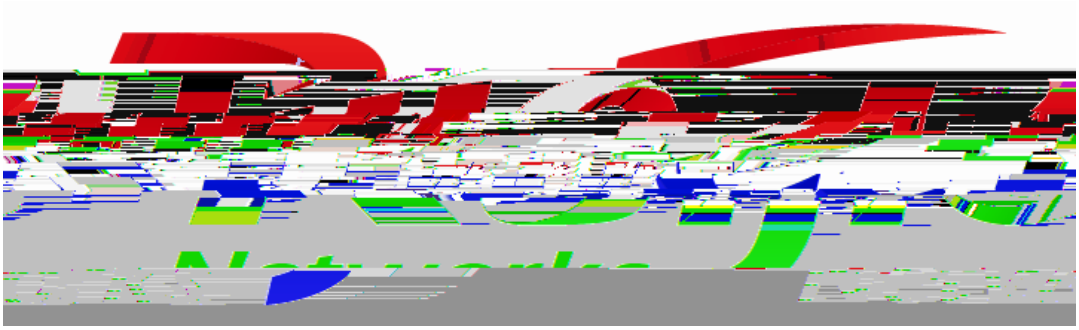


RG-S2928G-S

RGOS 10.4(2b11)p1

©2000-2012

RGOS®10.4(2b11)p1

-
-
-

1.

Courier New 5

2.

Arial

[] []

{ x | y | … }

[x | y | …]

//

3.

1

ﻍ ﻉ ﻉ ﻉ Ó`

?C2_0 1 Tf 0.04 Tc 10.5 04.126 ( )Tj[<02C509C3>-6<020907EB07CE>-6<21A303FE>-6<0B83E20
6ÓÎó+ !8E¯ 9 < T ¥ õ ã Ä

ﻉ

ﻉ

ﻉ ﻉ

“Ruijie” ﻉ

Global configuration	**configure**	Ruijie(config)#	**exit** **end** Ctrl+C **interface** **interface**	
Interface configuration	**interface**	Ruijie(config-if)#	VLAN **vlan** vlan_id **end** Ctrl+C **exit** **interface**	
Config-vlan VLAN	**vlan** *vlan_id*	Ruijie(config-vlan)#	**end** Ctrl+C **exit**	VLAN

1.2

?	Ruijie# **show ?**
command keyword ?	Ruijie(config)# **snmp-server community** ? WORD SNMP community string

1.3

show configuration

```
Ruijie# show conf
```

1.4 no default

no **no**

no shutdown **shutdown**

no

default **default**

default **no**

default **no**

% Incomplete command.		
% Invalid input detected at '^' marker.	^	

1.6

Ctrl-P	
Ctrl-N	Ctrl-P

1.7

1.7.1

	Ctrl-B	
	Ctrl-F	
Ctrl-A		
Ctrl-E		

Backspace ß	

1.8 CLI

1.8.1 Show

show

Ruijie# **show** *any-command* **| begin** *regular-expression*	show

- **Show**
-

show

Ruijie# **show** *any-command* |**exclude** *regular-expression*	show

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

*

*command-alias=original-command

EXEC ”s” ”show” ”s?” ’s’

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

EXEC

”sv” ”show version”

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

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

”ia”

”ip address”

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

```
Ruijie(config-if)#ip address
```

”**ip address**”

show aliases

1.10 CLI

CLI PC

CLI

Console Outband

2

2.1

🕮	CLI

2.1.1

2.1.1.1

TFTP

enable secret

2.1.1.2

15

2.1.1.3

Step 1	15
Ruijie(config)# **enable password** [**level** *level*] {*password* | *encryption-type* *encrypted-password*}	15 15 15 15

Step 2

Ruijie(config)# **enable secret** [**level** *level*] {*encryption-type encrypted-password*}

2.1.1.4.2

reload

	line

2.1.1.6

lock

line EXEC

lock

Step 1	Ruijie(config-line)# **lockable**	**line**
Step 2	Ruijie# **lock**	**line**

2.1.2

2.1.2.1

AAA

RADIUS

RADIUS

Step 2	Ruijie(config)# **username** *name* [**privilege** *level*]	

2.1.2.3

Step 1	Ruijie(config-line)# **login local**	AAA
Step 2	Ruijie(config-line)# **login authentication** {**default** | *list-name*}	AAA AAA AAA Radius

2003-6-20 10:10:12

```
Ruijie# clock set 10:10:12 6 20 2003      //
Ruijie# show clock                        //
clock: 2003-6-20 10:10:54
```

2.1.3.3

show clock

```
Ruijie# show clock                              //
clock: 2003-5-20 11:11:34
```

2.1.3.4

calendar

clock update-calendar

Step 1	Ruijie# **clock update-calendar**	

```
Ruijie# clock update-calendar
```

2.1.4

2.1.4.1

reload [modifiers] scheme

( )

modifers **reload**

modifiers **in at cancel**

- **reload in** *mmm* | *hhh:mm* [*string*]

mmm *hhh:mm*

string

10 **reload in** *10 test*

- **reload at** hh:mm month day year [string]

year

,

31 1 1 11 30

12

1

1 1

1 string 2005-01-10 14:31

reload at *08:30 11 1 newday*

2005-12-10 14:31 2006-01-01 12:00

reload at *12:00 1 1 2006 newyear*

- reload cancel

8 30

reload cancel

	at
🕮	31 ,

2.1.4.2

Step 1	Ruijie# **reload at** *hh:mm month day* [*year*] [*reload-reason*]	year month day hh mm reload relaod reload-reason ( )

2005 1 11 12:00 (

2005 1 11 8:30)

```
Ruijie# reload at 12:00 1 11 2005 midday//
Ruijie# show reload                    //
Reload scheduled in 16581 seconds.
At 2005-01-11 12:00
```

```
Reload reason: midday
```

2.1.4.3

Step 1	Ruijie# **reload in** *mmm* [*reload-reason*]	*mmm* **reload** **reload** *reload-reason*( )
Step 2	Ruijie# **reload in** *hhh:mm* [*reload-reason*]	*hhh* *mm* **reload** **reload** *reload-reason*( )

125 **reload** (2005-01-10 12:00)

```
Ruijie# reload in 125 test                    //

Ruijie# reload in 2:5 test                    //
Ruijie# show reload                          //
System will reload in 7485 seconds.
```

2.1.4.4

reload

reload

2.1.4.5

Step 1	Ruijie# **reload cancel**	

2.1.5

2.1.5.1

(System Name)

CLI 32

32

“ Ruijie ”

2.1.5.2

Step 1

Ruijie(Config)# **hostname** *name*	63

no hostname

RGOS

```
Ruijie# configure terminal                    //
Ruijie(config)# hostname RGOS      //                RGOS
RGOS(config)#                                  //
```

2.1.5.3

32 32

prompt EXEC

Step 1

Ruijie# **prompt** *string*	32 32

no prompt

2.1.6

2.1.6.1

banner

6

2.1.6.2

Step 1	(message of the day) c ('&')

Ruijie(config)# **banner motd** *c message c*

	show version
	SYSTEMUPTIME DD:HH:MM:SS
	Boot/Ctrl
	flash

2.1.7.3

Step 1	Ruijie# **show version devices**	
Step 2	Ruijie# **show version slots**	

2.1.8

2.1.8.1

Console

```
Ruijie(config)# line console 0          //
Ruijie(config-line)# speed 57600       //              57600
Ruijie(config-line)# end                          //
Ruijie# show line console 0                      //
CON     Type    speed   Overruns
* 0     CON     57600   0
Line 0, Location: "", Type: "vt100"
Length: 25 lines, Width: 80 columns
Special Chars: Escape  Disconnect  Activation
             ^^x     none       ^M
Timeouts:      Idle EXEC    Idle Session
             never       never
History is enabled, history size is 10.
Total input: 22 bytes
Total output:  115 bytes
Data overflow:  0 bytes
stop rx interrupt:  0 times
Modem: READY
```

2.1.9 telnet

2.1.9.1

Telnet TCP/IP

Telnet Client

Telnet Client

Telnet A telnet

B

Telnet IPV4 Telnet Server

IPV4 Telnet Telnet Client IPV4

2.1.9.2 Telnet Client

telnet

Step 1	Ruijie# **telnet** *host* [*port*] [**/source** {**ip** *A.B.C.D* **|	interface** *interface-name}*]	telnet IPV4 IPV4 Telnet Telnet

Telnet

IP 192.168.65.119

```
Ruijie# telnet 192.168.65.119     //              telnet
Trying 192.168.65.119 ... Open
User Access Verification          //
Password:
```

2.1.9.3 Telnet Server

Telnet Server

Step 1	Ruijie# **enable service telnet-server**	Telnet Server IPV4

2.1.10

2.1.10.1

2.1.10.2

LINE

Step 1	LINE
Ruijie(config-line)# **exec-timeout** *minutes* [*seconds*]	*minutes* *seconds*

LINE **no exec-timeout** LINE

```
Ruijie# configure terminal                    //
Ruijie# line vty 0                            //    LINE
Ruijie(config-line)# exec-timeout 20          //              20min
```

2.1.10.3

LINE

LINE

Step 1	LINE
Ruijie(config-line)# **session-timeout** *minutes* [**output**]	*minutes* **output**

LINE **no exec-timeout** LINE

```
Ruijie# configure terminal                    //
Ruijie(config)# line vty 0                    //    LINE
Ruijie(config-line)# session-timeout 20       //              20min
```

2.1.11

CLI

Step 1	Ruijie# **execute** {[**flash:**] *filename*}	

line_rcms_script.text **Telnet**

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

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

PC

TFTP Flash

CLI

2.1.12

SNMP

Server/SSH Server/Telnet Server/Web Server

Ruijie(Config)# **enable service snmp-agent**	SNMP Server
Ruijie(Config)# **enable service ssh-sesrver**	SSH Server
Ruijie(Config)# **enable service telnet-server**	Telnet Server
Ruijie(Config)# **enable service web-server**	Http Server

no enable service

```
Ruijie# configure terminal                    //
Ruijie(config)# enable service ssh-server
```

