MACFF Configuration

Table of Contents

Chapter 1 MACFF Configuration

1.1 MACFF Configuration Tasks

MACFF is to isolate downlink ports of the same VLAN in a switch from exchanging inter-access packets, enabling these packets to be allocated to the default gateway of client through DHCP server and then to downlink ports.　By capturing the ARP packets between downlink ports, MACFF can prevent downlink ports from learn ARPs; MACFF replies the gateway's MAC address, enabling all inter-access packets among all downlink ports to pass through the gateway.

Note: MACFF needs the support of DHCPR-snooping, so before enabling MACFF you have to make sure that DHCPR-snooping works normally.　ICMP redirection on the gateway is disabled by default.　The VLAN management address must be configured for MACFF-enabled switch.

- Enabling or Disabling MACFF
- Enabling MACFF in VLAN
- Configuring the Default AR of MACFF in VLAN
- Configuring other ARs of MACFF in VLAN
- Specifying a Physical Port to Shut down MACFF

1.1.1 Enabling or Disabling MACFF

Run the following commands in global configuration mode.

Command	Purpose
macff enable	Enables MACFF.
no macff enable	Resumes the default settings.

This command is used to enable MACFF in global configuration mode. After this command is run, all ARP packets are listened by switch.

Note: You have to make sure that DHCP-Snooping is enabled before configuring this command.　If the client obtains the address of a switch before this command is run, the switch cannot add the corresponding binding relationship.

1.1.2 Enabling MACFF in VLAN

If MACFF is enabled in a VLAN, the ARP packets received from all DHCP-snooping untrusted physical port of all VLAN will be monitored. If the destination IP address is the IP address of any DHCP client, on which the physical port that receives the ARP packets is located, these ARP packets will be dropped; if these are ARP response packets, these packets will also be dropped. If other DHCP client, default gateway or other service address requests from the port, their corresponding mac address will replay ARP request.

Note: The VLAN on which MACFF is enabled must be configured to have a management address. DHCP snooping shall also be enabled on this VLAN.

Run the following commands in global configuration mode.

Command	Purpose
macff vlan *vlan_id* **enable**	Enables MACFF in a VLAN.
no macff vlan *vlan_id* **enable**	Disables MACFF in a VLAN.

1.1.3 Configuring the Default AR of MACFF in VLAN

When you set the address on client manually (or DHCP server does not configure the default route option3, it is not recommended to use DHCP server in this way), the switch shall automatically enables default AR as the MACFF-specified default gateway. There is only one default AR.

Run the following commands in global configuration mode.

Command	Purpose
macff vlan *vlan_id* **default-ar** *A.B.C.D*	Sets the default AR of MACFF in VLAN.
no macff vlan *vlan_id* **default-ar** *A.B.C.D*	Deletes the default AR of MACFF in VLAN.

Note: Before configuring this command, you can run ip source binding xx-xx-xx-xx-xx-xx A.B.C.D interface name to add the client binding table on the switch. If you do not do this, MACFF will regard the manually configured client as illegal client and MACFF will not serve this client.

1.1.4 Configuring other ARs of MACFF in VLAN

After other ARs of MACFF are configured, MACFF allows DHCP client to access these ARs directly without forwarding packets via the default gateway allocated by DHCP server.

This function can be applied on some servers in the network segment of client or on other service addresses.

Run the following commands in global configuration mode.

Command	Purpose
macff vlan *vlan_id* **other_ar** *A.B.C.D*	Configures other ARs of MACFF in VLAN.
no macff vlan *vlan_id* **other_ar** *A.B.C.D*	Deletes other ARs of MACFF in VLAN.

1.1.5 Specifying a Physical Port to Shut down MACFF

If you specify a physical port to close MACFF, packets on this port will not be isolated and ARP packets will not be monitored.

Run the following commands in physical interface configuration mode.

Command	Operation
macff disable	Specifies a physical port to shut down MACFF.
no macff disable	Specifies a physical port to enable MACFF (it is enabled by default).

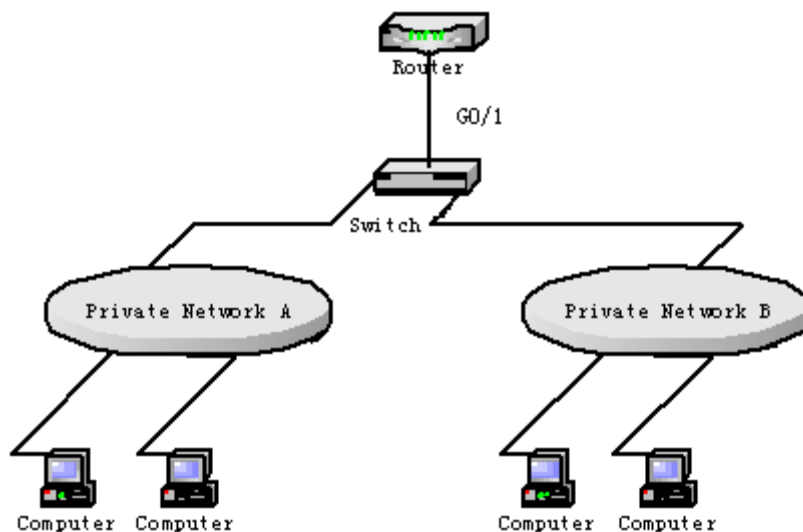In default settings, the ports are allowed to enable MACFF.

1.1.6 Enabling MACFF Debugging

Run the following commands in global configuration mode.

Command	Operation
debug macff	Enabling MACFF Debugging
no debug macff	Disabling MACFF Debugging

1.1.7 MACFF Configuration Example

The network topology is shown in figure 1.

(1) Enable MACFF in VLAN1, which connects private network A. The default gateway allocated by DHCP server is 192.168.2.1.

Switch_config#arp 192.168.2.1 00:e0:0f:17:92:ed vlan 1
Switch_config#ip dhcp-relay snooping
Switch_config#ip dhcp-relay snooping vlan 1
Switch_config#macff enable
Switch_config#macff vlan 1 enable

(2) Enable MACFF in VLAN2, which connects private network B. The default gateway allocated by DHCP server is 192.168.2.2 (If necessary, the default gateway can also be 192.168.2.1).

Switch_config#arp 192.168.2.2 00:e0:0f:ea:74:ee vlan 2

Switch_config#ip dhcp-relay snooping vlan 2

Switch_config#macff vlan 2 enable

(3)   Sets the ports that connect DHCP server, default gateway and other ARs respectively to be trusted.

Switch_config_g0/1#dhcp snooping trust

(4)   If the downlink host A of VLAN 1 is manually configured IP and default gateway, the IP address is 192.168.2.102 and the MAC address is 6c-62-6d-59-18-b7. The default gateway, 192.168.2.1, enables MACFF to take effect.   (If the client is not configured manually, this step will not be performed)

Switch_config#arp 192.168.2.1 00:e0:0f:17:92:ed vlan 1

Switch_config#ip source binding 6c:62:6d:59:18:b7 192.168.2.102 interface GigaEthernet0/1

Switch_config#macff vlan 1 default-ar 192.168.2.1

(5)   Specify a physical port in MACFF-enabled VLAN to shut down MACFF.

Switch_config_g0/1#macff disable

(6)   Configures other ARs that are in the same network segment of client. MACFF allows the client to perform direct access without the help of gateway.   (The ports where other APs are should be set to trusted ports)

Switch_config_g0/1#macff disable