ҷ Â

```
Ruijie# show aaa domain domain.com

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

Selected method list:
 authentication dot1x default
```

Ъ ҳ	
aaa new-model	AAA ŏ Ь
aaa domain enable	ي ¨ ѩ AAA Ь ˇΩ

ч	
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9.4.9 username-format

ѓф ѩ Ю NAS б Ь ӱ Ӌ ц ¨ è ў ѩ ҷ ˘ Ъ ҳ no Â

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

no username-format

AAA ১ ২

Ъ ч ŏ Â

G Ъ ч AAA ┺ ŋŲ ˘ m RADIUS n TACACS+ ┺ ŋŲ Â

w R

Ю R Â

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

Ъ Ω Ъ ч

Ъ ч	
show aaa group	aaa ┺ ŋŲ

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9.5.2 ip vrf forwarding

и AAA ┺ ŋŲ vrf no ĩ Â

ip vrf forwarding *vrf_name*

no ip vrf forwarding

Ч

Ч	
vrf_name	vrf

Ъ ч ┺ ŋŲ Â

G и ┺ ŋŲ vrf Â

w R

Ю R Â

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
```

Ƹ Ɓ ३

Ɓ ३	
aaa group server	aaa ┺ ئۇ
show aaa group	aaa ┺ ئۇ

ʌ

Ɓ ३ ٧ ʌ

ʌ	
-	-

9.5.3 server

╗ AAA ┺ ئۇ ┺ ئۇ˘ no ╖ Â

server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

no server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

٧

٧	
ip-addr	┺ ئۇ ip ھ ك
port1	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~
port2	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~

┺ ئۇ

Ɓ ३ ┺ ئۇ Â

G ┺ ئۇ è ╗ ┺ ئۇ˘ a ٧ G ḣ Â

w R

Ю R Â

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
acct-port 5 authen-port 6
```

```
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
```

Ъ ҁ

Ъ ҁ	
aaa group server	aaa ٮ ئۇ
show aaa group	aaa ٮ ئۇ

ʌ

ʌ	
-	-

Ъ ҁ ٧ ʌ

9.5.4 show aaa group

AAA ٮ ئۇ Â

show aaa group

ٯ

ٯ	
-	-

Ъ ҁ Â

G Ъ ҁ AAA 8 ٮ ئۇ Â

w R

```
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
```

ո

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	-	-

9.6.2 aaa local authentication lockout-time

login

no aaa new-model

↓	
-	-

ˇΩ AAA ŏ ┗

Ъ ҁ ŏ Â

G Ъ ҁ AAA G Ъ ҁˇ G AAA ŏ ┗ˇ G **aaa new-model**
G AAA ŏ ┗Â í AAAˇ ‡ AAA Ъ ҁ a ∧ Â

w R Ю R G AAA ŏ ┗Â

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

Ъ ҁ	
aaa authentication	Ⱨ “
aaa authorization	Ⱨ “
aaa accounting	Ⱨ “

∧

∧	
-	-

Ъ ҁ ↘ ∧

9.6.4 clear aaa local user lockout

“

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

↓	
<*word*>	ID

Ъ ҁ Â

G “ ˘ ∧ Ћ ŏ ≠ ∧ Ћ

w R

Ю R '

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

ЎЩ ҳ

Ъ ҳ	
show running-config	Ц m
show aaa lockout	m login ч

Л

Ъ ҳ Ч Л

Л	
-	

9.6.5 debug aaa

AAA Ь ЎΩ Â Ъ ҳ **no** Ўω ЎΩ Â

debug aaa event

no debug aaa event

9.6.7 show aaa user lockout

ɱ " Â

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

↓	
<*word*>	ID

Ѣ ҁ Â

G ɱ " ˘ Ɽʊ ↓ HѦ Â

w R ІО R '

```
Ruijie# show aaa user lockout all
```

Ѣ ҁ	
show running-config	Ң ɱ
show aaa lockout	ɱ login ↓

Л

Л	

10 RADIUS

10.1 RADIUS

RADIUS ˆ ЛЮ ˜Ω Ѣ ҂ˈ

- ip raius source-interface
- radius-server host
- radius-server key
- radius-server retransmit
- radius-server timeout
- radius-server dead-time
- radius attribute
- radius set qos cos
- radius vendor-specific extend

