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# Introduction

This document introduces MLD snooping configuration examples.

## Prerequisites

This document is not restricted to specific software or hardware versions.

The configuration examples in this document were created and verified in a lab environment, and all the devices were started with the factory default configuration. When you are working on a live network, make sure you understand the potential impact of every command on your network.

This document assumes that you have basic knowledge of MLD snooping.

## Example: Configuring IPv6 multicast group policies

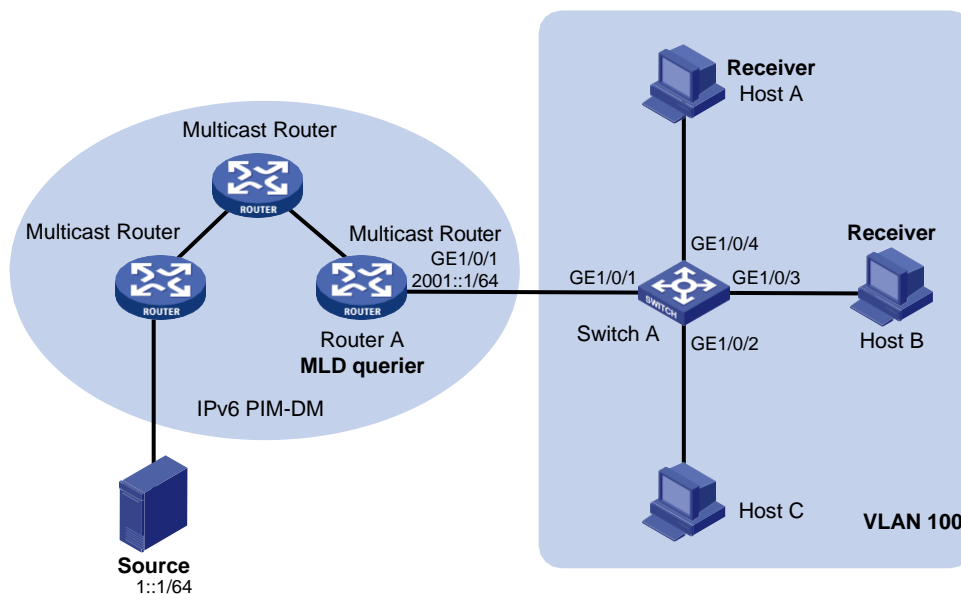
### Network configuration

As shown in [Figure 1](#):

- Router A runs MLDv1 and acts as the MLD querier in VLAN 100.
- Switch A runs MLDv1 snooping.

Configure IPv6 multicast group policies on Switch A so that Host A and Host B receive only the IPv6 multicast data addressed to IPv6 multicast group FF1E::101. □

**Figure 1 Network diagram**



# Analysis

To meet the network requirements, you must perform the following tasks:

- To prevent Switch A from flooding MLDv1 packets in VLAN 100, specify MLD snooping version 2 in VLAN 100. By default, MLDv1 snooping runs on the device. MLDv1 snooping processes only MLDv1 packets and floods MLDv2 packets in a VLAN.
- To prevent receiver hosts in VLAN 100 from receiving IPv6 multicast data addressed to other groups, enable dropping unknown IPv6 multicast data in VLAN 100.
- To configure an IPv6 multicast group policy, specify an IPv6 basic ACL and create ACL rules to define the groups you want the receiver hosts to join.

## Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
SC 3570 switch series	Release 11xx
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 5520 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Release 11xx
SC 3130 switch series	Release 63xx

## Restrictions and guidelines

When you configure IPv6 multicast group policies, follow these restrictions and guidelines:

- You must globally enable MLD snooping in system view before you enable MLD snooping for a VLAN in VLAN view.
- IPv6 multicast group filtering denies all groups if the specified ACL does not exist or the ACL does not have any rules.

## Procedures

1. Assign an IPv6 address and prefix length to each interface on the routers in the IPv6 PIM-DM domain. (Details not shown.)
2. Configure an IPv6 unicast routing protocol on the routers in the IPv6 PIM-DM domain. (Details not shown.)
3. Enable IPv6 multicast routing globally on the routers in the IPv6 PIM-DM domain. (Details not shown.)
4. Enable IPv6 PIM-DM for the interfaces through which routers connects with each other on the routers in the IPv6 PIM-DM domain. (Details not shown.)
5. Configure Switch A:

# Enable MLD snooping globally.

```
<SwitchA> system-view
```

```
[SwitchA] mld-snooping
```

```
[SwitchA-mld-snooping] quit
```

**# Create VLAN 100, and assign GigabitEthernet 1/0/1 through GigabitEthernet 1/0/4 to this VLAN.**

```
[SwitchA] vlan 100
```

```
[SwitchA-vlan100] port gigabitethernet 1/0/1 to gigabitethernet 1/0/4
```