2.1.13 HTTP

Web HTTP

Step 1	Ruijie(Config)# **ip http port** *number*	HTTP 80
Step 2	Ruijie(Config)# **ip http authentication** { **enable** | **local** }	web enable **enable** enable password enable secret 15 **local** username 15

no

Http Server 8080

```
Ruijie# configure terminal                    //
Ruijie(config)# enable service web-server     //    Web Server
Ruijie(config)# username name password pass   //
Ruijie(config)# username name privilege 15    //
Ruijie(config)# ip http port 8080             //
Ruijie(config)# ip http authentication local //
```

3 LINE

3.1

LINE

- LINE
- / LINE VTY
- LINE
- LINE

3.2 LINE

3.2.1 LINE

LINE LINE LINE
LINE

Ruijie(config)# **line** [**aux** | **console** | **tty** | **vty**] *first-line* [*last-line*]	LINE

3.2.2 / LINE VTY

line vty 5 line vty VTY
36

Ruijie(config)# **line vty** *line-number*	LINE VTY
Ruijie(config)# **no line vty** *line-number*	LINE VTY

3.2.3 Line

LINE

Ruijie# **configure terminal**	
Ruijie(config)# **line vty** *line number*	Line
Ruijie(config-line)# **transport input** {**all** | **ssh** | **telnet** | **none**}	Line
Ruijie(config-line)# **no transport input**	LINE
Ruijie(config-line)# **default transport input**	LINE

3.2.4 Line

4

4.1

RGOS

show version

RGOS

MAIN

BOOT

4.1.1

4.1.2

BOOT/CTRL

BOOT/CTRL

4.1.3

RGOS RGOS

RGOS

RGOS

RGOS

ÆÏÀ

	copy tftp tftp ftp xmodem copy tftp copy tftp

TFTP 32M 32M FTP U

- xmodem

  xmodem

4.2.1.3

4.2.2

4.2.2.1

-
-
-

4.2.2.1.1 10.4(2)

```
Ruijie#copy tftp://192.168.201.98/S2900S_V10.4(2)_R64047.bin
flash:rgos.bin
Accessing tftp://192.168.201.98/ S2900S_V10.4(2)_R64047.bin...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!
Other members are not present, quit synchronize...
Checking file, please wait for a few minutes ....
Check file success.

Transmission finished, file length 7243040

THE PROGRAM VERSION: RGOS 10.4.*, Release(64047)
Upgrade Master CM main program OK.
```

```
CURRENT PRODUCT INFORMATION :
  PRODUCT ID: 0x20110010
  PRODUCT DESCRIPTION: Ruijie Gigabit Security & Intelligence Access
Switch (S2628G) By Ruijie Network

SUCCESS: UPGRADING OK.



Ruijie# reload
```

10.4 2

BOOT

CTRL

```
Upgrading CTRL...
DO NOT POWER OFF!
Erasing device...eeeeeeeeeeeeeeeeeeeeeeeee [ok]
Writing flash ###################### [OK - 1,215,488 bytes]
*Apr  1 07:32:44: %UPGRADE-5-LOCAL_FIN: New software image installed in
flash.
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!
Transmission finished, file length 6128032 bytes.
Verify the system boot image .[ok]


CURRENT PRODUCT INFORMATION :
  PRODUCT ID: 0x20110010
  PRODUCT DESCRIPTION: Ruijie Gigabit Security & Intelligence Access
Switch (S2628G) By Ruijie Networks

SUCCESS: UPGRADING OK.



Ruijie#reload
```

```
SYS-5-RESTART: The device is restarting. Reason: Upgrade product !.
```

4.2.2.2

- ﺟﺠﻲ ﺀ ﻻ ﻡﺠﻡ ^ ﺹ ϕ

UP show version

show version 10.4 2

10.4 2 “ 2 ”

10.4 2 show version 10.4 Release(59831)

10.4.59831 10.4 2 10.4(2)

release(59381)

10.4 2

boot system

```
Warning: System boot file xxx is missing.
```

4.3.4

```
*Feb 10 15:47:12: %UPGRADE-4-PROTO_TIMEOUT: Server is busy and ack t
imeout.
```

1.
2. CPU
3.

5

5.1 Ping

Echo

Echo

RGOS Ping

Ping

Ping Ping

Ruijie# **ping** [**ip**] [*address* [**length** *length*] [**ntimes** *times*] [**data** *data*][**source** *source*] [**timeout** *seconds*] [**df-bit**] [**validate**]]	**Ping**

Ping 5 100Byte

IP 2 ‘ ! ’

‘ . ’ ping

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

Ping Ping

Ping

Ping

```
Ruijie# ping 192.168.5.197 length 1500 ntimes 100 data ffff source
192.168.4.190 timeout 3
Sending 100, 1000-byte ICMP Echoes to 192.168.5.197, timeout is 3 seconds:
  < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 2/2/3
ms
```

5.2 Traceroute

Traceroute

Traceroute

TTL 1
TTL 0
Traceroute TTL
1 ICMP
TTL TTL 1 TTL
ICMP TTL
IP

Traceroute

Ruijie# **traceroute** [*protocol*] [*address* [**probe** *probe*] [**ttl** *minimum maximum*] [**source** *source*] [**timeout** *seconds*]]	

Traceroute

1 Traceroute

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

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

IP 61.154.22.36
1 6

2 Traceroute

```
Ruijie# traceroute 202.108.37.42
```

```
< press Ctrl+C to break >
Tracing the route to 202.108.37.42
1     192.168.12.1      0 msec  0 msec  0 msec
2     192.168.9.2       0 msec  4 msec 4 msec
3     192.168.110.1    16 msec  12 msec  16 msec
4     *  *  *
5     61.154.8.129      12 msec  28 msec  12 msec
6     61.154.8.17        8 msec  12 msec  16 msec
7     61.154.8.250      12 msec  12 msec  12 msec
8     218.85.157.222    12 msec  12 msec  12 msec
9     218.85.157.130    16 msec  16 msec  16 msec
10    218.85.157.77     16 msec  48 msec  16 msec
11    202.97.40.65      76 msec  24 msec  24 msec
12    202.97.37.65      32 msec  24 msec  24 msec
13    202.97.38.162     52 msec  52 msec  224 msec
14    202.96.12.38      84 msec  52 msec  52 msec
15    202.106.192.226   88 msec  52 msec  52 msec
16    202.106.192.174   52 msec  52 msec  88 msec
17    210.74.176.158   100 msec  52 msec  84 msec
18    202.108.37.42     48 msec  48 msec  52 msec
```

IP 202.108.37.42

1 17 4

Untagged

Access Port VLAN TAs

T a g g e 8 7 (

■ Trunk Port TAG VID Trunk port Native vlan VID VLAN ID

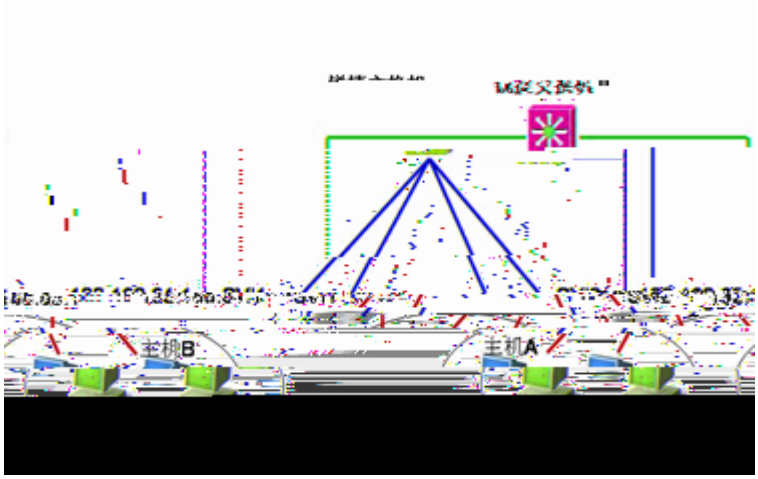
Untagged Ethernet PC TAG MAC MAC 4bytes VLAN VLAN TAG

6.1.1.1.3 Hybrid

Hybrid VLAN

interface vlan SVI SVI IP VLAN

VLAN20 VLAN20
A VLAN30 B VLAN20 SVI1 VLAN30
SVI2



6.1.2.2 Routed Port

Routed Port

Routed port

Routed Port Vlan Routed port
no switchport Switch port
Routed port, Routed port IP **no switchport**

	L2 Aggregate Port DOT1X **switchport/ no switchport**

6.1.2.3 L3 Aggregate Port

L3 Aggregate port L2 Aggregate Port

AP

L3 Aggregate port L3 Aggregate port AP

L3 Aggregate port **no switchport**

L2 Aggregate port L3 Aggregate Port Routed Port L3 Aggregate port L3 Aggregate Port IP

6.2

6.2.1

Switch Port

2 3 2/3

0

1 1

show

Aggregate Port 1 Aggregate Port

SVI SVI VLAN VID

	0 ( ) 1

6.2.2

interface

Ruijie(config)# **interface** *ID*	interface interface range interface range macro

Gigabitethernet 2/1

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

6.2.3 interface range

6.2.3.1

interface range

6.2.3.2

interface range

macro **define interface-range**

Step 1	Ruijie(config)# **define interface-range** *macro_name interface-range*	macro_name 32
Step 2	Ruijie(config)# **interface range macro** *macro_name*	**interface range**

no define interface-range macro_name

define interface-range

– **vlan** *vlan-ID* - *vlan-ID*, VLAN ID 1, P P

ports1to2N5to7

```
Ruijie# configure terminal
Ruijie(config)# interface range macro ports1to2N5to7
Ruijie(config-if-range)#
```

ports1to2N5to7

```
Ruijie# configure terminal
Ruijie(config)# no define interface-range ports1to2N5to7
Ruijie# end
```