10.1.1 ip radius source-interface

radius ѧ ѩ˘ ŏ Ѣ ҂ **ip radius source-interface** Â
Ѣ ҂ **no** ĩ RADIUS ѧ ѩ Â

ip radius source-interface *interface*

no radius source-interface

ð ↓ Ô

*Interface*ˈ radius ѧ ѩ ↓

ð ą Ô

radius ѧ ѩ Â

ð Ѣ ҂ Ô

ŏ Â

ð ᴳ ˛ Ô

и ɕ ˜ ѯ radius ┗ ŋ Э nas ą ɔ ˘ Л Лъ Ѣ ҂
radius ѧ ѩ Â Ѣ ҂ ↓ У э ip ѧ ѩ ɔ и radius ѧ
ѩ˘ Ѣ ҂ ѯ Ь ᴳ Â

ð w ᴿ Ô

Ю R ѓ radius ў GigabitEthernet 0/0 ѕ ї ip ћ ќ ɔ й radius ћ ќ ·

```
Ruijie(config)# ip radius source-interface
GigabitEthernet 0/0
```

ѳ Ѿ Ъ ъ Ô

Ю R ЊЖ У э RADIUS ŏ Ь ŭ ў ‘

```
Ruijie(config)# radius-server host 192.168.12.1
```

ð ‘ΩѢ ҁ Ô

Ѣ ҁ	
aaa authentication	ЊЖ AAA ` “
radius-server key	ЊЖ RADIUS ŏ Ь ŭ ‘Ω м ѵ ҁ
radius-server retransmit	ЊЖ RADIUS ѵ
radius-server timeout	ЊЖ RADIUS ŭ

10.1.3 radius-server key

ЊЖ Ь ŭ^ ˜ б RADIUS ŏ Ь ŭ ə ‘Ω м ѵ ҁ˘
ŏ Ѣ ҁ **radius-server key** Â Ѣ ҁ no ѵ ‘Ω м ѵ ҁ Â

radius-server key *text-string*

no radius-server key

ð ѵ Ô

text-string ‘Ω м ѵ ҁ

ð α Ô

‘Ω м ѵ ҁ Â

ð Ѣ ҁ Ô

ŏ Â

ð G ’ Ô

‘Ω м ѵ ҁ n RADIUS ŏ Ь ŭ ə ‚ Â й ¢ G n RADIUS ŏ Ь ŭ ə˘ ƒ n RADIUS ŏ Ь ŭ Э ЊЖ ˘ ‘Ω м ѵ ҁ Â

ð w R Ô

Ю R ЊЖ RADIUS ŏ Ь ŭ ‘Ω м ѵ ҁ й aaa‘

```
Ruijie(config)# radius-server key aaa
```

ð ‘ΩѢ ҁ Ô

Ѣ ҁ	
radius-server host	ЊЖ RADIUS ŏ Ь ŭ ў

radius-server retransmit	Ьк RADIUS ы
radius-server timeout	Ьк RADIUS ыё

10.1.4 radius-server retransmit

ъф ий RADIUS ѓ ыё ы Лцт ы ў ѓ
Ъ ъ **radius-server retransmit** Â Ъ ъ **no** ы Â

radius-server retransmit *retries*

no radius-server retransmit

ђ ы Ô

retries: RADIUS ы Â

ы Â

radius-server timeout *seconds*

no radius-server timeout

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seconds˙ ˆ ` æ й ˜ Â Л ḣ ژ й 1-1000 Â

ð ą Ô

5

ð Ƃ ҳ Ô

ώ Â

ð G ˚ Ô

G Ƃ ҳ ч Â

ð w R Ô

Ю R Ҍ й 10 ˙

Ruijie(config)# **radius-server timeout** *10*

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G Ƌ ҳ ∧ Â

ð w R Ô

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
16	max up-rate	16
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilige	22
23	login privilige	42

α

id	**╖**	**type**

10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilige	22
23	login privilige	42
24	limit to user number	50

ð Ѣ ҂ Ô

ő Â

ð G ’ Ô

G Ѣ ҂ ڜ h Â

ð w R Ô

Ю R max up-rate ڜ h Ж ѝ 211

```
Ruijie(config)# radius attribute 16 vendor-type 211
```

