

Lab 1-3 GVRP Configuration

Learning Objectives

As a result of this lab section, you should achieve the following tasks:

- Configuration of GVRP.
- Setting of the GVRP registration mode.

Topology

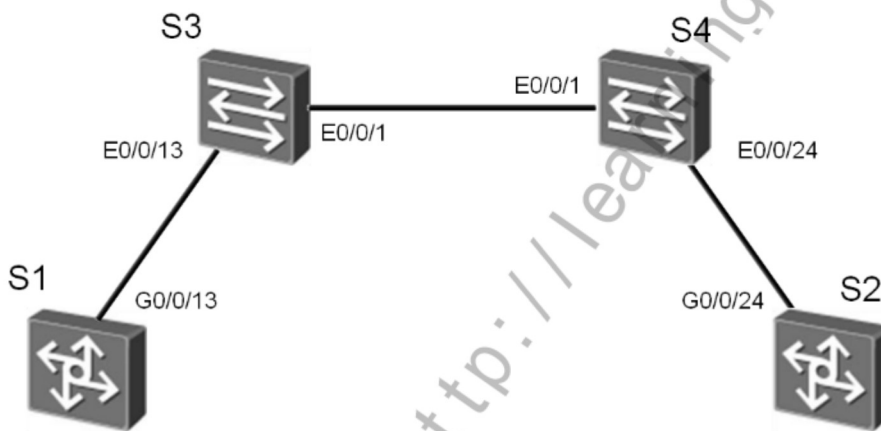


Figure 1.3 GVRP topology

Scenario

The enterprise network contains multiple switches which are expected to be regularly managed. VLANs are required to be applied and removed as necessary on all switches however this tends to be a laborious task for the administrator and often configuration mistakes occur due to human error. The administrator wishes to simplify the VLAN management process and has requested that GVRP be enabled on all switches and the registration mode on the interfaces be set.

Tasks

Step 1 Preparing the environment

If you are starting this section with a non-configured device, begin here and then move to step 3. For those continuing from previous labs, begin at step 2.

```
<Quidway>system-view
[Quidway]sysname S1
[S1]interface GigabitEthernet 0/0/9
[S1-GigabitEthernet0/0/9]shutdown
[S1-GigabitEthernet0/0/9]quit
[S1]interface GigabitEthernet 0/0/10
[S1-GigabitEthernet0/0/10]shutdown
```

```
<Quidway>system-view
[Quidway]sysname S2
[S2]interface GigabitEthernet 0/0/9
[S2-GigabitEthernet0/0/9]shutdown
[S2-GigabitEthernet0/0/9]quit
[S2]interface GigabitEthernet 0/0/10
[S2-GigabitEthernet0/0/10]shutdown
```

```
<Quidway>system-view
[Quidway]sysname S3
[S3-Ethernet0/0/23]shutdown
```

```
<Quidway>system-view
[Quidway]sysname S4
[S4-Ethernet0/0/14]shutdown
```

Step 2 Clean up the previous configuration

Remove the unused VLANs and disable the Eth-Trunk interface on S1 and S2. Remove Vlanif1 on S3 and S4 and bring up interface Ethernet 0/0/1 on S3.

```
[S1]undo vlan batch 2 to 4
Warning: The configurations of the VLAN will be deleted. Continue?[Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment...done.
[S1]interface Eth-Trunk 1
[S1-Eth-Trunk1]shutdown
```

```
[S2]undo vlan batch 2 to 4
Warning: The configurations of the VLAN will be deleted. Continue?[Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment...done.
[S2]interface Eth-Trunk 1
[S2-Eth-Trunk1]shutdown
[S2-Eth-Trunk1]quit
[S2]interface GigabitEthernet 0/0/24
[S2-GigabitEthernet0/0/24]undo port hybrid vlan 2 4

[S3]interface Ethernet 0/0/1
[S3-Ethernet0/0/1]undo shutdown
[S3-Ethernet0/0/1]quit
[S3]undo interface Vlanif 1
Info: This operation may take a few seconds. Please wait for a moment...succeeded.

[S4]undo interface Vlanif 1
Info: This operation may take a few seconds. Please wait for a moment...succeeded.
```