6.2.4

Aggregate Port SVI

Aggregate Port AP

Aggregate Port

Ruijie(config-if)# **medium-type** { **fiber** | **copper** }	

Gigabitethernet 1/1

```
Ruijie# config terminal
```

Ruijie(config-if)# **description** *string*	32

Gigabitethernet 1/1

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

no speed **no duplex** **no flowcontrol**

Gigabitethernet 1/1

1000M

```
Ruijie# configure terminal
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# speed 1000
Ruijie(config-if)# duplex full
Ruijie(config-if)# flowcontrol off
Ruijie(config-if)# end
```

	S2928G-S

6.2.7 MTU

jumbo MTU

MTU

MTU

MTU 64~9216 4 1500

SVI MTU

Ruijie(config-if)# **Mtu** *num*	MTU Num <64-9216>

Gigabitethernet 1/1 MTU

```
Ruijie# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mtu 64
Ruijie(config-if)# end
```

6.2.8

VLAN “ VLAN ” “
”

Switch port	access port
VLAN	VLAN 1 4094
VLAN access port	VLAN 1
Native VLAN trunk port	VLAN 1
	copper
	Up

```
Ruijie(config-if)# switchport mode access
Ruijie(config-if)# end
```

Ruijie(config-if)# **switchport access vlan** *vlan-id*	access port	VLAN

access port gigabitethernet 2/1 vlan 100

Rif)#

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 2/1
Ruijie(config-if)# switchport access vlan 100
Ruijie(config-if)# end
```

trunk port [(vtive 9 08d[(8L/Z)6(.Td( )TjET52 11 T8 715.2250609.62 694.58 50609.62 694.58 52 11

```
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 2/1
Ruijie(config-if)# switchport access vlan 100
Ruijie(config-if)# speed auto
Ruijie(config-if)# duplex auto
Ruijie(config-if)# flowcontrol auto
Ruijie(config-if)# switchport port-security
Ruijie(config-if)# end
```

6.2.8.1.2 Hybrid

Hybrid

Step 1	**configure terminal**	
Step 2	**interface** <*interface*>	,
Step 3	**switchport mode hybrid**	hybrid
	no switchport mode	
Step 4	**switchport hybrid native vlan** *id*	hybrid VLAN
Step 5	**switchport hybrid allowed vlan** [[**add**] [**tagged** | **untaged**]] |**remove**] **vlist**	

```
Ruijie# configure terminal
Ruijie(config)# interface g 0/1
Ruijie(config-if)#
```

6.2.8.3

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

Ruijie# **clear counters** [*interface-id*]	
Ruijie# **clear interrface** *interface-id*	

show interfaces **clear counters** L2

Gigabitethernet 1/1

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

6.2.9

Step 1	Ruijie(config-if)# **no switchport**	Shut Down Switch Port L2 Aggregrate port
Step 2	Ruijie(config-if)# **ip address** *ip_address subnet_mask* {[**secondary** | **tertiary** | **quartus**][**broadcast**]}	IP

IP **no ip address**

L2 Aggregate Port **no switchport**

Routed Port IP

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface gigabitethernet 2/1
Ruijie(config-if)# no switchport
Ruijie(config-if)# ip address 192.20.135.21 255.255.255.0
Ruijie(config-if)# no shutdown
Ruijie(config-if)# end
```

6.2.9.1 SVI

SVI SVI

interface vlan *vlan-id* SVI SVI

SVI

Ruijie(config)# **interface vlan** *vlan-id*	SVI

SVI “ IP ”

SVI 100 IP

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface vlan 100
Ruijie(config-if)# ip address 192.168.1.1 255.255.255.0
Ruijie(config-if)# end
```

6.2.9.2 Routed port

Routed Port Routed Port

no switchport Routed port

Routed port Routed port IP

Step 1	Ruijie(config-if)# **no switchport**	Shut Down
Step 2	Ruijie(config-if)# **ip address** *ip_address subnet_mask*	IP

	L2 Aggregate Port **switchport/ no switchport**

Routed Port IP

```
Ruijie# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Ruijie(config)# interface fastethernet 1/6
Ruijie(config-if)# no switchport
```

```
Ruijie(config-if)# ip address          ip address
```

Gigabitethernet 1/1

```
Ruijie# show interfaces gigabitethernet 1/1
GigabitEthernet   : Gi 1/1
Description    : user A
AdminStatus   : up
OperStatus    : down
Hardware    : 1000BASE-TX
Mtu         : 1500
PhysAddress   :
LastChange    : 0:0h:0m:0s
AdminDuplex   : Auto
OperDuplex    : Unknown
AdminSpeed    : 1000M
OperSpeed     : Unknown
FlowControlAdminStatus : Enabled
FlowControlOperStatus : Disabled
Priority    : 1
```

SVI 5

```
Ruijie# show interfaces vlan 5
VLAN   : V5
Description           : SVI 5
AdminStatus          : up
OperStatus           : down
Primary Internet address     :  192.168.65.230/24
Broadcast address          :  192.168.65.255
PhysAddress          : 00d0.f800.0001
LastChange           : 0:0h:0m:5s
```

Aggregate Port 3

```
Ruijie# show interfaces aggregateport 3
Interface   : AggreatePort 3
Description :
AdminStatus : up
OperStatus  : down
Hardware    : -
Mtu         : 1500
LastChange  : 0d:0h:0m:0s
AdminDuplex : Auto
OperDuplex  : Unknown
AdminSpeed  : Auto
OperSpeed   : Unknown
```

```
FlowControlAdminStatus : Autonego
FlowControlOperStatus  : Disabled
Priority    : 0
```

GigabitEthernet 1/1

```
Ruijie# show interfaces gigabitEthernet 1/1 switchport
Interface  Switchport Mode     Access    Native    Protected VLAN lists
---------- ---------- --------- --------- --------- ---------
------------
gigabitethernet 1/1     Enabled  Access     1        1        Enabled
All
```

Gigabitethernet 2/1

```
Ruijie# show interfaces gigabitethernet 1/2 description
Interface         Status    Administrative   Description
------------  ---------      -----------   ----------------
gigabitethernet 2/1     down       down        Gi 2/1


Ruijie# show interfaces gigabitethernet 1/2 counters
Interface : gigabitethernet 1/2
5 minute input rate    9144 bits/sec, 9 packets/sec
5 minute output rate   1280 bits/sec, 1 packets/sec
InOctets           : 17310045
InUcastPkts         : 37488
InMulticastPkts     : 28139
InBroadcastPkts     : 32472
OutOctets          : 1282535
OutUcastPkts        : 17284
OutMulticastPkts    : 249
OutBroadcastPkts    : 336
Undersize packets   : 0
Oversize packets    : 0
collisions         : 0
Fragments          : 0
Jabbers            : 0
CRC alignment errors : 0
AlignmentErrors     : 0
FCSErrors          : 0
dropped packet events (due to lack of resources): 0
packets received of length (in octets):
64:46264, 65-127: 47427, 128-255: 3478,
256-511: 658, 512-1023: 18016, 1024-1518: 125
```

6.4

show

Ruijie# **show interfaces** [*interface-id*] **transceiver**	
Ruijie# **show interfaces** [*interface-id*] **transceiver alarm**	“ None ”
Ruijie# **show interfaces** [*interface-id*] **transceiver diagnosis**	

Gigabitethernet 5/4

```
Ruijie#show interfaces gigabitEthernet 5/4 transceiver
Transceiver Type : 1000BASE_SX_SFP
Connector Type : LC
Wavelength(nm) : 1310
Transfer Distance:
       SMF fiber
          -- 10km
       EBW 50/125 um fiber
          -- 300m
       50/125 um fiber
          -- 100m
       62.5/125 um fiber
          -- 33m
Digital Diagnostic Monitoring : YES
```

Gigabitethernet 5/4