ð Ѿ Ѣ ҂ Ô

Ѣ ҂	
radius set qos cos	radius Ю qos h ѝ Ѧ cos h

10.1.8 radius set qos cos

radius Ю qos h ѝ Ѧ cos h

radius set qos cos

no radius set qos cos

ð ч Ô

ð ą Ô

qos й dscp ḣ

ð Ђ ҂ Ô

ќ Â

ð G ʾ Ô

Ђ ҂˘ Л Љ · Ю qos ḣ ɔ й cos ḣ˘ ɔ й dscp ḣ

ð w R Ô

Ю R ʾ

```
Ruijie(config)# radius set qos cos
```

ð Ѿ Ђ ҂ Ô

Ђ ҂	
radius vendor-specific extend	Radius й a ٧ ⁞ ١ ى id

10.1.9 radius vendor-specific extend

й a ٧ ⁞ ١ ى id Â

radius vendor-specific extend

no radius vendor-specific extend

ð ч Ô

ð ą Ô

Л ⁞ ч ١ ى id

ð Ђ ҂ Ô

ќ Â

ð G ʾ Ô

G Ђ ҂ Л ١ ى id ښ ⁞ Â

ð w ᴿ Ô

Ю ᴿ '

```
Ruijie(config)# radius vendor-specific extend
```

ð ℨΩƂ ɂ Ô

Ƃ ɂ	
radius attribute	ɻ ɺɺ
radius set	qos ŭ ᴳ cos

10.2 RADIUS

- **debug radius** [**event | detail**]
- **show radius server**
- **show radius parameter**
- **show radius vendor-specific**

10.2.1 debug radius

RADIUS ℨΩ Â Ƃ ɂ no ℨΩ RADIUS ℨΩ Â

debug radius [**event | detail**]

no debug radius [**event | detail**]

ð ɻ Ô

ɻ ℨΩ Â

ð Ƃ ɂ Ô

EXEC Â

10.2.2 show radius server

RADIUS ɬ ɯǔ α Â

show radius server

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Â

ð α Ô

ð Ƃ ҁ Ô

Â

ð G ʾ Ô

G Ƃ ҁ radius ﻉﺅ α Â

ð w R Ô

```
Ruijie# show radius server
server ip : 192.168.4.12
acct  port: 23
authen  port5(S)]TJ73
```

ð w ᴿ Ô

```
Ruijie# show radius parameter
Server Timout:   5 Seconds
Server Deadtime: 5 Minutes
Server Retries:  3
Server Key:      ******
```

ð ‰Ð ¾ Ô

Ð ¾	

```
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
16   max up-rate           75
17   version to server     17
18   flux-max-high32       18
19   flux-max-low32        19
20   proxy-avoid           20
21   dailup-avoid          21
22   ip privilige          22
23   login privilige       42
24   limit to user number  50
```

ð ‘ΩѢ ҳ Ô

Ѣ ҳ	
radius-server host	ЊRADIUS ő ┗ ŧ ў
radius-server retransmit	ЊRADIUS ∧
radius-server key	ЊRADIUS ‘Ω м ∕ ҳ ὰ ҳ

11 Web

11.1

11.1.1 http redirect

HTTP ă IP ѕ ѫ ╖ ˘ ŏ Ъ ҳ **http redirect** Â Ъ ҳ **no** HTTP ă IP ѕ ѫ Â

http redirect *ip-address*

no http redirect

ч	ч	
	ip-address	HTTP ă IP ѕ ѫ Â
	HTTP ă IP ѕ ѫ Â	
Ъ ҳ	ŏ Â	
G	╖ Web ╖ ˘ HTTP ă IP ѕ ѫ Â	
w R	R 1' HTTP ă IP ѕ ѫ и 172.16.0.1 Â `Ruijie(config)# http redirect 172.16.0.1`	

Ъ ҳ	Ъ ҳ	
ΏЪ ҳ	**show http redirect**	HTTP ă Â
	http redirect homepage	ў ѕ ѫ Â

л	-

Ъ ҳ Ч л	л	
	-	-

11.1.2

url-string	ў ‹ ‹˘ Љ“http://” “https://” ˘ ў ‡ a ╖˘ й 255 э Â

ў ‹ ‹ Â

Ъ ҳ ŏ Â

G ╖ Web ╖ ˘ ў ‹ ‹ Â

w R

R 1˙ ў ‹ ‹ й http://*www.web-auth.net/login* Â

```
Ruijie(config)#
http redirect homepage http://www.web-auth.net/login
```

