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Chapter 1 IRF Configuration

1.1 RMON on IRF

1.1.1 Introduction to RMON on IRF

Interconnected switches form a fabric if they all support the IRF function and are all of the same type. The RMON configurations of the devices in a fabric are the same.

The RMON configuration performed on a device of a fabric will be automatically synchronized to all devices in the fabric if the configuration does not conflict with those of other devices in the fabric.

If you configure the same entry in the same ROM group for devices of a fabric to be different values, the entry values of all the conflicting devices will adopt that of the conflicting device with the smallest Unit ID when you synchronize the devices. Such a mechanism eliminates configuration conflicts between the devices in a fabric.

After the device configurations converge, you can collect RMON history and statistics data of any units from any switch in the fabric.

1.1.2 Configuration Commands for RMON on IRF

After the configurations of the switches in a fabric converge, you can use the following commands to collect RMON data of the devices in the fabric.

Table 1-1 Configuration commands on RMON on IRF

Operation	Command	Description
Collect the RMON statistics data of a specified unit	display rmon statistics <i>unit unit-id</i>	You can execute the display command in any view.
Collect the RMON history data of a specified units	display rmon history unit <i>unit-id</i>	

1.2 HGMP on IRF

Through neighbor topology discovery protocol (NTDP), HGMP V2 can collect the information about the connection relations of the devices in a network and candidate devices, consequently maintaining and managing the cluster topology.

With HGMP V2 employed, the NTDP topology information collecting function is enabled by default on the management device of the cluster. And the timer is set to 1

minute. A management device can also perceive in time any changes of the cluster topology caused by new devices being added to the cluster and determine the candidate switches among the detected devices. By sending joining-request packets to candidate switches, the management device also enables these devices to be plug-and-play.

1.3 Peer Fabric Port Detection

1.3.1 Introduction to the Peer Fabric Port Detection Function

As the basis of the IRF function, the fabric topology management (FTM) module manages and maintains the entire topology of a fabric. The FTM module also implements the peer fabric port detection function.

A device can join a fabric only when the following conditions are met.

- The number of the existing devices in the fabric does not reach the maximum number of devices allowed by the fabric.
- The fabric names of the device and the existing devices in the Fabric are the same.
- The software and hardware versions of the device are the same as that of the existing devices in the fabric.
- The device passes the security authentication if security authentication is enabled in the fabric.

1.3.2 Work Flow of the Peer Fabric Port Detection Function

After a switch is powered on, the FTM module releases device information of the switch through the fabric ports. The device information includes UNIT ID, CPU MAC, device type ID, fabric port information, and all fabric configuration information. The device information is released in the form of discovery packet (DISC). A new device can join a fabric only when its DISC packets pass the authentication performed by the existing devices in the fabric.

- If a fabric port of a switch is connected to a non-fabric port, the switch will not receive DISC packets from the peer. In this case, the switch cannot join the fabric.
- If the switch can receive DISC packets sent by the peer, the FTM module determines whether peer sending ports correspond to local receiving ports according to information in the packet. That is, if a DISC packet received by the left port of the switch is sent by the right port of the peer device, the packet is regarded legal. Otherwise, the packet is regarded illegal and is discarded.
- If the maximum number of devices allowed by the fabric is reached, the devices in the fabric do not send DISC packets and discard the received DISC packets. This prevents new devices from joining the fabric.
- After receiving a DISC packet from a directly connected device, a device in a fabric checks whether the device information (that is, the Fabric name, software version,

and hardware version) contained in the packet and those of its own are the same. If not, the received DISC packet is illegal and will be discarded.

- If authentication is enabled in the fabric, the current device in the fabric authenticates received packets sent by new directly connected devices. Packets that fail to pass the authentication will be discarded.

1.3.3 Prompt Information and Solution

I. normal

If the port displays “normal”, it indicates the fabric operates properly.

II. temporary

If the port displays “temporary”, it indicates the port status is changing.

III. redundance port

If the port displays “redundance port”, it indicates the port is the redundant port in fabric ring topology.

Note:

The “normal”, “temporary” and “redundance port” information do not mean a device or a fabric operates improperly. No measure is needed for any of these three types of information.

IV. connection error

Analysis: The port matching errors (as listed in [Table 1-2](#)) may occur if a switch prompts the “connection error” message.

Solution: Take the measures listed in [Table 1-2](#) accordingly.