```
Ruijie#show interfaces gigabitEthernet 5/4 transceiver alarm
gigabitEthernet 5/4 transceiver current alarm information:
RX  loss of signal
```

SFP

SFP	

RX loss of signal	
RX power high	
RX power low	
TX fault	
TX bias high	
TX bias low	
TX power high	
TX power low	
Temp high	
Temp low	
Voltage high	TX pow810.02 1299.96 502.2803 Tm [(Transceiv2
Voltage low	
Transceiver info checksum error	
Transceiver info I/O error	
XFP	
RX loss of signal	
RX not ready	
RX CDR loss of lock	RX CDR

Step 1	**configure terminal**	
Step 2	Ruijie(config)# **interface** *interface*	
Step 3	Ruijie(config-if)# **line-detect**	

Length	state OK Short Open length

6.6 LinkTrap

LinkTrap Link

SNMP LinkTrap,

6.6.1

Ruijie(config-if)# [**no**] **snmp trap link-status**	link trap .

6.6.2

Link trap:

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

7 Aggregate Port

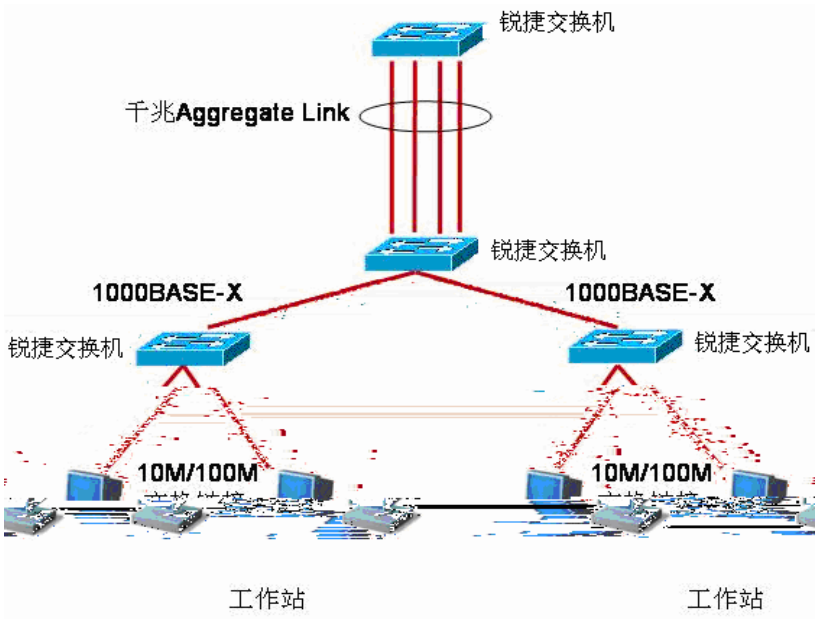
Aggregate Port

7.1

7.1.1 Aggregate Port

Aggregate Port AP AP IEEE802.3ad

AP AP
AP AP
AP



AP

AP 8 S2900S

AP

	AP

S2900S	12

7.1.2

AP MAC MAC MAC + MAC IP
IP IP + IP AP
aggregateport load-balance

MAC MAC AP
MAC MAC MAC

MAC MAC AP
MAC MAC
MAC

MAC+ MAC MAC MAC
AP MAC+ MAC MAC+ MAC
MAC+ MAC

IP IP IP IP IP
IP IP IP IP IP

IP + IP IP IP

IP+ IP IP+ IP
IP+ IP

AP IP

IP+ IP	√

AP 4

PC 2 PC

MAC MAC MAC

AP

8 VLAN

IEEE802.1Q VLAN

8.1

VLAN Virtual Local Area Network
ISO VLAN
VLAN
VLAN
VLAN
VLAN
VLAN
VLAN
VLAN VLAN

VLAN IP
IP VLAN VLAN
SVI Switch Virtual Interfaces VLAN IP
SVI IP

8.1.1 VLAN

VLAN IEEE802.1Q 4094 VLAN(VLAN ID 1-4094)
VLAN 1 VLAN

- VLAN ID 1-4094
- VLAN

8.1.2 VLAN

VLAN

VLAN

Step 1	Ruijie(config)# **vlan** *vlan-id*	VLAN ID VLAN ID VLAN VLAN ID VLAN
Step 2	Ruijie(config-vlan)# **name** *vlan-name*	VLAN VLAN xxxx xxxx 0 VLAN ID VLAN 0004 VLAN 4

VLAN **no name**

VLAN 888 Test888

```
Ruijie# configure terminal
Ruijie(config)# vlan 888
Ruijie(config-vlan)# name test888
Ruijie(config-vlan)# end
```

8.2.4 VLAN

VLAN VLAN 1

VLAN

Step 1	Ruijie(config)# **no vlan** *vlan-id*	VLAN ID

8.2.5 VLAN Access

VLAN VLAN

VLAN

Step 1	Ruijie(config-if)# **switchport mode access**	VLAN ACCESS
Step 2	Ruijie(config-if)# **switchport access vlan** *vlan-id*	VLAN

FastEthernet 1/10 Access VLAN20

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 1/10
Ruijie(config-if)# switchport mode access
Ruijie(config-if)# switchport access vlan 20
Ruijie(config-if)# end
```

```
Ruijie# sh int gi 0/1 switchport
Interface    Switchport Mode   Access Native Protected VLAN lists
---------- ---------- --------- ------ --------- ----------
GigabitEthernet 0/1   enabled   ACCESS   1    1    Disabled  ALL
```

8.3 VLAN Trunks

8.3.1 Trunking

Trunk

Trunk VLAN

Trunk 802.1Q Trunk ch32(n)-26(k)]TJ/C2

Step 1	Ruijie(config-if)# **switchport trunk allowed vlan** {**all** | [**add** | **remove** | **except**] } *vlan-list*	Trunk VLAN *vlan-list* VLAN VLAN VLAN ID VLAN ID - 10–20 **all** VLAN VLAN **add** VLAN VLAN **remove** VLAN VLAN **except** VLAN VLAN VLAN

Trunk VLAN VLAN **no switchport trunk allowed vlan**

VLAN 2 FastEthernet 1/15

```
Ruijie(config)# interface fastethernet 1/15
Ruijie(config-if)# switchport trunk allowed vlan remove 2
Ruijie(config-if)# end
Ruijie# show interfaces fastethernet 1/15 switchport
Interface Switchport Mode  Access Native Protected VLAN lists
--------- ---------- ----  ------ ------ -------- ----------
Fa1/15    enabled    TRUNK  1     1    Disabled   1,3  4094
```

8.3.4 Native VLAN

Trunk TAG UNTAG 802.1Q UNTAG Native VLAN Native VLAN VLAN 1

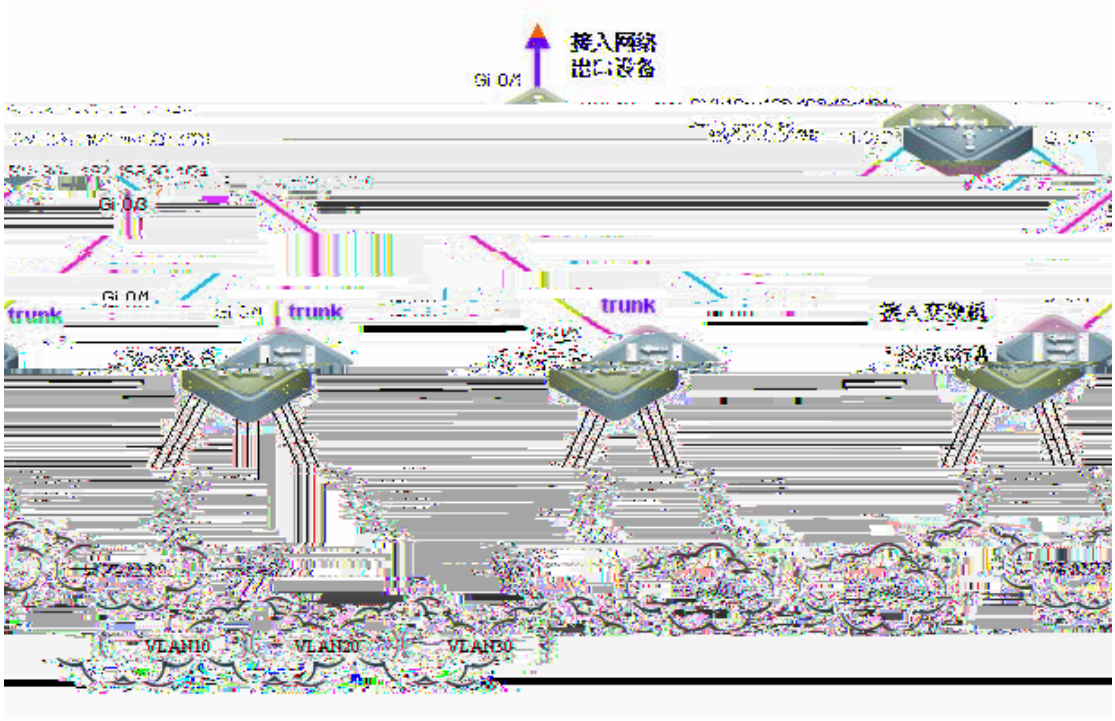
Trunk Native VLAN

Step 1	Ruijie(config-if)# **switchport trunk native vlan** *vlan-id*	Native VLAN

Trunk Native VLAN VLAN 1 **no switchport trunk native vlan**

Native VLAN VLAN ID Trunk TAG

Native VLAN VLAN


接入网络
出口设备
Gi 0/4
Gi 0/3
Gi 0/4
trunk
Gi 0/1
trunk
trunk
接入交换机
VLAN10
VLAN20
VLAN30

8.5.2

```
#
Ruijie#configure terminal
#     VLAN 10
Ruijie(config)#vlan 10
#     VLAN 20
Ruijie(config-vlan)#vlan 20
#     VLAN 30
Ruijie(config-vlan)#vlan 30
#
Ruijie(config-vlan)#exit
```

■ **trunk vlan**

```
#          Gi 0/2-4
Ruijie(config)#     interface range GigabitEthernet 0/2-4
#          Gi 0/2-4      trunk
Ruijie(config-if-range)#switchport mode trunk
#
Ruijie(config-if-range)#exit
#         Gi 0/2
Ruijie(config)#     interface GigabitEthernet 0/2
#       vlan              vlan
Ruijie(config-if)#switchport trunk allowed vlan remove 1-4094
#                   vlan   10  20
Ruijie(config-if)#switchport trunk allowed vlan add 10,20
#         Gi 0/3
Ruijie(config-if)#      interface GigabitEthernet 0/3
#       vlan              vlan
Ruijie(config-if)#switchport trunk allowed vlan remove 1-4094
#                   vlan   10  20  30
Ruijie(config-if)#switchport trunk allowed vlan add 10,20,30
#         Gi 0/4
Ruijie(config-if)#      interface GigabitEthernet 0/4
```

vlan vlan

```
Ruijie(config-if)#switchport trunk allowed vlan remove 1-4094
```

vlan 20 30

```
Ruijie(config-if)#switchport trunk allowed vlan add 20,30
```

#

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

■ **vlan**

vlan vlan id

```
Ruijie#show vlan
VLAN  Name      Status              Ports
---- --------  --------   --------------------------------
   1 VLAN0001   STATIC    Gi0/1, Gi0/5, Gi0/6, Gi0/7
                          Gi0/8, Gi0/9, Gi0/10, Gi0/11
                          Gi0/12, Gi0/13, Gi0/14, Gi0/15
                          Gi0/16, Gi0/17, Gi0/18, Gi0/19
                          Gi0/20, Gi0/21, Gi0/22, Gi0/23
                          Gi0/24
  10 VLAN0010  STATIC     Gi0/2, Gi0/3
  20 VLAN0020  STATIC     Gi0/2, Gi0/3, Gi0/4
  30 VLAN0030  STATIC     Gi0/3, Gi0/4
```