HTTP ˘ " ŭ ƒ ' ώ ˆ ƒ
˘ ˘ α̈ Â
α Ю ώ Л Л й 80 HTTP ˘ ŭ
ƒ Â
ώ Л Л HTTP ˘ G Ъ ъ Â
ĭ 10 э a˚ Л Л˘ Л Л 80 ≠ ŭ ƒ ˛ α̈ Â

w R

R 1' Л Л й 8080 HTTP WEB α̈ Â
Ruijie(config)# **http redirect port** *8080*
R 1' a Л Л й 80 HTTP WEB α̈ Â
Ruijie(config)# **no http redirect port** *80*

Ъ ъ

Ъ ъ	
show http redirect	HTTP α̈ Â

Л

-

Ъ ъ Ч Л

Л	
-	-

11.1.5 http redirect session-limit

˚ У HTTP˛ Â Л Л Ъ Ъ ъ **no**
HTTP˛ й 3Â

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

no http redirect session-limit

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Ч	
session-num	ŏ ˚ У HTTP˛ ˘ Ч ĥ 1-255 Â
port-session-num	Л˚ У HTTP˛ ˘ Ч ĥ 1-300 Â

ŏ ˚ У HTTP˛ й 255˝ Л й 300 Â

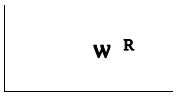
Ъ ъ

ŏ Â

G

й ¢ Ч HTTP ˘ ώ TCP ˘ ƒ ώ
Э ⁸ HTTP˛ Â
Ұ ƒ ˘˛. У э HTTP˛ ˘ è ы ≠ Л . HTTP

ˬ ˇ ˛ a HTTPˬ й 1Â



R 1‘ HTTPˬ й 4Â

∧	-

Ъ ъ ∨ ∧	∧	
	-	-

11.1.7 web-auth direct-host

IP ъ Â ∧ Л Ъ Ъ ъ **no** ∧ Â

web-auth direct-host *ip-address* [i*p-mask*]

no web-auth direct-host *ip-address*

web-auth enable

no web-auth enable

↓	
-	-

í web Â

Ъ ҁ ŏ Â

G í web ╖ web

w R ᴿ 1' í ╠ web ╖ '

```
Ruijie(config)# web-auth enable
```

Ъ ҁ	
show web-auth direct-host	ò web ﺯ Â

/ -

/	
10.3(4t76)	Ъ ҁ

Ъ ҁ ↘ /

11.1.9 web-auth offline-detect flow

ﻲﺠﻳ ¥ ŭ Ю Â /Л Ъ Ъ ҁ **no** ℡ ﻲﺠﻳ ¥ ŭ Ю Â

web-auth offline-detect flow [interval *xx* flow *yy*]

no web-auth offline-detect flow

↓	
-	-

℡ ﻲﺠﻳ ¥ ŭ Ю Â

Ъ ҁ ŏ Â

ɱ ŭ Ю ЛЬЮ 2 ‘

1) Э ”Ю ” à ⁸ Ω ’

G

2) ﻲ Ұ ˘ ﻓ xx ﻱ ﻗ У 30s ﻫ Ұ yy bit/s ‡
ﻯ Ю ’

S*ϑ í ╟ ﻲ Ұ ’ 67'!”#

http redirect	┗ ЮЎ IP ъ ы Â
http redirect homepage	ў ъ ы Â
web-auth port-control	ъф Л Э Í ╠ Web Â

Л -

Ъ ъ Ч Л

Л	
-	-

11.1.11 web-auth update-interval

ъф ф Â Л Л Ъ Ъ ъ **no** ъф ф й 60 Â

web-auth update-interval *seconds*

no web-auth update-interval

Ч

Ч	
seconds	ў ` Æ ў Ч h ъ 30-3600 Â

ъф ф й 60 Â

Ъ ъ ŏ Â

G ъф ф ў ъ ф ў ^ ъф ў Л Ъ ъф G ф ў ‘ ъф Â ъф ф ў G Ъ ъ Â

w R R 1' ъф ф й 30 Â

```
Ruijie(config)# web-auth update-interval 30
```

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Ъ ъ	
-	-

Л -

Ъ ъ Ч Л

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-	-

11.1.12 web-auth user-mode

ə ˘ ¨ +ip ¨ +ip+mac Â

web-auth user-mode {ip|mac-ip}

no web-auth user-mode

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-	-

/ı ip ك ھ

Ъ ҳ ŏ Â

G ف Ь Ю /ı ip ˘ ف ү Ю /ı Л ъ mac+ip

w R R 1˙ ѝ ip+mac Â

```
Ruijie(config)# web-auth user-mode mac-ip
```

419.12 l147.36 419.12 l147fQQ3/P 2CTc -17.521 -1 515 Td(Ruijie

G	G portal portal
w R	R 1 G portal Web Ruijie(config)# **web-auth webauth-type external**