Table 1-2 Connection error type and solution

Error type	Solution
Two fabric ports of the same device (that is, the right port and the left port) are connected.	Pull out one end of the cable and connect it to a fabric port of another switch.
The left and right fabric ports of two devices are not connected in a crossed way.	Connect the left and right ports of two devices in a crossed way.
A fabric port of the local switch is connected to a non-fabric port.	Check the types of the two interconnected ports on two sides and make sure a fabric port is only connected to ports of the same type.

V. reached max units

Analysis: The “reached max units” message indicates that the maximum number of units allowed by the current fabric is reached. You will fail to add new devices to the fabric in this case.

Solution: Remove the new device or existing devices in the fabric.

Note:

Up to eight devices can be in an IRF fabric at a time.

VI. different system name

Analysis: The “different system name” message indicates the fabric name of the device directly connected to the switch and the existing fabric name of the fabric are not the same. Only the devices with the same fabric name can form a Fabric.

Solution: Configure the fabric name of the new device to be that of the fabric.

VII. different product version

Analysis: The “different product version” message indicates the software/hardware version of the directly connected device and that of the current device are not the same. A device can join a fabric only when its software version and hardware version are identical to that of the fabric.

Solution: Make sure the software version and hardware version of the new device are the same as that of the fabric.

VIII. auth failure

Analysis: The “auth failure” message indicates error occurs when the switch authenticates a directly connected device. The error may occur if the IRF fabric authentication modes configured for the both devices are not the same, or the password configured does not match.

Solution: Make sure the IRF fabric authentication modes and the passwords configured for the both devices are the same.

1.4 Cascade Port Configuration

1.4.1 Introduction to cascade port

The cascade ports on an S5600 series switch are use to form a fabric. You can enable the IRF function on a switch by interconnecting the cascade ports of the units in a fabric using fabric cables and performing related configuration on these ports.

1.4.2 Enabling a cascade port

Table 1-3 Enable a cascade port

Operation	Command	Description
Enter system view	system-view	—
Enable a cascade port	fabric-port Cascade <i>unit-id</i> <i>module-number</i> <i>interface-number</i> enable	Required

To disable the cascade ports, use the related **undo** command.

Chapter 2 IRF Configuration Commands

2.1 Configuration Commands for RMON on IRF

2.1.1 display rmon history unit

Syntax

display rmon history unit *unit-id*

View

Any view

Parameter

unit-id: Unit ID of an unit in a fabric.

Description

Use the **display rmon history unit** command to collect RMON history data of a specified fabric unit.

Related command: **rmon history**.

Example

```
# Display RMON history data of unit 3.  
<Quidway> display rmon history unit 3
```

2.1.2 display rmon statistics unit

Syntax

display rmon statistics unit *unit-id*

View

Any view

Parameter

unit-id: Unit ID of an unit in a fabric.

Description

Use the **display rmon statistics unit** command to collect RMON statistics data of a specified fabric unit.

Related command: **rmon statistics**.

Example

```
# Display RMON statistics data of unit 2.  
<Quidway> display rmon statistics unit 2
```

2.2 Configuration Commands for the FTM Module

2.2.1 display ftm

Syntax

```
display ftm { information / topology-database }
```

View

Any view

Parameter

information: Displays FTM protocol information.

topology-database: Displays the information about the fabric topology information database.

Description

Use the **display ftm information** command to display the information about FTM protocol, including DDP status, unit ID, Fabric link status, Fabric port status and DDP packet statistics.

Use the **display ftm topology-database** command to display the information about the fabric topology information database.

Example

```
# Display FTM protocol information about the switch.  
<Quidway> display ftm information  
DDP Protocol   : disabled  
Fabric VLAN   : NONE  
Fabric Auth    : NONE
```

2.3 Commands for Cascade Port Configuration

2.3.1 fabric port enable

Syntax

```
fabric-port Cascade unit-id module-number interface-number enable  
undo fabric-port Cascade unit-id module-number interface
```


View

System view

Parameter

port-type: Type of the port to be configured to be a fabric port. Currently, this argument can only be GigabitEthernet.

port-number: Port number of the port to be configured to be a fabric port.

Description

Use the **fabric-port Cascade enable** command to configure a port to be a fabric port.

Use the **undo fabric-port enable** command to configure a port to be a non-fabric port.

A fabric unit quits the fabric if none of its ports are fabric ports.

Example

Configure GigabitEthernet1/1/3 port to be a fabric port.

```
<Quidway> system-view
```

System View: return to User View with Ctrl+Z.

```
[Quidway] fabric port GigabitEthernet1/1/3 enable
```