

FSOS
GVRP Configuration

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Chapter 1 GVRP Configuration

1.1 Brief Introduction to GVRP

1. GARP

Generic Attribute Registration Protocol (GARP) provides a mechanism that allows participants in a GARP application to distribute, propagate and register with other participants in a bridged LAN that attributes specific to the GARP applications, such as the VLAN or multicast address attribute.

GARP itself does not exist on a device as an entity. GARP-compliant application entities are called a GARP application. It primarily applies to GVRP and GMRP. When a GARP application entity is present on a port on your device, this port is regarded as a GARP application.

The GARP mechanism allows the configuration of a GARP participant to propagate throughout a LAN quickly. In GARP, a GARP participant registers or deregisters its attributes with other participants by making or withdrawing declarations of attributes and at the same time, based on received declarations or withdrawals handles attributes of other participants.

GARP participants exchange attributes primarily by sending the following three types of messages:Join.Leave and LeaveAll.

- Join to announce the willingness to register some attribute with other participants.
- Leave to announce the willingness to deregister with other participants.

LeaveAll to deregister all attributes. A LeaveAll message is sent upon expiration of a LeaveAll timer, which starts upon the startup of a GARP application entity.

Together with Join messages and Leave messages help GARP participants complete attribute registration and deregistration. All the attributes messages can forward to all switches in the same network.

GARP application entities send protocol data units (PDU) with a particular multicast MAC address as destination. Based on this address, a device can identify to which GARP application, GARP for example, should a GARP PDU be delivered.

GARP is described in IEEE 802.1Q.

2. GVRP

GVRP is a GARP application. It functions based on the operating mechanism of GARP to maintain and propagate dynamic VLAN registration information for the GVRP devices on the network. It thus ensures that all GVRP participants on a bridged LAN

maintain the same VLAN registration information. The VLAN registration information propagated by GVRP includes both manually configured local static entries and dynamic entries from other devices.

1.2 Configuring GVRP

1.2.1 Brief Introduction to GVRP Configuration

Table 1-1 GVRP configuration

Configuration		Remark	Detailed configuration
Configure GVRP	Startup GVRP	Required	1.2.2
	Configure VLAN under GVRP	required	1.2.3
Display and maintain GVRP		optional	1.2.4

1.2.2 Startup GVRP

Before enabling GVRP on a port, you must enable GVRP globally because it disables in default.

Notes: you need to configure the port trunk to enable GVRP.

Table 1-2 startup GVRP

Operation	Command	Remark
Enter global configuration mode	configure terminal	-
Enable GVRP in global configuration mode	gvrp	required
Enter port configuration mode	interface ethernet device/slot/port	-
Enable GVRP in port configuration mode	gvrp	required

1.2.3 Configuring VLAN Forwarded by GVRP

Obviously VLAN registration information forwarded by GVRP can be the local configuration static VLAN, or be learned by GVRP dynamic protocols. But when the administrator names, the permit VLANs can pass through the port to send GVRP packets.

Table 1-3 Configure VLAN forwarded by GVRP

Operation	Command	Remark
Enter global configuration mode	configure terminal	-
Configure VLAN forwarded by GVRP	garp permit vlan <i>vlan-list</i>	required

1.2.4 Displaying and Debugging

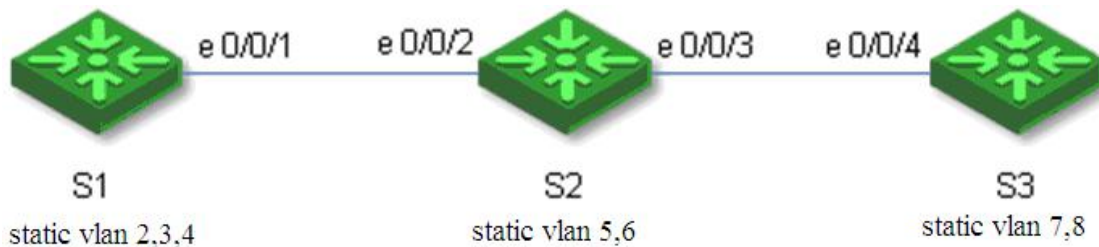
You can show the configuration through below commands when you finish all above configuration.

Table 1-4 displaying GVRP and debugging

Operation	Command	Remark
Show GVRP enable globally	show gvrp	Perform in any configuration mode
Show port enable maintained by GVRP	show gvrp interface [ethernet device/slot/port]	
Show GVRP permit VLAN	show garp permit vlan	

1.2.5 GVRP Configuration Examples

As below, S1 and S3 forward respective static VLAN information to S2 by GVRP protocol, S2 forwards to each other with local static and learning VLAN from GVRP. At the end, S1,S2,S3 can share the dynamic VLAN information .