Gi 0/2

```
#
Ruijie#configure terminal
#     SVI 10
Ruijie(config)#interface vlan 10
#     SVI 10   IP
Ruijie(config-if)#ip address 192.168.10.1 255.255.255.0
#     SVI 20
Ruijie(config-if)#interface vlan 20
#     SVI 20   IP
Ruijie(config-if)#ip address 192.168.20.1 255.255.255.0
#     SVI 30
Ruijie(config-if)#interface vlan 30
#     SVI 30   IP
Ruijie(config-if)#ip address 192.168.30.1 255.255.255.0
#
Ruijie(config-if)#exit
```

8.5.4.2 Switch A

- **VLAN**

```
#
Ruijie#configure terminal
#       VLAN 10
Ruijie(config)#       vlan   10
#       VLAN 20
Ruijie(config-vlan)#        vlan   20
#
Ruijie(config-vlan)#exit
```

- **VLAN Access**

```
#               Gi 0/2-12
Ruijie(config)#     interface range GigabitEthernet 0/2-12
#         Gi 0/2-12         Access
```

```
Ruijie(config-if)#switchport mode access
#       Gi 0/2-12       VLAN 10
Ruijie(config-if)#switchport access vlan 10
#             Gi 0/13-24
Ruijie(config-if)#      interface range GigabitEthernet 0/13-24
#       Gi 0/13-24       Access
Ruijie(config-if)#switchport mode access
#       Gi 0/13-24       VLAN 20
Ruijie(config-if)#switchport access vlan 20
#
Ruijie(config-if)#exit
```

■ **trunk**

```
#          Gi 0/1
Ruijie(config)#     interface GigabitEthernet 0/1
#            Gi 0/1      trunk
Ruijie(config-if)#switchport mode trunk
#
Ruijie(config-if)#exit
```

9 Protocol VLAN

9.1 Protocol VLAN

Protocol VLAN

9.2.2 IP VLAN

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **protocol-vlan ipv4** *address* **mask** *address* **vlan** *vid*	IP VLAN
	Ruijie(config)# **no protocol-vlan ipv4** *address* **mask** *address*	IP
	Ruijie(config)# **no protocol-vlan ipv4**	IP
Step 3	Ruijie(config)# **interface** *interface-id*	
	Ruijie(config-if)#**protocol vlan ipv4**	IP VLAN
	Ruijie(config-if)#**no protocol vlan ipv4**	IP VLAN
Step 4	Ruijie(config-vlan)# **show protocol-vlan ipv4**	IP

x.x.x.x IP
VLAN ID

IP 192.168.100.3 255.255.255.0 VLAN VLAN 100

```
Ruijie# configure terminal
Ruijie(config)# protocol-vlan ipv4 192.168.100.3 mask 255. 255.255.0
vlan 100
Ruijie(config-vlan)# show protocol-vlan ipv4
ip              mask            vlan
--------------  --------------  ----

192.168.100.3   255.255.255.0   100
```

9.2.3 profile

Ụ ڂ ق “ Dž N

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **protocol-vlan profile** *id* **frame-type** [*type*] **ether-type** [*type*]	profile
	Ruijie(config)# **no protocol-vlan profile** *id*	profile
	Ruijie(config)# **no protocol-vlan profile**	profile
Step 3	Ruijie(config-vlan)# **show protocol-vlan profile** [*id*]	profile

```
Ruijie# configure terminal
Ruijie(config)# protocol-vlan profile 1 frame-type ETHERII ether-type
EHTER_AARP
Ruijie(config)# protocol-vlan profile 2 frame-type SNAP ether-type
0x809b
Ruijie(config-vlan)# show protocol-vlan profile
profile         frame-type  ether-type       Interfaces|vid
-------     ---------   ----------        -----------
1           ETHERII     EHTER_AARP       NULL|NULL
2           SNAP         ETHER_APPLETALK  NULL|NULL
```

🕮	Profile

9.2.4 profile

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **interface** *interface-id*	
Step 3	Ruijie(config-if)# **protocol-vlan profile** *id* **vlan** *vid*	profile
	Ruijie(config-if)# **no protocol-vlan profile** *id*	profile
	Ruijie(config-if)# **no protocol-vlan profile**	profile
Step 5	Ruijie(config-if)# **show protocol-vlan profile**	profile

profile 1 profile 2 3 GE 1,VLAN VLAN 101 102:

```
Ruijie# configure terminal
Ruijie(config)# interface gigabitEthernet 3/1
Ruijie(config-if)# protocol-vlan profile 1 vlan 101
Ruijie(config-if)# protocol-vlan profile 2 vlan 102
Ruijie(config-if)# show protocol-vlan profile
profile         frame-type  ether-type     Interfaces|vid
-------     ---------   ----------     --------------
1           ETHERII     EHTER_AARP     gi3/1|101
2           SNAP         ETHER_APPLETALK  gi3/1|102
```

	profile profile vid

9.3 Protocol VLAN

Protocol VLAN

10 Private VLAN

10.1 Private VLAN

VLAN VLAN 4096
VLAN
IP Private VLAN

VLAN(Private VLAN) VLAN
VLAN VLAN(Primary VLAN) VLAN(Secondary VLAN)

VLAN VLAN VLAN tG „
VLAN VLAN VLAN VLAN ID

VLAN VLAN VLAN VLAN
VLAN

- VLAN(Isolated VLAN) VLAN
  VLAN VLAN
- VLAN(Community VLAN) VLAN
  VLAN VLAN VLAN

Promiscuous Port VLAN
VLAN VLAN

(Isolated Port) VLAN

(Community port) VLAN VLAN
VLAN VLAN VL55942_0 1 Tf0 TcN

VLAN VLAN SVI VLAN VLAN Ò Ȳ

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **vlan** *vid*	VLAN
Step 3	Ruijie(config-vlan)# **private-vlan** {**community** | **isolated**| **primary**}	VLAN
	Ruijie(config-vlan)# **no private-vlan** {**community** | **isolated** | **primary**}	VLAN
Step 4	Ruijie(config-vlan)# **end**	VLAN
Step 5	Ruijie# **show vlan private-vlan** [*type*]	VLAN

802.1Q Vlan VLAN VLAN 1
VLAN Trunk Uplink 802.1Q VLAN VLAN
VLAN Private VLAN ACTIVE

1. Priamry VLAN
2. Secondary VLAN
3. Secondary VLAN Primary VLAN

802.1Q VLAN Private VLAN

```
Ruijie# configure terminal
Ruijie(config)# vlan 303
Ruijie(config-vlan)# private-vlan community
Ruijie(config-vlan)# end
Ruijie# show vlan private-vlan community
VLAN Type  Status    Routed   Interface   Associated VLANs
--- ----   --------  ------   ---------   ------------------
303 comm   inactive  Disabled             no association
Ruijie# configure terminal
Ruijie(config)# vlan 404
Ruijie(config-vlan)# private-vlan isolated
Ruijie(config-vlan)# end
Ruijie# show vlan private-vlan
VLAN Type  Status    Routed   Interface   Associated VLANs
--- ----   --------  ------   ---------   ------------------
303 comm  inactive  Disabled             no association
404 isol  inactive  Disabled             no association
```

10.2.3 Secondary VLAN Primary VLAN

Secondary VLAN Primary VLAN

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config)# **vlan** *vid*	VLAN
Step 3	Ruijie(config-vlan)# **private-vlan association** {*svlist* | **add** *svlist* | **remove** *svlist*}	Secondary VLAN
	Ruijie(config-vlan)# **no private-vlan association**	Secondary VLAN
Step 5	Ruijie(config-vlan)# **end**	VLAN
Step 6	Ruijie# **show vlan private-vlan** [*type*]	VLAN

```
Ruijie# configure terminal
Ruijie(config)# vlan 202
Ruijie(config-vlan)# private-vlan association 303-307,309,440
Ruijie(config-vlan)# end
Ruijie# show vlan private-vlan
VLAN Type  Status    Routed   Interface   Associated VLANs
---- ----  --------  ------   ---------   ------------------
202  prim  inactive  Disabled             303-307,309,440
303  comm  inactive  Disabled             202
304  comm  inactive  Disabled             202
305  comm  inactive  Disabled             202
306  comm  inactive  Disabled             202
307  comm  inactive  Disabled             202
309  comm  inactive  Disabled             202
440  comm  inactive  Disabled             202
```

	Primary VLAN VLAN

10.2.4 Secondary VLAN Primary VLAN

Step 1	Ruijie#	

Step 3	Ruijie(config-if-VLAN id)# **private-vlan mapping** {*svlist* | **add** *svlist* | **remove** *svlist*}	Secondary VLAN Primary VLAN SVI
Step 4	Ruijie(config-if-VLAN id)# **end**	

Secondary VLAN

```
Ruijie# configure terminal
Ruijie(config)# interface vlan 202
Ruijie(config-if)# private-vlan mapping add 303-307,309,440
Ruijie(config-if)# end
Ruijie#
```

🕮	Primary VLAN Secondary VLAN

10.2.5 VLAN

VLAN (Host Port)