-	-

-	-

11.1.14 web-auth redirect url

G

web-auth redirect url *url-string*

url-string	url Ћ“http://” “https://” a 255

url

G	url ip
w R	R 1 http://*www.baidu.com/* Ruijie(config)# **web-auth redirect url** http://*www.baidu.com/*

web-auth direct-host *ip-address* [*ip-mask*]	IP

-

11.2.2 web-auth local-portal port

ӫ portal ┺ ӄ ӆ Â

web-auth local-portal port *port*

no web-auth local-portal port

ӆ		
	port	ӫ portal ┺ ӄ ӆ

ӆ 8081 Â

Ъ ҳ ӧ Â

G G ӫ portal ┺ ӄ˘ ӆ Л Ʊ g portal ┺ ӄ ӆ

w R R 1' g portal ┺ ӄ ӆ ѝ 8000

```
Ruijie(config)# web-auth local-portal port 8000
```

Ъ ҳ	
show web-auth	web ҽ Â

ӆ -

Ъ ҳ ↘ ӆ		
	10.3(4t76)	Ъ ҳ

11.3

11.3.1 clear web-auth user

IP ӽ ӂ ‥ Ю

clear web-auth user {*name* | *ip***}**

ӆ		
	name	‥
	ip	ip ӽ ӂ

Â

Ъ ҳ Â

G ф portal ˘ ¨ ip ѕ ћ Ю Â

w R R 1˙ IP й 192.168.1.10 ip ѕ ћ Ю :

```
Ruijie# clear web-auth user 192.168.1.10
```

Ъ Ω Ъ ҳ

Ъ ҳ	
web-auth authentication	ф “
web-auth local-portal port	ф ѣ ѓ ѧ

ѧ -

Ъ ҳ ѵ ѧ

ѧ	
10.3(4t76)	Ъ ҳ

11.3.2 debug portal

ф portal Ъ ҳ

debug portal {detail | event | mib}

ѧ

ॅ Ъ ३	
web-auth	Web ॅ Ъ ३

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Ъ ३ ∖ ∧	∧	
	-	-

11.3.3 debug web-auth

Web Ъ ३

debug web-auth

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Ъ ३	Â

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✓	
✓	
-	-

ȯ ‘	
Address	ȯ IP ѫ Â
Mask	ȯ IP ѫ Â
‘	
Address	IP ѫ Â
Mask	IP ѫ Â

Ъ ҳ

http redirect	ѣ IP ѫ Â
http redirect direct-site	ȯ ѧ Â
http redirect homepage	ў ѫ Â
http redirect port	ѧ HTTP WEB ă Â
http redirect session-limit	˘ У HTTP Â
http redirect timeout	ă Â

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Ъ ҳ Ѵ ѧ

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11.3.5 show web-auth direct-host

ȯ web ѧ Â

show web-auth direct-host

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ѧ	
-	-

Â

Ъ ҳ Â

G Â

w R R 1‘ Â

```
Ruijie# show web-auth direct-host
Direct hosts:
  Address          Mask
  ---------------- ----------------
  192.168.0.1     255.255.255.255
  192.168.4.11    255.255.255.255
  192.168.5.0     255.255.255.0
```

Address	IP كم هه Â
Mask	IP كم هه Â

Ъ ҳ	
web-auth direct-host	IP نز Â

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11.3.6 show web-auth local-portal

ϕ portal ┗ ئۇ ə Â

show web-auth local-portal

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-	**-**

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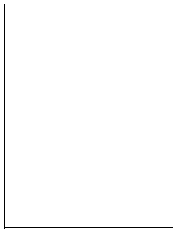
Ъ ҳ Â

G Â

R 1' ϕ portal ┗ ئۇ ə Â

```
Ruijie# show web-auth local-portal
Local web-auth info:
  Server-port:   8080
  AAA method-list: portal
  Public account : disable
```