Step 3 Configure trunk links between the switches.

```
[S1]interface GigabitEthernet 0/0/13
[S1-GigabitEthernet0/0/13]port link-type trunk
[S1-GigabitEthernet0/0/13]port trunk allow-pass vlan all

[S3]interface Ethernet 0/0/13
[S3-Ethernet0/0/13]port link-type trunk
[S3-Ethernet0/0/13]port trunk allow-pass vlan all
[S3-Ethernet0/0/13]quit
[S3]interface Ethernet 0/0/1
[S3-Ethernet0/0/1]port link-type trunk
[S3-Ethernet0/0/1]port trunk allow-pass vlan all

[S2]interface GigabitEthernet 0/0/24
[S2-GigabitEthernet0/0/24]port link-type trunk
[S2-GigabitEthernet0/0/24]port trunk allow-pass vlan all

[S4]interface Ethernet 0/0/24
[S4-Ethernet0/0/24]port link-type trunk
[S4-Ethernet0/0/24]port trunk allow-pass vlan all
[S4-Ethernet0/0/24]quit
[S4]interface Ethernet 0/0/1
[S4-Ethernet0/0/1]port link-type trunk
[S4-Ethernet0/0/1]port trunk allow-pass vlan all
```

Step 1 Enable GVRP globally, and on all relevant interfaces.

```
[S1]gvrp
[S1]interface GigabitEthernet 0/0/13
[S1-GigabitEthernet0/0/13]gvrp
```

```
[S3]gvrp
[S3]interface Ethernet 0/0/13
[S3-Ethernet0/0/13]gvrp
[S3-Ethernet0/0/13]quit
[S3]interface Ethernet 0/0/1
[S3-Ethernet0/0/1]gvrp
```

```
[S2]gvrp
[S2]interface GigabitEthernet 0/0/24
[S2-GigabitEthernet0/0/24]gvrp
```

```
[S4]gvrp
[S4]interface Ethernet0/0/24
[S4-Ethernet0/0/24]gvrp
[S4-Ethernet0/0/24]quit
[S4]interface Ethernet 0/0/1
[S4-Ethernet0/0/1]gvrp
```

Create VLAN 100 on S1, VLAN 200 on S2 and VLAN 2 on S1, S2, S3 and S4.

```
[S1]vlan batch 2 100
[S2]vlan batch 2 200
[S3]vlan 2
[S4]vlan 2
```

Run the `display gvrp statistics` command on S3 and S4 to view the GVRP statistics.

```
[S3]display gvrp statistics
GVRP statistics on port Ethernet0/0/1
  GVRP status                : Enabled
  GVRP registrations failed  : 0
  GVRP last PDU origin       : 5489-98ec-f012
  GVRP registration type     : Normal

GVRP statistics on port Ethernet0/0/13
  GVRP status                : Enabled
```

```
GVRP registrations failed      : 0
GVRP last PDU origin          : 4c1f-cc45-aace
GVRP registration type        : Normal
```

[S4]display gvrp statistics

GVRP statistics on port Ethernet0/0/1

```
GVRP status                    : Enabled
GVRP registrations failed      : 0
GVRP last PDU origin          : 781d-ba99-d977
GVRP registration type        : Normal
```

GVRP statistics on port Ethernet0/0/24

```
GVRP status                    : Enabled
GVRP registrations failed      : 0
GVRP last PDU origin          : 4c1f-cc45-aacc
GVRP registration type        : Normal
```

The registration type is set as normal by default. Use the **display vlan** command to verify the VLAN configuration on S3 and S4.

[S3]display vlan

The total number of vlans is : 4

```
-----
U: Up;          D: Down;          TG: Tagged;      UT: Untagged;
MP: Vlan-mapping;      ST: Vlan-stacking;
#: ProtocolTransparent-vlan;  *: Management-vlan;
-----
```