**# In VLAN 100, enable MLD snooping, specify MLD snooping version 2, and dropping unknown IPv6 multicast data for VLAN 100.**

```
[SwitchA-vlan100] mld-snooping enable
```

```
[SwitchA-vlan100] mld-snooping version 2
```

```
[SwitchA-vlan100] mld-snooping drop-unknown
```

```
[SwitchA-vlan100] quit
```

**# Configure an IPv6 multicast group policy for VLAN 100 so that receiver hosts in this VLAN can join only IPv6 multicast group FF1E::101.**

```
[SwitchA] acl ipv6 basic 2001
```

```
[SwitchA-acl-ipv6-basic-2001] rule permit source ff1e::101 128
```

```
[SwitchA-acl-ipv6-basic-2001] quit
```

```
[SwitchA] mld-snooping
```

```
[SwitchA-mld-snooping] group-policy 2001 vlan 100
```

```
[SwitchA-mld-snooping] quit
```

# Verifying the configuration

# Send MLD reports from Host A and Host B to join IPv6 multicast groups FF1E::101 and FF1E::202. (Details not shown.)

# Send IPv6 multicast data from the source to IPv6 multicast groups FF1E::101 and FF1E::202. (Details not shown.)

# Display dynamic MLD snooping group entries for VLAN 100 on Switch A.

```
[SwitchA] display mld-snooping group vlan 100
Total 1 entries.
```

```
VLAN 100: Total 1 entries.
```

```
(::, FF1E::101)
```

```
Host ports (2 in total):
```

```
GE1/0/3 (00:03:23)
```

```
GE1/0/4 (00:04:10)
```

The output shows that Host A and Host B have joined IPv6 multicast group FF1E::101 through member ports GigabitEthernet 1/0/4 and GigabitEthernet 1/0/3. Host A and Host B do not join IPv6 multicast group FF1E::202. The IPv6 multicast group policy has taken effect.

## Configuration files



### IMPORTANT:

Support for the **port link-mode bridge** command depends on the device model.

Switch A:

```
#
acl ipv6 number 2001
 rule 0 permit source FF1E::101/128
#
mld-snooping
 group-policy 2001 vlan 100
#
vlan 100
 mld-snooping enable
 mld-snooping version 2
 mld-snooping drop-unknown
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port access vlan 100
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 100
#
interface GigabitEthernet1/0/3
 port link-mode bridge
```

```

port access vlan 100
#
interface GigabitEthernet1/0/4
port link-mode bridge
port access vlan 100
#

```

# Example: Configuring MLD snooping static ports

## Network configuration

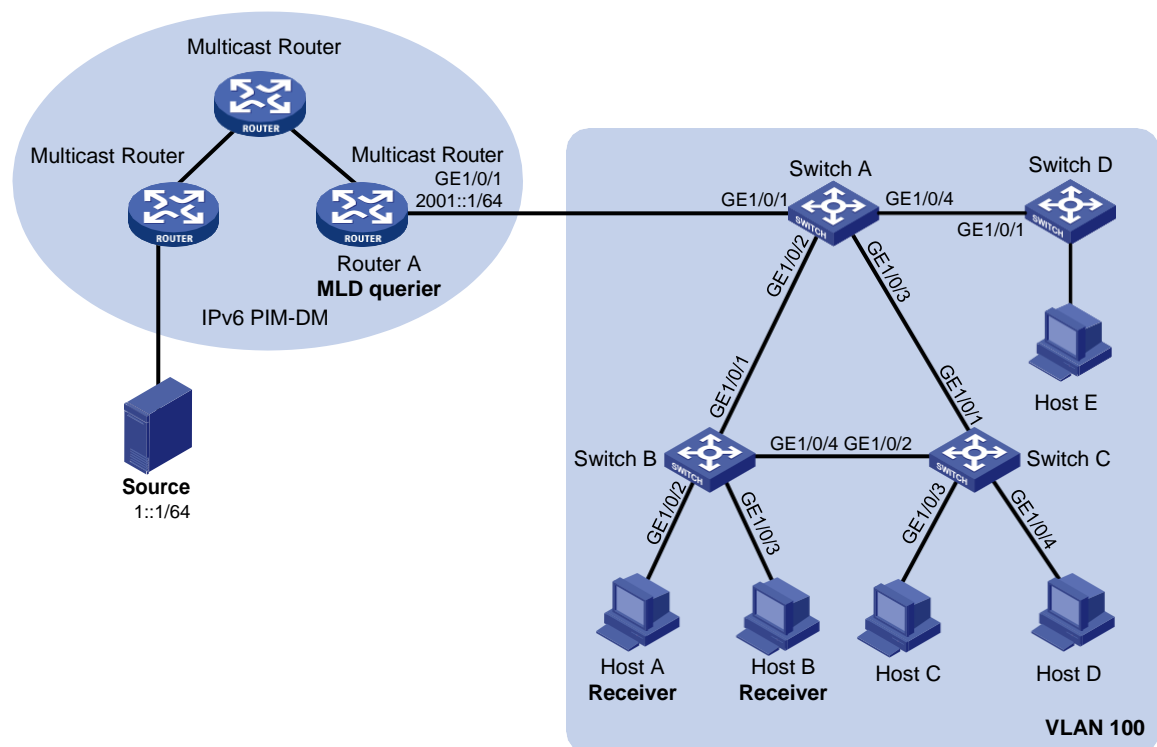
As shown in [Figure 2](#):