🕮	Primary VLAN Secondary VLAN

10.2.6 VLAN

VLAN

Step 1	Ruijie# **configure terminal**	
Step 2	Ruijie(config-if)# **interface** <*interface*>	,
Step 3	Ruijie(config-if)# **switchport mode private-vlan promiscuous**	VLAN
	Ruijie(config-if)# **no switchport mode**	VLAN
Step 4	Ruijie(config-if)# **switchport private-vlan mapping** *p_vid*{*svlist* **| add** *svlist* **| remove** *svlist*}	VLAN VLAN secondary VLAN
	Ruijie(config-if)# **no switchport private-vlan mapping**	seconary VLAN.

```
Ruijie# configure terminal
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if)# switchport mode private-vlan promiscuous
Ruijie(config-if)# switchport private-vlan mapping 202 add 203
Ruijie(config-if)# end
Ruijie#
```

🕮	Primary VLAN Secondary VLAN

10.3 Private VLAN

show vlan private-vlan [*type*]	private VLAN

```
Ruijie# show vlan private-vlan
VLAN Type  Status    Routed   Interface   Associated VLANs
---- ----  --------  ------   ---------   ------------------
202  prim  active    Enabled   Gi0/1      303-307,309,440
303  comm  active    Disabled  Gi0/2      202
304  comm  active    Disabled  Gi0/3      202
305  comm  active    Disabled  Gi0/4      202
306  comm  active    Disabled             202
307  comm  active    Disabled             202
309  comm  active    Disabled             202
440  comm  active    Enabled   Gi0/5      202
```

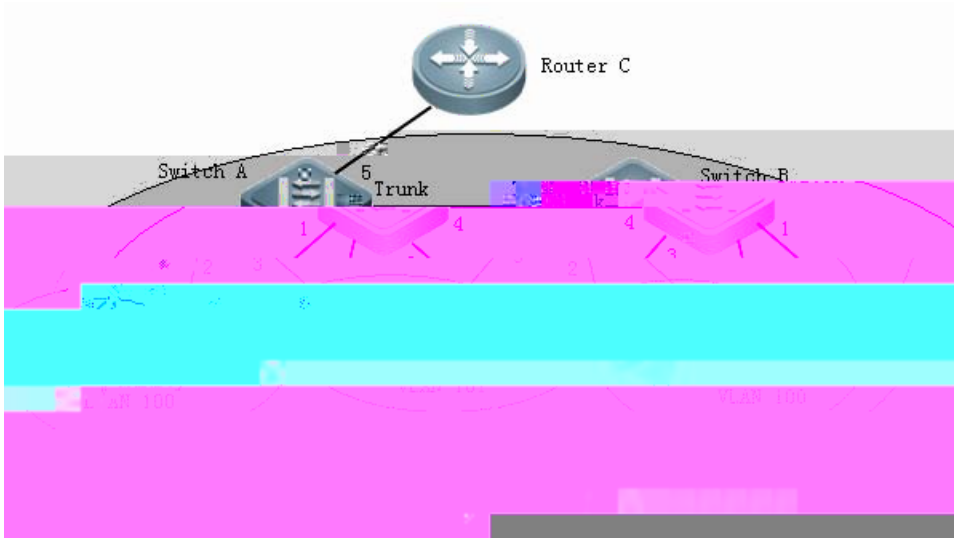
10.4 Private VLAN

10.4.1 Private VLAN

10.4.1.1

Private VLAN Primary VLAN Community VLAN Isolated VLAN Community VLAN Isoated VLAN Private VLAN

10.4.1.2



10.4.1.3

#

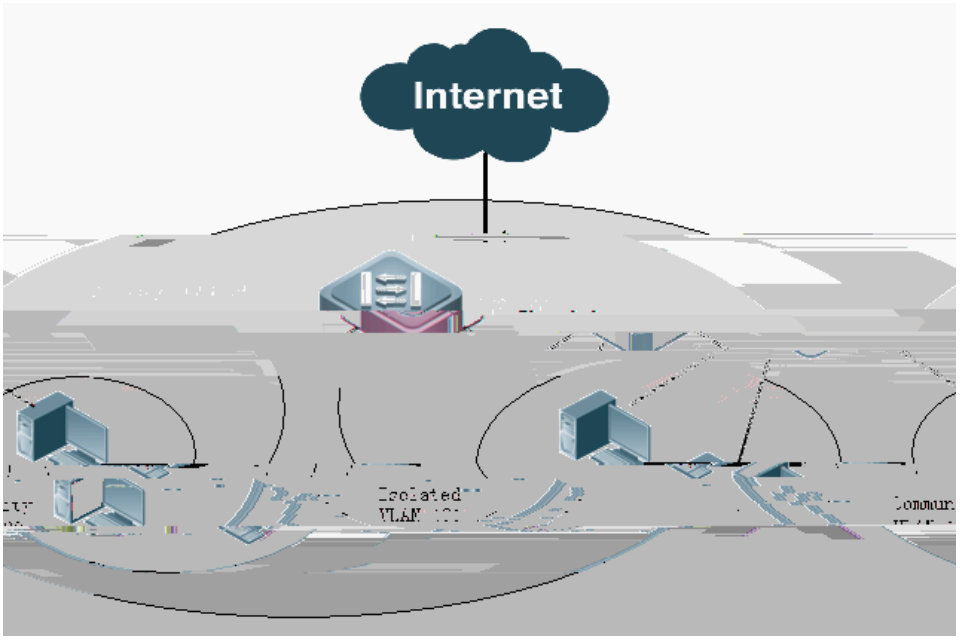
```
99    primary    active   Disabled Gi0/4, Gi0/5              100-101
100   community  active   Disabled Gi0/1, Gi0/2, Gi0/4   99
101   isolated   active   Disabled Gi0/3, Gi0/4          99
```

10.4.2 Private VLAN

10.4.2.1

Private VLAN Private VLAN SVI Private VLAN VLAN Primary VLAN Secondary VLAN SVI Primary VLAN IP Secondary VLAN Primary VLAN

10.4.2.2



10.4.2.3

VLAN 99 Primary VLAN VLAN 100 Community VLAN VLAN 101 Isolated VLAN VLAN

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#vlan 100
Ruijie(config-vlan)#private-vlan community
Ruijie(config-vlan)#exit
```

```
Ruijie(config)#vlan 101
Ruijie(config-vlan)#private-vlan isolated
Ruijie(config-vlan)#exit
Ruijie(config)#vlan 99
Ruijie(config-vlan)#private-vlan primary
Ruijie(config-vlan)#private-vlan association 100,101
Ruijie(config-vlan)#exit
```

0 1 0 2 Community VLAN 100 0/3 Isolated VLAN 101 0/4 Promiscuous Port

```
Ruijie(config)#interface gigabitEthernet1therrC2_0 1 Tf0 Tc 1.64 0 Td<040E>Tj/TT0 1
Ruijie(conT 3c 1d1tchp 1  n)#exit
```

Ruijie(config-vT 3c 1d1tchp 1 mode n)#exit
Ruijie(conT 3c 1d1tchp 1 n)#exit

11 QinQ

11.1 QinQ

QinQ

Tag dot1q-tunnel port tunnel port
Untagged Untagged
802.1Q Tag Tag VLAN Tunnel port VLAN

Tag

11.1.1 QinQ

QinQ tunnel
tunnel VLAN VLAN Tag VLAN Tag
Tag VLAN Tag
VLAN Tag QinQ VLAN Tag

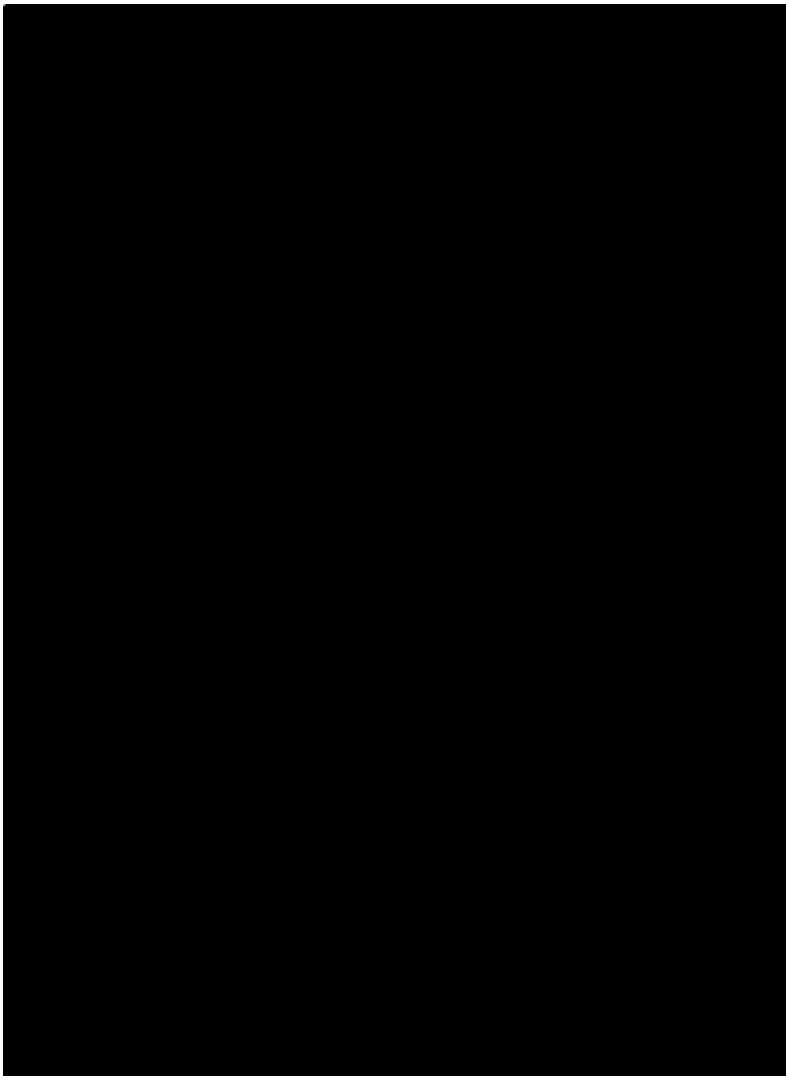
11.1.2 QinQ

QinQ VLAN Tag
VLAN Tag MAC IP
Tag VLANTag

- ACL ACL VLAN Tag
- ACL ACL VLAN Tag

11.1.3

11.1.3.1 TPID



QinQ MAC

dot1q-tunnel port

native vlan 4 vlan 3 Tag vlan 5 vlan 3

vlan 5 Tag native vlan vlan 4 MAC-A

vlan 4 Tag

mac

11.1.3.4 Uplink

Uplink Trunk Uplink Tag
Trunk Port Native VLAN Tag
( ) Uplink

11.2 QinQ

11.2.1 QinQ

QinQ QinQ QinQ

11.2.2 QinQ

QinQ

- Tunnel Port
- Tunnel 802.1x
- Tunnel
- Tunnel Port RSPAN TAG VID RSPAN VLAN
- Tunnel Port ACL TAG VID inner
- Uplink
  QinQ Tag

Step 1	**configure terminal**	
Step 2	**interface** *intf-id*	
Step 3	**switchport mode dot1q-tunnel**	dot1q-tunnel
Step 4	**dot1q outer-vid** *VID* **register inner-vid** *v_list*	Tag VID
Step 5	**no dot1q outer-vid** *VID* **register inner-vid** *v_list*	Tag VID
Step 6	**end**	
Step 7	**show registration-table**	

Tag VID 4-22 Tag VID 3