VID Type Ports

```
-----
1 common UT:Eth0/0/1(U) Eth0/0/2(D) Eth0/0/3(D) Eth0/0/4(D)
Eth0/0/5(D) Eth0/0/6(D) Eth0/0/7(D) Eth0/0/8(D)
Eth0/0/9(D) Eth0/0/10(D) Eth0/0/11(D) Eth0/0/12(D)
Eth0/0/13(U) Eth0/0/14(D) Eth0/0/15(D) Eth0/0/16(D)
Eth0/0/17(D) Eth0/0/18(D) Eth0/0/19(D) Eth0/0/20(D)
Eth0/0/21(D) Eth0/0/22(D) Eth0/0/23(D) Eth0/0/24(D)
GE0/0/1(D) GE0/0/2(D) GE0/0/3(D) GE0/0/4(D)
2 common TG:Eth0/0/1(U) Eth0/0/13(U)
100 dynamic TG:Eth0/0/13(U)
200 dynamic TG:Eth0/0/1(U)
...output omitted...
```



```
[S4]display vlan
...output omitted...
VID Type Ports
-----
1 common UT:Eth0/0/1 (U) Eth0/0/2 (D) Eth0/0/3 (D) Eth0/0/4 (D)
Eth0/0/5 (D) Eth0/0/6 (D) Eth0/0/7 (D) Eth0/0/8 (D)
Eth0/0/9 (D) Eth0/0/10 (D) Eth0/0/11 (D) Eth0/0/12 (D)
Eth0/0/13 (D) Eth0/0/14 (D) Eth0/0/15 (D) Eth0/0/16 (D)
Eth0/0/17 (D) Eth0/0/18 (D) Eth0/0/19 (D) Eth0/0/20 (D)
Eth0/0/21 (D) Eth0/0/22 (D) Eth0/0/23 (D) Eth0/0/24 (U)
GE0/0/1 (D) GE0/0/2 (D) GE0/0/3 (D) GE0/0/4 (D)
2 common TG:Eth0/0/1 (U) Eth0/0/24 (U)
100 dynamic TG:Eth0/0/1 (U) Eth0/0/24 (U)
200 dynamic TG:Eth0/0/1 (U) Eth0/0/24 (U)
...output omitted...
```

The highlighted entries indicate the interfaces that have been added to VLAN100 and VLAN200 on both S3 and S4.

Step 2 Change the registration type for the interfaces

Change the registration type of Ethernet 0/0/1 on S3 to fixed. The same steps can be performed on Ethernet 0/0/1 of S4.

```
[S3]interface Ethernet 0/0/1
[S3-Ethernet0/0/1]gvrp registration fixed
```

Run the **display gvrp statistics** command on S3 and S4 to view the changes.

```
[S3]display gvrp statistics interface Ethernet 0/0/1
GVRP statistics on port Ethernet0/0/1
GVRP status : Enabled
GVRP registrations failed : 12
GVRP last PDU origin : 5489-98ec-f012
GVRP registration type : Fixed
```

The GVRP registration type is verified as fixed on Ethernet 0/0/1 interface. Dynamic VLANs are not allowed to register on this interface.

Run the **display vlan** command to view the effect of the fixed registration type.

```
[S3]display vlan
...output omitted..
VID  Type  Ports
```

```
-----
1   common  UT:Eth0/0/1 (U)  Eth0/0/2 (D)    Eth0/0/3 (D)    Eth0/0/4 (D)
                        Eth0/0/5 (D)    Eth0/0/6 (D)    Eth0/0/7 (D)    Eth0/0/8 (D)
                        Eth0/0/9 (D)    Eth0/0/10 (D)   Eth0/0/11 (D)   Eth0/0/12 (D)
                        Eth0/0/13 (U)   Eth0/0/14 (D)   Eth0/0/15 (D)   Eth0/0/16 (D)
                        Eth0/0/17 (D)   Eth0/0/18 (D)   Eth0/0/19 (D)   Eth0/0/20 (D)
                        Eth0/0/21 (D)   Eth0/0/22 (D)   Eth0/0/23 (D)   Eth0/0/24 (D)
                        GE0/0/1 (D)    GE0/0/2 (D)    GE0/0/3 (D)    GE0/0/4 (D)
2   common  TG:Eth0/0/1 (U)  Eth0/0/13 (U)
100 dynamic TG:Eth0/0/13 (U)
200 dynamic TG:Eth0/0/13 (U)
```

The highlighted entries show that interface Ethernet 0/0/1 is not in registering dynamic VLANs 100 and 200.