- All switches in VLAN 100 run MLD snooping.
- Router A runs MLDv1 and acts as the MLD querier.
- STP runs in VLAN 100. The direct route between Switch A and Switch B or the route from Switch A to Switch B with Switch C as the intermediate device is blocked to avoid loops.

Configure MLD snooping static ports to meet the following requirements:

- IPv6 multicast data uninterruptedly flows to Host A and Host B after a link switchover occurs between Switch A and Switch B.
- Host A and Host B permanently receive the IPv6 multicast data addressed to IPv6 multicast group FF1E::101.

**Figure 2 Network diagram**



# Analysis

To meet the network requirements, you must perform the following tasks:

- By default, when a link switchover occurs, multicast data can flow along the new link after a minimum of one MLD query-response cycle. Multicast delivery is interrupted during this process.  
Configure GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 on Switch A, GigabitEthernet 1/0/4 on Switch B, and GigabitEthernet 1/0/2 on Switch C as static router ports. Then, IPv6 multicast data will always be forwarded to these ports, and multicast delivery is uninterrupted.
- Configure GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 on Switch B as static member ports of IPv6 multicast group FF1E::101. Then, IPv6 multicast data for the group will always be forwarded out of these ports, and Host A and Host B can always receiver the data.

## Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
SC 3570 switch series	Release 11xx
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 5520 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Release 11xx
SC 3130 switch series	Release 63xx

## Restrictions and guidelines

You must globally enable MLD snooping in system view before you enable MLD snooping for a VLAN in VLAN view.

## Procedures

- Assign an IPv6 address and prefix length to each interface on the routers in the IPv6 PIM-DM domain. (Details not shown.)
- Configure an IPv6 unicast routing protocol on the routers in the IPv6 PIM-DM domain. (Details not shown.)
- Enable IPv6 multicast routing globally on the routers in the IPv6 PIM-DM domain. (Details not shown.)
- Enable IPv6 PIM-DM for the interfaces through which routers connects with each other on the routers in the IPv6 PIM-DM domain. (Details not shown.)
- Configure Switch A:

# Enable MLD snooping globally.

```
<SwitchA> system-view
```

```
[SwitchA] mld-snooping
```

```
[SwitchA-mld-snooping] quit
```

# Create VLAN 100, assign GigabitEthernet 1/0/1 through GigabitEthernet 1/0/4 to this VLAN,

and enable MLD snooping for this VLAN.

```
[SwitchA] vlan 100
[SwitchA-vlan100] port gigabitethernet 1/0/1 to gigabitethernet 1/0/4
[SwitchA-vlan100] mld-snooping enable
[SwitchA-vlan100] quit
```

**# Configure GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 as static router ports.**

```
[SwitchA] interface gigabitethernet 1/0/2
[SwitchA-GigabitEthernet1/0/2] mld-snooping static-router-port vlan 100
[SwitchA-GigabitEthernet1/0/2] quit
[SwitchA] interface gigabitethernet 1/0/3
[SwitchA-GigabitEthernet1/0/3] mld-snooping static-router-port vlan 100
[SwitchA-GigabitEthernet1/0/3] quit
```

## **6. Configure Switch B:**

**# Enable MLD snooping globally.**

```
<SwitchB> system-view
[SwitchB] mld-snooping
[SwitchB-mld-snooping] quit
```



**# Create VLAN 100, assign GigabitEthernet 1/0/1 and GigabitEthernet 1/0/4 to this VLAN, and enable MLD snooping for this VLAN.**

```
[SwitchB] vlan 100
[SwitchB-vlan100] port gigabitethernet 1/0/1 gigabitethernet 1/0/4
[SwitchB-vlan100] mld-snooping enable
[SwitchB-vlan100] quit
```

**# Configure GigabitEthernet 1/0/4 as a static router port.**

```
[SwitchB] interface gigabitethernet 1/0/4
[SwitchB-GigabitEthernet1/0/4] mld-snooping static-router-port vlan 100
[SwitchB-GigabitEthernet1/0/4] quit
```