```
Ruijie# configure
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode dot1q-tunnel
Ruijie(config-if)# switchport dot1q-tunnel allowed vlan add tagged 3
Ruijie(config-if)# dot1q outer-vid 3 register inner-vid 4-22
Ruijie(config-if)# end
```

11.2.4.1.2 Tag vid

Access Trunk Hybrid Uplink Tag VID Tag VID **dot1q relay-vid** *VID* **translate local-vid** *v_list* VID(Tag VID) VID **no dot1q outer-vid** *VID* **translate local-vid** *v_list*

Tag vid 10-20 vid 100

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

11.2.4.2 vid

11.2.4.2.1 vid

dot1q-tunnel

Tag VID **traffic-redirect access-group** *acl* **nested-vlan** *VID* **in** **dot1q-tunnel** acl Tag VID **no traffic-redirect access-grou**p acl **nested-vlan**

Step 1	**configure terminal**	
Step 2	**interface** *intf-id*	
Step 3	**switchport mode dot1q-tunnel**	dot1q-tunnel
Step 4	**traffic-redirect access-group *acl* nested-vlan** *VID* **in**	Tag VID
Step 5	**no traffic-redirect access-group** *acl* **nested-vlan**	Tag VID
Step 6	**end**	
Step 7	**show traffic-redirect**	

- VID VID
- AP AP VID AP AP VID

- ACL ACL
- dot1q-tunnel >= 2 Tag Tag
-

1.1.1.3 VID 9

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

11.2.4.2.2 vid

Access Trunk Hybrid Uplink
Tag VID

traffic-redirect access-group *acl* **outer-vlan** *VID* **in** acl
Tag VID VID **no traffic-redirect access-group** *acl* **outer-vlan**

Step 1	**configure terminal**	
Step 2	**interface** *intf-id*	
Step 3	**switchport mode trunk**	Access Trunk Hybrid
Step 4	**traffic-redirect access-group *acl* outer-vlan** *VID* **in**	Tag VID
Step 5	**no traffic-redirect access-group** *acl* **outer-vlan**	Tag VID
Step 6	**end**	
Step 7	**show traffic-redirect**	

■ VLAN MAC VLAN VLAN

STP

```
Ruijie# configure
Ruijie(config)#l2protocol-tunnel stp tunnel-dmac 011AA9 000005
```

- STP 01d0.f800.0005 011a.a900.0005 010f.e200.0003 0100.0ccd.cdd0 0100.0ccd.cdd1 0100.0ccd.cdd2 GVRP 01d0.f800.0006 011a.a900.0006
- 01d0f8 3 (stp 000005 gvrp 000006)

11.3 QinQ

QinQ

Step 1	Ruijie# **show dot1q-tunnel**	dot1q-tunnel
Step 2	Ruijie#**show interface**[*intf-id*]**dot1q-tunnel**	dot1q-tunnel
Step 3	Ruijie# **show registration-table** [**interface** *intf-id*]	dot1q-tunnel vid
Step 4	Ruijie# **show translation-table** [**interface** *intf-id*]	access,trunk,hybrid vid
Step 5	Ruijie# **show traffic-redirect** [**interface** *intf-id*]	vid
Step 6	Ruijie# **show frame-tag tpid interface** [*intf-id*]	tpid
Step 7	Ruijie# **show inner-priority-trust**	
Step 8	Ruijie# **show interface intf-name remark**	
Step 9	Ruijie# **show mac-address-mapping**	MAC
Step10	Ruijie# **show l2protocol-tunnel** { **gvrp** | **stp** }	

12 GVRP

12.1

GVRP GARP VLAN Registration Protocol VLAN
GARP Generic Attribute Registration Protocol

GVRP

- GVRP PDU GVRP PDU GVRP-aware VLAN GVRP PDU VLAN
- GVRP PDU VLAN

GVRP

VLAN VLAN

N ID GVRP

GVRP VLAN

GVRP timers	Join Time: 200 ms Leave Time: 600 ms Leaveall Time: 10,000 ms

12.2.2 GVRP

- GVRP GVRP Trunk Links VLAN VLAN
- STP Spanning-tree Protocol Forwarding GVRP GVRP PDU Forwarding VLAN GVRP
- GVRP VLAN Port Tagged Port
- GVRP VLAN VLAN
- GVRP VLAN
- GVRP GVRP Timers Join Leave Leaveall

12.2.3 GVRP

GVRP

GVRP GVRP GVRP GVRP

GVRP

Ruijie(config)# [**no**] **gvrp enabl**e	GVRP( )

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

12.2.4 VLAN

Joinin Joinempty VLAN
GVRP VLAN VLAN
VLAN

Ruijie(config)# [**no**] **gvrp dymanic-vlan-creation enable**	GVRP VLAN ( )

GVRP VLAN

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

VLAN VLAN Fixed Registrar

1

Leave Timer Leave Message VLAN
Join Message VLAN
Join Message
Empty VLAN 600ms

3. LeaveAll Timer

LeaveAll Timer LeaveAll Message
LeaveAll Message
LeaveAll Message LeaveAll Message
Leave Timer 10,000ms Leaveall Leaveall
+ Join

Leave Value Join Value(Leave >=
Join * 3) Leaveall Leave(Leaveall > Leave)
Leave Timer 600ms
Join Timer 320ms Join Timer
350ms Leave Timer

GVRP

GVRP

Ruijie# **show gvrp statistics** {*interface-id* | **all**}

GVRP

```
Ruijie# show gvrp statistics gigabitethernet 1/1
Interface  GigabitEthernet 3/1
RecValidGvrpPdu   0
RecInvalidGvrpPdu  0
RecJoinEmpty   0
RecJoinIn     0
RecEmpty      0
RecLeaveEmpty  0
RecLeaveIn    0
RecLeaveAll   0
SentGvrpPdu   0
SentJoinEmpty  0
SentJoinIn    0
SentEmpty     0
SentLeaveEmpty  0
SentLeaveIn   0
SentLeaveAll   0
JoinIndicated  0
LeaveIndicated  0
JoinPropagated  0
LeavePropagated  0
```

GVRP

Ruijie# **clear gvrp statistics** {*interface-id* | **all**}

GVRP

```
Ruijie# clear gvrp statistics gigabitethernet 1/1
```

12.3.2 GVRP

GVRP **show gvrp status**

VLAN VLAN

Ruijie# **show gvrp status**	GVRP

```
Ruijie# show gvrp status
VLAN 1
```

13 MAC

MAC

MAC

13.1 MAC

13.1.1

MAC

MAC MAC

MAC MAC VLAN VLAN

MAC VLAN VLAN

MAC VLAN

MAC

MAC

-
- VLAN MAC VLAN
- MAC MAC
- MAC

MAC Â ЈJ

MA = Ù Æ : 4,X

- MAC MAC VLAN ID
- MAC MAC VLAN ID
- ffff.ffff.ffff MAC VLAN

VLAN >< User -5/B_0 1 Tf 0.04 Tc 2.983 0 E.T8CDD040DJ/TT2 T4 1 Tf 0.0199 Tc -08

MAC

2. UserB GigabitEthernet 0/3
UserA MAC UserA MAC
GigabitEthernet 0/2 UserB
MAC 1 UserC UserB UserA

MAC

3. UserA UserB UserA UserB
MAC UserA UserB
UserC UserA UserB

13.1.2.3

MAC

MAC

MAC

13.1.3

MAC MAC

MAC

CPU ARP MAC ARP CPU

13.1.4 MAC

MAC NMS

MAC MAC
MAC MAC SNMP Trap
NMS( )

MAC MAC
MAC

MAC
MAC

MAC

MAC MAC
Trap NMS MAC
MAC

MAC

13.1.5.1

IP MAC IP MAC

λ Ē Ȯ ε Ŏ

IEEE Std 802.1Q™ Virtual Bridged Local Area Networks

13.2

	300
MAC	
MAC	
	compatible

13.3

13.3.1 MAC

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

	MAC DOT1X IP SOURCE GUARD

13.3.2

Ruijie#**clear mac-address-table dynamic**	
Ruijie#**clear mac-address-table dynamic address** *mac-address* **vlan** *vlan-id*	MAC mac-address MAC vlan-id MAC VLAN

Ruijie#**clear mac-address-table dynamic interface** *interface-id* [**vlan** *vlan-id*]	Aggregate Port VLAN interface-id Aggregate Port vlan-id VLAN
Ruijie#**clear mac-address-table dynamic vlan** vlan-id	VLAN vlan-id VLAN

GigabitEthernet 0/1 VLAN 1