Configure interface Ethernet 0/0/1 of S3 to use the forbidden registration type. The same steps can be performed on Ethernet 0/0/1 of S4.

```
[S3]interface Ethernet 0/0/1
[S3-Ethernet0/0/1]gvrp registration forbidden
```

Run the **display gvrp statistics** command to view the changes to GVRP.

```
[S3]display gvrp statistics interface Ethernet 0/0/1

GVRP statistics on port Ethernet0/0/1
GVRP status                : Enabled
GVRP registrations failed  : 18
GVRP last PDU origin       : 5489-98ec-f012
GVRP registration type     : Forbidden
```

The GVRP registration type is set to forbidden on the Ethernet 0/0/1 interface.

Run the **display vlan** command to view the effect of the forbidden registration.

```
[S3]display vlan
The total number of vlans is : 4
...output omitted...
VID Type Ports
-----
1 common UT:Eth0/0/1(U) Eth0/0/2(D) Eth0/0/3(D) Eth0/0/4(D)
Eth0/0/5(D) Eth0/0/6(D) Eth0/0/7(D) Eth0/0/8(D)
Eth0/0/9(D) Eth0/0/10(D) Eth0/0/11(D) Eth0/0/12(D)
Eth0/0/13(U) Eth0/0/14(D) Eth0/0/15(D) Eth0/0/16(D)
Eth0/0/17(D) Eth0/0/18(D) Eth0/0/19(D) Eth0/0/20(D)
Eth0/0/21(D) Eth0/0/22(D) Eth0/0/23(D) Eth0/0/24(D)
GE0/0/1(D) GE0/0/2(D) GE0/0/3(D) GE0/0/4(D)
2 common TG:Eth0/0/13(U)
100 dynamic TG:Eth0/0/13(U)
200 dynamic TG:Eth0/0/13(U)
```

Forbidden mode only allows VLAN1 pass over interface Ethernet 0/0/1, all other VLANS are restricted.

Final Configuration

```
[S1]dis current-configuration
#
!Software Version V100R006C00SPC800
sysname S1
#
vlan batch 2 100 200
#
gvrp
#
interface Eth-Trunk1
shutdown
port link-type trunk
port trunk allow-pass vlan 2 to 4094
mode lacp-static
#
interface GigabitEthernet0/0/1
port hybrid untagged vlan 2 4
#
interface GigabitEthernet0/0/9
shutdown
```

```
eth-trunk 1
lacp priority 100
undo negotiation auto
speed 100
#
interface GigabitEthernet0/0/10
shutdown
eth-trunk 1
lacp priority 100
undo negotiation auto
speed 100
#
interface GigabitEthernet0/0/13
port link-type trunk
port trunk allow-pass vlan 2 to 4094
gvrp
#
return

[S2]dis current-configuration
#
!Software Version V100R006C00SPC800
sysname S2
#
vlan batch 2 100 200
#
gvrp
#
interface Eth-Trunk1
shutdown
port link-type trunk
port trunk allow-pass vlan 2 to 4094
mode lacp-static
#
interface GigabitEthernet0/0/3
port hybrid untagged vlan 2 4
#
interface GigabitEthernet0/0/9
shutdown
eth-trunk 1
undo negotiation auto
speed 100
#
```

```
interface GigabitEthernet0/0/10
 shutdown
 eth-trunk 1
 undo negotiation auto
 speed 100
#
interface GigabitEthernet0/0/24
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
 gvrp
#
return
```

```
[S3]display current-configuration
#
!Software Version V100R006C00SPC800
 sysname S3
#
 vlan batch 2
#
 gvrp
#
interface Ethernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
 gvrp
 gvrp registration forbidden
#
interface Ethernet0/0/13
 port link-type trunk
 port trunk allow-pass vlan 2 to 4094
 gvrp
#
interface Ethernet0/0/23
 shutdown
#
return
```

```
[S4]display current-configuration
#
!Software Version V100R006C00SPC800
 sysname S4
#
```

```
vlan batch 2
#
gvrp
#
interface Ethernet0/0/1
port link-type trunk
port trunk allow-pass vlan 2 to 4094
gvrp
gvrp registration forbidden
#
interface Ethernet0/0/14
shutdown
#
interface Ethernet0/0/24
port link-type trunk
port trunk allow-pass vlan 2 to 4094
gvrp
#
return
```