Picture 1-1 network

Configuration procedure:

!Configure S1

!Preparation before configure

```
Switch(config)#vlan 2,3,4
Switch(config-if-vlan)#switchport ethernet 0/0/1
Add VLAN port successfully.
Switch(config-if-vlan)#interface e 0/0/1
Switch(config-if-ethernet-0/0/1)#switchport mode trunk
Switch(config-if-ethernet-0/0/1)#exit
```

!Configure GVRP

```
Switch(config)#gvrp
Turn on GVRP successfully.
Switch(config)#garp permit vlan 2,3,4
Switch(config)#interface e 0/0/1
Switch(config-if-ethernet-0/0/1)#gvrp
Switch(config-if-ethernet-0/0/1)#exit
```

!Verify GVRP configuration

```
Switch(config)#show gvrp
GVRP state : enable
Switch(config)#show gvrp interface ethernet 0/0/1
port      GVRP status
e0/0/1   enable
Total entries: 1.
Switch(config)#show garp permit vlan
VLAN 1 is Garp default permit VLAN
Other Garp permit VLAN : 2-4
```

!Configure S2

!Preparation before configure

```
Switch(config)#vlan 5,6
Switch(config-if-vlan)#switchport ethernet 0/0/2
Add VLAN port successfully.
Switch(config-if-vlan)#switchport ethernet 0/0/3
Add VLAN port successfully.
Switch(config-if-vlan)#exit
Switch(config)#interface range ethernet 0/0/2 to ethernet 0/0/3
Switch(config-if-range)# switchport mode trunk
Switch(config-if-range)#exit
```

!Configure GVRP

```
Switch(config)#gvrp
Turn on GVRP successfully
Switch(config)#interface range ethernet 0/0/2 to ethernet 0/0/3
Switch(config-if-range)#gvrp.
Switch(config)#garp permit vlan 5,6
```

!Verify GVRP configuration

```
Switch(config)#show gvrp
GVRP state : enable
Switch(config)#show gvrp interface ethernet 0/0/2 ethernet 0/0/3
port      GVRP status
e0/0/2   enable
e0/0/3   enable
```

Total entries: 2.

```
Switch(config)#show garp permit vlan
```

```
VLAN 1 is Garp default permit VLAN
```

```
Other Garp permit VLAN : 5-6
```

```
*****
```

!Configure S3

```
*****
```

!Preparation before configure

```
Switch(config)#vlan 7,8
```

```
Switch(config-if-vlan)#switchport ethernet 0/0/4
```

Add VLAN port successfully.

```
Switch(config-if-vlan)#interface e 0/0/4
```

```
Switch(config-if-ethernet-0/0/4)#switchport mode trunk
```

!Configure GVRP

```
Switch(config)#gvrp
```

Turn on GVRP successfully.

```
Switch(config)#interface e 0/0/4
```

```
Switch(config-if-ethernet-0/0/4)#gvrp
```

```
Switch(config)#garp permit vlan 7,8
```

!Verify GVRP configuration

```
Switch(config)#show gvrp
```

```
GVRP state : enable
```

```
Switch(config)#show gvrp interface ethernet 0/0/4
```

```
port      GVRP status
```

```
e0/0/4   enable
```

```
Total entries: 1.
```

```
Switch(config)#show garp permit vlan
```

```
VLAN 1 is Garp default permit VLAN
```

```
Other Garp permit VLAN : 7-8
```

```
*****
```

After finishing the configuration, you can show VLAN to check the VLAN register information learned by GVRP

!VLAN5,6,7,8 is learned by GVRP when showing S1 VLAN information

```
Switch(config)#show vlan
```

```
show VLAN information
```

```
VLAN ID          : 1
VLAN status       : static
VLAN member       : e0/0/1-e0/2/2
Static tagged ports : e0/0/1
Static untagged Ports : e0/0/2-e0/2/2
Dynamic tagged ports :
```

```
show VLAN information
```

```
VLAN ID          : 2
VLAN status       : static
VLAN member       : e0/0/1.
Static tagged ports : e0/0/1.
Static untagged Ports :
Dynamic tagged ports :
```

```
show VLAN information
```

```
VLAN ID          : 3
VLAN status       : static
VLAN member       : e0/0/1.
Static tagged ports : e0/0/1.
Static untagged Ports :
Dynamic tagged ports :
```

```
show VLAN information
```

```
VLAN ID          : 4
VLAN status       : static
VLAN member       : e0/0/1.
Static tagged ports : e0/0/1.
Static untagged Ports :
Dynamic tagged ports :
```

```
show VLAN information
```

```
VLAN ID          : 5
```


VLAN status : dynamic
VLAN member : e0/0/1
Static tagged ports :
Static untagged Ports :
Dynamic tagged ports : e0/0/1

show VLAN information

VLAN ID : 6
VLAN status : dynamic
VLAN member : e0/0/1
Static tagged ports :
Static untagged Ports :
Dynamic tagged ports : e0/0/1

show VLAN information

VLAN ID : 7
VLAN status : dynamic
VLAN member : e0/0/1
Static tagged ports :
Static untagged Ports :
Dynamic tagged ports : e0/0/1

show VLAN information

VLAN ID : 8
VLAN status : dynamic
VLAN member : e0/0/1
Static tagged ports :
Static untagged Ports :
Dynamic tagged ports : e0/0/1

Total entries: 8 vlan.