**# Configure GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 as static member ports for IPv6 multicast group FF1E::101 in VLAN 100.**

```
[SwitchB] interface gigabitethernet 1/0/2
[SwitchB-GigabitEthernet1/0/2] mld-snooping static-group ff1e::101 vlan 100
[SwitchB-GigabitEthernet1/0/2] quit
[SwitchB] interface gigabitethernet 1/0/3
[SwitchB-GigabitEthernet1/0/3] mld-snooping static-group ff1e::101 vlan 100
[SwitchB-GigabitEthernet1/0/3] quit
```

## 7. Configure Switch C:

**# Enable MLD snooping globally.**

```
<SwitchC> system-view
[SwitchC] mld-snooping
[SwitchC-mld-snooping] quit
```

**# Create VLAN 100, assign GigabitEthernet 1/0/1 through GigabitEthernet 1/0/4 to this VLAN, and enable MLD snooping for this VLAN.**

```
[SwitchC] vlan 100
[SwitchC-vlan100] port gigabitethernet 1/0/1 to gigabitethernet 1/0/4
[SwitchC-vlan100] mld-snooping enable
[SwitchC-vlan100] quit
```

**# Configure GigabitEthernet1/0/2 as a static router port in VLAN 100.**

```
[SwitchC] interface gigabitethernet 1/0/2
[SwitchC-GigabitEthernet1/0/2] mld-snooping static-router-port vlan 100
[SwitchC-GigabitEthernet1/0/2] quit
```

# Verifying the configuration

Verify the configuration before hosts join any multicast groups.

**# Display static router port information for VLAN 100 on Switch A.**

```
[SwitchA] display mld-snooping static-router-port vlan 100
VLAN 100:
  Router ports (2 in total):
    GE1/0/2
    GE1/0/3
```

The output shows that GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 on Switch A have become static router ports in VLAN 100.

**# Display static router port information for VLAN 100 on Switch B.**

```
[SwitchB] display mld-snooping static-router-port vlan 100
```

VLAN 100:

```
Router ports (1 in total):
GE1/0/4
```

The output shows that GigabitEthernet 1/0/4 on Switch B has become a static router port in VLAN 100.

# Display static MLD snooping group entries for VLAN 100 on Switch B.

```
[SwitchB] display mld-snooping static-group vlan 100
Total 1 entries.
```

VLAN 100: Total 1 entries.

```
(::, FF1E::101)
Host ports (2 in total):
GE1/0/2
GE1/0/3
```

The output shows that GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 on Switch B have become static member ports of IPv6 multicast group FF1E::101 in VLAN 100.

# Display static router port information for VLAN 100 on Switch C.

```
[SwitchC] display mld-snooping static-router-port vlan 100
VLAN 100:
Router ports (1 in total):
GE1/0/2
```

The output shows that GigabitEthernet 1/0/2 on Switch C has become a static router port in VLAN 100.

## Configuration files



### IMPORTANT:

Support for the **port link-mode bridge** command depends on the device model.

- Switch A:

```
#
mld-snooping
#
vlan 100
mld-snooping enable
#
interface GigabitEthernet1/0/1
port link-mode bridge
port access vlan 100
#
interface GigabitEthernet1/0/2
port link-mode bridge
port access vlan 100
mld-snooping static-router-port vlan 100
#
interface GigabitEthernet1/0/3
port link-mode bridge
```

```

port access vlan 100
mld-snooping static-router-port vlan 100
#
interface GigabitEthernet1/0/4
port link-mode bridge
port access vlan 100
#

```

- **Switch B:**

```

#
mld-snooping
#
vlan 100
mld-snooping enable
#
interface GigabitEthernet1/0/1
port link-mode bridge
port access vlan 100
#
interface GigabitEthernet1/0/2
port link-mode bridge
port access vlan 100
mld-snooping static-group FF1E::101 vlan 100
#
interface GigabitEthernet1/0/3
port link-mode bridge
port access vlan 100
mld-snooping static-group FF1E::101 vlan 100
#
interface GigabitEthernet1/0/4
port link-mode bridge
port access vlan 100
mld-snooping static-router-port vlan 100
#

```

- **Switch C:**

```

#
mld-snooping
#
vlan 100
mld-snooping enable
#
interface GigabitEthernet1/0/1
port link-mode bridge
port access vlan 100
#
interface GigabitEthernet1/0/2
port link-mode bridge
port access vlan 100
mld-snooping static-router-port vlan 100

```

```
#
interface GigabitEthernet1/0/3
  port link-mode bridge
  port access vlan 100
#
interface GigabitEthernet1/0/4
  port link-mode bridge
  port access vlan 100
#
```