```
Ruijie#clear mac-address-table dynamic interface GigabitEthernet 0/1
vlan 1
```

13.3.3

Ruijie#**show mac-address-table dynamic**	
Ruijie#**show mac-address-table dynamic address** *mac-address* [**vlan** *vlan-id*]	MAC mac-address MAC vlan-id VLAN MAC
Ruijie#**show mac-address-table dynamic interface** *interface-id* [**vlan** *vlan-id*]	Aggregate Port interface-id Aggregate Port vlan-id VLAN
Ruijie#**show mac-address-table dynamic vlan** *vlan-id*	VLAN vlan-id VLAN
Ruijie# **show mac-address-table count**	

GigabitEthernet 0/1 VLAN 1 MAC

```
Ruijie#show mac-address-table dynamic interface gigabitEthernet 0/1 vlan 1
Vlan        MAC Address          Type     Interface
----------  -------------------- -------- --------------------
   1        0000.5e00.010c       DYNAMIC  GigabitEthernet 0/1
   1        00d0.f822.33aa       DYNAMIC  GigabitEthernet 0/1
   1        00d0.f822.a219       DYNAMIC  GigabitEthernet 0/1
   1        00d0.f8a6.5af7       DYNAMIC  GigabitEthernet 0/1
```

```
Ruijie# show mac-address-table count
Dynamic Address Count  : 30
Static  Address Count  : 0
Filtering Address Count: 0
Total Mac Addresses    : 30
Total Mac Address Space Available: 8159
```

13.4

13.4.1

Ruijie(config)# **mac-address-table agint-time** [0 |10-1000000]	10 1000000 300 0
Ruijie(config)#**on mac-address-table agint-time**	

180

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#mac-address-table aging-time 180
```

13.4.2

Ruijie#**show mac-address-table aging-time**	

```
Ruijie#show mac-address-table aging-time
Aging time    : 180 seconds
```

13.5

13.5.1

Ruijie(config)# **mac-address-table static** *mac-address* **vlan** *vlan-id* **interface** *interface-id*	mac-address MAC vlan-id VLAN interface-id (Aggregate Port) vlan-id VLAN mac- address interface-id
Ruijie(config)# **no mac-address-table static** *mac-address* **vlan** *vlan-id* **interface** *interface-id*	

00d0.f800.073c VLAN 4
Gigabitethernet 0/3

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)# mac-address-table static 00d0.f800.073c vlan 4 interface
gigabitethernet 0/3
```

00d0.f800.073c

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#no mac-address-table static 00d0.f800.073c vlan 4
interface gigabitethernet 0/3
```

13.5.2

Ruijie#**show mac-address-table static**

MAC

Step 4	Ruijie(config)#**mac-address-table notification** {**interval** *value* | **history-size** *value*}	MAC interval value MAC ( ) 1 3600 1 history-size value MAC 1 200 50
Step 5	Ruijie(config-if)# **snmp trap mac-notification** {**added** |**removed**}	MAC added removed

MAC public IP 192.168.12.54 NMS MAC Trap MAC 40 MAC 100 Gigabitethernet 0/1 MAC

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#snmp-server host 192.168.12.54 traps public
Ruijie(config)#snmp-server enable traps
```

Ruijie#show mac-address-table notification history	MAC

MAC

MAC

```
Ruijie#show mac-adda-t-a nhoatic67n#
```

Step 1	Ruijie(config)# **address-bind** *ip-address mac-address*	IP MAC ip-address IP mac-address MAC
Step 2	Ruijie(config)# **address-bind install**	IP MAC

no address-bind *ip-address mac-address* IP MAC

no address-bind install

IP MAC

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#address-bind 192.168.5.1 00d0.f800.0001
Ruijie(config)#address-bind install
```

S2928G-S IP+MAC /DOT1X IP+MAC /DOT1X

13.8.2

Ruijie(config)#**address-bind uplink** *interface-id*	 interface-id Aggregate Port

no address-bind uplink *interface-id*

GigabitEthernet 0/1

```
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#address-bind uplink GigabitEthernet 0/1
```

13.8.3

IP MAC

Ruijie#**show address-bind**	IP MAC
Ruijie#**show address-bind uplink**	

IP MAC

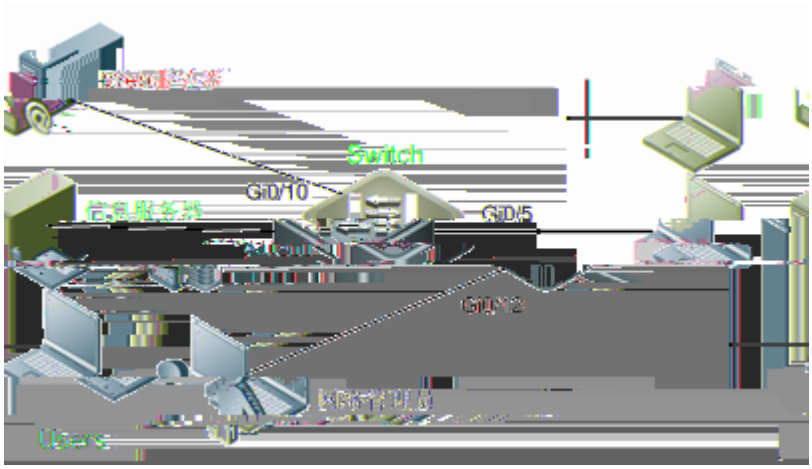
```
Ruijie#show address-bind
Total Bind Addresses in System : 1

IP Address        Binding MAC Addr
---------------    ----------------
   192.168.5.1    00d0.f800.0001
```

13.9 MAC

13.9.1 MAC

13.9.1.1

Web Gi0/10 Gi0/11
Gi0/12
Gi0/5 Web VLAN 10



MAC

13.9.1.2

WEB

WEB

13.9.1.3

MAC

1 MAC Mac-address

2 VLAN vlan-id

3 ID Interface-id

Vlan-id VLAN Mac-address
Interface-id

MAC VLAN

	MAC	VLAN ID	ID
Web	00d0.3232.0001	VLAN2	Gi0/10
	00d0.3232.0002	VLAN2	Gi0/11
	00d0.3232.1000	VLAN2	Gi0/12

13.9.1.4

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

MAC VLAN

```
Ruijie(config)#mac-address-table static 00d0.3232.0001 vlan 10
interface gigabitEthernet 0/10
Ruijie(config)#mac-address-table static 00d0.3232.0002 vlan 10
interface gigabitEthernet 0/11
Ruijie(config)#mac-address-table static 00d0.3232.1000 vlan 10
interface gigabitEthernet 0/12
```

13.9.1.5

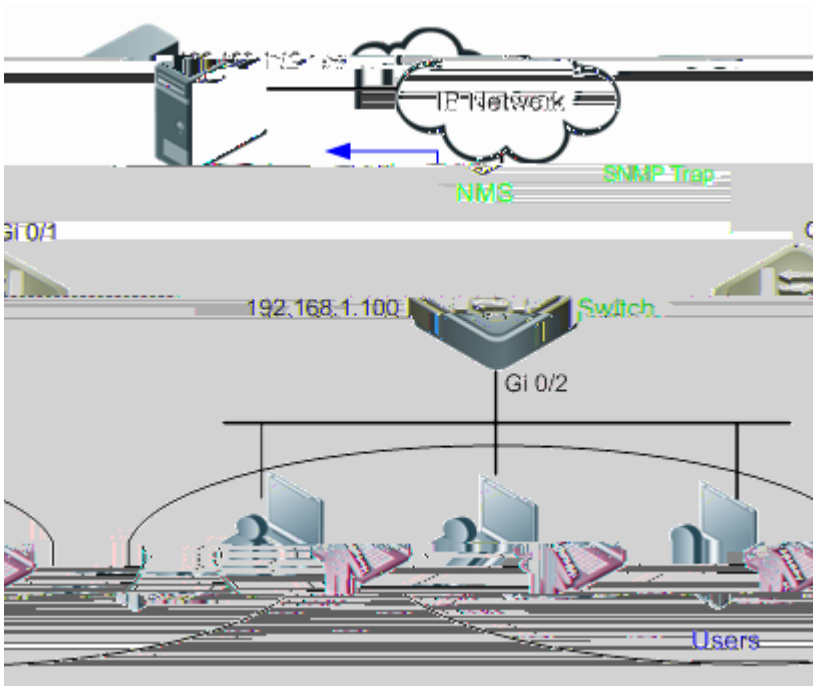
MAC

```
Ruijie#show mac-address-table static
Vlan       MAC Address         Type     Interface
----------  -------------------- -------- --------------------
  10       00d0.3232.0001      STATIC   GigabitEthernet 0/10
  10       00d0.3232.0002      STATIC   GigabitEthernet 0/11
  10       00d0.3232.1000      STATIC   GigabitEthernet 0/12
```

13.9.2 MAC

13.9.2.1

Gi0/2



MAC

13.9.2.2

1 MAC
MAC MAC

2 MAC SNMP Trap
NMS( )

3 MAC

13.9.2.3

1 MAC Gi0/2 MAC

2 NMS SNMP Trap NMS

3 MAC 300 1

MAC

13.9.2.4

IP

MAC

```
Ruijie>enable
Ruijie#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Ruijie(config)#mac-address-table notification
```

MAC 30

```
Ruijie(config)#mac-address-table notification
```

Gi0/2 MAC

```
Ruijie(config)#mac-address-table notification interval 300
```

Gi0/2

```
Ruijie(config)#interface gigabitEthernet 0/2


Ruijie(config-if-GigabitEthernet 0/2)# snmp trap mac-notification add
ed
```