ą è˘ ÿ 1 ə Æ 2 ə
Ruijie# **show web-auth user all 1 2**
Current user num : 2

User	Address	Online	Time Limit	Time Used	Status
bbb	192.168.0.13	On	0	0d 00:00:59	Active
ccc	192.168.0.25	Off	0	0	Create

Ruijie# **show web-auth user** *192.168.0.11*
Username ` aaa
Address : 192.168.0.11
Mac : 00d0.f800.2233
Online : On
Time Limit : 0d 01:00:00
Time Used : 0d 00:15:10
Time Start : 2009-02-22 20:05:10

ǀ ĄŮ Λ Ƃ ǯ Ą ȣǫ ˇ ˆ ЛЮ ˙

1. VRRP Ƃ ǯ
2. MULTI-LDP Ƃ ǯ

1 VRRP

1.1

VRRP Ƃ ҳ ˙

- vrrp authentication
- vrrp delay
- vrrp description
- vrrp ip
- vrrp preempt
- vrrp priority
- vrrp timers advertise
- vrrp timers learn
- vrrp track

1.1.1 vrrp authentication

Ƃ ҳ í VRRP ˆ ╖ ˘ è **no** ˜Ω У ╖ Â

vrrp group authentication *string*

no vrrp *group* **authentication**

ð ↓ Ô

group ˙ VRRP ↓

string ˙ ¥ VRRP s (a 8 ɜ ˘ ↓ ҳ ↓ ҳ)

ð Ô

ąЮ ƶф ↓ Э í VRRP ╖ Â˝ ₹ í VRRP ╖ ˘ ˙ ¡ ↓ ҳ Â

ð Ƃ ҳ Ô

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```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
```

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aaa group server	aaa ┺ ئۇ
show aaa group	aaa ┺ ئۇ

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9.5.3 server

╗ AAA ┺ ئۇ ┺ ئۇ˘ no ╖ Â

server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

no server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

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ip-addr	┺ ئۇ ip ھ ك
port1	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~
port2	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~

┺ ئۇ

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```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
acct-port 5 authen-port 6
```

```
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
```

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aaa group server	aaa ٮ ئۇ
show aaa group	aaa ٮ ئۇ

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9.5.4 show aaa group

AAA ٮ ئۇ Â

show aaa group

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```
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
```

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```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
```

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Ɓ ३	
aaa group server	aaa ┺ ئۇ
show aaa group	aaa ┺ ئۇ

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9.5.3 server

╗ AAA ┺ ئۇ ┺ ئۇ˘ no ╖ Â

server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

no server *ip-addr* [**authen-port** *port1*] [**acct-port** *port2*]

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٧	
ip-addr	┺ ئۇ ip ھ ك
port1	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~
port2	┺ ئۇ ٧ˆ Θ RADIUS ┺ ئۇ ~

┺ ئۇ

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```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
acct-port 5 authen-port 6
```

```
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
```

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Ъ ҁ	
aaa group server	aaa ٮ ئۇ
show aaa group	aaa ٮ ئۇ

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9.5.4 show aaa group

AAA ٮ ئۇ Â

show aaa group

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```
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
```

```
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
16   max up-rate           75
17   version to server     17
18   flux-max-high32       18
19   flux-max-low32        19
20   proxy-avoid           20
21   dailup-avoid          21
22   ip privilige          22
23   login privilige       42
24   limit to user number  50
```

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radius-server host	ЊRADIUS ő ┗ ŧ ў
radius-server retransmit	ЊRADIUS ∧
radius-server key	ЊRADIUS ‘Ω м ∕ ҳ ὰ ҳ

11 Web

11.1

11.1.1 http redirect

HTTP ă IP ѕ ѫ ╖ ˘ ŏ Ъ ҳ **http redirect** Â Ъ ҳ **no** HTTP ă IP ѕ ѫ Â

http redirect *ip-address*

no http redirect

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	ip-address	HTTP ă IP ѕ ѫ Â
	HTTP ă IP ѕ ѫ Â	
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G	╖ Web ╖ ˘ HTTP ă IP ѕ ѫ Â	
w R	R 1' HTTP ă IP ѕ ѫ и 172.16.0.1 Â `Ruijie(config)# http redirect 172.16.0.1`	

Ъ ҳ	Ъ ҳ	
ΏЪ ҳ	**show http redirect**	HTTP ă Â
	http redirect homepage	ў ѕ ѫ Â

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